PUBLIC UTILITY DISTRICT
ASOTIN COUNTY

CONTRACT DOCUMENTS

FOR

2027 SEWER MAIN REPLACEMENT PROJECT

FOR

ASOTIN COUNTY PUBLIC UTILITY DISTRICT

ASOTIN COUNTY, WASHINGTON

November 2026

consor

BIDDING DOCUMENTS

BIDDING REQUIREMENTS AND CONTRACT DOCUMENTS
FOR THE CONSTRUCTION OF
2027 SEWER MAIN REPLACEMENT PROJECT
FOR THE
ASOTIN COUNTY PUBLIC UTILITY DISTRICT

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SECTION 00050 - INVITATION TO BID
FOR
2027 SEWER MAIN REPLACEMENT PROJECT
FOR
ASOTIN COUNTY PUBLIC UTILITY DISTRICT

General Notice
Sealed proposals for the **2027 SEWER MAIN REPLACEMENT PROJECT** for the Asotin County Public Utility District will be received by Craig Riehle, Director of Operations at 1500 Scenic Way, Clarkston, Washington until the **BID CLOSING at 2:00 PM, local time, on the 24th of November 2026,** at which time the bids will be publicly opened and read. No bids will be received after the BID CLOSING time. First-Tier SUBCONTRACTOR Disclosure forms will be received at the above-mentioned location and date, until 1 hour after bid closing.

A summary of the contract work includes the following:
The work consists of three schedules for replacing/upsizing approximately 1,300 lineal feet of 6-inch gravity sewer with 8-inch gravity main through pipe bursting and/or open cut methods and lining approximately 1,660 lineal feet of 8-and 10- inch gravity sewer using Cured-In-Place Pipe (CIPP) methods. OWNER anticipates that the Project's total bid price will be approximately $1,400,000.

Contract Times:
The work will be substantially complete on or before October 31, 2027 or within 90 working days from the time work commences, whichever comes first.

Obtaining the Contract Documents
Information and Contract Documents for the Project can be found at the following designated website: https://asotinpud.org/resources/

A file sharing link for viewing the sewer main CCTV may be requested by emailing Brian Grimm, WWTP Project Coordinator via email at: bgrimm@asotinpud.org

All project communication will be posted at the above-mentioned designated website and sent to only those firms listed on the Plan Holders List. Project questions and requests to be placed on the Plan Holders List should be directed to Craig Riehle, Director of Operations via email at: criehle@asotinpud.org

Prospective BIDDERS are urged to register with Craig Riehle via email at criehle@asotinpud.org even if Contract Documents are obtained from a plan room or source other than the designated website in either electronic or paper format. The designated website will be updated periodically with addenda, lists of registered plan holders, reports, and other information relevant to submitting a Bid for the Project. All official notifications, addenda, and other Contract Documents will be offered only through the designated website. Neither OWNER nor ENGINEER will be responsible for Contract Documents, including addenda, if any, obtained from sources other than the designated website.

Pre-Bid Meeting

A **PRE-BID MEETING** for this project will be held at the Asotin County Public Utility District Office at 1500 Scenic Way, Clarkston, Washington on the 10th of November 2026 at 10 AM local time to provide prospective BIDDERS with the opportunity to ask questions relating to bidding or constructing the work under this contract. BIDDERS will be given the option to attend the pre-bid meeting virtually. Prospective BIDDERS who plan to attend the pre-bid meeting virtually shall notify Craig Riehle via email at criehle@asotinpud.org by the 9th of November 2026. If deemed appropriate by the OWNER, questions that cannot be addressed by direct reference to the bidding documents will be the subject of an addendum issued to all plan holders.

All prospective BIDDERS are encouraged to attend but attendance is not mandatory.

Instruction to BIDDERS
For all further requirements regarding bid submittal, qualifications, procedures, and contract award refer to the Instruction to BIDDERS that are included in the Contract Documents.

It is the intent of the OWNER to award a contract to the low responsible BIDDER. In determining the BIDDER'S responsibility, the OWNER shall consider an overall accounting of the items listed below. ***Also note experience requirements for Pipe Bursting and CIPP contractors detailed in Standard Specification Sections 230 and 231, respectively.***

1. Previous Experience

	Category	Required Information / Criteria
❒	List of Completed Projects	On a separate sheet, list at least three projects your firm has completed in the past five (5) years that combined have contained at least $1,000,000 worth of gravity sewer main replacement. Provide the name, e-mail address & telephone of project OWNER or project ENGINEER, contract amount and date of completion. This information will be used for references. On average, such references shall be satisfactory or better on a five category scale with "satisfactory" at mid scale.
❒	Experience of Superintendent, Quality Control Manager and Project Manager	Submit resume of the persons proposed by the BIDDER to manage & superintend the work. If not the manager/superintendent of the projects listed in response to the criteria above, list other projects of similar complexity and similar size successfully completed within the last five (5) years, as for response above. Projects need not have been with your firm.

2. References

	Category	Required Information / Criteria
❒	Public Agency Debarment	BIDDER shall not have been debarred by any Public agency within the last two (2) years.

3. Construction Experience

Category	Required Information / Criteria
❒Overall Size and Capacity of the Business	On a separate sheet, provide a brief description of firm's overall capacity to perform utility construction projects, including typical project size, staffing levels, and available equipment.
❒Previous Contracting Experience	On a separate sheet, list years of experience with projects like the proposed project as a general contractor, and as a joint venturer. Has BIDDER been disqualified as a bidder by any local, state, or federal agency within the last 5 years? Has BIDDER been released from a bid in the past 5 years? Has BIDDER defaulted on a project or failed to complete any contract awarded to it? Has BIDDER refused to construct or refused to provide materials defined in the contract documents or in a change order? Has BIDDER been a party to any currently pending litigation or arbitration? Provide full details in a separate attachment if the response to any of these questions is Yes
❒Current Projects	List all current projects currently under contract. Provide owner, general description of the project, project cost, project manager, and project superintendent.
❒Previous Experience with Similar Projects	List three to six projects completed in the last 5 years to demonstrate BIDDER's experience with projects similar in type and construction. Provide owner, general description of the project, project cost, project manager, and project superintendent.
❒Previous Experience with Asotin County PUD	Any BIDDER who has refused to repair substandard work and materials in past projects, as defined in the PUD standards and specifications, shall not be qualified.
❒Key individuals	List name and contact information of BIDDER's proposed Project Manager and Project Superintendent.

The apparent low BIDDER shall provide the above required information within 48 hours of Bid Opening. Failure to submit such information to the satisfaction of the OWNER within the time provided shall render the bid non-responsive.

If the OWNER determines that the apparent low BIDDER is not responsible, the OWNER will notify the BIDDER of its preliminary determination in writing. Within three (3) days after receipt of the preliminary determination, the BIDDER may withdraw its bid or may request a hearing. The OWNER will schedule a hearing within three (3) working days of receipt of the BIDDERS request. The OWNER will issue a Final Determination after reviewing information presented at the hearing. The OWNER'S Final Determination is specific to this project, and will have no effect on other or future projects.

Proposals must be submitted on the prescribed forms and must be accompanied by certified check, cashier's check, or bid bond executed in favor of OWNER in an amount not less than 5 percent of the amount bid. The successful BIDDER will be required to furnish to the OWNER a performance bond and a payment bond each equal to one hundred percent (100%) of the amount of the bid.

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

Dated this 30th day of October, 2026
By: Craig Riehle, Director of Operations, Asotin County Public Utility District

SECTION 00100 - INSTRUCTIONS TO BIDDERS
FOR
2027 SEWER MAIN REPLACEMENT PROJECT
FOR
ASOTIN COUNTY PUBLIC UTILITY DISTRICT

1. Defined Terms

1.1. 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.

B. First-Tier Subcontractor - an individual, firm or corporation having a direct contract with the CONTRACTOR for furnishing labor or furnishing labor and materials in connection with the performance of a part of the work.

2. Bidding Documents

2.1. BIDDER shall obtain a complete set of the Bidding Documents. See the Agreement for a list of the Bidding Documents. It is BIDDER'S responsibility to determine that it is using a complete set of documents in the preparation of a Bid. BIDDER assumes sole responsibility for errors or misinterpretations resulting from the use of incomplete documents, by BIDDER itself or by its prospective Subcontractors and Suppliers.

A. The Asotin County PUD Standard Specifications and Drawings are currently under review by the Washington State Department of Ecology and is anticipated to be approved prior to the award of Contract. Any changes made (if any) to the Standard Specifications and Drawings will be noted to Bidders via Addenda.

2.2. Bidding Documents are made available for the sole purpose of obtaining Bids for completion of the Project and permission to download or distribution of the Bidding Documents does not confer a license or grant permission or authorization for any other use. Authorization to download documents, or other distribution, includes the right for plan holders to print documents solely for their use, and the use of their prospective Subcontractors and Suppliers, provided the plan holder pays all costs associated with printing or reproduction. Printed documents may not be re-sold under any circumstances.

2.3. OWNER has established a Bidding Documents Website as indicated in the Advertisement or invitation to bid. OWNER recommends that BIDDER register as a plan holder with the Issuing Office at such website and obtain a complete set of the Bidding Documents from such website. BIDDERS may rely that sets of Bidding

Documents obtained from the Bidding Documents Website are complete, unless an omission is blatant. Registered plan holders will receive Addenda issued by OWNER.

2.4. BIDDER may register as a plan holder and obtain complete sets of Bidding Documents, in the number and format stated in the Advertisement or invitation to bid, from the Issuing Office. BIDDERS may rely that sets of Bidding Documents obtained from the Issuing Office are complete, unless an omission is blatant. Registered plan holders will receive Addenda issued by OWNER.

2.5. Electronic Documents

A. When the Bidding Requirements indicate that electronic (digital) copies of the Bidding Documents are available, such documents will be made available to the BIDDERS as Electronic Documents in the manner specified.

1. Bidding Documents will be provided in Adobe PDF (Portable Document Format) (.pdf). It is the intent of the ENGINEER and OWNER that such Electronic Documents are to be exactly representative of the paper copies of the documents. However, because the OWNER and ENGINEER cannot totally control the transmission and receipt of Electronic Documents nor the CONTRACTOR'S means of reproduction of such documents, the OWNER and ENGINEER cannot and do not guarantee that Electronic Documents and reproductions prepared from those versions are identical in every manner to the paper copies.

B. Unless otherwise stated in the Bidding Documents, the BIDDER may use and rely upon complete sets of Electronic Documents of the Bidding Documents, described in Paragraph 2.5.A.1 above. However, BIDDER assumes all risks associated with differences arising from transmission/receipt of Electronic Documents versions of Bidding Documents and reproductions prepared from those versions and, further, assumes all risks, costs, and responsibility associated with use of the Electronic Documents versions to derive information that is not explicitly contained in printed paper versions of the documents, and for BIDDER'S reliance upon such derived information.

C. After the Contract is awarded, the OWNER will provide or direct the ENGINEER to provide for the use of the CONTRACTOR documents that were developed by ENGINEER as part of the Project design process, as Electronic Documents in native file formats.

1. Electronic Documents that are available in native file format include: N/A

2. Release of such documents will be solely for the convenience of the CONTRACTOR. No such document is a Contract Document.

3. Unless the Contract Documents explicitly identify that such information will be available to the Successful BIDDER (CONTRACTOR), nothing herein will create an obligation on the part

of the OWNER or ENGINEER to provide or create such information, and the CONTRACTOR is not entitled to rely on the availability of such information in the preparation of its Bid or pricing of the Work. In all cases, the CONTRACTOR shall take appropriate measures to verify that any electronic/digital information provided in Electronic Documents is appropriate and adequate for the CONTRACTOR'S specific purposes.

4. In no case will the CONTRACTOR be entitled to additional compensation or time for completion due to any differences between the actual Contract Documents and any related document in native file format.

3. Qualifications of BIDDERS

3.1. To demonstrate qualifications to perform the Work, each BIDDER must be prepared to submit within 48 hours after Bid opening upon OWNER'S request detailed written evidence such as financial data, previous experience, present commitments and other such data as may be called for below or elsewhere in these documents. Each Bid must contain evidence of BIDDER'S qualification to do business in the state where the Project is located.

3.2. See requirement to submit previous experience and references in the Invitation to Bid, Section 00050.

3.3. Note experience requirements for Pipe Bursting and CIPP contractors detailed in Standard Specification Sections 230 and 231, respectively.

4. Pre-Bid Meeting

4.1. A pre-bid meeting will be held at the time and location indicated in the Advertisement or invitation to bid. Representatives of OWNER and ENGINEER will be present to discuss the Project. All prospective BIDDERS are encouraged to attend but attendance is not mandatory.

4.2. Information presented at the pre-bid meeting does not alter the Contract Documents. OWNER will issue Addenda to make any changes to the Contract Documents that result from discussions at the pre-bid meeting. Information presented, and statements made at the pre-bid meeting will not be binding or legally effective unless incorporated in an Addendum.

5. Site And Other Areas; Existing Site Conditions; Examination Of Site; OWNER'S Safety Program; Other Work At The Site

5.1. Site and Other Areas

A. The Site is identified in the Bidding Documents. By definition, the Site includes rights-of-way, easements, and other lands furnished by OWNER for the use of the CONTRACTOR. Any additional lands required for temporary construction facilities, construction equipment, or storage of materials and

equipment, and any access needed for such additional lands, are to be obtained and paid for by CONTRACTOR.

5.2. Existing Site Conditions

A. Subsurface and Physical Conditions; Hazardous Environmental Conditions

1. The Supplementary Conditions identify the following regarding existing conditions at or adjacent to the Site:

a. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data.

b. Those drawings known to OWNER of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data.

c. Reports and drawings known to OWNER relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site.

d. Technical Data contained in such reports and drawings.

B. OWNER will make copies of reports and drawings referenced above available to any BIDDER on request. These reports and drawings are not part of the Contract Documents, but the Technical Data contained therein upon whose accuracy BIDDER is entitled to rely, as provided in the General Conditions, has been identified and established in 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.

C. If the Supplementary Conditions do not identify Technical Data, the default definition of Technical Data set forth in Article 1 of the General Conditions will apply.

5.3. Geotechnical Baseline Report/Geotechnical Data Report: The Bidding Documents do not contain a Geotechnical Baseline Report (GBR) or Geotechnical Data Report (GDR).

5.4. Underground Facilities: Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05 of the General Conditions, and not in the drawings referred to in Paragraph 5.02.A of these Instructions to BIDDERS. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.

5.5. Other Site-related Documents

A. In addition to the documents regarding existing Site conditions referred to in Paragraph 5.2, the following other documents relating to conditions at or

adjacent to the Site are known to OWNER and made available to BIDDERS for reference.

B. OWNER will make copies of these other Site-related documents available to any BIDDER on request.

C. OWNER has not verified the contents of these other Site-related documents, and BIDDER may not rely on the accuracy of any data or information in such documents. BIDDER is responsible for any interpretation or conclusion BIDDER draws from the other Site-related documents.

D. The other Site-related documents are not part of the Contract Documents.

E. BIDDERS are encouraged to review the other Site-related documents, but BIDDERS will not be held accountable for any data or information in such documents. The requirement to review and take responsibility for documentary Site information is limited to information in (1) the Contract Documents and (2) the Technical Data.

F. No other Site-related documents are available.

5.6. Site Visit and Testing by BIDDERS

A. BIDDER is required to visit the Site and conduct a thorough visual examination of the Site and adjacent areas. During the visit the BIDDER must not disturb any ongoing operations at the Site.

B. BIDDERS visiting the Site are required to arrange their own transportation to the Site.

C. BIDDER is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.

D. On request, and to the extent OWNER has control over the Site, and schedule permitting, the OWNER will provide BIDDER general access to the Site to conduct such additional examinations, investigations, explorations, tests, and studies as BIDDER deems necessary for preparing and submitting a successful Bid. OWNER will not have any obligation to grant such access if doing so is not practical because of existing operations, security or safety concerns, or restraints on OWNER'S authority regarding the Site. BIDDER is responsible for establishing access needed to reach specific selected test sites.

E. BIDDER must comply with all applicable Laws and Regulations regarding excavation and location of utilities, obtain all permits, and comply with all terms and conditions established by OWNER or by property OWNERs or other entities controlling the Site with respect to schedule, access, existing operations, security, liability insurance, and applicable safety programs.

F. BIDDER must fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.

5.7. OWNER'S Safety Program

A. Site visits and work at the Site may be governed by an OWNER safety program. If an OWNER safety program exists, it will be noted in the Supplementary Conditions.

5.8. Other Work at the Site

A. Reference is made to Article 8 of the Supplementary Conditions for the identification of the general nature of other work of which OWNER is aware (if any) that is to be performed at the Site by OWNER or others (such as utilities and other prime CONTRACTORs) and relates to the Work contemplated by these Bidding Documents. If OWNER is party to a written contract for such other work, then on request, OWNER will provide to each BIDDER access to examine such contracts (other than portions thereof related to price and other confidential matters), if any.

6. BIDDER'S Representation and Certifications

6.1. Express Representations and Certifications in Bid Form, Agreement

A. The Bid Form that each BIDDER will submit contains express representations regarding the BIDDER'S examination of Project documentation, Site visit, and preparation of the Bid, and certifications regarding lack of collusion or fraud in connection with the Bid. BIDDER should review these representations and certifications and assure that BIDDER can make the representations and certifications in good faith, before executing and submitting its Bid.

B. If BIDDER is awarded the Contract, BIDDER (as CONTRACTOR) will make similar express representations and certifications when it executes the Agreement.

7. Interpretations and Addenda

7.1. OWNER or ENGINEER on its own initiative may issue Addenda to clarify, correct, supplement, or change the Bidding Documents.

7.2. BIDDER shall submit all questions about the meaning or intent of the Bidding Documents to the OWNER in writing (e-mail is acceptable).

7.3. Interpretations or clarifications considered necessary by the OWNER in response to such questions will be issued by Addenda delivered to all registered plan holders. Questions received less than five (5) days prior to the date for opening of Bids may not be answered.

7.4. Only responses set forth in an Addendum will be binding. Oral and other interpretations or clarifications will be without legal effect. Responses to questions are not part of the Contract Documents unless set forth in an Addendum that expressly modifies or supplements the Contract Documents.

8. Bid Security

8.1. A Bid must be accompanied by Bid security made payable to OWNER in an amount of 5 percent of BIDDER'S maximum Bid price, determined by adding the base bid and all alternates, and in the form of a certified or cashier's check or a Bid bond issued by a surety meeting the requirements of Paragraph 6.01 of the General Conditions. Such Bid bond will be issued in the form included in the Bidding Documents.

8.2. The Bid security of the apparent Successful BIDDER will be retained until OWNER awards the contract to such BIDDER, and such BIDDER has executed the Contract, furnished the required Contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be released. If the Successful BIDDER fails to execute and deliver the Contract and furnish the required Contract security within ten (10) 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, in whole in the case of a penal sum bid bond, and to the extent of OWNER'S damages in the case of a damages-form bond. Such forfeiture will be OWNER'S exclusive remedy if BIDDER defaults.

8.3. The Bid security of other BIDDERS that OWNER believes to have a reasonable chance of receiving the award may be retained by OWNER until the Effective Date of the Contract or 61 days after the Bid opening, whereupon Bid security furnished by such BIDDERS will be released.

8.4. Bid security of other BIDDERS that OWNER believes do not have a reasonable chance of receiving the award will be released upon execution of the Agreement between OWNER and the Successful BIDDER.

9. Contract Times

9.1. The number of days within which, or the dates by which, the Work is to be substantially completed and ready for final payment.

9.2. Provisions for liquidated damages, if any, for failure to timely attain a Milestone, Substantial Completion, or completion of the Work in readiness for final payment, are set forth in the Agreement.

10. Substitute and "Or Equal" Items

10.1. The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration during the bidding and Contract award process of possible substitute or "or-equal" items. In cases in which the Contract allows the CONTRACTOR to request that ENGINEER authorize the use of a substitute or "or-equal" item of material or equipment, application for such acceptance may not be made to and will not be considered by ENGINEER until after the Effective Date of the Contract.

10.2. All prices that BIDDER sets forth in its Bid will be based on the presumption that the CONTRACTOR will furnish the materials and equipment specified or described in the Bidding Documents, as supplemented by Addenda. Any assumptions regarding

the possibility of post-Bid approvals of "or-equal" or substitution requests are made at BIDDER'S sole risk.

11. Subcontractors, Suppliers and Others

11.1. A BIDDER must be prepared to retain specific Subcontractors and Suppliers for the performance of the Work if required to do so by the Bidding Documents or in the Specifications. If a prospective BIDDER objects to retaining any such Subcontractor or Supplier and the concern is not relieved by an Addendum, then the prospective BIDDER should refrain from submitting a Bid.

11.2. The apparent Successful BIDDER, and any other BIDDER so requested, must submit to OWNER the following information about each first tier subcontractor either in it's Bid of within one hour after Bid Closing:

A. Subcontractor name; and

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

C. The dollar value of the subcontract.

D. If the BIDDER will not be using any subcontractors that are subject to the above disclosure requirements, the BIDDER is required to indicate "NONE" on the accompanying form.

E. Bids that are submitted by Bid Closing, but for which the above information has not been made by the specified deadline, will be considered not Responsive and shall not be considered for Contract Award.

F. If these Bidding Documents require, separate from and in addition to those requirements as identified in paragraph 11.2 above, the identity of certain Subcontractors, Suppliers and other persons and organizations (including those who are to furnish the principal items of material and equipment) to be submitted to OWNER, BIDDER shall submit with the bid a list of all such Subcontractors, Suppliers and other persons and organizations proposed for those portions of the Work for which such identification is required. Such list shall be supplemented by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, person or organization if requested by OWNER or ENGINEER.

G. If requested by OWNER, such list must be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor or Supplier. If OWNER or ENGINEER, after due investigation, has reasonable objection to any proposed Subcontractor or Supplier, OWNER may, before the Notice of Award is given, request apparent Successful BIDDER to submit an acceptable substitute, in which case apparent Successful BIDDER will submit a substitute, BIDDER'S Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and OWNER may consider such price adjustment in evaluating Bids and making the Contract award.

H. If apparent Successful BIDDER declines to make any such substitution, OWNER may award the Contract to the next lowest BIDDER that proposes to use acceptable Subcontractors and Suppliers. Declining to make requested substitutions will not constitute grounds for forfeiture of the Bid security of any BIDDER. Any Subcontractor or Supplier, so listed and against which OWNER or ENGINEER makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to OWNER and ENGINEER subject to subsequent revocation of such acceptance as provided in Paragraph 7.07 of the General Conditions.

I. No CONTRACTOR shall be required to employ any subcontractor, other person or organization against which he has reasonable objection.

12. Bid Form

12.1. The Bid Form is included with the Bidding Documents; additional copies may be obtained from the OWNER.

12.2. All blanks on the Bid Form must be completed in ink and the Bid Form signed in ink. Erasures or alterations must be initialed in ink by the person signing the Bid Form. A Bid price must be indicated for each section, Bid item, alternate, adjustment unit price item, and unit price item listed therein.

12.3. If the Bid Form expressly indicates that submitting pricing on a specific alternate item is optional, and BIDDER elects to not furnish pricing for such optional alternate item, then BIDDER may enter the words “No Bid” or “Not Applicable”.

12.4. If BIDDER has obtained the Bidding Documents as Electronic Documents, then BIDDER shall prepare its Bid on a paper copy of the Bid Form printed from the Electronic Documents version of the Bidding Documents. The printed copy of the Bid Form must be clearly legible, printed on 8½ inch by 11-inch paper and as closely identical in appearance to the Electronic Document version of the Bid Form as may be practical. The OWNER reserves the right to accept Bid Forms which nominally vary in appearance from the original paper version of the Bid Form, providing that all required information and submittals are included with the Bid.

12.5. A Bid by a corporation must be executed in the corporate name by a corporate officer (whose title must appear under the signature), accompanied by evidence of authority to sign. The corporate address and state of incorporation must be shown.

12.6. A Bid by a partnership must 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 must be shown below the signature.

12.7. A Bid by a limited liability company must be executed in the name of the firm by a member or other authorized person and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm must be shown the signature.

12.8. A Bid by an individual must show the BIDDER’S name and official address.

12.9. A Bid by a joint venture must be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The joint venture must have been formally established prior to submittal of a Bid, and the official address of the joint venture must be shown.

12.10. All names must be typed or printed in ink below the signatures.

12.11. The Bid must contain an acknowledgment of receipt of all Addenda, the numbers of which must be filled in on the Bid Form.

12.12. Postal, e-mail addresses, and telephone number for communications regarding the Bid must be shown.

12.13. The Bid must contain evidence of BIDDER'S authority to do business in the state where the Project is located, or BIDDER must certify in writing that it will obtain such authority within the time for acceptance of Bids and attach such certification to the Bid.

12.14. If BIDDER is required to be licensed to submit a Bid or perform the Work in the state where the Project is located, the Bid must contain evidence of BIDDER'S licensure, or BIDDER must certify in writing that it will obtain such licensure within the time for acceptance of Bids and attach such certification to the Bid. BIDDER'S state CONTRACTOR license number, if any, must also be shown on the Bid Form.

13. Basis of Bid

13.1. Unit Price

A. BIDDERS must submit a Bid on a unit price basis for each item of Work listed in the unit price section of the Bid Form.

B. The "Bid Price" (sometimes referred to as the extended price) for each unit price Bid item will be the product of the "Estimated Quantity", which OWNER or its representative has set forth in the Bid Form, for the item and the corresponding "Bid Unit Price" offered by the BIDDER. The total of all unit price Bid items will be the sum of these "Bid Prices"; such total will be used by OWNER for Bid comparison purposes. The final quantities and Contract Price will be determined in accordance with Paragraph 13.03 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.

13.2. Allowances

A. For cash allowances the Bid price must include such amounts as the BIDDER deems proper for CONTRACTOR'S overhead, costs, profit, and other expenses on account of cash allowances, if any, named in the Contract Documents, in accordance with Paragraph 13.02.B of the General Conditions.

14. Submission of Bids

14.1. A Bid and subcontractor disclosure forms must be received no later than the date and time prescribed and at the place indicated in the Advertisement or invitation to bid. The bid and disclosure forms must be enclosed in separate 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, the applicable words "Sealed Bid" or "First-Tier Subcontractor Disclosure Form", and must 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 and Disclosure forms must be enclosed in a separate package plainly marked on the outside with the notation "Sealed Bid" or "First-Tier Subcontractor Disclosure Form" A mailed Bid must be addressed to the location designated in the Advertisement. It is the BIDDER'S sole responsibility to see that its Bid and disclosure form are received within the proper time.

14.2. Bids received after the date and time prescribed for the opening of bids, or not submitted at the correct location or in the designated manner, will not be accepted and will be returned to the BIDDER unopened.

15. Modification and Withdrawal of Bids

15.1. An unopened Bid may be 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. Upon receipt of such notice, the unopened Bid will be returned to the BIDDER. A Telephoned request for withdrawal or modification of Bid will not be recognized as a legitimate means for withdrawal of a Bid.

15.2. If a BIDDER wishes to modify its Bid prior to Bid opening, BIDDER must withdraw its initial Bid in the manner specified in Paragraph 15.1 and submit a new Bid prior to the date and time for the opening of Bids.

15.3. 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, the BIDDER may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, the BIDDER will be disqualified from further bidding on the Work.

16. Opening of Bids

16.1. 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.

17. Bids to Remain Subject to Acceptance

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

18. Award of Contract and Protests

18.1. OWNER reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. OWNER also reserves the right to waive all minor Bid informalities not involving price, time, or changes in the Work. OWNER also reserved the right to reject all Bids if the OWNER believes that it would not be in the best interest of the OWNER to make an award to that BIDDER, whether because the Bid is not responsive or the BIDDER is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by OWNER.

18.2. OWNER will reject the Bid of any BIDDER that OWNER finds, after reasonable inquiry and evaluation, to not be responsible.

18.3. If BIDDER purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of the Bid, whether in the Bid itself or in a separate communication to OWNER or ENGINEER, then OWNER will reject the Bid as nonresponsive.

18.4. If OWNER awards the contract for the Work, such award will be to the responsible BIDDER submitting the lowest responsive Bid.

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

18.6. Evaluation of Bids

A. In evaluating Bids, OWNER will consider whether 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.

B. In the comparison of Bids, alternates will be applied in the same order of priority as listed in the Bid Form. To determine the Bid prices for purposes of comparison, OWNER will announce to all BIDDERS a “Base Bid plus alternates” budget after receiving all Bids, but prior to opening them. For comparison purposes alternates will be accepted, following the order of priority established in the Bid Form, until doing so would cause the budget to be exceeded. After determination of the Successful BIDDER based on this comparative process and on the responsiveness, responsibility, and other factors set forth in these Instructions, the award may be made to said

Successful BIDDER on its base Bid and any combination of its additive alternate Bids for which OWNER determines funds will be available at the time of award.

C. For the determination of the apparent low BIDDER when unit price bids are submitted, Bids will be compared on the basis of the total of the products of the estimated quantity of each item and unit price Bid for that item, together with any lump sum items.

18.7. The method for calculating the lowest bid for comparison will be the summation of the Bid price shown in the Bid Form.

18.8. This procedure is only used to determine the lowest bid for comparison and CONTRACTOR selection purposes. The Contract Price for compensation and payment purposes remains the Bid price shown in the Bid Form.

18.9. In evaluating whether a BIDDER is responsible, OWNER will consider the qualifications of the BIDDER and may consider the qualifications and experience of Subcontractors and Suppliers proposed for those portions of the Work for which the identity of Subcontractors and Suppliers must be submitted as provided in the Bidding Documents.

18.10. OWNER may conduct such investigations as OWNER deems necessary to establish the responsibility, qualifications, and financial ability of BIDDERS and any proposed Subcontractors or Suppliers.

18.11. Mandatory Responsibility Criteria: RCW 39.04.350(1). It is the intent of OWNER to award a contract to the lowest responsive and responsible BIDDER. Within 24 hours after the bid opening, the apparent low BIDDER must submit documentation that they meet the BIDDER responsibility criteria to be considered a responsible BIDDER. The BIDDER is required by the OWNER to submit documentation demonstrating compliance with the criteria under this Section. The BIDDER must:

A. Registration. Have a current certificate of registration as a CONTRACTOR in compliance with chapter 18.27 RCW, which must have been in effect at the time of bid submittal; and

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

18.12. State Requirements. If applicable:

A. Have Industrial Insurance (workers' compensation) coverage for the BIDDER'S employees working in Washington, as required in Title 51 RCW;

B. Have a Washington Employment Security Department number, as required in Title 50 RCW;

C. Have a Washington Department of Revenue state excise tax registration number, as required in Title 82 RCW; and

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

18.14. Apprentices. If the Project is subject to the apprenticeship utilization requirements in RCW 39.04.320, not have been found out of compliance by the Washington state apprenticeship and training council for working apprentices out of ratio, without appropriate supervision, or outside their approved work processes as outlined in their standards of apprenticeship under chapter 49.04 RCW for the one-year period immediately preceding the date of the bid solicitation.

18.15. Supplemental BIDDER Responsibility Criteria: RCW 39.04.350(2). In addition to the mandatory BIDDER responsibility criteria above, the BIDDER must also meet the supplemental BIDDER responsibility criteria listed below. The apparent low BIDDER must submit the Previous Experience and References (see Invitation to Bid, Section 00050) within 48 hours after the bid opening. The OWNER reserves the right to require such documentation from other BIDDERS also.

18.16. If the contract is to be awarded, OWNER will issue a Notice of Intent to Award and give Successful BIDDER a Notice of Award at least seven (7) days after the Notice of Intent to Award is issued and within forty-five (45) days after the day of the Bid opening or within such extended period as OWNER and CONTRACTOR shall agree in writing.

18.17. All protests and judicial review procedures shall be undertaken in accordance with RCW 39.04.105. A BIDDER must file a written protest to the OWNER within two (2) business days of the Notice of Award. The BIDDER'S written protest shall specify the grounds for the protest to be considered by the OWNER.

19. Bond and Insurance

19.1. Article 6 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth OWNER'S requirements as to performance and payment bonds, other required bonds (if any), and insurance. When the Successful BIDDER delivers the executed Agreement to OWNER, it must be accompanied by required bonds and insurance documentation.

19.2. Article 9, Bid Security, of these Instructions, addresses any requirements for providing bid bonds as part of the bidding process.

20. Signing of Agreement

20.1. When OWNER issues a Notice of Award to the Successful BIDDER, it will be accompanied by the unexecuted counterparts of the Agreement along with the other Contract Documents as identified in the Agreement. Within ten (10) days thereafter, Successful BIDDER must execute and deliver the required number of counterparts of the Agreement and any bonds and insurance documentation required to be delivered by the Contract Documents to OWNER. Within thirty (30) days thereafter, OWNER will deliver one fully executed counterpart of the Agreement to Successful BIDDER, together with printed and electronic copies of the Contract Documents as stated in Paragraph 2.02 of the General Conditions.

21. Retainage

21.1. Provisions concerning retainage and CONTRACTORS' rights to deposit securities in lieu of retainage are set forth in the Agreement. In lieu of retainage, provisions may be made as provided in RCW 60.28.011.

22. Liquidated Damages

22.1. Provisions for liquidated damages are set forth in the Agreement.

23. Performance and Payment Bonds

23.1. Article 6 of the General Conditions of the Construction Contract sets forth performance bond and payment bond requirements. When the successful BIDDER delivers the executed Agreement to the OWNER, it shall be accompanied by the required performance and payment bonds. Attorneys-in-fact who sign bonds must file with each bond a notarized and effective copy of their power of attorney dated the same date as the Bonds. Bond forms enclosed in the Bidding Documents must be used.

24. Conflict of Interest

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

25. Affirmative Steps To Recruit Minority and Woman Business Enterprises (MBE/WBE)

25.1. Per RCW 35.22.650, CONTRACTOR agrees that the CONTRACTOR shall actively solicit the employment of minority group members. CONTRACTOR further agrees that the CONTRACTOR shall actively solicit bids for the subcontracting of goods or services from qualified minority businesses. CONTRACTOR shall furnish evidence of the CONTRACTOR'S compliance with these requirements of minority employment and solicitation. CONTRACTOR further agrees to consider the grant of subcontracts to said minority BIDDERS on the basis of substantially equal proposals in the light most favorable to said minority businesses. The CONTRACTOR shall be required to submit evidence of compliance with this section as part of the bid.

25.2. As used in this section, the term "minority business" means a business at least fifty-one percent of which is owned by minority group members. Minority group members include, but are not limited to, blacks, women, native Americans, Asians, Eskimos, Aleuts, and Hispanics.

26. Wages

26.1. All laborers, workmen, or mechanics in each trade or occupation employed in the performance of the Contract either by CONTRACTOR, Subcontractor, or other person doing Work shall be paid not less than the prevailing rate of wage as defined in RCW 39.12.010. Current prevailing wage rates available from the State of Washington Department of Labor and Industries are included as an attachment to

these Bidding Documents. The rules and regulations noted within the Bidding Documents are available from:

Washington State Department of Labor & Industries
Prevailing Wage Section
PO Box 44540
Olympia WA 98504-4540

26.2. BIDDERS are advised to examine and to be thoroughly familiar with such requirements. No claim for additional compensation will be allowed that is based upon a lack of knowledge of these requirements or a failure to include adequate increases in such wages over the term of this Contract in the BIDDER'S bid price.

27. State Sales Tax

27.1. The Washington State Department of Revenue has issued special rules on the State sales tax. This section is meant to clarify those rules. The CONTRACTOR should contact the Washington State Department of Revenue for answers to questions in this area. The OWNER will not adjust its payment if the CONTRACTOR bases a Bid on a misunderstood tax liability.

27.2. The CONTRACTOR shall not include State retail sales taxes in the unit bid prices. A separate line item for applying State retail sales tax is provided in the Bid Form.

27.3. The OWNER will pay the retained percentage only if the CONTRACTOR has obtained from the Washington State Department of Revenue a certificate showing that all Contract-related taxes have been paid (RCW 60.28.051). The OWNER may deduct from its payments to the CONTRACTOR the amount the CONTRACTOR may owe the Washington State Department of Revenue, whether the amount owed relates to this contract or not. The amount so deducted will be paid into the proper State fund.

SECTION 00300 - BID PROPOSAL
FOR
2027 SEWER MAIN REPLACEMENT PROJECT
PROJECT
FOR
ASOTIN COUNTY PUBLIC UTILITY DISTRICT

THIS BID IS SUBMITTED TO:

Asotin County Public Utility District Office at 1500 Scenic Way, Clarkston, Washington, 99403.

1. The undersigned BIDDER proposes and agrees, if this Bid is accepted, to enter into an agreement with the OWNER in the form included in the Bidding Documents to perform and furnish all Work as specified or indicated in the Bidding Documents for the Bid Price and within the Bid Times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

2. BIDDER accepts all of the terms and conditions of the Advertisement or Invitation to Bid and Instructions to BIDDERS, including without limitations those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for forty-five (45) days after the day of Bid opening. BIDDER will sign and deliver the required number of counterparts of the Agreement with the Bonds and other documents required by the Bidding Requirements within ten (10) days after the date of OWNER's Notice of Award.

3. In submitting this Bid, BIDDER represents, as more fully set forth in the Agreement, that:

   (a) BIDDER has examined and carefully studied the Bidding Documents and the following Addenda receipt of all which is hereby acknowledged: (List Addenda by Addendum Number)

   Addenda No. _____ through _____.

   (b) BIDDER has visited the site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local and site conditions that may affect cost, progress, performance and furnishing of the Work;

   (c) BIDDER is familiar with all federal, state and local Laws and Regulations that may affect cost, progress, performance and furnishing of the Work.

(d) BIDDER has carefully studied all reports of explorations and tests of subsurface conditions at or contiguous to the site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the site (except Underground Facilities) which have been identified in the Supplementary General Conditions as provided in paragraph 5.03.A of the General Conditions. BIDDER acknowledges that such reports and drawings are not Contract Documents and may not be complete for BIDDER'S purposes. BIDDER acknowledges that OWNER and ENGINEER do not assume responsibility for the accuracy or completeness of information and data shown or indicated in the Contract Documents with respect to Underground Facilities at or contiguous to the site.

(e) BIDDER has obtained and carefully studied (or assumes responsibility for having done so) all additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by BIDDER, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents to be employed by BIDDER, and safety precautions and programs incident thereto.

(f) BIDDER has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.

(g) BIDDER does not consider that any additional examinations, investigations, explorations, tests, studies or data are necessary for the determination of this Bid for performance and furnishing of the Work in accordance with the times, price and other terms and conditions of the Contract Documents.

(h) BIDDER is aware of the general nature of Work to be performed by OWNER and others at the site that relates to Work for which this Bid is submitted as indicated in the Bidding Documents.

(i) BIDDER has correlated the information known to BIDDER, information and observations obtained from visits to the site, reports and drawings identified in the Contract Documents and all additional examinations, investigations, explorations, tests, studies and data with the Contract Documents.

(j) BIDDER has given OWNER written notice of all conflicts, errors, ambiguities or discrepancies that BIDDER has discovered in the Bidding Documents and the written resolution thereof by OWNER is acceptable to BIDDER, and the

Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work for which this Bid is submitted.

(k) This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; BIDDER has not directly or indirectly induced or solicited any other BIDDER to submit a false or sham Bid; BIDDER has not solicited or induced any person, firm or corporation to refrain from bidding; and BIDDER has not sought by collusion to obtain for itself any advantage over any other BIDDER or over OWNER.

(l) BIDDER agrees to be bound by and will comply with and further agrees that the provisions required by RCW 39.12 and 40 U.S.C. 276(a) pertaining to prevailing wage rates, as applicable, shall be included in this contract. In addition, the undersigned Bidder hereby certifies that, within the three-year period immediately preceding the bid solicitation date for this Project, the bidder is not a "willful" violator, as defined in RCW 49.48.082, of any provision of chapters 49.46, 49.48, or 49.52 RCW, as determined by a final and binding citation and notice of assessment issued by the Department of Labor and Industries or through a civil judgment entered by a court of limited or general jurisdiction.

(m) BIDDER agrees that if awarded the contract, the BIDDER will complete the Work within the time limits specified in the Agreement.

(n) The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

(o) The submission of this Bid constitutes an incontrovertible representation by BIDDER that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

4. BIDDER will complete the Work in accordance with the Contract Documents for the following price(s):

The BIDDER will provide costs for all schedules listed, and the OWNER will award to the lowest responsive BIDDER based on the sum of all schedules. Schedules will be selected for execution, at the OWNER'S discretion.

2027 SEWER MAIN REPLACEMENT PROJECT					
ITEM NO.	**ITEM DESCRIPTION**	**QTY**	**UNIT**	**UNIT PRICE BID**	**BID ITEM TOTAL**
GENERAL					
G1	Mobilization, Bonds, Insurance, and Demobilization	1	LS		
G2	Erosion and Sediment Control	1	LS		
G3	Traffic Control	1	LS		
G4	Trench Safety Systems	1	LS		
SCHEDULE A					
A1	Pavement Marking	1	LS		
A2	Sewer Bypass systems	1	LS		
A3	4-inch Diam. Sewer Lateral Reconnection, incl. Surface Restoration	36	EA		
A4	Additional PVC Sewer Lateral Pipe and Fittings, 4-inch Diam., incl. Surface Restoration	108	LF		
A5	HDPE Sanitary Sewer Pipe 8 in Diam., for Pipe Bursting or PVC Sanitary Sewer Pipe 8 in Diam., for Open Cut, incl. Surface Restoration	1,300	LF		
A6	Manhole Removal and Replacement with Standard Manhole, 48 in. Diam.	5	EA		
A7	Pre-Construction Sewer Television Inspection	1	LS		
A8	Post-Construction Sewer Television Inspection	1	LS		
SCHEDULE B					
B1	Sewer Bypass Systems	1	LS		
B2	CIPP Lateral Reinstatement	19	EA		
B3	CIPP Sewer Rehabilitation, 10 in. Diam.	1,330	LF		
B4	Connect to existing Manhole	6	EA		
B5	Manhole Removal and Replacement with Standard Manhole, 48 in. Diam.	1	EA		
B6	Pre-Construction Sewer Television Inspection	1	LS		
B7	Post-Construction Sewer Television Inspection	1	LS		
SCHEDULE C					
C1	Sewer Bypass Systems	1	LS		

C2	CIPP Lateral Reinstatement	10	EA		
C3	CIPP Sewer Rehabilitation, 8 in. Diam	330	LF		
C4	Connect to existing Manhole	2	EA		
C5	Pre-Construction Sewer Television Inspection	1	LS		
C6	Post-Construction Sewer Television Inspection	1	LS		

TOTAL OF EXTENDED ITEM AMOUNTS FOR LUMP SUM AND UNIT PRICE	
SALES TAX (@8.5%)	
SCHEDULE C - EXTENDED TOTAL WITH SALES TAX	

BIDDER acknowledges that:

1. each Bid Unit Price includes an amount considered by BIDDER to be adequate to cover Contractor's overhead and profit for each separately identified item, and
2. estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Work will be based on actual quantities, determined as provided in the Contract Documents.

TOTAL BID (ALL SCHEDULES) - $_____

*Abbreviations

LS – Lump sum
CY – Cubic yards
EA – Each
LB – Pounds
LF – Lineal feet
SY – Square yard

Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.
Unit Prices have been computed in accordance with paragraph 13.01 of the General Conditions. BIDDER acknowledges that estimated quantities are not guaranteed and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Bid Items will be based on actual quantities provided, determined as provided in the Contract Documents.

5. BIDDER agrees that the Work will be substantially completed and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement. BIDDER accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work within the times specified in the Agreement.

6. The following documents are attached to and made a condition of this Bid:

   (a) Required Bid Security, in the form of _____ in the amount of_____which is not less than five percent (5%) of the total bid amount.

7. Previous Experience and References as described in the Invitation to Bid and Instructions to BIDDERS is either included with this bid submission or will be provided within the time frame prescribed in these Contract Documents.

8. BIDDER agrees that a completed First-Tier Subcontractor Disclosure Form is either included with this bid submission or will be provided within the time frame prescribed in these Contract Documents.

9. BIDDER certifies that BIDDER will not discriminate against minority, women or emerging small business enterprises in obtaining any subcontracts for this Work.

10. Communications concerning this Bid shall be addressed to the address of BIDDER indicated below.

11. Terms used in this Bid which are defined in the General Conditions of the Construction Contract or Instructions to BIDDERS will have the meanings indicated in the General Conditions of the Construction Contract or Instructions to BIDDERS.

SUBMITTED on_____, 20_____.

Washington State Contractor License No._____.

If BIDDER is:

I certify (or declare) under penalty of perjury under the laws of the State of Washington that the foregoing is true and correct.

An Individual

By: _____ (SEAL)
(Signature)

_____
(Print Individual's Name)

doing business as: _____

Business address: _____

_____

Phone No.: _____

A Partnership

Partnership Name: _____ (SEAL)

By: _____
(Signature of General Partner)

_____
(Print General Partner's Name)

Business address: _____

_____

Phone No.: _____

A Corporation

Corporation Name: _____ (SEAL)

State of Incorporation: _____

By: _____ (SEAL)
(Signature of Person Authorized to Sign)

_____
(Print Name of Person Authorized to Sign)

_____
(Title)

(Corporate Seal)

Attest: _____
(Signature of Corporate Secretary)

Business address: _____

_____

Phone No.: _____

Date of Qualification to do business is: _____

A Joint Venture

Joint Venturer Name: _____ (SEAL)

By: _____
(Signature of Joint Venture Partner)

_____
(Print Name of Joint Venture Partner)

_____
(Title)

Business Address: _____

_____

Joint Venturer Name: _____ (SEAL)

By: _____
(Signature of Joint Venture Partner)

_____
(Print Name of Joint Venture Partner)

_____
(Title)

Business Address: _____

_____

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

SECTION 00410 - FIRST-TIER SUBCONTRACTOR DISCLOSURE FORM
FOR
2027 SEWER MAIN REPLACEMENT PROJECT
FOR
ASOTIN COUNTY PUBLIC UTILITY DISTRICT

Bid Closing: November 24th, 2026 at 2:00 pm

Disclosure Submittal Deadline: One hour after bid closing

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

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

Subcontractor Name*	Dollar Value	Category of Work

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

Form Submitted by (Bidder Name): _____

Contact Name: _____ **Phone No.:** _____

*** Note: If no qualifying subcontractors will be used, sign the above form and submit with bid or within two hours thereafter. If qualifying subcontractors will be used fill out the appropriate information for each qualifying subcontractor, sign the above form and submit with bid or within one hour thereafter.**

SECTION 00420 - BID BOND

BIDDER Name: Address *(principal place of business)*:	**Surety** Name: Address *(principal place of business)*:
OWNER Name: **Asotin County Public Utility District** Address *(principal place of business)*: **1500 Scenic Way, Clarkston, Washington, 99403**	**Bid** Project *(name and location)*: Bid Due Date:
Bond Penal Sum: Date of Bond:	
Surety and BIDDER, intending to be legally bound hereby, subject to the terms set forth in this Bid Bond, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.	
BIDDER	Surety
_____ *(Full formal name of BIDDER)*	_____ *(Full formal name of Surety) (corporate seal)*
By: _____ *(Signature)*	By: _____ *(Signature) (Attach Power of Attorney)*
Name: _____ *(Printed or typed)*	Name: _____ *(Printed or typed)*
Title: _____	Title: _____
Attest: _____ *(Signature)*	Attest: _____ *(Signature)*
Name: _____ *(Printed or typed)*	Name: _____ *(Printed or typed)*
Title:	Title:
Notes: (1) Note: Addresses are to be used for giving any required notice. (2) 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 will be OWNER'S sole and exclusive remedy upon default of BIDDER.
2. Default of BIDDER occurs 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 will 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 does not in the aggregate exceed 120 days from the Bid due date without Surety's written consent.
6. No suit or action will 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 the Bid due date.
7. Any suit or action under this Bond will be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder must 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 Postal Service registered or certified mail, return receipt requested, postage pre-paid, and will 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 will 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 governs and the remainder of this Bond that is not in conflict therewith continues in full force and effect.

11. The term “Bid” as used herein includes a Bid, offer, or proposal as applicable.

CONTRACT FORMS

SECTION 00500 - AGREEMENT
FOR
2027 SEWER MAIN REPLACEMENT PROJECT
FOR
ASOTIN COUNTY PUBLIC UTILITY DISTRICT

THIS AGREEMENT is dated as of the _____ day of _____ in the year_____ by and between _____

(hereinafter called OWNER) and _____

(hereinafter called CONTRACTOR).

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

Article 1. WORK.

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

2027 SEWER MAIN REPLACEMENT PROJECT
FOR
ASOTIN COUNTY PUBLIC UTILITY DISTRICT

The work consists of three schedules for replacing/upsizing approximately 1,300 lineal feet of 6-inch gravity sewer with 8-inch gravity main through pipe bursting and/or open cut methods and lining approximately 1,660 lineal feet of 8-and 10- inch gravity sewer using Cured-In-Place Pipe (CIPP) methods. OWNER anticipates that the Project's total bid price will be approximately $1,400,000.

Article 2. ENGINEER.

The Asotin County Public Utility District, who is hereinafter called ENGINEER and who is to act as OWNER'S representative, assume all duties and responsibilities and have the rights and authority assigned to ENGINEER in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

1. Standard Details and Standard Technical Specifications for The Project have been developed by Consor, 345 Bobwhite Ct, Suite 230, Boise, ID, (208) 947-9033

Article 3. CONTRACT TIMES.

3.1 The work will be substantially complete on or before **October 31, 2027 or within 90 working days from the time work commences**, whichever comes first and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions withing 10 working days of substantial completion.

Substantially completed, as defined generally within Paragraph 15.03 of the General Conditions of the Construction Contract, hereinafter termed the General Conditions, and more specifically herein, shall be when the ENGINEER and OWNER agree that the entire Work is operational following successful testing and start-up and the OWNER is able to take possession of and have full operational use of the facilities.

A. The above completion dates are based on the following:

B. Notice of Award no more than 45 days after Bid Opening Date, and

C. OWNER Signing of Contract and Issuance of Notice to Proceed within thirty (30) days after Notice of Award.

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

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

3.2. *Liquidated Damages*. OWNER and CONTRACTOR recognize that time is of the essence of this Agreement and that OWNER will suffer financial and other losses if the Work for any of the schedules is not completed within the times specified in Paragraphs 3.1 and 3.2 above, plus any extensions thereof allowed in accordance with Article 13 of the General Conditions. OWNER and CONTRACTOR 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 <u>One Thousand</u> dollars (<u>$1,000</u>) for

each day that expires after the time specified in Paragraph 3.1 for Substantial Completion until the Work is substantially complete.

3.3. *Special Damages:*

A. CONTRACTOR shall reimburse OWNER (1) for any fines or penalties imposed on OWNER as a direct result of the CONTRACTOR'S failure to attain Substantial Completion according to the Contract Times, and (2) for the actual costs reasonably incurred by OWNER for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 3.1 or Substantial Completion (as duly adjusted pursuant to the Contract), until the Work is substantially complete.

B. After CONTRACTOR achieves Substantial Completion, if CONTRACTOR shall neglect, refuse, or fail to complete the remaining Work within the Contract Times, CONTRACTOR shall reimburse OWNER for the actual costs reasonably incurred by OWNER for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 3.1 Work to be completed and ready for final payment (as duly adjusted pursuant to the Contract), until the Work is completed and ready for final payment.

C. The special damages imposed in this paragraph are supplemental to any liquidated damages for delayed completion established in this Agreement.

Article 4. CONTRACT PRICE.

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

(_____) ($ _____)
(use words) (use figures)

4.2. As provided in Paragraph 13.03.B of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classification are to be made by OWNER as provided in 10.05.A of the General Conditions. Unit prices have been computed as provided in Paragraph 13.03 of the General Conditions.

Article 5. PAYMENT PROCEDURES.

CONTRACTOR shall submit Applications for Payment in accordance with Article 15 of the General Conditions. Applications for Payment will be processed by ENGINEER as provided in the General Conditions.

5.1. *Progress Payments; Retainage.* OWNER shall make progress payments on the basis of CONTRACTOR'S Applications for Payment as recommended by ENGINEER monthly during construction as provided in Paragraphs 5.1.A. and 5.1.B. below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the schedule of values established in Paragraph 2.07 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.

A. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below, but, in each case, less the aggregate of payments previously made and less such amounts as ENGINEER shall determine, or OWNER may withhold, including but not limited to liquidated damages, in accordance with Paragraph 14.02.B.5 of the General Conditions.

B. 95% of the value of the Work completed (with the balance of 5% being retainage).

C. Upon Substantial Completion, OWNER shall pay in an amount sufficient to increase total payments to CONTRACTOR to 95% of the Work Completed, less such amounts as ENGINEER shall determine, or OWNER may withhold, in accordance with Paragraph 14.02.B.5 of the General Conditions.

Final Payment. 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 6. INTEREST.

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

Article 7. CONTRACTOR'S REPRESENTATIONS.

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

7.1. CONTRACTOR has examined and carefully studied the Contract Documents (including the Addenda listed in Paragraph 8) and the other related data identified in the Bidding Documents.

7.2. CONTRACTOR has visited the site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local and Site conditions that may affect cost, progress, performance or furnishing of the Work.

7.3. CONTRACTOR is familiar with all federal, state and local Laws and Regulations that may affect cost, progress, performance and furnishing of the Work.

7.4. CONTRACTOR has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.

7.5. CONTRACTOR has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.

7.6. CONTRACTOR has considered the information known to CONTRACTOR itself; 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 Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by CONTRACTOR; and (c) CONTRACTOR'S safety precautions and programs.

7.7. CONTRACTOR does not consider that any additional examinations, investigations, explorations, tests, studies or data are necessary for the performance and furnishing of the Work at the Contract Price, within the Contract Times and in accordance with the other terms and conditions of the Contract Documents.

7.8. CONTRACTOR is aware of the general nature of work to be performed by OWNER and others at the site that relates to the Work as indicated in the Contract Documents.

7.9. CONTRACTOR has correlated the information known to CONTRACTOR, information and observations obtained from visits to the site, reports and drawings identified in the Contract Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.

7.10. CONTRACTOR has given ENGINEER written notice of all conflicts, errors, ambiguities or discrepancies that CONTRACTOR has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR.

7.11. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

7.12. CONTRACTOR'S entry into this Contract constitutes an incontrovertible representation by CONTRACTOR that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

7.13. *CONTRACTOR'S Certifications* - 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 8.02:

A. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process or in the Contract execution;

B. "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 o1f the benefits of free and open competition;

C. "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

D. "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.

7.14. *Standard General Conditions* - OWNER stipulates that if the General Conditions that are made a part of this Contract are EJCDC® C 700, Standard General Conditions for the Construction Contract (2018), published by the ENGINEERs Joint Contract Documents Committee, and if OWNER is the party that has furnished said General Conditions, then OWNER has plainly shown all modifications to the standard wording of such published document to the

CONTRACTOR, through a process such as highlighting or "track changes" (redline/strikeout), or in the Supplementary Conditions.

Article 8. CONTRACT DOCUMENTS.

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

8.1. This Agreement (pages 1 to 10, inclusive)

8.2. Exhibits to this Agreement (pages -- to -- , inclusive)

8.3. Performance, Payment, and other Bonds

8.4. Notice to Proceed

8.5. General Conditions

8.6. Supplementary Conditions

8.7. Drawings consisting of a cover sheet and sheets numbered G-001 through C-502, inclusive with each sheet bearing the following general title:

2027 SEWER MAIN REPLACEMENT

Attached

8.8. Standard Specifications and Details bearing the following general title: **STANDARD SPECIFICATIONS AND DRAWINGS FOR ASOTIN COUNTY PUBLIC UTILITY DISTRICT, ASOTIN COUNTY, WASHINGTON**

8.9. Addenda numbers -- to -- , inclusive.

8.10. CONTRACTOR'S Bid Proposal (pages 1 to X, inclusive).

8.11. Documentation submitted by CONTRACTOR prior to Notice of Award (pages ___ to _ inclusive).

8.12. The following which may be delivered or issued after the Effective Date of the Agreement and are not attached hereto: All Written Amendments and other documents amending, modifying or supplementing the Contract Documents pursuant to Paragraph 3.04 of the General Conditions.

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

8.14. There are no Contract Documents other than those listed above in this Article 8. The Contract Documents may only be amended, modified or supplemented as provided in Paragraph 11.01 of the General Conditions.

Article 9. MISCELLANEOUS.

9.1. Terms used in this Agreement which are defined in Article l of the General Conditions will have the meanings indicated in the General Conditions.

9.2. No assignment by a party hereto of any rights under or interests in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and specifically but without limitation monies that may become due and monies that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

9.3. Subject to Paragraph 9.2 above, OWNER and CONTRACTOR each binds itself, its partners, successors, assigns, and legal representatives to the other party hereto, in respect of all covenants, agreements, and obligations contained in the Contract Documents.

9.4. The CONTRACTOR agrees to protect, indemnify and hold harmless OWNER and its Council members, officers, agents, attorneys and employees, from every kind and character of damages, losses, expenses, demands, claims and causes of action arising against OWNER, its Council members, officers, agents, attorneys and employees, on account of bodily injuries, death claims or damages to property or any other loss from any cause whatsoever arising out of or incident to the work performed and operations conducted by the CONTRACTOR or its permitted subcontractor's under this Contract, including such injuries, death, damages or other loss which results from or it is claimed to have resulted from, the negligence of OWNER, its Council members, officers, agents, attorneys or employees. CONTRACTOR shall defend the interest of OWNER, its Council members, officers, agents, attorneys and employees arising or alleged to arise out of CONTRACTOR'S or its permitted subcontractor's performance of this Contract and shall indemnify OWNER from any loss, expense or settlement payment incurred by OWNER as a result of CONTRACTOR'S or its permitted subcontractor's performance and or failure to perform any provisions of this Contract, including all attorney fees and court costs arising prior to litigation or in court or arbitration proceeding and on any appeal therefrom.

9.5. Any provision or part of the Contract Documents held to be void or unenforceable under any law or regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon OWNER and CONTRACTOR, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

9.6. Entire Agreement. The Contract Documents represent the entire agreement of the parties with respect to the subject matter hereof, and supersede and replaces all prior and contemporaneous oral and written agreements with respect to such subject matter. No amendment, modification or variation of the terms and conditions of the Contract Documents shall be valid unless it is in writing and signed by all parties hereto.

9.7. Governing Law, Jurisdiction and Venue. The parties acknowledge that the Contract Documents have been negotiated and entered into in the State of Washington. The parties expressly agree that the Contract Documents shall be governed by, interpreted under, and construed and enforced in accordance with the laws of the State of Washington. Venue and jurisdiction for any action at law or in equity relating to this Agreement shall lie exclusively in the Circuit Court of the State of Washington for Asotin County, and not in any other state or federal court that may have concurrent jurisdiction.

9.8. Attorney Fees. In the event action is instituted to enforce any term of the Contract Documents, the prevailing party shall recover from the losing party reasonable attorney's fees incurred in such action as set by the Trial Court and, in the event of an appeal, as set by the Appellate Court.

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

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

OWNER:

ASOTIN COUNTY PUBLIC UTILITY DISTRICT

By:

_____

Attest:

_____

Address for giving notices:

_____

_____

_____

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

CONTRACTOR:

CONTRACTOR NAME

By:

_____

Attest:

_____

Address for giving notices:

_____

_____

_____

CONTRACTOR License No.: _____

Agent for service of process:

_____

_____

_____

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

SECTION 00610 - PERFORMANCE BOND

Contractor Name: Address *(principal place of business)*:	**Surety** Name: Address *(principal place of business)*:
Owner Name: **Asotin County Public Utility District** Mailing address *(principal place of business)*: **PO Box 605, Clarkston, Washington, 99403**	**Contract** Description *(name and location)*: Contract Price: Effective Date of Contract:

Bond

Bond Amount:

Date of Bond:

(Date of Bond cannot be earlier than Effective Date of Contract)

Modifications to this Bond form:

☐ None ☐ See Paragraph 16

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

Contractor as Principal	Surety
_____ *(Full formal name of Contractor)*	_____ *(Full formal name of Surety) (corporate seal)*
By: _____ *(Signature)*	By: _____ *(Signature)(Attach Power of Attorney)*
Name: _____ *(Printed or typed)*	Name: _____ *(Printed or typed)*
Title: _____	Title: _____
Attest: _____ *(Signature)*	Attest: _____ *(Signature)*
Name: _____ *(Printed or typed)*	Name: _____ *(Printed or typed)*
Title: _____	Title: _____

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.

1. The CONTRACTOR and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the OWNER for the performance of the Construction Contract, which is incorporated herein by reference.

2. If the CONTRACTOR performs the Construction Contract, the Surety and the CONTRACTOR shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.

3. If there is no OWNER Default under the Construction Contract, the Surety's obligation under this Bond will arise after:

    3.1. The OWNER first provides notice to the CONTRACTOR and the Surety that the OWNER is considering declaring a CONTRACTOR Default. Such notice may indicate whether the OWNER is requesting a conference among the OWNER, CONTRACTOR, and Surety to discuss the CONTRACTOR'S performance. If the OWNER does not request a conference, the Surety may, within five (5) business days after receipt of the OWNER'S notice, request such a conference. If the Surety timely requests a conference, the OWNER shall attend. Unless the OWNER agrees otherwise, any conference requested under this Paragraph 3.1 will be held within ten (10) business days of the Surety's receipt of the OWNER'S notice. If the OWNER, the CONTRACTOR, and the Surety agree, the CONTRACTOR shall be allowed a reasonable time to perform the Construction Contract, but such an agreement does not waive the OWNER'S right, if any, subsequently to declare a CONTRACTOR Default;

    3.2. The OWNER declares a CONTRACTOR Default, terminates the Construction Contract and notifies the Surety; and

    3.3. The OWNER has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a CONTRACTOR selected to perform the Construction Contract.

4. Failure on the part of the OWNER to comply with the notice requirement in Paragraph 3.1 does not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

5. When the OWNER has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

    5.1. Arrange for the CONTRACTOR, with the consent of the OWNER, to perform and complete the Construction Contract;

    5.2. Undertake to perform and complete the Construction Contract itself, through its agents or independent CONTRACTORs;

5.3. Obtain bids or negotiated proposals from qualified CONTRACTORs acceptable to the OWNER for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the OWNER and a CONTRACTOR selected with the OWNERs concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the OWNER the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the OWNER as a result of the CONTRACTOR Default; or

5.4. Waive its right to perform and complete, arrange for completion, or obtain a new CONTRACTOR, and with reasonable promptness under the circumstances:

5.4.1 After investigation, determine the amount for which it may be liable to the OWNER and, as soon as practicable after the amount is determined, make payment to the OWNER; or

5.4.2 Deny liability in whole or in part and notify the OWNER, citing the reasons for denial.

6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the OWNER to the Surety demanding that the Surety perform its obligations under this Bond, and the OWNER shall be entitled to enforce any remedy available to the OWNER. If the Surety proceeds as provided in Paragraph 5.4, and the OWNER refuses the payment, or the Surety has denied liability, in whole or in part, without further notice, the OWNER shall be entitled to enforce any remedy available to the OWNER.

7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the OWNER will not be greater than those of the CONTRACTOR under the Construction Contract, and the responsibilities of the OWNER to the Surety will not be greater than those of the OWNER under the Construction Contract. Subject to the commitment by the OWNER to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:

7.1. the responsibilities of the CONTRACTOR for correction of defective work and completion of the Construction Contract;

7.2. additional legal, design professional, and delay costs resulting from the CONTRACTOR'S Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and

7.3. liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the CONTRACTOR.

8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.

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

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

11. Any proceeding, legal or equitable, under this Bond must be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and must be instituted within two years after a declaration of CONTRACTOR Default or within two years after the CONTRACTOR ceased working or within two years after the 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 periods of limitations available to sureties as a defense in the jurisdiction of the suit will be applicable.

12. Notice to the Surety, the OWNER, or the CONTRACTOR must be mailed or delivered to the address shown on the page on which their signature appears.

13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted therefrom and provisions conforming to such statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.

14. Definitions

    14.1. *Balance of the Contract Price*—The total amount payable by the OWNER to the CONTRACTOR under the Construction Contract after all proper adjustments have been made including allowance for the CONTRACTOR for any amounts received or to be received by the OWNER in settlement of insurance or other claims for damages to which the CONTRACTOR is entitled, reduced by all valid and proper payments made to or on behalf of the CONTRACTOR under the Construction Contract.

    14.2. *Construction Contract*—The agreement between the OWNER and CONTRACTOR identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

    14.3. *CONTRACTOR Default*—Failure of the CONTRACTOR, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

14.4. *OWNER Default*—Failure of the OWNER, which has not been remedied or waived, to pay the CONTRACTOR as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

14.5. *Contract Documents*—All the documents that comprise the agreement between the OWNER and CONTRACTOR.

15. If this Bond is issued for an agreement between a CONTRACTOR and subcontractor, the term CONTRACTOR in this Bond will be deemed to be Subcontractor and the term OWNER will be deemed to be CONTRACTOR.

16. Modifications to this Bond are as follows:

SECTION 00620 - PAYMENT BOND

CONTRACTOR Name: Address *(principal place of business)*:	**Surety** Name: Address *(principal place of business)*:
OWNER Name: **Asotin County Public Utility District** Mailing address *(principal place of business)*: **PO Box 605, Clarkston, Washington, 99403**	**Contract** Description *(name and location)*: Contract Price: Effective Date of Contract:

Bond

Bond Amount:

Date of Bond:

(Date of Bond cannot be earlier than Effective Date of Contract)

Modifications to this Bond form:

☐ None ☐ See Paragraph 18

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

CONTRACTOR as Principal	Surety
(Full formal name of CONTRACTOR)	*(Full formal name of Surety) (corporate seal)*
By: _____ *(Signature)*	By: _____ *(Signature)(Attach Power of Attorney)*
Name: _____ *(Printed or typed)*	Name: _____ *(Printed or typed)*
Title: _____	Title: _____
Attest: _____ *(Signature)*	Attest: _____ *(Signature)*
Name: _____ *(Printed or typed)*	Name: _____ *(Printed or typed)*
Title: _____	Title: _____

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to CONTRACTOR, Surety, OWNER, or other party is considered plural where applicable.

1. The CONTRACTOR and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the OWNER to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.

2. If the CONTRACTOR promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the OWNER from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the CONTRACTOR shall have no obligation under this Bond.

3. If there is no OWNER Default under the Construction Contract, the Surety's obligation to the OWNER under this Bond will arise after the OWNER has promptly notified the CONTRACTOR and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the OWNER or the OWNER'S property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the CONTRACTOR and the Surety.

4. When the OWNER has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the OWNER against a duly tendered claim, demand, lien, or suit.

5. The Surety's obligations to a Claimant under this Bond will arise after the following:

    5.1. Claimants who do not have a direct contract with the CONTRACTOR

        5.1.1. have furnished a written notice of non-payment to the CONTRACTOR, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and

        5.1.2. have sent a Claim to the Surety (at the address described in Paragraph 13).

    5.2. Claimants who are employed by or have a direct contract with the CONTRACTOR have sent a Claim to the Surety (at the address described in Paragraph 13).

6. If a notice of non-payment required by Paragraph 5.1.1 is given by the OWNER to the CONTRACTOR, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.

7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:

7.1. Send an answer to the Claimant, with a copy to the OWNER, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and

7.2. Pay or arrange for payment of any undisputed amounts.

7.3. The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 will not be deemed to constitute a waiver of defenses the Surety or CONTRACTOR may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

8. The Surety's total obligation will not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond will be credited for any payments made in good faith by the Surety.

9. Amounts owed by the OWNER to the CONTRACTOR under the Construction Contract will be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the CONTRACTOR furnishing and the OWNER accepting this Bond, they agree that all funds earned by the CONTRACTOR in the performance of the Construction Contract are dedicated to satisfying obligations of the CONTRACTOR and Surety under this Bond, subject to the OWNER'S priority to use the funds for the completion of the work.

10. The Surety shall not be liable to the OWNER, Claimants, or others for obligations of the CONTRACTOR that are unrelated to the Construction Contract. The OWNER shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.

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

12. No suit or action will be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, 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 Construction 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 will be applicable.

13. Notice and Claims to the Surety, the OWNER, or the CONTRACTOR must be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, will be sufficient compliance as of the date received.

14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted here from and provisions conforming to such statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.

15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the CONTRACTOR and OWNER shall promptly furnish a copy of this Bond or shall permit a copy to be made.

16. Definitions

    16.1. *Claim*—A written statement by the Claimant including at a minimum:

        16.1.1. The name of the Claimant;

        16.1.2. The name of the person for whom the labor was done, or materials or equipment furnished;

        16.1.3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;

        16.1.4. A brief description of the labor, materials, or equipment furnished;

        16.1.5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;

        16.1.6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;

        16.1.7. The total amount of previous payments received by the Claimant; and

        16.1.8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.

    16.2. *Claimant*—An individual or entity having a direct contract with the CONTRACTOR or with a subcontractor of the CONTRACTOR to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim

under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond is to include without limitation in the terms of "labor, materials, or equipment" that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the CONTRACTOR and the 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.

16.3. *Construction Contract*—The agreement between the OWNER and CONTRACTOR identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

16.4. *OWNER Default*—Failure of the OWNER, which has not been remedied or waived, to pay the CONTRACTOR as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

16.5. *Contract Documents*—All the documents that comprise the agreement between the OWNER and CONTRACTOR.

17. If this Bond is issued for an agreement between a CONTRACTOR and subcontractor, the term CONTRACTOR in this Bond will be deemed to be subcontractor and the term OWNER will be deemed to be CONTRACTOR.

18. Modifications to this Bond are as follows:

CONDITIONS OF THE CONTRACT

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

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ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

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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, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. 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, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.

3. *Application for Payment*—The document prepared by Contractor, in a form acceptable to Engineer, to request progress or final payments, and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

5. *Bidder*—An individual or entity that submits a Bid to Owner.

6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.

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7. *Bidding Requirements*—The Advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.

8. *Change Order*—A document 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, or other revision to the Contract, issued on or after the Effective Date of the Contract.

9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.

10. *Claim*

    a. A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment of Contract Price or Contract Times; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract.

    b. A demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal, or seeking resolution of a contractual issue that Engineer has declined to address.

    c. A demand or assertion by Owner or Contractor, duly submitted in compliance with the procedural requirements set forth herein, made pursuant to Paragraph 12.01.A.4, concerning disputes arising after Engineer has issued a recommendation of final payment.

    d. A demand for money or services by a third party is not a Claim.

11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), lead-based paint (as defined by the HUD/EPA standard), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to Laws and Regulations regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.

12. *Contract*—The entire and integrated written contract between Owner and Contractor concerning the Work.

13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.

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14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents.
15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.
17. *Cost of the Work*—See Paragraph 13.01 for definition.
18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.
20. *Electronic Document*—Any Project-related correspondence, attachments to correspondence, data, documents, drawings, information, or graphics, including but not limited to Shop Drawings and other Submittals, that are in an electronic or digital format.
21. *Electronic Means*—Electronic mail (email), upload/download from a secure Project website, or other communications methods that allow: (a) the transmission or communication of Electronic Documents; (b) the documentation of transmissions, including sending and receipt; (c) printing of the transmitted Electronic Document by the recipient; (d) the storage and archiving of the Electronic Document by sender and recipient; and (e) the use by recipient of the Electronic Document for purposes permitted by this Contract. Electronic Means does not include the use of text messaging, or of Facebook, Twitter, Instagram, or similar social media services for transmission of Electronic Documents.
22. *Engineer*—The individual or entity named as such in the Agreement.
23. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.
24. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto.
    a. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated into the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, is not a Hazardous Environmental Condition.
    b. The presence of Constituents of Concern that are to be removed or remediated as part of the Work is not a Hazardous Environmental Condition.

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c. The presence of Constituents of Concern as part of the routine, anticipated, and obvious working conditions at the Site, is not a Hazardous Environmental Condition.

25. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and binding decrees, resolutions, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
26. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
27. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date, or by a time prior to Substantial Completion of all the Work.
28. *Notice of Award*—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.
29. *Notice to Proceed*—A written notice 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.
30. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.
31. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising Contractor's plan to accomplish the Work within the Contract Times.
32. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.
33. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative (RPR) includes any assistants or field staff of Resident Project Representative.
34. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.
35. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer's review of the submittals.

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36. *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.

37. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.

38. *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, and such other lands or areas furnished by Owner which are designated for the use of Contractor.

39. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.

40. *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.

41. *Submittal*—A written or graphic document, prepared by or for Contractor, which the Contract Documents require Contractor to submit to Engineer, or that is indicated as a Submittal in the Schedule of Submittals accepted by Engineer. Submittals may include Shop Drawings and Samples; schedules; product data; Owner-delegated designs; sustainable design information; information on special procedures; testing plans; results of tests and evaluations, source quality-control testing and inspections, and field or Site quality-control testing and inspections; warranties and certifications; Suppliers' instructions and reports; records of delivery of spare parts and tools; operations and maintenance data; Project photographic documentation; record documents; and other such documents required by the Contract Documents. Submittals, whether or not approved or accepted by Engineer, are not Contract Documents. Change Proposals, Change Orders, Claims, notices, Applications for Payment, and requests for interpretation or clarification are not Submittals.

42. *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 of such Work.

43. *Successful Bidder*—The Bidder to which the Owner makes an award of contract.

44. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.

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45. *Supplier*—A manufacturer, fabricator, supplier, distributor, 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 a Subcontractor.

46. *Technical Data*

    a. Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (1) existing subsurface conditions at or adjacent to the Site, or existing physical conditions at or adjacent to the Site including existing surface or subsurface structures (except Underground Facilities) or (2) Hazardous Environmental Conditions at the Site.

    b. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then Technical Data is defined, with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06, as the data contained in boring logs, recorded measurements of subsurface water levels, assessments of the condition of subsurface facilities, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical, environmental, or other Site or facilities conditions report prepared for the Project and made available to Contractor.

    c. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data, and instead Underground Facilities are shown or indicated on the Drawings.

47. *Underground Facilities*—All active or not-in-service underground lines, pipelines, conduits, ducts, encasements, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or systems at the Site, including but not limited to those facilities or systems that produce, transmit, distribute, or convey telephone or other communications, cable television, fiber optic transmissions, power, electricity, light, heat, gases, oil, crude oil products, liquid petroleum products, water, steam, waste, wastewater, storm water, other liquids or chemicals, or traffic or other control systems. An abandoned facility or system is not an Underground Facility.

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

49. *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; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.

50. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

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1.02 *Terminology*

A. The words and terms discussed in Paragraphs 1.02.B, C, D, and E are not defined terms that require initial capital letters, but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. *Intent of Certain Terms or Adjectives*: 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 Article 10 or any other provision of the Contract Documents.

C. *Day*: The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective*: The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:

1. does not conform to the Contract Documents;

2. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or

3. 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 15.03 or Paragraph 15.04).

E. *Furnish, Install, Perform, Provide*

1. The word "furnish," when used in connection with services, materials, or equipment, means 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, means 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, means to furnish and install said services, materials, or equipment complete and ready for intended use.

4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four

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words "furnish," "install," "perform," or "provide," then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.

F. *Contract Price or Contract Times*: References to a change in "Contract Price or Contract Times" or "Contract Times or Contract Price" or similar, indicate that such change applies to (1) Contract Price, (2) Contract Times, or (3) both Contract Price and Contract Times, as warranted, even if the term "or both" is not expressed.

G. 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 Performance and Payment Bonds; Evidence of Insurance*

A. *Performance and Payment Bonds*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner the performance bond and payment bond (if the Contract requires Contractor to furnish such bonds).

B. *Evidence of Contractor's Insurance*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each additional insured (as identified in the Contract), the certificates, endorsements, and other evidence of insurance required to be provided by Contractor in accordance with Article 6, except to the extent the Supplementary Conditions expressly establish other dates for delivery of specific insurance policies.

C. *Evidence of Owner's Insurance*: After receipt of the signed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each additional insured (as identified in the Contract), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 *Copies of Documents*

A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully signed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.

B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

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2.03 *Before Starting Construction*

A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract (or as otherwise required by the Contract Documents), 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;

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.

2.04 *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 2.03.A, procedures for handling Shop Drawings, Samples, and other Submittals, processing Applications for Payment, electronic or digital transmittals, 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 and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *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 the schedules submitted in accordance with Paragraph 2.03.A. No progress payment will 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 the component parts of the Work.

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4. If a schedule is not acceptable, Contractor will have an additional 10 days to revise and resubmit the schedule.

2.06 *Electronic Transmittals*

A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may send, and shall accept, Electronic Documents transmitted by Electronic Means.

B. If the Contract does not establish protocols for Electronic Means, then Owner, Engineer, and Contractor shall jointly develop such protocols.

C. Subject to any governing protocols for Electronic Means, when transmitting Electronic Documents by Electronic Means, the transmitting party makes no representations as to long-term compatibility, usability, or readability of the Electronic Documents resulting from the recipient's use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the Electronic Documents.

ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

A. The Contract Documents are complementary; what is required by one Contract Document 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.

C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic versions of the Contract Documents (including any printed copies derived from such electronic versions) and the printed record version, the printed record version will govern.

D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.

E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.

F. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation will be deemed stricken, and all remaining provisions will continue to be valid and binding upon Owner and Contractor, which agree that the Contract Documents will 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.

G. Nothing in the Contract Documents creates:

1. any contractual relationship between Owner or Engineer and any Subcontractor, Supplier, or other individual or entity performing or furnishing any of the Work, for the benefit of such Subcontractor, Supplier, or other individual or entity; or

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2. any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity, except as may otherwise be required by Laws and Regulations.

3.02 *Reference Standards*

A. *Standards Specifications, Codes, Laws and Regulations*

1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, means the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract 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, reference standard, or code, and no instruction of a Supplier, will be effective to change the duties or responsibilities of Owner, Contractor, or Engineer from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner or Engineer 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 part of the Contract Documents prepared by or for Engineer.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies*

1. *Contractor's Verification of Figures and Field Measurements*: Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict, error, ambiguity, or discrepancy is resolved by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.

2. *Contractor's Review of Contract Documents*: If, before or 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) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) 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 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.

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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 part of the Contract Documents prepared by or for Engineer take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:

a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); 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 *Requirements of the Contract Documents*

A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer in writing all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work.

B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.

C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly notify Owner and Contractor in writing that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

A. Contractor and its Subcontractors and Suppliers 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 versions, or reuse any such Drawings, Specifications, other documents, or copies thereof on

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extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or

2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.

B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein precludes Contractor from retaining copies of the Contract Documents for record purposes.

ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

A. The Contract Times will commence to run on the 30th day after the Effective Date of the Contract 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 Contract. In no event will the Contract Times commence to run later than the 60th day after the day of Bid opening or the 30th day after the Effective Date of the Contract, whichever date is earlier.

4.02 *Starting the Work*

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

4.03 *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.

4.04 *Progress Schedule*

A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 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 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times must be submitted in accordance with the requirements of Article 11.

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B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work will be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

A. If Owner, Engineer, 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 Contract Price or Contract Times.

B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.

C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Such an adjustment will be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:

1. Severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;

2. Abnormal weather conditions;

3. Acts or failures to act of third-party utility owners or other third-party entities (other than those third-party utility owners or other third-party entities performing other work at or adjacent to the Site as arranged by or under contract with Owner, as contemplated in Article 8); and

4. Acts of war or terrorism.

D. Contractor's entitlement to an adjustment of Contract Times or Contract Price is limited as follows:

1. Contractor's entitlement to an adjustment of the Contract Times is conditioned on the delay, disruption, or interference adversely affecting an activity on the critical path to completion of the Work, as of the time of the delay, disruption, or interference.

2. Contractor shall not be entitled to an adjustment in Contract Price for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor. Such a concurrent delay by Contractor shall not preclude an adjustment of Contract Times to which Contractor is otherwise entitled.

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3. Adjustments of Contract Times or Contract Price are subject to the provisions of Article 11.

E. Each Contractor request or Change Proposal seeking an increase in Contract Times or Contract Price must be supplemented by supporting data that sets forth in detail the following:

1. The circumstances that form the basis for the requested adjustment;
2. The date upon which each cause of delay, disruption, or interference began to affect the progress of the Work;
3. The date upon which each cause of delay, disruption, or interference ceased to affect the progress of the Work;
4. The number of days' increase in Contract Times claimed as a consequence of each such cause of delay, disruption, or interference; and
5. The impact on Contract Price, in accordance with the provisions of Paragraph 11.07.

Contractor shall also furnish such additional supporting documentation as Owner or Engineer may require including, where appropriate, a revised progress schedule indicating all the activities affected by the delay, disruption, or interference, and an explanation of the effect of the delay, disruption, or interference on the critical path to completion of the Work.

F. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5, together with the provisions of Paragraphs 4.05.D and 4.05.E.

G. Paragraph 8.03 addresses delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.

ARTICLE 5—SITE; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

A. Owner shall furnish the Site. Owner shall notify Contractor in writing 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.

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 permanent improvements are to be made 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.

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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.

5.02 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas*

1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas, or to improvements, structures, utilities, or similar facilities located at such adjacent lands or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.

2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.13, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or in a court of competent jurisdiction; and (c) to the fullest extent permitted by Laws and Regulations, 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 any such claim, and against all 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 directly or indirectly, in whole or in part by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.

B. *Removal of Debris During Performance of the Work*: During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris will 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 and adjacent areas 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.

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D. *Loading of 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 structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

A. *Reports and Drawings*: The Supplementary Conditions identify:

1. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data;

2. Those drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data; and

3. Technical Data contained in such reports and drawings.

B. *Underground Facilities*: Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05, and not in the drawings referred to in Paragraph 5.03.A. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.

C. *Reliance by Contractor on Technical Data*: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b.

D. *Limitations of Other Data and Documents*: Except for such reliance on 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;

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

3. the contents of other Site-related documents made available to Contractor, such as record drawings from other projects at or adjacent to the Site, or Owner's archival documents concerning the Site; or

4. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

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5.04 *Differing Subsurface or Physical Conditions*

A. *Notice by Contractor*: If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site:

1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate;

2. is of such a nature as to require a change in the Drawings or Specifications;

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 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

B. *Engineer's Review*: After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine whether it is necessary for Owner to obtain additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.

C. *Owner's Statement to Contractor Regarding Site Condition*: After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.

D. *Early Resumption of Work*: If at any time Engineer determines that Work in connection with the subsurface or physical condition in question may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the condition in question has been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.

E. *Possible Price and Times Adjustments*

1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or

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decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

a. Such condition must fall within any one or more of the categories described in Paragraph 5.04.A;

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 Paragraph 13.03; and,

c. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:

a. Contractor knew of the existence of such condition at the time Contractor made a 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 otherwise;

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

c. Contractor failed to give the written notice required by Paragraph 5.04.A.

3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.

4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

F. *Underground Facilities; Hazardous Environmental Conditions*: Paragraph 5.05 governs rights and responsibilities regarding the presence or location of Underground Facilities. Paragraph 5.06 governs rights and responsibilities regarding Hazardous Environmental Conditions. The provisions of Paragraphs 5.03 and 5.04 are not applicable to the presence or location of Underground Facilities, or to Hazardous Environmental Conditions.

5.05 *Underground Facilities*

A. *Contractor's Responsibilities*: Unless it is otherwise expressly provided in the Supplementary Conditions, the cost of all of the following are included in the Contract Price, and Contractor shall have full responsibility for:

1. reviewing and checking all information and data regarding existing Underground Facilities at the Site;

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2. complying with applicable state and local utility damage prevention Laws and Regulations;

3. verifying the actual location of those Underground Facilities shown or indicated in the Contract Documents as being within the area affected by the Work, by exposing such Underground Facilities during the course of construction;

4. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and

5. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.

B. *Notice by Contractor*: If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated on the Drawings, or was not shown or indicated on the Drawings with reasonable accuracy, then Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing regarding such Underground Facility.

C. *Engineer's Review*: Engineer will:

1. promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy;

2. identify and communicate with the owner of the Underground Facility; prepare recommendations to Owner (and if necessary issue any preliminary instructions to Contractor) regarding the Contractor's resumption of Work in connection with the Underground Facility in question;

3. obtain any pertinent cost or schedule information from Contractor; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and

4. advise Owner in writing of Engineer's findings, conclusions, and recommendations.

During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

D. *Owner's Statement to Contractor Regarding Underground Facility*: After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.

E. *Early Resumption of Work*: If at any time Engineer determines that Work in connection with the Underground Facility may resume prior to completion of Engineer's review

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or Owner's issuance of its statement to Contractor, because the Underground Facility in question and conditions affected by its presence have been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.

F. *Possible Price and Times Adjustments*

1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, to the extent that any existing Underground Facility at the Site that was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

   a. 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 Paragraph 13.03;

   b. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E; and

   c. Contractor gave the notice required in Paragraph 5.05.B.

2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.

3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

4. The information and data shown or indicated on the Drawings with respect to existing Underground Facilities at the Site is based on information and data (a) furnished by the owners of such Underground Facilities, or by others, (b) obtained from available records, or (c) gathered in an investigation conducted in accordance with the current edition of ASCE 38, Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data, by the American Society of Civil Engineers. If such information or data is incorrect or incomplete, Contractor's remedies are limited to those set forth in this Paragraph 5.05.F.

5.06 *Hazardous Environmental Conditions at Site*

A. *Reports and Drawings*: The Supplementary Conditions identify:

1. those reports known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site;

2. drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and

3. Technical Data contained in such reports and drawings.

B. *Reliance by Contractor on Technical Data Authorized*: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions

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with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b. Except for such reliance on 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;
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 removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.

D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.

E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) 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 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.

F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work,

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or (2) specifying any special conditions under which such Work may be resumed safely.

G. 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, as a result of such Work stoppage, such special conditions under which Work is agreed to be resumed by Contractor, or any costs or expenses incurred in response to the Hazardous Environmental Condition, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off. Entitlement to any such adjustment is subject to the provisions of Paragraphs 4.05.D, 4.05.E, 11.07, and 11.08.

H. 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, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.

I. 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, arbitration, or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.I obligates Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

J. 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 failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J obligates Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

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K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6—BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of Contractor's obligations under the Contract. These bonds must remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the terms of a prescribed bond form, the Supplementary Conditions, or other provisions of the Contract.

B. Contractor shall also furnish such other bonds (if any) as are required by the Supplementary Conditions or other provisions of the Contract.

C. All bonds must be in the form included in the Bidding Documents or otherwise specified by Owner prior to execution of the Contract, except as provided otherwise by Laws or Regulations, and must be issued and signed by a surety named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Department Circular 570 (as amended and supplemented) by the Bureau of the Fiscal Service, U.S. Department of the Treasury. A bond 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 must show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.

D. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue bonds in the required amounts.

E. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer in writing and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which must comply with the bond and surety requirements above.

F. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner's termination rights under Article 16.

G. Upon request to Owner from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Owner shall provide a copy of the payment bond to such person or entity.

H. Upon request to Contractor from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the

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performance of the Work, Contractor shall provide a copy of the payment bond to such person or entity.

6.02 *Insurance—General Provisions*

A. Owner and Contractor shall obtain and maintain insurance as required in this article and in the Supplementary Conditions.

B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized in the state or jurisdiction in which the Project is located to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.

C. Alternative forms of insurance coverage, including but not limited to self-insurance and "Occupational Accident and Excess Employer's Indemnity Policies," are not sufficient to meet the insurance requirements of this Contract, unless expressly allowed in the Supplementary Conditions.

D. Contractor shall deliver to Owner, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Contractor has obtained and is maintaining the policies and coverages required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, full disclosure of all relevant exclusions, and evidence of insurance required to be purchased and maintained by Subcontractors or Suppliers. In any documentation furnished under this provision, Contractor, Subcontractors, and Suppliers may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those applicable to this Contract.

E. Owner shall deliver to Contractor, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Owner has obtained and is maintaining the policies and coverages required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, and full disclosure of all relevant exclusions. In any documentation furnished under this provision, Owner may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those relevant to this Contract.

F. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, will not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.

G. In addition to the liability insurance required to be provided by Contractor, the Owner, at Owner's option, may purchase and maintain Owner's own liability insurance.

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Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.

H. Contractor shall require:

1. Subcontractors to purchase and maintain worker's compensation, commercial general liability, and other insurance that is appropriate for their participation in the Project, and to name as additional insureds Owner and Engineer (and any other individuals or entities identified in the Supplementary Conditions as additional insureds on Contractor's liability policies) on each Subcontractor's commercial general liability insurance policy; and

2. Suppliers to purchase and maintain insurance that is appropriate for their participation in the Project.

I. If either party does not purchase or maintain the insurance required of such party by the Contract, 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.

J. If Contractor has failed to obtain and maintain required insurance, Contractor's entitlement to enter or remain at the Site will end immediately, and Owner may impose an appropriate set-off against payment for any associated costs (including but not limited to the cost of purchasing necessary insurance coverage), and exercise Owner's termination rights under Article 16.

K. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect (but is in no way obligated) to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price will be adjusted accordingly.

L. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests. Contractor is responsible for determining whether such coverage and limits are adequate to protect its interests, and for obtaining and maintaining any additional insurance that Contractor deems necessary.

M. The insurance and insurance limits required herein will not be deemed as a limitation on Contractor's liability, or that of its Subcontractors or Suppliers, under the indemnities granted to Owner and other individuals and entities in the Contract or otherwise.

N. All the policies of insurance required to be purchased and maintained under this Contract will contain a provision or endorsement that the coverage afforded will not be canceled, or renewal refused, until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured and Engineer.

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6.03 *Contractor's Insurance*

A. *Required Insurance*: Contractor shall purchase and maintain Worker's Compensation, Commercial General Liability, and other insurance pursuant to the specific requirements of the Supplementary Conditions.

B. *General Provisions*: The policies of insurance required by this Paragraph 6.03 as supplemented must:

1. include at least the specific coverages required;

2. be written for not less than the limits provided, or those required by Laws or Regulations, whichever is greater;

3. remain in effect at least until the Work is complete (as set forth in Paragraph 15.06.D), and longer if expressly required elsewhere in this Contract, and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract;

4. apply with respect to the performance of the Work, whether such performance is 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; and

5. include all necessary endorsements to support the stated requirements.

C. *Additional Insureds*: The Contractor's commercial general liability, automobile liability, employer's liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies, if required by this Contract, must:

1. include and list as additional insureds Owner and Engineer, and any individuals or entities identified as additional insureds in the Supplementary Conditions;

2. include coverage for the respective officers, directors, members, partners, employees, and consultants of all such additional insureds;

3. afford primary coverage to these additional insureds for all claims covered thereby (including as applicable those arising from both ongoing and completed operations);

4. not seek contribution from insurance maintained by the additional insured; and

5. as to commercial general liability insurance, apply to additional insureds with respect to liability caused in whole or in part by Contractor's acts or omissions, or the acts and omissions of those working on Contractor's behalf, in the performance of Contractor's operations.

6.04 *Builder's Risk and Other Property Insurance*

A. *Builder's Risk*: Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the Work's full insurable replacement cost (subject to such deductible amounts as may be provided in the Supplementary

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Conditions or required by Laws and Regulations). The specific requirements applicable to the builder's risk insurance are set forth in the Supplementary Conditions.

B. *Property Insurance for Facilities of Owner Where Work Will Occur*: Owner is responsible for obtaining and maintaining property insurance covering each existing structure, building, or facility in which any part of the Work will occur, or to which any part of the Work will attach or be adjoined. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, providing coverage consistent with that required for the builder's risk insurance, and will be maintained until the Work is complete, as set forth in Paragraph 15.06.D.

C. *Property Insurance for Substantially Complete Facilities*: Promptly after Substantial Completion, and before actual occupancy or use of the substantially completed Work, Owner will obtain property insurance for such substantially completed Work, and maintain such property insurance at least until the Work is complete, as set forth in Paragraph 15.06.D. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, and provide coverage consistent with that required for the builder's risk insurance. The builder's risk insurance may terminate upon written confirmation of Owner's procurement of such property insurance.

D. *Partial Occupancy or Use by Owner*: If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work, as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide advance notice of such occupancy or use to the builder's risk insurer, and obtain an endorsement consenting to the continuation of coverage prior to commencing such partial occupancy or use.

E. *Insurance of Other Property; Additional Insurance*: If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, then the entity or individual owning such property item will be responsible for insuring it. If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.04, it may do so at Contractor's expense.

6.05 *Property Losses; Subrogation*

A. The builder's risk insurance policy purchased and maintained in accordance with Paragraph 6.04 (or an installation floater policy if authorized by the Supplementary Conditions), will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors.

1. Owner and Contractor waive all rights against each other and the 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, risks, 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 Engineer, its consultants, all individuals or entities identified in the Supplementary Conditions as builder's risk or installation

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floater insureds, 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.

2. None of the above waivers extends to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.

B. Any property insurance policy maintained by Owner covering any loss, damage, or consequential loss to Owner's existing structures, buildings, or facilities in which any part of the Work will occur, or to which any part of the Work will attach or adjoin; to adjacent structures, buildings, or facilities of Owner; or to part or all of the completed or substantially completed Work, during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06, will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them, and that the insured is allowed to waive the insurer's rights of subrogation in a written contract executed prior to the loss, damage, or consequential loss.

1. 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 all losses and damages caused by, arising out of, or resulting from fire or any of the perils, risks, or causes of loss covered by such policies.

C. The waivers in this Paragraph 6.05 include the waiver of rights 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 insured peril, risk, or cause of loss.

D. Contractor shall be responsible for assuring that each Subcontract contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, 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 fire or other peril, risk, or cause of loss covered by builder's risk insurance, installation floater, and any other property insurance applicable to the Work.

6.06 *Receipt and Application of Property Insurance Proceeds*

A. Any insured loss under the builder's risk and other policies of property insurance required by Paragraph 6.04 will be adjusted and settled with the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.

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B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.04 shall maintain such proceeds in a segregated account, and distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.

C. If no other special agreement is reached, Contractor shall repair or replace the damaged Work, using allocated insurance proceeds.

ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

7.01 *Contractor's Means and Methods of Construction*

A. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.

B. If the Contract Documents note, or Contractor determines, that professional engineering or other design services are needed to carry out Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures, or for Site safety, then Contractor shall cause such services to be provided by a properly licensed design professional, at Contractor's expense. Such services are not Owner-delegated professional design services under this Contract, and neither Owner nor Engineer has any responsibility with respect to (1) Contractor's determination of the need for such services, (2) the qualifications or licensing of the design professionals retained or employed by Contractor, (3) the performance of such services, or (4) any errors, omissions, or defects in such services.

7.02 *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.

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

7.03 *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 maintain good discipline and order at the Site.

B. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of Contractor's employees; of Suppliers and Subcontractors, and their employees; and of any other individuals or entities performing or furnishing any of the Work, just as Contractor is responsible for Contractor's own acts and omissions.

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C. 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 will be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

7.04 *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, whether or not such items are specifically called for in the Contract Documents.

B. All materials and equipment incorporated into the Work must be new and of good quality, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications will 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 must 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.

7.05 *"Or Equals"*

A. *Contractor's Request; Governing Criteria*: Whenever an item of equipment or material is specified or described in the Contract Documents by using the names of one or more proprietary items or specific Suppliers, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item 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 is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material, or items from other proposed Suppliers, under the circumstances described below.

1. If Engineer in its sole discretion determines that an item of equipment or material proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer will deem it an "or

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equal" item. For the purposes of this paragraph, a proposed item of equipment or material will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment Engineer determines that the proposed item:

1) is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

2) 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;

3) has a proven record of performance and availability of responsive service; and

4) is not objectionable to Owner.

b. Contractor certifies that, if the proposed item is approved and incorporated into the Work:

1) there will be no increase in cost to the Owner or increase in Contract Times; and

2) the item will conform substantially to the detailed requirements of the item named in the Contract Documents.

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

C. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal," which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.

D. *Effect of Engineer's Determination*: Neither approval nor denial of an "or-equal" request will result in any change in Contract Price. The Engineer's denial of an "or-equal" request will be final and binding, and may not be reversed through an appeal under any provision of the Contract.

E. *Treatment as a Substitution Request*: If Engineer determines that an item of equipment or material proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer consider the item a proposed substitute pursuant to Paragraph 7.06.

7.06 *Substitutes*

A. *Contractor's Request; Governing Criteria*: Unless the specification or description of an item of equipment or material required to be furnished under the Contract

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Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material under the circumstances described below. To the extent possible such requests must be made before commencement of related construction at the Site.

1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of equipment or material from anyone other than Contractor.
2. The requirements for review by Engineer will be as set forth in Paragraph 7.06.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.
3. Contractor shall make written application to Engineer for review of a proposed substitute item of equipment or material that Contractor seeks to furnish or use. The application:
    a. will certify that the proposed substitute item will:
        1) perform adequately the functions and achieve the results called for by the general design;
        2) be similar in substance to the item specified; and
        3) be suited to the same use as the item specified.
    b. will state:
        1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times;
        2) 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
        3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
    c. will identify:
        1) all variations of the proposed substitute item from the item specified; and
        2) available engineering, sales, maintenance, repair, and replacement services.
    d. will contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.

B. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed

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substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.

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

D. *Reimbursement of Engineer's Cost*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. 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.

E. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute at Contractor's expense.

F. *Effect of Engineer's Determination*: If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request will be final and binding, and may not be reversed through an appeal under any provision of the Contract. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.06.D, by timely submittal of a Change Proposal.

7.07 *Concerning Subcontractors and Suppliers*

A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner. The Contractor's retention of a Subcontractor or Supplier for the performance of parts of the Work will not relieve Contractor's obligation to Owner to perform and complete the Work in accordance with the Contract Documents.

B. Contractor shall retain specific Subcontractors and Suppliers for the performance of designated parts of the Work if required by the Contract to do so.

C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor or Supplier to furnish or perform any of the Work against which Contractor has reasonable objection.

D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within 5 days.

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E. Owner may require the replacement of any Subcontractor or Supplier. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors or Suppliers for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor or Supplier so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor or Supplier.

F. If Owner requires the replacement of any Subcontractor or Supplier retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.

G. No acceptance by Owner of any such Subcontractor or Supplier, whether initially or as a replacement, will constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.

H. On a monthly basis, Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.

I. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors and Suppliers.

J. The divisions and sections of the Specifications and the identifications of any Drawings do not control Contractor in dividing the Work among Subcontractors or Suppliers, or in delineating the Work to be performed by any specific trade.

K. All Work performed for Contractor by a Subcontractor or Supplier must be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract for the benefit of Owner and Engineer.

L. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor for Work performed for Contractor by the Subcontractor or Supplier.

M. Contractor shall restrict all Subcontractors and Suppliers from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed in this Contract.

7.08 *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 an 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

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for the payment of any license fee or royalty to others, the existence of such rights will be disclosed 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.

7.09 *Permits*

A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits, licenses, and certificates of occupancy. 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 the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

7.10 *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.

7.11 *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. Neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.

B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and

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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 such Work or other action. It is not Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this does not relieve Contractor of its obligations under Paragraph 3.03.

C. Owner or Contractor may give written notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such written notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.12 *Record Documents*

A. Contractor shall maintain in a safe place at the Site one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings. Contractor shall keep such record documents in good order and annotate them to show changes made during construction. These record documents, together with all approved Samples, will be available to Engineer for reference. Upon completion of the Work, Contractor shall deliver these record documents to Engineer.

7.13 *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.

B. Contractor shall designate a qualified and experienced safety representative whose duties and responsibilities are the prevention of Work-related accidents and the maintenance and supervision of safety precautions and programs.

C. 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, other work in progress, utilities, and Underground

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Facilities not designated for removal, relocation, or replacement in the course of construction.

D. All damage, injury, or loss to any property referred to in Paragraph 7.13.C.2 or 7.13.C.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 at its expense (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).

E. 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.

F. Contractor shall notify Owner; the owners of adjacent property; the owners of Underground Facilities and other utilities (if the identity of such owners is known to Contractor); and other contractors and utility owners performing work at or adjacent to the Site, in writing, when Contractor knows that prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.

G. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. Any Owner's safety programs that are applicable to the Work are identified or included in the Supplementary Conditions or Specifications.

H. 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.

I. Contractor's duties and responsibilities for safety and protection will continue until all the Work is completed, Engineer has issued a written notice to Owner and Contractor in accordance with Paragraph 15.06.C that the Work is acceptable, and Contractor has left the Site (except as otherwise expressly provided in connection with Substantial Completion).

J. Contractor's duties and responsibilities for safety and protection will resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.14 *Hazard Communication Programs*

A. Contractor shall be responsible for coordinating any exchange of safety data sheets (formerly known as 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.

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7.15 *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 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 by an emergency, or are required as a result of Contractor's response to an emergency. If Engineer determines that a change in the Contract Documents is required because of an emergency or Contractor's response, a Work Change Directive or Change Order will be issued.

7.16 *Submittals*

A. *Shop Drawing and Sample Requirements*

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

a. review and coordinate the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;

b. determine and verify:

1) all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect to the Submittal;

2) the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and

3) all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto;

c. confirm that the Submittal is complete with respect to all related data included in the Submittal.

2. Each Shop Drawing or Sample must bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that Submittal, and that Contractor approves the Submittal.

3. With each Shop Drawing or Sample, Contractor shall give Engineer specific written notice of any variations that the Submittal may have from the requirements of the Contract Documents. This notice must be set forth in a written communication separate from the Submittal; and, in addition, in the case of a Shop Drawing by a specific notation made on the Shop Drawing itself.

B. *Submittal Procedures for Shop Drawings and Samples*: Contractor shall label and submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals.

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1. *Shop Drawings*

    a. Contractor shall submit the number of copies required in the Specifications.

    b. Data shown on the Shop Drawings must 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 7.16.C.

2. *Samples*

    a. Contractor shall submit the number of Samples required in the Specifications.

    b. Contractor shall 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 7.16.C.

3. 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. *Engineer's Review of Shop Drawings and Samples*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the accepted Schedule of Submittals. 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, comply with the requirements of 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, or to safety precautions or programs incident thereto.

3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

4. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.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 will document any such approved variation from the requirements of the Contract Documents in a Field Order or other appropriate Contract modification.

5. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for complying with the requirements of Paragraphs 7.16.A and B.

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6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, will not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.

7. Neither Engineer's receipt, review, acceptance, or approval of a Shop Drawing or Sample will result in such item becoming a Contract Document.

8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.C.4.

D. *Resubmittal Procedures for Shop Drawings and Samples*

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.

2. Contractor shall furnish required Shop Drawing and Sample submittals with sufficient information and accuracy to obtain required approval of an item with no more than two resubmittals. Engineer will record Engineer's time for reviewing a third or subsequent resubmittal of a Shop Drawing or Sample, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges.

3. If Contractor requests a change of a previously approved Shop Drawing or Sample, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

E. *Submittals Other than Shop Drawings, Samples, and Owner-Delegated Designs*

1. The following provisions apply to all Submittals other than Shop Drawings, Samples, and Owner-delegated designs:

   a. Contractor shall submit all such Submittals to the Engineer in accordance with the Schedule of Submittals and pursuant to the applicable terms of the Contract Documents.

   b. Engineer will provide timely review of all such Submittals in accordance with the Schedule of Submittals and return such Submittals with a notation of either Accepted or Not Accepted. Any such Submittal that is not returned within the time established in the Schedule of Submittals will be deemed accepted.

   c. Engineer's review will be only to determine if the Submittal is acceptable under the requirements of the Contract Documents as to general form and content of the Submittal.

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d. If any such Submittal is not accepted, Contractor shall confer with Engineer regarding the reason for the non-acceptance, and resubmit an acceptable document.

2. Procedures for the submittal and acceptance of the Progress Schedule, the Schedule of Submittals, and the Schedule of Values are set forth in Paragraphs 2.03. 2.04, and 2.05.

F. Owner-delegated Designs: Submittals pursuant to Owner-delegated designs are governed by the provisions of Paragraph 7.19.

7.17 *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 is entitled to rely on Contractor's warranty and guarantee.

B. Owner's rights under this warranty and guarantee are in addition to, and are not limited by, Owner's rights under the correction period provisions of Paragraph 15.08. The time in which Owner may enforce its warranty and guarantee rights under this Paragraph 7.17 is limited only by applicable Laws and Regulations restricting actions to enforce such rights; provided, however, that after the end of the correction period under Paragraph 15.08:

1. Owner shall give Contractor written notice of any defective Work within 60 days of the discovery that such Work is defective; and

2. Such notice will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the notice.

C. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, or improper modification, 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.

D. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents is absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents, a release of Contractor's obligation to perform the Work in accordance with the Contract Documents, or a release of Owner's warranty and guarantee rights under this Paragraph 7.17:

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;

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5. Any review and approval of a Shop Drawing or Sample submittal;
6. The issuance of a notice of acceptability by Engineer;
7. The end of the correction period established in Paragraph 15.08;
8. Any inspection, test, or approval by others; or
9. Any correction of defective Work by Owner.

E. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract will govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 *Indemnification*

A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, 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 losses, damages, costs, and judgments (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 from third-party claims or actions relating to or resulting from the performance or furnishing of the Work, provided that any such claim, action, loss, cost, judgment or damage is attributable to bodily injury, sickness, disease, or death, or to damage 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 7.18.A will 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.

7.19 *Delegation of Professional Design Services*

A. Owner may require Contractor to provide professional design services for a portion of the Work by express delegation in the Contract Documents. Such delegation will specify the performance and design criteria that such services must satisfy, and the Submittals that Contractor must furnish to Engineer with respect to the Owner-delegated design.

B. Contractor shall cause such Owner-delegated professional design services to be provided pursuant to the professional standard of care by a properly licensed design

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professional, whose signature and seal must appear on all drawings, calculations, specifications, certifications, and Submittals prepared by such design professional. Such design professional must issue all certifications of design required by Laws and Regulations.

C. If a Shop Drawing or other Submittal related to the Owner-delegated design is prepared by Contractor, a Subcontractor, or others for submittal to Engineer, then such Shop Drawing or other Submittal must bear the written approval of Contractor's design professional when submitted by Contractor to Engineer.

D. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, and approvals performed or provided by the design professionals retained or employed by Contractor under an Owner-delegated design, subject to the professional standard of care and the performance and design criteria stated in the Contract Documents.

E. Pursuant to this Paragraph 7.19, Engineer's review, approval, and other determinations regarding design drawings, calculations, specifications, certifications, and other Submittals furnished by Contractor pursuant to an Owner-delegated design will be only for the following limited purposes:

1. Checking for conformance with the requirements of this Paragraph 7.19;

2. Confirming that Contractor (through its design professionals) has used the performance and design criteria specified in the Contract Documents; and

3. Establishing that the design furnished by Contractor is consistent with the design concept expressed in the Contract Documents.

F. Contractor shall not be responsible for the adequacy of performance or design criteria specified by Owner or Engineer.

G. Contractor is not required to provide professional services in violation of applicable Laws and Regulations.

ARTICLE 8—OTHER WORK AT THE SITE

8.01 *Other Work*

A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.

B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any third-party utility work that Owner has arranged to take place at or adjacent to the Site, Owner shall provide such information to Contractor.

C. Contractor shall afford proper and safe access to the Site to each contractor that performs such other work, each utility owner performing other work, and Owner, if

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Owner is performing other work with Owner's employees, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work.

D. 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.

E. If the proper execution or results of any part of Contractor's Work depends upon work performed by others, 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.

F. The provisions of this article are not applicable to work that is performed by third-party utilities or other third-party entities without a contract with Owner, or that is performed without having been arranged by Owner. If such work occurs, then any related delay, disruption, or interference incurred by Contractor is governed by the provisions of Paragraph 4.05.C.3.

8.02 *Coordination*

A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:

1. The identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;

2. An itemization of the specific matters to be covered by such authority and responsibility; and

3. The extent of such authority and responsibilities.

B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

8.03 *Legal Relationships*

A. If, in the course of performing other work for Owner at or adjacent to the Site, the Owner's employees, any other contractor working for Owner, or any utility owner that Owner has arranged to perform work, causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times. Contractor must submit any Change Proposal seeking an equitable

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adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment will take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract, and any remedies available to Contractor under Laws or Regulations concerning utility action or inaction. When applicable, any such equitable adjustment in Contract Price will be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times or Contract Price is subject to the provisions of Paragraphs 4.05.D and 4.05.E.

B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site.

   1. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this Paragraph 8.03.B.

   2. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due Contractor.

C. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) 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 any such claims, and against all 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 damage, delay, disruption, or interference.

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ARTICLE 9—OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

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

9.02 *Replacement of Engineer*

A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents will be that of the former Engineer.

9.03 *Furnish Data*

A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

9.04 *Pay When Due*

A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

9.05 *Lands and Easements; Reports, Tests, and Drawings*

A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.

B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.

C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 *Insurance*

A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

9.07 *Change Orders*

A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

9.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 *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

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the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

9.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 *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 (including obligations under proposed changes in the Work).

9.12 *Safety Programs*

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.

B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10—ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *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.

10.02 *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 10.07. 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.

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10.03 *Resident Project Representative*

A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in the Supplementary Conditions and in Paragraph 10.07.

B. If Owner designates an individual or entity who is not Engineer's consultant, agent, or employee to represent Owner at the Site, then the responsibilities and authority of such individual or entity will be as provided in the Supplementary Conditions.

10.04 *Engineer's Authority*

A. Engineer has the authority to reject Work in accordance with Article 14.

B. Engineer's authority as to Submittals is set forth in Paragraph 7.16.

C. Engineer's authority as to design drawings, calculations, specifications, certifications and other Submittals from Contractor in response to Owner's delegation (if any) to Contractor of professional design services, is set forth in Paragraph 7.19.

D. Engineer's authority as to changes in the Work is set forth in Article 11.

E. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.05 *Determinations for Unit Price Work*

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

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

A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.07 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, 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, will 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.

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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 Contractor under Paragraph 15.06.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 10.07 also apply to the Resident Project Representative, if any.

10.08 *Compliance with Safety Program*

A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs of which Engineer has been informed.

ARTICLE 11—CHANGES TO THE CONTRACT

11.01 *Amending and Supplementing the Contract*

A. The Contract may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.

B. If an amendment or supplement to the Contract includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order.

C. All changes to the Contract that involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, must be supported by Engineer's recommendation. Owner and Contractor may amend other terms and conditions of the Contract without the recommendation of the Engineer.

11.02 *Change Orders*

A. Owner and Contractor shall execute appropriate Change Orders covering:

1. Changes in 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;

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2. Changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;

3. Changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.05, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters; and

4. Changes that embody the substance of any final and binding results under: Paragraph 11.03.B, resolving the impact of a Work Change Directive; Paragraph 11.09, concerning Change Proposals; Article 12, Claims; Paragraph 13.02.D, final adjustments resulting from allowances; Paragraph 13.03.D, final adjustments relating to determination of quantities for Unit Price Work; and similar provisions.

B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of Paragraph 11.02.A, it will be deemed to be of full force and effect, as if fully executed.

11.03 *Work Change Directives*

A. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.07 regarding change of Contract Price.

B. If Owner has issued a Work Change Directive and:

1. Contractor believes that an adjustment in Contract Times or Contract Price is necessary, then Contractor shall submit any Change Proposal seeking such an adjustment no later than 30 days after the completion of the Work set out in the Work Change Directive.

2. Owner believes that an adjustment in Contract Times or Contract Price is necessary, then Owner shall submit any Claim seeking such an adjustment no later than 60 days after issuance of the Work Change Directive.

11.04 *Field Orders*

A. Engineer may authorize minor changes in the Work if the changes 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. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly.

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B. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.05 *Owner-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. Changes involving the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters will be supported by Engineer's recommendation.

B. Such changes in the Work may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work must be performed under the applicable conditions of the Contract Documents.

C. Nothing in this Paragraph 11.05 obligates Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.06 *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, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.C.2.

11.07 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment of Contract Price must comply with the provisions of Article 12.

B. 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, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03);

2. Where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.07.C.2); or

3. Where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus

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a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.07.C).

C. *Contractor's Fee*: When applicable, the Contractor's fee for overhead and profit will 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 13.01.B.1 and 13.01.B.2, the Contractor's fee will be 15 percent;

b. For costs incurred under Paragraph 13.01.B.3, the Contractor's fee will be 5 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 11.07.C.2.a and 11.07.C.2.b is that the Contractor's fee will be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of 5 percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted Work the maximum total fee to be paid by Owner will be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the Work;

d. No fee will be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;

e. The amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in Cost of the Work will be the amount of the actual net decrease in Cost of the Work and a deduction of an additional amount equal to 5 percent of such actual net decrease in Cost of the Work; and

f. When both additions and credits are involved in any one change or Change Proposal, the adjustment in Contractor's fee will be computed by determining the sum of the costs in each of the cost categories in Paragraph 13.01.B (specifically, payroll costs, Paragraph 13.01.B.1; incorporated materials and equipment costs, Paragraph 13.01.B.2; Subcontract costs, Paragraph 13.01.B.3; special consultants costs, Paragraph 13.01.B.4; and other costs, Paragraph 13.01.B.5) and applying to each such cost category sum the appropriate fee from Paragraphs 11.07.C.2.a through 11.07.C.2.e, inclusive.

11.08 *Change of Contract Times*

A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment in the Contract Times must comply with the provisions of Article 12.

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B. Delay, disruption, and interference in the Work, and any related changes in Contract Times, are addressed in and governed by Paragraph 4.05.

11.09 *Change Proposals*

A. *Purpose and Content*: Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; contest an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; challenge a set-off against payment due; or seek other relief under the Contract. The Change Proposal will specify any proposed change in Contract Times or Contract Price, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents. Each Change Proposal will address only one issue, or a set of closely related issues.

B. *Change Proposal Procedures*

1. *Submittal*: Contractor shall submit each Change Proposal to Engineer within 30 days after the start of the event giving rise thereto, or after such initial decision.

2. *Supporting Data*: The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal.

   a. Change Proposals based on or related to delay, interruption, or interference must comply with the provisions of Paragraphs 4.05.D and 4.05.E.

   b. Change proposals related to a change of Contract Price must include full and detailed accounts of materials incorporated into the Work and labor and equipment used for the subject Work.

   The supporting data must be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event.

3. *Engineer's Initial Review*: Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal. If in its discretion Engineer concludes that additional supporting data is needed before conducting a full review and making a decision regarding the Change Proposal, then Engineer may request that Contractor submit such additional supporting data by a date specified by Engineer, prior to Engineer beginning its full review of the Change Proposal.

4. *Engineer's Full Review and Action on the Change Proposal*: Upon receipt of Contractor's supporting data (including any additional data requested by Engineer), Engineer will conduct a full review of each Change Proposal and, within 30 days after such receipt of the Contractor's supporting data, either approve the Change Proposal in whole, deny it in whole, or approve it in part and deny it in part. Such actions must be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party

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indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.

5. *Binding Decision*: Engineer's decision is final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.

C. *Resolution of Certain Change Proposals*: If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties in writing that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice will be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

D. *Post-Completion*: Contractor shall not submit any Change Proposals after Engineer issues a written recommendation of final payment pursuant to Paragraph 15.06.B.

11.10 *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.

ARTICLE 12—CLAIMS

12.01 *Claims*

A. *Claims Process*: The following disputes between Owner and Contractor are subject to the Claims process set forth in this article:

1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;

2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents;

3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters; and

4. Subject to the waiver provisions of Paragraph 15.07, any dispute arising after Engineer has issued a written recommendation of final payment pursuant to Paragraph 15.06.B.

B. *Submittal of Claim*: The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim rests with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, Contractor shall certify that the Claim

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is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.

C. *Review and Resolution*: The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim will be stated in writing and submitted to the other party, with a copy to Engineer.

D. *Mediation*

1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate will stay the Claim submittal and response process.

2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process will resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal and decision process will resume as of the date of the conclusion of the mediation, as determined by the mediator.

3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.

E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action will be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.

F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim will be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.

G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim will be incorporated in a Change Order or other written document to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13—COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 *Cost of the Work*

A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further

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defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:

1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or

2. When needed to determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.

B. *Costs Included*: Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work will be in amounts no higher than those commonly incurred in the locality of the Project, will not include any of the costs itemized in Paragraph 13.01.C, and will 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 in advance of the subject Work. Such employees include, without limitation, superintendents, foremen, safety managers, safety representatives, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work will be apportioned on the basis of their time spent on the Work. Payroll costs include, but are not limited to, salaries and wages plus the cost of fringe benefits, which include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, will 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 accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts will accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment will 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, which 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 will be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.

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

5. Other costs consisting of 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, 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.

        1) In establishing included costs for materials such as scaffolding, plating, or sheeting, consideration will be given to the actual or the estimated life of the material for use on other projects; or rental rates may be established on the basis of purchase or salvage value of such items, whichever is less. Contractor will not be eligible for compensation for such items in an amount that exceeds the purchase cost of such item.

    c. *Construction Equipment Rental*

        1) Rentals of all construction equipment and machinery, and the parts thereof, in accordance with rental agreements approved by Owner as to price (including any surcharge or special rates applicable to overtime use of the construction equipment or machinery), and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs will be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts must cease when the use thereof is no longer necessary for the Work.

        2) Costs for equipment and machinery owned by Contractor or a Contractor-related entity will be paid at a rate shown for such equipment in the equipment rental rate book specified in the Supplementary Conditions. An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs.

        3) With respect to Work that is the result of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price ("changed Work"), included costs will be based on the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, must cease to accrue when the use thereof is no longer necessary for the changed 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.

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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 builder's risk or other property insurance established in accordance with Paragraph 6.04), 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 include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses will 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 communication 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 that Contractor is required by the Contract Documents to purchase and maintain.

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

1. Payroll costs and other compensation of Contractor's officers, executives, principals, general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, 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 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.

2. The cost of purchasing, renting, or furnishing small tools and hand tools.

3. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

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

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

6. Expenses incurred in preparing and advancing Claims.

7. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.

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D. *Contractor's Fee*

1. When the Work as a whole is performed on the basis of cost-plus-a-fee, then:

   a. Contractor's fee for the Work set forth in the Contract Documents as of the Effective Date of the Contract will be determined as set forth in the Agreement.

   b. for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work, Contractor's fee will be determined as follows:

      1) When the fee for the Work as a whole is a percentage of the Cost of the Work, the fee will automatically adjust as the Cost of the Work changes.

      2) When the fee for the Work as a whole is a fixed fee, the fee for any additions or deletions will be determined in accordance with Paragraph 11.07.C.2.

2. When the Work as a whole is performed on the basis of a stipulated sum, or any other basis other than cost-plus-a-fee, then Contractor's fee for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work will be determined in accordance with Paragraph 11.07.C.2.

E. *Documentation and Audit*: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor and pertinent Subcontractors will establish and maintain records of the costs in accordance with generally accepted accounting practices. Subject to prior written notice, Owner will be afforded reasonable access, during normal business hours, to all Contractor's accounts, records, books, correspondence, instructions, drawings, receipts, vouchers, memoranda, and similar data relating to the Cost of the Work and Contractor's fee. Contractor shall preserve all such documents for a period of three years after the final payment by Owner. Pertinent Subcontractors will afford such access to Owner, and preserve such documents, to the same extent required of Contractor.

13.02 *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*: Contractor agrees that:

1. 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

2. 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 for any of the foregoing will be valid.

C. *Owner's Contingency Allowance*: Contractor agrees that an Owner's contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

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D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor for Work covered by allowances, and the Contract Price will be correspondingly adjusted.

13.03 *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. Payments to Contractor for Unit Price Work will be based on actual quantities.

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. 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, and the final adjustment of Contract Price will be set forth in a Change Order, subject to the provisions of the following paragraph.

E. *Adjustments in Unit Price*

1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:

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

    b. Contractor's unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.

2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor's costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.

3. Adjusted unit prices will apply to all units of that item.

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ARTICLE 14—TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK

14.01 *Access to Work*

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction 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 with such procedures and programs as applicable.

14.02 *Tests, Inspections, and Approvals*

A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.

B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work will be governed by the provisions of Paragraph 14.05.

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, obtaining, and paying for all inspections and tests required:

1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
3. by manufacturers of equipment furnished under the Contract Documents;
4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests will be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

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E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.

F. 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. Such uncovering will be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

A. *Contractor's Obligation*: It is Contractor's obligation to assure that the Work is not defective.

B. *Engineer's Authority*: Engineer has the authority to determine whether Work is defective, and to reject defective Work.

C. *Notice of Defects*: Prompt written notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.

D. *Correction, or Removal and Replacement*: Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.

E. *Preservation of Warranties*: When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

F. *Costs and Damages*: In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs, losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 *Acceptance of Defective Work*

A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs

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prior to final payment, the necessary revisions in the Contract Documents with respect to the Work will be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 *Uncovering Work*

A. Engineer has the authority to require additional inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.

B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.

C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then 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, and provide all necessary labor, material, and equipment.

1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages 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 pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.

2. 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, 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, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 *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, then 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 will 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.

14.07 *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 defective Work as required by Engineer, then

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Owner may, after 7 days' written notice to Contractor, correct or remedy any such deficiency.

B. In exercising the rights and remedies under this Paragraph 14.07, 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, 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 incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. 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 14.07.

ARTICLE 15—PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.01 *Progress Payments*

A. *Basis for Progress Payments*: The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments for Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.

B. *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.

2. 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 must also be accompanied by: (a) a bill of sale, invoice, copies of subcontract or purchase order payments, or other

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documentation establishing full payment by Contractor for the materials and equipment; (b) at Owner's request, documentation warranting that Owner has received the materials and equipment free and clear of all Liens; and (c) evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

3. Beginning with the second Application for Payment, each Application must include an affidavit of Contractor stating that all previous progress payments received by Contractor have been applied to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

4. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

C. *Review of Applications*

1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, 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 13.03, 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; or

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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;

   b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto;

   c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work;

   d. to make any examination to ascertain how or for what purposes Contractor has used the money paid by Owner; 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 15.01.C.2.

6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:

   a. the Work is defective, requiring correction or replacement;

   b. the Contract Price has been reduced by Change Orders;

   c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;

   d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or

   e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. *Payment Becomes Due*

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

E. *Reductions in Payment by Owner*

1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:

   a. Claims have been made against Owner based on Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or

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damages resulting from Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;

b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;

c. Contractor has failed to provide and maintain required bonds or insurance;

d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;

e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;

f. The Work is defective, requiring correction or replacement;

g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;

h. The Contract Price has been reduced by Change Orders;

i. An event has occurred that would constitute a default by Contractor and therefore justify a termination for cause;

j. Liquidated or other damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;

k. 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; or

l. Other items entitle Owner to a set-off against the amount recommended.

2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, 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, if Contractor remedies the reasons for such action. The reduction imposed will be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.

3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld will be treated as an amount due as determined by Paragraph 15.01.D.1 and subject to interest as provided in the Agreement.

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15.02 *Contractor's Warranty of Title*

A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than 7 days after the time of payment by Owner.

15.03 *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 and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.

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 therefor.

C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which will fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have 7 days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.

D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.

E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.

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F. 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 punch list.

15.04 *Partial Use or Occupancy*

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. At any time, Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be 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 15.03.A through 15.03.E for that part of the Work.

2. At any time, Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work 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 therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 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 6.04 regarding builder's risk or other property insurance.

15.05 *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, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 *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,

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certificates of inspection, annotated record documents (as provided in Paragraph 7.12), and other documents, Contractor may make application for final payment.

2. The final Application for Payment must be accompanied (except as previously delivered) by:

   a. all documentation called for in the Contract Documents;

   b. consent of the surety, if any, to final payment;

   c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.

   d. a list of all duly pending Change Proposals and Claims; and

   e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) 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, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.

B. *Engineer's Review of Final Application and Recommendation of Payment*: 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 have been fulfilled, Engineer will, within 10 days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the final Application for Payment to Owner for payment. Such recommendation will account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. 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. *Notice of Acceptability*: In support of its recommendation of payment of the final Application for Payment, Engineer will also give written notice to Owner and

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Contractor that the Work is acceptable, subject to stated limitations in the notice and to the provisions of Paragraph 15.07.

D. *Completion of Work*: The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment and issuance of notice of the acceptability of the Work.

E. *Final Payment Becomes Due*: Upon receipt from Engineer of the final Application for Payment and accompanying documentation, Owner shall set off against the amount recommended by Engineer for final payment any further sum to which Owner is entitled, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions of this Contract with respect to progress payments. Owner shall pay the resulting balance due to Contractor within 30 days of Owner's receipt of the final Application for Payment from Engineer.

15.07 *Waiver of Claims*

A. By making final payment, Owner waives its claim or right to liquidated damages or other damages for late completion by Contractor, except as set forth in an outstanding Claim, appeal under the provisions of Article 17, set-off, or express reservation of rights by Owner. Owner reserves all other claims or rights after final payment.

B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted as a Claim, or appealed under the provisions of Article 17.

15.08 *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 Supplementary Conditions or the terms of any applicable special guarantee required by the Contract Documents), Owner gives Contractor written notice that any Work has been found to be defective, or that Contractor's repair of any damages to the Site or adjacent areas has been found to be defective, then after receipt of such notice of defect Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. correct the defective repairs to the Site or such adjacent areas;

2. correct such defective Work;

3. remove the defective Work from the Project and replace it with Work that is not defective, if the defective Work has been rejected by Owner, and

4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting from the corrective measures.

B. Owner shall give any such notice of defect within 60 days of the discovery that such Work or repairs is defective. If such notice is given within such 60 days but after the end of the correction period, the notice will be deemed a notice of defective Work under Paragraph 7.17.B.

C. If, after receipt of a notice of defect within 60 days and within the correction period, 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

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may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all 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). Contractor's failure to pay such costs, losses, and damages within 10 days of invoice from Owner will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the failure to pay.

D. 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.

E. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, 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.

F. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph are not to be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16—SUSPENSION OF WORK AND TERMINATION

16.01 *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 written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times directly attributable to any such suspension. Any Change Proposal seeking such adjustments must be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 *Owner May Terminate for Cause*

A. The occurrence of any one or more of the following events will constitute a default by Contractor and 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);

2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;

3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or

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4. Contractor's repeated disregard of the authority of Owner or Engineer.

B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) 10 days' written notice that Owner is considering a declaration that Contractor is in default and termination of the Contract, Owner may proceed to:

   1. declare Contractor to be in default, and give Contractor (and any surety) written notice that the Contract is terminated; and

   2. enforce the rights available to Owner under any applicable performance bond.

C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, 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 complete the Work as Owner may deem expedient.

D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within 7 days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.

E. If Owner proceeds as provided in Paragraph 16.02.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 the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses, and damages exceeds 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.

F. 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, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.

G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond will govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

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16.03 *Owner May Terminate for Convenience*

A. Upon 7 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; and

3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.

B. Contractor shall not be paid for any loss of anticipated profits or revenue, post-termination overhead costs, or other economic loss arising out of or resulting from such termination.

16.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon 7 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 16.03.

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, 7 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 are not intended to preclude Contractor from submitting a Change Proposal 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 17—FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

A. *Disputes Subject to Final Resolution*: The following disputed matters are subject to final resolution under the provisions of this article:

1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full, pursuant to Article 12; and

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2. Disputes between Owner and Contractor concerning the Work, or obligations under the Contract Documents, that arise after final payment has been made.

B. *Final Resolution of Disputes*: For any dispute subject to resolution under this article, Owner or Contractor may:

1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions;

2. agree with the other party to submit the dispute to another dispute resolution process; or

3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18—MISCELLANEOUS

18.01 *Giving Notice*

A. Whenever any provision of the Contract requires the giving of written notice to Owner, Engineer, or Contractor, it will be deemed to have been validly given only if delivered:

1. in person, by a commercial courier service or otherwise, to the recipient's place of business;

2. by registered or certified mail, postage prepaid, to the recipient's place of business; or

3. by e-mail to the recipient, with the words "Formal Notice" or similar in the e-mail's subject line.

18.02 *Computation of Times*

A. When any period of time is referred to in the Contract 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.

18.03 *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. 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.

18.04 *Limitation of Damages*

A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or

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subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

A. A party's non-enforcement of any provision will not constitute a waiver of that provision, nor will it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and acceptance of the Work or termination of the Contract or of the services of Contractor.

18.07 *Controlling Law*

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

18.08 *Assignment of Contract*

A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party to this Contract of any rights under or interests in the Contract will be binding on the other party without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is 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.

18.09 *Successors and Assigns*

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

18.10 *Headings*

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

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SECTION 00810 - SUPPLEMENTARY GENERAL CONDITIONS
FOR
2027 SEWER MAIN REPLACEMENT PROJECT
FOR
ASOTIN COUNTY PUBLIC UTILITY DISTRICT

These Supplementary General Conditions (SGC) amend or supplement the Standard General Conditions of the Construction Contract (EJCDC C-700, 2018 Edition), and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented shall remain in full force and effect.

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

SGC-1.01.A.22. Delete paragraph 1.01.A.22 of the Standard General Conditions in its entirety and insert the following in its place:

1.01.A.22. *ENGINEER* - The Asotin County Public Utility District, Asotin County, Washington, or the properly authorized Consulting ENGINEER, acting within the authority delegated to him by the OWNER.

SGC-1.01.A.39. Renumber paragraph 1.01.A.39 of the Standard General Conditions to 1.01.A.39.a and add the following new paragraph:

1.01.A.39.b. *Standard Specifications for Municipal Construction* - Wherever in these Contract Documents reference is made to Standard Specifications for Municipal Construction, said reference shall be understood as referring to the Washington State Department of Transportation, Standard Specification for Road, Bridge and Municipal Construction, which applicable parts are incorporated herein and made part of these Documents by specific reference thereto. If requirements contained in the Standard Specifications for Municipal Construction are modified or in conflict with the requirements in these Contract Documents, the requirements in these Contract Documents shall prevail.

SGC-1.01.A.51-56. Immediately following paragraph 1.01.A.50 of the Standard General Conditions, add the following new paragraphs:

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

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

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

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

1.01.55. *Consulting Engineer* - A licensed engineer or an authorized member of a licensed consulting engineering firm or organization, retained by the OWNER for the design and/or the construction engineering of a specific project.

ARTICLE 2 - PRELIMINARY MATTERS

SGC - 2.01.A. Add the following sentence to paragraph 2.01.A of the Standard General Conditions:

A. CONTRACTOR shall deliver to OWNER such bonds as CONTRACTOR is required to furnish prior to OWNER signing the agreement.

SGC - 2.01.B. Delete paragraph 2.01.B of the Standard General Conditions in its entirety and insert the following in its place:

B. Before issuance of the signed Agreement by OWNER, CONTRACTOR shall deliver to OWNER, with copies to each additional insured identified in the Supplementary General Conditions, certificates of insurance (and other evidence of insurance which the OWNER or any additional insured may reasonably request) which CONTRACTOR is required to purchase and maintain in accordance with Article 5.

SGC-2.01.D Immediately following paragraph 2.01.C. of the Standard General Conditions, add the following new paragraphs:

D. Within ten (10) days after receiving from the OWNER Notice of Award and the Agreements in form for signing, CONTRACTOR shall

sign and return the Agreements to the OWNER, along with required bonds and certificates of insurance.

ARTICLE 4 - COMMENCEMENT AND PROGRESS OF THE WORK

SGC - 4.01.A Delete paragraph 4.01.A of the Standard General Conditions in its entirety and insert the following in its place:

A. Within forty-five (45) days following opening of Bids, the lowest responsible BIDDER will be furnished with Notice of Award accompanied by three copies each of the Agreements and Payment and Performance Bonds in form for signatures in addition to attached exhibits.

ARTICLE 5—SITE; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

SGC - 5.03.A.1. The following reports of explorations and tests of subsurface conditions are identified and provided with the Bidding Documents as Supplementary Information.

Geotechnial Evaluation, Asotin County PUD/City of Clarkston Sewer Replacement, Alley locations are as follows: Alley between 3rd and 4th Streets, Alley between Oak and Libby Streets; and Alley between 9th and 10th Streets, between Fair Street and Bridge Street, Clarkston, Washington, ALLWEST Project No. 324-121G.

SGC - 5.03.A.2. The following drawings of physical conditions are identified as Supplementary Information.

None

SGC – 5.05.B-C. Delete paragraph 5.05.B-C of the Standard General Conditions and insert the following in its place:

B. *Not Shown or Indicated:* If an Underground Facility is uncovered or revealed at or contiguous to the site which was not shown or indicated in the Contract Documents, CONTRACTOR shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.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 advise the OWNER in writing of the consequences of the existence of the Underground Facility. If OWNER concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued as provided in Article 11 to reflect and document such consequences.

ARTICLE 6 - BONDS AND INSURANCE

SGC 6.02.D. Add the following to paragraph 6.02.D of the Standard General Conditions:

Include the following parties or entities as additional insureds:

1. Asotin County Public Utility District (OWNER)

2. ENGINEER and ENGINEER'S Consultants

SGC - 6.02.E. Delete paragraph 6.02.E of the Standard General Conditions in its entirety.

SGC - 6.02.G. Add the following to paragraph 6.02.G. of the Standard General Conditions:

6.02.G. CONTRACTOR shall obtain insurance from insurers approved by the State Insurance Commissioner pursuant to RCW Title 48. The insurance must be provided by an insurer with a rating of A-: VII or higher in the A.M. Best's Key Rating Guide, which is licensed to do business in the State of Washington (or issued as a surplus line by a Washington Surplus lines broker).

SGC - 6.03. The limits of liability for the insurance required by paragraph 6.03 of the Standard General Conditions shall provide the following coverages for not less than the following amounts or greater where required by Laws and Regulations:

SGC - 6.03.B.1. Add the following to paragraph 6.03.B.1 of the Standard General Conditions:

a. Workers' Compensation, etc. under paragraphs 6.03.A and of the Standard General Conditions:

1) State: Statutory

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

3) Employer's Liability: $ 500,000

b. CONTRACTOR'S Liability Insurance under paragraphs 6.03.B of the Standard General Conditions which shall also include completed operations and product liability coverages and eliminate the exclusion with respect to property under the care, custody and control of CONTRACTOR:

1) General Aggregate (Except Products - Completed Operations) $2,000,000

2) Products - Completed Operations Aggregate $1,000,000

3) Personal and Advertising Injury (Per Person/Organization) $1,000,000

4) Each Occurrence (Bodily Injury and Property Damage) $1,000,000

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

6) Excess Liability:

General Aggregate $2,000,000

Each Occurrence $1,000,000

7) Automobile Liability:

Bodily Injury:

Each Person $1,000,000

Each Accident $1,000,000

Property Damage:

Each Accident $1,000,000

or

Combined Single Limit (Bodily Injury and Property Damage):

Each Accident $2,000,000

SGC - 6.03.B.3 The Contractual Liability coverage required by paragraph 6.03.B of the Standard General Conditions shall provide coverage for not less than the following amounts:

1. General Aggregate: $2,000,000

2. Each Occurrence (Bodily Injury and Property Damage): $1,000,000

SGC - 6.04. Delete paragraph 6.04 of the Standard General Conditions in its entirety and insert the following in its place:

6.04 *Property Insurance:*

A. CONTRACTOR shall purchase and maintain property insurance upon the Work at the site in an amount equal to the full contract amount, subject to such deductible amounts of up to a maximum of $500. This insurance shall:

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

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

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

B. 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 6.05.

C. If OWNER requests in writing that other special insurance be included in the property insurance policies provided under this Paragraph 6.04, CONTRACTOR shall, if possible, include such insurance, and the cost thereof will be charged to OWNER by appropriate Change Order. Prior to commencement of the Work at the Site, CONTRACTOR shall in writing advise OWNER whether or not such other insurance has been procured by CONTRACTOR.

SGC - 6.05.C. Add the following to paragraph 6.05.C of the Standard General Conditions:

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

SGC – 6.06 Delete paragraph 6.06 of the Standard General Conditions in its entirety.

ARTICLE 7 - CONTRACTOR'S RESPONSIBILITIES

SGC - 7.07.A. Add the following sentence to paragraph 7.07.A of the Standard General Conditions:

CONTRACTOR shall perform a minimum of 51 percent of the onsite labor with its own employees.

SGC - 7.09.A. Add the following to paragraph 7.09.A of the Standard General Conditions:

CONTRACTOR shall obtain and pay for the following permits:

1. City of Clarkston Right of Way Permit.
2. Regional Stormwater Permit.

SGC - 7.10.B-C. Add the following new paragraphs immediately after paragraph 7.10.A of the Standard General Conditions:

B. CONTRACTOR shall collect from OWNER and remit to the state, retail sales tax on the Contract Price as required by the laws, statutes, and regulations of the State of Washington and its political subdivisions. OWNER will claim any exemption from retail sales tax authorized by law. CONTRACTOR shall pay all other federal, state,

and local sales, use, and other taxes applicable to the Work and CONTRACTOR'S activities under the agreement.

C. CONTRACTOR shall withhold and pay any and all sales and use taxes and all withholding taxes, whether state or federal, and pay all Social Security charges and also all State Unemployment Compensation charges, and 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.

SGC - 7.11.D Add the following new paragraphs immediately after paragraph 7.11.C of the Standard General Conditions:

7.11.D. While not intended to be inclusive of all Laws or Regulations for which CONTRACTOR may be responsible under paragraph 7.11, the following Laws or Regulations are included as mandated by statute or for the convenience of CONTRACTOR:

1. The applicable statutes of the State of Washington apply to this Work. The applicable chapters of the Revised Code of Washington, including the latest additions and revisions are incorporated by reference as parts of these Contract Documents. The following paragraphs are provided to assist CONTRACTOR in determining requirements and do not include all statutes CONTRACTOR should be familiar with:

   a. RCW 39.12 (concerning the prevailing wage rates to be paid to journeymen and apprentices on public works, the certificates required by the state in contracts for public works, the arbitrator in cases of disputes of wages, and the penalties involved if these statutes are violated).

   b. CONTRACTOR shall not pay less than the prevailing rate of wages in accordance with Washington RCW 39.12.020. Certificates of wage payments by CONTRACTOR shall be submitted to the Department of Labor, with a copy to the OWNER, in accordance with RCW 39.12.040 and shall pay all fees associated therewith. Wage certification forms shall be provided by the CONTRACTOR.

   c. No worker, laborer, or mechanic employed in the performance of any part of this Agreement shall be paid less than the "prevailing wage rate" as determined by the Industrial Statistician of the Department of Labor and Industries. The schedule of the prevailing wage rates for the locality or

localities where this Agreement will be performed is by reference made a part of this Agreement as though fully set forth herein.

d. In case a dispute arises as to what are the prevailing wage rates of wages for work of a similar nature and such dispute cannot be adjusted by the parties in interest, including labor and management representatives, the matter shall be referred for arbitration to the Director of the Department of Labor and Industries of the State, and its decision therein shall be final and conclusive and binding on all parties involved in the dispute as provided for by RCW 39.12.060., as amended.

e. RCW 49.28 (concerning the definition of a working day, emergency overtime provisions, the penalties and cancellation of Agreements for violation of these statutes).

f. OWNER does not guarantee that labor can be procured for the minimum wages in the wage scale. The rates of wages listed are minimum only, below which CONTRACTOR cannot pay, and they do not constitute a representation that labor can be procured for the minimum listed. CONTRACTOR shall ascertain the wages above the minimum set forth that may have to be paid.

2. It is understood and agreed that all parties to this Agreement shall determine the contents of applicable statutes and comply with their provisions throughout the performance of the Agreement.

SGC - 7.13.B. Add the following sentence to paragraph 7.13.B of the Standard General Conditions:

CONTRACTOR shall designate a qualified and experienced "competent person" at the site whose duties and responsibilities shall include enforcement of Washington Industrial Safety and Health Act (WISHA).

SGC - 7.14.A. Add the following sentences to paragraph 7.14.A of the Standard General Conditions:

Pursuant to the requirements of RCW 49.17.040, 49.17.050, and WAC 296-62-055, CONTRACTOR shall provide a list of hazardous products being used on the Project, for Work under these Contract Documents, and their respective Material Safety Data Sheets (MSDS). This information shall be delivered to OWNER at the preconstruction conference.

SGC – 7.16. Delete paragraph 7.16 in its entirety. See Section 01300, Submittals in Division 1 - General Requirements

SGC - 7.17.F-G. Add the following new paragraphs after paragraph 7.17.E of the Standard General Conditions:

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

1. Place in satisfactory condition all guaranteed Work;

2. Correct all damage to the building, site, equipment or contents which is the result of the use of materials, equipment or workmanship which are inferior, defective, or not in accordance with the terms of the contract; and,

3. Correct any work, material, equipment, or contents of building, structure or site disturbed in fulfilling the guarantee.

G. Repairs, replacements or changes made under the warranty requirements shall be warranted for the specified warranty period, or for one year, beginning on the date of the acceptance of the repairs, replacements or changes. If the CONTRACTOR fails within ten days to proceed to comply with the terms of this warranty, the OWNER may have the defects corrected. The CONTRACTOR and the CONTRACTOR'S surety shall be liable for all expense incurred. In case of an emergency where delay would cause serious loss or damage, repairs may be made without notice to the CONTRACTOR and the CONTRACTOR or the CONTRACTOR'S surety shall pay the cost.

SGC - 7.18.C. Add the following new paragraph after paragraph 7.18.B of the Standard General Conditions:

C. CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER'S Consultants and the officers, directors, employees, agents and other consultants of each and any of them from and against any and all claims, costs, losses, damage, liabilities, penalties and fines arising out of or resulting from (i) the violation by

CONTRACTOR of any federal, state or local statute, law, rule, regulation, ordinance, order, permit or governmental approval or authorization relating to the protection of the environment or human health, safety, or welfare ("Environmental Law"); and (ii) any release, spill, discharge, or disposal of any "hazardous material" which shall include, without limitations, any "hazardous substance", "hazardous material", "toxic substance", "pollutant", "contaminant", "oil", or "petroleum", or words of similar impact under any Environmental Law.

SGC - 7.19.E. Delete paragraph 7.19.E of the Standard General Conditions in its entirety and insert the following in its place:

E. Pursuant to this Paragraph 7.19, ENGINEER'S review 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 of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Section 01300, Submittals of Division 1 – General Requirements.

ARTICLE 9 - OWNER'S RESPONSIBILITIES

SGC - 9.02.A. Delete paragraph 9.02.A of the Standard General Conditions in its entirety and insert the following in its place:

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

SGC – 9.13. Add a new paragraph immediately following paragraph 9.12 of the Standard General Conditions as follows:

9.13. *OWNER as Resident Project Representative*

A. OWNER will furnish Project representation during the construction period. The duties, responsibilities and limitations of authority specified for Resident Project Representative in Article 9 - ENGINEERS STATUS DURING CONSTRUCTION, and elsewhere in the Contract Documents will apply to Resident Project Representative provided by the OWNER. ENGINEER will also provide limited Project representation.

ARTICLE 10 - ENGINEER'S STATUS DURING CONSTRUCTION

SGC - 10.03.C-E. Add the following paragraphs following paragraph 10.03.A of the Standard General Conditions:

C. The responsibilities, authority, and limitations of the RPR are limited to those of ENGINEER in accordance with Paragraph 10.07 of the General Conditions and as set forth elsewhere in the Contract Documents and are further limited and described below.

D. Responsibilities and Authority:

1. Schedules: Review and monitor the Progress Schedule, Schedule of Submittal submissions and Schedule of Values prepared by CONTRACTOR and consult with ENGINEER concerning acceptability.

2. Conferences and Meetings: Conduct or attend meetings with CONTRACTOR, such as preconstruction conferences, progress meetings, Work conferences and other Project related meetings.

3. Liaison: (i) Serve as ENGINEER'S liaison with CONTRACTOR, working principally through CONTRACTOR'S superintendent and assist in understanding the intent of the Contract Documents; (ii) assist ENGINEER in serving as OWNER'S liaison with CONTRACTOR when CONTRACTOR'S operations affect OWNER'S onsite operations; (iii) assist in obtaining from OWNER additional details or information when required for proper execution of the Work.

4. Submittals: Receive Submittals which are furnished at the Site by CONTRACTOR, and notify OWNER of availability for examination. Advise OWNER and CONTRACTOR of the commencement of any Work or arrival of products at the Site, when recognized, requiring a Shop Drawing or Sample if the Submittal has not been approved by OWNER.
5. Review of Work, Rejection of Defective Work, Inspections and Tests: (i) Conduct onsite observations of the Work in progress to assist OWNER in determining if the Work is in general proceeding in accordance with the Contract Documents; (ii) inform OWNER and CONTRACTOR whenever RPR believes that any Work is defective; (iii) advise OWNER when RPR believes that any Work will not produce a complete Project that conforms generally to the Contract Documents, or will prejudice the integrity of the design concept of the complete Project as a functioning whole as indicated

in the Contract Documents, or whenever RPR believes Work should be uncovered for observation, or requires special testing, inspection, or approval; (iv) monitor to ensure that tests, equipment and systems startups and operating and maintenance training are conducted in the presence of appropriate personnel, and that CONTRACTOR maintains adequate records thereof; (v) observe, record and report to OWNER appropriate details relative to the test procedures and startups; and (vi) accompany visiting inspectors representing public or other agencies having jurisdiction over the Project, record the results of these inspections and report to the OWNER.

6. Interpretation of Contract Documents: Inform OWNER when clarifications and interpretations of the Contract Documents are needed and transmit to CONTRACTOR clarifications and interpretations as issued by OWNER.

7. Modifications: Consider and evaluate CONTRACTOR'S suggestions for modifications in Drawings or Specifications and provide recommendations to OWNER; transmit to CONTRACTOR the decision issued by OWNER.

8. Records: (i) Maintain at the Site files for correspondence, conference records, Submittals including Shop Drawings and Samples, reproductions of original Contract Documents including all Addenda, the signed Agreement, Written Amendments, Work Change Directives, Change Orders, Field Orders, additional Drawings issued after the Effective Date of the Agreement, ENGINEER'S written clarifications and interpretations, progress reports, and other Project related documents; (ii) keep a record of pertinent Site conditions, activities, decisions and events.

9. Reports: (i) Furnish OWNER periodic reports of progress of the Work and of CONTRACTOR'S compliance with the Progress Schedule and Schedule of Submittal submissions; (ii) consult with OWNER in advance of scheduled major tests, inspections or start of important phases of the Work; and (iii) assist in drafting proposed Change Orders, Work Change Directives, and Field Orders, and obtain backup material from CONTRACTOR as appropriate.

10. Payment Requests: Review Applications for Payment with CONTRACTOR for compliance with the established procedure for their submission and forward with recommendations to OWNER, 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.

11. Certificates, Maintenance and Operation Manuals, Record Documents, and Site Records: During the course of the Work, monitor whether these documents and other data required to be assembled, maintained, and furnished by CONTRACTOR are applicable to the items actually installed and in accordance with the Contract Documents, and have this material delivered to OWNER for review and forwarding to OWNER prior to final payment for the Work.

12. Substantial Completion: (i) Conduct an inspection in the company of ENGINEER, OWNER, and CONTRACTOR and prepare a list of items to be completed or corrected; (ii) submit to OWNER a list of observed items requiring completion or correction.

13. Final Completion: (i) Conduct final inspection in the company of ENGINEER, OWNER, and CONTRACTOR; and (ii) notify CONTRACTOR and OWNER in writing of all particulars in which this inspection reveals that the Work is incomplete or defective; and (iii) observe that all items on final list have been completed, corrected, or accepted by OWNER and make recommendations to OWNER concerning acceptance.

E. Limitations of Authority: Resident Project Representative will not:

1. Have authority to authorize any deviation from the Contract Documents or substitution of materials or equipment, unless authorized by OWNER; or

2. Undertake any of the responsibilities of CONTRACTOR, Subcontractors or CONTRACTOR'S superintendent; or

3. Accept Submittals from anyone other than the CONTRACTOR; or

4. Authorize OWNER to occupy the Project in whole or in part; or

5. Participate in specialized field or laboratory tests or inspections conducted by others except as specifically authorized by OWNER.

SGC - 10.05.A. Delete paragraph 10.05.A of the Standard General Conditions in its entirety and insert the following in its place:

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

SGC - 10.06. Delete paragraph 10.06 of the Standard General Conditions in its entirety and insert the following in its place:

A. ENGINEER will be the initial interpreter of the requirements of the Contract Documents and recommend of the acceptability of the Work thereunder to the OWNER. 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. OWNER will, with reasonable promptness, render a written decision on the issue referred. If 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 12.01. The date of OWNER'S decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 12.01.B.

C. OWNER'S written decision on the issue referred will be final and binding on CONTRACTOR, subject to the provisions of Paragraph 10.05.

SGC - 10.07.F. Immediately following paragraph 10.07.E of the Standard General Conditions, add the following new paragraph:

F. CONTRACTORS, Subcontractors, Suppliers and others on the Project, or their sureties, shall maintain no direct action against ENGINEER, its officers, employees, affiliated corporations, and Subcontractors, for any claim arising out of, in connection with, or resulting from the Engineering services performed. Only OWNER will be the beneficiary of any undertaking by ENGINEER.

ARTICLE 11 – CHANGE OF CONTRACT

SGC – 11.07.C.2.c. Add the following sentence to paragraph 11.07.C.2.c of the Standard General Conditions:

The maximum total allowable cost to OWNER shall be the Cost of the Work plus a maximum collective aggregate fee for CONTRACTOR and all tiered Subcontractors of 26.8 percent.

ARTICLE 12 - CLAIMS

SGC – 12.01 Delete paragraph 12.01 of the Standard General Conditions in its entirety and insert the following in its place:

12.01 *Claims*

A. *OWNER'S Decision Required*: All Claims, except those waived pursuant to Paragraph 15.07, shall be referred to the OWNER for decision. A decision by OWNER shall be required as a condition precedent to any exercise by 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 the other party 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 11.07.B. A Claim for an adjustment in Contract Times shall be prepared in accordance with

the provisions of Paragraph 11.08.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 the other party 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. recommend to the OWNER denial of the Claim in whole or in part;

2. recommend to the OWNER approval of the Claim; or

3. notify the parties that the ENGINEER is unable to provide a recommendation to resolve the Claim if, in the ENGINEER'S sole discretion, it would be inappropriate for the ENGINEER to do so.

D. *OWNER'S Action*: OWNER will review each Claim including ENGINEER'S recommendation and, within 45 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; or

2. approve the Claim.

E. In the event that OWNER does not take action on a Claim within said 45 days, the Claim shall be deemed denied.

F. OWNER'S written action under Paragraph 12.01 or denial pursuant to Paragraphs 12.01.F will be final and binding upon CONTRACTOR, unless CONTRACTOR invokes the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.

G. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 12.01.

ARTICLE 13 – COST OF THEWORK; ALLOWANCES; UNIT PRICE WORK

SGC – 13.03.E Delete paragraph 13.03.E of the Standard General Conditions in its entirety and insert the following in its place:

E. The unit price of an item of Unit Price Work shall be subject to reevaluation and adjustment under the following conditions:

1. OWNER reserves the right to increase or decrease the amount or any class of work item shown in the Bid Form, without a change in unit price or contract time, that may be deemed necessary, provided, however, that in no event will the OWNER increase or decrease the total combined footage of pipe 4 inches and larger, the total footage for Class B backfill, and/or the total combined footage of all types of AC surface repair by more than 20 percent of the gross footage awarded, without a Change order. This paragraph shall not limit the amount of increase or decrease of any other unit price items. Either the OWNER or the CONTRACTOR may demand a Change in Contract Price or Times when the listed items are varied by more than 20 percent. If the parties are unable to agree as to the effect of any such variation in the quantity of listed Unit Price Work, either party may make a claim for an adjustment in the Contract Price or Contract Times in accordance with paragraph 12.01.

2. CONTRACTOR is not allowed to make claim for recovery of restocking or any other charges for OWNER increase or decrease of the amount of any class of work item shown in the Bid Form except for those items listed in 13.03.E.1 with variations in quantity exceeding 20 percent.

ARTICLE 14 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

SGC - 14.02.B. Delete paragraph 14.02.B of the Standard General Conditions in its entirety and insert the following in its place:

B. CONTRACTOR shall employ an independent testing laboratory or testing agency and shall be responsible for arranging and shall pay for all specified tests, inspections, and approvals required for OWNER and ENGINEER'S acceptance of the Work at the site except:

1. costs incurred in connection with tests or inspections pursuant to 14.05.B. of the Standard General Conditions shall be paid for as provided in said paragraph; and

2. as otherwise specifically provided in the Contract Documents.

SGC – 14.02D. Add the following sentences to paragraph 14.02.D of the Standard General Conditions:

Tests required by the Contract Documents to be performed by CONTRACTOR that require test certificates to be submitted to OWNER or ENGINEER for acceptance shall be made by an independent testing laboratory or agency licensed or certified in accordance with Laws and Regulations and applicable state and local statutes. In the event state license or certification is not required, testing laboratories or agencies shall meet following applicable requirements:

1. Recommended Requirements for Independent Laboratory Qualification, published by the American Council of Independent Laboratories.

2. Basic requirements of ASTM E329, Standard Specification for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction, as applicable.

3. Calibrate testing equipment at reasonable intervals by devices of accuracy traceable to either the National Bureau of Standards or accepted values of natural physical constants.

ARTICLE 15 - PAYMENTS TO CONTRACTOR ; SET OFFS; COMPLETION; CORRECTION PERIOD

SGC - 15.01.B.3 Add the following sentence to paragraph 15.01.B.3 of the Standard General Conditions:

Supporting documentation to the application for progress payment for public work in the State of Washington shall include the wage certification form required by RCW 39.12.040.

SGC – 15.01.D.1 Delete paragraph 15.01.D.1 of the General Conditions in insert the following in its place:

1. Thirty days after presentation of the Application for Payment to OWNER with ENGINEER'S recommendation, the amount recommended (subject to the provisions of paragraph 15.01.E) become due and when due will be paid by OWNER to CONTRACTOR.

SGC – 15.01.E.4-6. Add the following new paragraphs immediately after paragraph 15.01.D.3:

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

5. CONTRACTOR has failed to make acceptable submittals in accordance with paragraph 2.05 of the Standard General Conditions.

6. Items entitling OWNER to retain set-offs from the amount recommended, including but not limited to:

    a. OWNER compensation to ENGINEER at an estimated average rate of $100 per each extra personnel hour for labor plus expenses and/or OWNER staff salary estimated at an average rate of $40 per each extra personnel hour for labor plus expenses because of the CONTRACTOR-caused events:

        1) Witnessing retesting of corrected or replaced defective Work;

        2) Submittal review in excess of three reviews by ENGINEER for substantially the same submittal;
        3) Evaluation of proposed substitutes and in making changes to Contract Documents occasioned thereby; or

        4) Overtime worked by CONTRACTOR necessitating OWNER or ENGINEER to work extraordinary overtime. Such overtime would not have been contemplated by the OWNER at time of Bid opening.

    b. Liability for liquidated damages incurred by CONTRACTOR as set forth in the Agreement.

SGC – 15.03. Delete paragraph 15.03 of the Standard General Conditions in its entirety and insert the following in its place:

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 OWNER 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 OWNER does not consider the Work substantially complete, OWNER will notify CONTRACTOR in writing giving the reasons therefore.

C. If OWNER 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 review provisions of the certificate or attached list. If OWNER concludes that the Work is not substantially complete, OWNER will, within 14 days after submission of the tentative certificate to OWNER, notify CONTRACTOR in writing, stating the reasons therefore. If, after review of the provisions of the certificate or attached list, OWNER considers the Work substantially complete, OWNER will, within said 14 days, execute and deliver to 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 OWNER believes justified.

D. At the time of delivery of the certificate of Substantial Completion, OWNER will deliver to CONTRACTOR a 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, aforesaid division will be binding on OWNER and CONTRACTOR until final payment. If the parties are unable to agree as to the division of responsibilities, CONTRACTOR may make a Claim therefore as provided in Paragraph 10.05.

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.

SGC – 15.06.A.4. Add a new paragraph immediately after paragraph 15.06.A.3 of the Standard General Conditions as follows:

4. Final payment of the retained percentage will not be made until after CONTRACTOR has filed with OWNER the affidavit required

by RCW 39.12 certifying that CONTRACTOR has paid not less than the prevailing rate of wages.

SGC – 15.06.B. Add a new paragraph immediately after paragraph 15.06.B.1 of the Standard General Conditions as follows:

2. Upon OWNER'S receipt of (i) ENGINEER'S written recommendation of payment with CONTRACTOR'S Final Application for Payment and accompanying documentation, and (ii) ENGINEER'S written notice that the Work is acceptable subject to the provisions of paragraph 15.06.C, OWNER will notify the Department of Revenue of the completion of the Work under these Contract Documents. Provided the Department of Revenue certifies there are no taxes or penalties due and owing from CONTRACTOR, and there are no other known claims or Liens against the retained funds, OWNER will make payment to the CONTRACTOR in accordance with paragraph 15.06 subject to the provisions of RCW Title 60.28. In the event unsatisfied claims or Liens or taxes, material, labor, and other services are known to exist, an amount will be further withheld from the retainage sufficient to satisfy the settlement of such claims and Liens, including attorney's fees incurred, and the remainder will be released from escrow, or released from the retained funds and paid to the CONTRACTOR.

SGC – 15.08.A. In the first sentence of paragraph 15.08.A of the Standard General Conditions, replace the words "Substantial Completion" with "final written acceptance by OWNER".

ARTICLE 17 – FINAL RESOLUTION OF DISPUTES

SGC-17.01-17.02. Delete Paragraph 17.01 of the Standard General Conditions in its entirety and insert the following in its place:

01 *Executive Negotiation*

A. Within 10 days of the delivery of notice of appeal to written decision regarding a Claim, dispute or other matter, senior representatives of at least OWNER and CONTRACTOR, having authority to settle the dispute, and ENGINEER shall meet at a mutually acceptable time and place, and thereafter as often as they reasonably deem necessary, to exchange relevant information and to attempt to resolve the dispute.

B. In the event a mutually acceptable decision cannot be reached through executive negotiation within 20 days of the appealing party's notice, or

mutually agreeable longer period, or if the party receiving such notice will not meet within 10 days, OWNER or CONTRACTOR may make a written declaration, delivered to the other party and ENGINEER, that the executive negotiation is deemed unsuccessful and may initiate further dispute resolution measures in accordance with this Article 17.

02 *Mediation, Followed by Binding Arbitration:*

A. All appealed or unsettled Claims, disputes or other matters between OWNER and CONTRACTOR arising out of or relating to the Contract Documents or the breach thereof, (except for Claims which have been waived by the making or acceptance of final payment as provided by paragraph 15.07) shall first be submitted to mediation under the Construction Industry Mediation Rules of the American Arbitration Association then obtaining subject to the limitations of Article 16. The mediator of any Claim, dispute or other matter submitted to mediation under this Agreement shall not serve as arbitrator of such Claim, dispute, or other matter unless otherwise agreed.

B. Should the mediation be unsuccessful, such Claim, dispute or other matter (except for Claims which have been waived by the making or acceptance of final payment as provided by Paragraph 15.07) shall be decided by arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association then obtaining subject to the limitations of this Article 17. The mediator of any Claim, dispute or other matter submitted to mediation under this Agreement shall not serve as arbitrator of such Claim, dispute, or other matter unless otherwise agreed.

C. This Agreement so to mediate or to arbitrate and any other agreement or consent to mediate or to arbitrate entered into accordance with these Contract Documents will be specifically enforceable under the prevailing law of any court having jurisdiction.

D. No demand for mediation or arbitration of any appealed or unsettled Claim, dispute or other matter that is required to be reviewed by ENGINEER and decided on by OWNER in accordance with Paragraph 10.06 will be made later than 10 days after the date the executive negotiation has been declared unsuccessful by OWNER or CONTRACTOR; and the failure to demand mediation or arbitration within said 10 days' period will result in OWNER'S decision being final and binding upon OWNER and CONTRACTOR. If OWNER renders a further decision after mediation or arbitration proceedings have been initiated, the decision may be entered as evidence but will not supersede the proceedings, except where the decision is acceptable

to the parties concerned. Time deadlines specified above apply to both mediation (after the executive negotiation has been declared unsuccessful by OWNER or CONTRACTOR) and arbitration (after the mediation process has been declared unsuccessful by OWNER or CONTRACTOR).

E. Notice of the demand for mediation or arbitration will be filed in writing with the other party to the Agreement and with the American Arbitration Association, and a copy will be sent to ENGINEER for information. The demand for mediation or arbitration will be made within the 10 day periods specified in Paragraph 17.02.D as applicable, and in all other cases within a reasonable time after the unsettled Claim, dispute or other matter has arisen, and in no event shall any such demand be made after the date when institution of legal or equitable proceedings based on such unsettled Claim, dispute or other matter would be barred by the applicable statute of limitations.

F. Except as provided in Paragraphs 17.02.G and H below, no arbitration arising out of or relating to the Contract Documents shall include by consolidation, joinder or in any other manner any other person or entity who is not a party to the Contract unless:

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

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

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

G. Notwithstanding Paragraph 17.02.F, if an appealed or unsettled Claim, dispute or other matter between OWNER and CONTRACTOR involves any allegations relating to the design or standard technical specifications and details, OWNER may join ENGINEER as a party to the mediation or arbitration between OWNER and CONTRACTOR hereunder.

H. Notwithstanding Paragraph 17.02.F, if an appealed or unsettled Claim, dispute or other matter between OWNER and CONTRACTOR involves the Work of a Subcontractor, either OWNER or CONTRACTOR may join such Subcontractor as a party to the mediation or arbitration between OWNER and CONTRACTOR hereunder. CONTRACTOR shall include in all subcontracts required by Paragraph 17.06.G of the General Conditions a specific provision whereby the Subcontractor consents to being joined in mediation or arbitration between OWNER and CONTRACTOR involving the Work of such Subcontractor. Nothing in this Paragraph 16.02.H nor in the provision of such subcontract consenting to joinder shall create any Claim, right or cause of action in favor of Subcontractor and against OWNER, ENGINEER or ENGINEER'S Consultants that does not otherwise exist.

I. The results of successful mediation will be implemented by a Change Order. The award rendered by the arbitrators will be final, judgment may be entered upon it in any court having jurisdiction thereof, and will not be subject to modification or appeal.

ARTICLE 18 - MISCELLANEOUS

SGC - 18.11- 12 Add the following new paragraph immediately following paragraph 18.10 of the Standard General Conditions:

18.11 *Attorney Fees*

A. At the conclusion of the mediation process specified herein, the CONTRACTOR will, as a condition of taking any further action with respect to any Claim, be required to certify that the amount of the Claim is its best good faith estimate of the amount due ("Certified Claim"). OWNER will certify its final offer of settlement ("Final Offer"). In the event CONTRACTOR pursues the Claim, CONTRACTOR will be entitled, in addition to whatever recovery it has on the Claim, to be reimbursed its reasonable attorney's fees incurred in the same proportion it was successful based on the difference between its Certified Claim compared to the OWNER'S Final Offer. Conversely, OWNER will be entitled to be reimbursed its reasonable attorney's fees incurred in proportion to the amount that CONTRACTOR was unsuccessful based on the difference between its Certified Claim compared to the OWNER'S Final Offer. For example, if CONTRACTOR recovers 40% of the difference between its Certified Claim and the amount of the OWNER'S Final Offer, CONTRACTOR would be entitled to recover 40% of its reasonable attorney's fees incurred in the prosecuting the Claim and the OWNER would be

entitled to recover 60% of its reasonable attorney's fees incurred in defending the Claim. On the other hand, if the CONTRACTOR recovers 60% of the difference between its Certified Claim and the amount of the OWNER'S Final Offer, CONTRACTOR would be entitled to recover 60% of its reasonable attorney's fees in prosecuting the Claim and the OWNER would be entitled to recover 40% of its reasonable attorney's fees incurred in defending the Claim. The Certified Claim and the Final Offer will be admissible in any dispute resolution proceeding.

18.12 Right To Audit

A. If the CONTRACTOR submits a Claim to the OWNER for additional compensation, the OWNER shall have the right, as a condition to considering the Claim, and as a basis for evaluation of the Claim, and until the Claim has been settled, to audit the CONTRACTOR'S books to the extent they are relevant. This right shall include the right to examine books, records, documents, and other evidence and accounting procedures and practices, sufficient to discover and verify all direct and indirect costs of whatever nature claimed to have been incurred or anticipated to be incurred and for which the Claim has been submitted. The right to audit shall include the right to inspect the CONTRACTOR'S plant, or such parts thereof, as may be or have been engaged in the performance of the Work. The CONTRACTOR further agrees that the right to audit encompasses all subcontracts and is binding upon Subcontractors. The rights to examine and inspect herein provided for shall be exercisable through such representatives as the OWNER deems desirable during the CONTRACTOR'S normal business hours at the office of the CONTRACTOR. The CONTRACTOR shall make available to the OWNER for auditing, all relevant accounting records and documents, and other financial data, and upon request, shall submit true copies of requested records to the OWNER.

END OF SECTION

SECTION 00820 - PREVAILING WAGE RATES

State of Washington
Department of Labor & Industries
Prevailing Wage Section - Telephone 360-902-5335
PO Box 44540, Olympia, WA 98504-4540

Washington State Prevailing Wage
The PREVAILING WAGES listed here include both the hourly wage rate and the hourly rate of fringe benefits. On public works projects, worker's wage and benefit rates must add to not less than this total. A brief description of overtime calculation requirements are provided on the Benefit Code Key.

Journey Level Prevailing Wage Rates for the Effective Date: 11/24/2026

Asotin County

Trade	Job Classification	Wage	Holiday	Overtime	Note
Asbestos Abatement Workers	Journey Level	$57.75	**7B**	**11Y**	**8Z**
Boilermakers	Journey Level	$77.39	**5N**	**1C**	
Brick Mason	Journey Level	$63.84	**5A**	**1M**	
Building Service Employees	Janitor	$17.13		**1**	
Building Service Employees	Shampooer	$17.13		**1**	
Building Service Employees	Waxer	$17.13		**1**	
Building Service Employees	Window Cleaner	$17.13		**1**	

Cabinet Makers (In Shop)	Journey Level	$17.13		1	
Carpenters	Acoustical Worker	$65.89	7E	4X	8N
Carpenters	Bridge, Dock & Wharf Carpenter	$69.99	7E	4X	9E
Carpenters	Floor Layer & Floor Finisher	$65.89	7E	4X	8N
Carpenters	Form Builder	$65.89	7E	4X	8N
Carpenters	General Carpenter	$65.89	7E	4X	8N
Carpenters	Heavy Construction Carpenter	$69.99	7E	4X	9E
Carpenters	Scaffold/Shoring Erecting & Dismantling	$69.99	7E	4X	8N
Cement Masons	Journey Level	$60.15	7B	1N	
Divers & Tenders	Assistant Tender	$72.61	7E	4X	8J
Divers & Tenders	Bell/Vehicle or Submersible Operator Not Under Pressure	$77.39	7E	4X	8J
Divers & Tenders	Dive Supervisors	$138.55	7E	4X	
Divers & Tenders	Diver	$137.01	7E	4X	8I
Divers & Tenders	Diver on Standby	$77.39	7E	4X	8J
Divers & Tenders	Diver Tender	$76.37	7E	4X	8J

Divers & Tenders	Diving Master	$90.85	**7E**	**4X**	**8J**
Divers & Tenders	Manifold Operator	$76.37	**7E**	**4X**	**8J**
Divers & Tenders	Manifold Operator Mixed Gas	$80.47	**7E**	**4X**	**8J**
Divers & Tenders	Remote Operated Vehicle Operator	$76.37	**7E**	**4X**	**8J**
Divers & Tenders	Remote Operated Vehicle Tender/Technician	$72.61	**7E**	**4X**	**8J**
Dredge Workers	Assistant Engineer	$93.71	**15Q**	**3F**	
Dredge Workers	Assistant Mate (Deckhand)	$92.99	**15Q**	**3F**	
Dredge Workers	Boatmen	$93.71	**15Q**	**3F**	
Dredge Workers	Engineer Welder	$95.52	**15Q**	**3F**	
Dredge Workers	Leverman, Hydraulic	$97.45	**15Q**	**3F**	
Dredge Workers	Mates	$93.71	**15Q**	**3F**	
Dredge Workers	Oiler	$92.99	**15Q**	**3F**	
Drywall Applicator	Journey Level	$66.66	**15O**	**11S**	
Drywall Tapers	Journey Level	$66.66	**15O**	**11S**	
Electrical Fixture Maintenance Workers	Journey Level	$17.13		**1**	

Electricians - Inside	Cable Splicer	$96.02	**5A**	**11F**	
Electricians - Inside	Journey Level	$92.05	**5A**	**11F**	
Electricians - Inside	Welder	$108.39	**5A**	**11F**	
Electricians - Motor Shop	Craftsman	$17.13		**1**	
Electricians - Motor Shop	Journey Level	$17.13		**1**	
Electricians - Powerline Construction	Cable Splicer	$107.31	**5A**	**4D**	
Electricians - Powerline Construction	Certified Line Welder	$98.45	**5A**	**4D**	
Electricians - Powerline Construction	Groundperson	$61.75	**5A**	**4D**	
Electricians - Powerline Construction	Heavy Line Equipment Operator	$98.45	**5A**	**4D**	
Electricians - Powerline Construction	Journey Level Lineperson	$98.45	**5A**	**4D**	
Electricians - Powerline Construction	Line Equipment Operator	$84.94	**5A**	**4D**	
Electricians - Powerline Construction	Meter Installer	$61.75	**5A**	**4D**	**8W**
Electricians - Powerline Construction	Pole Sprayer	$98.45	**5A**	**4D**	
Electricians - Powerline Construction	Powderperson	$72.81	**5A**	**4D**	

Electronic Technicians	Journey Level	$62.44	**5I**	**1B**	
Elevator Constructors	Mechanic	$119.17	**7D**	**4A**	
Elevator Constructors	Mechanic In Charge	$128.95	**7D**	**4A**	
Fabricated Precast Concrete Products	Journey Level	$17.13		**1**	
Fabricated Precast Concrete Products	Journey Level - In-Factory Work Only	$17.13		**1**	
Fence Erectors	Fence Erector	$57.75	**7B**	**11Y**	**8Z**
Flaggers	Journey Level	$54.42	**7B**	**11Y**	**8Z**
Glaziers	Journey Level	$48.20	**7L**	**4L**	
Heat & Frost Insulators And Asbestos Workers	Journey Level	$68.80	**5K**	**1U**	
Heating Equipment Mechanics	Journey Level	$85.41	**6Z**	**1B**	
Hod Carriers & Mason Tenders	Journey Level	$59.86	**7B**	**11Y**	**8Z**
Industrial Power Vacuum Cleaner	Journey Level	$17.13		**1**	
Inland Boatmen	Journey Level	$17.13		**1**	
Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Cleaner Operator, Foamer Operator	$17.13		**1**	

Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Cleaner Operator, Foamer Operator	$17.13	**1**
Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Grout Truck Operator	$17.13	**1**
Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Grout Truck Operator	$17.13	**1**
Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Head Operator	$17.13	**1**
Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Head Operator	$17.13	**1**
Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Technician	$17.13	**1**
Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Technician	$17.13	**1**
Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Tv Truck Operator	$17.13	**1**
Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Tv Truck Operator	$17.13	**1**

Insulation Applicators	Journey Level	$65.89	**7E**	**4X**	**8N**
Ironworkers	Journeyman	$80.70	**15K**	**11N**	
Laborers	Air And Hydraulic Track Drill	$58.46	**7B**	**11Y**	**8Z**
Laborers	Asphalt Raker	$58.46	**7B**	**11Y**	**8Z**
Laborers	Asphalt Roller, Walking	$58.11	**7B**	**11Y**	**8Z**
Laborers	Brick Pavers	$57.75	**7B**	**11Y**	**8Z**
Laborers	Brush Hog Feeder	$57.75	**7B**	**11Y**	**8Z**
Laborers	Brush Machine	$58.46	**7B**	**11Y**	**8Z**
Laborers	Caisson Worker, Free AIr	$58.46	**7B**	**11Y**	**8Z**
Laborers	Carpenter Tender	$57.75	**7B**	**11Y**	**8Z**
Laborers	Cement Finisher Tender	$58.46	**7B**	**11Y**	**8Z**
Laborers	Cement Handler	$58.46	**7B**	**11Y**	**8Z**
Laborers	Chain Saw Operator & Faller	$58.46	**7B**	**11Y**	**8Z**
Laborers	Clean-up Laborer	$57.75	**7B**	**11Y**	**8Z**
Laborers	Compaction Equipment	$58.11	**7B**	**11Y**	**8Z**
Laborers	Concrete Crewman	$58.46	**7B**	**11Y**	**8Z**

Laborers	Concrete Saw, Walking	$58.46	**7B**	**11Y**	**8Z**
Laborers	Concrete Signalman	$58.46	**7B**	**11Y**	**8Z**
Laborers	Concrete Stack	$58.46	**7B**	**11Y**	**8Z**
Laborers	Confined Space Attendant	$57.75	**7B**	**11Y**	**8Z**
Laborers	Construction Specialist	$58.69	**7B**	**11Y**	**8Z**
Laborers	Crusher Feeder	$57.75	**7B**	**11Y**	**8Z**
Laborers	Demolition	$57.75	**7B**	**11Y**	**8Z**
Laborers	Demolition Torch	$58.11	**7B**	**11Y**	**8Z**
Laborers	Dope Pot Fireman, Non-mechanical	$58.11	**7B**	**11Y**	**8Z**
Laborers	Driller Helper (when Required To Move & Position Machine)	$58.11	**7B**	**11Y**	**8Z**
Laborers	Drills With Dual Masts	$58.83	**7B**	**11Y**	**8Z**
Laborers	Dry Stack Walls	$57.75	**7B**	**11Y**	**8Z**
Laborers	Dumpman	$57.75	**7B**	**11Y**	**8Z**
Laborers	Erosion Control Laborer	$57.75	**7B**	**11Y**	**8Z**
Laborers	Firewatch	$57.75	**7B**	**11Y**	**8Z**

Laborers	Form Cleaning Machine Feeder, Stacker	$57.75	**7B**	**11Y**	**8Z**
Laborers	Form Setter, Paving	$58.46	**7B**	**11Y**	**8Z**
Laborers	General Laborer	$57.75	**7B**	**11Y**	**8Z**
Laborers	Grade Checker	$61.06	**7B**	**11Y**	**8Z**
Laborers	Grout Machine Header Tender	$57.75	**7B**	**11Y**	**8Z**
Laborers	Guard Rail	$57.75	**7B**	**11Y**	**8Z**
Laborers	Gunite	$58.46	**7B**	**11Y**	**8Z**
Laborers	Hazardous Waste Worker (level A)	$58.83	**7B**	**11Y**	**8Z**
Laborers	Hazardous Waste Worker (level B)	$58.46	**7B**	**11Y**	**8Z**
Laborers	Hazardous Waste Worker (level C)	$58.11	**7B**	**11Y**	**8Z**
Laborers	Hazardous Waste Worker (level D)	$57.75	**7B**	**11Y**	**8Z**
Laborers	Hdpe Or Similar Liner Installer	$57.75	**7B**	**11Y**	**8Z**
Laborers	High Scaler	$58.46	**7B**	**11Y**	**8Z**
Laborers	Industrial Technician	$90.68	**7B**	**11Y**	**8Z**

Laborers	Jackhammer Operator Miner, Class "b"	$58.11	**7B**	**11Y**	**8Z**
Laborers	Laser Beam Operator	$58.46	**7B**	**11Y**	**8Z**
Laborers	Miner, Class "a"	$57.75	**7B**	**11Y**	**8Z**
Laborers	Miner, Class "c"	$58.46	**7B**	**11Y**	**8Z**
Laborers	Miner, Class "d"	$58.83	**7B**	**11Y**	**8Z**
Laborers	Monitor Operator, Air Track Or Similar Mounting	$58.46	**7B**	**11Y**	**8Z**
Laborers	Mortar Mixer	$58.46	**7B**	**11Y**	**8Z**
Laborers	Nipper	$57.75	**7B**	**11Y**	**8Z**
Laborers	Nozzleman	$58.46	**7B**	**11Y**	**8Z**
Laborers	Nozzleman, Water (to Include Fire Hose), Air Or Steam	$58.11	**7B**	**11Y**	**8Z**
Laborers	Pavement Breaker, 90 Lbs. & Over	$58.46	**7B**	**11Y**	**8Z**
Laborers	Pavement Breaker, Under 90 Lbs.	$58.11	**7B**	**11Y**	**8Z**
Laborers	Pilot Car	$54.42	**7B**	**11Y**	**8Z**
Laborers	Pipelayer	$58.46	**7B**	**11Y**	**8Z**

Laborers	Pipelayer, Corrugated Metal Culvert And Multi-Plate	$58.46	**7B**	**11Y**	**8Z**
Laborers	Pipewrapper	$58.46	**7B**	**11Y**	**8Z**
Laborers	Plasterer Tenders	$58.46	**7B**	**11Y**	**8Z**
Laborers	Pot Tender	$58.11	**7B**	**11Y**	**8Z**
Laborers	Powderman	$60.63	**7B**	**11Y**	**8Z**
Laborers	Powederman Helper	$58.11	**7B**	**11Y**	**8Z**
Laborers	Power Buggy Operator	$58.11	**7B**	**11Y**	**8Z**
Laborers	Power Tool Operator, Gas, Electric, Pneumatic	$58.11	**7B**	**11Y**	**8Z**
Laborers	Rad-Con Technician	$90.68	**7B**	**11Y**	**8Z**
Laborers	Railroad Equipment, Power Driven, Except Dual Mobile	$58.11	**7B**	**11Y**	**8Z**
Laborers	Railroad Power Spiker Or Puller, Dual Mobile	$58.11	**7B**	**11Y**	**8Z**
Laborers	Remote Equipment Operator	$58.83	**7B**	**11Y**	**8Z**
Laborers	Remote Equipment Operator (i.e Compaction And Demolition)	$58.11	**7B**	**11Y**	**8Z**

Laborers	Rigger/signal Person	$58.11	**7B**	**11Y**	**8Z**
Laborers	Riprap Person	$57.75	**7B**	**11Y**	**8Z**
Laborers	Rodder & Spreader	$58.46	**7B**	**11Y**	**8Z**
Laborers	Sand Hogs Under Compressed Air Conditions	$356.26	**7B**	**11Y**	**8Z**
Laborers	Sandblast Tailhoseman	$57.75	**7B**	**11Y**	**8Z**
Laborers	Scaffold Erector, Wood Or Steel	$57.75	**7B**	**11Y**	**8Z**
Laborers	Scaleman	$54.42	**7B**	**11Y**	**8Z**
Laborers	Stake Jumper	$57.75	**7B**	**11Y**	**8Z**
Laborers	Structural Mover	$57.75	**7B**	**11Y**	**8Z**
Laborers	Tailhoseman (water Nozzle)	$57.75	**7B**	**11Y**	**8Z**
Laborers	Timber Bucker & Faller (by Hand)	$57.75	**7B**	**11Y**	**8Z**
Laborers	Track Laborer (rr)	$57.75	**7B**	**11Y**	**8Z**
Laborers	Traffic Control Laborer	$54.42	**7B**	**11Y**	**8Z**
Laborers	Traffic Control Supervisor	$57.75	**7B**	**11Y**	**8Z**
Laborers	Trencher, Shawnee	$58.11	**7B**	**11Y**	**8Z**

Laborers	Trenchless Technology Technician	$58.46	**7B**	**11Y**	**8Z**
Laborers	Truck Loader	$57.75	**7B**	**11Y**	**8Z**
Laborers	Truck Mounted Attenuator	$54.42	**7B**	**11Y**	**8Z**
Laborers	Tugger Operator	$58.11	**7B**	**11Y**	**8Z**
Laborers	Vibrators, All	$58.46	**7B**	**11Y**	**8Z**
Laborers	Wagon Drills	$58.11	**7B**	**11Y**	**8Z**
Laborers	Water Pipe Liner	$58.11	**7B**	**11Y**	**8Z**
Laborers	Welder, Electrical, Manual Or Automatic (hdpe Or Similar Pipe And Liner)	$58.83	**7B**	**11Y**	**8Z**
Laborers	Well-point Person	$57.75	**7B**	**11Y**	**8Z**
Laborers	Wheelbarrow, Power Driven	$58.11	**7B**	**11Y**	**8Z**
Laborers	Window Washer, Cleaner	$54.42	**7B**	**11Y**	**8Z**
Laborers - Underground Sewer & Water	General Laborer & Topman	$58.46	**7B**	**11Y**	**8Z**
Laborers - Underground Sewer & Water	Pipe Layer	$58.46	**7B**	**11Y**	**8Z**
Landscape Construction	Landscape Laborer	$54.42	**7B**	**11Y**	**8Z**

Landscape Construction	Landscape Operator	$67.64	**7Z**	**11W**	**9M**
Landscape Maintenance	Groundskeeper	$17.13		**1**	
Lathers	Journey Level	$66.66	**15O**	**11S**	
Marble Setters	Journey Level	$63.84	**5A**	**1M**	
Metal Fabrication (In Shop)	Fitter	$17.13		**1**	
Metal Fabrication (In Shop)	Laborer	$17.13		**1**	
Metal Fabrication (In Shop)	Machine Operator	$17.13		**1**	
Metal Fabrication (In Shop)	Painter	$17.13		**1**	
Metal Fabrication (In Shop)	Welder	$17.13		**1**	
Millwright	Journey Level	$85.80	**5A**	**1B**	
Modular Buildings	Journey Level	$17.13		**1**	
Painters	Commercial Painter	$52.40	**15P**	**11V**	
Painters	Industrial Painter	$59.92	**15P**	**11V**	**9D**
Pile Driver	Journey Level	$71.63	**7E**	**4X**	**8N**
Plasterers	Journey Level	$59.83	**7K**	**1N**	
Playground & Park Equipment Installers	Journey Level	$17.13		**1**	
Plumbers & Pipefitters	Journey Level	$103.41	**6Z**	**1Q**	

Power Equipment Operators	Asphalt plant Operators	$68.37	**7Z**	**11W**	**9M**
Power Equipment Operators	Assistant Engineer	$66.39	**7Z**	**11W**	**9M**
Power Equipment Operators	Barrier machine: (Zipper)	$68.01	**7Z**	**11W**	**9M**
Power Equipment Operators	Batch Plant Operator: concrete	$68.01	**7Z**	**11W**	**9M**
Power Equipment Operators	Bobcat	$66.39	**7Z**	**11W**	**9M**
Power Equipment Operators	Brokk: Remote demolition equipment	$66.39	**7Z**	**11W**	**9M**
Power Equipment Operators	Brooms	$66.39	**7Z**	**11W**	**9M**
Power Equipment Operators	Bump cutter	$68.01	**7Z**	**11W**	**9M**
Power Equipment Operators	Cableways	$68.37	**7Z**	**11W**	**9M**
Power Equipment Operators	Chipper	$68.01	**7Z**	**11W**	**9M**
Power Equipment Operators	Compressor	$66.39	**7Z**	**11W**	**9M**
Power Equipment Operators	Concrete Finish Machine: Laser Screed	$66.39	**7Z**	**11W**	**9M**

Power Equipment Operators	Concrete Pump: Mounted or trailer high pressure line pump, pump high pressure	$67.64	**7Z**	**11W**	**9M**
Power Equipment Operators	Concrete Pump: Truck mount with boom attachment over 42M	$68.37	**7Z**	**11W**	**9M**
Power Equipment Operators	Concrete pump: truck mount with boom attachment up to 42M	$68.01	**7Z**	**11W**	**9M**
Power Equipment Operators	Conveyors	$67.64	**7Z**	**11W**	**9M**
Power Equipment Operators	Cranes Friction: 200 tons and over	$72.52	**7Z**	**11W**	**9M**
Power Equipment Operators	Cranes, A-frame: 10 tons and under	$66.39	**7Z**	**11W**	**9M**
Power Equipment Operators	Cranes: 100 tons through 199 tons, or 150' of boom (including jib with attachments)	$70.50	**7Z**	**11W**	**9M**
Power Equipment Operators	Cranes: 20 tons through 44 tons with attachments	$68.01	**7Z**	**11W**	**9M**
Power Equipment Operators	Cranes: 200 tons- 299 tons, or 250' of boom including jib with attachments	$71.57	**7Z**	**11W**	**9M**

Power Equipment Operators	Cranes: 300 tons and over or 300' of boom including jib with attachments	$72.52	**7Z**	**11W**	**9M**
Power Equipment Operators	Cranes: 45 tons through 99 tons, under 150' of boom (including jib with attachments)	$68.37	**7Z**	**11W**	**9M**
Power Equipment Operators	Cranes: Friction cranes through 199 tons	$71.57	**7Z**	**11W**	**9M**
Power Equipment Operators	Cranes: through 19 tons with attachments, A-frame over 10 tons	$67.64	**7Z**	**11W**	**9M**
Power Equipment Operators	Crusher	$68.01	**7Z**	**11W**	**9M**
Power Equipment Operators	Deck engineer/deck winches (power)	$68.01	**7Z**	**11W**	**9M**
Power Equipment Operators	Derricks: on building work	$68.37	**7Z**	**11W**	**9M**
Power Equipment Operators	Dozers: D-9 & under	$67.64	**7Z**	**11W**	**9M**
Power Equipment Operators	Drill Oilers: auger type, truck or crane mount	$67.64	**7Z**	**11W**	**9M**
Power Equipment Operators	Drilling Machine	$70.50	**7Z**	**11W**	**9M**

Power Equipment Operators	Elevator and man-lift: permanent and shaft type	$66.39	**7Z**	**11W**	**9M**
Power Equipment Operators	Finishing Machine: Bidwell and Gamaco & similar equipment	$68.01	**7Z**	**11W**	**9M**
Power Equipment Operators	Forklift: 3000 lbs and over with attachments	$67.64	**7Z**	**11W**	**9M**
Power Equipment Operators	Forklifts: under 3000 lbs. with attachments	$66.39	**7Z**	**11W**	**9M**
Power Equipment Operators	Grade Engineer: using blue prints, cut sheets, etc.	$68.01	**7Z**	**11W**	**9M**
Power Equipment Operators	Gradechecker/Stakeman	$66.39	**7Z**	**11W**	**9M**
Power Equipment Operators	Guardrail punch	$68.01	**7Z**	**11W**	**9M**
Power Equipment Operators	Hard tail end dump: articulating off-road equipment 45 yards & over	$68.37	**7Z**	**11W**	**9M**
Power Equipment Operators	Hard tail end dump: articulating off-road equipment under 45 yards	$68.01	**7Z**	**11W**	**9M**
Power Equipment Operators	Helper, Mechanic or Welder, H.D.	$66.39	**7Z**	**11W**	**9M**

Power Equipment Operators	Horizontal/directional drill locator	$67.64	7Z	11W	9M
Power Equipment Operators	Horizontal/directional drill operator	$68.01	7Z	11W	9M
Power Equipment Operators	Hydralifts/boom trucks: 10 tons and under	$66.39	7Z	11W	9M
Power Equipment Operators	Hydralifts/boom trucks: over 10 tons	$67.64	7Z	11W	9M
Power Equipment Operators	Leverman	$71.57	7Z	11W	9M
Power Equipment Operators	Loader: Overhead 6 yards but not including 8 yards	$68.37	7Z	11W	9M
Power Equipment Operators	Loader: Overhead 8 yards & over	$70.50	7Z	11W	9M
Power Equipment Operators	Loaders: elevating type belt	$67.64	7Z	11W	9M
Power Equipment Operators	Loaders: Overhead under 6 yards	$68.01	7Z	11W	9M
Power Equipment Operators	Loaders: Plant feed	$68.01	7Z	11W	9M
Power Equipment Operators	Locomotives: all	$68.01	7Z	11W	9M
Power Equipment Operators	Material Transfer Device	$68.01	7Z	11W	9M

Power Equipment Operators	Mechanics: all (Leadmen - $0.50 per hour over mechanic)	$70.50	**7Z**	**11W**	**9M**
Power Equipment Operators	Motor patrol graders	$68.37	**7Z**	**11W**	**9M**
Power Equipment Operators	Mucking machine, mole, tunnel drill, boring, road header and/or shield	$68.37	**7Z**	**11W**	**9M**
Power Equipment Operators	Oil distributors, blower distribution & mulch seeding operator	$66.39	**7Z**	**11W**	**9M**
Power Equipment Operators	Outside Hoists (elevators and manlifts), Air Tuggers, Strato	$67.64	**7Z**	**11W**	**9M**
Power Equipment Operators	Overhead, bridge type Crane: 20 tons through 44 tons	$68.01	**7Z**	**11W**	**9M**
Power Equipment Operators	Overhead, bridge type: 100 tons and over	$70.50	**7Z**	**11W**	**9M**
Power Equipment Operators	Overhead, bridge type: 45 tons through 99 tons	$68.37	**7Z**	**11W**	**9M**
Power Equipment Operators	Pavement breaker	$66.39	**7Z**	**11W**	**9M**
Power Equipment Operators	Piledriver: (other than crane mount)	$68.01	**7Z**	**11W**	**9M**

Power Equipment Operators	Plant oiler: asphalt, crusher	$67.64	**7Z**	**11W**	**9M**
Power Equipment Operators	Posthole digger: mechanical	$66.39	**7Z**	**11W**	**9M**
Power Equipment Operators	Power plant	$66.39	**7Z**	**11W**	**9M**
Power Equipment Operators	Pumps: water	$66.39	**7Z**	**11W**	**9M**
Power Equipment Operators	Quad 9, HD 41, D10 and over	$68.37	**7Z**	**11W**	**9M**
Power Equipment Operators	Quick Tower: no cab, under 100 feet in height base to boom	$68.01	**7Z**	**11W**	**9M**
Power Equipment Operators	Remote control operator on rubber tired earth moving equipment	$68.37	**7Z**	**11W**	**9M**
Power Equipment Operators	Rigger and Bellman	$66.39	**7Z**	**11W**	**9M**
Power Equipment Operators	Rigger/Signal Person, Bellman (Certified)	$67.64	**7Z**	**11W**	**9M**
Power Equipment Operators	Rollagon	$68.37	**7Z**	**11W**	**9M**
Power Equipment Operators	Roller: other than plant mix	$66.39	**7Z**	**11W**	**9M**
Power Equipment Operators	Roller: plant mix or multi-lift materials	$67.64	**7Z**	**11W**	**9M**

Power Equipment Operators	Roto-mill, roto-grinder	$68.01	**7Z**	**11W**	**9M**
Power Equipment Operators	Saws: concrete	$67.64	**7Z**	**11W**	**9M**
Power Equipment Operators	Scraper: self propelled under 45 yards	$68.01	**7Z**	**11W**	**9M**
Power Equipment Operators	Scrapers, self-propelled: 45 yards and over	$68.37	**7Z**	**11W**	**9M**
Power Equipment Operators	Scrapers: concrete & carry all	$67.64	**7Z**	**11W**	**9M**
Power Equipment Operators	Service Engineers: equipment	$67.64	**7Z**	**11W**	**9M**
Power Equipment Operators	Shotcrete/gunite equipment	$66.39	**7Z**	**11W**	**9M**
Power Equipment Operators	Shovel, excavator, backhoe, tractor: 15 to 30 metric tons	$68.01	**7Z**	**11W**	**9M**
Power Equipment Operators	Shovel, excavator, backhoe, tractors: under 15 metric tons	$67.64	**7Z**	**11W**	**9M**
Power Equipment Operators	Shovel, excavator, backhoe: over 30 metric tons and up to 50 metric tons	$68.37	**7Z**	**11W**	**9M**
Power Equipment Operators	Shovel, excavator, backhoes: over 50	$70.50	**7Z**	**11W**	**9M**

	metric tons and up to 90 metric tons				
Power Equipment Operators	Shovel, excavator, backhoes: over 90 metric tons	$71.57	**7Z**	**11W**	**9M**
Power Equipment Operators	Slipform pavers	$68.37	**7Z**	**11W**	**9M**
Power Equipment Operators	Spreader: Topsider & Screedman	$68.37	**7Z**	**11W**	**9M**
Power Equipment Operators	Subgrader trimmer	$68.01	**7Z**	**11W**	**9M**
Power Equipment Operators	Tower Bucket Elevators	$67.64	**7Z**	**11W**	**9M**
Power Equipment Operators	Tower Crane: over 175' through 250' in height, base to boom	$71.57	**7Z**	**11W**	**9M**
Power Equipment Operators	Tower crane: up to 175' in height base to boom	$70.50	**7Z**	**11W**	**9M**
Power Equipment Operators	Tower Cranes: over 250' in height from base to boom	$72.52	**7Z**	**11W**	**9M**
Power Equipment Operators	Transporters: all track or truck type	$68.37	**7Z**	**11W**	**9M**
Power Equipment Operators	Trenching machines	$67.64	**7Z**	**11W**	**9M**

Power Equipment Operators	Truck Crane Oiler/Driver: 100 tons and over	$68.01	**7Z**	**11W**	**9M**
Power Equipment Operators	Truck crane oiler/driver: under 100 tons	$67.64	**7Z**	**11W**	**9M**
Power Equipment Operators	Truck mount portable conveyor	$68.01	**7Z**	**11W**	**9M**
Power Equipment Operators	Vac Truck (Vactor Guzzler, Hydro Excavator)	$68.01	**7Z**	**11W**	**9M**
Power Equipment Operators	Welder	$68.37	**7Z**	**11W**	**9M**
Power Equipment Operators	Wheel tractors: Farm all type	$66.39	**7Z**	**11W**	**9M**
Power Equipment Operators	Yo Yo pay dozer	$68.01	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Asphalt plant Operators	$68.37	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Assistant Engineer	$66.39	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Barrier machine: (Zipper)	$68.01	**7Z**	**11W**	**9M**

Power Equipment Operators- Underground Sewer & Water	Batch Plant Operator: concrete	$68.01	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Bobcat	$66.39	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Brokk: Remote demolition equipment	$66.39	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Brooms	$66.39	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Bump cutter	$68.01	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Cableways	$68.37	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Chipper	$68.01	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Compressor	$66.39	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Concrete Finish Machine: Laser Screed	$66.39	**7Z**	**11W**	**9M**

Power Equipment Operators- Underground Sewer & Water	Concrete Pump: Mounted or trailer high pressure line pump, pump high pressure	$67.64	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Concrete Pump: Truck mount with boom attachment over 42M	$68.37	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Concrete pump: truck mount with boom attachment up to 42M	$68.01	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Conveyors	$67.64	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Cranes Friction: 200 tons and over	$72.52	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Cranes, A-frame: 10 tons and under	$66.39	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Cranes: 100 tons through 199 tons, or 150' of boom (including jib with attachments)	$70.50	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Cranes: 20 tons through 44 tons with attachments	$68.01	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground	Cranes: 200 tons- 299 tons, or 250' of boom	$71.57	**7Z**	**11W**	**9M**

Sewer & Water	including jib with attachments				
Power Equipment Operators- Underground Sewer & Water	Cranes: 300 tons and over or 300' of boom including jib with attachments	$72.52	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Cranes: 45 tons through 99 tons, under 150' of boom (including jib with attachments)	$68.37	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Cranes: Friction cranes through 199 tons	$71.57	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Cranes: through 19 tons with attachments, A-frame over 10 tons	$67.64	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Crusher	$68.01	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Deck engineer/deck winches (power)	$68.01	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Derricks: on building work	$68.37	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Dozers: D-9 & under	$67.64	**7Z**	**11W**	**9M**

Power Equipment Operators- Underground Sewer & Water	Drill Oilers: auger type, truck or crane mount	$67.64	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Drilling Machine	$70.50	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Elevator and man-lift: permanent and shaft type	$66.39	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Finishing Machine: Bidwell and Gamaco & similar equipment	$68.01	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Forklift: 3000 lbs and over with attachments	$67.64	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Forklifts: under 3000 lbs. with attachments	$66.39	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Grade Engineer: using blue prints, cut sheets, etc.	$68.01	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Gradechecker/Stakeman	$66.39	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Guardrail punch	$68.01	**7Z**	**11W**	**9M**

Power Equipment Operators- Underground Sewer & Water	Hard tail end dump: articulating off-road equipment 45 yards & over	$68.37	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Hard tail end dump: articulating off-road equipment under 45 yards	$68.01	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Helper, Mechanic or Welder, H.D.	$66.39	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Horizontal/directional drill locator	$67.64	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Horizontal/directional drill operator	$68.01	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Hydralifts/boom trucks: 10 tons and under	$66.39	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Hydralifts/boom trucks: over 10 tons	$67.64	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Leverman	$71.57	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground	Loader: Overhead 6 yards but not including 8	$68.37	**7Z**	**11W**	**9M**

Sewer & Water	yards				
Power Equipment Operators- Underground Sewer & Water	Loader: Overhead 8 yards & over	$70.50	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Loaders: elevating type belt	$67.64	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Loaders: Overhead under 6 yards	$68.01	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Loaders: Plant feed	$68.01	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Locomotives: all	$68.01	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Material Transfer Device	$68.01	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Mechanics: all (Leadmen - $0.50 per hour over mechanic)	$70.50	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Motor patrol graders	$68.37	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground	Mucking machine, mole, tunnel drill, boring, road	$68.37	**7Z**	**11W**	**9M**

Sewer & Water	header and/or shield				
Power Equipment Operators- Underground Sewer & Water	Oil distributors, blower distribution & mulch seeding operator	$66.39	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Outside Hoists (elevators and manlifts), Air Tuggers, Strato	$67.64	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Overhead, bridge type Crane: 20 tons through 44 tons	$68.01	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Overhead, bridge type: 100 tons and over	$70.50	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Overhead, bridge type: 45 tons through 99 tons	$68.37	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Pavement breaker	$66.39	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Piledriver: (other than crane mount)	$68.01	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Plant oiler: asphalt, crusher	$67.64	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground	Posthole digger: mechanical	$66.39	**7Z**	**11W**	**9M**

Sewer & Water					
Power Equipment Operators- Underground Sewer & Water	Power plant	$66.39	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Pumps: water	$66.39	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Quad 9, HD 41, D10 and over	$68.37	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Quick Tower: no cab, under 100 feet in height base to boom	$68.01	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Remote control operator on rubber tired earth moving equipment	$68.37	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Rigger and Bellman	$66.39	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Rigger/Signal Person, Bellman (Certified)	$67.64	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Rollagon	$68.37	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground	Roller: other than plant mix	$66.39	**7Z**	**11W**	**9M**

Sewer & Water					
Power Equipment Operators- Underground Sewer & Water	Roller: plant mix or multi-lift materials	$67.64	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Roto-mill, roto-grinder	$68.01	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Saws: concrete	$67.64	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Scraper: self propelled under 45 yards	$68.01	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Scrapers, self-propelled: 45 yards and over	$68.37	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Scrapers: concrete & carry all	$67.64	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Service Engineers: equipment	$67.64	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Shotcrete/gunite equipment	$66.39	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground	Shovel, excavator, backhoe, tractor: 15 to	$68.01	**7Z**	**11W**	**9M**

Sewer & Water	30 metric tons				
Power Equipment Operators- Underground Sewer & Water	Shovel, excavator, backhoe, tractors: under 15 metric tons	$67.64	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Shovel, excavator, backhoe: over 30 metric tons and up to 50 metric tons	$68.37	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Shovel, excavator, backhoes: over 50 metric tons and up to 90 metric tons	$70.50	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Shovel, excavator, backhoes: over 90 metric tons	$71.57	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Slipform pavers	$68.37	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Spreader: Topsider & Screedman	$68.37	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Subgrader trimmer	$68.01	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Tower Bucket Elevators	$67.64	**7Z**	**11W**	**9M**

Power Equipment Operators- Underground Sewer & Water	Tower Crane: over 175' through 250' in height, base to boom	$71.57	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Tower Crane: over 175' through 250' in height, base to boom	$71.57	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Tower crane: up to 175' in height base to boom	$70.50	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Tower Cranes: over 250' in height from base to boom	$72.52	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Transporters: all track or truck type	$68.37	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Trenching machines	$67.64	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Truck Crane Oiler/Driver: 100 tons and over	$68.01	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Truck crane oiler/driver: under 100 tons	$67.64	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Truck mount portable conveyor	$68.01	**7Z**	**11W**	**9M**

Power Equipment Operators- Underground Sewer & Water	Vac Truck (Vactor Guzzler, Hydro Excavator)	$68.01	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Welder	$68.37	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Wheel tractors: Farm all type	$66.39	**7Z**	**11W**	**9M**
Power Equipment Operators- Underground Sewer & Water	Yo Yo pay dozer	$68.01	**7Z**	**11W**	**9M**
Power Line Clearance Tree Trimmers	Journey Level In Charge	$69.62	**5A**	**4A**	
Power Line Clearance Tree Trimmers	Spray Person	$65.89	**5A**	**4A**	
Power Line Clearance Tree Trimmers	Tree Equipment Operator	$69.62	**5A**	**4A**	
Power Line Clearance Tree Trimmers	Tree Trimmer	$62.19	**5A**	**4A**	
Power Line Clearance Tree Trimmers	Tree Trimmer Groundperson	$45.73	**5A**	**4A**	
Refrigeration & Air Conditioning Mechanics	Journey Level	$103.41	**6Z**	**1Q**	
Residential Brick Mason	Journey Level	$63.84	**5A**	**1M**	

Residential Carpenters	Journey Level	$26.68		**1**
Residential Cement Masons	Journey Level	$41.24		**1**
Residential Drywall Applicators	Journey Level	$24.68		**1**
Residential Drywall Tapers	Journey Level	$29.89		**1**
Residential Electricians	Journey Level	$27.79		**1**
Residential Glaziers	Journey Level	$25.30		**1**
Residential Insulation Applicators	Journey Level	$25.38		**1**
Residential Laborers	Journey Level	$17.13		**1**
Residential Marble Setters	Journey Level	$63.84	**5A**	**1M**
Residential Painters	Journey Level	$21.22		**1**
Residential Plumbers & Pipefitters	Journey Level	$39.37		**1**
Residential Refrigeration & Air Conditioning Mechanics	Journey Level	$39.76		**1**
Residential Sheet Metal Workers	Journey Level (Field or Shop)	$85.41	**5I**	**1B**
Residential Soft Floor Layers	Journey Level	$22.11		**1**
Residential Sprinkler Fitters (Fire Protection)	Journey Level	$18.40		**1**

Residential Stone Masons	Journey Level	$63.84	**5A**	**1M**
Residential Terrazzo Workers	Journey Level	$20.61		**1**
Residential Terrazzo/Tile Finishers	Journey Level	$17.92		**1**
Residential Tile Setters	Journey Level	$20.61		**1**
Roofers	Journey Level	$51.61	**5I**	**1R**
Roofers	Using Irritable Bituminous Materials	$53.61	**5I**	**1R**
Sheet Metal Workers	Journey Level (Field or Shop)	$85.41	**6Z**	**1B**
Sign Makers & Installers (Electrical)	Journey Level	$17.13		**1**
Sign Makers & Installers (Non-Electrical)	Journey Level	$17.13		**1**
Soft Floor Layers	Journey Level	$65.72	**7C**	**3J**
Solar Controls For Windows	Journey Level	$17.13		**1**
Sprinkler Fitters (Fire Protection)	Journey Level	$76.94	**7J**	**1R**
Stage Rigging Mechanics (Non Structural)	Journey Level	$17.13		**1**
Stone Masons	Journey Level	$63.84	**5A**	**1M**

Street And Parking Lot Sweeper Workers	Journey Level	$17.13		1	
Surveyors	Chain Person	$17.13	0	1	9H
Surveyors	Instrument Person	$17.13	0	1	9H
Surveyors	Party Chief	$17.13	0	1	9H
Telecommunication Technicians	Journey Level	$62.44	5I	1B	
Telephone Line Construction - Outside	Cable Splicer	$42.62	5A	2B	
Telephone Line Construction - Outside	Hole Digger/Ground Person	$27.97	5A	2B	
Telephone Line Construction - Outside	Telephone Equipment Operator (Light)	$35.60	5A	2B	
Telephone Line Construction - Outside	Telephone Lineperson	$40.28	5A	2B	
Terrazzo Workers	Journey Level	$43.81	5A	1M	
Tile Setters	Journey Level	$43.81	5A	1M	
Tile, Marble & Terrazzo Finishers	Journey Level	$35.93	5A	1M	
Traffic Control Stripers	All cleanup required in connection with traffic control stripers work (Group 1)	$95.41	15L	1K	

Traffic Control Stripers	Handling, painting and installing of all car stops, stop signs and any other type sign (Group 2)	$55.54	**15L**	**1K**
Traffic Control Stripers	Installation of guard rail and posts and similar protective devices (Group 2)	$55.54	**15L**	**1K**
Traffic Control Stripers	Installation of parking gates, ticket spitters and other mechanical and automatic control devices (Group 2)	$55.54	**15L**	**1K**
Traffic Control Stripers	Installation of plastic metal or composition button, or lines used instead of paint (Group 1)	$95.41	**15L**	**1K**
Traffic Control Stripers	Line removal; chemical sand and hydro-blast, paint and button (Group 1)	$95.41	**15L**	**1K**
Traffic Control Stripers	Manufacturing and installation of all car stops and control devices and similar traffic regulators (Group 2)	$55.54	**15L**	**1K**
Traffic Control Stripers	Manufacturing, painting, stenciling, servicing,	$55.54	**15L**	**1K**

	repairing, placing and removal of traffic safety and control devices/barricades (Group 2)				
Traffic Control Stripers	Painting and installing lines, arrows, bumpers, curbs, etc., on parking lots, air fields, highways, game courts (Group 1)	$95.41	**15L**	**1K**	
Traffic Control Stripers	Preparation and maintenance of all surfaces (Group 1)	$95.41	**15L**	**1K**	
Traffic Control Stripers	Seal coating, slurry coating and other surface protection (Group 2)	$55.54	**15L**	**1K**	
Truck Drivers	Asphalt Mix Over 20 Yards	$66.71	**5D**	**1V**	**8M**
Truck Drivers	Asphalt Mix To 20 Yards	$66.49	**5D**	**1V**	**8M**
Truck Drivers	Dump Truck	$66.49	**5D**	**1V**	**8M**
Truck Drivers	Dump Truck & Trailer	$66.71	**5D**	**1V**	**8M**
Truck Drivers	Other Trucks	$66.00	**5D**	**1V**	**8M**
Truck Drivers - Ready Mix	Transit Mixers 20 yards and under	$66.71	**5D**	**1V**	**8M**

Truck Drivers - Ready Mix	Transit Mixers over 20 yards	$67.09	**5D**	**1V**	**8M**
Well Drillers & Irrigation Pump Installers	Irrigation Pump Installer	$17.13		**1**	
Well Drillers & Irrigation Pump Installers	Oiler	$17.13		**1**	
Well Drillers & Irrigation Pump Installers	Well Driller	$17.13		**1**	

DIVISION 1 – GENERAL REQUIREMENTS

SECTION 01100

SPECIAL PROVISIONS

PART 1 GENERAL

These Special Provisions supplement and amplify certain sections of the General Conditions and Supplementary General Conditions. The General Conditions and Supplementary General Conditions shall apply except as modified herein. These Special Provisions and additional technical specifications may contain occasional requirements not pertinent to the project. However, these specifications shall apply in all particulars insofar as they are applicable to this project.

1.1 Applicable Standard Specifications and Plans

The most recent edition of the Standard Specifications and Drawings for Asotin County Public Utility District, Asotin County, Washington.

The most recent edition of the Washington State Department of Transportation Standard Specifications for Road, Bridge, and Municipal Construction apply except as may be modified herein.

Plan Drawings: See Cover Sheet for Drawing Index.

1.2 Scope of Work

The work to be performed under these specifications and drawings consists of:

The work consists of three schedules for replacing/upsizing approximately 1,300 lineal feet of 6-inch gravity sewer with 8-inch gravity main through pipe bursting and/or open cut methods and lining approximately 1,660 lineal feet of 8-and 10- inch gravity sewer using Cured-In-Place Pipe (CIPP) methods. OWNER anticipates that the Project's total bid price will be approximately $1,400,000.

The above general outline of principal features of the work does not in any way limit the responsibility of the CONTRACTOR(s) to perform all work and furnish all equipment, labor and materials required by the specifications and drawings. The drawings and specifications shall be considered and used together. Anything appearing as a requirement of either shall be accepted as applicable to both even though not so stated therein or shown.

No attempt has been made in these specifications or drawings to segregate work covered by any trade or subcontract under one specification. Such segregation and establishment of subcontract limits will be solely a matter of specific agreement

between the CONTRACTOR and its subcontractors and shall not be based upon any inclusion, segregation or arrangement in or of these specifications.

1.3 Coordination of Drawings and Specifications

The drawings and specifications are intended to describe and provide for a complete work. Any requirement in one is as binding as if stated in all. The CONTRACTOR shall provide any work or materials clearly implied in the Contract Documents even if the Contract Documents do not mention it specifically. If there is a conflict within the Contract Documents, it will be resolved by the following order of precedence:

A. Permits for outside agencies required by law
B. OWNER-CONTRACTOR Agreement
C. Addenda to Contract Documents
D. CONTRACTOR'S Proposal
E. Special Provisions
F. Contract Drawings
G. Asotin County PUD Standard Specifications and Drawings
H. Supplementary General Conditions
I. General Conditions of the Contract
J. Washington State Department of Transportation Standard Specifications for Road, Bridge, and Municipal Construction

Dimensions shown on the drawings or that can be computed shall take precedence over scaled dimensions. Notes on drawings are part of the drawings and govern in the order described above. Notes on drawings shall take precedence over drawing details.

The intent of the drawings and specifications is to prescribe the details for the construction and completion of the work which the CONTRACTOR undertakes to perform according to the terms of the Contract. Where the drawings or specifications describe portions of the work in general terms, but details are incomplete or silent, it is understood that only the best general practice is to prevail and that only materials and workmanship of the best quality are to be used. Unless otherwise specified, the CONTRACTOR shall furnish all labor, materials, tools, equipment, and incidentals, and do all the work involved in executing the Contract in a manner satisfactory to the OWNER.

The contract drawings are designated by general title, sheet number and sheet title. When reference is made to the drawings, the "Sheet Number" of the drawing will be used. Each drawing bears the general title:

2027 SEWER MAIN REPLACMENT

1.4 Code Requirements

All work shall be done in strict compliance with the requirements of:

A. International Building Code
B. Uniform Mechanical Code
C. Uniform Plumbing Code
D. National Electric Code
E. National Electric Safety Code
F. Washington State Department of Labor and Industries
G. Asotin County, Washington
H. City of Clarkston, Washington
I. Asotin County Public Utility District, Washington

In case of disagreement between codes or these specifications, the more restrictive shall prevail.

1.5 Time of Completion/Liquidated Damages

The CONTRACTOR shall complete all work shown and specified within the time limits stated in the Agreement (See Section 00500, Agreement, Article 3.1).

The written Notice to Proceed will be sent to the CONTRACTOR after the CONTRACTOR submits the signed Contract, Bonds and insurance certificates to the OWNER and those documents have been approved as to form and executed by the OWNER.

See Section 00500, Agreement, Article 3 and the General Conditions as respect for liquidated damages.

See Section 01300, Submittals, for the project schedule submittal requirements.

1.6 Coordination With Other CONTRACTORs and With OWNER

Certain work within this contract may require connection to and coordination with the work of other CONTRACTORs and OWNER. The CONTRACTOR under these specifications shall cooperate fully with all other CONTRACTORs and OWNER and carefully fit its own work to such other work as may be directed by the OWNER. The CONTRACTOR shall not commit or permit any act to be committed which will interfere with the performance of work by any other CONTRACTOR or the OWNER.

1.7 Access to Work

Access to the work shall be provided as may be required by the OWNER or its representatives, and all authorized representatives of the state and federal governments and any other agencies having jurisdiction over any phase of the work, for inspection of the progress of the work, the methods of construction or any other required purposes.

1.8 Permits and Licenses

Unless provided for otherwise in these contract documents, all permits, licenses and fees shall be obtained by the CONTRACTOR and all costs shall be borne by the CONTRACTOR. CONTRACTOR shall pay all plan check fees and other fees necessary to obtain permits and shall accommodate special inspections required thereof. CONTRACTOR shall be responsible for compliance with all permit provisions and shall accommodate all special inspections required thereof, all at no additional expense to the OWNER beyond prices as bid.

1.9 Site Investigation and Physical Data

The CONTRACTOR acknowledges that it is satisfied as to the nature and location of the work and the general and local conditions, including but not limited to those bearing upon transportation, disposal, handling and storage of materials, availability of water, roads, groundwater, access to the sites, coordination with other CONTRACTORs, and conflicts with pipelines, structures and other CONTRACTORs. Information and data furnished or referred to herein is furnished for information only. Any failure by the CONTRACTOR to become acquainted with the available information and existing conditions will not be a basis for relief from successfully performing the work and will not constitute justification for additional compensation.

The CONTRACTOR shall verify the locations and elevations of existing pipelines, structures, grades and utilities, prior to construction. The OWNER assumes no responsibility for any conclusions or interpretations made by the CONTRACTOR on the basis of the information made available.

1.10 Temporary Utilities for Construction Purposes

The CONTRACTOR shall make all arrangements necessary to provide all temporary utilities for construction purposes and shall pay all costs associated those temporary utilities. Water for construction purposes will be furnished by the OWNER at no cost. The CONTRACTOR shall furnish all valves, hoses, connections and other devices as necessary to obtain sufficient water for construction and for filling and testing of water lines as required. Fire hydrant use is allowed only by permission of

the utility OWNER. Backflow protection is required on all connections to potable water systems.

1.11 Field Service by Manufacturer's Representative

The CONTRACTOR shall furnish the services of a manufacturer's or material supplier's representative for all major equipment and materials furnished by the CONTRACTOR or OWNER under this contract, to check, place in operation and test the installation, and train operating personnel. The manufacturer's representative shall be qualified and authorized to perform repairs and maintenance on the equipment. The above gives a general scope of the services desired from the manufacturer's representative. It will be the responsibility of the CONTRACTOR and the equipment manufacturer to determine detailed requirements. Costs for services of the manufacturer's representative shall be included in the proposal of the CONTRACTOR. The operator training mentioned above shall include sufficient time during the CONTRACTOR'S operation and testing period to fully explain to the operating personnel the features of the equipment and maintenance thereof.

1.12 Construction Within Public Rights-of-Way

When the work contemplated is wholly or partly within the right-of-way of a public agency such as a city, county or state, the OWNER will obtain from these agencies any right-of-way and street opening permits and all other necessary permit(s) required for the work. The CONTRACTOR shall abide by all regulations and conditions stipulated in the permit(s). Such conditions and requirements are hereby made a part of these specifications, as fully and completely as though the same were fully set forth herein. The CONTRACTOR shall examine the permit(s) granted to the OWNER by any city, county, state and federal agencies. Failure to do so will not relieve the CONTRACTOR from compliance with the requirements stated therein.

The CONTRACTOR shall obtain all construction permits and pay all fees or charges and furnish any bonds and insurance coverages as necessary to insure that all requirements of the city, county, state or federal agencies will be observed and the roadway and ditches are restored to their original condition or one equally satisfactory. A copy of all permits shall be kept on the work site for use of the OWNER.

1.13 Construction Within Private Easements

When portions of the work contemplated are within easements held by the OWNER on private property, the CONTRACTOR shall ascertain for itself to what extent the width, status and special conditions attached to easements may have on its operations and all costs resulting therefrom shall be included and absorbed in the unit prices of the CONTRACTOR'S bid. CONTRACTOR shall coordinate with private property OWNERs and businesses if required. Landscaping, surface restoration and fence

restoration shall be completed following piping and conduit installation and other construction work. Temporary fencing shall be provided continuously until such private fencing is properly restored.

1.14 Railroad Crossings

Whenever a utility passes under a railroad or is on a railroad right-of-way, the work to be done shall be subject to the approval of proper officials of the railroad involved. Drawings and specifications will be filed by the OWNER with the railroad concerned prior to the time of bidding, but it is the responsibility of the CONTRACTOR to determine the requirements of the railroad with respect to maintaining traffic, amounts of insurance, and allowable construction procedures. All costs due to the existence of railroad track and other related facilities and the requirements of the railroads shall be covered by the price bid in the CONTRACTOR'S proposal

1.15 Private Roads and Driveways

Bridges at entrances to business properties where vehicular traffic is necessary shall be provided and maintained. Bridges shall be adequate in width and strength for the service required. No private road or driveway may be closed without approval of the OWNER unless written authority has been given by the OWNER whose property has been affected. Driveways shall be left open and ready for use at the end of the work shift. All expenses involved in providing for construction, maintenance, and use of private roads or driveways, shall be borne by the CONTRACTOR and the amount thereof absorbed in the unit prices of the CONTRACTOR'S bid.

1.16 Traffic Control and Protection

The CONTRACTOR shall maintain traffic control and protection in the work areas twenty-four (24) hours per day. Traffic control shall conform to the standards set forth in the Traffic control shall conform to the standards set forth in the Manual on Uniform Traffic Control Devices (MUTCD), the Washington Modifications to the MUTCD issued by the Washington Department of Transportation, Asotin County, and City of Clarkston traffic regulations.

If required by the State, the CONTRACTOR shall conduct its operations so as to keep both directions of traffic open on State Highways. Permits obtained for the project may have more stringent requirements than noted in this section.

Road Closures shall be allowed if permitted by the jurisdictional entity. Road shall be re-opened at the end of each work day. Road shall not be closed when no work is taking place.

Prior to beginning construction, the CONTRACTOR shall submit a detailed street closure and traffic control plan to the OWNER and Jurisdictional Entity for approval. As construction proceeds, the CONTRACTOR shall notify the OWNER as to the status of street closures and detours.

On streets where traffic is heavy, the OWNER may require the construction of two-way bridges of adequate design. These bridges shall be provided with guard rails and shall be well lighted at all times. Detours as required by the OWNER shall be surfaced with gravel or crushed rock and maintained in good condition. Detours for pedestrians shall not exceed one block in length, and foot bridges over the trenches shall be provided with adequate handrails.

All work shall be carried on with due regard for safety to the public. Open trenches shall be provided with barricades of a type that can be seen at a reasonable distance, and at night they shall be distinctly indicated by adequately placed lights.

1.17 Compaction Testing

The CONTRACTOR shall provide the services of a licensed, independent agency to perform compaction testing for this project. Compaction tests will be required to show that specified densities of compacted backfill and asphaltic concrete surfacing are being achieved by the CONTRACTOR'S compaction methods. The CONTRACTOR shall provide the OWNER with copies of recent Proctor tests for the backfill and paving material in addition to copies of compaction tests performed in the field.

1.18 Dechlorination and Disposal of Chlorinated Water

Any discharge of chlorinated water shall either be through an approved connection to a public sanitary sewer system or shall include dechlorination to limits acceptable by the Washington State Department of Ecology for discharge into the existing storm drainage system. No chlorinated water shall be discharged into the storm drainage system prior to approved dechlorination treatment.

1.19 Limits of the Work and Storage of Spoils

The limits of the site which may be used for construction, storage, materials handling, parking of vehicles and other operations related to the project include the project site as shown on the drawings and adjacent public rights-of-way subject to permission of the public OWNER of that right-of-way. The limits of work also include rights of access obtained by the CONTRACTOR, subject to all public laws and regulations and rights of access by utility companies and other holders of easement rights.

1.20 Existing Water System Shutdown

If the project involves the need to shut down an existing water system, the CONTRACTOR shall coordinate the work to ensure a minimum of shutdown time. The CONTRACTOR shall submit a written shutdown schedule to the OWNER for approval. The CONTRACTOR shall provide 72-hour notice preceding each shutdown.

1.21 Field Changes, Alignment and Grade

Changes of alignment and grade shall be made during the course of work in order to avoid interference with unforeseen obstructions. The CONTRACTOR shall locate existing utilities to be crossed, by potholing ahead of the pipe installation, of sufficient distance to avoid conflicts through pipe joint deflection if possible. All costs for minor field changes of alignment and grade shall be borne by the CONTRACTOR. The OWNER will endeavor to make prompt decisions on such matters. CONTRACTOR shall anticipate a minimum of 72 hours for any decision requiring significant piping change.

1.22 Testing and Operation of Facilities

It is the intent of the OWNER to have a complete and operable facility. All of the work under this contract will be fully tested and inspected in accordance with the specifications. Upon completion of the work, the CONTRACTOR shall operate the completed facilities as required to test the equipment under the direction of the OWNER. During this period of operation by the CONTRACTOR, the new facilities will be tested thoroughly to determine their acceptance.

1.23 Protection of Existing Structures and Work

The CONTRACTOR must take all precautions and measures necessary to protect all existing structures and work. Any damage to existing structures and work shall be repaired by removing the damaged structure or work, replacing the work and restoring to original condition satisfactory to the OWNER.

1.24 Salvage and Debris

Unless otherwise indicated on the drawings or in the specifications, all castings, pipe, equipment, demolition debris, spoil or any other discarded material or equipment shall become the property of the CONTRACTOR and shall be disposed of in a manner compliant with applicable Federal State and local laws and regulations governing disposal of such waste products. No burning of debris or any other discarded material will be permitted.

1.25 Safety Standards and Accident Prevention

The CONTRACTOR shall be solely and completely responsible for conditions of the job site, including safety of all persons and property during performance of the work. This requirement shall apply continuously and not be limited to normal working hours. The required and/or implied duty of the OWNER or ENGINEER to conduct construction review of the CONTRACTOR'S performance does not, and is not intended to, include review of the adequacy of the CONTRACTOR'S safety measures in, on, or near the construction site.

The CONTRACTOR shall comply with the safety standards provisions of applicable laws and building and construction codes. The CONTRACTOR shall exercise every precaution at all times for the prevention of accidents and protection of persons, including employees, and property. During the execution of the work the CONTRACTOR shall provide and maintain all guards, railing, lights, warnings, and other protective devices which are required by law or which are reasonably necessary for the protection of persons and property from injury or damage.

1.26 Warranty Period

The CONTRACTOR shall warrant all furnished materials and equipment for a period of one year from date of final acceptance of the Work by the OWNER. This warranty shall mean prompt attention to the correction and/or complete replacement of the faulty material or equipment. The expiration of the one-year warranty period shall not affect any other claims or remedy available to the OWNER. There may be other warranty provisions in these contract documents in addition to those noted above.

1.27 Utility Properties and Service

In areas where the CONTRACTOR'S operations are adjacent to or near a utility and such operations may cause damage which might result in significant expense, loss and inconvenience, the operations shall be suspended until all arrangements necessary for the protection thereof have been made by the CONTRACTOR.

The CONTRACTOR shall notify all utility offices which may be affected by the construction operation at least 48 hours in advance. Before exposing any utility, the utility having jurisdiction shall grant permission and may oversee the operation. Should service of any utility be interrupted due to the CONTRACTOR'S operation, the proper authority shall be notified immediately. It is of the utmost importance that the CONTRACTOR cooperates with the said authority in restoring the service as promptly as possible. Any costs shall be borne by the CONTRACTOR.

Utilities which may be impacted include the following:

Asotin County PUD	Water and Sanitary Sewer
City of Clarkston	Storm Drain and Roads
Asotin County	Storm Drain and Roads
Washington State Dept. of Transportation	Storm Drain and Roads
Asotin County Fire District No. 1	Fire Department
City of Clarkston	Fire Department
Avista Utilities	Natural Gas
Avista Utilities	Power
Lumen	Telecommunication
Sparklight	Fiber/Internet/CATV

1.28 Sanitary Facilities

The CONTRACTOR shall provide and maintain sanitary facilities for its employees and its Subcontractors' employees that will comply with the regulations of the local and State Departments of Health and as directed by the OWNER. At a minimum, sanitary facilities shall provide methods to clean and wash hands.

1.29 Street Cleanup

The CONTRACTOR shall clean daily all dirt, gravel, construction debris and other foreign material resulting from its operations from all streets and roads.

1.30 Vehicle Parking

The vehicles of the CONTRACTOR'S and Subcontractors' employees shall be parked in accordance with local parking ordinances.

1.31 Protection of Quality of Water

The work to be performed involves connections to an existing potable water system. The CONTRACTOR shall take such precautions as are necessary or as may be required to prevent the contamination of the water. Such contamination may include but shall not be limited to deleterious chemicals such as fuel, cleaning agents, paint, demolition and construction debris, sandblasting residue, etc. In the event contamination does occur, the CONTRACTOR shall, at its own expense, perform such work as may be necessary to repair any damage or to clean the affected areas of the water mains to a condition satisfactory to the OWNER.

1.32 Record Drawings

CONTRACTOR shall maintain at the site one set of specifications, full size drawings, shop drawings, equipment drawings and supplemental drawings which shall be corrected as the work progresses to show all changes made. Drawings shall be

available for inspection by the OWNER. Upon completion of the contract and prior to final payment, specifications and drawings shall be turned over to the OWNER.

1.33 Product Substitution

When a manufacturer's name, brand or item designation is given, it shall be understood that those products must be used. Other products may be substituted only with the expresses and written approval of the OWNER. If the CONTRACTOR desires to furnish items of equipment by manufacturers other than those specified, he shall secure the approval of the OWNER prior to placing a purchase order.

1.34 Surveys

Based upon the information provided by the Contract Documents, the CONTRACTOR shall develop and make all detail surveys necessary for layout and construction, including exact component location, working points, lines and elevations. Prior to construction, the field layout shall be approved by the OWNER'S representative. The CONTRACTOR shall have the responsibility to preserve bench marks, reference points and stakes, and in the case of destruction thereof by the CONTRACTOR or resulting from its negligence, the CONTRACTOR shall be charged with the expense and damage resulting therefore and shall be responsible for any mistakes that may be caused by the unnecessary loss or disturbance of such bench marks, reference points and stakes.

The OWNER will perform field surveys of fitting locations for the purpose of maintaining the OWNER'S GIS database. The CONTRACTOR shall give the OWNER access to the work prior to backfilling for this survey.

1.35 Work Hour Limitations

All work shall be conducted between the hours of 7:00 a.m. and 6:00 p.m. on non-holiday weekdays only. No weekend work will be allowed. Requests for variations in work hours shall be made in writing for consideration by the OWNER. No work shall be conducted outside of the above-described days and hours without prior approval of the OWNER.

1.36 Dust Prevention

All unpaved streets, roads, detours, haul roads or other areas where dust may be generated shall receive an approved dust-preventive treatment or be routinely watered to prevent dust. Applicable environmental regulations for dust prevention shall be strictly enforced.

1.37 Erosion and Sedimentation Control

The CONTRACTOR shall obtain erosion and sediment control permits from Asotin County and the City of Clarkston. Temporary construction site erosion control measures shall be designed and constructed in accordance with the City and County permits. Erosion control measures shall be maintained throughout the project site until approved permanent cover such as a healthy stand of grass, other permanent vegetation, or other ground covering is established. When approved permanent ground cover is established, all temporary erosion control measures shall be removed from the construction site. Erosion control measures shall be installed as approved, per the erosion control drawing(s) in the above referenced document. Erosion control measures including stabilized construction entrances and sediment barriers must be established in conjunction with site clearing and grading.

During construction, and until permanent vegetation or other ground covering is established, the erosion control facilities shall be upgraded as needed for unexpected storm events or site conditions and with the purpose of retaining sediment and sediment-laden water on the construction site.

1.38 Interferences, Obstructions and Sewer Crossings

At certain places, power, light and telephone poles may interfere with excavation and the operation of the CONTRACTOR'S equipment. Necessary arrangements shall be made with utility companies for moving or maintaining such poles. The utility company affected by any such interference shall be notified thereof so that the necessary moving or proper care of poles and appurtenances may have appropriate attention.

All costs resulting from any other interference and obstructions, or the replacement of such, whether or not herein specifically mentioned, shall be included and absorbed in the unit prices of the CONTRACTOR'S bid.

1.39 Noise Limitations

Some areas of the project are located within a residential zoned area. All applicable City, County ordinances and State and Federal regulations shall be complied with.

1.40 Storage and Protection of Equipment and Materials

A. Materials and equipment stored overnight shall be placed neatly on the job site. Unusable materials (i.e. rejected or damaged liner material, old concrete chunks, metal scraps, etc.) shall be expeditiously removed from the job site.

Provide appropriate barricades, signs, and traffic control devices in like-new condition where necessary to protect the public from any hazards associated with the storage of materials and equipment used for this project.

B. No equipment and/or materials shall be stored outside the immediate work area, in the following locations, or in the following manner:

1. In any maintained landscaped or lawn area.
2. In a manner that would totally eliminate an individual residents' street parking.
3. In front of any business.

The “immediate work area” is the area where work is taking place or will be taking place within one calendar day. The CONTRACTOR shall immediately move stored material or equipment which causes a nuisance or creates complaints.

1.41 Competent Person Designation

CONTRACTOR shall designate a qualified and experienced “competent person” at the site whose duties and responsibilities shall include enforcement Washington State Department of Labor and Industries (DL&I) - Division of Occupational Safety and Health (DOSH) regulations regarding excavations, the prevention of accidents, and the maintenance and supervision of construction site safety precautions and programs.

1.42 Emergency Maintenance Supervisor

The CONTRACTOR shall submit to the OWNER the names, addresses and telephone numbers of at least two employees responsible for performing emergency maintenance and repairs when the CONTRACTOR is not working. These employees shall be designated, in writing by the CONTRACTOR, to act as its representatives and shall have full authority to act on its behalf. At least one of the designated employees shall be available for a telephone call any time an emergency arises.

1.43 Use of Explosives

When explosives are used for the prosecution of the work, the CONTRACTOR shall use the utmost care so as not to endanger life or property, cause slides or disturb materials outside the neat lines of the trenches or excavations. The use of explosives must be approved by the OWNER’S representative. The CONTRACTOR shall be responsible for obtaining all permits required for the use of explosives.

All explosives shall be stored in a safe, secure manner in compliance with local laws and ordinances, and all such storage places shall be marked clearly "Dangerous Explosives." No explosives shall be left in an unprotected manner along or adjacent

to any highway, street, alley or other area, where such explosives could endanger persons or property. Storage of the explosives shall be in accordance with the requirements of the State Industrial Accident Commission or similar appropriate body having the jurisdiction in such matters in the state in which the work is performed.

Only persons experienced in handling explosives shall be allowed to use them on the work. Where state or local laws require that explosives be handled only by licensed personnel, it shall be the CONTRACTOR'S responsibility to see that this requirement is met.

The CONTRACTOR shall provide all necessary approved types of tools and devices required for loading and using explosives, blasting caps, and accessories. The CONTRACTOR shall conform acts to and shall obey all federal, state and local laws that may be imposed by any public authority or directions that may be given from time to time by the OWNER relative to the handling, placing, and firing of explosives. No blasting shall be done adjacent to any portion of exposed work or structures unless proper precautions are taken to ensure that the structure and materials surrounding and supporting the same will not be damaged by the blasting. When blasting rock in trenches, the CONTRACTOR shall cover the area to be shot with blasting mats or other approved type of protective material that will prevent the scattering of rock fragments outside the excavation. The CONTRACTOR shall give ample warning to all persons in the vicinity before blasting, including warning signs to turn off two-way radios, and shall station workers and provide signals of danger in suitable places to warn people and vehicles before firing any blasts. Unless otherwise approved by the OWNER, all blasts shall be fired with an electric blasting machine which shall not be connected in the circuit until just before the time for firing, and then shall be connected by the person who will operate the blasting machine.

After a blast has been fired, the blaster shall make a minute inspection to determine if all charges have exploded before employees are allowed to return to the operation. Misfires shall be corrected in accordance with the requirement of the applicable portions of the state or local Safety Code for Blasting.

The CONTRACTOR shall be responsible for any and all damages to property and injury to persons resulting from blasting or accidental or premature explosions that may occur in connection with CONTRACTOR'S use of explosives.

Repair of Damage -- In case injury from blasting occurs to any portion of the work or to the material surrounding or supporting the same, the CONTRACTOR, at CONTRACTOR'S expense, shall remove such injured work, repair the work, and replace the material surrounding or supporting the same, or shall furnish such material and perform such work or repair or replacement as satisfactory to the OWNER and shall be promptly, completely, and satisfactorily repaired by the CONTRACTOR at CONTRACTOR'S expense.

1.44 Contaminated Material

A. General

It is possible that the CONTRACTOR may encounter contaminated material (soil and/or water) during excavation activities. This specification identifies requirements for handling and disposing contaminated media.

B. Definitions

1. "Contaminated material" is defined as soil, water, free product, Underground Storage Tanks (UST), buried abandoned utility lines containing residual or free product, solid waste, treated wood waste, chemical containers, or other solid, liquid, or gas substances with contamination levels above background levels.

2. "Environmental laws" shall mean any applicable statute, law, ordinance, order, consent decree, judgment, permit, license, code, covenant, deed, common law, treaty, convention or other requirement pertaining to protection of the environment, health or safety, natural resources, conservation, wildlife, waste management or disposal, hazardous substances or pollution, including but not limited to regulation of releases to air, land, water, and groundwater.

C. Execution

1. Discovery of Contaminated Material

In the event that the CONTRACTOR, during the course of construction or during any other activities authorized under this contract, should encounter suspected contaminated material or any other materials suspected of posing a threat to human health and the environment, the CONTRACTOR shall notify the OWNER immediately and manage according to requirements identified below.

2. Discovery of Contaminated Soil

CONTRACTOR shall note evidence of contamination (odor, visual staining of soil, free liquid product seeping from soil, sheen on groundwater etc.) and note location of evidence on a sketch of the excavation and provide to the OWNER.

CONTRACTOR shall report the discovery to the OWNER immediately. CONTRACTOR shall stop all excavation activities, and secure the site to prevent entry by the public. The excavation shall not be backfilled. Protect all open excavations with berms, plates and

fencing. CONTRACTOR may continue with work in other non-contaminated areas.

CONTRACTOR shall collect sample(s) of suspected contaminated media for testing and characterization. CONTRACTOR shall allow 21 days, at no cost to OWNER, for testing, results and instructions as to how to proceed with contaminated materials.
The CONTRACTOR shall obtain a copy of an approved soil disposal/acceptance permit (Disposal/Treatment Facility requires transporter to have a copy of the permit.)

CONTRACTOR will transport and dispose of contaminated material at an approved disposal/treatment facility.

CONTRACTOR shall provide the OWNER with a copy of the contaminated soil disposal receipt.

3. Handling of Contaminated Soil

After approval from the OWNER, excavate the soil in a manner that prevents commingling of contaminated and non-contaminated soil. OWNER will make determination (based on soil saturation) if contaminated soil can be directly transported to a treatment or disposal facility, or if soil needs to be stockpiled to reduce water content. OWNER will determine when stockpiled soil can be transported off-site.

CONTRACTOR will be responsible for stockpiling contaminated soil in containers or on impervious surface to prevent the spread of contamination. Any water runoff from the contaminated soil stockpile area(s) must be contained by CONTRACTOR and handled as contaminated water.

Minimize movement of excavation equipment over or through contaminated soil to prevent movement of contaminated soil into areas where no contaminated soil exists.

Stockpiles will be created on an approved site and shall be surrounded by a fence to limit access. The stockpiles must be covered and bermed during periods of rainfall to prevent run-on and run-off. The stockpiles shall be covered with a minimum 10 mil high density polyethylene (HDPE) plastic during periods of strong winds, nightfall, over the weekends, or during extended work stoppages. If dust is observed coming from the stockpiles, the stockpiles shall be either covered or the dust controlled with water.

Maintain excavation equipment in good working order. Prevent spillage of oil, fuel, or hazardous substances from equipment. In particular, promptly repair oil leaks from equipment and clean up any contaminated soil.

4. Transport of Contaminated Materials

CONTRACTOR shall comply with all applicable Federal, State, or local laws, codes, and ordinances that govern or regulate contaminated substance transportation. Contaminated soils placed in stockpiles shall be loaded into trucks in a manner that prevents the spilling or tracking of contaminated soil into areas of the site with uncontaminated soil. Loose material falling onto the exterior of the truck during loading shall be removed before the truck leaves the loading area. Any material collected in the loading area shall either be placed back into the truck or back into the stockpile. If loading areas are unpaved, the surface soil shall be sampled at the conclusion of the loading activities to confirm that contaminated soil is not present. If loading areas are paved, any loose soil shall be cleaned from the pavement at the conclusion of the loading activities.

Specific truck haul routes shall be established before beginning off-site contaminated media transport. On-site truck routes shall be established to minimize or prevent movement of trucks over contaminated soils. Off-site truck routes shall be established to reduce the risk of releases of contaminated soils and impact on local traffic. The CONTRACTOR shall be responsible for ensuring that loaded truck weights are within acceptable limits. All trucks shall be covered before they leave the loading area.

The CONTRACTOR shall ensure that all drivers of vehicles transporting contaminated substances have in their possession during transport all applicable Washington State and local vehicle insurance requirements, valid driver's license, and vehicle registration and license. The CONTRACTOR shall be responsible for informing all drivers of transport vehicle about:

a. The nature of the material transported.

b. Required routes to and from the off-site thermal treatment or disposal facility.

c. Applicable County street regulations and requirements, and Washington State Department of Transportation codes, regulations and requirements.

d. The County's requirement for proper handling and transportation of the substances.

The CONTRACTOR shall not allow contaminated substances to be spilled or tracked off-site at any time during the project. Trucks used for the transportation of contaminated substances off-site shall be water tight, substance compatible, licensed, insured, and permitted pursuant to federal, state, and local statutes, rules, regulations and ordinances.

If contaminated media is discarded prior to removal of contaminated material, the price per cubic yard of soil materials and price per 100 gallons of contaminated water will be negotiated with OWNER.

1.45 Notification of Customers and Residents

Utility customers and any owners of parked cars near the construction area shall be notified 48 hours prior to the start of construction.

1.46 Experience Variance Requirement for Pipe Bursting and CIPP

The OWNER reserves the right to waive or accept a variance from the experience requirements in Standard Specification Sections 230 and 231 if, in the judgement of the OWNER and the ENGINEER, the CONTRACTOR demonstrates sufficient technical expertise, equipment capability, and qualified personnel to successfully complete the work.

END OF SECTION

SECTION 01201

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.1 Administrative Submittals

A. CONTRACTOR'S standard form

B. Application for Payment

C. Final Application for Payment

1.2 Applications for Payment

A. Transmittal Summary Form: Attach one Summary Form with each detailed Application for Payment. Execute certification by authorized officer of CONTRACTOR.

B. Use detailed Application for Payment Form suitable to OWNER.

C. Preparation:

1. List each Change Order and Written Amendment executed prior to date of submission as separate line item. Totals to equal those shown on the Transmittal Summary Form.

2. Submit Application for payment, including a Transmittal Summary Form and detailed Application for Payment Form(s), and such supporting data as may be requested by OWNER.

1.3 Measurement – General

A. Weighing, measuring, and metering devices used to measure quantity of materials for Work shall be suitable for purpose intended and conform to tolerances and specifications as specified in National Institute of Standards and Technology, Handbook 44.

B. Whenever pay quantities for material are determined by weight, the material shall be weighed on scales furnished by CONTRACTOR and certified accurate by the state agency responsible. A weight or load slip shall be obtained from the weigher and delivered to the OWNER'S representative at the point of delivery of the material.

C. If material is shipped by rail, the car weights will be accepted provided that actual weight of material only will be paid for and not minimum car weight used for assessing freight tariff, and provided further that car weights will not be acceptable for material to be passed through mixing plants.

D. Vehicles used to haul material being paid for by weight shall be weighed empty daily and at such additional times as required by OWNER. Each vehicle shall bear a plainly legible identification mark.

E. All materials which are specified for measurement by the cubic yard measured in the vehicle shall be hauled in vehicles of such type and size that the actual contents may be readily and accurately determined. Unless all vehicles are of uniform capacity, each vehicle must bear a plainly legible identification mark indicating its water level capacity. All vehicles shall be loaded to at least their water level capacity. Loads hauled in vehicles not meeting the above requirements or loads of a quantity less than the capacity of the vehicle, measured after being leveled off as above provided, will be subject to rejection, and no compensation will be allowed for such material.

F. Quantities will not be based on elevations shown on plans. Field surveys will not be made to conform accuracy of elevations shown. Field measurement made by CONTRACTOR and verified by OWNER will be basis of quantities.

G. Units of measure shown on the Bid Form shall be as follows unless specified otherwise.

Item	Method of Measurement
AC	Acre—Field Measure by OWNER
CF	Cubic Feet—Field Measure by OWNER within the limits specified or shown
CY	Cubic Yard—Field Measure by OWNER within the limits specified or shown. Measurement is for compacted in-place material.
CY-VM	Cubic Yard—Measured in the Vehicle by Volume
EA	Each—Field Count by OWNER
GAL	Gallon—Field Measure by OWNER
HR	Hour—Timed by OWNER
LB	Pound(s)—Weight Measure by Scale or by OWNER-approved listed standard weight (see Supplement 01025-01)
LF	Linear Foot—Field Measure by OWNER along center line of item The pay quantities for pipe will be on the basis of the horizontal length of pipe laid without deductions for valves or fittings which are not included in the end-to-end measurement of a continuous section of pipe. Where pipe is laid on a

continuous slope greater than 10 percent for a distance greater than 100 feet, payment will be made upon the average slope distance between 100-foot stations. When water mains intersect, the measurement of each main shall be to the end of the connecting fittings.

LS	Lump Sum—Unit is one; no measurement will be made
SF	Square Foot—Field measure by OWNER
SY	Square Yard—Field measure by OWNER
TON	Ton—Weight Measure by Scale (2,000 pounds)

1.4 PAYMENT

A. General:

1. Progress payment will be made monthly.

2. The date for CONTRACTOR'S submission of monthly Application for Payment shall be established at the Preconstruction Conference.

B. Measurement and payment will be on a unit price basis in accordance with the prices set forth in the proposal for individual work items. Where work is required but does not appear as a separate item in the proposal, the cost for that work shall be included and absorbed in the unit prices named in the proposal. CONTRACTOR shall make a careful assessment when preparing the bid.

Measurement and Payment Descriptions

2027 Sewer Main Replacement Project			
ITEM NO.	**ITEM DESCRIPTION**	**UNIT**	**DESCRIPTION**
GENERAL			
G1	Mobilization, Bonds, Insurance, and Demobilization	LS	A. When 5% is earned, either 100% of the amount for mobilization or 5% of the original contract amount, whichever is the least B. When all work is completed, amount of mobilization exceeding 5% of the original contract amount This schedule of mobilization progress payments will not limit or preclude progress payments otherwise provided by the contract.

G2	Erosion and Sediment Control	LS	Includes all material, labor, equipment, and incidentals necessary to provide and maintain erosion control facilities in accordance with any required erosion control permits. No Specific unit of measurement will apply to this lump sum item.
G3	Traffic Control	LS	Includes all material, labor, equipment, and incidentals necessary to provide and maintain traffic control in accordance with local agency requirements. No Specific unit of measurement will apply to this lump sum item.
G4	Trench Safety Systems	LS	Includes all material, labor, equipment, and incidentals necessary to provide trench safety for all excavations required. No Specific unit of measurement will apply to this lump sum item.
Schedule A			
A1	Pavement Marking	LS	Includes all material, labor, equipment, and incidentals necessary to provide Pavement Marking Restoration. No Specific unit of measurement will apply to the lump sum item.
A2	Sewer Bypass Systems	LS	The lump sum contract price for "Sewage Bypass Systems" shall constitute full compensation for all labor, materials, tools, equipment, transportation, supplies, and incidentals required to complete all work to furnish and install this item, to include, but not be limited to, all work required to successfully transfer in a leak free manner sewage flows around the construction area, bypass pumping, pipe installation as specified herein, piping and piping connections, plugs, temporary connections (if any), temporary manholes (if any), temporary tees, couplings, and fittings (if any), pumping equipment, stand-by equipment, fuel, operator's labor, removal of all temporary equipment and materials, and dealing with all other interferences, all as shown on the Drawings and as specified herein.

	A2 – Sewer Bypass Systems (Continued)		No Specific unit of measurement will apply to this lump sum item.
A3	4-inch Diam. Sewer Lateral Reconnection, incl. Surface Restoration	EA	The unit price bid per each "4-inch Diam. Sewer Reconnection, incl. Surface Restoration" shall constitute full compensation for all labor, materials, tools, equipment, transportation, supplies, and incidentals required to complete all work to furnish and install this item, to include but not limited to pipe, fittings, reconnecting existing sewers laterals to the proposed sanitary sewer pipe, a tee whose run diameter is the same diameter as the pipe called for on the Drawings, pipe spools, adapters, connectors and flexible couplings as required for a complete installation and dealing with all other interferences, lateral dye test and verification as required, all as shown on the Drawings and as specified herein. This item shall also include lateral pipe installation from the main line to the connection point of the existing sewer lateral and include the work, labor, equipment etc. to make the reconnection within 5 feet of the mainline. If additional footage is required and agreed to by the Asotin County PUD or Engineer it will be paid for under a separate item. Class D backfill to be used where native material is unsuitable for trench backfill. Class D backfill is incidental to this bid item. Contractor shall be prepared to re-connect all active laterals regardless of pipe material. Existing lateral pipe materials may consist of clay, bituminous fiber (orangeburg), PVC, cast iron, ABS, HDPE, etc. Measurement will be per each. Asphalt Concrete Surface Restoration – Type B (City of Clarkston) required to restore surface at sewer lateral reconnection, including Sawcutting, Crushed Rock and work as shown on the Asotin County PUD Standard Detail 1-4B, shall be incidental to this bid item.

A4	Additional PVC Sewer Lateral Pipe and Fittings, 4- inch Diam, incl. Surface Restoration	LF	The unit contract price per lineal foot for, "Additional PVC Sewer Lateral Pipe and Fittings, 4-inch Diam., Incl. Surface Restoration", shall constitute full compensation for all labor, materials, tools, equipment, transportation, supplies, and incidentals required to complete all work to furnish and install this item to include, but not limited to, furnishing and installing the side sewer pipe and fittings, complete-in-place, locating and testing the existing side sewer pipe and fittings, removal and waste haul of existing abandoned pipe, plugging all ends of abandoned pipe with concrete, excavation, pipe bedding material, backfill with suitable native material, compaction, material testing, furnishing the services of a Asotin County PUD approved testing laboratory to conduct compaction testing, removal and wastehaul of excess or unsuitable excavated material, dewatering, connections to existing and new systems, flushing and cleaning, detectable marking tape, tracer wire, cap, if applicable, markers, low pressure testing, waste hauling, grading, and dealing with all other interference, all as shown on the Drawings and as specified herein. Asphalt Concrete Surface Restoration – Type B (City of Clarkston) required for Sewers laterals, including Sawcutting, Crushed Rock as shown on the Asotin County PUD Standard Detail 1-4B, shall be incidental to this bid item. Measurement for Additional PVC Side Sewer Pipe and Fittings will be lineal foot along the centerline of the pipe through all fittings from the end of the sewer lateral reconnection to the point of connection to the existing side sewer. Measurements shall be made in the horizontal plane with no allowance for slopes. **This item may only be used with permission from Asotin County PUD to provide additional sewer lateral length beyond 5 feet as may be required for sewer lateral reconnections.**

A5	HDPE Sanitary Sewer Pipe 8 in Diam., for Pipe Bursting or PVC Sanitary Sewer Pipe 8 in. Diam., for Open Cut, incl. Surface Restoration	LF	The unit price bid per lineal foot for "HDPE Sanitary Sewer Pipe 8 in. Diam. for Pipe Bursting, or PVC Sanitary Sewer Pipe, 8 in. Diam. for Open Cut, incl. Surface Restoration", shall be full payment for all work, materials, tools, equipment, transportation, supplies and incidentals required to furnish and install the HDPE or PVC pipe and fittings, complete in-place. For Pipe Bursting this item shall include, but is not to be limited to, pipe bursting insertion/receiving pit excavation, backfill with bedding and suitable native material or imported Class D trench backfill, compaction, removal and disposal of surplus excavated materials, all HDPE pipe and fittings, pipe bursting operations, cleaning, testing, waste hauling, grading and dealing with all other interferences, all as shown on the Drawings and as specified herein. All costs associated with special excavation for trenchless rehabilitation, including all work, materials and equipment required to excavate, expose and retrieve trenchless rehabilitation equipment, in order to continue the pipe rehabilitation procedure, should any equipment become lodged against an unforeseeable obstacle, shall be included in the various unit prices bid for this work as found in the Proposal. For Open Cut, this item shall include, but is not limited to, pipe, fittings, excavation, pipe bedding material, backfill with suitable native material or imported Class D trench backfill, compaction, material testing, furnishing the services of a Contracting Agency approved testing laboratory to conduct compaction testing, removal and waste haul of excess or unsuitable trench excavation material, dewatering, connections to existing and new systems, flushing and cleaning, detectable marking tape, low pressure testing, deflection testing, waste hauling, grading, and dealing with all other interference, all as shown on the Plans and as specified herein.

	A5 - HDPE Sanitary Sewer Pipe 8 in Diam., for Pipe Bursting or PVC Sanitary Sewer Pipe 8 in. Diam., for Open Cut, incl. Surface Restoration (Continued)		The length of sewer pipe will be the number of lineal feet of completed installation measured along the invert and will include the length through elbows, tees and fittings. The number of lineal feet will be measured from the center of manhole to center of manhole. Measurements shall be made in the horizontal plane with no allowance for slopes. Asphalt Concrete Surface Restoration – Type B (City of Clarkston) required for Sewers laterals, including Sawcutting, Crushed Rock as shown on the Asotin County PUD Standard Detail 1-4B, shall be incidental to this bid item.
A6	Manhole Removal and Replacement with Standard Manhole, 48 in. Diam.	EA	The Unit contract price per each for "Manhole Removal and Replacement with Standard Manhole, 48 in. Diam.", shall constitute full compensation for all labor, materials, tools, equipment, transportation, supplies, and incidentals required to complete all work to remove and replace a manhole, to include, but not be limited to, structure excavation, removing through the base section of the manhole, waste haul of surplus excavated material and existing manholes parts where called for on the Drawings, frame and cover, concrete adjustment rings, concrete manhole sections, non-shrink grout, manhole adapters, concrete collars, connecting to existing sanitary sewer mains with couplings and pipe spools, compacted bedding material beneath the manhole, backfill with suitable native material testing, furnishing the services of a Contracting Agency approved testing laboratory to conduct compaction testing, and , dewatering, grading, adjusting to finished grade, and dealing with all other interferences, all as shown on the Drawings and as specified herein. Class D backfill to be used where native material is unsuitable for backfill. Class D backfill is incidental to this bid item. Asphalt Concrete Surface Restoration – Type B (City of Clarkston) required to restore the

	A6 - Manhole Removal and Replacement with Standard Manhole, 48 in. Diam. (Continued)		surface at new manholes, including Sawcutting, Crushed Rock as shown on the Asotin County PUD Standard Detail 1-4B, shall be incidental to this bid item. Measurement shall be per each manhole removed and replaced
A7	Pre-Construction Sewer Television Inspection	LS	The lump sum price bid for "Pre-Construction Sewer Television Inspection", shall be full payment for all work and materials required to furnish and provide Sewer Television Inspection services as shown on the Drawings. No Specific unit of measurement will apply to this lump sum item.
A8	Post-Construction Sewer Television Inspection	LS	The lump sum price bid for "Post-Construction Sewer Television Inspection", shall be full payment for all work and materials required to furnish and provide Sewer Television Inspection services as shown on the Drawings. No Specific unit of measurement will apply to this lump sum item.
Schedule B			
B1	Sewer Bypass Systems	LS	The lump sum contract price for "Sewage Bypass Systems" shall constitute full compensation for all labor, materials, tools, equipment, transportation, supplies, and incidentals required to complete all work to furnish and install this item, to include, but not be limited to, all work required to successfully transfer in a leak free manner sewage flows around the construction area, bypass pumping, pipe installation as specified herein, piping and piping connections, plugs, temporary connections (if any), temporary manholes (if any), temporary tees, couplings, and fittings (if any), pumping equipment, stand-by equipment, fuel, operator's labor, removal of all temporary equipment and materials, and dealing with all other interferences, all as shown on the Drawings and as specified herein. No Specific unit of measurement will apply to this lump sum item.

B2	CIPP Lateral Reinstatement	EA	The unit price bid per each "CIPP Lateral Reinstatement" shall constitute full compensation for all labor, materials, tools, equipment, transportation, supplies, and incidentals required to complete all work to furnish and install this item as required for complete installation and dealing with all other interferences, all as shown on the Drawings and as specified herein. Contractor shall be prepared to re-connect all active laterals regardless of pipe material. Existing lateral pipe materials may consist of clay, bituminous fiber (orangeburg), PVC, cast iron, ABS, HDPE, etc. Measurement will be per each lateral reinstated.
B3	CIPP Sewer Rehabilitation, 10 In. Diam.	LF	The unit price bid per lineal foot for "CIPP Sewer Rehabilitation, 10 in. Diam.", shall be full payment for all work and materials required to furnish and install the CIPP rehabilitation, including but not limited to, Engineering design of the liner; field verification of lengths and sizes of existing sanitary sewer pipe: cleaning the existing sanitary sewer pipe including removal of all roots and deposits, accumulations or protrusions that would interfere with the proper installation of the CIPP liner: installation of the liner, liner, resin, catalyst, and curing systems as required to the limits shown or specified. Measured and paid for on a lineal foot basis. Measurement to be by actual field measurement of lineal feet of Cured-In-Place-Pipe (CIPP) liner installed to the nearest foot, for sizes indicated in the Bid Schedule. Unless indicated otherwise, measurement to be along the existing pipe from center to center of manholes, catch basins or other structures.
B4	Connect to Existing Manhole	EA	The unit contract price per each for "Connect to Existing Manhole", shall constitute full compensation for all labor, materials, tools, equipment, supplies, and incidentals required to connect CIPP rehabilitated sanitary sewer to

	B4 – Connect to Existing Manhole (Continued)		existing manholes including but not limited to non-shrink grout, seals, and removal and waste haul of materials, as shown on the Drawings and as specified herein. Measurement shall be per each connection to an existing manhole.
B5	Manhole Removal and Replacement with Standard Manhole, 48 in. Diam.	EA	The Unit contract price per each for "Manhole Removal and Replacement with Standard Manhole, 48 in. Diam.", shall constitute full compensation for all labor, materials, tools, equipment, transportation, supplies, and incidentals required to complete all work to remove and replace a manhole, to include, but not be limited to, structure excavation, removing through the base section of the manhole, waste haul of surplus excavated material and existing manholes parts where called for on the Drawings, frame and cover, concrete adjustment rings, concrete manhole sections, non-shrink grout, manhole adapters, concrete collars, connecting to existing sanitary sewer mains with couplings and pipe spools, compacted bedding material beneath the manhole, backfill with suitable native material testing, furnishing the services of a Contracting Agency approved testing laboratory to conduct compaction testing, and , dewatering, grading, adjusting to finished grade, and dealing with all other interferences, all as shown on the Drawings and as specified herein. Class D backfill to be used where native material is unsuitable for backfill. Class D backfill is incidental to this bid item. Asphalt Concrete Surface Restoration – Type B (City of Clarkston) required to restore surface at new manholes, including Sawcutting, Crushed Rock as shown on the Asotin County PUD Standard Detail 1-4B, shall be incidental to this bid item. Measurement shall be per each manhole removed and replaced

B6	Pre-Construction Sewer Television Inspection	LS	The lump sum price bid for "Pre-Construction Sewer Television Inspection", shall be full payment for all work and materials required to furnish and provide Sewer Television Inspection services as shown on the Drawings. No Specific unit of measurement will apply to this lump sum item.
B7	Post-Construction Sewer Television Inspection	LS	The lump sum price bid for "Post-Construction Sewer Television Inspection", shall be full payment for all work and materials required to furnish and provide Sewer Television Inspection services as shown on the Drawings. No Specific unit of measurement will apply to this lump sum item.
Schedule C			
C1	Sewer Bypass Systems	LS	The lump sum contract price for "Sewage Bypass Systems" shall constitute full compensation for all labor, materials, tools, equipment, transportation, supplies, and incidentals required to complete all work to furnish and install this item, to include, but not be limited to, all work required to successfully transfer in a leak free manner sewage flows around the construction area, bypass pumping, pipe installation as specified herein, piping and piping connections, plugs, temporary connections (if any), temporary manholes (if any), temporary tees, couplings, and fittings (if any), pumping equipment, stand-by equipment, fuel, operator's labor, removal of all temporary equipment and materials, and dealing with all other interferences, all as shown on the Drawings and as specified herein. No Specific unit of measurement will apply to this lump sum item.

C2	CIPP Lateral Reinstatement	EA	The unit price bid per each "CIPP Lateral Reinstatement" shall constitute full compensation for all labor, materials, tools, equipment, transportation, supplies, and incidentals required to complete all work to furnish and install this item as required for complete installation and dealing with all other interferences, all as shown on the Drawings and as specified herein. Contractor shall be prepared to re-connect all active laterals regardless of pipe material. Existing lateral pipe materials may consist of clay, bituminous fiber (orangeburg), PVC, cast iron, ABS, HDPE, etc. Measurement will be per each lateral reinstated.
C3	CIPP Sewer Rehabilitation, 8 In. Diam.	LF	The unit price bid per lineal foot for "CIPP Sewer Rehabilitation, 8 in. Diam.", shall be full payment for all work and materials required to furnish and install the CIPP rehabilitation, including but not limited to, Engineering design of the liner; field verification of lengths and sizes of existing sanitary sewer pipe: cleaning the existing sanitary sewer pipe including removal of all roots and deposits, accumulations or protrusions that would interfere with the proper installation of the CIPP liner: installation of the liner, liner, resin, catalyst, and curing systems as required to the limits shown or specified. Measured and paid for on a lineal foot basis. Measurement to be by actual field measurement of lineal feet of Cured-In-Place-Pipe (CIPP) liner installed to the nearest foot, for sizes indicated in the Bid Schedule. Unless indicated otherwise, measurement to be along the existing pipe from center to center of manholes, catch basins or other structures.
C4	Connect to Existing Manhole	EA	The unit contract price per each for "Connect to Existing Manhole", shall constitute full compensation for all labor, materials, tools, equipment, supplies, and incidentals required to connect CIPP rehabilitated sanitary sewer to

	C4 – Connect to Existing Manhole (Continued)		existing manholes including but not limited to non-shrink grout, seals, and removal and waste haul of materials, as shown on the Drawings and as specified herein. Measurement shall be per each connection to an existing manhole.
C5	Pre-Construction Sewer Television Inspection	LS	The lump sum price bid for "Pre-Construction Sewer Television Inspection", shall be full payment for all work and materials required to furnish and provide Sewer Television Inspection services as shown on the Drawings. No Specific unit of measurement will apply to this lump sum item.
C6	Post-Construction Sewer Television Inspection	LS	The lump sum price bid for "Post-Construction Sewer Television Inspection", shall be full payment for all work and materials required to furnish and provide Sewer Television Inspection services as shown on the Drawings. No Specific unit of measurement will apply to this lump sum item.

END OF SECTION

SECTION 01300

SUBMITTALS

PART 1 GENERAL

The CONTRACTOR shall provide submittals including shop drawings, schedules, drawings, material lists, manufacturers, and such other information as may be necessary for the prosecution of the work in the shop and in the field as required by the contract documents or the OWNER's instruction. There may be other submittals required elsewhere in these Specifications that are not necessarily included or mentioned in this Section.

Within fourteen (14) days after award of the contract, the CONTRACTOR shall submit to the OWNER a proposed list of manufacturers, suppliers, and subcontractors and a schedule of specific target dates for the submission and return of shop drawings and/or submittals required by the contract documents. The list and schedule shall be updated and re-submitted when requested by the OWNER. All shop drawings and/or submittals for interrelated items shall be scheduled for submission at the same time. Not less than one (1) week shall be allocated to each submittal for processing by the OWNER. CONTRACTOR shall provide submittals in digital format via email or file sharing.

The OWNER will review shop drawings and/or submittals to determine compliance with the design concept of the project and return them to the CONTRACTOR within the period established in the schedule. The OWNER may hold submittals in cases where partial submission cannot be reviewed until the complete submission has been received or where submittals cannot be reviewed until correlated items affected by them have been received. When such submittals are held, the OWNER will advise the CONTRACTOR in writing that the submitted data will not be reviewed until shop drawings and/or submittals for all related items have been received.

The OWNER will review the submitted documents and will make notations thereon indicating "No Exception Taken", "Make Corrections Noted", "Rejected", "Revise and Resubmit", or "Submit Specified Item". The OWNER will then return submitted data to the CONTRACTOR. The OWNER’s review of submittals and shop drawings is not a check of any dimension or quantity, and will not relieve the CONTRACTOR from responsibility for errors of any sort in the submittals and shop drawings.

When shop drawings and/or submittals are required to be revised or corrected and resubmitted, the CONTRACTOR shall make such revisions and/or corrections and resubmit those items or other materials in the same manner as specified above.

Submitted data shall be sufficient in detail for determination of compliance with the Contract Documents. Color samples for all items for which colors are to be selected shall be submitted at the same time. No equipment or material for which listings, drawings, or descriptive material is required shall be installed until the CONTRACTOR has received review from the OWNER.

Regardless of corrections made in or review given to the submitted data by the OWNER, the CONTRACTOR shall be responsible for the accuracy of such submittals and for their conformity to the drawings and specifications. The CONTRACTOR shall check all submittals before submitting them to the OWNER and shall stamp its approval on all copies of the shop drawing documents. Any submittals received by the OWNER which do not bear the CONTRACTOR's approval shall be returned without review. If more than two (2) submissions are required to meet the project specifications, the cost of reviewing these additional submissions may be charged directly against the CONTRACTOR and the OWNER may withhold the funds necessary to cover these costs.

Materials and equipment shall be ordered a sufficient time in advance to allow time for reviews, and shall be available on the job when needed. Last minute review will not be given for inferior substitutes for material or equipment.

Required submittals include items listed below. This list is provided for CONTRACTOR's convenience only and may not be complete in all respects. CONTRACTOR shall provide all submittals required, whether or not specifically listed herein.

A. Schedules -- The CONTRACTOR shall prepare and submit to the OWNER, within fifteen (15) days after notice to proceed, a practicable schedule showing the order in which the CONTRACTOR proposes to carry out the work, the dates on which the important features of the work will start, and the contemplated dates for completing same. In addition to a time-scaled bar chart schedule depicting the project critical path, the CONTRACTOR shall submit a detailed CPM logic diagram. The CPM diagram and time-scaled bar chart shall include the following:

- Construction activities
- Submittal and approval of material samples and shop drawings
- Procurement of critical materials
- Fabrication, installation, and testing of special material and equipment
- Duration of work, including completion times of all stages and their sub-phases

B. Shop Drawings, Schedules and Drawings -- The CONTRACTOR shall provide shop drawings, schedules and such other drawings and information as

may be necessary for the prosecution of the work in the shop and in the field as required by the contract documents and/or OWNER's instruction.

C. Design Submittals -- Design submittals as may be required for equipment and systems elsewhere in these Specifications.

D. Erosion and Sedimentation Control Plan

E. Materials Lists

F. CONTRACTOR Contact Persons

G. Material Safety Data Sheets

H. Traffic Control and Protection Plan

J. Sewage Bypass Pumping Plan, as applicable. See Section 240 of Standard Specifications and Drawings for Asotin County PUD.

K. Miscellaneous Materials and Other Submittals As Required Elsewhere in the Specifications

L. Operation and Maintenance Instructions

Before acceptance of the installation, the CONTRACTOR shall provide complete operation and maintenance instructions for all equipment supplied in digital format via email or file sharing. The equipment manufacturer may furnish instruction manuals prepared specifically for the equipment furnished or standard manuals may be used if statements like "if your equipment has this accessory..." or listings of equipment not furnished are eliminated. Poorly reproduced copies are not acceptable. Operation and maintenance instructions shall contain the following as a minimum:

1. Approved shop drawings and submittal data

2. Model, type, size and serial numbers of equipment furnished

3. Equipment and driver nameplate data

4. List of parts showing replacement numbers

5. Recommended list of spare parts

6. Complete operating instructions including start-up, shutdown, adjustments, cleaning, etc.

7. Maintenance and repair requirements including frequency and detailed instructions

8. Name, address and phone numbers of local representative and authorized repair service

END OF SECTION

STANDARD TECHNICAL SPECIFICATIONS AND DRAWINGS

PUBLIC UTILITY DISTRICT
ASOTIN COUNTY

STANDARD SPECIFICATIONS AND DRAWINGS

FOR

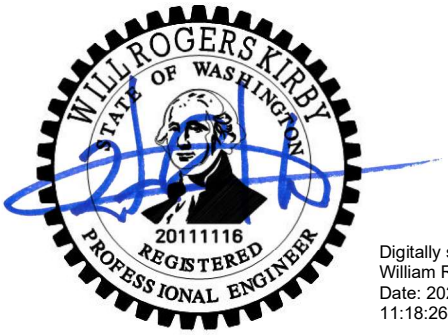
ASOTIN COUNTY PUBLIC UTILITY DISTRICT

ASOTIN COUNTY, WASHINGTON

OCTOBER 2026

consor

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Digitally signed by
William R Kirby
Date: 2026.10.15
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These Standard Specifications and Drawings shall be the basis of design used on all Asotin County PUD water and sewer capital improvement projects and development projects located within the jurisdiction of the Asotin County service area.

It is the intention of the undersigned that these Standard Specifications and Drawings will not replace the requirement for a licensed professional engineer to prepare plans, specifications and supervise construction for all public works projects. It is the sole responsibility of the Registered Professional Engineer who is referencing these Standard Specifications and Drawings to ensure they are used appropriately and meet the requirements of the project. The Registered Professional Engineer is responsible for modifications to these standards as required with review and acceptance of Asotin County PUD.

Wherever in these Standard Specifications and Drawings, reference is made to “Standard Specifications for Municipal Construction”, said reference shall be understood as referring to the Washington State Department of Transportation, Standard Specification for Road, Bridge and Municipal Construction, which applicable parts are incorporated herein and made part of these Documents by specific reference thereto. If requirements contained in the Standard Specifications for Municipal Construction are modified or in conflict with the requirements in these Standard Specifications and Drawings, the requirements in these Standard Specifications and Drawings shall prevail.

Should you have any questions regarding these design standards and specifications, please contact Asotin County PUD at (509) 758-1010.

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STANDARD SPECIFICATIONS AND DRAWINGS
FOR
ASOTIN COUNTY PUD

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STANDARD GENERAL SPECIFICATIONS AND DRAWINGS

FOR

ASOTIN COUNTY PUD

October 2026

CONSOR
300 E Mallard Drive, Suite 350
Boise, ID 83706
208.639.8185

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SECTION 100

DEWATERING

PART 1 GENERAL

1.1 DESCRIPTION

A. The CONTRACTOR shall provide all labor, materials, and equipment necessary to dewater trench and structure excavations, in accordance with the requirements of the Contract Documents. The CONTRACTOR shall secure all necessary permits to complete the requirements of this Section of the Specifications.

1.2 SUBMITTALS

A. The CONTRACTOR shall submit a dewatering plan to be reviewed by the Asotin County PUD prior to the beginning of construction activities requiring dewatering. Review by the ENGINEER or Asotin County PUD of the CONTRACTOR's design shall not be construed as a detailed analysis of the adequacy of the dewatering system, nor shall any provisions of the above requirements be construed as relieving the CONTRACTOR of its overall responsibility and liability for the work.

1.3 QUALITY CONTROL

A. It shall be the sole responsibility of the CONTRACTOR to control the rate and effect of the dewatering in such a manner as to avoid all objectionable settlement and subsidence.

B. All dewatering operations shall be adequate to assure the integrity of the finished project and shall be the responsibility of the CONTRACTOR.

C. Where the critical structures or facilities exist immediately adjacent to areas of proposed dewatering, reference points shall be established and observed at frequent intervals to detect any settlement which may develop. The responsibility for conducting the dewatering operation in a manner which will protect adjacent structures and facilities rests solely with the CONTRACTOR. The cost of repairing any damage to adjacent structures and restoration of facilities shall be the responsibility of the CONTRACTOR.

PART 2 PRODUCTS

2.1 EQUIPMENT

A. Dewatering, where required, may include the use of well points, sump pumps, temporary pipelines for water disposal, rock or gravel placement, and other means. Standby pumping equipment shall be maintained on the jobsite.

PART 3 EXECUTION

3.1 DEWATERING

A. The CONTRACTOR shall provide all equipment necessary for dewatering. The CONTRACTOR shall have on hand, at all times, sufficient pumping equipment and machinery in good working condition and shall have available, at all times, competent workers for the operation of the pumping equipment. Adequate standby equipment shall be kept available at all times to insure efficient dewatering and maintenance of dewatering operation during power failure.

B. Dewatering for structures and pipelines shall commence when groundwater is first encountered, and shall be continuous until such times as water can be allowed to rise in accordance with the provisions of this Section or other requirements. At no time shall water be allowed to enter existing or newly installed pipe.

C. At all times, site grading shall promote drainage. Surface runoff shall be diverted from excavations. Water entering the excavation from surface runoff shall be collected in shallow ditches around the perimeter of the excavation, drained to sumps, and be pumped or drained by gravity from the excavation to maintain a bottom free from standing water.

D. Dewatering shall at all times be conducted in such a manner as to preserve the undisturbed bearing capacity of the subgrade soils at proposed bottom of excavation.

E. If foundation soils are disturbed, loosened, or saturated by the upward seepage of water or an uncontrolled flow of water, the affected areas shall be excavated and replaced with drain rock or 3/4" crushed aggregate at no additional cost to the Asotin County PUD.

F. The CONTRACTOR shall maintain the water level below the bottom of excavation in all work areas where groundwater occurs during excavation construction, backfilling, and up to acceptance.

G. Flotation shall be prevented by the CONTRACTOR by maintaining a positive and continuous removal of water. The CONTRACTOR shall be fully responsible and liable for all damages which may result from failure to adequately keep excavations dewatered.

H. If well points or wells are used, they shall be adequately spaced to provide the necessary dewatering and shall be sandpacked and/or other means used to prevent pumping of fine sands or silts from the subsurface. A continual check by the CONTRACTOR shall be maintained to ensure that the subsurface soil is not being removed by the dewatering operation.

I. The CONTRACTOR shall dispose of water from the work in a suitable manner without damage to the environment or adjacent property. The CONTRACTOR shall

be responsible for obtaining any permits that may be necessary to dispose of water. No water shall be drained into work built or under construction without prior consent of the Asotin County PUD. Water shall be filtered using an approved method to remove sand and fine sized soil particles before disposal into any drainage system. Erosion control shall be provided in accordance with Asotin County and City of Clarkston Erosion Control Requirements.

J. The release of groundwater to its static level shall be performed in such a manner as to maintain the undisturbed state of the natural foundation soils, prevent disturbance of compacted backfill and prevent flotation or movement of structures, pipelines, and sewers.

K. Dewatering of trenches and other excavations shall be considered as incidental to the construction of the work and all costs thereof shall be included in the various contract prices in the bid forms.

END OF SECTION

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SECTION 101

EARTHWORK

PART 1 GENERAL

1.1 DESCRIPTION

A. Work covered in this section includes general excavation, fill and backfill work. Additional requirements for excavation and backfill for utilities are specified in Section 102 - Excavating, Backfilling and Compacting for Utilities.

1.2 SUBMITTALS

A. Name, qualifications and prior experience of two inspection and testing laboratories/firms for material gradation testing, proctor development and in-place density testing. Asotin County PUD will review and identify the firm to be used.

B. Certified gradation analysis, standard proctor tests and in-place density testing results for all backfill material.

C. Mix proportions for Controlled Low Strength Material (CLSM). The proposed mix design shall be strength tested in accordance with ASTM D 4832 at 7-, 14-, and 28-days age and results submitted to the Asotin County PUD. The CONTRACTOR shall submit to the Asotin County PUD batch weights of each batch of CLSM used during construction.

1.3 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

A. Commercial Standards

1. ASTM C 94 – Specification for Ready-Mixed Concrete
2. ASTM C 403 – Test Method for Time of Setting Concrete Mixtures by Penetration Resistance
3. ASTM D 422 – Method for Particle-Size Analysis of Soils
4. ASTM D 698 – Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, Using 5.5-lb (2.49-kg) Rammer and 12-inch (304.8-mm) Drop (AASHTO T-99)
5. ASTM D 2487 – Classification of Soils for Engineering Purposes
6. ASTM D 4253 – Test Methods for Maximum Index Density of Soils Using a Vibratory Table

7. ASTM D 4254 – Test Methods for Minimum Index Density of Soils and Calculation of Relative Density

8. ASTM D 4832 – Preparation and Testing of Controlled Low Strength Material Test Cylinders

9. AASHTO T 310 – Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

B. Reference Standards

1. References herein to the "Standard Specifications for Municipal Construction" shall mean the most recent edition of the Washington State Department of Transportation Standard Specifications for Road, Bridge, and Municipal Construction. References herein to "AASHTO" shall mean Association of American State Highway Transportation Officials.

1.4 CLASSIFICATION OF EXCAVATION

A. Unclassified Excavation

1. Unclassified excavation is defined as all excavation, regardless of the type, character, composition or condition of the material encountered and shall further include all debris, junk, broken concrete, and all other material. All excavation shall be unclassified unless provided for otherwise elsewhere in these specifications.

B. Classified Excavation

1. Common Excavation

a. Common excavation is defined, as the excavation of all material not classified as Rock Excavation.

2. Rock Excavation

a. Rock excavation is defined as the removal of rock by systematic and continuous drilling and blasting, if allowed, and hammering, breaking, splitting or other approved methods. Rock is defined as material including boulders, solid bedrock, or ledge rock, which, by actual demonstration, cannot be reasonably excavated with suitable power excavation equipment. Suitable machinery is defined as a track-mounted hydraulic excavator of the 52,800 to 72,500-pound class equipped with a single shank ripper. The Asotin County PUD may waive the demonstration if the material encountered is well-defined rock. The term "rock excavation" shall be understood to indicate a method of removal and not a geological formation.

b. If material which would be classified as rock by the above definition is mechanically removed with equipment of a larger size than specified, it shall

be understood that any added costs for the removal of material by this method shall be included in the unit price for common excavation.

c. Before the removal of rock by the methods described above will be permitted, the CONTRACTOR shall expose the material by removing the common material above it and then notify the Asotin County PUD who, with the CONTRACTOR or his representative, will measure the amount of material to be removed.

d. In trench excavations, boulders or pieces of concrete below grade larger than one half (1/2) cubic yard will be classified as rock if blasting, hammering, breaking or splitting actually required and used for their removal from the trench. If material, which would be classified as rock by the definition above and elsewhere within these specifications, is mechanically removed without blasting, hammering, breaking or splitting, it will be considered common excavation. If equipment larger than the "suitable machinery" as defined above is brought on the project site for the sole purpose of rock removal without blasting, hammering, breaking or splitting, then such removal will be considered rock excavation.

e. CONTRACTOR shall verify if the use of explosives for excavation of rock is allowed on this project.

1.5 QUALITY ASSURANCE

A. Soil Testing – Soil sampling and testing to be by an independent laboratory approved by the Asotin County PUD. The frequency of testing is specified in Part 3 of Section 102. All soil testing shall be paid for by the CONTRACTOR.

B. Compaction Tests – Maximum density of optimum moisture content by ASTM D698 (AASHTO T-99). In-place density in accordance with Nuclear Testing Method AASHTO 310. The frequency of testing is specified in Part 3 of Section 102.

C. Soil Classification – All imported materials, classification in accordance with ASTM D2487.

D. Allowable Tolerances – Final grades shall be plus or minus 0.04 foot.

E. In Place Testing of CLSM – CLSM shall be tested in accordance with ASTM C 403.

F. Compressive Tests of CLSM – CLSM shall be compressive tested in accordance with ASTM D 4832.

1.6 SITE CONDITIONS

A. Quantity Survey – CONTRACTOR shall be responsible for calculations of quantities of cut and fill from existing site grades to finish grades established under these Standard Specifications and Details as indicated on the plans or specified and shall include the cost for all earthwork in the total basic bid.

B. Dust Control – Must meet Washington State Department of Ecology and Local requirements. Protect persons and property from damage and discomfort caused by dust. Water as necessary and when directed by Asotin County PUD to quell dust.

C. Soil Control – Soil shall not be permitted to accumulate on surrounding streets or sidewalks nor to be washed into sewers. Erosion control shall be provided in accordance with Asotin County and City of Clarkston Erosion Control Requirements.

D. Existing Underground Utilities – Protect active utilities encountered and notify persons or agencies owning same. Remove inactive or abandoned utilities from within the project grading limits to a depth at least twelve (12) inches below subgrade established under this contract. All abandoned piping to be plugged as specified in Part 3 of Section 102.

PART 2 PRODUCTS

2.1 CRUSHED ROCK

A. Crushed rock with 3/4 inch, 1 inch, and 1 1/2 inch gradation as shown on the plans shall meet the gradation and other requirements of the Standard Specifications for Municipal Construction Section 9-03.9(3).

2.2 CONTROLLED LOW STRENGTH MATERIAL (CLSM) OR CONTROLLED DENSITY FILL (CDF)

A. CLSM shall be composed of cement, pozzolans, fine aggregate, water, and admixtures. CLSM shall have a low cement content, be non-segregating, self consolidating, free-flowing and excavatable material which will result in a hardened, dense, non-settling fill and a compressive strength at 28 days of 100 to 200 psi if not otherwise shown or specified.

2.3 SELECT NATIVE FILL

A. Select native fill shall consist of approved earth obtained from on-site excavations, free of peat, humus, vegetative matter, organic matter, and rocks greater than 4 inches in diameter, processed as required to be placed in the thicknesses prescribed and at the optimum moisture content to obtain the level of compaction required by these specifications.

2.4 IMPORTED FILL

A. Imported fill material shall consist of 3/4 inch crushed rock, or chipped rock meeting the requirements of Crushed Surfacing Top Course per the Standard Specifications for Municipal Construction, Section 9-03.9(3).

2.5 TOPSOIL

A. Top 6-12 inches of existing soil containing organic matter. Asotin County PUD's decision shall be final as to determination of what is of topsoil quality. Topsoil shall be stockpiled on site for later use in landscaping. Care shall be taken in collection of topsoil so as to preserve native seed stocks, which are valuable to restoring native species as part of finish landscaping.

2.6 SPOILS

A. All excess material not suitable or not required for backfill and grading shall be hauled off site and disposed of at a location approved by the Asotin County PUD. The CONTRACTOR shall make arrangements for disposal of the material at no additional cost to the Asotin County PUD. Landfill permit to be obtained by the CONTRACTOR and provided to Asotin County PUD prior to commencement of disposal.

2.7 SAND

A. Sand shall meet the requirements of Class 1 Fine Aggregates per the Standard Specifications for Municipal Construction, Section 9-03.1(2)B.

2.8 PEA GRAVEL

A. Pea Gravel is prohibited for use as fill for any areas.

PART 3 EXECUTION

3.1 GENERAL

A. Prior to work in this section, become familiar with site conditions. In the event discrepancies are found, notify the Asotin County PUD as to the nature and extent of the differing conditions.

B. Do not allow or cause any work performed or installed to be covered up or enclosed prior to required tests and approvals. Should any work be enclosed or covered up, uncover at CONTRACTOR's expense.

3.2 TOPSOIL STRIPPING AND STOCKPILING

A. Site within clearing limits shall be stripped of topsoil to depths approved by the Asotin County PUD, as required to obtain additional topsoil necessary to complete work indicated on plans or specified.

B. Topsoil shall be free of sticks, large rocks, clods, and subsoils.

C. Stockpile topsoil at locations approved by Asotin County PUD for redistribution as specified. Grade surface of stockpiles remaining over winter months to prevent ponding of water. Cover stockpile to minimize the infiltration of water. Provide erosion control as required by Asotin County.

3.3 EXCAVATION

A. Excavate material of every nature and description to the lines and grades as indicated on the drawings and/or as required for construction of the facility.

B. Provide and maintain equipment to remove and dispose of water during the course of the work of this section and keep excavations dry and free of frost or ice.

C. Project dewatering is specified elsewhere. Coordinate drainage requirements with this work. Provide temporary drainage ditches as required and regrade as indicated at completion of project.

D. Excavated material not approved for use in the embankments or in excess of that needed to complete the work shall be hauled off site and disposed of at no expense to the Asotin County PUD.

3.4 ROCK EXCAVATION

A. Where the bottom of the excavation encounters ledge rock and/or boulders and large stones which meet the definition of “rock” as described herein, said rock shall be removed to provide 12 inches of clearance on each side and below all structures, pipe and appurtenances.

B. Excavations below subgrade in rock shall be backfilled to subgrade with approved bedding material and thoroughly compacted.

C. If explosives are allowed on this project, the CONTRACTOR shall comply with the requirements for the use and security of explosives as specified in the special provisions.

D. Wherever the use of explosives is required during the course of the work, and if the use of explosives are allowed on this project, the CONTRACTOR shall conform to the recommendations of the Manual of Accident Prevention in Construction, published by AGC, in regard to Section 5, Explosives. Prior to commencing use of explosives, the CONTRACTOR shall submit a certificate of insurance showing coverage of blasting operating and blasting product liability to the limits required

by the General Conditions. Coverage for this extra hazard shall be maintained during all blasting operations.

E. The CONTRACTOR shall provide all necessary approved types of tools and devices required for loading and using explosives, blasting caps and accessories, and conform to and obey all federal, state, and local laws that may be imposed by any public authority.

F. When blasting rock, cover the area to be shot with blasting mats or other approved types of protective material that will prevent the scattering of rock fragments outside the excavation. The CONTRACTOR shall give ample warning to all persons within the vicinity before blasting, station people and provide signals of danger in suitable places to warn people and vehicles before firing any blasts. Fire all blasts with an electric blasting machine which shall be connected to the circuit immediately prior to the time for firing, and only then by the person who will operate the blasting machine.

G. The CONTRACTOR shall assume all liability and responsibility connected with or accruing from blasting, or the use of explosives or dangerous material of any kind whatsoever. Such liability shall extend to include, but not be limited to, damage to work or adjacent property, injuries, lawsuits, complaints and all other adverse results, whether actual, alleged, inferred or implied.

H. The cost of waiting or "down time" for the CONTRACTOR to mobilize required equipment when rock is encountered shall be borne by the CONTRACTOR without additional cost to the Asotin County PUD or liability to the Asotin County PUD. If the CONTRACTOR encounters rock, which will prevent construction and are not shown on the plans, the CONTRACTOR shall notify the Asotin County PUD before continuing with the work in order that the Asotin County PUD may make such field revisions as necessary to avoid conflict with the existing conditions. The Asotin County PUD will provide field revisions within one half work day of notification to address conflicts with existing conditions. The cost of waiting or "down time" during such field revisions shall be borne by the CONTRACTOR without additional cost to the Asotin County PUD or liability to the Asotin County PUD. If the CONTRACTOR fails to notify the Asotin County PUD when a conflict of this nature is encountered, but proceeds with construction despite this interference, the CONTRACTOR shall do so at the CONTRACTOR's own risk with no additional payment.

3.5 GRADING AND FILLING

A. General – Grading and filling operations shall not take place when weather conditions and moisture content of fill materials prevent the attainment of specified density. Vertical curves or roundings at abrupt changes in slope shall be established as approved by Asotin County PUD. Bring all graded areas to a relatively smooth,

even grade and slope by blading or dragging. Remove high spots and fill depressions.

B. For areas receiving surface structures or existing paved areas to be constructed or replaced by the CONTRACTOR or by others, such as railways, roadways, driveways, parking lots, and sidewalks, place clean well-graded gravel fill material (3/4 inch) in 6-inch lifts and compact with vibratory equipment to 95 percent maximum density unless otherwise specified.

C. Embankment Construction – Place fill material shown or specified in 8-inch loose lifts and compact with approved equipment. All fill material within 3 feet of top of fill elevations shall be compacted with vibratory equipment to 95 percent maximum density unless otherwise specified. All fill material below the 3-foot limit shall be compacted with vibratory equipment to 90 percent maximum density unless otherwise specified.

3.6 TOPSOIL FILL

A. Scarify prepared subgrade to depth of four inches immediately prior to placing topsoil.

B. Place topsoil in areas to be seeded to depths indicated, minimum depth of six inches. Place loose; do not compact, do not place in wet or muddy conditions.

3.7 CONTROLLED LOW STRENGTH MATERIAL (CLSM)

A. At time of placement, the CLSM must be at least 40 degrees F and ambient air temperature must be at least 34 degrees F and rising. Subgrade on which CLSM is to be placed shall not be frozen and free of disturbed or soft material, debris and water.

B. After CLSM is placed, further construction proceeding upon it will be permitted only after initial set is attained, as measured by ASTM C 403. No traffic or construction equipment shall be allowed on CLSM for at least 24 hours after placement.

3.8 DUST CONTROL

A. See Section 110 for dust control requirements

END OF SECTION

SECTION 102

EXCAVATING, BACKFILLING AND COMPACTING FOR UTILITIES

PART 1 GENERAL

1.1 DESCRIPTION

A. Work covered in this Section includes trench excavation for pipe, utility vaults and other utilities, pipe and utility vault bedding, and trench and utility vault backfill. Additional requirements for general excavation and backfill work are specified in Section 101 - Earthwork.

B. Excavation for Utilities Includes

1. Work of making all necessary excavations for the construction of all contract work.
2. Furnishing, placing and use of sheeting, shoring, and sheet piling necessary in excavating for and protecting the work and workmen.
3. Performing all pumping and work necessary to keep the trenches free from water.
4. Providing for uninterrupted flow of existing rivers, treatment plant processes, drains, and sewers and the temporary disposal of water from other sources during the progress of the work.
5. Damming and coffer damming where necessary.
6. Supporting and protecting all structures, pipes, conduits, culverts, railroad tracks, posts, poles, wires, fences, buildings, and other public and private property adjacent to the work.
7. Removing and replacing existing sewers, culverts, pipelines, and bulkheads where necessary.
8. Removing after completion of the work all sheeting and shoring not necessary to support the sides of excavations.
9. Removing all surplus excavated material.
10. Performing all backfilling and rough grading of compacted backfill to limits specified or ordered by the Asotin County PUD.
11. Restoring all property damaged as a result of the work involved in this contract.

C. The work includes obtaining and transporting suitable fill material from off-site when suitable on-site material is not available.

D. The work includes transporting surplus excavated material not needed for backfill at the location where the excavation is made, to other parts of the work where filling is required, or disposal of all surplus material on other sites provided by the CONTRACTOR.

E. Backfill and Fill Compaction: Test consolidated backfill material in trenches around pipes and structures in conformance with "Compaction Tests" specified herein. Where tests indicate insufficient values, perform additional tests as required by the Asotin County PUD. Testing shall continue until specified values have been attained by additional compaction effort.

F. The work includes furnishing and installing temporary facilities to treat and dispose of any water pumped from the trench or utility vault excavations in a proper and approved manner in accordance with all laws and regulations.

1.2 SUBMITTALS

A. Certified gradation analysis, standard proctor tests and in-place density testing results for all backfill material.

1.3 PROTECTION

A. Exploratory Test Pits – The CONTRACTOR shall dig such exploratory test pits as may be necessary in advance of excavation to determine the exact location and elevation of subsurface structures, pipelines, duct banks, conduits, and other obstructions which are likely to be encountered or need to be connected to and shall make acceptable provision for their protection, support, and maintenance of their continued operation.

B. Sheeting, Shoring and Bracing

1. The CONTRACTOR shall furnish and install adequate sheeting, shoring, and bracing to maintain safe working conditions, and to protect newly built work and all adjacent and neighboring structures from damage by settlement or other ground movement.

2. Bracing shall be arranged so as not to place a strain on portions of completed work until the construction has proceeded far enough to provide ample strength. Sheeting and bracing may be withdrawn and removed at the time of backfilling, but the CONTRACTOR shall be responsible for all damage to newly built work and adjacent and neighboring structures.

C. Construction Sheeting Left in Place

1. The CONTRACTOR shall furnish, install, and leave in place construction sheeting and bracing when specified or when indicated or shown on the Drawings.

2. Construction sheeting and bracing, placed by the CONTRACTOR to protect adjacent and neighboring structures, may be left in place if desired by the CONTRACTOR. All such sheeting and bracing left in place shall be included in the cost for excavation.

3. Any construction sheeting and bracing which the CONTRACTOR has placed to facilitate its work may be ordered in writing by the Asotin County PUD to be left in place. The right of the Asotin County PUD to order sheeting and bracing left in place shall not be construed as creating an obligation on its part to issue such orders. Failure of the Asotin County PUD to order sheeting and bracing left in place shall not relieve the CONTRACTOR of its responsibility under the contract.

D. Removal of Water

1. The CONTRACTOR shall always provide and maintain ample means and devices for dewatering. See Section 100 - Dewatering.

2. The CONTRACTOR shall dispose of water from the work in a suitable legal manner without damage to adjacent property or structures.

1.4 DEFINITIONS

A. Classification of Excavated Material

1. Excavated materials are defined within Section 101 - Earthwork.

B. Foundation Stabilization

1. Foundation stabilization is defined as removing unsuitable native material below the design grade of the area being excavated and replacing and compacting with crushed rock to the dimensions shown on the trench detail, as approved by the Asotin County PUD, or as otherwise directed by the Asotin County PUD. Foundation stabilization material shall be placed in lifts not to exceed eight (8) inches and compacted to 95 percent of the maximum density at optimum moisture content.

C. Bedding and Pipe Zone Backfill

1. Bedding and pipe zone backfill is defined as the furnishing, placing and compacting of material below, around and above the top of the pipe barrel to the dimensions shown in the Standard Details. The compaction requirement for the pipe bedding and pipe zone shall not be less than that required for the trench

backfill above the pipe zone. Sand as specified in Section 101 is an acceptable material for use as Bedding and Pipe Zone Backfill.

D. Trench Backfill Zone

1. Trench backfill is defined as the furnishing, placing and compacting of material in the trench above the pipe zone, up to bottom of the pavement base rock, ground surface or surface material.

E. Backfill Classification

1. Class A: Backfill with suitable native excavated material. Place the material in lifts with mechanical compaction sufficient to ensure that no bridging occurs. Mound the excess material over the trench.

2. Class B: Backfill with suitable native excavated material. Place the material in lifts and mechanically compact to a relative density as shown on the Drawings or specified herein. Remove and dispose of excess material.

3. Class C: Backfill with suitable native excavated material. Place the material in the trench and water settle to a relative density as shown on the Drawings or specified herein. Remove and dispose of excess material.

4. Class D: Backfill with approved imported granular material. Place the material in lifts and mechanically compact to a relative density as shown on the Drawings or specified herein. Remove and dispose of excess material.

5. Class E: Backfill with controlled low strength material (CLSM). See Section 101 - Earthwork.

1.5 QUALITY ASSURANCE

A. Compaction Requirements

1. In place dry density of compacted material shall be at the percent of maximum dry density specified or shown at optimum moisture content determined on the basis of the latest edition of AASHTO T-99.

B. Testing Requirements

1. An independent laboratory retained by the CONTRACTOR and approved by the Asotin County PUD will perform all soil sampling and testing. Testing locations and frequencies shall be per Part 3 of this specification section. All testing will be paid for by the CONTRACTOR.

1.6 REFERENCES

A. References herein to the “Standard Specifications for Municipal Construction” shall mean the most recent edition of the Washington State Department of Transportation

Standard Specifications for Road, Bridge, and Municipal Construction. References herein to “AASHTO" shall mean Association of American State Highway Transportation Officials

PART 2 MATERIALS

2.1 NATIVE BACKFILL MATERIAL

A. Native backfill material shall be select excavated native material free from roots or other organic material, trash, mud, muck, frozen material and large stones and shall comply with the select native fill specification within Section 101 - Earthwork.

2.2 CRUSHED ROCK BACKFILL MATERIAL

A. Crushed rock used for backfill material in the bedding, pipe, and backfill zones shall be maximum aggregate size shown in the standard details. All gradations of crushed rock shall comply with Section 101 - Earthwork.

2.3 FOUNDATION STABILIZATION MATERIAL

A. Foundation stabilization material shall be 6-inch to 2-inch or 4-inch to 2-inch gravel, free from clay balls and organic debris, and being well crushed gravel or crushed rock graded with less than 8 percent by weight passing the 1/4-inch sieve, as approved by the Asotin County PUD.

PART 3 EXECUTION

3.1 PREPARATION

A. The site of an open cut excavation shall be first cleared of all obstructions preparatory to excavation. Wherever paved or surfaced streets are cut, saw wheel or approved cutting devices shall be used. Any cut or broken pavement shall be removed from site during excavation.

B. The CONTRACTOR shall maintain street traffic at all times and erect and maintain barricades, warning signs, traffic cones, and other safety devices during construction in accordance with the latest edition of Manual of Uniform Traffic Control Devices (MUTCD), Part 6, to protect the traveling public in any area applicable. Provide flaggers as required during active work in roadway areas.

C. Intent of specifications is that all streets, structure, and utilities be left in condition equal to or better than original condition. Where damage occurs and cannot be repaired or replaced, CONTRACTOR shall purchase and install new material, which is satisfactory to Asotin County PUD. Plans and/or specifications cover and govern replacement and restoration of foreseeable damage.

D. The CONTRATOR's operations shall be confined to rights-of-way and easements provided. Avoid encroachment on, or damage to, private property or existing utilities unless prior arrangements have been made with copy of said arrangement submitted to Asotin County PUD.

3.2 SURVEY LINE AND GRADE AND SURVEY MONUMENT REPLACEMENT

A. Preserve all stakes, markers, etc. Stakes, markers, etc. that are disturbed by the Contractor will be replaced by the CONTRACTOR at the CONTRACTOR'S expense.

B. CONTRACTOR shall develop and make all detailed surveys necessary for layout and construction, including exact component location, working points, lines and elevations. The CONTRACTOR shall have the responsibility to carefully preserve benchmarks, reference points and stakes, and in the case of destruction thereof by the CONTRACTOR or resulting from its negligence, the CONTRACTOR shall be charged with the expense and damage resulting therefore and shall be responsible for any mistakes that may be caused by the unnecessary loss or disturbance of such bench marks, reference points and stakes.

3.3 OBSTRUCTIONS

A. This item refers to obstructions, which may be encountered and do not require replacement. Obstructions to the construction of the trench such as tree roots, stumps, abandoned piling, abandoned buildings and concrete structures, logs, rubbish, and debris of all types shall be removed without additional compensation from the Asotin County PUD. The Asotin County PUD may, if requested, make changes in the trench alignment to avoid major obstructions, if such alignment changes can be made within the perpetual easement and right-of-way and without adversely affecting the intended function of the facility or increased costs to the Asotin County PUD.

3.4 INTERFERING STRUCTURES OR ROADWAYS

A. The CONTRACTOR shall remove, replace and/or repair any damage done by the CONTRACTOR during construction to fences, buildings, cultivated fields, drainage crossings, and any other properties at its own expense and without additional compensation from the Asotin County PUD. The CONTRACTOR shall replace or repair these structures to a condition as good or better than their pre-construction condition prior to commencing work in the area.

B. If the CONTRACTOR encounters existing structures, which will prevent construction and are not shown on the plans, the CONTRACTOR shall notify the Asotin County PUD before continuing with the work in order that the Asotin County PUD may make such field revisions as necessary to avoid conflict with the existing conditions. The cost of waiting or "down time" during such field revisions shall be borne by the CONTRACTOR without additional cost to the Asotin County

PUD or liability to the Asotin County PUD. If the CONTRACTOR fails to so notify the Asotin County PUD when a conflict of this nature is encountered, but proceeds with construction despite this interference, the CONTRACTOR shall do so at the CONTRACTOR's own risk with no additional payment.

3.5 EASEMENTS

A. Where portions of the work are located on private property, easements and permits will be obtained by the Asotin County PUD. Easements shall provide for the use of property for construction purposes to the extent indicated on the easements. Copies of these easements and permits will be available from the Asotin County PUD for inspection by the CONTRACTOR. It shall be the CONTRACTOR's responsibility to determine the adequacy of the easement obtained in every case. The CONTRACTOR shall confine its construction operations to within the easement limits or street right-of-way limits, or make special arrangements with the property owners for the additional area required and notify the Asotin County PUD of any such conditions.

B. Any damage to private property, either inside or outside the limits of the easements provided by the Asotin County PUD, shall be the responsibility of the CONTRACTOR. Before the Asotin County PUD will authorize final payment, the CONTRACTOR will be required to furnish the Asotin County PUD with written releases from the property owners, where the CONTRACTOR has obtained special agreements or easements or where the CONTRACTOR's operations, for any reason, have not been kept within the construction right-of-way obtained by the Asotin County PUD. Any such special agreements must be in written form and shall not involve the Asotin County PUD or Asotin County PUD as to liabilities in any way.

3.6 TRENCH AND UTILITY VAULT EXCAVATION

A. Excavation for trenches in which pipelines are to be installed shall provide adequate space for workers to place and joint the pipe properly and safely, but in every case the trench shall be kept to a minimum width. The width of trench at the top of the pipe shall be as specified in Standard Detail 1-6. Excavation for manholes and other structures shall be wide enough to provide a minimum of 12 inches between the structure surface and the sides of the excavation.

B. Unless otherwise permitted by the Asotin County PUD, trenching operations shall not be performed beyond the distance which will be backfilled and compacted the same day.

C. In general, backfilling shall begin as soon as the pipe or conduit is in approved condition to receive it and shall be carried to completion as rapidly as possible. New trenching shall not be started when earlier trenches need backfilling or the surfaces of streets or other areas need to be restored to a safe and proper condition.

D. Where the excavation activities require the removal of portions of an abandoned pipeline, masonry plugs shall be installed in the open ends of the pipe, unless otherwise noted on the plans or by the Asotin County PUD. Coordinate with the Asotin County PUD prior to plugging. For plugs less than 36 inches in diameter, 8-inch deep masonry units shall be used. For plugs in larger pipelines, 12-inch deep masonry units shall be used.

E. Excavated material shall be placed at locations and in such a manner that it does not create a hazard to pedestrian or vehicular traffic, or interfere with the function of existing drainage facilities or system operation. The CONTRACTOR shall make arrangements for and dispose of all excess material not required elsewhere on the project at no cost to the Asotin County PUD.

F. The CONTRACTOR shall provide the materials, labor and equipment necessary to protect trenches at all times. The trench protection shall provide safe working conditions in the trench and protect the work, existing property, utilities, pavement, etc. The method of protection shall be according to the CONTRACTOR's design. The CONTRACTOR may elect to use a combination of shoring, overbreak, tunneling, boring, sliding trench shields, or other methods of accomplishing the work provided the method meets the approval of all applicable local, state and federal safety codes. Damages resulting from improper shoring, improper removal of shoring or from failure to shore shall be the sole responsibility of the CONTRACTOR.

G. The CONTRACTOR shall remove and dispose of existing abandoned sewer pipe, structures, and other facilities as necessary to construct the improvements. The cost of such removal will be considered incidental to trench excavation and backfill.

H. The CONTRACTOR shall remove and dispose of existing abandoned asbestos cement pipe as necessary to construct the improvements. Removal and disposal shall be performed according to state and local requirements. The cost of such removal and disposal will be considered incidental to trench excavation and backfill.

I. Trench excavation for piping, utility vaults and other utilities shall be performed to the alignment and grade as indicated on the plans or as required by the Asotin County PUD. Where grades are not shown, pipe or other utilities shall be laid to grade between control elevations shown on the plans.

J. The trench at all times shall be kept free from water to facilitate fine grading, the proper laying and joining of pipe, and prevention of damage to completed joints. Water in the trench shall not be allowed to flow through the pipe while construction work is in progress unless special permission to do so has been given by the Asotin County PUD. An adequate screen shall be provided to prevent the entrance of objectionable material into the pipe. See Section 100 - Dewatering.

K. For pipe or utility vaults to have bedding material, excavate to the depth below the bottom of the pipe or utility vault that is specified on the plans. Care shall be taken not to excavate below depths required. If over digging occurs, the trench bottom shall be filled to grade with compacted bedding material. The width of the pipe trench at and below the top of the pipe shall be such that the clear space between the barrel of the pipe and the trench shall not exceed 12 inches on either side of the pipe. The width of the trench above that level may be as wide as necessary for sheeting and bracing and the proper performance of the work.

3.7 EXCAVATION BELOW GRADE

A. If the trench bottom is unsuitable below the depth required for bedding, the Asotin County PUD may require additional excavation. This extra excavation shall be backfilled with compacted foundation stabilization material. This backfill shall be placed in lifts not to exceed 8 inches and compacted to 95 percent of the maximum density at optimum moisture content.

3.8 DIRECTIONAL DRILLING

A. See Section 121 - Directional Drilling.

3.9 PIPE BEDDING

A. Following the excavation of the trench, compacted pipe bedding material shall be placed the full width of the excavated trench to a depth as shown on the trench detail. The bottom of the trench shall be accurately graded and rounded to fit the bottom quadrant of the pipe to provide uniform bearing and support for each section of pipe. Depressions for jointing shall be only of such length, depth and width necessary for the proper making of the joint.

3.10 PIPE ZONE AND TRENCH BACKFILL

A. All backfill except CLSM shall be placed and compacted in 6-inch lifts. Backfill shall be carefully placed around the pipe and thoroughly compacted in 6-inch lifts or in a manner satisfactory to the Asotin County PUD so as to achieve the specified compaction requirements. Up to 16 inches above the pipe, a hand compactor shall be required. When placing pipe zone backfill, the CONTRACTOR shall prevent pipe from moving either horizontally or vertically during placement and compaction of pipe zone material.

B. Backfill Immediately: All trenches and excavations shall be backfilled immediately after pipe is laid therein and necessary testing is complete, unless otherwise directed by the Asotin County PUD. Under no circumstances shall water be permitted to rise in open trenches after pipe has been placed. See Section 100 - Dewatering.

C. Trench backfill under existing or future structures, paved areas, road shoulders, driveways or sidewalks:

1. Class B unless otherwise specified on the plans.

2. Backfill shall be compacted to 95 percent of maximum density at optimum moisture content.

D. Trench backfill outside existing or future structures, paved areas, road shoulders, driveways or sidewalks.

1. Class B unless otherwise specified on the plans.

2. Backfill shall be compacted to not less than 85 percent of maximum density at optimum moisture content.

3.11 COMPACTION TESTING

A. Compaction tests will be required to show that specified densities of compacted backfill are being achieved by the CONTRACTOR's compaction methods.

1. Prior to beginning compaction tests, CONTRACTOR shall provide 16 inches minimum of compacted material above the top of pipe. A hand compactor shall be used for a minimum of 16 inches above the pipe. CONTRACTOR shall be responsible for protecting the pipe during compaction testing and performing any necessary repair due to damage during testing.

2. Tests of pipeline backfill materials shall be made on each lift of fill for every 200 feet of pipeline trench as measured along the pipe centerline. Tests of water service connection trench backfill materials shall be performed at the discretion of the Asotin County PUD. Tests of backfill materials for laterals shall be completed at every third lateral or at the discretion of the Asotin County PUD. After the Asotin County PUD is satisfied that the CONTRACTOR's method of compaction consistently meets specified compaction requirements, the testing frequency may be reduced to not less than one test per lift of fill for every 1,500 feet of pipeline trench. The Asotin County PUD may direct testing at a higher frequency at no additional cost to the Asotin County PUD upon failure to obtain specified densities or if the CONTRACTOR changes compaction equipment or methods of compaction. The Asotin County PUD shall determine all test locations if the Asotin County PUD determines a higher frequency of testing is required.

3.12 UTILITY CROSSINGS

A. Vertical clearance between the new pipe and existing utilities shall be 12 inches minimum, unless otherwise noted on the plans or specified. Where existing utility lines are damaged or broken, the utility shall be repaired or replaced, care being taken to insure a smooth flow line and absolutely no leakage at the new joints.

Unless otherwise specified herein, all expenses involved in the repair or replacement of leaking or broken utility lines that have occurred due to the CONTRACTOR's operations shall be borne by the CONTRACTOR and the amount thereof shall be absorbed in the unit prices of its bid.

B. Water Line Separation from Non-Potable Lines

1. Whenever water lines cross non-potable lines (sanitary sewers, reclaimed water piping, irrigation lines, storm drainage, and other uses), the CONTRACTOR shall comply with the Washington State Department of Health (DOH) and Washington Administrative Code (WAC) requirements and the requirements listed below.

2. Water lines crossing non-potable lines

    a. Water lines crossing non-potable lines shall be laid above the non-potable pipeline, with a minimum vertical distance of 18 inches between the outside of the water line and the outside of the non-potable line. If vertical separation is less than 18", or if the non-potable line is above the potable waterline, mitigation is required.

    b. At crossings, one full length of water pipe shall be located so both joints will be as far from the non-potable line as possible. Special structural support for the water and non-potable lines may be required.

3. Water lines in parallel with non-potable line

    a. Water lines shall be laid at least 10 feet horizontally from any existing or proposed non-potable line. The distance shall be measured from edge to edge.

4. When it is impossible to meet the minimum specified separation distances listed above, the reviewing authority must specifically approve any variance from the requirements above. Mitigation is required for all crossings where the non-potable line is above the potable line, regardless of vertical separation distance. The following methods of mitigation may be used with written permission from the reviewing authority:

    a. Crossing installation

        1) Either the water line or the non-potable line may be encased in a watertight casing pipe that extends 10 feet on both sides of the crossing, measured perpendicular to the water main. The casing pipe material shall be ductile iron, steel, or other material approved by the Asotin County PUD or reviewing authority for use in the water main system. Ductile iron and steel casing pipe shall meet the requirements of SECTION 120 CASINGS AND APPURTENANCES.

2) OR encase the non-potable line with concrete or controlled density fill, with Asotin County PUD approval. Encasement shall extend 10 feet on both sides of the crossing, measured perpendicular to the water main.

a) For water line crossing above a non-potable line, encase the non-potable line in 6 inches of concrete or controlled density fill from the spring line of the pipe to 6 inches above the crown of the pipe.

b) For water line crossing below a non-potable line, encase the non-potable line in 6-inches of concrete around the entirety of the pipe. Provide two (2) continuous longitudinal No. 4 bars, on each side of the encasement. Provide a minimum of 2 inches cover for each bar.

b. Parallel installation

1) The water line is laid in a separate trench or on an undisturbed earth shelf located on one side of the non-potable line at such an elevation that the bottom of the water main is at least 18 inches above the non-potable line. There shall be at least 5 feet of horizontal separation between water line and non-potable line.

2) OR both the water line and non-potable line material shall be water class pipe, pressure rated to 150 psi, and meet AWWA standards. The pipelines shall be constructed using mechanical or fusion welded pipe joints. The pipeline shall be pressure tested to ensure water tightness. Pipeline materials and construction shall be approved by the Asotin County PUD or reviewing authority for use in the water main system.

3) OR encase the non-potable line with concrete or controlled density fill, with Asotin County PUD approval. Encasement shall be per the installation instructions as specified in Part 3.12 B.4.a. 2) above, except the length shall extended to 10 feet past the point where the minimum horizontal separation can be achieved. Lap splice rebar 12 inches minimum.

3.13 DISPOSAL OF UNSUITABLE AND SURPLUS MATERIAL

A. All excavated materials which are unsuitable for use in backfilling trenches or around structures, and excavated materials that are in excess of that required for backfilling and for constructing fills and embankments as shown on the drawings, shall be disposed of by the CONTRACTOR at its own expense and at disposal sites provided by the CONTRACTOR as may be required; except that the Asotin County PUD reserves the right to require the CONTRACTOR to deposit such surplus at locations designated by the Asotin County PUD within a 2-mile radius.

1. Surplus excavated material shall be disposed of by the CONTRACTOR in a legal manner, in full compliance with applicable codes and ordinances.

3.14 SURFACE RESTORATION AND CLEAN-UP

A. At the end of each workday, all open trenches shall be backfilled and all trenches within streets shall be temporarily surfaced or covered to the satisfaction of the Asotin County PUD and local transportation agency. Temporary paving shall be replaced with permanent street paving, at completion of construction within street rights-of-way or sooner if deemed necessary by the Asotin County PUD and local transportation agency.

B. Where trenches cross lawns, garden areas, pastures, cultivated fields, or other areas on which reasonable topsoil conditions exist, the CONTRACTOR shall remove the topsoil to the specified depth and place the material in a stockpile. The CONTRACTOR shall not mix the topsoil with other excavated material. After the trench has been backfilled, the topsoil shall be replaced.

C. The CONTRACTOR shall clean up and remove all excess materials, construction materials, debris from construction, etc. The CONTRACTOR shall replace or repair any fences, mailboxes, signs, landscaping, or other facilities removed or damaged during construction. The CONTRACTOR shall replace all lawns, topsoil, shrubbery, flowers, etc., damaged or removed during construction. The CONTRACTOR is to be responsible for seeing that lawns, shrubs, etc. remain alive and leave premises in condition equal to original condition before construction.

D. See Section 110 - Pavement and Surface Restoration for dust control requirements.

END OF SECTION

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SECTION 103

CONTROL OF WORK

PART 1 GENERAL

1.1 DESCRIPTION

A. The work consists of developing, implementing, and maintaining a quality control system to ensure that the specified quality is achieved for all materials and work performed

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.1 AUTHORITY OF ASOTIN COUNTY PUD AND INSPECTORS

A. The Asotin County PUD may appoint assistants and inspectors to assist in determining that the work and materials meet the Standard Specifications and Details requirements. Assistants and inspectors have the authority to reject defective material and suspend Work that is being done improperly, subject to the final decisions of the Asotin County PUD.

1. Assistants and inspectors are not authorized to accept work, to accept materials, to issue instruction, or to give advice that is contrary to the Standard Specifications and Details. Work done or material furnished which does not meet the Standard Specifications and Details requirements shall be at the CONTRACTOR's risk and shall not be a basis for a claim even if the inspectors or assistants purport to change the Standard Specifications and Details.

2. Inspectors may advise the CONTRACTOR of any faulty work or material or infringements of the terms of the Contract; however, failure of the Asotin County PUD or the assistants or inspections to advise the CONTRACTOR does not constitute acceptance or approval.

3.2 INSPECTION OF WORK AND MATERIALS

A. Any inspection, tests, measurements, or other actions by Asotin County PUD employees serve only one purpose: to assure the Asotin County PUD that work, materials, progress rate, and quantities comply with Standard Specifications and Details terms. Such work by Asotin County PUD employees shall not relieve the CONTRACTOR from doing any Standard Specifications and Details assigned work or from determining whether Standard Specifications and Details

requirements are being met. The CONTRACTOR shall correct any substandard Work or materials.

3.3 REMOVAL OF DEFECTIVE AND UNAUTHORIZED WORK

A. The Asotin County PUD will not pay for unauthorized or defective work. Unauthorized or defective work includes: Work and materials that do not conform to Standard Specifications and Details requirements; Work done beyond the lines and grades set by the Plans; and extra work and materials furnished without the Asotin County PUD's written approval. At the Asotin County PUD's order, the CONTRACTOR shall immediately remedy, remove, replace, or dispose of unauthorized or defective work or materials and bear all costs of doing so.

3.4 COLLECTION OF GPS SURVEY INFORMATION

A. The CONTRACTOR shall notify Asotin County PUD to obtain GPS survey information on all installed bends, fittings, meters, and valves prior to backfilling any utility.

3.5 GUARANTEES

A. The CONTRACTOR shall furnish to the Asotin County PUD any guarantee or warranty furnished as a customary trade practice in connection with the purchase of any equipment, materials, or items incorporated into the project.

END OF SECTION

SECTION 110

PAVEMENT AND SURFACE RESTORATION

PART 1 GENERAL

1.1 SCOPE

A. This section covers the work necessary to replace all pavements, pavement base, curbs, sidewalks and other surface features damaged directly or indirectly during construction.

1.2 REFERENCE STANDARDS

A. References herein to "AASHTO" shall mean Association of American State Highway Transportation Officials.

B. Standard Specifications: Where the term "Standard Specifications for Municipal Construction" is used, such reference shall mean the current edition of the Washington State Department of Transportation Standard Specifications for Road, Bridge, and Municipal Construction. Where reference is made to a specific part of the Standard Specifications, such applicable part shall be considered as part of this section of the Specifications. In case of a conflict, the more stringent specification shall apply.

1.3 QUALITY ASSURANCE

A. All testing to determine compliance with the specifications shall be performed by an independent testing laboratory approved by the Asotin County PUD. All testing costs shall be borne by the CONTRACTOR.

B. The surface smoothness of the replaced pavement shall be such that when a 10-foot straightedge is laid longitudinally across the patched area between the edges of the old surfacing and surface of the new pavement, the new pavement shall not deviate from the straightedge more than 1/8 inch and surface drainage shall be maintained. Additionally, paving must conform to the grade and crown of the adjacent pavement and contain no abrupt edges, low or high areas or any other imperfections as determined by the Asotin County PUD. Pavement trench construction not meeting these requirements will be repaired by grinding the existing pavement to a 1-1/2 inch depth and replacing with a 1/2-inch dense graded, Hot Mix Asphaltic (HMA) the full width of the previous trench patch plus 4 inches on each side at no cost to the Asotin County PUD.

1.4 SUBMITTALS

A. Provide material submittals as specified in Division 5 of the Standard Specification for Municipal Construction

PART 2 PRODUCTS

2.1 AGGREGATE MATERIAL

A. See requirements for crushed rock in Section 101 - Earthwork.

2.2 ASPHALT CONCRETE PAVEMENT

A. Hot Mix Asphalt

1. Use 1/2-inch dense graded, PG 64-28 HMA conforming to 9-02 and 9-03.8 of the Standard Specification for Municipal Construction.

B. Cold Mix Asphalt Concrete (Temporary Patch)

1. Use cold mix asphalt concrete and 1/2-inch-No.4 gradation with either CMS-2, CMS-2S or CSS-1.

C. Asphalt Prime Coat

1. Liquid asphalt for use as a prime coat under asphalt concrete shall be MC 250 liquid asphalt, CMS-2S or CSS-1.

D. Seal and Cover Coat

1. Asphalt material shall be CRS-2 cationic emulsified asphalt conforming to 9-02.1(6) of the Standard Specification for Municipal Construction. Cover stone shall conform to size 3/8-inch - #10 aggregate in Standard Specification for Municipal Construction.

2.3 CEMENT CONCRETE PAVEMENT

A. Cement concrete pavement shall have a compressive strength of 4,000 psi conforming to 5-05 of the Standard Specification for Municipal Construction.

2.4 PAVEMENT MARKING AND SIGNAGE

A. Materials shall conform to the following sections of the Standard Specification for Municipal Construction:

1. 8-09: Raised Pavement Markers
2. 8-21: Permanent Signing
3. 8-22: Pavement Marking
4. 8-23: Temporary Pavement Marking

2.5 TOPSOIL

A. Topsoil shall be imported from approved sources, and shall be approved by the Asotin County PUD. The topsoil shall be a sandy loam free of subsoil, grass, noxious weeds and any material deleterious to plant health.

2.6 SOD

A. Sod shall be strongly rooted, free of pernicious weeds, mow to a height of 3 inches maximum before lifting, deliver to the site in strips 12 inches wide at least 3 feet long, rolled, and with a uniform thickness between 3/8-inch and 5/8-inch of soil. Sod shall be Kentucky Bluegrass and Perennial Rye Grass of the mix shown below:

Species	Proportion by Weight
Perennial Rye Grasses: Caddie Delray NK 200 Pennfine	30 percent
Kentucky Bluegrasses: Aspen Kelly Rugby Adelphi Trenton	70 percent

2.7 SEED

A. Seed shall be fresh, clean new-crop seed that complies with the tolerance for purity and germination established by Official Seed Analysts of North America. Seed mix shall be the same as for sod.

PART 3 EXECUTION

3.1 SURFACE RESTORATION, GENERAL

A. All areas disturbed as a result of construction shall be restored to their original condition as nearly as possible, or surfaced as shown on the Plans. All excess material shall be removed from the site. Any damaged concrete walks or driveways shall be restored. All dirt and debris that accumulates from the CONTRACTOR's operations shall be removed from inlets, catch basins, connecting pipelines and similar structures. Any material entering manholes or ditch culverts from street resurfacing and trenching work shall be removed. Daily clean up of all visible mud and debris is required.

B. All open fields, unpaved public rights-of-way or easements, and other areas not used as driveways, as shown on the Plans or as directed by the Asotin County PUD,

shall be restored by placement of 12 inches of topsoil, fine grading and hydroseeding

1. Seeding shall be completed as specified in these Specifications.

2. Settlement of 2 inches or more within one year of substantial completion shall require repairs and re-seeding as directed by the Asotin County PUD and at the CONTRACTOR'S expense.

3. Restorations occurring on private property shall be seeded to match existing conditions and coordinate with the Asotin County PUD and private property owner.

3.2 AGGREGATE PAVEMENT BASE

A. Place pavement base to the depth shown on the plans or as specified in all cases, pavement base shall be compacted to a minimum depth of 6 inches. Bring the top of the pavement base to a smooth, even grade at a distance below finished grade equivalent to the required pavement depth.

B. Compact the pavement base with mechanical vibratory or impact tampers to a density of not less than 95 percent of the maximum density, as determined by AASHTO T-99.

3.3 TEMPORARY SURFACING

A. Before replacement of the temporary surfacing (crushed rock or cold mix asphalt), the CONTRACTOR shall continuously maintain the trenches in a condition acceptable to the Asotin County PUD and/or local transportation agency at no additional cost to the Asotin County PUD.

3.4 ASPHALT CONCRETE PAVEMENT

A. CONTRACTOR shall conform to the requirements for prime coat and tack coat in 5-04.3 of the Standard Specifications for Municipal Construction. Tack coat all edges of existing pavement, manhole and clean out frames, inlet boxes and like items. When rate is not specified, asphalt will be applied at the rate of 0.1 gallon per square yard.

B. Asphalt Concrete Placement

1. Except as specifically modified herein, conform to the requirements for construction and testing in Standard Specifications for Municipal Construction. All trench cuts shall be kept in a smooth condition throughout the duration of the project.

2. The limits of the restoration shall include all damaged or undermined surfacing.

3. Provide a smooth tee cut by saw cutting the existing pavement parallel to the trench and beyond the sides of the trench excavation as shown on the plans. Remove any pavement which has been damaged or which is broken and unsound outside this area by making alternating traverse and parallel saw cuts. Parallel cuts must be a minimum of 25 feet long, unless otherwise directed by the Asotin County PUD. Provide a smooth, sound edge for joining the new pavement.

4. Place the asphalt concrete to the specified depth on the prepared subgrade over the trench. When depth is not specified, place asphalt concrete to the depth of the adjacent pavement, up to a maximum of 6 inches, at the direction of the Asotin County PUD. Minimum depth of pavement shall be 3 inches. When a prime coat is specified, place asphalt concrete after the prime coat has set. Maximum thickness for any one lift of pavement shall not exceed 2 inches. Spread and level the asphalt concrete with hand tools or by use of a mechanical spreader.

5. When the utility trench is placed closer than 3 feet inside the edge of existing pavement, the remaining pavement must be removed and replaced with the trench repair. When the trench is under the existing edge of pavement, additional pavement shall be removed to allow a three (3) foot minimum width of repair and to maintain the original street width.

6. Settlement of 1/4-inch or greater for asphalt concrete patches, occurring within one year of substantial completion, shall require repair or replacement as directed by the Asotin County PUD at the CONTRACTOR'S expense.

3.5 CONCRETE

A. Replace concrete driveways, sidewalks and curbs to the same section, width, depth, line and grade as that removed or damaged. Saw broken or jagged ends of existing concrete on a straight line and to a vertical plane. Place new concrete only on approved compacted trench.

B. Replace concrete driveways and sidewalks between scored joints and make replacement to prevent a patched appearance. Unless otherwise shown, provide a minimum 2-inch thick compacted leveling course of clean 3/4-inch minus crushed aggregate.

C. All replaced concrete driveways, sidewalks and curbs shall be constructed in accordance with ADA and applicable Asotin County or City of Clarkston standards.

3.6 PAVEMENT MARKING AND SIGNAGE

A. Pavement marking and signage shall be replaced to match existing. Replacement of pavement marking and signage shall conform to the following sections of the Standard Specification for Municipal Construction:

1. 8-08: Rumble Strips
2. 8-09: Raised Pavement Markers
3. 8-21: Permanent Signing
4. 8-22: Pavement Marking
5. 8-23: Temporary Pavement Marking

3.7 ROCK SURFACING

A. Place rock surfacing only where shown on Plans or as directed by the Asotin County PUD on streets, driveways, parking areas, street shoulders and other areas disturbed by the construction. Rock surfacing shall be 1-1/4 inches, or 3/4-inch crushed aggregate, as directed by the Asotin County PUD. Spread the rock surfacing to conform to adjacent existing grades and surfaces as directed. Compact as directed with mechanical vibratory or impact tamper.

3.8 LANDSCAPING RESTORATION

A. Restore all landscaped areas, yards, and areas damaged as a result of construction to original condition as follows:

1. Place 8 inches of topsoil.

2. Removed landscaped material shall be replaced in-kind.

3. Yard areas shall be restored and sod placed immediately upon completion of backfilling.

4. Seed/Sod Maintenance: Begin maintenance immediately after each portion of grass is planted and continue for 8 weeks after all planting is completed.

B. Seed/Sod Guarantee: If, at the end of the 8-week maintenance period, a satisfactory stand of grass has not been produced, the CONTRACTOR shall renovate and reseed the grass or unsatisfactory portions thereof immediately, or, if after October 15, during the next planting season. If a satisfactory stand of grass develops by July 1 of the following year, it will be accepted. If it is not accepted, a complete replanting shall be required during the planting season meeting all of the requirements specified.

C. A satisfactory stand is defined as grass or section of grass that has:

1. No bare spots larger than 1 square foot.
2. Not more than 10 percent of total area with bare spots.

3.9 DUST CONTROL

A. When the weather is dry and when, in the estimation of the Asotin County PUD, the dust becomes a nuisance, the CONTRACTOR shall sprinkle water on surface streets twice a day in order to keep the dust down. This sprinkling shall be maintained until the project is accepted. On paved streets when the backfilling has been completed, the streets shall be washed to remove all dirt and debris. If the dust becomes a nuisance before backfilling is completed, the CONTRACTOR shall wash the streets to the satisfaction of the Asotin County PUD and local transportation agency. CONTRACTOR shall perform all dust control work in accordance with local stormwater laws and regulations.

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SECTION 120

CASINGS AND APPURTENANCES

PART 1 GENERAL

1.1 DESCRIPTION

A. Work under this section includes all labor, equipment and materials required for constructing cased crossings by tunneling/boring/jacking and open trench installation, as shown on the Plans. The CONTRACTOR shall furnish and install steel casings, carrier pipe, sand fill, and grout, complete and in place, all in accordance with these provisions.

B. If the CONTRACTOR is not ready to place the carrier pipe in the casing upon completing the casing installation, the casing ends shall be bulkheaded. In addition, all trenches and pits in public streets, private property, and within City, County or State right-of-way shall be backfilled, temporary or permanent surfacing placed thereon, and the affected area reopened to traffic, as necessary.

C. The CONTRACTOR shall be responsible for maintaining the specified line and grade of the casing and carrier pipe.

D. The plans and these specifications indicate a specific type (tunneled/bored/ jacked or open trench), size, wall thickness and other required characteristics of casing to be installed at each cased crossing. The CONTRACTOR may propose to install casing types and sizes other than those specified on the plans and in these specifications. No changes will be allowed without the prior approval of the Asotin County PUD. The CONTRACTOR's attention is directed to the measurement and payment section. Measurement and payment shall be made for the size and type of casing identified on the plans only, regardless of any Asotin County PUD-approved changes. If the CONTRACTOR receives approval by the Asotin County PUD to install casing types and sizes other than those specified on the plans and in these specifications, it is the CONTRACTOR's responsibility to ensure that casing types and sizes are fully compatible with project constraints, including traffic control, project work limits, roadway and utility system shut down requirements, work hour limitations, and adjacent structures.

1.2 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

A. ANSI/AWS D1.1 – Structural Welding Code

B. ANSI/AWWA C200 – Standards for Steel Water Pipe (6 inches and larger)

C. ANSI/AWWA C151/A21.51 – Ductile Iron Pipe, Centrifugally Cast, for Water or Other Liquids

D. ANSI/AWWA C111/A21.11 – Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings

E. ANSI/AWWA C600 – Installation of Ductile-Iron Water Mains and Their Appurtenances

F. ASTM C76 – Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe

1.3 SUBMITTALS

A. The CONTRACTOR shall submit Shop Drawings of casings. Shop Drawings shall include the following:

1. Safety Plan
2. Casing installation schedules, including excavation, pipeline installation and backfill operations
3. Geotechnical investigation with a summary of subsurface conditions
4. Material list, including diameter, thickness and class of steel casings, and the type of insulators to be used
5. Method of grouting
6. Layout of work area
7. Pipe assembly procedures and laying plan
8. Location of insertion and receiving pits
9. Plan for pumping and disposal of dewatering
10. Erosion control plan

B. The CONTRACTOR shall submit a plan to be approved by the Asotin County PUD for preventing loss-of-ground or settlement during all casing installation and related work. This plan shall also include the CONTRACTOR's method for monitoring surface settlement of existing ground above the casing alignment during all casing installation and related work.

1. The CONTRACTOR shall furnish a certified affidavit of compliance for all pipe and other products or materials furnished under this Section which shall include the physical and chemical properties of all steel.
2. All expenses incurred in making samples for certification of tests shall be borne by the CONTRACTOR.

1.4 QUALITY ASSURANCE

A. The CONTRACTOR shall give the Asotin County and right-of-way owner one (1) week advance notice prior to the start of any excavation.

B. All work shall be performed in the presence of the Asotin County PUD, unless the Asotin County PUD has granted prior approval to perform such work in their absence.

1. All shop and field welding procedures used to fabricate steel casings shall be prequalified under the provisions of ANSI/AWS D1.1. Welding procedures shall be required for, but not necessarily limited to, longitudinal and girth or special welds for pipe cylinders, casing joint welds, reinforcing plates and grout coupling connections.

C. All welding shall be done by skilled welders, welding operators, and tackers who have had adequate experience in the type of materials, welds, and positions to be used. Welders shall be qualified under the provisions of ANSI/AWS D1.1 by an independent, local approved testing agency prior to commencing work on the casing or pipeline. Machines and electrodes similar to those used in the work shall be used in qualification tests. The CONTRACTOR shall furnish all materials and bear the expense of qualifying welders.

1.5 SAFETY

A. It shall be the CONTRACTOR's responsibility to see that the work is done in conformance with all applicable federal, state, and local safety requirements.

PART 2 PRODUCTS

2.1 GENERAL

A. The CONTRACTOR shall use the types of materials as designed and specified herein for all required cased crossing construction.

2.2 CASING

A. Tunneled/bored/jacked casings shall be steel. Open trench installed casings shall be steel as shown on the drawings or herein specified.

B. The steel casing pipe shall be the minimum diameter and wall thickness shown on the plans or herein specified and shall be furnished complete with welded joint ends. The casing shall conform to ANSI/AWWA C200. Larger pipe diameter or greater wall thickness may be substituted at the CONTRACTOR's option and with the approval of the Asotin County PUD. All CONTRACTOR proposals for changing the casing and appropriate insulator modifications shall be submitted to the Asotin County PUD for approval prior to installation. It shall be the CONTRACTOR’s responsibility to provide casings with a wall thickness capable of withstanding jacking stresses.

C. The steel casing shall be fabricated in sections with field-welded full penetration butt weld joints. It shall be the CONTRACTOR's responsibility to provide joints capable of withstanding jacking stresses.

D. Casings for sewer lines shall be green.

2.3 CASING INSULATORS

A. The carrier pipe shall be installed with casing insulators banded to it for guides and support as shown on the plans. Insulators shall be a minimum of 12 inches wide. A minimum of two (2) insulators shall be installed on each pipe length at a maximum spacing of 6 feet, unless closer spacing is recommended by the manufacturer. The casing insulator shall be constructed of heat-fused plastic-coated galvanized steel with built up PVC lining and multi-segmented to attach firmly around the pipeline. Insulators shall be fabricated for a carrier-pipe-centered configuration with a minimum of two (2) skids on top and two (2) on the bottom. Insulator skids shall be sized to provide clearance of carrier pipe bell coupling, or retainer gland and not more than 1-1/2 inch of clearance from the top skids to the inside top of the casing. The casing insulators shall be M-12 Series, as manufactured by Calpico, Inc. or approved equal. Insulators shall be sized to fit and attach to the carrier pipe material including any identified special coatings without damage.

2.4 CASING END SEAL

A. Casing end seals shall be CCI Piping Systems product Model ESW, Model ESC, or approved equal.

2.5 CARRIER PIPE

A. Carrier pipe shall be as provided for elsewhere in these specifications and as shown on the drawings.

PART 3 EXECUTION

3.1 GENERAL

A. Unless otherwise provided, the CONTRACTOR shall furnish and install all fittings, closure pieces, jointing materials and all appurtenances as shown and as required to provide a complete and workable installation. All fabrication and testing shall comply with the requirements listed herein.

B. The CONTRACTOR's attention is directed to the site plans which show the close proximity of adjacent structures and utilities to the proposed boring and casing areas. The CONTRACTOR shall be responsible for providing all shoring as may be required to maintain a safe excavation and shall at all times provide sufficient support and protection for existing structures and utilities, all at no additional expense to the Asotin County PUD. The CONTRACTOR shall keep the size of boring, jacking, receiving, and push pits to a minimum.

C. The CONTRACTOR shall carefully study the plans and specifications applicable to the work involved, and contact the Asotin County PUD about any irregularities

or difficulties, and become familiarized with the conditions, nature of excavation, and difficulties involved with installing pipe and casings.

D. Failure on the part of the CONTRACTOR to properly assess the factors, conditions and difficulties involved in the performance of the work will not entitle extra compensation of any kind, nor relieve any obligation for executing all details of the work as specified and planned. The CONTRACTOR shall assess push pits associated with open trench installed casings, as well as boring, jacking, and receiving pits.

E. Prior to moving the bore machine from the project, the CONTRACTOR shall verify that the installed casings are of sufficient length to facilitate construction of all drawing details. The plans identify the approximate casing length only. It is solely the CONTRACTOR's responsibility to field verify that the casing ends terminate at a location which will facilitate the construction of all drawing details.

1. The CONTRACTOR shall monitor surface settlement of existing ground above the casing alignment during all casing installation and related work.

3.2 INSTALLATION OF CASINGS

A. Allowable grade deviations in horizontal and vertical alignments shall be no greater than 0.2 feet per 100 feet in any direction over the length of the casing to a maximum deviation of 0.5 feet.

B. The CONTRACTOR shall backfill all pits excavated for casings with compacted material (select backfill, native or imported as required for adjacent trench or as otherwise specified or shown on the drawings) once construction is completed. Backfill shall be placed and compacted in accordance with Section 102. – Backfilling and Compacting for Utilities:

C. Compensation will be made for the casing installation as defined in the measurement and payment provisions located elsewhere in these specifications and regardless of the material encountered - unclassified material and rock.

3.3 INSTALLATION OF CARRIER PIPE

A. Installation of carrier pipe shall be in accordance with ANSI/AWWA C600. All joints of the carrier pipe within the casing shall be push-on or restrained joints as shown on the plans and shall be in accordance with the specification sections for the type of pipe material installed. Application of any coatings to the interior and exterior joints shall be performed in accordance with the requirements provided for elsewhere in these specifications.

B. Installation of insulators onto carrier pipe and the subsequent installation of carrier pipe shall not damage, rupture or tear any carrier pipe or coatings. In the event of such damage, the CONTRACTOR shall repair or replace pipe or coating systems.

1. Testing of carrier pipe shall be performed in accordance with the Section 300 - Pipeline Testing and Disinfection.

3.4 APPLICATIONS OF CEMENT GROUT

A. After installation of the carrier pipe and sand fill, the ends of the casing pipe shall be sealed with cement grout to prevent moisture from entering the casing. The cement grout shall consist of one (1) part Portland cement, three (3) parts clean, well-graded sand and a minimum amount of water. Cement grout plugs shall extend a minimum of 12-inches into casings.

3.5 GROUTING OF VOIDS AROUND CASING PIPE

A. The CONTRACTOR shall immediately notify the Asotin County PUD during jacking and boring operations of any situation resulting in or expected to result in the creation of voids external to the casing pipe. Upon the Asotin County PUD's approval, voids outside the casing pipe shall be noted and recorded for subsequent filling with cement grout.

B. After the casing has been jacked into position, pressure grout to fill all noted voids, as approved by the Asotin County PUD. Grout shall be applied outside the casing pipe through 1-inch grout holes drilled through the casing pipe at the spring line (both sides) and the crown. Hole spacing shall be as required for each noted void area. Grout filling shall proceed as follows:

1. Start grouting at the springline hole at one end.
2. Pump grout until grout appears in the grout hole at the crown.
3. Start grouting the opposite springline hole and proceed until grout appears at the crown.
4. Grout through the crown hole until grout appears in one of the next set of holes.
5. Plug the holes.
6. Move to the next set of holes and repeat grouting sequence until grout has been applied in all the holes.
7. Finish grouting the last set of holes when grout can no longer be pumped into the crown. Grouting commenced in any approved area shall be completed without stopping.
8. Grouting pressure shall be controlled to avoid deformation of the casing pipe.

END OF SECTION

SECTION 121

DIRECTIONAL DRILLING

PART 1 GENERAL

1.1 SCOPE OF WORK

A. Work under this specification includes all labor, equipment and materials required for installation of pipe or conduit by horizontal directional drilling. The horizontal directional drilling will be completed in two phases. The first phase consists of drilling a small diameter pilot hole along the designed directional path as shown on the Plans. The second phase consists of enlarging the pilot hole to a diameter suitable for installation of the pipe or conduit, and pulling the pipe or conduit through the enlarged hole.

B. The CONTRACTOR shall be responsible for maintaining the specified line and grade.

1.2 HORIZONTAL DIRECTIONAL DRILLING CONTRACTOR QUALIFICATIONS

A. Contractor Qualifications - The horizontal directional drilling contractor shall have at least five (5) years of experience with the installation of horizontal directionally drilled pipeline crossings at least 500 feet in length and at least 12 inches in pipeline diameter.

B. Superintendent Qualifications - The Superintendent/Foreman of each drilling crew shall have successfully completed at least three (3) installations of horizontal directionally drilled pipeline crossings at least 500 feet in length and at least 12 inches in pipeline diameter.

1.3 CONTRACTOR SUBMITTALS

A. All procedures or material descriptions requiring the Asotin County PUD and local transportation agency approval shall be submitted not less than three (3) weeks prior to commencing any horizontal directional drilling activities at the crossing location. Submittals shall include, but are not limited to, the following:

1. Safety Plan
2. Drilling schedule
3. Erosion control plan
4. Geotechnical investigation with a summary of subsurface conditions
5. List of equipment used for drilling

6. Layout of work area
7. Drilling procedure
8. Pipe assembly procedures and laying plan
9. Location of insertion and receiving pits
10. Plan for pumping and disposal of dewatering
11. Plan for minimizing and disposal of drilling fluids
12. A "frac-out" detection and emergency response plan suitable for approval by all regulatory agencies with authority over the directional drilling operation at the project location. The plan shall include a discussion and description of the "frac-out" potential on the project and shall include proposed conservation measures.

1.4 PROTECTION OF UNDERGROUND FACILITIES

A. The CONTRACTOR shall coordinate with the Asotin County PUD in locating all existing lines, cables, or other underground facilities including exposing any facilities which are located within 10 feet of the designed drill path.

B. The CONTRACTOR shall be responsible for locating any and all underground facilities regardless of the Asotin County PUD's previous efforts in this regard. The CONTRACTOR shall be responsible for all losses and repairs to underground facilities resulting from drilling operations.

1.5 QUALITY ASSURANCE

A. The CONTRACTOR shall give the Asotin County PUD a minimum of one (1) week advance notice prior to the start of any directional drilling.

1.6 SAFETY

A. The CONTRACTOR shall be responsible in seeing that the work is done in conformance with all applicable federal, state and local safety requirements.

PART 2 PRODUCTS

2.1 GENERAL

A. All materials and equipment used in the drilling systems shall be of high quality and generally accepted in the industry. Horizontal directional drilling shall be performed according to the standards of the industry and these specifications and shall include all labor, equipment and consumables necessary to complete the work as shown on the plans.

PART 3 EXECUTION

3.1 GENERAL

A. Unless otherwise provided, the CONTRACTOR shall furnish and install all fittings, closure pieces, jointing materials and all appurtenances as shown and as required to provide a complete and workable installation. All fabrication and testing shall comply with the requirements listed herein.

B. The CONTRACTOR shall carefully study the plans and specifications applicable to the work involved, contact the Asotin County PUD's representative about any irregularities or difficulties, and be familiarized with the conditions, nature of excavation, and difficulties involved with horizontal directional drilling under the highway.

C. Failure on the part of the CONTRACTOR to properly appraise the factors, conditions and difficulties involved in the performance of the work will not entitle extra compensation of any kind, nor relieve any obligation of executing all details of the work as specified and planned. Buried logs and unmapped abandoned piling are existing site conditions that shall be anticipated by the CONTRACTOR. No time extension shall be granted and no additional compensation shall be made for difficulties encountered in drilling through or around these anticipated obstructions.

3.2 WORK AREA

A. The available work area is limited to the area designated within the construction limits as shown on the Plans.

B. The CONTRACTOR will be responsible for constructing any required temporary work pad for directional drilling in accordance with all applicable permits and local ordinances.

C. The CONTRACTOR shall contain the drilling fluid at all times and prevent the flow of drilling fluid out of the construction limits.

3.3 PILOT HOLE

A. The pilot hole shall be drilled along the path shown on the drawings to the tolerances listed below:

1. Alignment - Within 3 feet from centerline of alignment shown.

2. Exit point Location - Plus or minus 10 feet of the length shown on the drawings.

B. During directional drilling the CONTRACTOR shall survey the location of the pilot hole every 20 feet. Upon the completion of the pilot hole drilling, the CONTRACTOR shall provide a tabulation of coordinates, referenced to the drilled entry point or to another approved suitable point that can be used to create an accurate as-built plan and profile of the pilot hole.

3.4 REAM AND PULL BACK

A. Pre-reaming operations shall be conducted at the discretion of the CONTRACTOR. All provisions of this specification relating to simultaneous reaming and pulling back operations shall also pertain to pre-reaming operations.

B. The maximum allowable pull load imposed on the High Density Polyethylene (HDPE) pressure pipe shall be calculated by the CONTRACTOR and submitted to the Asotin County PUD for review. All pulling loads shall be monitored and recorded.

3.5 DRILLING FLUIDS

A. The composition of all drilling fluids proposed for use shall be submitted to the Asotin County PUD for review and approval. No fluid will be approved or utilized that does not comply with permit or environmental regulations.

B. The CONTRACTOR is responsible for obtaining, transporting and storing any water required for drilling fluids.

C. The CONTRACTOR shall maximize recirculation of drilling fluid surface returns. The CONTRACTOR shall provide solids control and fluid cleaning equipment of a configuration and capacity that can process surface returns and produce drilling fluid suitable for reuse. The Asotin County PUD will review standards for solids control and cleaning equipment performance or for treatment of excess drilling fluid and drilled spoil.

1. Disposal of excess drilling fluids is the responsibility of the CONTRACTOR and shall be conducted in compliance with all environmental requirements.

3.6 INSTRUMENTATION

A. The CONTRACTOR shall provide and maintain instrumentation at all times which will accurately locate the pilot hole, measure drill string axial and torsional loads, and measure drilling fluid discharge rate and pressure. The Asotin County PUD will have access to these instruments and their readings at all times.

END OF SECTION

NOTES:

1. ALL WORK SHALL COMPLY WITH ASOTIN COUNTY PUD STANDARD SPECIFICATIONS AND DETAILS.
2. ALL WORK SHALL BE SUBJECT TO INSPECTION PER SPECIFICATION SECTION 103.
3. BMPS AND EROSION CONTROL SHALL BE USED THROUGHOUT THE PROJECT AREA AS REQUIRED BY ASOTIN COUNTY AND CITY OF CLARKSTON.
4. CONTRACTOR IS RESPONSIBLE FOR TRAFFIC CONTROL, SHUTDOWN RESTRICTIONS TO CRITICAL FACILITIES, AND PERMITTING REQUIREMENTS FOR ASOTIN COUNTY AND CITY OF CLARKSTON.
5. RETAIN AND PROTECT ALL EXISTING UTILITIES. PRIVATE UTILITIES (PHONE, GAS, POWER) THAT REQUIRE RELOCATION FOR PROPOSED IMPROVEMENTS SHALL BE COMPLETED THROUGH COORDINATION WITH THE PRIVATE UTILITY.
6. RETAIN AND PROTECT EXISTING FENCES, RETAINING WALLS, DRIVEWAYS, LANDSCAPE AREAS, AND VEGETATION TO THE GREATEST EXTENT POSSIBLE. REPAIR SURFACES (LANDSCAPE, CONCRETE, ASPHALT, ETC.) TO RETURN ALL AREAS TO EXISTING CONDITIONS PER SPECIFICATION SECTION 110.
7. CONTRACTOR SHALL NOTIFY ASOTIN COUNTY PUD REPRESENTATIVE FOR ACCEPTANCE INSPECTION AND TO OBTAIN GPS SURVEY INFORMATION ON ALL MANHOLES, BENDS, FITTINGS, VALVES, METERS, TAPPING SADDLES, SEWER STUBS, WATER SERVICES, AND CLEAN OUTS PRIOR TO BACKFILLING.
8. THE EXISTING UTILITY PIPE SIZE, TYPE, LOCATION, AND ELEVATION ARE APPROXIMATE. EXISTING UTILITIES WERE LOCATED FROM SURVEYED FIELD MARKINGS OR OTHER MARKINGS PROVIDED BY PUD. EXACT LOCATION MAY VARY FROM THAT SHOWN. CONTRACTOR TO POTHOLE AND FIELD VERIFY SIZE, TYPE, AND LOCATION OF ALL EXISTING UTILITIES PRIOR TO EXCAVATION. IF EXISTING UTILITIES ARE IN CONFLICT WITH NEW UTILITIES, CONTRACTOR SHALL CONTACT PUD REGARDING MINOR REALIGNMENT. COSTS FOR MINOR ADJUSTMENTS TO BE INCLUDED IN CONTRACTOR'S UNIT PRICES.
9. WATER MAINS SHALL BE ABANDONED PER SPECIFICATION SECTION 102.
10. ALL WATER MAINS SHALL BE PRESSURE TESTED AND DISINFECTED PER SPECIFICATION SECTION 300.
11. ALL WATER SERVICES AND EXISTING WATER MAINS SHALL BE LEFT IN SERVICE UNTIL THE NEW WATER MAIN IS TESTED AND ACCEPTED BY THE PUD. COORDINATE ALL WATER MAIN AND SERVICE SHUTDOWNS WITH ASOTIN COUNTY PUD. A MINIMUM 72-HOUR ADVANCED NOTICE PRIOR TO SHUTDOWN IS REQUIRED.
12. CONTRACTOR IS RESPONSIBLE FOR DISPOSING OF FLUSHING AND TESTING WATER.
13. CONTRACTOR SHALL POTHOLE AND FIELD VERIFY DEPTH OF EXISTING WATER MAIN AND UTILITIES. ADJUST GRADE ACCORDINGLY TO COMPLETE CONNECTION.
14. DEFLECT PIPE AND FITTING JOINTS AS REQUIRED TO ACHIEVE ALIGNMENT SHOWN. MAXIMUM PIPE JOINT DEFLECTION SHALL NOT EXCEED 50% OF THE MANUFACTURER'S ALLOWABLE JOINT DEFLECTION.
15. WATER MAIN DEPTH AND COVER SHALL BE A MINIMUM OF 4' MEASURED TO TOP OF PIPE FROM FINISH GRADE, UNLESS OTHERWISE SHOWN IN THE DRAWINGS.

PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

GENERAL NOTES

REVISION DATE:
JANUARY 2022

STD DWG NO.
1-0A

NOTES:

1. IF UNABLE TO ACHIEVE 18" VERTICAL OR 10' HORIZONTAL SEPARATION BETWEEN POTABLE AND NON-POTABLE PIPELINES, INSTALL POTABLE PIPELINE IN CASING PER SPECIFICATION SECTION 120.

2. TRENCH BACKFILL SHALL BE TYPE B PER SPECIFICATION SECTION 102 AND STANDARD DRAWING 1-6, UNLESS OTHERWISE SHOWN IN THE DRAWINGS. ALL MATERIAL SHALL BE DRY AND NOT FROZEN.

3. EXCAVATIONS SHALL NOT BE LEFT UNATTENDED.

4. AT THE END OF EACH WORK DAY ALL OPEN TRENCHES SHALL BE BACKFILLED OR TEMPORARILY COVERED AND OPEN PIPE ENDS SHALL BE CLOSED WITH A WATERTIGHT MECHANICAL PLUG.

5. CONTRACTOR TO MAINTAIN INGRESS/EGRESS FROM ALL PRIVATE PROPERTY DRIVEWAYS DURING CONSTRUCTION.

6. GRIP RING PIPE RESTRAINER IS REQUIRED AT ALL MJ FITTINGS PER SPECIFICATION SECTION 301.

7. INSTALL THRUST BLOCKS AS SHOWN IN THE DRAWINGS AND WHERE REQUIRED PER SPECIFICATIONS AND STANDARD DRAWINGS 3-8A, 3-8B, AND 3-8C.

8. STREET REPAIR SECTION PER STANDARD DRAWINGS 1-4A,1-4B, 1-4C, 1-8A, 1-8B AS INDICATED ON DRAWINGS OR AS DIRECTED BY THE PUD.

PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

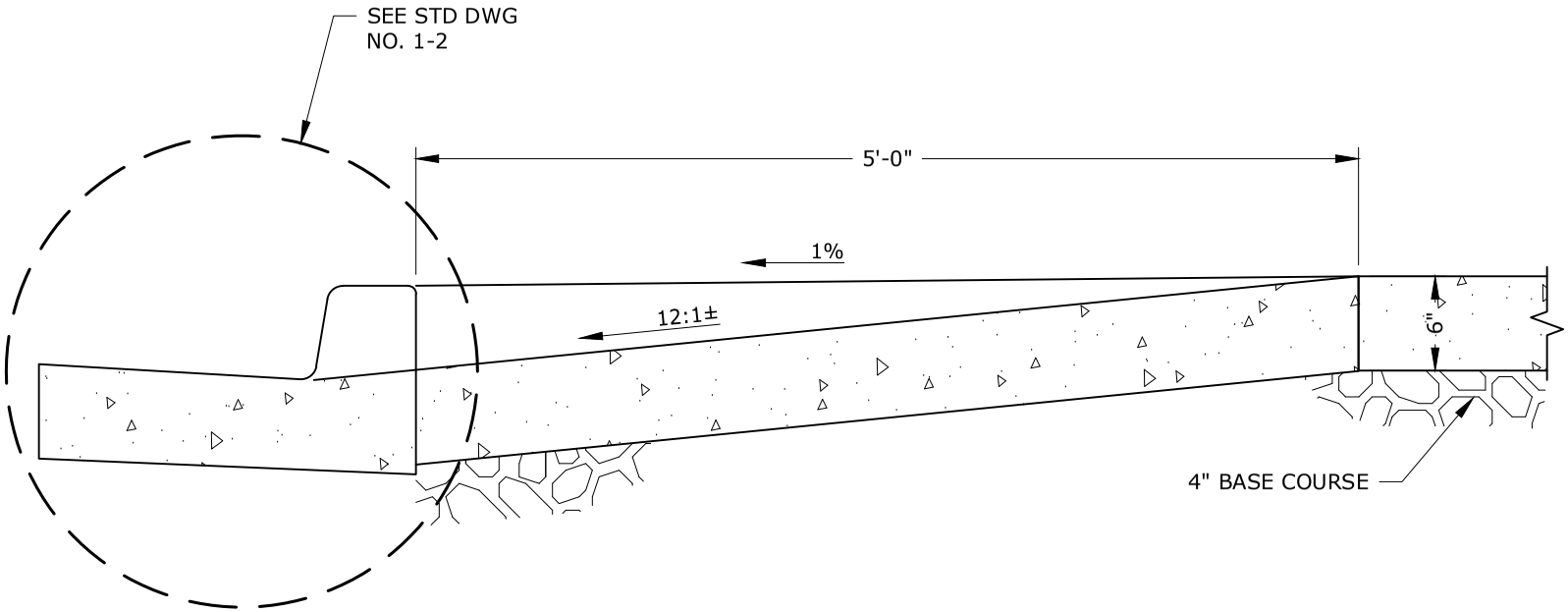
GENERAL NOTES CONT.

REVISION DATE:	STD DWG NO.
JANUARY 2022	1-0B

PUBLIC UTILITY DISTRICT
ASOTIN COUNTY

CONCRETE APPROACH

REVISION DATE:	STD DWG NO.
JANUARY 2022	1-1A



NOTES:

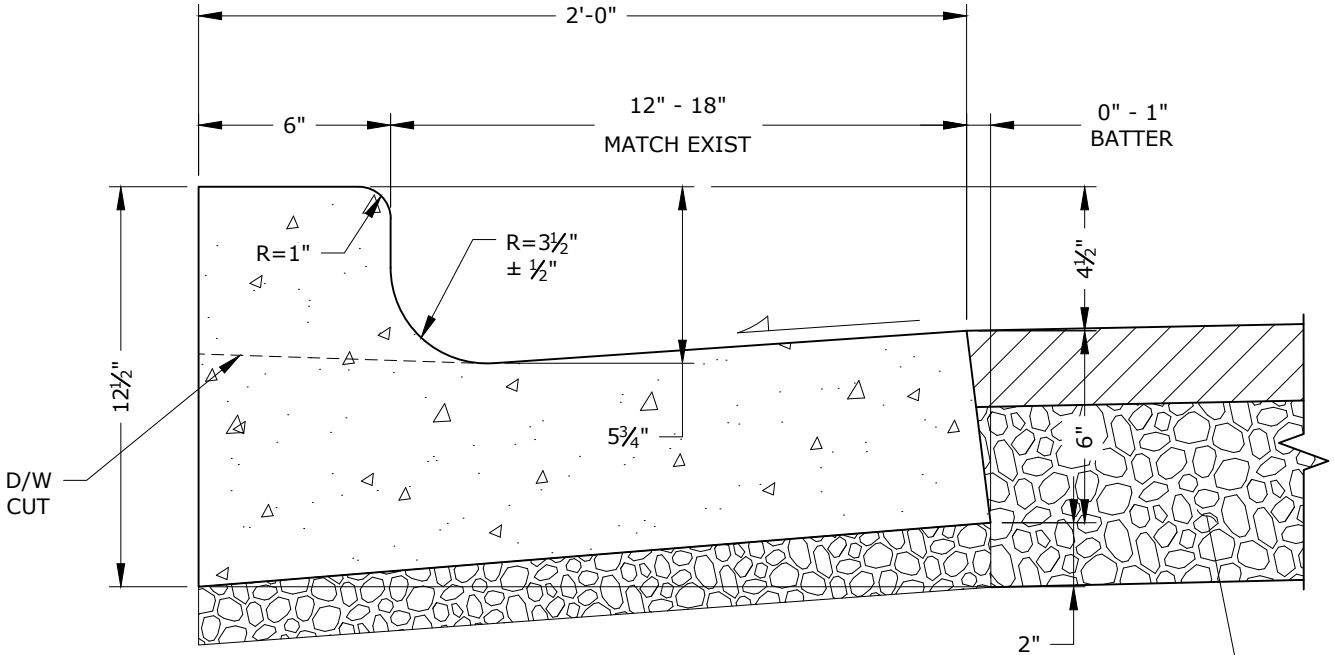
1. FULL DEPTH EXPANSION JOINT, 3/8" MINIMUM THICKNESS.
2. DRIVEWAY SECTION WITHIN PUBLIC RIGHT-OF-WAY IS TO BE SURFACED WITH ASPHALT OR CONCRETE.
3. DRIVEWAY CEMENT CONCRETE DEPTH SHALL BE A MINIMUM OF 6" AND PLACED ON COMPACTED GRADE. DEPENDING ON VEHICLE LOADING, A STRUCTURAL DESIGN OF THE DRIVEWAY MAY BE REQUIRED BY THE ENGINEER.
4. CLEAN AND EDGE ALL JOINTS.

PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

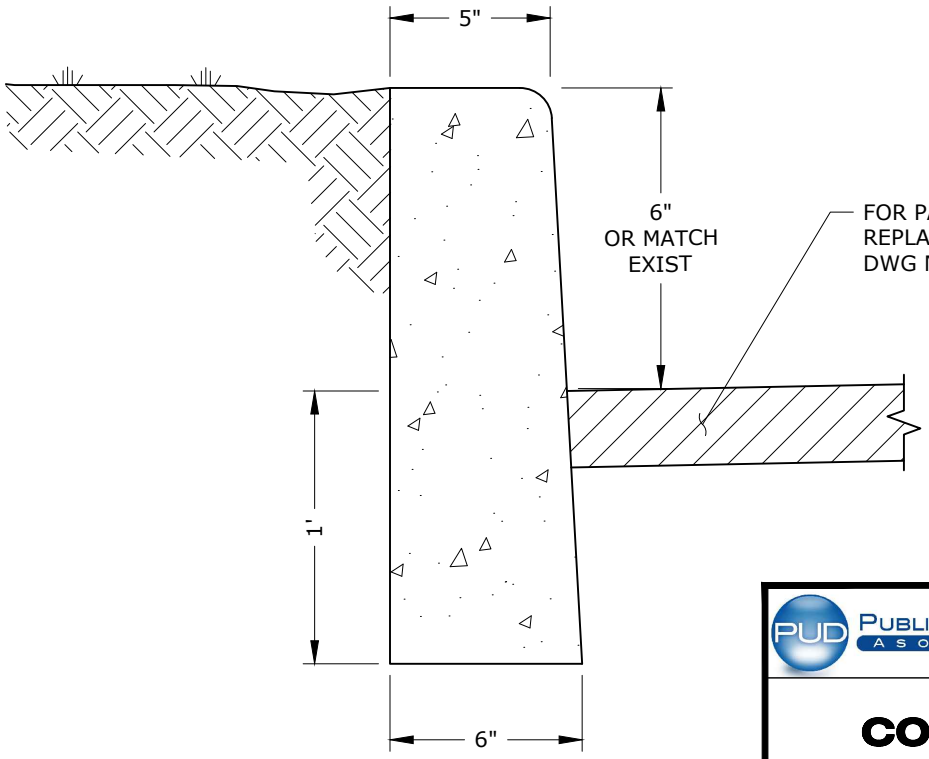
CONCRETE APPROACH NOTES

REVISION DATE:
JANUARY 2022

STD DWG NO.
1-1B



CONCRETE CURB AND GUTTER

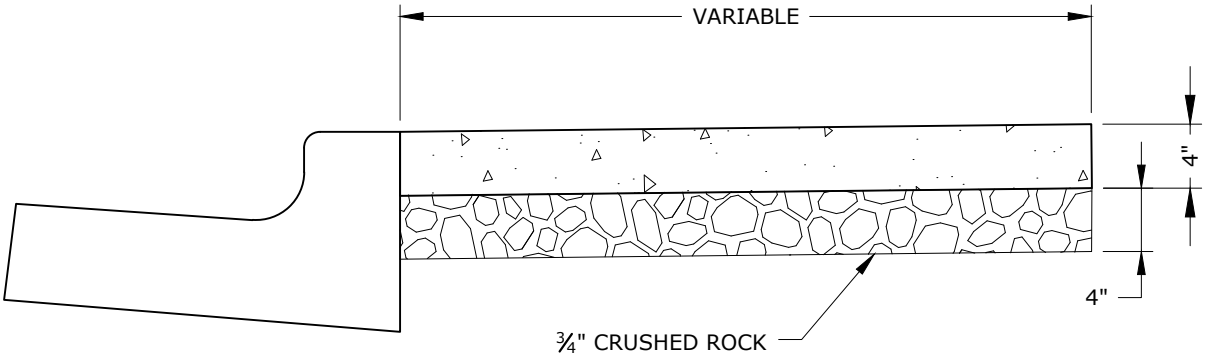


CONCRETE VERTICAL CURB

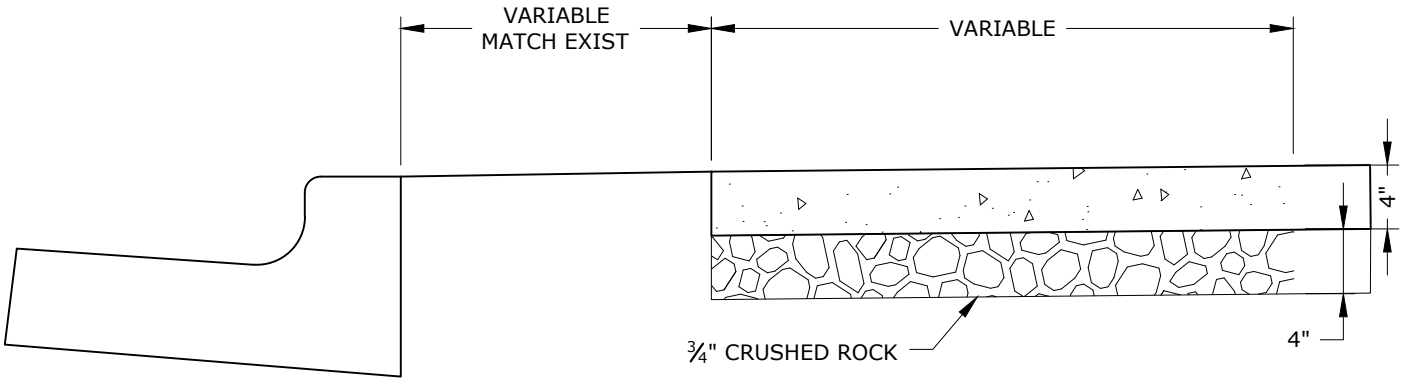
PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

CONCRETE VERTICAL CURB & GUTTER

REVISION DATE:	STD DWG NO.
JANUARY 2022	1-2



CONCRETE SIDEWALK
@ BACK OF CURB



CONCRETE SIDEWALK SEPARATE

NOTES:

1. AN APPROVED BOND PREVENTER SHALL BE PROVIDED BETWEEN SIDEWALK AND CURB WHEN POURED ADJACENT TO EACH OTHER. WHEN CONSTRUCTION NEW SIDEWALK ADJACENT TO CURB OR OLD SIDEWALK, THE JOINTS SHALL FALL IN THE SAME LINE.

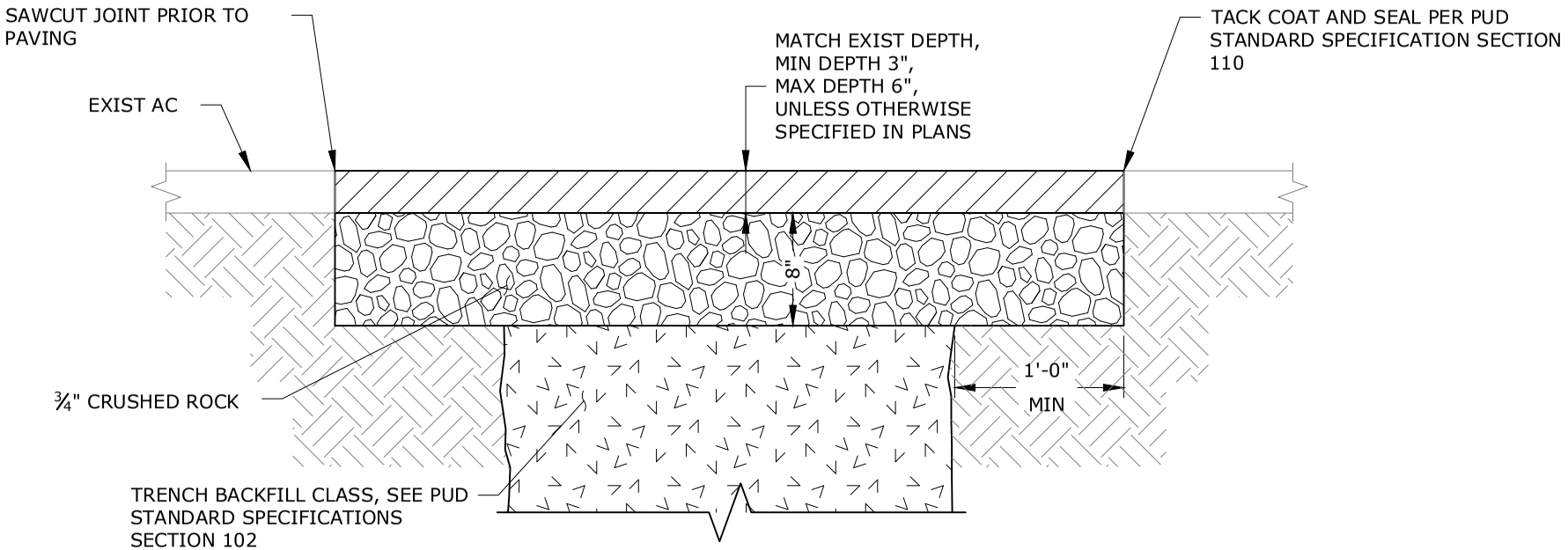
2. SIDEWALK CONSTRUCTION JOINTS SHALL BE CONSTRUCTED AT 4' OR 5' SPACING TO MATCH EXISTING. APPROXIMATELY ⅛" WIDE, ¾" IN DEPTH, AND FINISHED AND EDGED SMOOTH. EXPANSION JOINTS TO BE AS SPECIFIED.

3. ALL SIDEWALK REMOVAL SHALL REQUIRE SAWED JOINTS.

PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

CONCRETE SIDEWALK

REVISION DATE:	STD DWG NO.
JANUARY 2022	1-3



NOTES:

1. COMPLY WITH PUD STANDARD SPECIFICATION SECTION 110, PAVEMENT AND SURFACE RESTORATION.

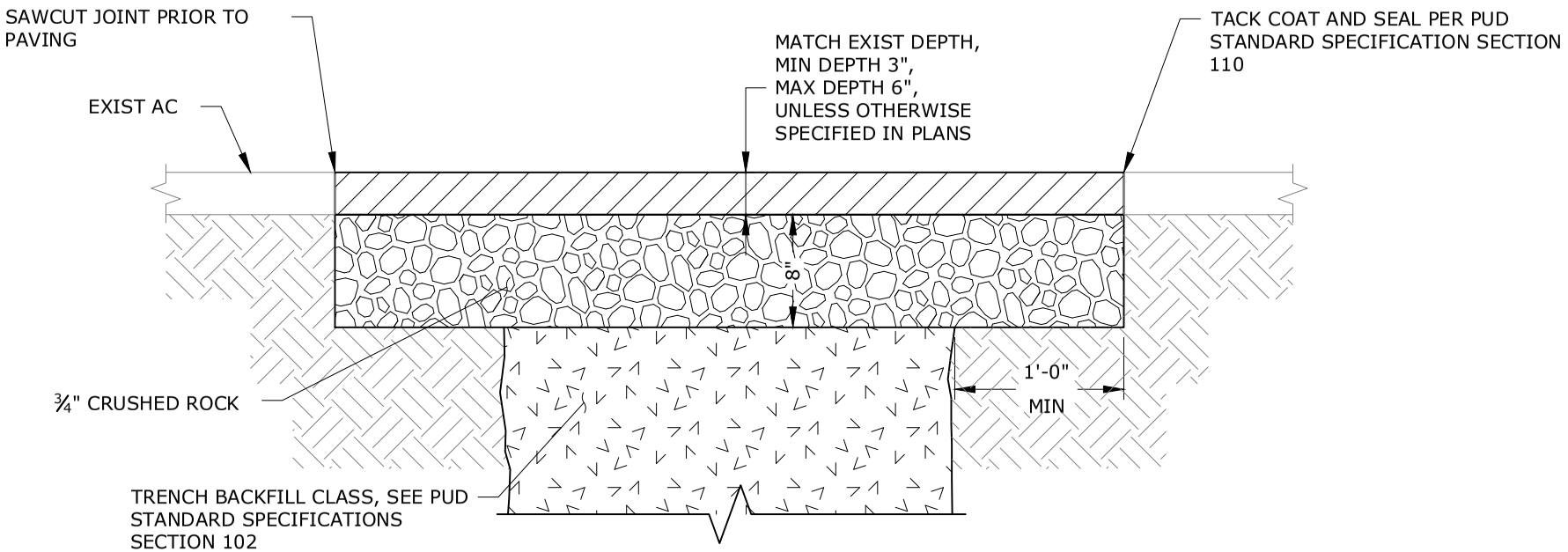
2. SAWCUT LOCATIONS SHOWN ARE AT MINIMUM SETBACKS FROM TRENCH EDGE. EXTEND SAWCUT LOCATION TO EDGE OF PAVING IF WITHIN 3' TO THE EDGE OF PAVING OR AS REQUIRED TO REMOVE PAVEMENT DAMAGED BY CONSTRUCTION ACTIVITIES.

PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

ASOTIN COUNTY STREET REPAIR - AC TYPE "A"

REVISION DATE: JANUARY 2022

STD DWG NO. 1-4A



NOTES:

1. COMPLY WITH PUD STANDARD SPECIFICATION SECTION 110, PAVEMENT AND SURFACE RESTORATION.

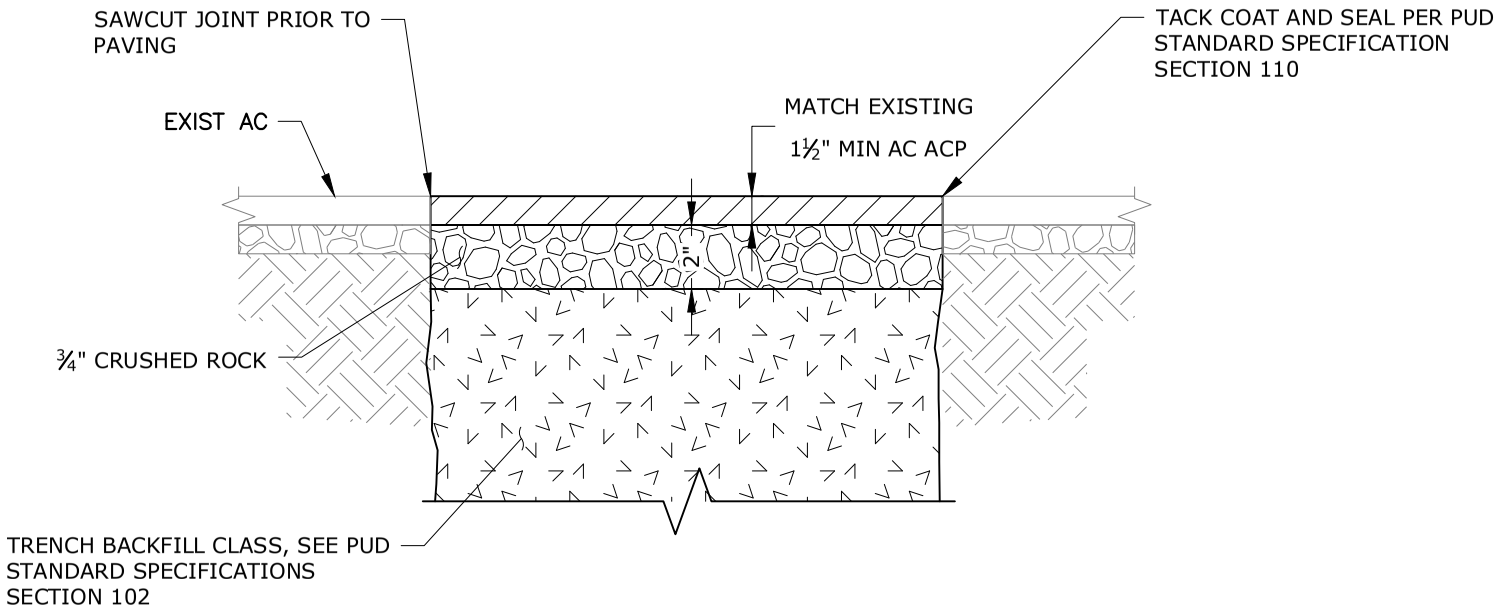
2. SAWCUT LOCATIONS SHOWN ARE AT MINIMUM SETBACKS FROM TRENCH EDGE. EXTEND SAWCUT LOCATION TO EDGE OF PAVING IF WITHIN 3' TO THE EDGE OF PAVING OR AS REQUIRED TO REMOVE PAVEMENT DAMAGED BY CONSTRUCTION ACTIVITIES.

PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

CITY OF CLARKSTON STREET REPAIR - AC TYPE "B"

REVISION DATE: JANUARY 2022

STD DWG NO. 1-4B



NOTES:

1. COMPLY WITH PUD STANDARD SPECIFICATION SECTION 110 PAVEMENT AND SURFACE RESTORATION.

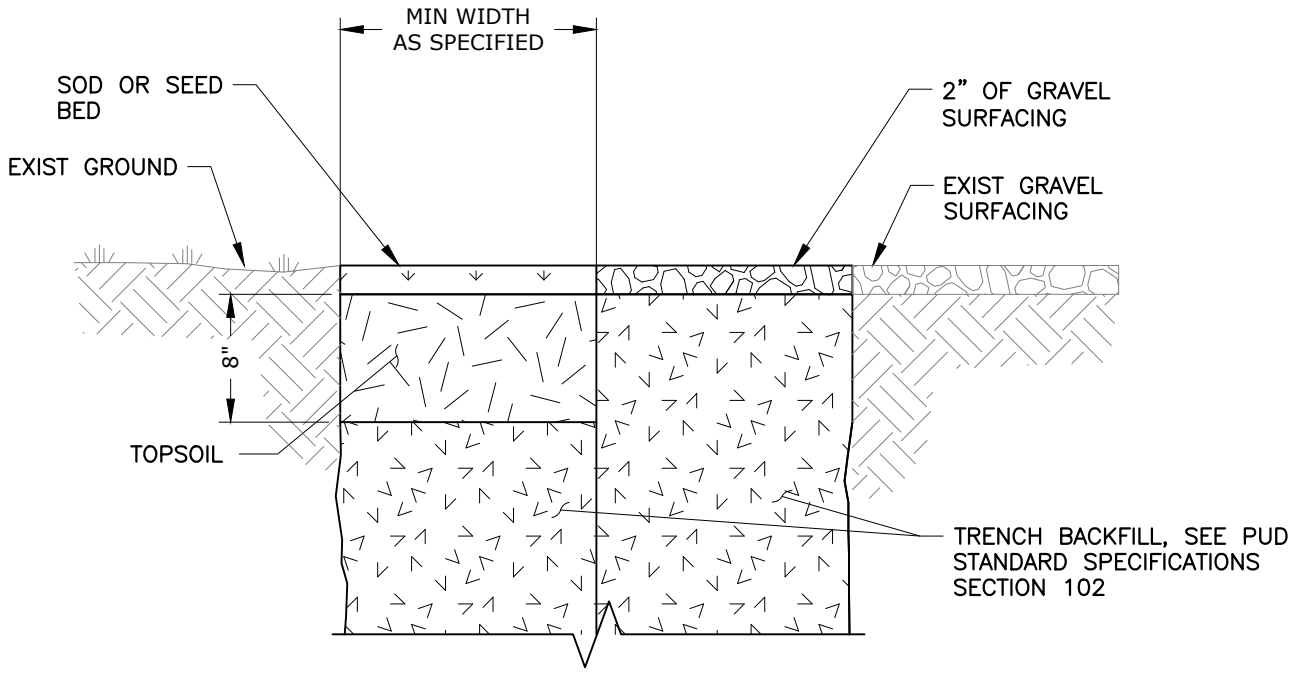
2. SAWCUT LOCATIONS SHOWN ARE AT MINIMUM SETBACKS FROM TRENCH EDGE. EXTEND SAWCUT LOCATION TO EDGE OF PAVING IF WITHIN 3' TO THE EDGE OF PAVING OR AS REQUIRED TO REMOVE PAVEMENT DAMAGED BY CONSTRUCTION ACTIVITIES.

PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

AC PARKING AREA REPAIR - AC TYPE "C"

REVISION DATE: JANUARY 2022

STD DWG NO. 1-4C



NOTES:

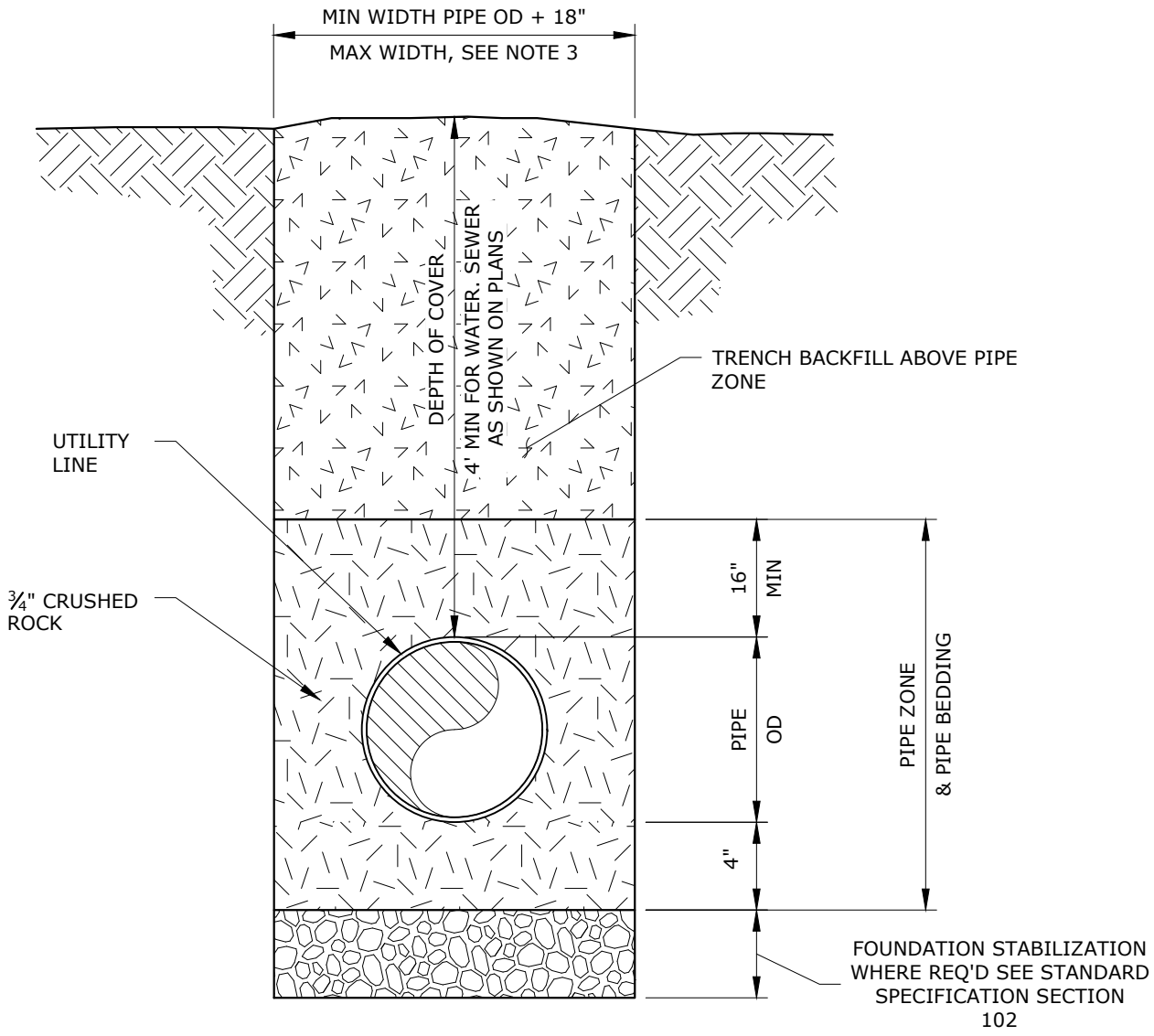
1. COMPLY WITH PUD STANDARD SPECIFICATION SECTION 110, PAVEMENT AND SURFACE RESTORATION.

2. SOD SHALL BE INSTALLED IN ALL DEVELOPED LAWNS DISTURBED BY CONSTRUCTION. SEED SHALL BE APPLIED IN PASTURES AND UNDEVELOPED AREA.

PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

UNIMPROVED SURFACE RESTORATION

REVISION DATE:	STD DWG NO.
JANUARY 2022	1-5



NOTES:

1. CONTRACTOR SHALL PROTECT PIPE DURING COMPACTION TESTING. PROVIDE MINIMUM 16" COMPACTED MATERIAL ABOVE PIPE PRIOR TO COMPACTION TESTING. CONTRACTOR RESPONSIBLE FOR ANY REQ'D REPAIR DUE TO DAMAGE FROM TESTING INSTRUMENTS.

2. CONTRACTOR SHALL COMPACT PIPE BEDDING, PIPE ZONE, AND TRENCH BACKFILL PER SPECIFICATION SECTION 102.

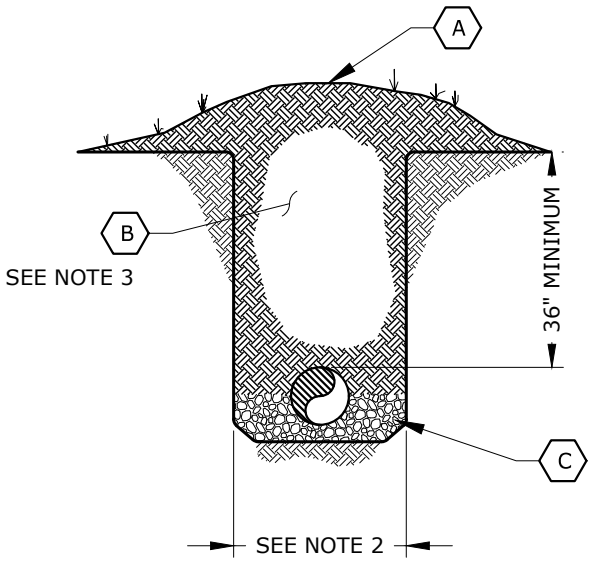
3. TRENCH MAXIMUM WIDTH TO BE PIPE O.D. PLUS 24". FOR PIPE 14" DIA OR SMALLER, MAX WIDTH TO BE 40".

4. HAND TAMP UNDER PIPE HAUNCHES AND PROVIDE UNIFORM SUPPORT UNDER PIPE BARREL.

PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

TYPICAL TRENCH

REVISION DATE:	STD DWG NO.
JANUARY 2022	1-6



TRENCH CROSS SECTION

LEGEND

A — SURFACE RESTORATION WILL MATCH EXISTING ADJACENT TREATMENT (SEEDING, BARK, ETC).

B — NATIVE MATERIAL OR AS DIRECTED BY WSDOT.

C — BEDDING MATERIAL BENEATH PIPE/CASING SHALL BE SIX (6) INCHES. ADDITIONAL PIPE BEDDING SHALL BE EQUAL TO HALF THE DIAMETER OF THE PIPE/CASING OR SIX (6) INCHES, WHICHEVER IS LESS.

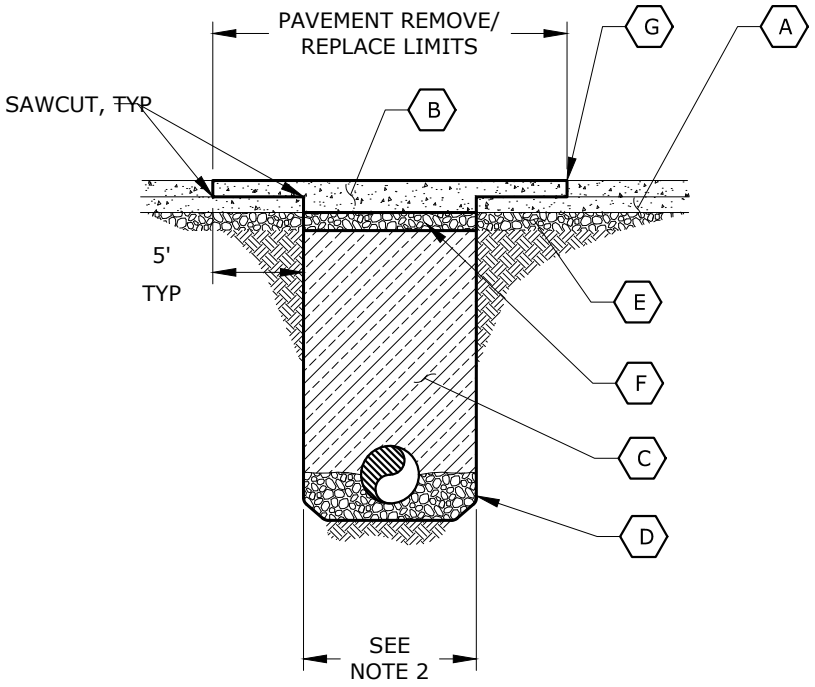
NOTES:

1. TRENCHING AND PIPE INSTALLATION SHALL MEET THE REQUIREMENTS OF WSDOT STANDARD SPECIFICATION 7-08.
2. MAXIMUM TRENCH WIDTH SHALL NOT EXCEED CASING/PIPE DIAMETER PLUS AN ADDITIONAL ONE (1) FOOT ON EITHER SIDE.
3. COMPACTION SHALL BE METHOD 'C' PER WSDOT STANDARD SPECIFICATION SECTION 2-03.3(14)(C).
4. CASING PIPES SHALL EXTEND A MINIMUM OF SIX (6) FEET BEYOND THE TOE OF FILL SLOPES, BOTTOM OF DITCHLINE, OR OUTSIDE OF CURB.

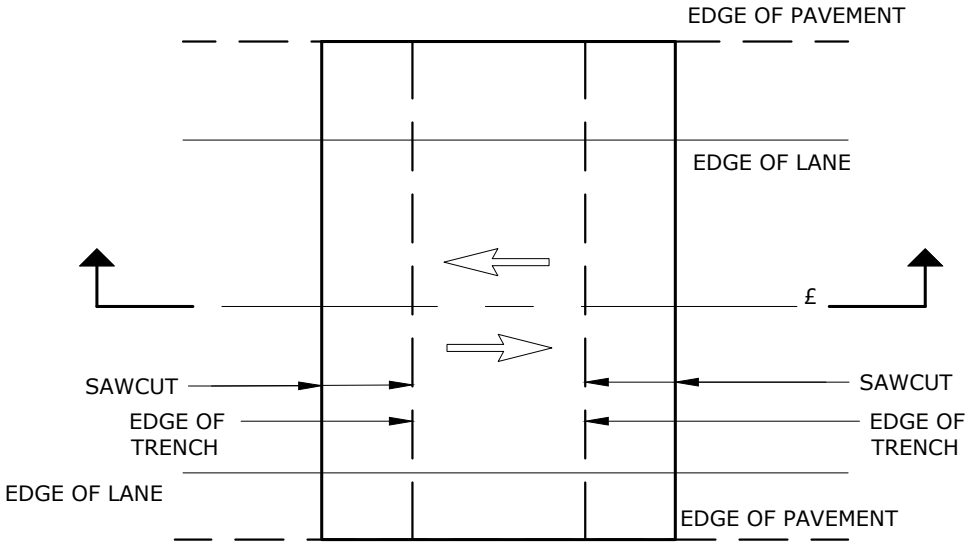
PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

OPEN TRENCH IN WSDOT RIGHT-OF-WAY

REVISION DATE:	STD DWG NO.
JANUARY 2022	1-7



OPEN CUT CROSS SECTION



PLAN VIEW

SEE OPEN CUT CROSSING IN WSDOT RIGHT-OF-WAY NOTES AND LEGEND IN STD DWG NO. 1-8B

PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

OPEN CUT CROSSING WSDOT RIGHT-OF-WAY

REVISION DATE:	STD DWG NO.
JANUARY 2022	1-8A

NOTES:

1. TRENCHING AND PIPE INSTALLATION SHALL MEET THE REQUIREMENTS OF WSDOT STANDARD SPECIFICATION 7-08.
2. MAXIMUM TRENCH WIDTH SHALL NOT EXCEED CASING/PIPE DIAMETER PLUS AN ADDITIONAL ONE (1) FOOT ON EITHER SIDE.
3. COMPACTION SHALL BE METHOD 'C' PER WSDOT STANDARD SPECIFICATION SECTION 2-03.3(14)(C).
4. MINIMUM DEPTH SHALL BE SIXTY (60) INCHES FROM THE FINISHED SURFACE TO THE TOP OF CASING.
5. PCCP SHALL BE REPLACED TO THE NEXT PANEL JOINT IN EACH DIRECTION AS APPROVED BY WSDOT. ALL WORK SHALL BE AS SPECIFIED IN WSDOT STANDARD SPECIFICATION SECTION 5-01.3(4).
6. WHEN CONNECTING TO AN EXISTING FACILITY UNDER THE PAVEMENT, PAVEMENT RESTORATION MAY, AT THE DEPARTMENT'S DISCRETION, INCLUDE THE FULL LANE WIDTH AND ENCROACHED SHOULDER.
7. CASING PIPES SHALL EXTEND A MINIMUM OF SIX (6) FEET BEYOND THE TOE OF FILL SLOPES, BOTTOM OF DITCHLINE, OR OUTSIDE OF CURB.
8. TACK ASPHALT PER WSDOT STANDARD SPECIFICATION 5-4.3(5)A.

LEGEND

A — EXISTING HMA (HOT MIX ASPHALT) OR PCCP (PORTLAND CEMENT CONCRETE PAVEMENT).

B — HMA CLASS ½ INCH OR PCCP: DEPTH AND MATERIAL SHALL MATCH EXISTING PAVEMENT 4" MIN. REMOVAL AND REPLACEMENT LIMITS OF PAVEMENT TO BE DETERMINED AT THE TIME OF UTILITY PERMIT/FRANCHISE REVIEW.

C — APPROVED BACKFILL MATERIAL OR CDF (CONTROL DENSITY BACKFILL) OR AS SPECIFIED BY WSDOT. SEE NOTE 3.

D — BEDDING MATERIAL BENEATH PIPE/CASING SHALL BE SIX (6) INCHES. ADDITIONAL PIPE BEDDING SHALL BE EQUAL TO HALF THE DIAMETER OF THE PIPE/CASING OR SIX (6) INCHES, WHICHEVER IS LESS.

E — EXISTING CRUSHED SURFACING BASE COURSE.

F — CRUSHED SURFACING BASE COURSE DEPTH SHALL MATCH DEPTH OF EXISTING CRUSHED SURFACING BASE COURSE 8" MIN.

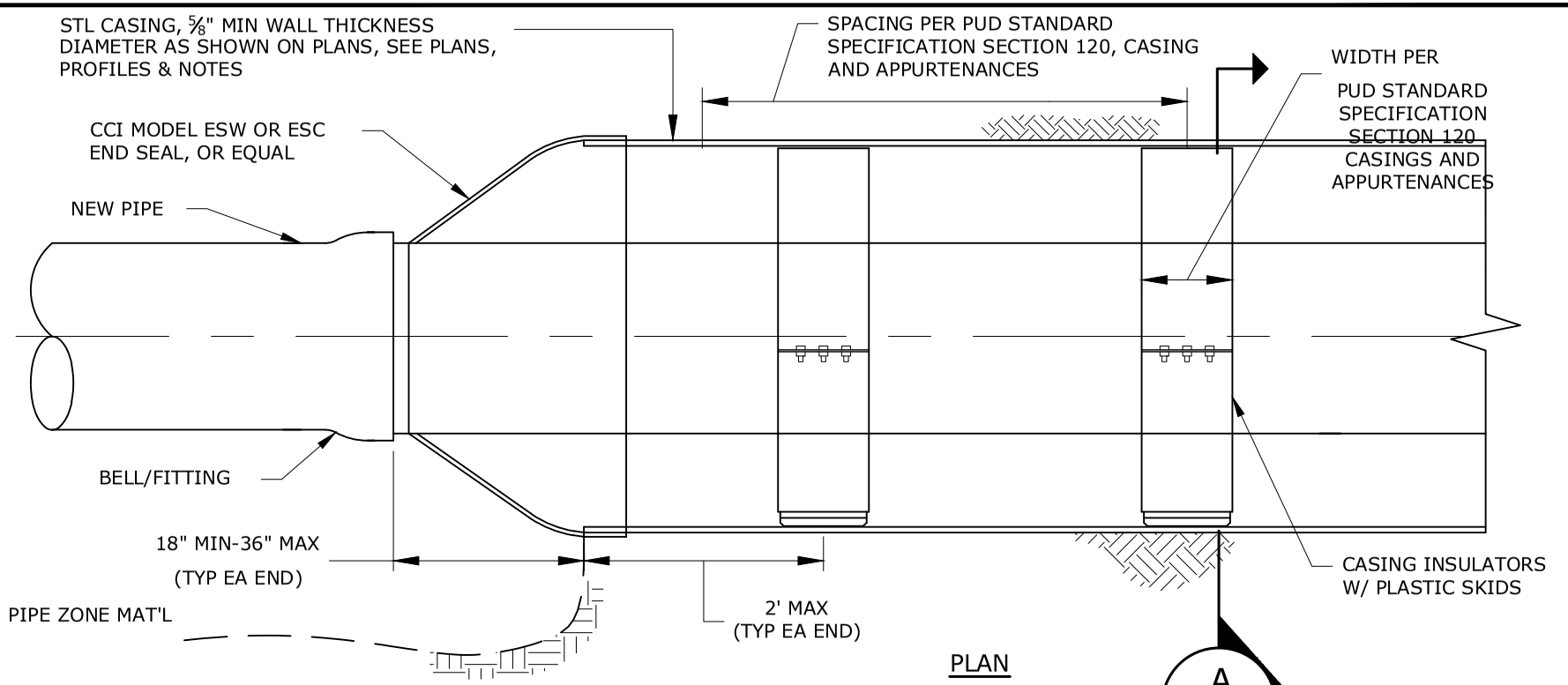
G — HMA BUTT JOINT REQUIRES TACK SEAL AND SAND. FOR PCCP, REFER TO GENERAL NOTE 5.

PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

OPEN CUT CROSSING WSDOT RIGHT-OF-WAY NOTES & LEGEND

REVISION DATE: JANUARY 2022

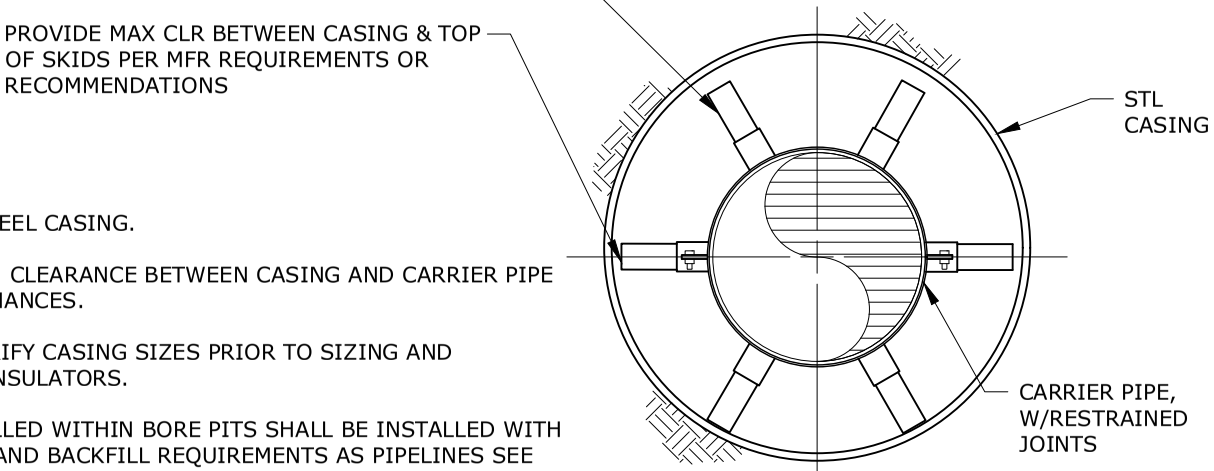
STD DWG NO. 1-8B



PLAN

A

-



SECTION A

CASING NOTES:

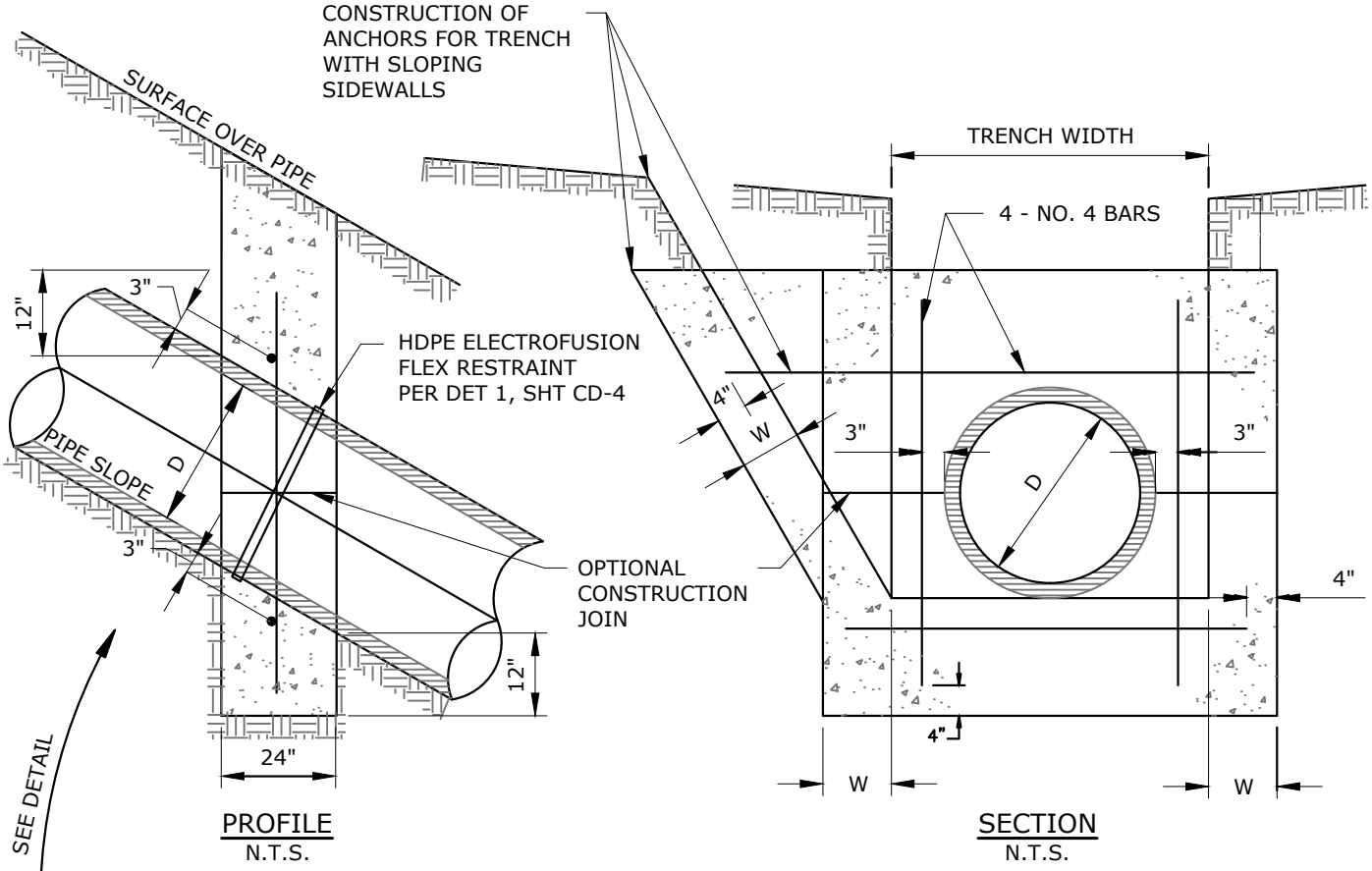
1. ANSI/AWWA C200 STEEL CASING.
2. PROVIDE 2" MINIMUM CLEARANCE BETWEEN CASING AND CARRIER PIPE BELLS AND APPURTENANCES.
3. CONTRACTOR TO VERIFY CASING SIZES PRIOR TO SIZING AND ORDERING CASING INSULATORS.
4. CARRIER PIPE INSTALLED WITHIN BORE PITS SHALL BE INSTALLED WITH THE SAME BEDDING AND BACKFILL REQUIREMENTS AS PIPELINES SEE TYPICAL TRENCH SECTION.

PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

CASING DETAIL

REVISION DATE:
JANUARY 2022

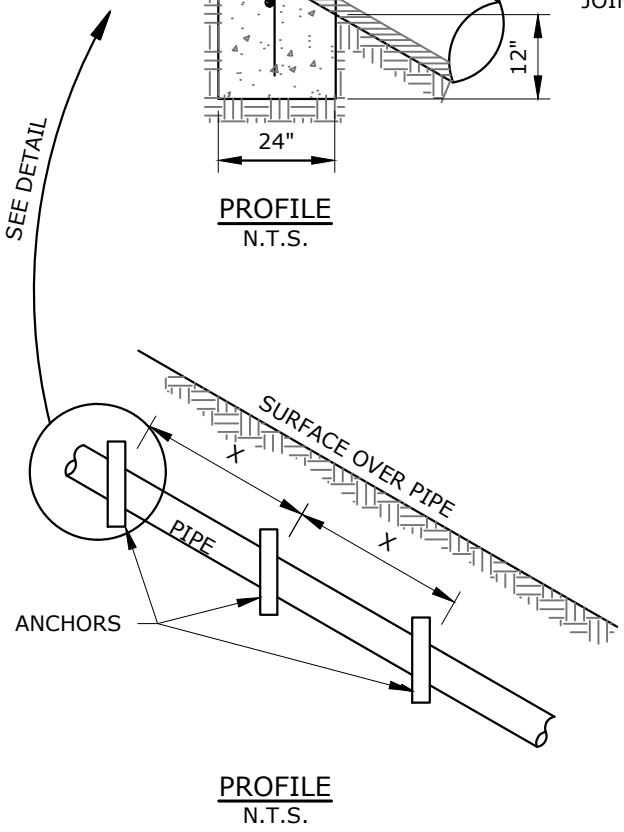
STD DWG NO.
1-9



PROFILE
N.T.S.

SECTION
N.T.S.

PIPE SLOPE	MAX. "X" DISTANCE
20% TO 35%	36'
35% TO 50%	24'
50% AND OVER	16'



PROFILE
N.T.S.

NOTES:

1. PIPE ANCHORS REQUIRED ON SLOPES OF 20% OR GREATER FOR ALL TYPES OF UTILITY PIPES AND MAIN LINES (SEWER, WATER STORM PIPE, IRRIGATION, ETC.).
2. ALL REINFORCING STEEL TO BE NO. 4 BARS.
3. "W" = 8" UNLESS OTHERWISE SPECIFIED.
4. CONCRETE TO BE 5.5 SK/C.Y. AND 2500 P.S.I.
5. POUR CONCRETE AGAINST UNDISTURBED EARTH.

PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

STEEP SLOPE PIPE ANCHORING

REVISION DATE:
JANUARY 2022

STD DWG NO.
1-11

STANDARD SEWER SPECIFICATIONS AND DRAWINGS

FOR

ASOTIN COUNTY PUD

October 2026

CONSOR
300 E Mallard Drive, Suite 350
Boise, ID 83706
208.639.8185

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SECTION 200

PVC PIPE FOR STORM DRAINAGE & SANITARY SEWER

PART 1 GENERAL

1.1 SCOPE

A. This section covers polyvinyl chloride (PVC) for gravity storm drainage and sanitary sewer systems. PVC pipe shall be furnished complete with all fittings, joint materials and appurtenances.

B. Materials to be furnished and installed includes, but is not limited to:

1. All pipe, fittings, bends, beveled pipe, adapters, bulkheads, stoppers, plugs, joints restraints, joints and jointing materials and pipe supports.

2. Make connections to all existing and/or new facilities and provide temporary services.

3. Test and clean pipelines.

1.2 REFERENCES

A. ASTM F402: Practice for safe handling of solvent cements and primers used for joining thermoplastic pipe and fittings.

B. ASTM D1784: Specification for rigid Poly Vinyl Chloride (PVC) compounds and chlorinated Poly Vinyl Chloride (CPVC) compounds.

C. ASTM D2564: Solvent Cements for Poly Vinyl Chloride (PVC) plastic pipe and fittings.

D. ASTM D2855: Making Solvent-Cemented joints with Poly Vinyl Chloride (PVC) pipe and fittings.

E. Reference Standards

1. References herein to the “Standard Specifications for Municipal Construction” shall mean the most recent edition of the Washington State Department of Transportation Standard Specifications for Road, Bridge and Municipal Construction.

2. References herein to the “Orange Book” shall mean the most recent edition of the most recent edition of the State of Washington Department of Ecology Criteria for Sewage Works Design.

1.3 DELIVERY, STORAGE AND HANDLING

A. Comply with requirements of these Specifications.

B. Protect the pipe from the sun and provide adequate ventilation.

1.4 SUBMITTALS

A. Submit shop Drawings showing: layout plan and dimensions, schedule of pipe fittings and specials, materials and class for each size and type of pipe, joint details, pipe supports and any special provisions required for assembly.

B. Product Data: Provide data on pipe, fittings and accessories.

C. Provide the pipe manufacturer's certificate stating that the materials have been sampled and tested in accordance with the provision for and meet the requirements of the designated specification. The certificate shall be signed by an authorized agent of the manufacturer.

D. When requested by the Asotin County PUD, certified copies of physical and chemical test results shall be submitted for the materials to be provided.

E. Testing results.

PART 2 PRODUCTS

2.1 MATERIALS

A. Pipe

1. In non-pressurized systems, PVC pipe shall be manufactured from rigid polyvinyl chloride compounds conforming to ASTM D-1784, Class 12454-B. PVC pipe and fittings four (4) inches to fifteen (15) inches in diameter shall meet the requirements of ASTM D-3034, SDR 35. PVC pipe eighteen (18) inches and larger in diameter shall conform to ASTM F-679, PS-46. Pipe shall have a minimum stiffness of 46 psi.

2. If indicated on the plans (e.g. at potable water crossings), pipe shall be water class pipe and conform to SECTION 102 EXCAVATING, BACKFILLING, AND COMPACTING FOR UTILITIES, UTILITY CROSSINGS.

3. Side Sewer Pipe (Sewer Laterals):

   a. Pipe for side sewers may be PVC as specified herein or Schedule 40 DWV pipe, meeting the requirements of ASTM D1785.

B. Joints

1. Non pressurized PVC pipe joints shall be integral bell push-on type meeting the requirements of ASTM D-3212. Gaskets shall be rubber ring type meeting the requirements of ASTM F477. Rubber gaskets shall be factory installed.

2. Joints for water class pipe shall conform to SECTION 301 DUCTILE IRON PIPE, FITTINGS AND SPECIAL ITEMS and SECTION 302 PVC PRESSURE PIPE, FITTINGS AND SPECIAL ITEMS.

3. Sewer laterals shall be connected by Wye or Romac CB fitting. No tapping of the main line pipe shall be allowed without approval by the owner. Use of Inserta Tee is prohibited unless an exception is obtained by Asotin County PUD.

4. Sewer lateral pipe may also be joined by chemical welding or Fernco-style couplings.

PART 3 EXECUTION

3.1 PRODUCT HANDLING

A. Care shall be taken in handling and transporting to avoid damaging pipes and their coatings. Loading and unloading shall be accomplished with the pipe under control at all times and under no circumstances shall the pipe be dropped. Pipe shall be securely wedged and restrained during transportation and supported on blocks when stored in the shop or field.

B. Storage: Store all pipe on a flat surface so as to support the barrel evenly. It is not recommended that pipe be stacked higher than four (4) feet. Plastic pipe, if stored outside, shall be covered with an opaque material to protect it from the sunlight.

3.2 INSPECTION

A. All pipe sections, specials and jointing materials shall be carefully examined for defects and no piece shall be laid that is known to be defective. Any defective piece installed shall be removed and replaced with a new pipe section in a manner satisfactory to the Asotin County PUD at the CONTRACTOR’s expense.

B. Defective material shall be marked with black spray paint and removed from the job site before the end of the day.

3.3 SURVEY LINE AND GRADE AND SURVEY MONUMENT REPLACEMENT

A. Refer to Section 102 – Excavating, Backfilling, and Compacting for Utilities, Part 3.2.

3.4 PRE-INSTALLATION OPERATIONS

A. Location of Sewer Laterals

1. Existing active sewer laterals shall be marked in the field. The CONTRACTOR shall work with the Asotin County PUD to assist in verifying the status (active or inactive) of any sewer laterals if there is uncertainty as to its status.

2. Where indicated on the Drawings, the CONTRACTOR shall provide dye testing to verify active laterals.

B. Cleaning and CCTV

1. Clean the host conduit per Section 220, Sanitary Sewer Main Cleaning and TV Inspection, prior to commencing pipe bursting operations.

2. Provide CCTV of the existing line per Section 220, Sanitary Sewer Main Cleaning and TV Inspection, and verify location of services.

3.5 PREPARATION

A. Excavate trenches and prepare and maintain subgrade as described in Sections 100, 101, and 102; and as shown on the Plans. Pipe base shall be inspected prior to placement of the pipe. Remove large stones or other hard matter which could damage pipe or impede consistent backfilling or compaction.

B. All pipe trenches shall be excavated below the proposed pipe invert as required to accommodate the depths of pipe bedding material as scheduled on the Drawings.

C. Remove dirt and foreign material, inside and outside, from pipe and fitting materials before assembly.

D. Make straight field cuts without chipping or cracking pipe.

3.6 INSTALLATION

A. Install pipe and accessories in accordance with manufacturer’s instructions.

B. Lift or roll pipe into position. Do not drop or drag pipe over prepared bedding.

C. Joints:

1. All new joints on the main line shall be gasketed. No joints in right-of-way, other than those for sewer laterals, shall be chemically welded or joined with flexible coupling, e.g. Fernco style coupling. Just prior to joining the pipes, the surfaces of the joint rings shall be wiped clean and the joint rings and rubber gaskets shall be liberally lubricated with an approved type of vegetable oil soap. The spigot end, with the gasket placed in the groove, shall be entered into the bell of the pipe already laid, making sure that both pipes are properly aligned.

Before the joint is fully "home," the position of the gasket in the joint shall be determined by means of a suitable feeler gauge supplied by the pipe manufacturer. If the gasket is found not to be in proper position, the pipes shall be separated and the damaged gasket replaced. The pipe is then forced "home" firmly and fully. In its final position, the joint between the pipes shall not be deflected more than 1/2-inch at any point.

D. Install pipe and fittings to the line and grade specified on the Drawings with bell end upstream, joints centered, spigots home, pipe properly supported and restrained against movement and all valve stems plumb.

1. Where longitudinal slopes are 20% or greater, all pipe joints shall be restrained. Anchor blocks shall be used in conjunction with pipe joint restraint. Anchor blocks shall be 12 inches long and shall encase the pipe 12 inches thick at a minimum. Anchor blocks shall be placed 20 feet on center.

2. On unpaved slopes 20% or greater, timber baffles/hill holders shall be required at a maximum spacing of 18 feet on center, and a minimum of one (1) timber baffle/hill holder per each pipe length.

E. Lay pipe from the low end toward the high point. Provide a continuous, smooth invert. Bell holes shall be dug where necessary to ensure pipe lays flat and the pipe shall be placed and supported on bedding material the full length of the barrel.

F. All loose dirt shall be removed from the bottom and the trench backfilled with specified bedding material to pipe laying grade.

G. Variance from the established line and grade shall not be greater than 1/32-inch per inch of pipe diameter and shall not exceed 1/2-inch for line and 1/4-inch for grade, providing that such variation does not result in a level or reverse-sloping invert. Variation in the invert elevation between adjoining ends of pipe, including fittings, shall not exceed 1/64-inch per inch of pipe diameter, or 1/2-inch maximum.

H. The open ends of all pipes and special castings shall be plugged or otherwise closed with a watertight plug before leaving the work for the night, and at other times of interruption of the work. All pipe ends which are to be permanently closed shall be plugged or capped and restrained against internal pressure.

I. Side sewers shall be constructed with a maximum joint deflection not to exceed the manufacturer's printed recommendations and in no case shall exceed two (2) inches per foot in any joint. Larger changes in direction shall be made by use of standard ⅛ bends.

J. Side sewers shall be connected to the wye provided in the public sewer, where such is available, utilizing approved fittings or adapters. Where no wye or riser is provided or available, connection shall be made by machine made tap and Romac CB or other approved saddle with owner approval.

K. Side sewers shall not be constructed on private property prior to completion and acceptance of the main line and side sewer on public Right of Way or easement unless approved in writing by the Asotin County PUD.

L. The location of side sewers at the property line shall be marked by the CONTRACTOR with a metal post four (4) feet long buried in the ground to the depth of the sewer lateral or three (3) feet, whichever is greater. The metal post shall be installed at the end of the sewer cap and extend above grade a minimum of one (1) foot regardless of lateral depth. The bottom end shall have a wood 2 by 4 inch post nailed to it to prevent withdrawal of the post. The exposed end shall be painted traffic white and the depth to the side sewer or tee shall be indicated in black paint on the metal post. In addition, a length of 12-gauge tracer wire shall be provided to extend from the sewer main end of the side sewer and shall emerge at the 4-foot metal post, but shall not be fastened to it. Provide a safety cap for the metal post.

M. Side sewer cleanouts shall be provided at the property line and for each total change of 90 degrees of grade or alignment and in no case shall the spacing of cleanouts exceed 100 feet. No cleanout will be required at the connection of the side sewer to a riser on the public sewer. Cleanouts shall consist of a wye branch in the side sewer.

N. All cleanouts located in public rights of way shall be extended to grade. The extension of cleanouts to grade on private property will be optional with the property owner. When extended to grade, cleanouts shall be full side sewer diameter and shall be extended per Standard Drawing 2-8. A 1/8 bend shall be used to deflect the side sewer upward at a cleanout where the terminal end of the side sewer lies upstream from the last point of connection.

3.7 PIPELINE INSPECTION

A. General: All sanitary sewer lines shall be inspected by the use of a television camera before final acceptance. The sewer line shall be hydro flushed immediately prior to television camera inspection. Remove debris at the nearest downstream manhole rather than washing them downstream. The costs incurred in making the initial inspection shall be borne by the owner of the sanitary sewer.

B. The CONTRACTOR shall bear all costs incurred in correcting any deficiencies found during television inspection, including the cost of any additional television inspection that may be required by the Asotin County PUD to verify the correction of said deficiency. The CONTRACTOR shall be responsible for all costs incurred in any television inspection performed solely for the benefit of the CONTRACTOR.

C. Acceptance Criteria:

1. If standing water in pipeline is observed due to grade defects, use the following table to determine allowable depth of standing water in relationship to the design slope of pipe.

Pipeline Slope (ft/ft)	Allowable standing Water Depth (inch)
Slope < 0.001	≤5/8”
0.001 < Slope ≤ 0.002	≤1/2”
0.002 < Slope ≤ 0.004	≤3/8”
0.004 < Slope ≤ 0.006	≤1/4”
0.006 < Slope ≤ 0.008	No Standing Water

3.8 PIPELINE TESTING

A. General:

1. All pipelines shall be subject to acceptance tests. The CONTRACTOR shall provide necessary utilities, labor and facilities for testing and shall dispose of waste, including water.

2. Sewers and appurtenances shall be cleaned and tested after backfilling by either the exfiltration or low pressure air method at the option of the CONTRACTOR, except where the ground water table is such that the Asotin County PUD may require the infiltration test. For either the infiltration or exfiltration test, all lateral or side sewer branches included in the test section shall be taken into account in computing allowable leakage. An allowance of 0.2 gallons per hour per foot of head above invert shall be made for each manhole included in a test section. Upon final acceptance of the work all sewers, side sewers and fittings shall be open, clean and free draining.

3. All work involved in cleaning and testing sewer lines between manholes or rodding inlets shall be completed within fifteen (15) working days after backfilling of sewer lines and structures. Any further delay will require the written consent of the Asotin County PUD. The CONTRACTOR shall furnish all labor, materials, tools and equipment necessary to make the test, clean the lines and perform all incidental work. The CONTRACTOR shall perform the tests under the direction and in the presence of the Asotin County PUD. Precautions shall be taken to prevent joints from drawing during tests, and any damage resulting from these tests shall be repaired by the CONTRACTOR at no expense to the Asotin County PUD. The manner and time of testing shall be subject to approval by the Asotin County PUD.

4. All wyes, tees and stubs shall be plugged with flexible jointed caps, or acceptable alternate, securely fastened to withstand the internal test pressure. Such plugs or caps shall be readily removable, and their removal shall provide a socket suitable for making a flexible jointed lateral connection or extension.

5. If any sewer installation fails to meet the requirements of the test method used, the CONTRACTOR shall determine, at no expense to the Asotin County PUD, the source or sources of leakage and shall repair or replace all defective materials or workmanship at no expense to the Asotin County PUD. The

complete pipe installation shall meet the requirements of the test method used before being considered acceptable.

B. Side Sewers:

1. Shall be tested after backfilling and if constructed in conjunction with the main sewer shall, for purposes of testing, have a 6-inch tee fitting pipe placed at the point where the side sewer crosses the street or other public Right of Way margin. The tee opening shall be positioned perpendicular to the side sewer slope, unless otherwise directed by the Asotin County PUD.

2. When side sewers are not tested simultaneously with the testing of the main sewer, the CONTRACTOR, at no expense to the Asotin County PUD, shall furnish and place an additional tee in the first pipe out of the main sewer tee or wye branch, so that an inflatable rubber ball can be inserted for sealing off the side sewer and thus permit separate tests.

3. Testing side sanitary sewers shall be, for their entire length, from the public sewer in the street to the connection with the building's plumbing. Their testing shall be as required by the local sanitary agency but in no case shall it be less thorough than that of filling the pipe with water before backfilling and visually inspecting the exterior for leakage. The decision of the Asotin County PUD as to acceptance of the side sanitary sewer shall be final.

C. Testing

1. Exfiltration Test

a. Prior to making exfiltration leakage tests, the CONTRACTOR may fill the pipe with clear water to permit normal absorption into the pipe walls provided, however, that after so filling the pipe, the CONTRACTOR shall complete the leakage test within 24 hours after filling. When under test, the allowable leakage shall be limited according to the provisions that follow. Specified allowances assume pre-wetted pipe.

b. Leakage shall be no more than 0.28 gph per inch diameter per 100 feet of sewer, with a hydrostatic head of six (6) feet above the crown at the upper end of the test section, or above the natural ground water table at the time of test, whichever is higher. The length of pipe tested shall be limited so that the pressure at the lower end of the section tested does not exceed 16 feet of head above the invert, and in no case shall be greater than 700 feet or the distance between manholes when greater than 700 feet.

c. Where the test head is other than six (6) feet, the maximum leakage shall not exceed the amount determined from the following equation:

$$Maximum\ Leakage\ (in\ gallons\ per\ hour) = 0.28 * \left(\sqrt{H}/\sqrt{6}\right) * D * (L/100)$$

Where:

D = diameter (in.)
L = length of pipe (ft.)
H = test head (ft.)

d. When the test is to be made one joint at a time, the leakage per joint shall not exceed the computed allowable leakage per length of pipe.

2. Infiltration Test

a. Where the natural ground water head over the pipe is two (2) feet or less above the crown of pipe at the upper end of the test section, the infiltration test leakage shall not exceed 0.16 gallons per hour per inch of diameter per 100 feet of pipe length. The length of pipe tested shall not exceed 700 feet or the distance between manholes when greater than 700 feet.

b. Where the natural ground water head is greater than two (2) feet, the maximum leakage shall not exceed the amount determined from the following equation:

$$Maximum\ Leakage\ (in\ gallons\ per\ hour) = 0.16 * \left(\sqrt{H}/\sqrt{6}\right) * D * (L/100)$$

Where:

D = diameter (in.)
L = length of pipe (ft.)
H = test head (ft.)

c. When a suitable head of ground water exists above the crown of the pipe and when the pipe is large enough to work inside, acceptance may be based on the repair of visible leakage by means satisfactory to the Asotin County PUD.

3. Low Pressure Air Test for Sanitary Sewers Constructed of Air Permeable Materials

a. Low pressure air testing may be used on pipes 30 inches in diameter and smaller. The test equipment to be used shall be furnished by the CONTRACTOR and shall be inspected and approved by the Asotin County PUD prior to use. The Asotin County PUD may at any time require a calibration test of gauges or other instrumentation that is incorporated into the test equipment. Calibration tests shall be certified by an independent testing laboratory.

b. Plugs used to close the pipe for the air test must be securely braced to prevent the unintentional release of a plug, which can become a high velocity projectile. Gauges, air piping manifold and valves shall be located at the top

of the ground. No one shall be permitted to enter a manhole or catch basin where a plugged pipe is under pressure. Air testing apparatus shall be equipped with a pressure release device, such as a rupture disk or a pressure relief valve, designed to activate when the pressure in the pipe exceeds two (2) psig above the required test pressure.

c. If the pipe to be tested is submerged by groundwater, the backpressure on the pipe created by the groundwater submergence must be determined. All gauge pressures described in the test shall be increased by that amount.

d. The first section of pipe installed by each crew shall be tested in order to qualify the crew and material. A successful test for the section shall be a prerequisite to further installation by that crew. Following the initial test, pipes shall be tested from manhole to manhole, catch basin to catch basin or such shorter lengths as determined by the CONTRACTOR.

e. Air shall be slowly supplied to the plugged pipe section until the internal air pressure reaches four (4) psig. At no point should the air pressure be allowed to exceed nine (9) psig. Wait at least two (2) minutes to allow for pressure and temperature stabilization to occur within the pipe.

f. When the pressure decreases to 3.5 psig, the air pressure test shall begin. The test shall consist of measuring the time in seconds for the pressure in the pipe to drop from 3.5 psig to 2.5 psig. Acceptance for pipe constructed of air permeable materials, shall be if the time in seconds for the pressure drop is equal to or greater than the required time as calculated below.

$$K = 0.0111 * d^2 * L$$

$$C = 0.0003918 * d * L$$

If $C_T < 1$, then time = K_T
If $1 < C_T < 1.75$, then time = K_T/C_T
If $C_T > 1.75$, then time = $K_T/1.75$

Where:

d = Pipe diameter (inches)
L = Pipe length (feet)
K = value for each length of pipe of a specific diameter
C = value for each length of pipe of a specific diameter
$K_T = K_1 + K_2 + \ldots$ = sum of all K values
$C_T = C_1 + C_2 + \ldots$ = sum of all C values

Table: Low Pressure Air Test for Air Permeable Materials
Minimum Test Times in Seconds for Pressure Drop From 3.5 to 2.5 psig (1 psig)

Distance Between Manholes (feet	Nominal Pipe Diameter (inch)									
	6	8	10	12	15	18	21	24	27	30
100	40	71	111	160	250	360	490	639	765	850
150	60	107	167	240	375	510	595	680	765	856
200	80	142	222	320	425	510	595	731	925	1142
250	100	178	278	340	425	514	699	913	1156	1427
300	120	213	283	340	428	617	839	1096	1387	1713
350	140	227	283	340	500	719	979	1279	1618	1998
400	160	227	283	365	571	822	1119	1461	1850	2283
450	170	227	285	411	642	925	1259	1644	2081	2569
500	170	227	317	457	714	1028	1399	1827	2312	2854
550	170	227	349	502	785	1130	1538	2009	2543	3140
600	170	244	381	548	856	1233	1678	2192	2774	3425

g. This method was developed based on an allowable air loss rate of 0.003 cubic feet per minute (cfm) per square foot of internal pipe surface, with the total air loss rate not less than 2 cfm nor greater than 3.5 cfm. At the CONTRACTOR's option, the pipe may be tested without pre-wetting; however, the allowable air loss rate assumes pre-wetted pipe.

h. Pipe over 30 inches in diameter shall be tested one joint at a time in accordance with ASTM C1103

4. Low Pressure Air Test for Sanitary Sewers Constructed of Non Air Permeable Materials

   a. Non air permeable materials include ductile iron, ABS composite, polyvinyl chloride (PVC), and polyethylene (PE). When non air permeable pipe is subjected to a low-pressure air test, all of the provisions of Section 200, Part 3.8 C.3. shall apply, except that the time in seconds for the pressure drop shall be equal to or greater than four times the required time calculated in Section 200, Part 3.8 C.3.

   b. Pipe over 30 inches in diameter shall be tested one joint at a time in accordance with ASTM C1103.

   c. Reaches of thermoplastic pipe containing no joints shall be exempt from testing requirements.

Table: Low Pressure Air Test for Non Air Permeable Materials
Minimum Test Times in Seconds for Pressure Drop From 3.5 to 2.5 psig (1 psig)

Distance Between Manholes (feet	Nominal Pipe Diameter (inch)									
	6	8	10	12	15	18	21	24	27	30
100	160	284	444	639	999	1439	1958	2557	3060	3400
150	240	426	666	959	1499	2040	2380	2720	3060	3425
200	320	568	888	1279	1700	2040	2380	2923	3699	4567
250	400	710	1110	1360	1700	2055	2797	3653	4624	5709
300	480	852	1133	1360	1713	2466	3357	4384	5549	6850
350	559	907	1133	1360	1998	2877	3916	5115	6474	7992
400	639	907	1133	1461	2283	3288	4476	5846	7398	9134
450	680	907	1142	1644	2569	3699	5035	6576	8323	10275
500	680	907	1269	1827	2854	4110	5594	7307	9248	11417
550	680	907	1395	2009	3140	4521	6154	8038	10173	12559
600	680	974	1522	2192	3425	4932	6713	8768	11097	13701

5. Deflection Testing for Flexible Pipe (Mandrel Test)

   a. If required by the Contract Documents, deflection test all flexible pipelines no sooner than 30 days after trench backfill and compaction is completed. Unless otherwise provided in the contract, the Contractor shall bear costs associated with completing surface repair or wither work prior to all required testing. The maximum allowable deflection is to be 5.0% of the nominal pipe diameter.

   b. Provide test mandrels with a diameter at least 95% of the actual inside diameter (ID) of the pipe. For pipes with controlled outside diameter, calculate the actual ID of the pipe by taking the average outside diameter (OD) as set by the ASTM standard and subtracting 2 times the minimum wall thickness as set by the ASTM standard. For pipes with control inside diameter, use the ID set by the ASTM Standard.

   c. Pull the appropriate mandrel through the pipe using one of the following methods:

      1) Pull the mandrel through the pipe by hand. If the pipe will not allow the mandrel to pass, repeat the test from the opposite direction to determine the limits of failure.

      2) As a part of the CCTV inspection, pull the mandrel through the pipe by connecting it in front of the CCTV camera lens at a distance equal to the camera's focal length. Notify Engineer of time and date of test at least 1 day (24 hours) prior to testing to allow for Engineer, at Engineer's discretion, to witness test. Provide tag line to reverse mandrel and camera should mandrel fail to pass through line. Perform test as a separate step

from the CCTV inspection thus a separate DVD record must be made of the mandrel test. Clearly mark DVD identifying project name, mandrel test. If the pipe will not allow the mandrel to pass, repeat the test from the opposite direction to determine the limits of failure.

d. Uncover and, if required by the Engineer, remove and reinstall new pipe section for reaches with excessive deflection or recompact bedding if, in the opinion of the Engineer, existing pipe is not damaged. Retest pipe after any repair work is completed. Do not reinstall damaged pipe.

e. Use a "Go-Nogo" pin gauge instead of a mandrel if "Insta-Tap" tee fittings are used for service connections. Use test diameter per 4.b above.

f. The Asotin County PUD may conduct additional deflection testing prior to expiration of the warranty period. Uncover and reinstall sections of the pipe found to have excessive deflection. Do not reinstall damaged pipe.

6. Test Results

a. The CONTRACTOR shall notify the Asotin County PUD three (3) days prior to testing and submit testing data to the Asotin County PUD.

3.9 PIPE ABANDONMENT AND REMOVAL

A. Pipe to be removed shall be cut off at the berm intersection or where indicated on plans. Remaining cut end and abandoned pipe shall be properly plugged watertight with fittings or masonry plug.

3.10 FIELD TESTING

A. All materials, process of manufacturing, and finished pipe shall be subject to inspection and approval.

B. The Asotin County PUD may select one sample of pipe on the job site of each production run of each size and type of pipe to be tested by the laboratory. The CONTRACTOR shall furnish the first test piece or pipe core and any additional samples required because of failures. Should the sample fail to meet specifications, retests shall be conducted by the laboratory in conformance with the specifications.

3.11 PROTECTION

A. Protect finished Work under provisions of these Specifications.

B. Protect pipe and bedding from damage or displacement until backfilling operation is in progress.

END OF SECTION

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SECTION 201

PRESSURE SEWER MAINS

PART 1 GENERAL

1.1 SCOPE

A. This section covers pipeline for pressure sewer for STEP and grinder pump systems. Pipe shall be furnished complete with all fittings, joint materials and appurtenances.

B. Materials to be furnished and installed includes, but is not limited to:

1. All pipe, fittings, bends, beveled pipe, adapters, bulkheads, stoppers, plugs, joints restraints, joints and jointing materials and pipe supports.

2. Make connections to all existing and/or new facilities and provide temporary services.

3. Test and clean pipelines.

1.2 REFERENCES

A. ASTM F402: Practice for safe handling of solvent cements and primers used for joining thermoplastic pipe and fittings.

B. ASTM D1784: Specification for rigid Poly Vinyl Chloride (PVC) compounds and chlorinated Poly Vinyl Chloride (CPVC) compounds.

C. ASTM D2564: Solvent Cements for Poly Vinyl Chloride (PVC) plastic pipe and fittings.

D. ASTM D2855: Making Solvent-Cemented joints with Poly Vinyl Chloride (PVC) pipe and fittings.

E. ANSI/AWWA C900: Standard for Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4-inch Through 12-inch for Water Transmission and Distribution

F. ANSI/AWWA 605: Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water

G. ASTM F477: Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe

H. ANSI/AWWA C906: Standard for Polyethylene (PE) Pressure Pipe and Fittings, 4-inch through 63-inch, for Water Distribution and Transmission

I. ASTM D3261: Standard for Butt Heat Fusion Polyethylene Plastic Fittings for Polyethylene Plastic Pipe and Tubing

J. Reference Standards

1. References herein to the "Standard Specifications for Municipal Construction" shall mean the most recent edition of the Washington State Department of Transportation Standard Specifications for Road, Bridge and Municipal Construction.

1.3 DELIVERY, STORAGE AND HANDLING

A. Comply with requirements of these Specifications.

B. Protect the pipe from the sun and provide adequate ventilation per manufacturer's specification.

1.4 SUBMITTALS

A. Product Data: Provide data on pipe, fittings and accessories.

B. Provide the pipe manufacturer's certificate stating that the materials have been sampled and tested in accordance with the provision for and meet the requirements of the designated specification. The certificate shall be signed by an authorized agent of the manufacturer.

C. When requested by the Asotin County PUD, certified copies of physical and chemical test results shall be submitted for the materials to be provided.

D. Testing results.

PART 2 PRODUCTS

2.1 GENERAL

A. The nominal diameters of the pipes are as shown on the Drawings.

2.2 PIPE AND FITTINGS

A. PVC Water Class Pipe: ANSI/AWWA C 900

1. Diameter: 4-inch through 12-inch

2. Class: Per Part 3.1 of this specification

3. Fittings: Per Section 301 Ductile Iron Pipe, Fittings and Special Items with 1 mil thick minimum asphaltic external coating and 40 mil thick minimum Protecto 401 ceramic epoxy internal coating manufactured by Pacific States Cast Iron Pipe Co. or approved substitution.

4. Joints: Factory installed rubber gaskets conforming to ASTM F 477 and bell and spigot ends.

5. Cell wall classification: 1234-B per ASTM D 1784

B. PVC Pipe: ASTM-D1785

1. Diameter: 4-inch through 12-inch
2. Class: Schedule 40.
3. Fittings: Conforming to ASTM D 2466
4. Joints: Solvent Weld joints and fittings conforming to ASTM D 2466
5. Cell wall classification: 1234-B per ASTM D 1784.

C. PE Pressure Pipe and Fittings for Water Distribution: ANSI/AWWA C 901/C 906

1. Diameter: 1-inch through 12-inch
2. Class: Per Part 3.1 of this specification
3. Standard PE Designation: PE 3408
4. Fittings: PE 3408, thermal butt-fusion welded per ASTM D 3261
5. Joints: Thermal butt-fusion welded per ASTM D 3261.

2.3 THRUST BLOCKS

A. Thrust block per Standard Drawing Number 3-8A. Refer to sizing method per Standard Drawings 3-8B and 3-8C.

2.4 TRACER WIRE

A. Tracer wire shall be 12-gauge single strand copper insulated high molecular weight polyethylene (HMWPE) wire. The HMWPE insulated cover shall be green and shall have a minimum thickness of 45 mils. The wire shall be UL rated for 1400 F. Tape to fasten tracer wire to pipe shall be 3M Extra Heavy Duty Duct Tape.

2.5 MARKING TAPE

A. Marking tape shall consist of inert polyethylene plastic that is impervious to all known alkalis, acids, chemical reagents and solvents likely to be encountered in the soil. The tape shall be 3-inches in width and installed 1 foot above sewer main. The tape shall be green and shall be imprinted continuously over its entire length in permanent black ink with the words “Caution Buried Sewer Line Below”

PART 3 EXECUTION

3.1 PRODUCT SELECTION

A. Pipe shall be selected with minimum pressure rating 1.5 times the dead head pressure of the pump.

3.2 PRODUCT HANDLING

A. Care shall be taken in handling and transporting to avoid damaging pipes and their coatings. Loading and unloading shall be accomplished with the pipe under control at all times and under no circumstances shall the pipe be dropped. Pipe shall be securely wedged and restrained during transportation and supported on blocks when stored in the shop or field.

B. Storage: Store all pipe on a flat surface so as to support the barrel evenly. It is not recommended that pipe be stacked higher than four (4) feet. Plastic pipe, if stored outside, shall be covered with an opaque material to protect it from the sunlight.

3.3 INSPECTION

A. All pipe sections, specials and jointing materials shall be carefully examined for defects and no piece shall be laid that is known to be defective. Any defective piece installed shall be removed and replaced with a new pipe section in a manner satisfactory to the Asotin County PUD at the CONTRACTOR's expense.

B. Defective material shall be marked with black spray paint and removed from the job site before the end of the day.

3.4 SURVEY LINE AND GRADE AND SURVEY MONUMENT REPLACEMENT

A. Refer to Section 102 – Excavating, Backfilling, and Compacting for Utilities, Part 3.2

3.5 PREPARATION

A. Excavate trenches and prepare and maintain subgrade as described in these Specifications and shown on the Plans. Pipe base shall be inspected prior to placement of the pipe. Remove large stones or other hard matter which could damage pipe or impede consistent backfilling or compaction.

B. All pipe trenches shall be excavated below the proposed pipe invert as required to accommodate the depths of pipe bedding material as scheduled on the Drawings.

C. Remove dirt and foreign material, inside and outside, from pipe and fitting materials before assembly.

D. Make straight field cuts without chipping or cracking pipe.

3.6 INSTALLATION

A. Install pipe and accessories in accordance with these specifications and the manufacturer's instructions.

B. Lift or roll pipe into position. Do not drop or drag pipe over prepared bedding.

C. Joints

1. Fusion Joints

   a. Sections of PE pipe shall be joined into continuous lengths on the job site above ground per Section 303. Testing shall be in accordance with Section 303.

2. Gasketed Joints. Just prior to joining the pipes, the surfaces of the joint rings shall be wiped clean and the joint rings and rubber gaskets shall be liberally lubricated with an approved type of vegetable oil soap. The spigot end, with the gasket placed in the groove, shall be entered into the bell of the pipe already laid, making sure that both pipes are properly aligned. Before the joint is fully "home," the position of the gasket in the joint shall be determined by means of a suitable feeler gauge supplied by the pipe manufacturer. If the gasket is found not to be in proper position, the pipes shall be separated and the damaged gasket replaced. The pipe is then forced "home" firmly and fully. In its final position, the joint between the pipes shall not be deflected more than 1/2-inch at any point.

   a. Where longitudinal slopes are 20% or greater, all pipe joints shall be restrained. Anchor blocks shall be used in conjunction with pipe joint restraint. Anchor blocks shall be 12 inches long and shall encase the pipe 12 inches thick at a minimum. Anchor blocks shall be placed 20 feet on center.

   b. On unpaved slopes 20% or greater, timber baffles/hill holders shall be required at a maximum spacing of 18 feet on center, and a minimum of one (1) timber baffle/hill holder per each pipe length.

3. Rubber-Ring and Chemically Welded Joints: Pipe jointing surfaces shall be clean and dry when preparing surfaces for joining. Lubricants, primers, adhesives, etc., shall be used as recommended by the pipe or joint manufacturer's specifications. The jointing materials or factory fabricated joints shall then be placed, fitted, joined and adjusted in such a manner as to obtain watertight joint. Trenches shall be kept water free and as dry as possible during bedding, laying and jointing. As soon as possible after the joint is made, sufficient backfill material shall be placed along each side of the pipe to prevent movement of the pipe from any cause.

D. Install pipe and fittings to the line and grade specified on the Drawings with bell end upstream, joints centered, spigots home, pipe properly supported and restrained against movement and all valve stems plumb.

E. Lay pipe from the low end toward the high point. Provide a continuous, smooth invert. Bell holes shall be dug where necessary and the pipe shall be placed and supported on bedding material the full length of the barrel.

F. All loose dirt shall be removed from the bottom and the trench backfilled with specified bedding material to pipe laying grade.

G. The open ends of all pipes and special castings shall be plugged or otherwise closed with a watertight plug before leaving the work for the night, and at other times of interruption of the work. All pipe ends which are to be permanently closed shall be plugged or capped and restrained against internal pressure.

H. Thrust Restraint

1. All tees, plugs, caps, bends, offsets, as well as other appurtenances which are subject to unbalanced thrust, shall be properly braced with concrete thrust blocks unless otherwise specified in the drawings. CONTRACTOR shall submit calculation for thrust block sizing. Concrete thrust blocks shall have a minimum 28-day compressive strength of 3,000 psi. The concrete blocking shall bear against solid undisturbed earth at the side and bottom of the trench excavation and shall be shaped so as not to obstruct access to the joints of the pipe or fittings. Where shown on the plans or specified elsewhere in the Technical Specifications, the CONTRACTOR shall also provide internal or external joint restraint systems at the fittings and on all joints within the specified or shown distance on each side of the fitting or joint.

I. Tracer Wire

1. Tracer wire shall be installed per Section 310 Water Service Connections from the upstream to downstream piping connection points.

J. Marking Tape

1. Marking Tape wire shall be installed per Section 310 Water Service Connections from the upstream to downstream piping connection points.

3.7 PIPELINE TESTING

A. Testing

1. Per Section 300 Pipeline Testing and Disinfection with the following modifications:

a. Hydrostatic Test shall be to 1.5 times the normal working pressure of the pipeline.

2. Test Results

a. The CONTRACTOR shall notify the Asotin County PUD three (3) days prior to testing and submit testing data to the Asotin County PUD.

END OF SECTION

SECTION 210

SANITARY SEWER MANHOLES AND CLEANOUTS

PART 1 GENERAL

1.1 SCOPE

A. The work under this Section includes providing all labor, materials, tools and equipment necessary for furnishing and installing sanitary sewer manholes and cleanouts complete, in place. It shall also include raising or lowering existing sanitary sewer manholes and cleanouts to conform to the final grade as shown on the Drawings and Standard Details.

B. Materials to be furnished and installed includes, but is not limited to, manholes and cleanouts, frames and lids, joint seals, pipe connection seals and required bedding.

1.2 REFERENCES

A. AASHTO M 103, Standard Specification for Steel Castings, Carbon, for General Application.

B. AASHTO M 199, Standard Specification for Precast Reinforced Concrete Manhole Sections.

C. ASTM A48, Standard Specification for Gray Iron Castings.

D. ASTM A536, Standard Specification for Ductile Iron Castings.

E. ASTM A615/ A615M, Standard Specification for Rail-Steel Deformed and Plain Bars for Concrete Reinforcement.

F. ASTM C387, Standard Specification for Packaged, Dry, Combined Materials for Mortar and Concrete.

G. ASTM C478, Standard Specification for Precast Reinforced Concrete Manhole Sections.

H. ASTM C827, Standard Test Method for Change in Height at Early Ages of Cylindrical Specimens of Cementitious Mixtures.

I. ASTM C923, Standard Specification for Resilient Connectors between Reinforced Concrete Manhole Structures, Pipes, and Laterals.

J. ASTM D4101, Standard Specification for Propylene Plastic Injection and Extrusion Materials.

K. CRD-C 621, Corps of Engineers - Specification for Non-Shrink Grout.

L. Reference Standards

1. References herein to the "Standard Specifications for Municipal Construction" shall mean the most recent edition of the Washington State Department of Transportation Standard Specifications for Road, Bridge and Municipal Construction.

1.3 SUBMITTALS

A. Manholes, Cones and Grad Rings: Shop Drawings showing method of construction and reinforcement, invert elevations and overall dimension.

B. Frames, Grates and Steps: Catalogue cuts and materials certification.

C. Gaskets and Coatings: Catalogue cuts and materials certification.

D. Mortar and Non-Shrink Grout: Catalogue cuts and materials certification.

E. Pipe Penetration Gaskets: Catalogue cuts and materials certification.

F. Testing Results.

PART 2 PRODUCTS

2.1 MANHOLES, CONES AND GRADE RINGS

A. All manholes shall consist of precast concrete sections, including integral base section, riser sections, cones and flat slab tops and shall conform to ASTM C478 and the dimensions shown on the Drawings. Minimum wall thickness shall be four (4) inches.

B. All precast sections shall have rubber gaskets joints conforming to ASTM C 443. Interior and exterior of the joints shall be grouted.

C. Cones to be eccentric and have the same wall thickness and reinforcement as riser sections. Reinforcing in transition sections shall be equal to that specified for wall sections of the larger diameter.

D. Grade rings shall be standard product, manufactured particularly for use in manhole construction, sized to fit the cones on which they are placed, and the wall thickness shall be not less than that of the cones. Grade rings shall not be less than two (2) inches high, nor more than six (6) inches high. Total height of grade rings shall not exceed eight (8) inches high. Grout between and inside of grade rings to form smooth finish.

E. Precast manhole sections shall consist of circular sections in standard nominal inside diameters of 42, 48, 54, 60, 72, 84 or 96 inches. Heights of sections shall be in multiples of 12 inches. Diameter and type shall be as specified on the Plans.

F. Openings for connecting pipes in riser sections, bottom riser sections and integral base sections, and for access in flat slabs shall be preformed or cored by the manufacturer. Pipe penetration gaskets shall be cast into all precast manholes. All rigid non-reinforced pipe entering or leaving the manhole (new or existing manhole) shall be provided with a resilient connector conforming to ASTM C923 such as Kor-N-Seal, A-Lok, or approved equal.

2.2 FRAMES, COVERS AND STEPS

A. Frames and covers shall be ductile iron, conforming to ASTM A48, Class 30. The cover shall be designed for the appropriate classification of traffic and shall have the word "SEWER' cast into the top with prominent letters. Bearing surfaces between the frame and cover shall be machined to smooth, plane surfaces. Frames and covers shall be D&L Foundry A-2004 or approved equal. When watertight locking devices are specified, the CONTRACTOR shall submit Shop Drawings for approval by the Asotin County PUD.

B. Manhole steps shall be constructed of injection molded copolymer polypropylene shall meet the requirements of ASTM C478 and AASHTO M 199. The polypropylene shall conform to ASTM D4101. They shall be Lane Polypropylene Steps or approved equal.

C. Specified manhole steps shall be factory installed to provide a continuous ladder of 12-inch center-to-center rung spacing. Steps shall be placed in the forms and cast in pipe wall or placed immediately after the pipe is removed from casting and carefully mortared in place with non-shrink mortar to ensure a watertight joint. If the outer surface of the pipe wall is pierced, the patch shall be completely covered with a bituminous sealer.

2.3 CLEANOUT FRAMES AND COVERS

A. Castings:

1. Tough, close-grained gray iron, sound, smooth, clean, free from blisters, blowholes, shrinkage, cold shuts and defects.

2. Ductile Iron: ASTM A536, Grade 65-40-12.

3. Plane or grind bearing surfaces to ensure flat, true surfaces.

4. Cleanout frames and covers shall be D&L Foundry H-8020, or approved equal.

B. Covers: True and seat within frame at all points.

2.4 MISCELLANEOUS

A. All pipes, bends and fittings used in cleanouts, drop connections and pipe stubs for future connections to manholes shall conform to Section 200, PVC PIPE FOR STORM DRAINAGE & SANITARY SEWER.

B. Mortar shall be standard premixed in accordance with ASTM C387, or proportion one part Portland Cement to two parts clean, well-graded sand which will pass a No. 4 screen. Admixtures may be used not exceeding the following percentages of weight of cement; hydrated lime, 10%; diatomaceous earth or other inert material, 5%. Consistency of mortar shall be such that it will readily adhere to the surface. Mortar mixed for longer than thirty minutes shall not be used. A non-shrink mortar may be submitted as a substitute.

C. Non-Shrink Grout: Non-shrink grout shall be Preco-Patch, Sika 212, Euco N-S, Five-Star or approved equal non-metallic cementitious commercial grout exhibiting zero shrinkage per ASTM C827 and CRD-C-621. Grout shall not be amended with cement or sand and shall not be reconditioned with water after initial mixing. Unused grout shall be discarded after 20 minutes and shall not be used.

D. Pipe penetration gasket through the manhole wall shall be made using resilient connectors conforming to ASTM C293. Resilient connectors shall be Kor-N-Seal, A-LOK style or approved equal. Non-shrink grout shall be used for filling the preformed void in the connection gasket.

E. Exterior joint waterproofing for watertight manholes shall be “Bestseal Wrap” joint sealant from Bestfitt Gaskect Co. or approved equal.

F. Watertight manholes shall be a coal tar epoxy Bitumastic® 300M system as manufactured by Carboline, Inc. or approved equal.

G. Imported pipe base, furnish as specified in SECTION 102, EXCAVATING, BACKFILLING AND COMPACTING FOR UTILITIES.

PART 3 EXECUTION

3.1 GENERAL

A. The CONTRACTOR shall safely install all precast items with no damage to the precast item or any other structure, piece of equipment, or appurtenance.

B. Precast structures shall be installed in accordance with the manufacturer’s recommendations, unless otherwise required by the Drawings and Standard Details.

C. Subgrade Preparation: Subgrade shall be compacted to 95 percent of maximum density and covered with a minimum of six (6) inches, or as shown on the plans, of aggregate base, which is also compacted to 95 percent of maximum density. The aggregate base shall be graded to a uniform, level surface to fully support the structure and to an elevation that will assure proper positioning of the top slab or lid. Remove and keep all water clear from the excavation during construction and testing operations.

D. Place imported pipe base material on undisturbed earth; thoroughly compact with a mechanical vibrating or power tamper.

E. Excavation and backfill as specified in SECTION 102 - EXCAVATING, BACKFILLING AND COMPACTING FOR UTILITIES.

3.2 INSTALLATION OF PRECAST MANHOLES

A. All rigid non-reinforced pipe entering or leaving the manhole (new or existing manhole) shall be provided with flexible joints within one (1) foot of the structure and shall be placed on compacted bedding. PVC pipe shall be connected to manholes using an approved pipe penetration gasket.

B. Precast Concrete Base Installation

1. Precast base sections shall be set on a level base of six (6) inches of compacted imported pipe base, as shown in the Standard Drawings. Bases shall be set at the proper grade to allow pipe openings to match the grades for connecting pipes. Manhole bases shall be set level so that base gravel fully and uniformly supports them in true alignment with uniform bearing throughout full circumference. Do not level the base sections by wedging gravel under the edges. Provisions shall be made to prevent flotation of the manhole in high groundwater areas.

2. Manhole inverts shall be formed as shown on the Drawings, by forming U-shaped channels in the concrete base section. The invert shall be constructed to a section identical with that of the sewer pipe and are flush with the inside of the manhole. Where the size of sewer pipe is changed at the manhole, the invert shall be constructed to form a smooth transition without abrupt breaks or unevenness of the invert surfaces. During construction, the CONTRACTOR shall prevent sewage or water from contacting the new concrete or mortar surfaces to prevent damage to the fresh concrete or mortar until the initial set has been achieved. No mortar or broken pieces of pipe shall be allowed to enter the sewers.

3. Flexible connectors shall be installed in the base section to form a permanently watertight seal.

C. Manhole Riser Sections

1. Precast manhole components may be used to construct standard, drop and carry-through manholes. Manholes five (5) feet or less in depth measured from the rim to the lowest invert shall be flat-top manholes.

2. All manhole riser joints shall be watertight and use rubber gaskets. Rubber gasketed joints installed in accordance with manufacturer's instructions. All joints shall then be filled with non-shrink grout inside and out so as to produce smooth interior and exterior surfaces. All manhole penetrations shall be

watertight. Complete manholes shall be rigid. Compact backfill in accordance with the provisions stated in Section 102 - EXCAVATING, BACKFILLING AND COMPACTING FOR UTILITIES.

3. All lift holes shall be thoroughly wetted, completely filled with mortar and smoothed and pointed both inside and out to ensure watertightness.

4. The shortest length of riser section to be incorporated into the manhole shall be installed immediately below the flat slab top or cone.

5. Properly locate and plumb each manhole riser section.

6. Install manhole extensions and top slabs in accordance with manufacturer's specifications and as shown on the plans. Lay section risers with the sides plumb and the tops level. Make joints and penetrations watertight.

D. Preformed Plastic Gaskets:

1. Carefully inspect precast manhole sections to be joined.
2. Do not use sections with chips or cracks in the tongue.
3. Use only pipe primer furnished by gasket manufacturer.
4. Install gasket material in accordance with manufacturer's instructions.
5. Completed manholes shall be rigid and watertight.

E. After completion of the manhole, all plugs shall be completely removed from the sewers and all loose material shall be removed from the manhole.

F. Service connections less than 8-inch shall not be installed into manholes unless otherwise shown on the Drawings or directed by the Asotin County PUD. Service connections that are 8-inch or larger shall be required to be installed into manholes and new manhole may be required. The top of the service sewer pipe shall be 0.2 feet higher than the top of the downstream main sewer pipe. The manhole invert shall be channeled for the service connection sewers in the same manner as for main sewers.

G. Stubs for future construction shall consist of a section of pipe extending 13 feet outside the manhole wall, at grade and connected as shown on the Drawings and Standard Details. The manhole fillet shall be formed for future connection. The stubs shall be located as shown on the Drawings.

H. Drop construction at manholes shall be as shown on the Drawings and Standard Details.

3.3 MANHOLE FRAMES AND COVERS

A. Set frames in bed of mortar with mortar carried over flange as shown.

B. Set tops of covers flush with surface of adjoining pavement or ground surface, unless otherwise shown or directed.

3.4 WATERTIGHT MANHOLES

A. All manholes designated for high groundwater conditions shall be coated with two (2) coats of coal tar epoxy to a minimum thickness of 18 mils.

B. All manholes designated for high groundwater conditions shall have a 12-inch wide wrap sealant system on exterior joints and installed as recommended by the system manufacturer.

3.5 CLEANOUTS

A. Cleanouts shall be constructed as shown on the Drawings and Standard Details. The frame shall be jointed to the riser pipe so that groundwater will be prevented from entering the sewer. Cleanouts shall be tested for watertightness along with the sewers to which they are connected.

3.6 CONNECT TO EXISTING MANHOLE

A. CONTRACTOR shall remove or plug existing pipe as applicable, drill hole at new location required for installation of sewer under this contract, install pipe, seal the pipe penetration, form channeled inverts, install drop connections as required and backfill as required.

B. Connection to existing manholes shall be made in such a manner that the modified manhole is equal to a new manhole in appearance and performance. A channel, approximately two inches larger all around than the connecting pipe, shall be core drilled into the existing manhole base and include a sand collar. The new pipe shall be connected as shown on the Drawings and Standard Details. The rough-cut channel shall be finished to its final smooth and uniform shape with mortar. The existing sewer(s) shall be maintained in service and the fresh concrete and mortar surface shall be protected from the flowing sewage for a minimum of 24 hours.

3.7 MANHOLE HYDROSTATIC TESTING

A. All manholes will be visually inspected by the Asotin County PUD; there shall be no evidence of leakage of water into any manhole from outside sources or any imperfections which may allow such leakage.

B. The hydrostatic testing of manholes shall consist of plugging all inlets and outlets and filling the manhole with water. The manhole shall be filled to the rim at the start of the test. Leakage in the manhole shall not exceed 0.2 gallons per foot of head above the invert after a one-hour test period. Leakage shall be determined by refilling to the rim using a calibrated known volume container. The manhole may be filled 24 hours prior to the time of testing to permit normal absorption into the walls.

C. If the water table is an adverse factor, the manhole shall be pumped completely dry, all pipes plugged and then be checked for infiltration. The leakage rate shall not

exceed 0.2 gallons per day per foot of depth, over a test period of not less than two (2) hours.

D. The CONTRACTOR shall notify the Asotin County PUD three (3) days prior to testing and submit testing data to the Asotin County PUD.

E. The CONTRACTOR shall repair all imperfections and leaks disclosed by either visual inspection or testing. The method of repair shall be subject to the Asotin County PUD's approval.

3.8 MANHOLE ABANDONMENT AND REMOVAL

A. Manholes and structures to be abandoned shall be filled with suitable material as approved by the Asotin County PUD. Any removed salvageable items shall remain the property of the Asotin County PUD, and shall be stored as directed by the Asotin County PUD. The Asotin County PUD may refuse any items. The CONTRACTOR shall properly dispose of such items free of charge to the Asotin County PUD.

END OF SECTION

SECTION 220

SANITARY SEWER MAIN CLEANING AND TV INSPECTION

PART 1 GENERAL

1.1 DESCRIPTION

A. This Section includes all labor, materials, equipment and incidentals necessary for cleaning and internal TV inspection of sanitary sewer main lines. Work under this section shall include, but not be limited to: cleaning of mainlines and manholes and TV inspection of designated sanitary sewer main lines, traffic control as shown or required by all local, state, and federal agencies and all other incidental work specified or shown in the project plans and specifications.

B. The CONTRACTOR shall perform all work in accordance with Federal OSHA and State safety requirements, including those for confined space entry.

1.2 SUBMITTALS

A. Information on all cleaning and TV inspection equipment proposed for use by the CONTRACTOR, including a listing of size, type and capabilities of each piece of equipment.

B. A traffic control plan that shall include, but not be limited to: staging sites, impacts to traffic patterns, considerations of bus traffic, as well as proposed signs, detours and flaggers.

C. The CONTRACTOR shall provide the following cleaning and CCTV reports:

1. Mainline Cleaning Report
2. TV inspection record
3. Recorded DVD copies of inspection
4. Manhole Inspection Report

1.3 CONTRACTOR'S RECORD DRAWINGS

A. The CONTRACTOR shall maintain a detailed record, including a neatly marked set of construction drawings if applicable, of the sanitary sewer pipes associated with this work, including but not limited to: any differences in alignment, pipe size and manhole or cleanout location discovered during the progress of the work. Records and Drawings shall be kept current with the work as it progresses and shall be subject to inspection by the Asotin County PUD at any time.

B. The location, alignment, lengths and sizes of the sanitary sewer lines shown on the Drawings are compiled from available records and/or field surveys. The Asotin

County PUD does not guarantee the completeness of such records. All dimensions shall be verified by the CONTRACTOR.

PART 2 PRODUCTS

2.1 WATER FOR CLEANING

A. The Asotin County PUD will provide water required for cleaning operations from metered hydrants. The Asotin County PUD will provide the meter assembly. The CONTRACTOR shall provide all hoses, adapters and appurtenances required for obtaining water from the designated hydrants. Access to the hydrants shall not be obstructed in case of fire in the area served by the hydrant.

2.2 CLEANING EQUIPMENT

A. General

1. The CONTRACTOR shall furnish and utilize a combination of high velocity hydraulic cleaning equipment and a vacuum unit as specified or required. High velocity cleaning equipment shall be used to clean all sewer mainlines unless otherwise specified or approved by the ENGINEER. Low velocity or mechanical cleaning equipment shall not be used in lieu of high velocity equipment.

B. High Velocity Cleaning Equipment with Vacuum Pickup of Materials

1. High velocity cleaning equipment shall be capable of providing up to 200 gallons per minute at 2,000 pounds per square inch (psi) of working pressure. The CONTRACTOR shall provide a minimum of 500 feet of 1-inch ID high-pressure hose with at least two (2) cleaning nozzles. The nozzles shall be capable of producing a scouring action from 15 to 45 degrees in all size lines designated to be cleaned. The equipment shall also include a high velocity “gun” for cleaning manhole walls and bottoms. The equipment shall be complete, including 1,200-gallon water tanks suitable for holding corrosive or caustic chemicals, pumps, hose, hydraulically driven hose reel, auxiliary engines, controls and all safety features required by law.

2. The cleaning equipment shall have an integral vacuum unit to allow the material cleaned from the pipes to be vacuumed directly from the manhole.

3. The CONTRACTOR shall provide additional cleaning equipment, including root cutters, as required to satisfactorily clean the pipe.

2.3 TV INSPECTION EQUIPMENT

A. A closed circuit color television (CCTV) camera capable of providing still pictures and videos shall be used on all lines. The CCTV equipment shall be specifically designed for sewer inspection operations and shall be operative in 100 percent

humidity conditions. Lighting and camera quality shall be suitable to allow a clear focused picture a minimum of six (6) linear feet in front of the camera of the entire inside periphery of the pipe. The camera shall have an adjustable focus distance from six (6) inches to infinity, and the camera lights shall be variable intensity, with light, focus and aperture remotely controlled by the operating technician at the monitoring station.

B. Camera travel speed shall be from 1.8 to 30 feet per minute (fpm) with smooth, uniform motion. Sudden stops and starts will not be acceptable. Camera shall be capable of stopping and reversing direction as necessary to document sewer conditions. Video pictures shall be clear, sharp and free from vibratory or electrical interference when the camera is in operation.

C. A CCTV camera with pan-tilt capabilities shall be used on all lines larger than six (6) inches in diameter. The CCTV camera shall be a tractor-powered camera being able to inspect dead end lines, and shall be remotely controlled by an operating technician.

D. The monitoring station shall be truck-mounted, capable of seating two viewing personnel and one operating technician. The monitoring station shall be fully enclosed within a rigid weatherproof enclosure on the TV truck.

E. A minimum of two (2) color display monitors (minimum 650 lines horizontal resolution) operating simultaneously shall be used in the monitoring station. The monitors shall be of a proper size to allow all viewing personnel in the monitoring station a satisfactory view, and shall continuously display the current date, manhole designation of the mainline being inspected and a continuous forward and reverse read-out of the camera distance from the manhole of reference.

PART 3 EXECUTION

3.1 TEMPORARY TRAFFIC CONTROL

A. Provide as required to meet County, City and State requirements.

3.2 MAINTAINING SEWER FLOWS AND CLEANING PRECAUTIONS

A. All sanitary sewer system components shall remain in service through the cleaning and TV inspection operations unless specific exceptions are approved in writing by the ENGINEER.

B. During cleaning operations, precautions shall be taken by the CONTRACTOR in the use of cleaning equipment. When hydraulically propelled cleaning tools, which retard the flows in the sewer lines are used, precautions shall be taken to ensure that the water pressure created does not damage or cause flooding of public or private property being served by the sewer. Precautions shall be taken to protect the sewer lines and manholes from damage that may result from the improper use of cleaning

equipment. The CONTRACTOR shall be solely responsible for the repair of any damage to structurally sound lines or damage to properties connected to the sewer which results from the cleaning operations.

C. The methods used to maintain flows shall be at the CONTRACTOR'S option and may include use of flow-through plugs with periodic release of sewage flow or bypass pumping. The bypass system, if used, shall be capable of conveying flows when the sewers are flowing full.

3.3 CLEANING

A. Clean all sewer lines and manholes designated on the Drawings or directed by the Asotin County PUD prior to CCTV inspection, including the manholes at both ends of the section to be inspected. Equipment as specified shall be used for cleaning.

B. All dirt, sand, grease, rocks, roots or other accumulations shall be removed from pipe walls and manholes. Existing lines shall be protected from damage caused by cleaning operations. Hydraulic cleaning operations shall be conducted with care to avoid damage to pipes and manholes, or flooding of adjacent property.

C. All sewers shall be cleaned with high velocity equipment unless the Asotin County PUD allows otherwise. The Asotin County PUD may order the use of other methods or equipment when it appears necessary.

D. All materials removed from the pipes during the cleaning operations shall be collected by a vacuum unit from the manhole downstream of the section being cleaned and removed by the CONTRACTOR. Passing accumulated materials from manhole section to manhole section shall not be permitted.

E. The CONTRACTOR shall be responsible for the proper and legal disposal of all materials removed from the sewers and in a manner acceptable to the Asotin County PUD.

F. Manhole and sewer cleaning reports shall be submitted on forms matching or similar to the format of the cleaning report forms included at the end of this section. All reports shall be completely filled out and provide all essential data, including:

1. Location of mainline segment or manhole being cleaned (street name and manhole designation as shown on the drawings);

2. Diameter of sewers, in inches;

3. Estimated amount and type of material removed from pipe or manhole.

G. Two (2) copies of the typed Mainline Cleaning Report forms shall be furnished to the Asotin County PUD as specified below.

H. Acceptance of the cleaning work will not be made until after the submittal of the cleaning reports and the CCTV inspection reports and tapes. Lines will be

considered acceptably clean when sufficient material has been removed to restore the sewer line to 95 percent of its original flow capacity.

3.4 SEWAGE FLOW CONTROLS

A. The methods used to maintain flow shall be at the CONTRACTOR'S option and may include the use of flow-through plugs or bypass pumping.

B. During periods of very high flows when lines flow greater than half full, the CONTRACTOR, with the Asotin County PUD's approval, shall suspend sewer cleaning operations until flows are again less than half full.

C. Depths of flow at the downstream manhole during television inspection shall not exceed those shown below when performing television inspection of the lines.

Pipe Diameter (inches)	Maximum Flow Depth % of Pipe Diameter
6 – 10	20
12 – 24	25
30 - 42	30
48 - 72	35

D. When the sewage depth of flow at the downstream manhole of the mainline section being inspected is above the maximum allowable for television inspection, the CONTRACTOR shall provide flow-through plugs or other means where necessary to ensure that the flows are reduced to the levels specified above.

3.5 CCTV INSPECTION

A. Internal CCTV inspection of sanitary sewer mainlines as shown on the drawings shall be performed only after the sewers have been thoroughly cleaned so that service connections, cracks, leaks and structural failures may be located. Asotin County PUD to perform post-construction Hydro-flush and camera inspections. Contractor shall perform all sewer pre-construction inspections.

B. The CCTV inspection shall be performed on one mainline section at a time and between two manholes. Each mainline section being inspected shall be isolated from the remainder of the line as necessary by the use of line plugs or bypass pumping to insure viewing of the inside periphery of the pipe. The TV inspection shall be performed by moving the television camera through the line along the axis of the pipe. The inspection shall be performed in a forward and/or backward direction, according to line conditions at the time the inspection is made.

C. The pan-tilt camera shall be turned to view directly up the axis of each service lateral encountered.

D. During the CCTV inspections, a record shall be kept which shows clearly the exact location in relation to the centerline of the adjacent manhole of each service

connection, crack, leak or structural fault discovered. To ensure accurate measurement, the measurement shall be made at or above ground level by means of a meter device. Marking on a cable or the like which would require interpolation for the depth of the manholes shall not be used. Accuracy of the distance meter shall be checked by use of a walking meter, measuring wheel or other suitable device, and the accuracy shall be satisfactory to the Asotin County PUD.

E. The TV inspection record shall be submitted on forms matching or similar to the format of the report forms included at the end of this section. All reports shall be completely filled out and provide all essential data, including:

1. Location of mainline segment being tested (street name and designation as shown on the drawings);
2. Pipe diameter in inches;
3. Type and condition of the pipe;
4. Length and type of joints;
5. Presence and location of roots or visible leaks;
6. Location and description of any cracks, breaks, misalignments or obstructions;
7. Location and diameter of service laterals, including clock position as viewed from the camera;
8. Condition of the portion of lateral visible from pan-tilt camera;
9. Estimates of flows from service pipes and estimates of whether flow is domestic or I/I.

F. Two (2) copies of the printed Television Inspection Report form shall be furnished to the ENGINEER.

G. All video inspections shall be saved on an external hard drive together with voice transmissions of sewer conditions. The video records shall be accurately referenced to the corresponding inspection report and shall be organized and catalogued so that specific faults can easily be located on the hard drive.

3.6 MANHOLE INSPECTION REPORTS

A. Manholes at each end of any sewer section that is TV inspected shall be inspected. The manhole inspection reports shall be completed and submitted on forms matching or similar to the format of the report forms included at the end of this section. Two (2) copies of the printed Manhole Inspection Report form shall be furnished to the Asotin County PUD.

3.7 REPORT SUBMITTALS

A. All cleaning and TV inspection and manhole inspection reports shall be typed and organized by manhole numbers and submitted in 3-ring binders along with the DVDs.

MAINLINE CLEANING REPORT

Date:	Client: City:			Basin #:
Technician:	Unit #:	Weather:	Cleaned By:	Report #:

Method of Measurement		# Tanks /Hours	Footage / Diameter (in)	Gallons Removed & Type of Debris / Line Completion Status
☐ Scaled by Map ☐ Measured by Tape	☐ TV Report ☐ Approximated			
1. MH #_____to MH #_____. Location: Comments:				Line Complete? (Yes/No)
2. MH #_____to MH #_____. Location: Comments:				Line Complete? (Yes/No)
3. MH #_____to MH #_____. Location: Comments:				Line Complete? (Yes/No)
4. MH #_____to MH #_____. Location: Comments:				Line Complete? (Yes/No)

5. MH #_____to MH #_____. Location: Comments:			Line Complete? (Yes/No)
6. MH #_____to MH #_____. Location: Comments:			Line Complete? (Yes/No)
7. MH #_____to MH #_____. Location: Comments:			Line Complete? (Yes/No)
8. MH #_____to MH #_____. Location: Comments:			Line Complete? (Yes/No)

Type of Debris: S = Sand; R = Rock; G = Grease; B = Broken Pipe; RT = Roots	**Total Line Footage Complete this Date**	
	Size (in)	Footage
Notes:		

TELEVISION INSPECTION REPORT

Date:	Client: City:					Basin #:	
Technician:	Inspector:		Weather:	Cleaned By:		Report #:	Tape #:
From MH #: Street:	Pipe Diam. (in):	Joint Length (ft):	Section Length (ft):	Joint Type:	Pipe Mat'l:	To MH #: Street:	

Pipeline Data: Cleanliness:_____ Alignment:_____ Grade:_____ Age:_____ % Leaking Joints (Estimated):_____ Other:	Footage	Problem Coded	Comments	I/I (gpm)
Manhole Data: (See attached Manhole Inspection Report) **Turnaround:** Requested (Date/Time): _____ Authorized (Date/Time: _____				

MANHOLE INSPECTION REPORT

Date:	Client: City:		Basin #:
Technician:	Weather:	Cleaned By:	Report #:
MH #	MH Location (street and nearest cross-street, or address):		

Surface Cover

Cover: AC _____ Concrete _____ Gravel _____
Dirt _____ Other (Specify):_____

Ability to access MH: Satisfactory _____ Poor _____

Condition:

Deterioration
Light _____
Medium _____
Heavy _____

Condition of Rim:
Satisfactory_____
Poor_____

Traffic:

Traffic Conditions:
Light _____
Medium _____
Heavy _____

Materials of Construction

Number of Holes in Lid: _____

Manhole Type: Flat Top _____
Cone _____

Cone: Precast _____ Brick _____
Wall: Precast _____ Brick _____
Base: Precast _____ Brick _____

Hydraulic Conditions

Location Est'd I/I (gpm)

Cover _____
Ring _____
Riser _____
Cone _____
Wall _____
Bench _____
Pipe Collar _____

Inlets and Outlets:	**Flow & Leaks:**	**Rim Location:**
Line Diam. Direction Depth from Rim Outlet:_____ _____ _____ft____in Inlets: A: _____ _____ _____ft____in B: _____ _____ _____ft____in C: _____ _____ _____ft____in D: _____ _____ _____ft____in	Flow Depth (in): _____ Leaks? Yes _____ No _____ Leak Locations:	Rim Elevation: _____ _____ at grade _____ below grade by ____in. _____ above grade by ____in.

END OF SECTION

SECTION 230

PIPE BURSTING FOR GRAVITY SEWER AND STORM DRAIN

PART 1 GENERAL

1.1 SECTION INCLUDES

A. "Pipe Bursting" gravity sewer or storm drain pipe repair/rehabilitation method including materials, installation and testing.

1.2 REFERENCES

A. ASTM F 714: Polyethylene Plastic Pipe Based on Outside Diameter

B. ASTM D 1248: Polyethylene Plastics Molding and Extrusion Materials

C. ASTM D57: Standard Practice for Heat Fusion Jointing of Polyethylene Pipe and Fittings

D. ASTM D 3034: Standard Specification for Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings

E. ASTM D 3350: Extra High Molecular Weight, High Density Polyethylene Pipe

F. AWWA C 906: High Density Polyethylene Pipe for Water Distribution

1.3 SUBMITTALS

A. Submit the following information for ENGINEER's review prior to work:

1. Qualifications of the Pipe Bursting Contractor

a. Name, business address and telephone number of the Pipe Bursting Contractor including certification by the Pipe Bursting System Manufacturer that the Contractor is a licensed installer of their system, and the designated installer has been trained on the fusion equipment required for the Work.

b. Name(s) of all supervisory personnel to be directly involved with pipe bursting for the project.

c. Sign and date the information provided and certify that to the extent of his knowledge, the information is true and accurate, and that the supervisory personnel for the pipe bursting method will be directly involved with and used on the project. Substitutions of personnel and/or methods are not allowed without written authorization of the ENGINEER.

d. The Pipe Bursting Contractor shall have experience with projects of similar size and complexity as this project, minimum of 5,000 feet of pipe bursting within the last 5 years, or otherwise allowed prior to bid acceptance. Experience shall apply if footage installed was of a diameter within two standard pipe sized of the proposed pipe, no smaller than six-inch diameter.

2. Construction Procedures

   a. Written descriptions of the construction method(s), materials, and equipment to be used and pit dimensions and locations required for equipment and material access.

   b. Written descriptions of the construction method(s) and equipment to be used to penetrate blockages and/pr partially collapsed sections of the host conduit. Such work to be accomplished without excavation from the surface unless written authorization is obtained from the ENGINEER for surface excavations to remove blockages.

   c. Detailed descriptions of the methods of modifying existing manholes to accept bursting head and pipe.

   d. Descriptions of methods for making a water-tight seal between new pipe and existing manholes.

3. Submit traffic control plans and obtain permits as required by local jurisdiction.

4. Submit a sewage bypass plan that complies with Section 240, Sewage Bypass Systems

1.4 QUALITY ASSURANCE

A. Quality assurance of the pipe shall include certified laboratory data confirming that the tests have been performed on a sample of the pipe provided or on pipe from the production run. Tests must show that satisfactory results were obtained prior to installation of the pipe.

1.5 WARRANTY

A. The CONTRACTOR shall provide a warranty to be in force and effect for a period of one year from the date of final acceptance. The warranty shall cause the CONTRACTOR to repair or replace the new HDPE pipe should failure result from faulty materials or installation.

1.6 PROJECT RECORD DOCUMENTS

A. Accurately record actual location of constructed pipelines and service reconnections in relation to existing permanent benchmarks.

B. Submit drawing showing accurate dimensions, elevations, details of pipe and appurtenances including reconnection locations to the ENGINEER within 30 days of completion of the project.

1.7 DELIVERY, STORAGE AND HANDLING

A. Unload, store and load pipe and ancillary items in a manner which prevents shock, damage or excessive exposure to sunlight and weather.

PART 2 PRODUCTS

2.1 PIPE BURSTING EQUIPMENT

A. Equipment for mainline pipe bursting equipment shall be either:

1. Constant tension, variable speed winch and pneumatic hammer; or

2. Static hydraulic system with use of steel rods. Systems using chain or cable are allowed as long as the integrity of the chain or cable is checked and verified for the applicable project conditions.

2.2 PIPE SIZE, TYPE AND STRENGTH

A. Comply with pipe size, type, and strength classifications indicated in the Contract Documents.

B. Notify the ENGINEER if installation conditions, such as soils not matching conditions contemplated by the Contract Documents.

2.3 PIPE BURSTING PIPE

A. Pipe for pipe bursting shall be Solid Wall High Density Polyethylene (HDPE) per the requirements of Section 303

2.4 SEWER LATERALS

A. Unless otherwise indicated in the Contract Documents, service line replacement pipe to be PVC conforming to ASTM D 3034.

B. Inserta Tee, Electrofusion Saddle, or approved substitution.

C. Size to match existing service line.

2.5 MANHOLE CONNECTIONS

A. See Standard Drawings.

PART 3 EXECUTION

3.1 NOTIFICATIONS/PERMITS

A. Notify ENGINEER at least two working days (48 hours) in advance of mobilizing to a line segment for pipe bursting.

B. Notify Local One Number Locator Service at least two working days (48 hours) in advance of any excavation.

C. If access to provide property will be impacted, notify affected property owner(s) at least two working days (48 hours) in advance of mobilizing to a line segment for repair. Make suitable arrangements for property owner access to property.

D. Obtain all necessary permits including right-of-way permits.

3.2 PIPE JOINING

A. Prepare pipe per Section 303.

3.3 EXAMINATIONS

A. Verify utility locations, existing piping locations, and structure where pipe bursting is to be made prior to beginning work. Notify the ENGINEER if field conditions are different from the Contract Documents. If necessary, allow 4 hours for the ENGINEER to modify the design without the Asotin County PUD incurring increased project cost.

B. Verify that trench conditions and shoring, sheeting, and bracing protect workers and meet the requirements of OSHA.

C. Examine Pipe and Fittings.

D. Verify pipe, fittings and materials delivered to the site meeting the requirements of the Contract Documents.

3.4 SEGMENT MOBILIZATION/DEMOBILIZATION

A. Place construction traffic control devices in accordance with the Traffic Control Plan.

B. Move necessary equipment and materials to the site.

C. After completion of pipe bursting, perform surface restoration, remove equipment and excess material from site. Dispose of any removed materials at the CONTRACTOR’s designated disposal site. Provide final clean up of the site. Remove construction traffic control devices.

3.5 SEWAGE BYPASS SYSTEMS

A. Prior to pipe bursting, implement bypass flow procedures in accordance with Section 240, Sewage Bypass Systems.

3.6 PRE-PIPE BURSTING OPERATIONS

A. Location of Sewer Laterals

1. Existing active sewer laterals shall be marked in the field for the sewer main section to be burst. The CONTRACTOR shall work with the Asotin County PUD to assist in verifying the status (active or inactive) of any sewer laterals if there is uncertainty as to its status.

2. Where indicated on the Drawings, the CONTRACTOR shall provide dye testing to verify active laterals.

B. Pre-Excavation of Sewer laterals

1. Conduct pre-excavation of sewer laterals only when specifically required in the Contract Documents.

   a. Locate, excavate and expose all sewer laterals before pipe bursting operations commence.

   b. Do not reconnect service to the replacement pipe until installation and testing are complete.

   c. If laterals are pre-excavated, Contractor shall make sure to not leave any portion of the existing sewer main pipe exposed prior to bursting activities. Contractor to ensure that sufficient cover is kept around the sewer main at all times during pipe bursting operations to prevent impacts to the bursting installation line or grade. Any deflections or low/high spots in the sewer main as a result of insufficient cover on the sewer main shall be repaired at the Contractors expense.

C. Existing Manholes

1. If the pipe bursting tool and the replacement pipe is to traverse any existing manhole which is to remain in-place without interruptions during the pipe bursting operation (as shown on the Drawings), open the conduit entrances and exits to the manhole to the required dimensions and modify the manhole invert before the pipe bursting operations commence.

D. Cleaning and CCTV

1. Clean the host conduit per Section 220, Sanitary Sewer Main Cleaning and TV Inspection, prior to commencing pipe bursting operations.

2. Provide CCTV of the existing line per Section 220, Sanitary Sewer Main Cleaning and TV Inspection, and verify location of services.

E. Point Repairs or Removal of Line Obstructions

1. Point repairs or removal of obstructions shall be performed by the CONTRACTOR where video inspections reveal heavy solids, dropped or offset joints, or collapsed pipe that cannot be removed by conventional sewer cleaning equipment and may prevent the proper completion of the pipe bursting process. The work shall include verifying the location of the point repair, locating all interfering utilities, temporary flow bypassing, traffic control, excavation, shoring, dewatering, pipe repairs or replacements, connections to the existing pipe, backfilling and surface restoration. If such repairs are not previously indicated on the drawings or elsewhere in the contract documents, then the work will constitute extra work when approved by the ENGINEER.

F. Sags in Existing Sewer Mains

1. Sags in existing sewers are to be corrected by the CONTRACTOR and will be identified by the ENGINEER in the field. After the sewer has been cleaned and inspected using CCTV the ENGINEER will review the video and determine which portions of sewer main lines need sag removal. Sags will be remedied by the excavation around and removal of the existing host pipe in the vicinity of the sag. The new HDPE sewer pipe will then be routed through the open excavation thereby eliminating the sag. Once the new HDPE pipe is in place, bedding and backfill is to be placed under the pipe per Section 102.

G. Relief Pits

1. Where indicated on the Drawings, provide a relief pit by exposing crossing utilities to a depth of a minimum of 1-foot below the invert of the utility and support in accordance with purveyor requirements. Protect all utilities unless otherwise noted.

3.7 PIPE BURSTING OPERATIONS

A. General

1. Carry out operations in strict accordance with all applicable OSHA Local, and State Safety Standards.

2. Do not change any material, thickness, design values or procedural matters stated in the submittals, without the prior knowledge and approval of the ENGINEER.

3. At the receiving manhole, verify that the existing manhole can withstand the winching force needed for operation of the pipe bursting tool.

B. Pit Locations

1. If the locations of pits are shown on the Drawings, submit any proposed revisions to the planned locations and reasons for relocation to the ENGINEER for review, prior to construction. Include any appropriate sketches deemed necessary by the ENGINEER.

2. If pit locations are not shown on the Drawings, submit proposed locations and dimensions to the ENGINEER for review prior to construction.

3. Obtain all necessary permits for work on the final pit locations.

C. Staging

1. If not indicated on the Drawings, delineate the proposed staging areas and submit to the ENGINEER for review.

2. Secure required approvals and permits for assembly and storage of pipe materials in the staging areas.

3. Transport pipe materials to the job site and assemble as close to the work area as practicable. Provide protection to pipe if dragging more than 300 feet to the insertion point. Replace pipe that has been damaged in the opinion of the ENGINEER.

D. Operation of Pipe Bursting Machine and Installation of Replacement Pipe

1. Install the specific type of replacement pipe material in the locations as shown on the Drawings. Allow for expansion and shrinkage to provide the correct length of pipe from manhole to manhole.

2. Limit vibrations transmitted to the surrounding soils to a peak particle velocity at ground of 0.5 inches per second.

3. As the pipe bursting tool is advanced through the host conduit, advance the replacement pipe directly behind the tool to fill the void left by the fragmented host conduit.

4. Limit the length of continuous replacement pipe assembled on the surface and pulled into the insertion to a maximum of three hundred (300) feet, or provide countermeasures to reduce the amount of length the pipe is to be dragged, or provide calculations that show additional length can be installed without damage to the pipe or receiving manhole. When requested, provide measurement information to the ENGINEER documenting compliance with this requirement.

5. Fuse pipe segments together per ASTM D 2657 or use heat fusion coupling as approved by the ENGINEER.

6. Remove internal bead so weld is flush with pipe interior surface.

E. Connections to Manholes

1. Allow main line to acclimate to new temperature for a time recommended by the pipe manufacturer but not less than four hours prior to final trimming of pipe ends and finishing of manhole connections.

2. The connection to the manhole shall be per the Standard Drawings. The Contractor may make connection to manholes using and HDPE pipe stub and Electro-Fusion coupling after the main line acclimation period. No other pipe connection method outside the manholes is allowed. The Contractor shall note use of Electro-Fusion coupling on the Record Drawings. Costs shall be included in the pipe bursting costs.

3. Contractor shall reinstate manhole bases by installing non-shrink grout per Specification Section 210 to return manhole channels to a smooth surface that promotes laminar flow of water. Contractor shall ensure that post construction manhole transitions from pipe to manhole and back to pipe are smooth and void of irregular surfaces.

3.8 SEWER LATERALS

A. Reconnect all active existing service lines as indicated on the Drawings or as identified in CCTV taping, after the replacement pipe has been completely installed and tested.

B. Allow main line to acclimate to new temperature for a time recommended by the pipe manufacturer but not less than four hours prior to reconnecting any service laterals. New sewer lateral connections to the main shall not shift due to main line pipe acclimation. If service laterals are shown to have shifted, the contractor shall reconnect the service laterals at their own expense.

1. Service interruptions as specified in Section 240 may be increased and the Contractor shall have services reestablished within the same workday of the pipe bursting section. The Contractor shall monitor sewer laterals for potential backup and provide vactor pumping, bypass or other means to mitigate the risk of backup as needed.

C. Provide couplings as required to make a watertight connection between the tee and the service line. Refer to Section 200, PVC Pipe for Storm Drainage & Sanitary Sewer.

3.9 FIELD QUALITY CONTROL

A. The Contractor shall verify leak free fusing of pipe via data logging of each pipe joint, pre Section 303.

3.10 CLEANING AND SURFACE RESTORATION

A. Upon completion of the pipe bursting operations, restore all areas disturbed by operations in accordance with the Drawings. If not specifically indicated, restore all areas to pre-project conditions.

END OF SECTION

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SECTION 231

CURED-IN-PLACE PIPE

PART 1 GENERAL

1.1 SCOPE

A. This section contains requirements for the materials, labor and equipment required to rehabilitate existing active sanitary sewer using cured-in-place pipe (CIPP). This section also contains other items required to accomplish the WORK (ie, bypass pumping, traffic control and public outreach).

B. For CIPP design purposes; all existing pipe segments are assumed to be fully deteriorated and shall be rehabilitated as defined and directed by ASTM F1216 – 09, and treated with a Full Structural CIPP System.

C. After installation of the liner, full and functional access shall be re-established at manholes. When complete, the liner shall extend from manhole to manhole.

D. Prior to CIPP lining, the pipe shall be bypassed, cleaned and CCTV inspected to confirm segments that will require point repair of localized defects as noted in the DRAWINGS. All portions of existing pipe are to be provided with new pipe lining.

E. The CONTRACTOR shall take measurements in the field to properly size diameter of pipe and liner and shall verify the length of the pipe prior to ordering the liner.

1.2 REFERENCES

A. This Specification references ASTM International (ASTM) Standard Specifications, which are made a part hereof by such reference and shall be the latest edition and revision thereof. In case of conflicting requirements between this Specification and these referenced documents, this Specification shall govern.

1. ASTM:

a. ASTM F412 – Definitions of Terms Relating to Plastic Piping Systems.

b. ASTM D543 - Standard Test Method for Resistance of Plastics to Chemical Reagents.

c. ASTM D638 – Standard Test Method for Tensile Properties of Plastics.

d. ASTM D790 – Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.

e. ASTM D792 – Standard Test Methods for Density and Specific Gravity of Plastics by displacement.

f. ASTM D883 – Definitions and Terms Relating to Plastics

g. ASTM F1216 – Rehabilitation of Existing Pipelines and Conduits by Inversion and Curing of Resin-Impregnated tube.

h. ASTM D1682 – Standard Test Method for Breaking Load and Elongation of Textile Fabric.

i. ASTM F1743 – Standard Practice for Rehabilitation of Existing Pipelines and Conduits by Pulled-in-Place Installation of Cured-in-Place Thermosetting Resin Pipe (CIPP).

j. ASTM F2019 – Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Pulled in Place Installation of Glass Reinforced Plastic (GRP) Cured-in-Place Thermosetting Resin Pipe (CIPP).

k. ASTM D2122 – Standard Test Method for Determining Dimensions of Thermoplastic Pipe and Fittings.

l. ASTM D2990 – Tensile, Compressive, and Flexural Creep and Creep-Rupture of Plastics.

m. ASTM D3567 – Standard Practice for Determining Dimensions of Reinforced Thermosetting Resin Pipe (RTRP) and Fittings.

n. ASTM D5813 – Cured-in-Place Thermosetting Resin Sewer Pipe.

o. National Association of Sewer Service Companies – NASSCO. Pipe Assessment and Certification Program (PACP).

1.3 DEFINITIONS

A. Defect: A portion of a buried pipe that is defective and requires point repair. The ENGINEER and Asotin County PUD have identified defects for repair on the project DRAWINGS.

B. Point Repair: A point repair is an attempt to repair a relatively localized defect. Point repairs identified in the DRAWINGS shall include the following WORK:

1. Removal and replacement of pipe segments identified. The finished liner shall extend through each of the point repairs.

1.4 PACKAGING, HANDLING, SHIPPING, AND STORAGE

A. The CONTRACTOR shall be responsible for the delivery, storage, handling, and installation of all materials for CIPP or point repair in accordance with the written manufacturer's requirements and recommendations.

B. The CONTRACTOR shall exercise adequate care during transportation, handling, and installation to ensure the CIPP material is not torn, cut, exposed to direct sunlight or otherwise damaged or result in any public safety hazard. If any part or parts of the CIPP materials becomes torn, cut, or otherwise damaged before or during insertion, it shall be repaired or replaced in accordance with the manufacturer's recommendations and approval by the ENGINEER before proceeding further; and at the CONTRACTOR's expense.

C. Onsite storage locations shall be approved by the ASOTIN COUNTY PUD and ENGINEER.

1.5 CIPP SYSTEM DESIGN CRITERIA

A. The CIPP system design criteria shall be as follows:

1. A Fully Deteriorated Pipe condition (per ASTM F1216-09, Appendix X1.1.2),

2. Type III Classification (per ASTM D5813-04),

3. Grade 2, or 3 (per ASTM D5813-04), the CONTRACTOR and CIPP system manufacturer shall recommend which Grade condition best suits the project or project segments.

B. The CIPP structural requirements are as follows:

Property	**ASTM Test Method**	**Polyester System**	**Filled Polyester System**	**Vinyl Ester System**
Flexural Strength	D790	4,500 psi	4,500 psi	5,000 psi
Flexural Modulus (Initial	D790	250,000 psi	400,000 psi	300,000 psi
Flexural Modulus (50 yr)	D790	125,000 psi	200,000 psi	150,000 psi
Tensile Strength	D638	3,000 psi	3,000 psi	4,000 psi

C. The required structural CIPP wall thickness shall be based on the physical properties of the cured composite and per the design of the Professional Engineer

and in accordance with the Design Equations contained in the appendix of the ASTM standards, and the following design parameters:

Design Parameter Table	
Host Pipe Condition	Fully Deteriorated
Design Safety Factor	2.0
Ovality (calculated from [X1.1 of ASTM F1216])	0 to 5% Measured Ovality Design for 6% 5 to 10% Measured Ovality Design for 10% Greater than 10% Measured Ovality provide repair to a maximum of 5%.
Soil Modulus	1,000 psi
Groundwater Depth	Ground Surface
Soil Depth (above crown of existing pipe)	Varies, see plans
Live Load	AASHTO HS-20 Highway
Soil Load	140 pcf
Minimum Service Life	50 years

1. The manufacturer must have performed long-term testing for flexural creep of the CIPP pipe material installed by the CONTRACTOR. Such testing results are to be used to determine the long-term, time dependent flexural modulus to be utilized in the product design. This is a performance test of the materials (tube and resin) and general workmanship of the installation and curing. A percentage of the instantaneous flexural modulus value was used in design calculations for external buckling. The percentage, or the long-term creep retention value utilized, will be verified by this testing; retention values exceeding 50 percent of the short-term test results shall not be applied. The materials utilized for the WORK shall be of a quality equal to, or better than, the materials used in the long-term test with respect to the initial flexural modulus used in the CIPP design.

2. The layers of the cured CIPP shall be uniformly bonded. It shall not be possible to separate any two layers with a probe or point of a knife blade so that the layers separate cleanly or the probe or knife blade moves freely between the layers. If the layers separate during held sample testing, new samples will be required to be obtained from the installed pipe. Any reoccurrence may cause rejection of the WORK.

3. Any layers of the tube that are not saturated with resin, prior to insertion into the existing pipe, shall not be included in the structural CIPP wall thickness computation.

4. The CIPP shall meet the chemical resistance requirements of ASTM F1216, Appendix X2, CIPP samples for testing shall be of tube and resin system similar

to that proposed for actual construction. It is required that CIPP samples, with and without plastic coating, meet these chemical testing requirements.

5. The hydraulic profile shall be maintained as large as possible. CIPP shall have a minimum of the full-flow capacity of the original pipe before rehabilitation. Calculated capacities may be derived using a commonly accepted roughness coefficient for the existing pipe material taking into consideration its age and condition.

D. Approved curing methods:

1. Hot Water
2. Steam
3. Ultraviolet Light (UV)

1.6 SUBMITTALS

A. CONTRACTOR shall furnish data covering the CIPP system, design options and installation. Submittals shall be made in a timely manner so that the project schedule can be met. Submittals shall include the following:

1. Qualifications of the CIPP Manufacturer

a. Company specializing in manufacturing the Products specified in this section with minimum 3 years' experience, or otherwise allowed prior to bid acceptance.

b. Manufacturer: Company shall be ISO 9001 certified.

2. Qualifications of the CIPP Installer

a. Name, business address and telephone number of the CIPP Installer including certification by the CIPP Manufacturer that the Contractor is a currently licensed installer of their system, and the designated installer has been trained on the fusion equipment required for the Work. Certification shall be provided to the ENGINEER before any materials are ordered.

b. Name(s) of all supervisory personnel to be directly involved with CIPP replacement. A certified affidavit, signed by an officer of the CIPP system manufacturing company, shall be provided stating that the CIPP installer's on-site Field Superintendent has received proper training by the manufacturer for the UV, steam or hot water CIPP liner installation methods and procedures, as applicable. Certification shall be given to the ENGINEER before any materials are delivered to the job site.

c. Sign and date the information provided and certify that to the extent of his knowledge, the information is true and accurate, and that the supervisory personnel for the pipe bursting method will be directly involved with and

used on the project. Substitutions of personnel and/or methods are not allowed without written authorization of the ENGINEER.

d. Company shall have experience with projects of similar size and complexity as this project, minimum of 100,000 feet of installed CIPP product within the last 5 years, or otherwise allowed prior to bid acceptance. Experience shall apply if footage installed was of a diameter within two standard pipe sizes of the proposed pipe to be lined as part of this project.

e. Project Superintendent: Project Superintendent shall have a minimum of 5 years' experience as a Superintendent on CIPP projects and have supervised the installation of 50,000 feet of installed product within the last 5 years, or otherwise allowed prior to bid acceptance. Experience shall apply if footage installed was of a diameter within two standard pipe sizes of the proposed pipe to be lined as part of this project.

3. The CONTRACTOR shall submit the Vendor's specific technical data with complete physical properties of the liner and dimensions pertinent to this job including the type of tube material, resin and catalyst/hardener to be used; certification stating CIPP tube has been manufactured in accordance with ASTM F1216 (or ASTM F1743 or F2019 if applicable), and resin is suitable for its intended use. Prior to insertion, the CONTRACTOR shall provide data on the maximum allowable stresses, maximum pulling force (if pull-in-place method is used), and maximum elongation of the tube. Submittals shall detail short and long term properties (providing all supporting test data) of all component materials and construction and recommendations for material storage and temperature control, CIPP liner handling, insertion, curing, trimming and finishing shall also be provided.

4. The CONTRACTOR shall submit structural design calculations for each CIPP liner segment (manhole to manhole) for fully deteriorated pipe condition to include size, the recommended thicknesses, resin types and mixes, field measurements, and assumptions used as the basis for calculations which demonstrate that the liner has been properly sized to avoid the creation of wrinkles or folds shall be provided. All calculations shall be signed and sealed by a Registered Professional Engineer in the state of Washington and submitted in duplicate to the ENGINEER at least 10 working days prior to the start of WORK.

5. The CONTRACTOR shall take the necessary measurements in the field to properly size the liner and shall verify the length and diameter of the pipe to be lined prior to ordering the liner. The CONTRACTOR will be allowed access to the existing project structures 7 days after the Notice to Proceed is issued by the ASOTIN COUNTY PUD to verify pipe diameters. For bidding purposes, the CONTRACTOR shall assume that the nominal pipe diameter for estimating the size of the CIPP liner is as shown on the DRAWINGS.

6. The CONTRACTOR shall submit a certificate of "Compliance with Specifications" for all materials supplied.

7. The CONTRACTOR shall submit a site health and safety plan and a traffic control plan which provides for the passage of pedestrians and vehicles, and a bypass pumping plan before beginning any WORK.

8. The CONTRACTOR shall submit an installation access plan which includes access structures or manhole locations, a site plan sketch showing dimensions of access within WORK limits and utilities, approximate installation rate (ft/day), appropriate excavation/backfill/resurfacing procedures where applicable, and a schedule and timeline of CIPP activities identified by line segment.

9. The CONTRACTOR shall provide a delivery manifest for each CIPP liner delivered to the site with the following information:

    a. The inversion location where the liner will be installed.

    b. Provide the manhole numbers for either end of the installation.

    c. If the CONTRACTOR has assigned an installation number provide that number as well.

    d. Liner diameter, length and thickness.

    e. Type and amount of resin.

    f. Proposed curing method.

10. The CONTRACTOR shall submit copies of all appropriate construction permits.

11. The CONTRACTOR shall submit a work plan for acceptance. The WORK plan shall address the following:

    a. Proposed WORK Schedule broken into major operations for each site.

    b. Equipment schedule with hourly rental rates that define:

        1) The price per hour of the equipment while operating, without operator.
        2) The price per hour of the equipment in stand-by mode.

    c. Personnel roster with

        1) Position
        2) Experience with CIPP or the assigned task
        3) Price per hour for the person including all overhead costs.

d. Preparation steps required for pre-installation, installation, curing and clean up.

12. The CONTRACTOR shall submit information for approval of the procedure and the steps to be followed for the installation of CIPP pipe lining method selected. Any proposed changes in installation procedures shall require a submittal of revised procedures.

13. From Part 1.05 – CIPP Design Criteria, the CONTRACTOR shall submit engineering design calculations, in accordance with the Appendix of ASTM F1216 and the design criteria listed herein. CIPP wall thickness calculations and resin selections shall be submitted for each length of liner to be installed. These calculations shall be performed and certified by a, qualified Washington Registered Professional Engineer. All calculations shall include data that conforms to the requirements of these specifications.

14. The CONTRACTOR shall submit full technical data with complete physical properties for lining materials and resins and their properties, including, but not limited to, fabric tube, flexible membrane and coating, and raw resin data.

15. The CONTRACTOR shall submit a public information and notification program, including examples of information that shall be distributed to each property and an information delivery schedule that shall be coordinated with the construction schedule for each site.

16. The CONTRACTOR shall submit copies of NASSCO-PACP training certificates for employees performing the WORK.

17. The CONTRACTOR shall submit labeled inspection hard drive or DVD and inspection logs (NASSCO PACP format only) immediately following completion of CCTV inspection after cleaning prior to CIPP lining operations and again after completion of CIPP lining operations prior to removal of bypassing system for approval by the Asotin County PUD or ENGINEER. Information shall include all video files as well as still photographs of each significant defect encountered organized into individual folders by pipe segment. Label shall contain the following information:

    a. Name of facility owner

    b. Project title, project number, address and locations of inspections.

    c. Pipe segments inspected including structure identification numbers and stationing.

    d. Date of inspection.

    e. Name of video inspection company.

f. Reverse setups (if any).

18. The CONTRACTOR shall submit certification that staff to be used for the WORK is properly trained in confined space entry and hazardous atmospheres.

19. The CONTRACTOR shall submit a detailed quality control plan as specified herein.

20. The CONTRACTOR shall submit process control sheet including temperature/time log information and curing cycle, vendor certification of proper installation, and certified copies of test reports on CIPP coupons obtained during actual installation.

21. The CONTRACTOR shall submit proposed method and materials to be used to access and provide point repairs where required on the DRAWINGS.

22. The CONTRACTOR shall submit a detailed site specific bypass plan per Section 240.

1.7 RESPONSIBILITY FOR CONTROL OF GROUNDWATER

A. CONTRACTOR shall control groundwater intrusion to ensure the proper install of the CIPP system and all appurtenances. Groundwater control is specified in the Dewatering Section(s).

B. In addition to dewatering efforts the CONTRACTOR shall install a moisture barrier between the host pipe and the CIPP liner in the form of a Preliner Tube.

1. The Preliner Tube shall prevent reduction in physical properties and contamination of the resin by water or other contaminants.

2. The Preliner Tube shall prevent the CIPP resin from migrating to the exterior of the host pipe through cracks or holes in the host pipe.

3. The Preliner Tube may be omitted from the project only from a Value Engineering analysis. Only the ASOTIN COUNTY PUD will be allowed to omit this requirement from the project. If the CONTRACTOR wishes to omit this from the project, the following must be submitted to the ASOTIN COUNTY PUD 10 working days prior to approval for consideration.

a. Reason for eliminating the Preliner Tube

b. Estimated cost savings to the project

c. Method the CONTRACTOR recommends to prevent groundwater from compromising the integrity of the liner or resin concentration.

PART 2 PRODUCTS

2.1 GENERAL

A. Liner pipe shall be a resin-impregnated flexible felt tube that is inserted in one of the following ways:

1. Hydro-statically inverted into place into the existing (host) sewer pipeline. Hydrostatic inversion is specifically required for inversion of the pipe. Curing shall be accomplished by circulating hot water or pressurized steam to cure the resin into a hard, impermeable, corrosion resistant pipe-within-a-pipe.

2. Pulled in place into the existing (host) sewer pipeline with a winch and cable system. Prior to installation using this method a removable barrier shall be installed to protect the liner as it is pulled in place. The barrier shall not remain in place after the liner is installed. Curing shall be accomplished by exposing the interior of the liner to a UV emitting light train specifically designed to cure CIPP products. When installed using either of the above methods and cured, the finished pipe will be continuous, tight fitting against the interior wall of the existing sewer and will be a structurally stand-alone pipe capable of withstanding exterior loading and interior stresses.

B. All materials provided by the CONTRACTOR for use in the CIPP installation process shall be equal to or exceed the requirements of Section 5 in ASTM F1216-09, as is applicable.

C. CONTRACTOR shall be responsible for the control of all material and CIPP process variables required to provide the desired project results. The completed CIPP system shall provide to the ASOTIN COUNTY PUD the properties in ASTM F1216-09 applicable to this WORK.

D. Other proposed liner products must be pre-approved by the ENGINEER. Alternate liner products will be considered if the liner meets the design SPECIFICATIONS contained in section 1.05 of this SPECIFICATION and the following are submitted to the ENGINEER for consideration 10 working days prior to bid opening:

1. Liner manufacturer.
2. Resin properties.
3. Curing method.
4. Installation method.
5. Preliner availability.
6. Advantages over the specified product.

E. The ENGINEER or other designated representative shall be entitled to inspect CIPP lining and witness the CIPP manufacturing, preparation, and installation.

F. The Preliner Tube shall be a reinforced plastic sheet formed to fit the host pipe being lined and shall be continuous from manhole to manhole. The Preliner Tube shall be a rated gas barrier for styrene.

2.2 MATERIALS

A. Resins shall be tinted for visibility and provide positive indication of adequate liner wet-out. The resin systems for the rehabilitation of pipelines shall be a corrosion-resistant thermoset polyester resin and a catalyst system or epoxy resin and hardener that is compatible with the inversion process or a vinyl ester thermoset resin systems with catalyst system that is compatible with the installation process. The systems when properly cured shall meet the requirements of ASTM F1216-09 and ASTM D5813. The resin shall produce a CIPP that shall comply with structural and chemical resistance requirements of this specification. Resins should be appropriate for conditions encountered in a sanitary sewer environment. Resins should withstand the corrosive effect of residential, commercial, and industrial effluents, liquids, and/or gases common to sewers. Resins should be resistant to abrasion caused by solids, grit, aggregate, and/or sand.

B. The woven tube (tube) shall consist of one or more layers of absorbent, flexible felt fabric. The layers may be woven or non-woven materials or a combination thereof, capable of carrying resin, able to withstand installation pressures, and hold up under curing temperatures and processes. The tube shall be sewn or spot-welded and shall be constructed to withstand installation pressures, have sufficient strength to bridge missing pipe segments, and stretch to fit irregular pipe sections. The seams of the tube must be leak free and stronger than the non-seamed felt. Seams in the tube shall be stronger than the non-seamed felt material. The CONTRACTOR shall verify the lengths in the field prior to ordering and prior to impregnation of the tube with resin, to ensure that the tube will have sufficient length to extend the entire length of the run. The CONTRACTOR shall also measure the inside diameter of the existing pipelines in the field prior to ordering the liner so that the liner can be installed in a tight-fitting condition.

C. The outer layer of the tube before wet out (impregnation) shall be coated with an impermeable, flexible membrane that will contain the resin and facilitate monitoring of resin saturation during the resin impregnation procedures and to facilitate post installation inspection.

D. The wet out tube shall have a uniform thickness that when compressed at installation pressures shall meet or exceed the design thickness. The tube shall be homogeneous across the entire wall thickness. No dry or unsaturated layers shall be evident. The wet out tube shall have a relatively uniform thickness that when compressed at installation pressures shall equal or exceed the calculated minimum design CIPP wall thickness. The outside of the tube shall be marked for distance at regular intervals along its entire length, not to exceed 5 feet. Such markings shall include the manufacturer name.

E. The chemical resistance tests should be completed in accordance with Test Method D543. Exposure should be for a minimum of one month at 73.4 degrees Fahrenheit. During this period, the CIPP test specimens should lose not more than 20 percent of their initial flexural strength and flexural modulus when tested in accordance with Section 8 of ASTM F1216 or ASTM F1743, when subjected to the following solutions:

Chemical Solution	Tube Concentration (%)
Tap Water (pH 6-9)	100
Nitric Acid	5
Phosphoric Acid	10
Sulfuric Acid	10
Gasoline	100
Vegetable Oil	100
Detergent	0.1
Soap	0.1

F. The tube shall be free from defects, such as, tears, holes, cuts, foreign materials, blisters, cracks, and other surface defects. The tube shall be homogenous across the entire wall thickness. No dry or unsaturated layers shall be evident.

G. All materials used to cross traffic pathways are required to be traffic rated.

PART 3 EXECUTION

3.1 CONTRACTOR'S RESPONSIBILITIES

A. Locate and designate all proposed manhole access points as necessary for the WORK.

B. Provide water from designated and metered fire hydrants for cleaning, installation and other process related WORK items requiring water. CONTRACTOR shall comply with all Asotin Count PUD connection and use requirements.

C. Locate and mark all existing utilities in areas where excavation is to be performed prior to beginning any excavation. Protect utilities in place or relocate at no additional cost to the ASOTIN COUNTY PUD.

D. CONTRACTOR shall conduct operations in strict accordance with all applicable Federal, State, City, and OSHA standards and shall secure the site for the working conditions in compliance with the same.

1. The CONTRACTOR shall submit a proposed safety plan, prior to beginning any WORK, identifying all competent persons. The plan shall include a description of a daily safety program for the job site and all emergency procedures to be implemented in the event of a safety incident. All WORK shall be conducted in accordance with the CONTRACTOR’s submitted safety plan.

3.2 INSTALLATION ACCESS PLAN

A. Submit an Installation Access Plan. Plan shall include:

1. Proposed access/insertion pit locations.

2. Site plan sketch showing dimensions of access within WORK limits and utilities.

3. Limits of any excavation and other work that may be required for CIPP installation.

B. Schedule and timeline of CIPP lining activities identified by line segment.

3.3 FIELD VERIFICATION OF DIMENSIONS

A. The CONTRACTOR is responsible for field verifying the inside dimensions of the sewer and the lengths between access manholes/structures prior to ordering the flexible liner tube.

3.4 TEMPORARY FLOW DIVERSION AND BYPASS PUMPING

A. CONTRACTOR shall provide for flow of sewage around the section or sections of pipe designated for repair. Bypassing operations shall be per Section 240.

3.5 CIPP THROUGH MANHOLES AND STRUCTURES

A. Where shown on the DRAWINGS or otherwise designated, the CIPP shall pass through the manhole or concrete structure without interruption. In such cases, the top of the liner shall be removed in workmanship like manner and prepared for the integration into existing structure per the manufacturer's instructions.

B. Where shown on the DRAWINGS or otherwise designated, the CIPP liner shall be terminated at the end of the host pipe. The CIPP liner shall be terminated per the manufacturer's instructions.

1. If the structure is coated with a corrosion resistant liner, the CIPP liner shall be integrated into the manhole coating system as directed by the DRAWINGS or per the manufacturer's instruction to create a permanent seal between all surfaces and coating and lining systems.

2. The CONTRACTOR shall integrate the liner end into the existing structure per the manufacturer's instruction to create a permanent seal between the liner and the structure surface.

3.6 NON-UNIFORMITY OF HOST PIPE

A. The design for the sewer lining shall recognize the non-uniform cross section, deterioration of the host pipe, and the bifurcation which may be present at the springline of the pipe.

B. No excessive internal pipe deformities, sharp edges or broken reinforcing shall remain in the pipe in preparation for CIPP operations.

3.7 CLEANING

A. CONTRACTOR shall clean sewers per Section 220.

3.8 CCTV INSPECTION

A. After cleaning, inspection of pipelines shall be performed by the CONTRACTOR using closed circuit television (CCTV) inspection techniques. See Section 220.

B. If point repairs are required on the project, the CONTRACTOR shall re-inspect the interior of the pipe prior to commencing lining operations.

C. Internal inspection data will be used by the CONTRACTOR, and verified by the Asotin County PUD or ENGINEER to determine any potential conflicts with the rehabilitation technique proposed for the project, including the following:

1. Cleaning certification prior to rehabilitation

2. Identification of pipeline condition and defects that make rehabilitation unsuitable and requires repair of the pipe.

3. Establish/confirm the size and location of lateral sewers where a connection liner will be installed after pipe rehabilitation.

4. Final acceptance of the WORK.

D. After each pipe segment is cleaned and inspected, the CONTRACTOR shall notify the onsite representative (Asotin County PUD or ENGINEER) to confirm the information, review the footage and either give approval or give the CONTRACTOR direction as to what remains to be done to finish the cleaning for the subject pipe segment. The CONTRACTOR shall not be allowed to line a segment without the approval by all required parties.

3.9 POINT REPAIRS

A. Defects: There are localized defects identified in the project DRAWINGS that are located within the pipe and require point repairs prior to commencement of CIPP operations.

B. Method of Point Repair: All identified point repairs shall be excavated and the section of the main that is defective physically removed from service and replaced. See the Drawings for details, locations and pipe lengths.

3.10 SEALS

A. Manhole Connections

1. If the liner is installed through manholes, the top half of the CIPP liner shall be neatly cut off, the liner shall not be broken or sheared off. The remaining liner shall be transitioned to the existing structure bench/channel by filling any void spaces with non-shrink grout and sealed with corrosion resistant sealant. The transition shall be watertight, flexible and impervious to hydrogen sulfide.

2. In cases where the liner terminates at a structure the liner shall be transitioned to the existing structure channel by filling any void spaces with non-shrink grout and sealed with corrosion resistant sealant. The transition shall be watertight, flexible and impervious to hydrogen sulfide.

3.11 INSTALLATION

A. Install in accordance with ASTM F1216, Section 7, or ASTM F1743, Section 6, with the following modifications for water or steam cured CIPP liners:

1. The CONTRACTOR shall designate the location where the CIPP felt tube would be impregnated with resin ("wet-out"). Locations shall be subject to approval by the ENGINEER and applicable local agencies. The CONTRACTOR shall allow the ENGINEER to inspect the materials and "wet-out" procedure. If the "wet-out" location is not at the project site, the impregnated CIPP tube shall be transported to site under controlled environmental conditions. Transport vehicles shall include a tamper-resistant, sealed temperature-recording device which records the temperature of the liner at all times after leaving the wet-out site. The CONTRACTOR shall decide when to transport the impregnated CIPP tube to site and when to commence insertion with respect to weather conditions.

2. The quantity of resin used for tube impregnation shall be sufficient to fill the volume of air voids in the tube with additional allowances for polymerization shrinkage and the loss of resin through cracks and irregularities in the original pipe wall. A vacuum impregnation process shall be used to ensure thorough resin saturation throughout the length of the felt tube.

3. Vacuum impregnation process is required. The point of vacuum shall be no further than 25 feet from the point of initial resin introduction. After vacuum in the tube is established, a vacuum point shall be no further than 75 feet from the leading edge of the resin. The leading edge of the resin slug shall be as near to perpendicular to the longitudinal axis of the tube as possible. A roller system

shall be used to uniformly distribute the resin throughout the tube. If the Installer uses an alternate method of resin impregnation, the method must produce the equivalent results. Any alternate resin impregnation method must be documented to the ENGINEER and Asotin County PUD's satisfaction that the saturation of the CIPP is sufficient.

4. The wet-out tube shall be positioned in the pipeline using inversion methods. The tube should be inverted through an existing manhole or approved access point and fully extend to the next designated manhole or termination point. There are to be no sections of pipe that are not lined.

5. Prior to installation, and as recommended by the manufacturer, remote temperature gauges or sensors shall be placed inside the host pipe to monitor the temperatures during the cure cycle. At a minimum, temperature gauges shall be placed inside the tube at the invert level of each end to monitor the required temperatures during the cure cycle. Liner and/or host pipe interface temperature shall be monitored and logged during curing of the liner.

6. The CONTRACTOR shall cap each end of the liner and use liner restraints in the manholes. The CONTRACTOR shall introduce water or air into the liner to inflate the liner until it has a tight fit against the inner walls of the host pipe producing dimples at lateral and side connections and flared ends at manholes. All hoses/pipes used for introducing water or air shall be ramped during the installation and curing process to allow for the ease of vehicular and pedestrian traffic. All hoses/pipes shall be color-coded for identification to prevent the use of hoses/pipes used for water conveyance are not used for wastewater conveyance or vice versa.

B. Install in accordance with ASTM F2019 Section 6, manufacturer recommendations and the following for UV cured CIPP liners:

1. The CIPP liner shall make a tight-fitting seal with the existing pipe in the access structures. If the CIPP fails to make a tight seal, the CONTRACTOR shall apply a seal at that point using a sealant or caulking material that is compatible with CIPP materials, watertight, flexible and impervious to hydrogen sulfide.

2. The finished CIPP liner shall be continuous over the entire length of an insertion run between two manholes and be free from visual defects such as foreign inclusions, dry spots, pinholes and delamination.

3. The ultraviolet barrier that encases the CIPP liner may be considered a preliner.

4. The liner shall be pulled into place per the manufacturer's recommendations. All point repairs shall be completed prior to installation so that there are no opportunities for liner to snag or get caught on protrusions and potentially damage the pipe.

5. The liner shall be inflated with air before curing with Ultraviolet light according to the manufacturer's specifications.

6. The CIPP liner shall be impregnated to meet the manufacturer's specifications with UV Curing Resins in the manufacturing facility prior to delivery to the site or installation. No onsite wet-out facility will be allowed. The CONTRACTOR shall allow the Asotin County PUD or ENGINEER to inspect the liner after delivery to the site and prior to installation.

7. The liner shall be inserted through existing structures. CONTRACTOR shall utilize a winch to pull the liner into place prior to curing. The winch shall be able to fully extend to the designated structure for attachment to the liner. The liner shall be inflated slightly per the manufacturer's specifications to facilitate insertion of the UV light chain. The liner shall be inspected with a camera mounted on the UV chain as it is pulled the entire length of the liner. The CONTRACTOR shall allow the Asotin County PUD or ENGINEER to view the inspection as it occurs.

3.12 CURING

A. HOT WATER CURING

1. CONTRACTOR shall use a flexible and impermeable calibration hose to inflate the tube. The calibration hose may or may not remain in the complete installation. Any dry tube or inflation hose material that enters the existing pipe that has not been previously vacuum impregnated with resin under controlled conditions cannot be included in the structural wall of the CIPP. The nominal thickness of this material shall be deducted from the field sample thickness measured in order to verify that the minimum specified wall thickness is achieved. Hose material remaining in the installation shall be compatible with the resin system used, shall bond permanently with the tube, and shall be translucent to facilitate post installation inspection. Hose materials which are to be removed after curing, shall be of non-bondable material. After the tube is inserted through the pipe section, the CONTRACTOR shall heat the water by circulating it through a boiler, where the hot water will cause the resin to cure.

2. The CONTRACTOR shall monitor the temperature of the tube liner during curing by remote temperature sensors placed at the interface of the existing pipe and the CIPP. A minimum of two temperature sensors shall be installed, one at either end of the length being lined. The curing process shall not be terminated until the temperature sensor readings indicate that a satisfactory cure has been completed. Any extended cure times shall not adversely affect the properties of the CIPP lining material.

3. Circulation water shall cool down to at least 100 degrees F for 1 hour before releasing the hydrostatic head.

4. The rate of temperature rise and fall during heating and cooling shall not exceed 2 degrees F per minute.

5. The water shall be evacuated from the pipe at a controlled rate to prevent negative pressure in the pipe. The water shall not be released until the water is at an ambient air temperature.

B. STEAM CURING

1. Steam source and air compressors are used to circulate the steam/air mixture through the pipe at a temperature recommended by the manufacturer causing the resin to harden.

2. The CONTRACTOR shall monitor the temperature of the tube liner during curing by remote temperature sensors placed at the interface of the existing pipe and the CIPP. A minimum of two temperature sensors shall be installed, one at either end of the length being lined. The curing process shall not be terminated until the temperature sensor readings indicate that a satisfactory cure has been completed. Any extended cure times shall not adversely affect the properties of the CIPP lining material.

3. The temperature of the air shall cool down to at least 140 degrees F for 1 hour before releasing air pressure. The outlet hose shall be equipped with a pressure regulating valve, temperature gauge, and pressures gauge.

4. After installation is completed, suitable heat source and water circulation equipment are required to circulate heated water throughout the pipe. The equipment should be capable of delivering hot water throughout the section to uniformly raise the temperature above the temperature required to effect curing of the resin. Water temperature in the line during the cure period should be as recommended by resin manufacturer. Once curing is complete, the CONTRACTOR shall cool the CIPP in accordance with approved CIPP manufacturer's recommendation.

C. ULTRAVIOLET CURING

1. After inspection and complete inflation to the manufacturer's specifications, the UV light bulbs will be activated. The curing shall commence at a rate specified by the manufacturer according to the total dimensions of the liner. The CONTRACTOR shall strictly adhere to the manufacturer's specified cure schedule.

2. As the light chain is pulled from one end of the liner to the other at a constant rate curing the liner, the equipment shall record all curing data in DVD format for the review and records of the Asotin County PUD.

3. Initial cure shall be deemed complete when the UV chain arrives at the initial insertion point.

3.13 REINSTATEMENT OF SERVICE CONNECTIONS

A. Reinstatement of service connections shall consist of robotically cutting, brushing, and polishing the newly installed liner to allow sewer flows to resume through the service connection. No additional payment shall be made for reopening or providing satisfactory leak free piping connections and restoration from inside the pipe. The CONTRACTOR shall be responsible for all costs and liability associated with such reinstatement.

B. It is the CONTRACTOR's responsibility to identify and ensure all active services are reconnected. CONTRACTOR shall be responsible for all damages caused by their failure to locate and properly restore all active service connections.

C. Services that contain factory caps that are visually verified by the contractor do not require reconnection to the main.

3.14 FINAL INSPECTION, TESTING AND ACCEPTANCE

A. The rehabilitated pipeline with the newly installed CIPP liner and reinstated service laterals shall be cleaned in accordance with Section 3.07 of this SPECIFICATION. The cleaning shall be completed prior to the final inspection by CCTV per Section 3.08 of this SPECIFICATION. The post installation CCTV inspection shall be completed prior to flow being returned to the sewer. The finished product shall have no visual and material defects, infiltration, no defects in smoothness and continuity, except where anticipated by the precondition of the existing pipe and the installation of point repairs and service lateral reconnections. The finished product shall be free of pinholes and reasonably free of folds and wrinkles. The chemical and physical properties of the finished product shall meet or exceed the requirements of applicable ASTM values. The wall thickness of the sample shall be in accordance with ASTM F1743, Paragraph 8.1.6.

B. If the groundwater level is above the top of the pipe throughout the length being reconstructed, an infiltration test shall be performed. If, at any time prior to expiration of the correction period stipulated in the General Conditions, CONTRACTOR shall locate the leaks and make repairs as necessary to eliminate the infiltration. All visible infiltration shall be eliminated.

C. In the absence of groundwater, an exfiltration test shall be performed. The allowable rate of exfiltration shall be equal to the limits of infiltration.

D. Acceptance of the installed liner shall be based on the post-construction video inspection per Section 3.08 of this SPECIFICATION. If repairs are required after viewing the post installation video, the CONTRACTOR shall re-video the segment after repairs are made before final acceptance will be granted.

E. Correction of failed liner deemed defective from post-installation CCTV inspection shall be repaired at no extra cost to the Asotin County PUD. Method of repair shall

be submitted by the CONTRACTOR and approved by the ENGINEER and Asotin County PUD prior to the WORK being performed.

3.15 SURFACE RESTORATION

A. All surfaces and disturbed areas shall be restored to a condition equal to or better than it was prior to the CONTRACTOR's construction operations. Restoration standards shall be governed by these project documents, the See Asotin County PUD Standard Drawings.

3.16 CLEAN-UP

A. Upon acceptance of the installation WORK and testing, CONTRACTOR shall restore the project area affected by the operations to a condition at least equal to that existing prior to the WORK.

END OF SECTION

SECTION 240

SEWAGE BYPASS SYSTEMS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Sewage bypass control systems.

1.2 SUBMITTALS

A. Submit a sewage bypass plan to the ENGINEER for review prior to the preconstruction meeting. The Plan shall include a description and details of the system, product data on all equipment to be used, and capacity of pumps (if used), intended bypass locations, when system will be required in the work sequence, noise mitigation per local ordinances, and duration the system will be online.

B. Submit a contingency plan in case of primary system failure and emergency notification protocols. A spill response plan shall be prepared and submitted for ENGINEER review. Include operation/maintenance plan of equipment, screenings, and fueling.

C. Proposed methods to notify the Asotin County PUD, impacted property owners, affected agencies, and the ENGINEER 48 hours prior to commencing sewage bypass operations.

D. ENGINEER will review the plan for sewage bypass operations and/or diversion prior to commencing sewage bypass pumping and/or diversion. The CONTRACTOR shall keep the latest plan on site at all times.

1.3 RESPONSIBILITY FOR OVERFLOWS AND SPILLS

A. It shall be the responsibility of the CONTRACTOR to schedule and perform the WORK in a manner that does not cause or contribute to incidence of overflows or spills of sewage from the sewer system.

B. In the event that the CONTRACTOR's WORK activities contribute to overflows or spills, the CONTRACTOR shall immediately take appropriate action to contain and report spillage immediately to the Asotin County PUD and Washington State Department of Ecology, isolate area from the public, and employ remediation procedures, such as stop the overflow, cleanup the spillage, and disinfect the area affected by the spill.

C. The CONTRACTOR shall be fully responsible for any damage to public or private property, or costs incurred by the property owner due to sewer backups and overflows.

PART 2 PRODUCTS

2.1 FLOW CONTROL SYSTEM

A. The flow control system shall provide adequate capacity and size to handle existing flows plus additional flows that may occur during periods of rainstorm. Capacity of the system shall be at least 100 percent of the peak flow and as additionally required based upon flow conditions. Capacity shall be determined for pipes and pumps by using a velocity of no more than 10-feet per second.

B. Flow control systems receiving flows downstream of a lift station shall be sized for the lift station flow as well as the peak flow anticipated.

C. The following data is provided for information and is based on estimated flow data for the project provided by the Asotin County PUD. The flow data is not guaranteed for accuracy. Use of this flow data in no way relieves the CONTRACTOR from their responsibilities for design, construction and operation of an adequately and properly functioning bypass system. All values are in gallons per minute.

Table: Flow Control System required flow Rates (gpm)

Slope (ft/ft)	Nominal Pipe Diam. (in)					
	6	**8**	**10**	**12**	**15**	**18**
0.002	45	97	176	286	519	844
0.004	64	137	249	405	734	1193
0.006	78	168	305	496	899	1462
0.008	90	194	352	572	1038	1688
0.010	101	217	394	640	1160	1887
0.012	110	238	431	701	1271	2067
0.014	119	257	466	757	1373	2233
0.016	128	275	498	810	1468	2387
0.018	135	291	528	859	1557	2532
0.020	143	307	557	905	1641	2669
0.022	150	322	584	949	1721	2799
0.024	156	336	610	992	1798	2923
0.026	163	350	635	1032	1871	3043
0.028	169	363	659	1071	1942	3158
0.030	175	376	682	1109	2010	3268
0.032	180	388	704	1145	2076	3376
0.034	186	400	726	1180	2140	3480
0.036	191	412	747	1214	2202	3580
0.038	196	423	767	1248	2262	3679
0.040	202	434	787	1280	2321	3774
0.042	207	445	807	1312	2378	3867
0.044	211	455	826	1343	2434	3958
0.046	216	466	844	1373	2489	4047
0.048	221	476	862	1402	2542	4134
0.050	225	485	880	1431	2595	4220

D. Plugs shall conform to the following minimum requirements:

1. Plugs shall have taps for connection of pressure gauges and air hoses and flow-through capability.

2. For pipe diameters of 24-inches and smaller mechanical plugs with rubber gaskets or pneumatic plugs with rubber boots shall be used.

3. For pipe diameters larger than 24-inches inflatable bag stoppers made in two or more pieces shall be used as manufactured by Lansas or Cherne Industries, no equal.

E. Bypass piping shall be restrained joint high-density polyethylene (HDPE) and shall meet the following criteria:

1. All piping shall be leak free.

2. All fusion joints shall meet the requirements of Section 303 including but not limited to fusion logging and approvals prior to use.

3. Pressure rating at least 1.5 times the design operating pressure.

4. Temporary HDPE pressure bypass piping shall meet ASTM D3350 and be a minimum SDR of 32.5. Joints shall be fully butt-fusion welded in accordance with ASTM 2026 and as specified in specification Section 303. All joints shall either be flanged or butt welded. Air valves shall be installed as required.

5. Piping may be reused for subsequent flow bypass pumping system placements. The Asotin County PUD or ENGINEER, at their sole discretion, shall have the right to reject sections deemed unserviceable or AT RISK.

F. Bypass pumps shall be fully automatic, self-priming units and shall conform to the following minimum requirements:

1. Open impeller design with the ability to pass minimum 3-inch-diameter solids.

2. Able to run dry for long periods of time to accommodate cyclical nature of flows.

3. The engine shall be equipped to minimize noise. All pumps shall be sound attenuated and provided with noise barricades as required. Noise levels shall comply with the local noise control ordinance. Noisy portable equipment, such as generators or compressors, shall be located as far away from sensitive noise receptor areas as practicable (sensitive noise receptors are defined as occupied buildings with windows or doors facing the site). Noise barriers shall be constructed around noisy stationary construction equipment such as compressors or generators that have to be utilized at locations near (within 100 feet of) sensitive noise receptors as defined above. Idling equipment not actively utilized for extended periods of time shall be shutoff.

4. Backup pumping capacity shall be provided. 100% full redundancy of the pumping capability will be required. The backup pumps shall be fully installed, operational, and ready for immediate use.

5. CONTRACTOR shall provide one dedicated fuel tank for every single pump if fuel driven pumps are used. CONTRACTOR shall provide a fuel level indicator outside each fuel tank. CONTRACTOR shall provide an emergency standby power generator if electric power driven pumps are used.

G. The CONTRACTOR shall employ methods and procedures that mitigate the generation and discharge of objectionable odors to the surface environment at all times.

1. The CONTRACTOR shall add ferric chloride or approved equal to the wastewater flow upstream of bypass pumping operations to reduce odor. The

CONTRACTOR shall make his own determination of flow characteristic for required dosing.

2. The CONTRACTOR shall add the ferric chloride or approved equal from a location upstream that will allow 10 to 15 minutes reaction time before the flow enters the WORK area. The chemical dosing shall reduce odors generated from the wastewater stream to a level acceptable to the Asotin County PUD. If this is not accomplished by adding the ferric chloride only, an additional control may be required. If odors are still unacceptable after addition of ferric chloride, the CONTRACTOR may also add hydrogen peroxide or approved equal. The CONTRACTOR shall add hydrogen peroxide downstream to the flow that has been dosed with ferric chloride. The Hydrogen peroxide shall be added to allow a 5-minute reaction time before flow enters the WORK area. Any dosage combination of the two chemicals may be used to ensure continuous control of odors acceptable to the Asotin County PUD.

PART 3 EXECUTION

3.1 NOTIFICATIONS/PERMITS

A. Notify ENGINEER at least two working days (48 hours) in advance of mobilizing to commence sewage bypass system or as specified in the Contract Documents.

B. Notify Local One Number Locator Service at least two wording days (48 hours) in advance of any excavation that may be required.

C. If access to provide property will be impacted, notify affected property owner(s) at least two working days (48 hours) in advance of mobilizing. Make suitable arrangements for property owner access to property.

D. Obtain all necessary permits including right-of-way permits.

3.2 PREPARATION/DEMONSTRATION

A. Design, manage, and monitor a sewage bypass control system to adequately and continuously convey all wastewater flows during construction and maintain full functionality of upstream and downstream sewer collection sewers and service lines.

B. Implement contingency plans as required.

C. Prepare all necessary diversions and modifications in accordance with the submitted sewage bypass plan as specified in the Contract Documents.

D. Provide independent temporary power sources for sewage bypass pumping equipment. Provide all necessary temporary electrical service to machinery and provisions for backup power generation. Provide personnel to operate and maintain system function throughout the bypassing period. Provide all temporary lighting,

safety control systems, and noise mitigation per local ordinances or as specified in the Contract Documents.

E. If discharging to new downstream sewers, verify that they have passed leakage testing and are approved for receiving wastewater flows. Verify with the Asotin County PUD that downstream facilities have the capacity to received discharges.

F. Bypass of sewage shall be in enclosed piping leak-tested prior to implementation. Wastewater is not permitted to flow in open trenches. Temporary gravity flow diversions through structures with partial pipes and/or baffles with concrete channels are permitted.

G. Install discharge piping in a manner to provide safe and reliable service, without disrupting public access and incorporation with the Traffic Control Plan. Maintain access to businesses and residences.

H. Notify affected property owner(s) of impeding sewer service interruption, unless otherwise approved by the ENGINEER limit service interruptions to less than two (2) hours.

3.3 SEWAGE BYPASS CONTROL SYSTEM

A. All materials and equipment used to control and/or divert flow, including, but not limited to pumps, plugs, and pipes, shall be designed and made of materials compatible with and capable of handling sewage flows without leaks or contamination of surrounding soils or surface property.

B. The CONTRACTOR shall operate the sewage bypass control system during hours of operation defined in the Contract Documents.

C. Bypass control systems shall not surcharge or in any way affect the full operating capacity of the upstream or downstream sewers, pressure sewers, or other collection system components. Surcharging shall be defined as depth of flow above the pipe crown.

D. The bypass system pumping systems shall have a high levels switch to initiate a local horn and emergency light or beacon.

E. The CONTRACTOR shall take all necessary precautions, including constant monitoring of the sewage bypass system pumping equipment, to ensure that the sewage bypass systems operations properly. The sewage bypass pumping system shall not be left unattended. The CONTRACTOR shall be liable for all cleanup, damages, and resultant fines, caused by sewage bypass system spills or inadequate system performance.

F. Implement contingency plans for equipment or power failure and unexpected flow conditions. These plans shall be provided to the ENGINEER prior to operation.

G. Provide a secondary, standby bypass system if utilizing a pumping system for sewage bypass. The secondary bypass system shall consist of a trailer-mounted unit sized for peak flow that starts automatically upon a high-level alarm in the primary bypass system. The secondary bypass system shall have an independent power supply.

H. Implement all necessary diversions and modifications in accordance with the submitted plan.

3.4 MONITORING

A. The CONTRACTOR shall provide personnel to completely and continuously monitor sewage bypass pumping, both upstream and downstream of the reach under construction in addition with an alarm/phone dialer. Bypass pumping at night will be allowed in most circumstances unless permitting agencies disapprove.

B. Install temporary plug or approved materials to divert all flows, and isolate downstream existing piping.

C. Monitor flow levels in the pipeline to ensure no backup occurs to unacceptable levels such as flooding basement floor drains. The CONTRACTOR is responsible for any damage resulting from backup flow.

3.5 SEQUENCING AND SCHEDULING

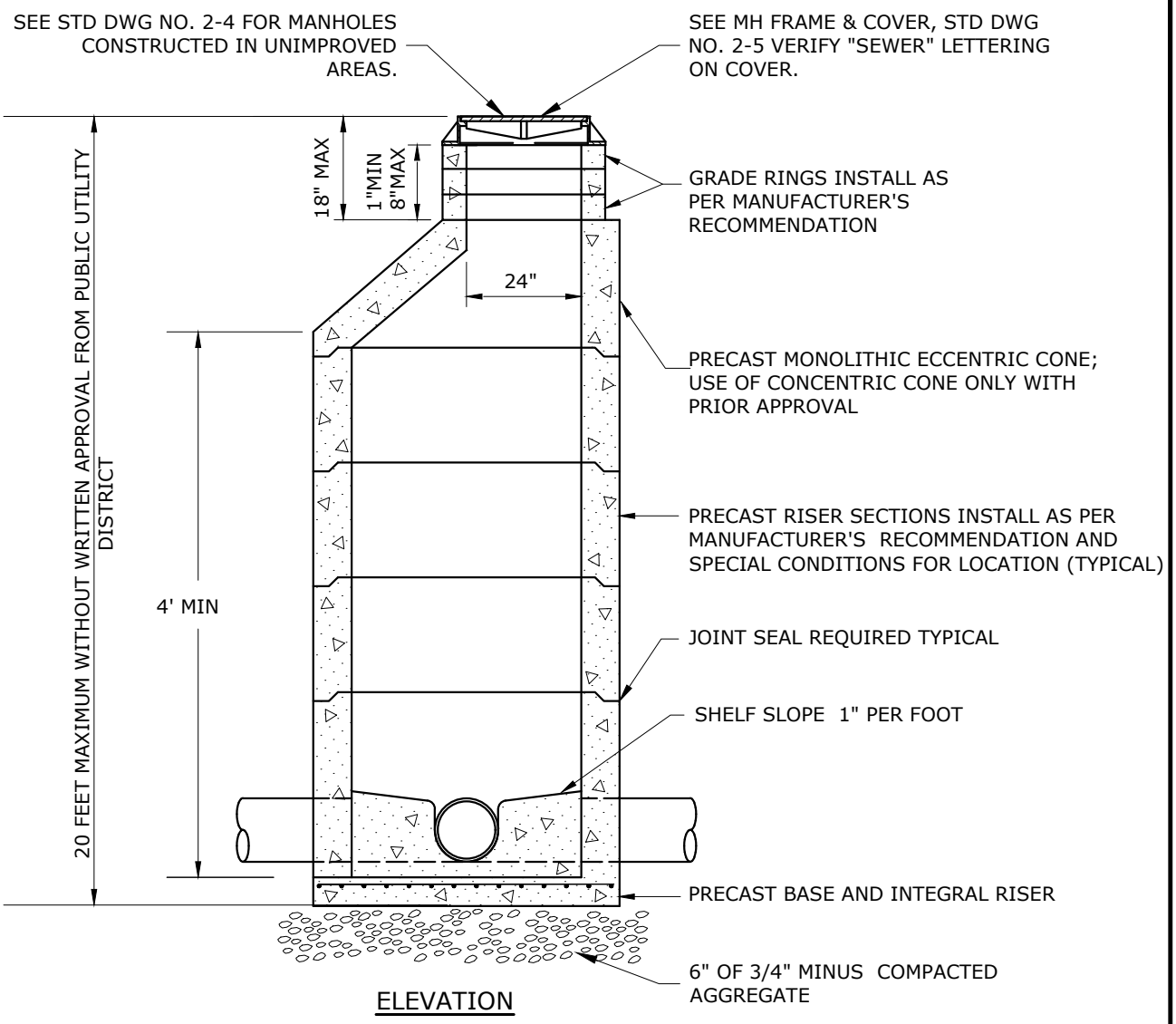
A. The CONTRACTOR shall secure written approval from the Asotin County PUD a minimum of two days (48 hours) prior to implementing each stage of sewage bypass.

3.6 TERMINATION

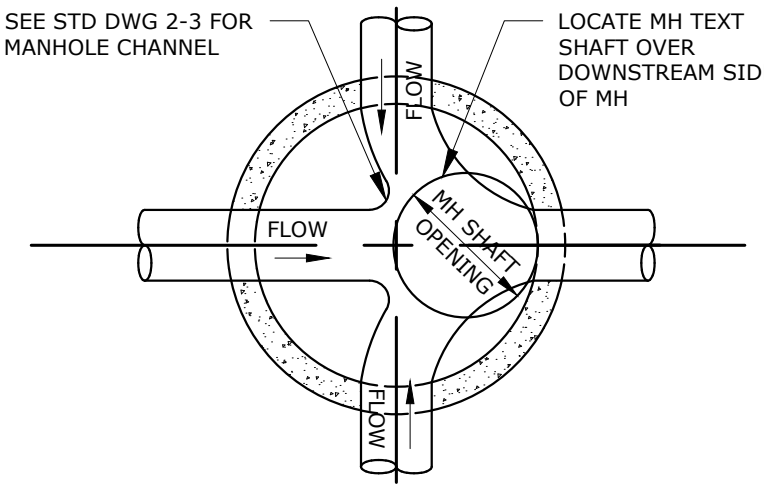
A. Remove equipment and appurtenances upon termination of sewage bypass control activities and restore disturbed areas to original condition.

END OF SECTION

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ELEVATION



PLAN

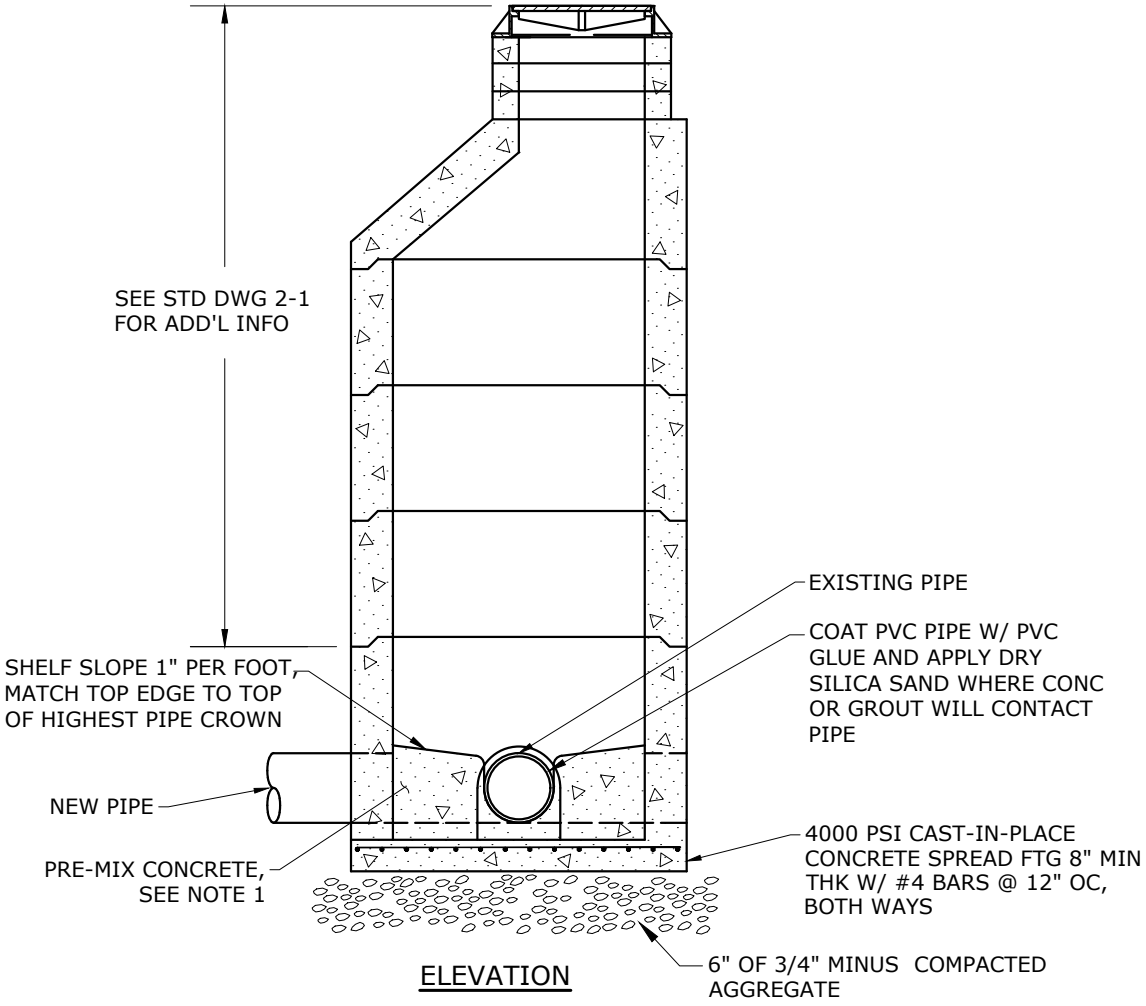
NOTES:

1. INSTALL AS PER MANUFACTURER'S RECOMMENDATION AND SPECIAL CONDITIONS FOR LOCATION.
2. FOR 48-INCH DIA, MANHOLE THE MAXIMUM PIPE SIZE IS 21 INCHES. LARGER DIAMETERS SHALL BE APPROVED BY PUD.

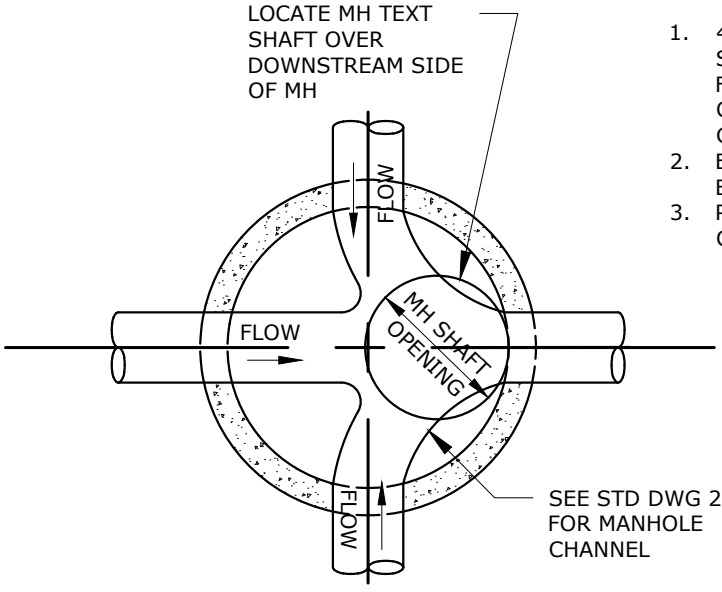
PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

STANDARD MANHOLE

REVISION DATE:	STD DWG NO.
JANUARY 2022	2-1A



ELEVATION



PLAN

NOTES:

1. 4000 PSI PRE-MIX CONCRETE WITH AIR ENTRAINMENT SHALL BE PLACED 6" (MINIMUM) UNDER SEWER MAIN TO FINISHED BENCH HEIGHT. CHANNELING SHALL BE COMPLETED AT TIME OF PLACEMENT. THIN OVERLAY OF GROUT IN CHANNELS NOT ALLOWED.
2. EXISTING PIPE SHALL NOT BE CUT OUT UNTIL AUTHORIZED BY THE ASOTIN COUNTY PUD.
3. PROTECT AND SUPPORT EXISTING GRAVITY MAIN DURING CONSTRUCTION.

PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

DRAFT

DOGHOUSE MANHOLE

REVISION DATE:	STD DWG NO.
JANUARY 2022	**2-1B**

NOTES:

1. ALL UNITS TO MEET OR EXCEED THE REQUIREMENTS OF ASTM C478/AASHTO M199. JOINTS SHALL BE RUBBER GASKET CONFORMING TO ASTM C443 AND SHALL BE GROUTED FROM THE INSIDE. LIFT HOLES SHALL BE GROUTED FROM THE OUTSIDE AND INSIDE OF THE MANHOLE.

2. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" INCHES MINIMUM.

3. RISERS, UNIT SECTIONS AND THE FRAME SHALL NOT BE MORE THAN ONE INCH OUT OF ALIGNMENT WITH THE MANHOLE BASE; PIPES SHALL BE FLUSH WITH INSIDE EDGE OF MANHOLE.

4. ADJUSTMENT RINGS SHALL MEET ASTM C478 USE NON-SHRINK GROUT TO SET AND SEAL. MINIMUM ½ INCH OF NON-SHRINK GROUT BETWEEN ONE AND RING(S). PROVIDE SMOOTH FINISH ON INTERIOR OF RINGS.

5. ALL MANHOLE JOINTS SHALL BE MADE WITH CONTINUOUS FLEXIBLE RUBBER MANHOLE GASKET.

6. MANHOLES IN AREAS OF HIGH GROUNDWATER WILL HAVE THE EXTERIOR SURFACE OF MANHOLE TO HAVE EXTENDED BASE FOR ANTI-FLOTATION, SIZE FOR SITE CONDITIONS. THE MANHOLE COATED WITH WATERPROOF MEMBRANE. JOINTS SHALL BE FURTHER SEALED WITH 12 INCH WIDE 'BESTSEAL WRAP' JOINT SEALANT FROM BESTFITT GASKET CO.

7. CONNECTION TO MANHOLE SHALL BE MADE USING RESILIENT CONNECTOR CONFORMING TO ASTM C923 SUCH AS KOR-N-SEAL, A-LOK OR APPROVED EQUAL.

8. WHERE CONCRETE OR DUCTILE IRON PIPE IS USED, STANDARD COUPLINGS SHALL BE PROVIDED FOR FLEXIBLE CONNECTIONS TO MANHOLE.

9. FOR A 48-INCH DIAM. MANHOLE THE MAXIMUM PIPE SIZE ALLOWABLE IS 21 INCHES. PIPE DIAMETERS LARGER THAN 21 INCHES MUST BE APPROVED BY THE PUD.

10. FOR UNIMPROVED AREAS, CONSTRUCT MANHOLE LID 6 INCHES ABOVE EXISTING GROUND IN AREAS OUTSIDE HARDSCAPE SURFACING UNLESS APPROVED BY PUD. PROVIDE CONCRETE COLLAR PER STANDARD DRAWING NO. 2-4.

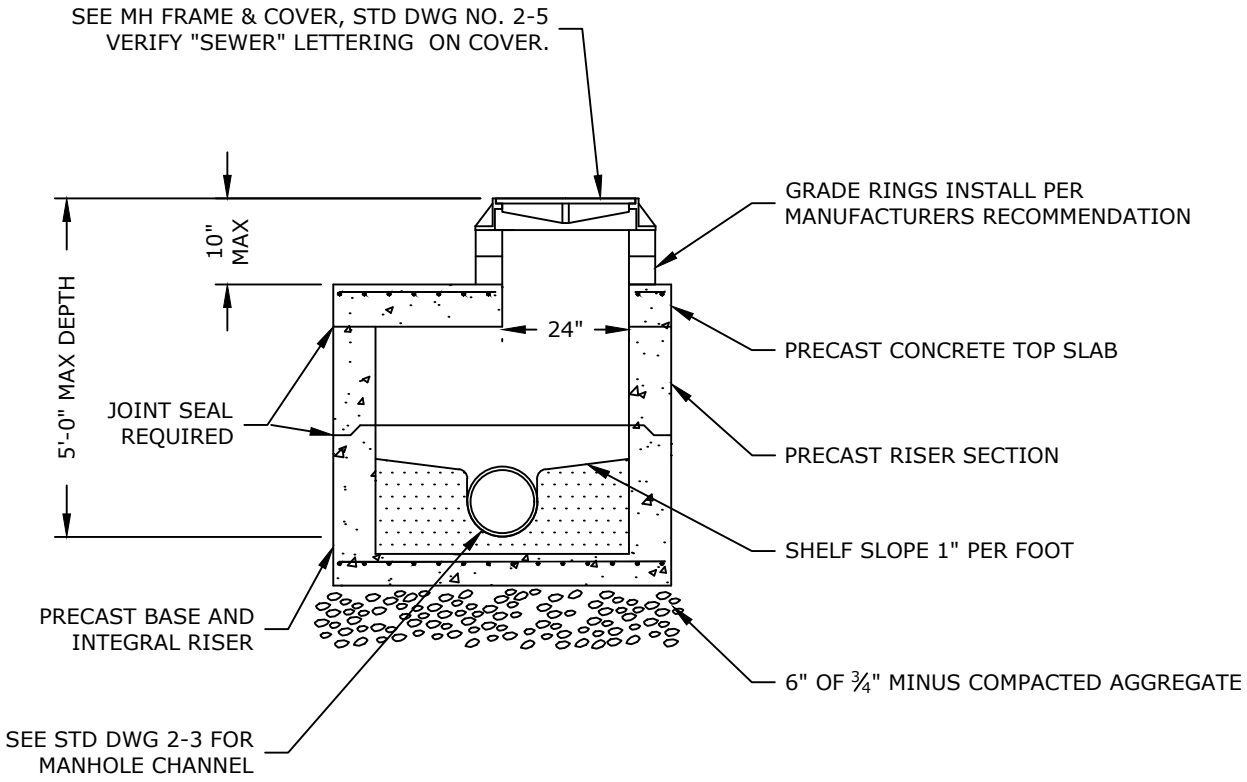
11. TESTING IS REQUIRED FOR ALL INSTALLATIONS.

PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

STANDARD MANHOLE NOTES

REVISION DATE:
JANUARY 2022

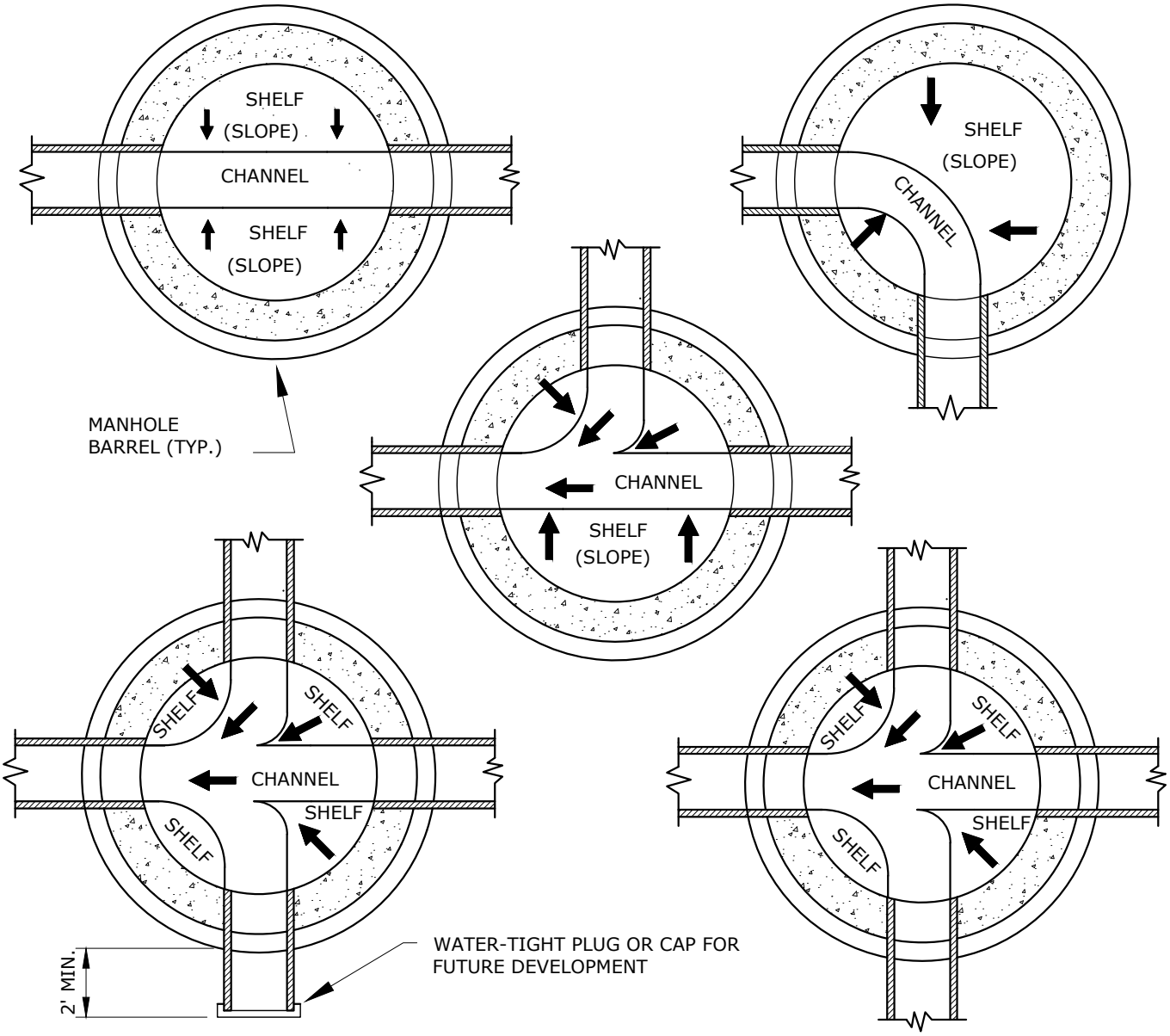
STD DWG NO.
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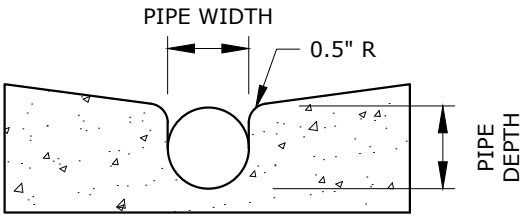


PUBLIC UTILITY DISTRICT
ASOTIN COUNTY

STANDARD SHALLOW MANHOLE

REVISION DATE:	STD DWG NO.
JANUARY 2025	2-2





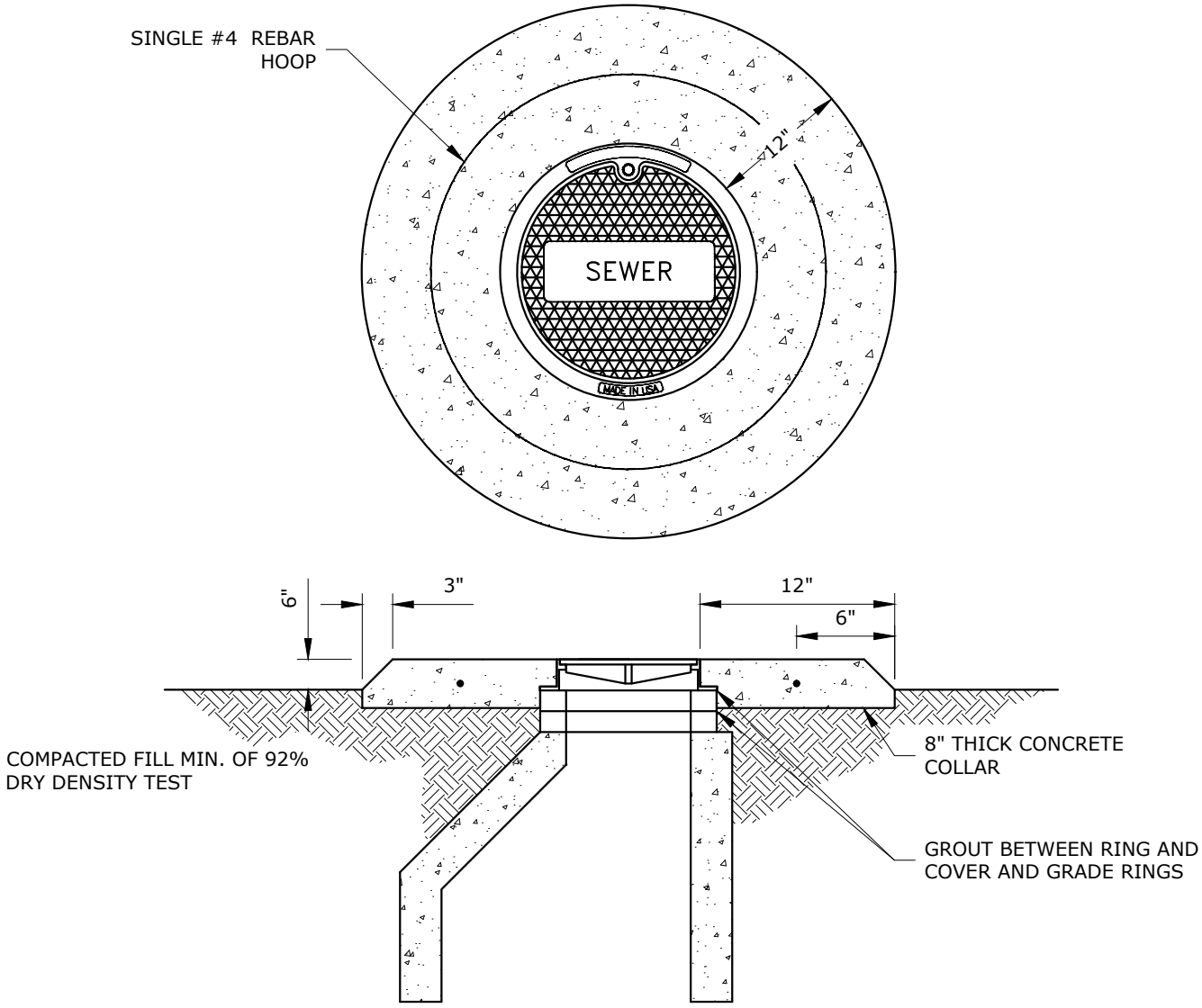
NOTES:

1. SLOPE ALL SHELVES TO CHANNEL AT 1:12.
2. SEE PLAN & PROFILE SHEETS FOR SLOPE OF CHANNEL.
3. FOR PIPES OF DIFFERENT SIZES, THE TOP OF PIPE (CROWN) SHALL BE AT THE SAME ELEVATION.
4. PROVIDE MINIMUM 0.1 FOOT IN-OUT DROP FOR STRAIGHT RUNS AND 0.2 FOOT IN-OUT DROP FOR ALL THE RUNS. PROVIDE 0.1 FOOT IN-OUT DROP FOR STRAIGHT RUNS, 0.2 FOOT IN-OUT DROP FOR 1 SIDE CHANNEL AND 0.3 FOOT IN-OUT DROP FOR 2 SIDE CHANNELS.

PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

STANDARD MANHOLE CHANNEL

REVISION DATE:	STD DWG NO.
JANUARY 2022	2-3



NOTES:

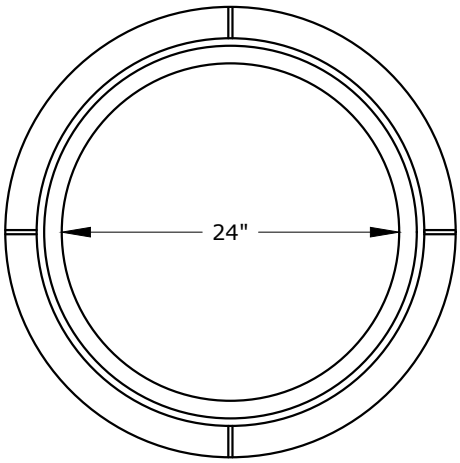
1. A CIRCULAR-SHAPED CONCRETE COLLAR IS REQUIRED ON MANHOLE INSTALLATIONS, IN UNIMPROVED AREAS, AS SHOWN ON THE PLANS. INSTALL A 8" THICK CONCRETE COLLAR THAT SHALL BE 6" ABOVE SURROUNDING SURFACE.

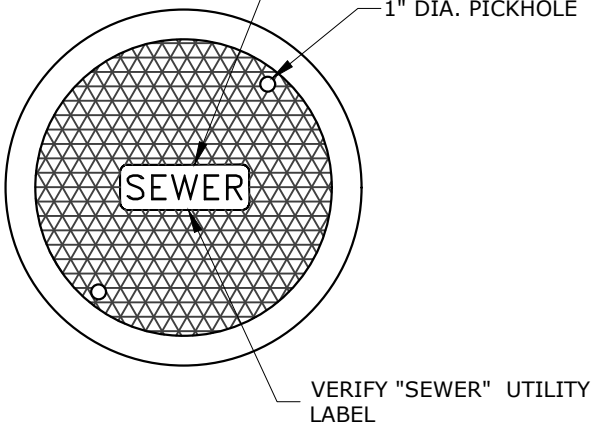
2. CONCRETE SHALL BE 3,000 PSI MIN. AT 28 DAYS, WATER/CEMENT RATIO SHALL BE 0.5, 3" MAX. SLUMP AND 3% TO 6% ENTRAINED AIR WITH ONE #4 REBAR HOOP. FIBER-REINFORCED CONCRETE (ADDED PER MANUFACTURER'S RECOMMENDATIONS) MAY BE USED IN LIEU OF #4 REBAR.

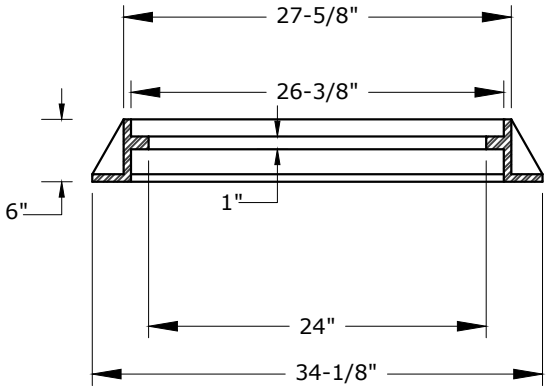
PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

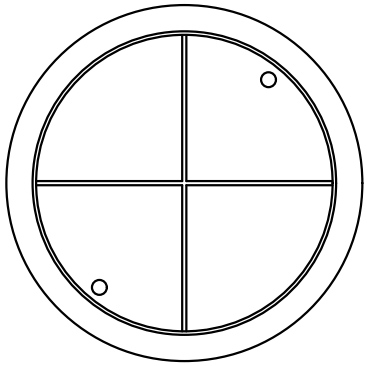
STANDARD MANHOLE UNIMPROVED AREA

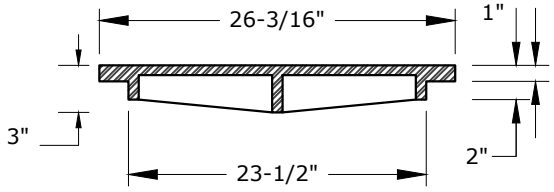
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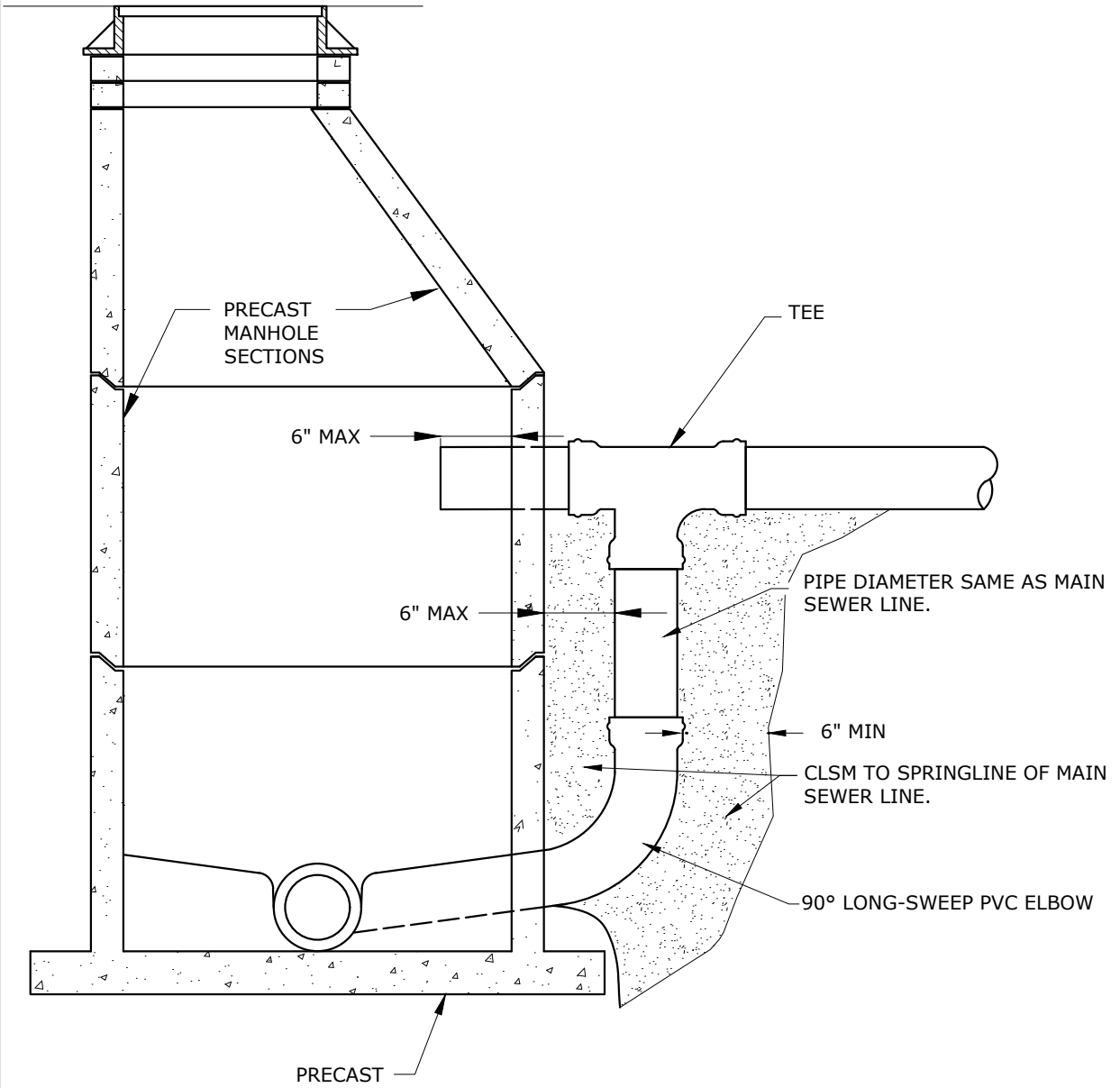
NOTES:

1. MANHOLE FRAME AND COVER D&L FOUNDRY A-2004 OR APPROVED EQUAL VERIFY "SEWER" UTILITY LABEL LETTERING ON COVER.
2. COVER MATERIAL SPECIFICATION GRAY IRON (ASTM A48 CL35B)

PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

MANHOLE FRAME AND COVER

REVISION DATE:	STD DWG NO.
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MANHOLE SECTION

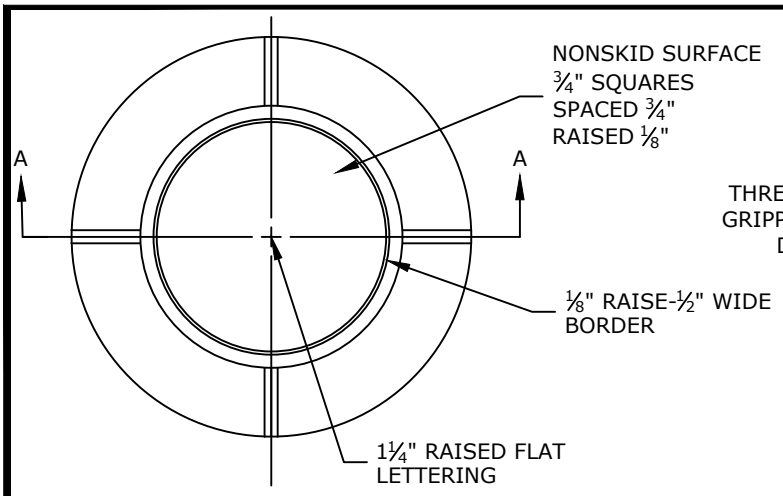
NOTES:

1. AN OUTSIDE DROP CONNECTION IS REQUIRED FOR A SEWER ENTERING A MANHOLE AT AN ELEVATION OF 24 INCHES OR MORE ABOVE THE MANHOLE.

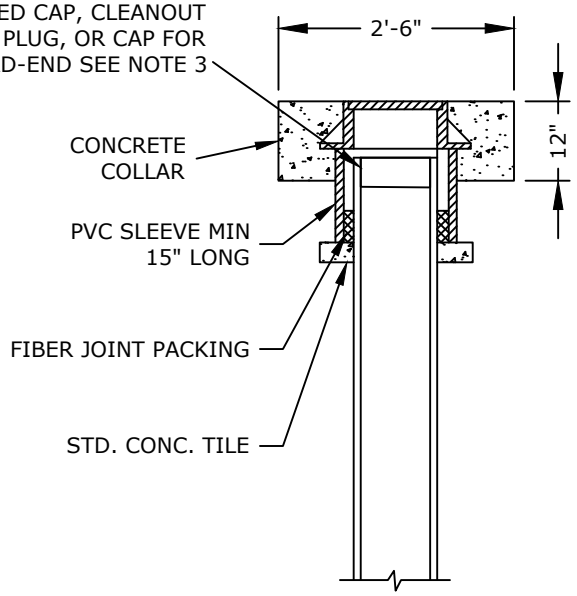
PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

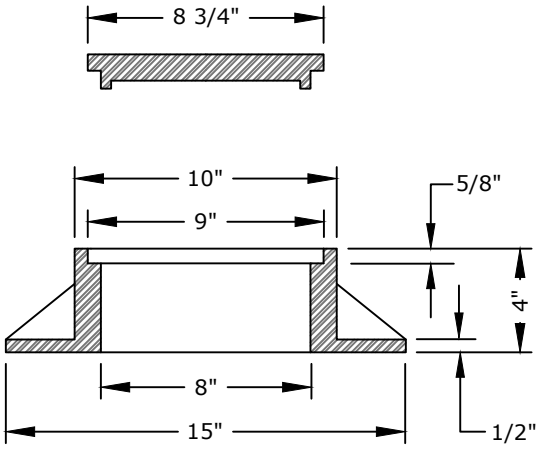
MANHOLE DROP EXTERIOR

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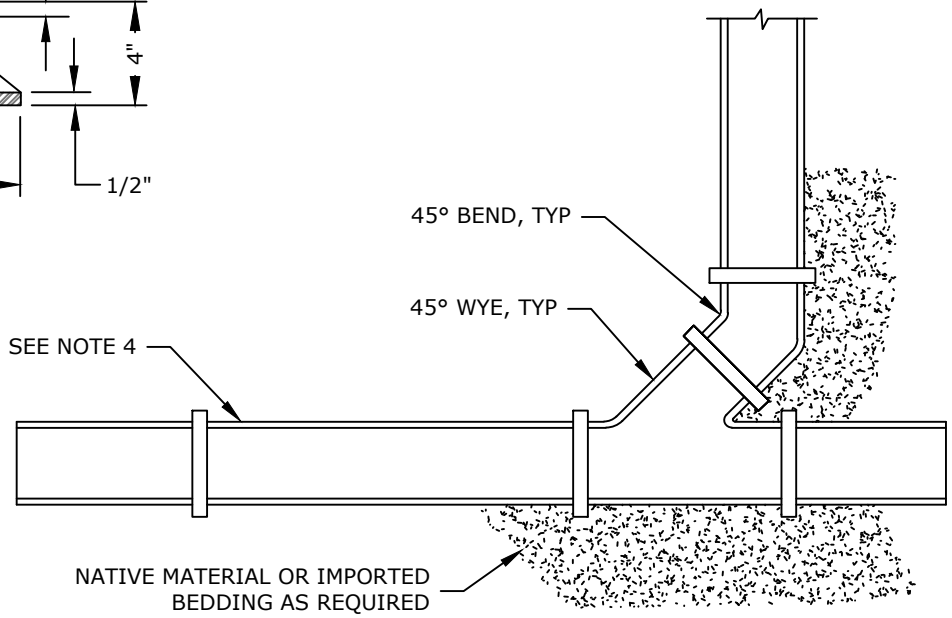


PLAN





SECTION A–A



NOTES:

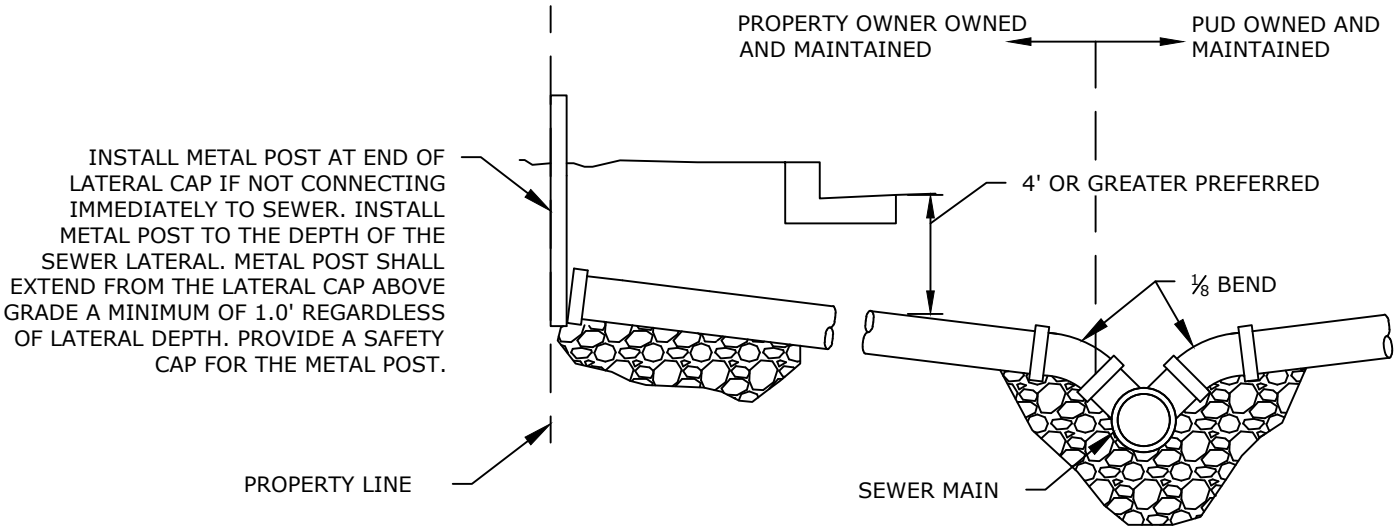
1. BACKFILL ENTIRE ASSEMBLY WITH CRUSHED SURFACING TOP COURSE.
2. CASE AND LID SHALL BE D&L FOUNDRY H-8020 OR APPROVED EQUAL.
3. 4", 6" OR 8" PIPE ONLY. CLEANOUT TO MATCH THE SIZE OF THE MAINLINE. MAY ALSO BE FOR LATERAL CLEANOUT. CAP IF DEAD-END LINE.
4. CLEANOUT CAN ALSO CONSIST OF A 45° WYE WITH END PLUG AND A 45° BEND.

PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

SANITARY SEWER MAIN CLEANOUT

REVISION DATE: JANUARY 2025

STD DWG NO. 2-7



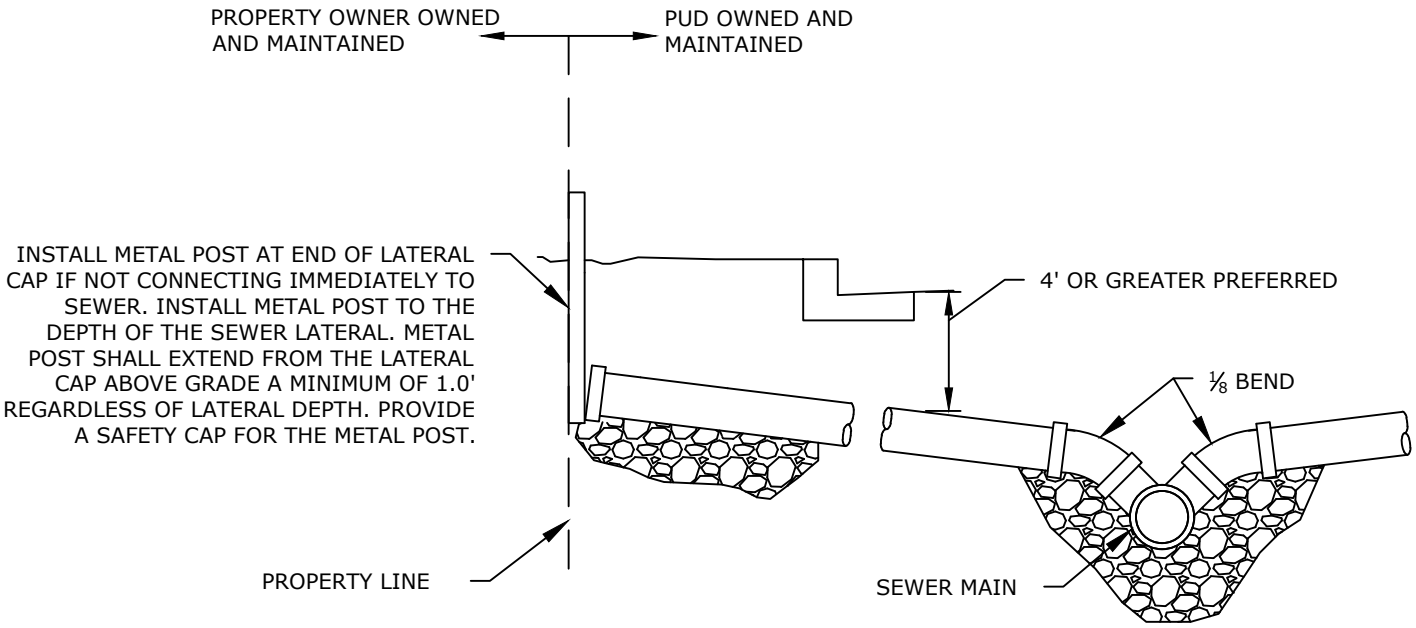
NOTES:

1. PIPE DIAMETER SHALL BE 4 INCHES OR GREATER. SEE PUD STANDARD SPECIFICATIONS FOR ACCEPTABLE MATERIALS.
2. HDPE MAY BE SUBSTITUTED FOR PVC FOR SEWER LATERAL REPAIRS USING PIPE BURSTING OR LONGITUDINAL BORING, UPON APPROVAL BY THE PUD.
3. LATERALS CONNECTING TO NEW SEWER MAINS SHALL BE CONNECTED WITH A GASKETED WYE.
4. LATERALS CONNECTING TO EXISTING SEWER MAINS SHALL BE CONNECTED WITH "ROMAC CB OR ROBAR 3506" SEWER SADDLE OR APPROVED EQUAL.
5. PROVIDE REQUIRED COMPACTION FOR ALL FITTINGS AND JOINTS.
6. MINIMUM SLOPE IS 2 PERCENT, 1 PERCENT ALLOWED FOR SPECIAL CONDITIONS IF APPROVED BY PUD.
7. PIPES STUBBED FOR FUTURE CONNECTIONS SHALL BE PLUGGED WITH A FITTING APPROVED BY MANUFACTURER WITH LOCATE POST.
8. MAXIMUM DISTANCE BETWEEN LATERAL CLEANOUTS SHALL BE 100 FEET. THE MAXIMUM AGGREGATE CHANGE IN DIRECTION BETWEEN LATERAL CLEANOUTS SHALL BE 135 DEGREES. CONSTRUCT ADDITIONAL CLEANOUTS AS NECESSARY.
9. ABANDONED SEWER SERVICES SHALL BE PLUGGED WITHIN 5 FEET OF THE PROPERTY LINE WITH A FITTING APPROVED BY THE MANUFACTURER OR A MINIMUM OF 2-FOOT LONG POURED COMMERCIAL CONCRETE PLUG.
10. LATERAL CONNECTION TO SEWER MAIN IS NOT ALLOWED WITHIN 5' OF MANHOLES OR OTHER LATERAL CONNECTIONS.
11. CLEANOUTS SHALL BE INSTALLED ON PRIVATE PROPERTY PER LOCAL PLUMBING CODE.
12. SANITARY SEWER LATERAL W/45° BENDS IS ALLOWABLE WITH PRE-APPROVAL FROM PUD.

PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

CITY OF CLARKSTON SANITARY SEWER LATERAL

REVISION DATE:	STD DWG NO.
JANUARY 2025	2-8



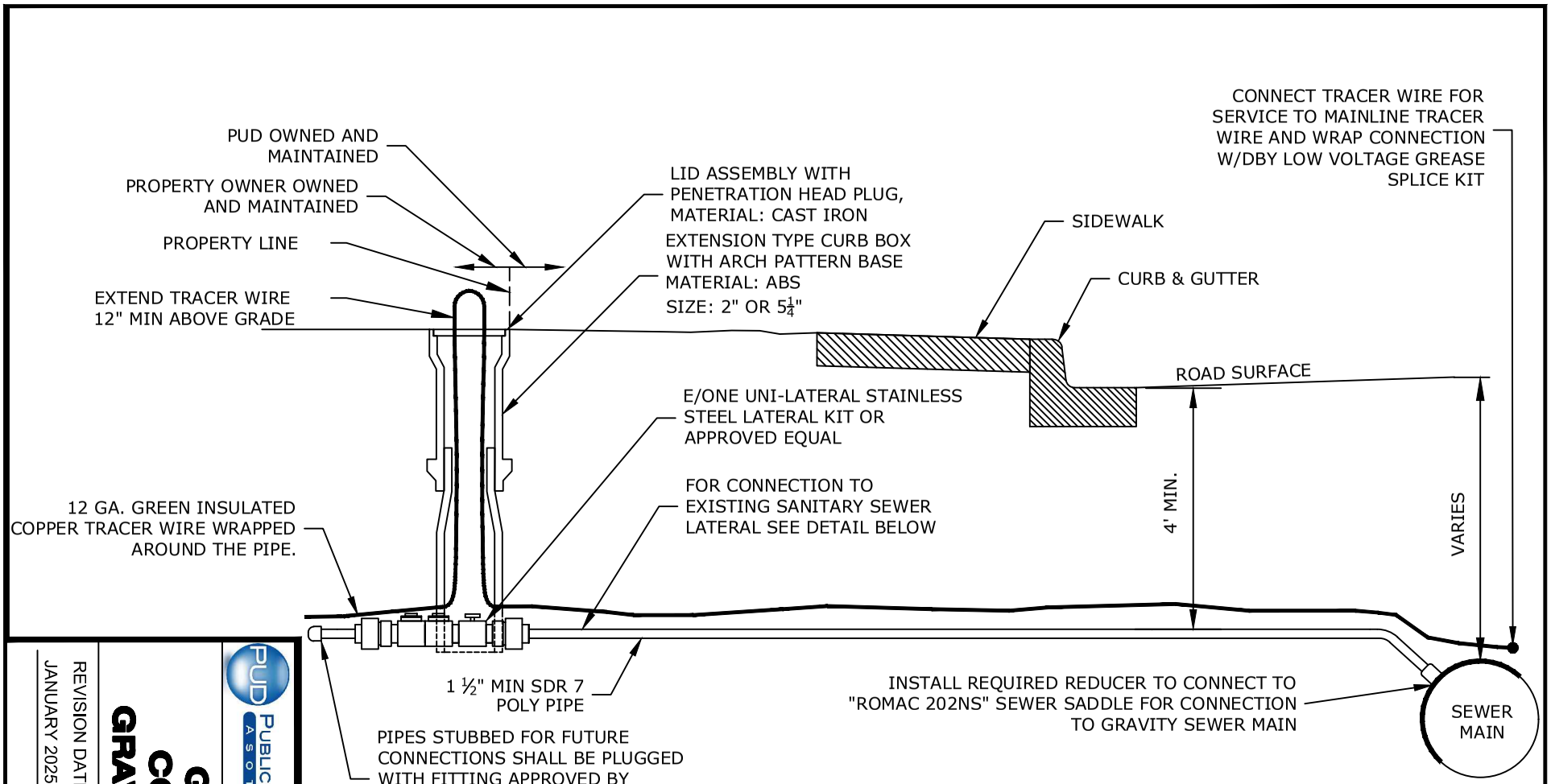
NOTES:

1. PIPE DIAMETER SHALL BE 4 INCHES OR GREATER. SEE PUD STANDARD SPECIFICATIONS FOR ACCEPTABLE MATERIALS.
2. HDPE MAY BE SUBSTITUTED FOR PVC FOR SEWER LATERAL REPAIRS USING PIPE BURSTING OR LONGITUDINAL BORING, UPON APPROVAL BY THE PUD.
3. LATERALS CONNECTING TO NEW SEWER MAINS SHALL BE CONNECTED WITH A GASKETED WYE.
4. LATERALS CONNECTING TO EXISTING SEWER MAINS SHALL BE CONNECTED WITH "ROMAC CB OR ROBAR 3506" SEWER SADDLE OR APPROVED EQUAL.
5. PROVIDE REQUIRED COMPACTION FOR ALL FITTINGS AND JOINTS.
6. MINIMUM SLOPE IS 2 PERCENT, 1 PERCENT ALLOWED FOR SPECIAL CONDITIONS IF APPROVED BY PUD.
7. PIPES STUBBED FOR FUTURE CONNECTIONS SHALL BE PLUGGED WITH A FITTING APPROVED BY MANUFACTURER WITH LOCATE POST.
8. MAXIMUM DISTANCE BETWEEN LATERAL CLEANOUTS SHALL BE 100 FEET. THE MAXIMUM AGGREGATE CHANGE IN DIRECTION BETWEEN LATERAL CLEANOUTS SHALL BE 135 DEGREES. CONSTRUCT ADDITIONAL CLEANOUTS AS NECESSARY.
9. ABANDONED SEWER SERVICES SHALL BE PLUGGED WITHIN 5 FEET OF THE PROPERTY LINE WITH A FITTING APPROVED BY THE MANUFACTURER OR A MINIMUM OF 2-FOOT LONG POURED COMMERCIAL CONCRETE PLUG.
10. LATERAL CONNECTION TO SEWER MAIN IS NOT ALLOWED WITHIN 5' OF MANHOLES OR OTHER LATERAL CONNECTIONS.
11. CLEANOUTS SHALL BE INSTALLED ON PRIVATE PROPERTY PER LOCAL PLUMBING CODE.
12. SANITARY SEWER LATERAL W/45° BENDS IS ALLOWABLE WITH PRE-APPROVAL FROM PUD.

PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

ASOTIN COUNTY SANITARY SEWER LATERAL

REVISION DATE:	STD DWG NO.
JANUARY 2025	2-9



GRINDER PUMP CONNECTION TO GRAVITY SEWER MAIN

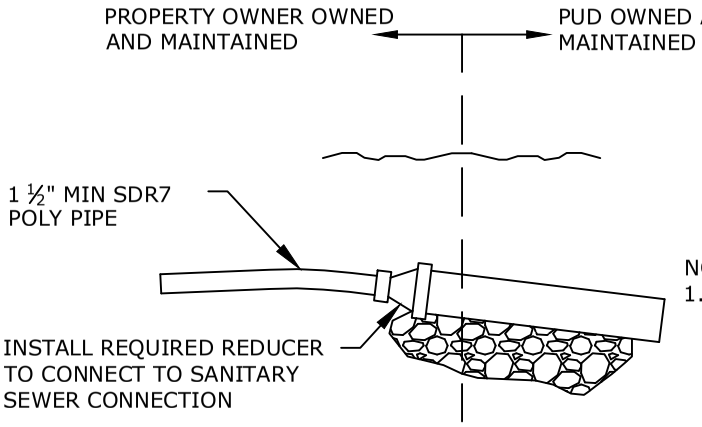
PUD Public Utility District Aston County

REVISION DATE: JANUARY 2025

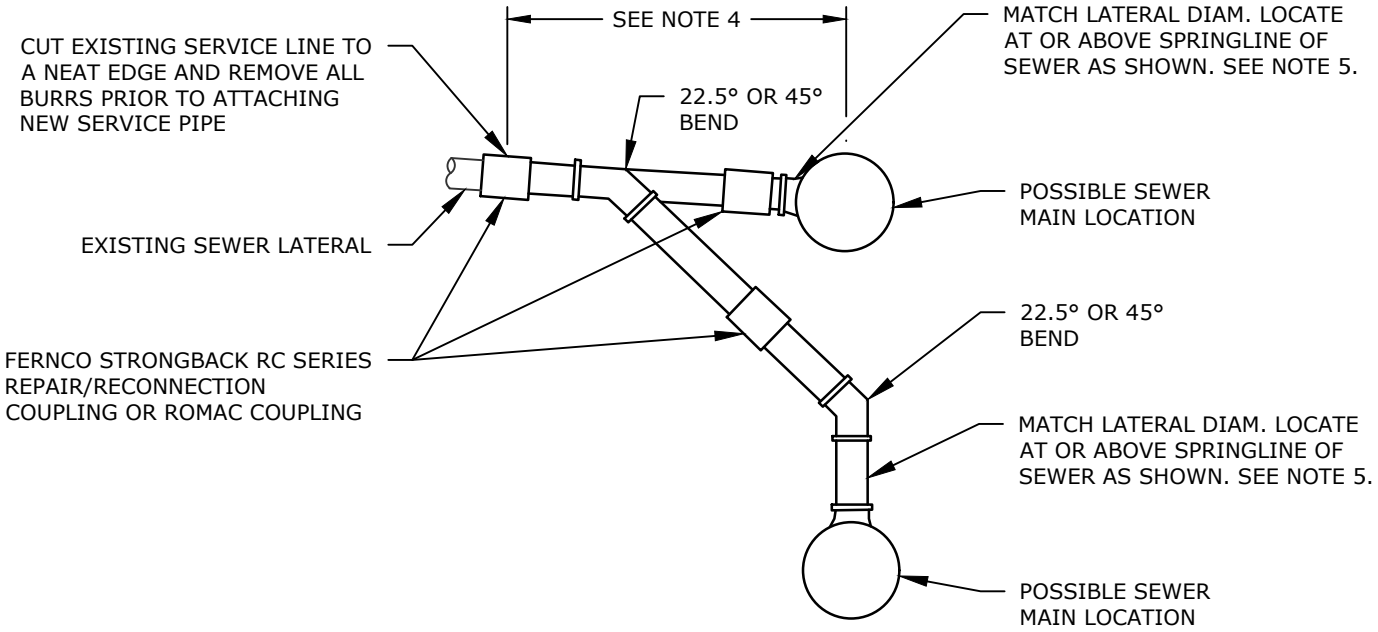
STD DWG NO. 2-10

NOTES:

1. WASTEWATER PRESSURE SERVICE LATERAL CAN BE CONNECTED TO WASTEWATER MAIN ABOVE CENTERLINE OF THE PIPE BUT NOT DIRECTLY TO THE TOP OF THE MAIN.
2. POLY PIPE TO BE PACK JOINT ONLY WITH BRASS FITTINGS. NO FUSION SHALL BE ALLOWED.



NOTE:
1. CLEANOUTS SHALL BE INSTALLED ON PRIVATE PROPERTY PER LOCAL PLUMBING CODE.



NOTES:

1. IF SEWER LATERAL IS DAMAGED OR HAS TO BE RELOCATED DURING CONSTRUCTION, RELOCATE/REPAIR SEWER PIPE AND RECONNECT USING A FERNCO RC SERIES STRONGBACK COUPLING OR ROMAC COUPLING.

2. INSPECTION OF WORK IS REQUIRED AND MUST BE APPROVED BY THE PUD.

3. SEWER LATERAL PIPE SHALL BE SDR-35 AND JOINTS SHALL BE GASKETED.

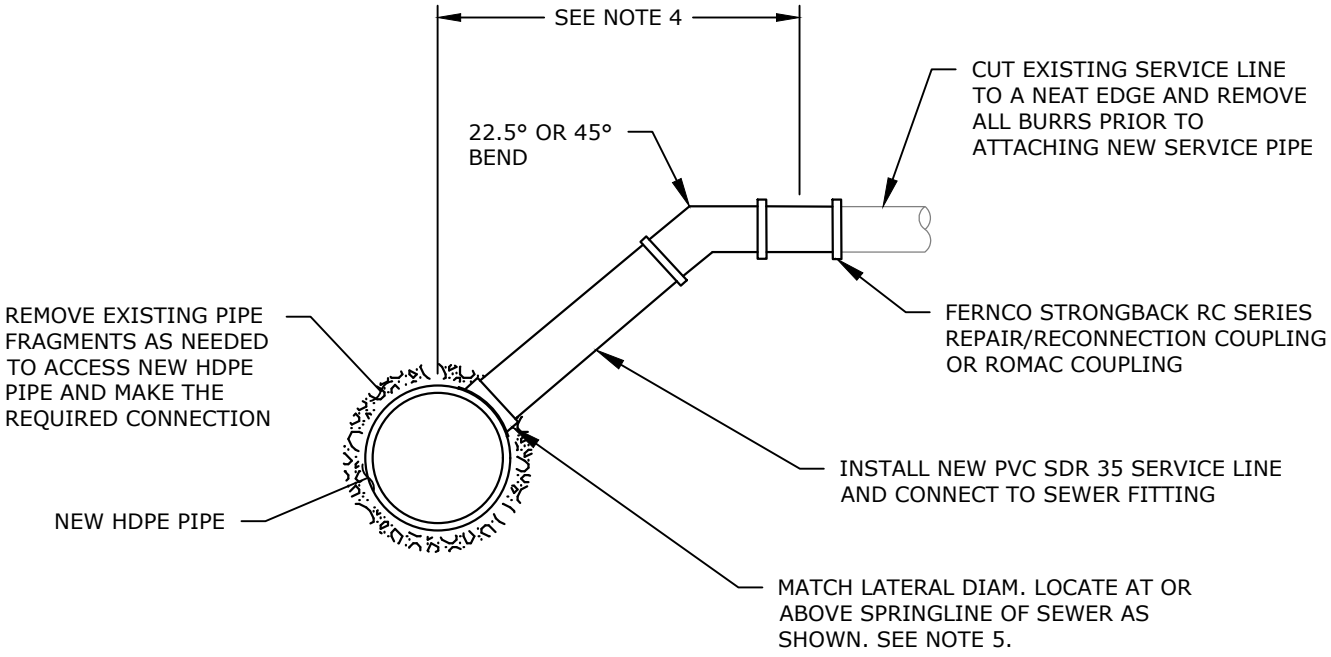
4. CONNECTION TO THE EXISTING LATERAL SHALL BE WITHIN 5 FEET MAX FROM THE CENTERLINE OF PIPE.

5. SEWER LATERAL CONNECTION TO BE WYE OR ROMAC CB FOR PVC MAINLINE, INSERTA TEE OR FUSION COUPLING FOR HDPE MAINLINE.

PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

SEWER LATERAL RELOCATION/ RECONNECTION

REVISION DATE:	STD DWG NO.
NOVEMBER 2025	2-11



NOTES:

1. IF SEWER LATERAL IS DAMAGED OR HAS TO BE RELOCATED DURING CONSTRUCTION, RELOCATE/REPAIR SEWER PIPE AND RECONNECT USING A FERNCO RC SERIES STRONGBACK COUPLING OR ROMAC COUPLING.

2. INSPECTION OF WORK IS REQUIRED AND MUST BE APPROVED BY THE PUD PRIOR TO BACKFILL.

3. SEWER LATERAL PIPE SHALL BE SDR-35 WITH GASKETED JOINTS.

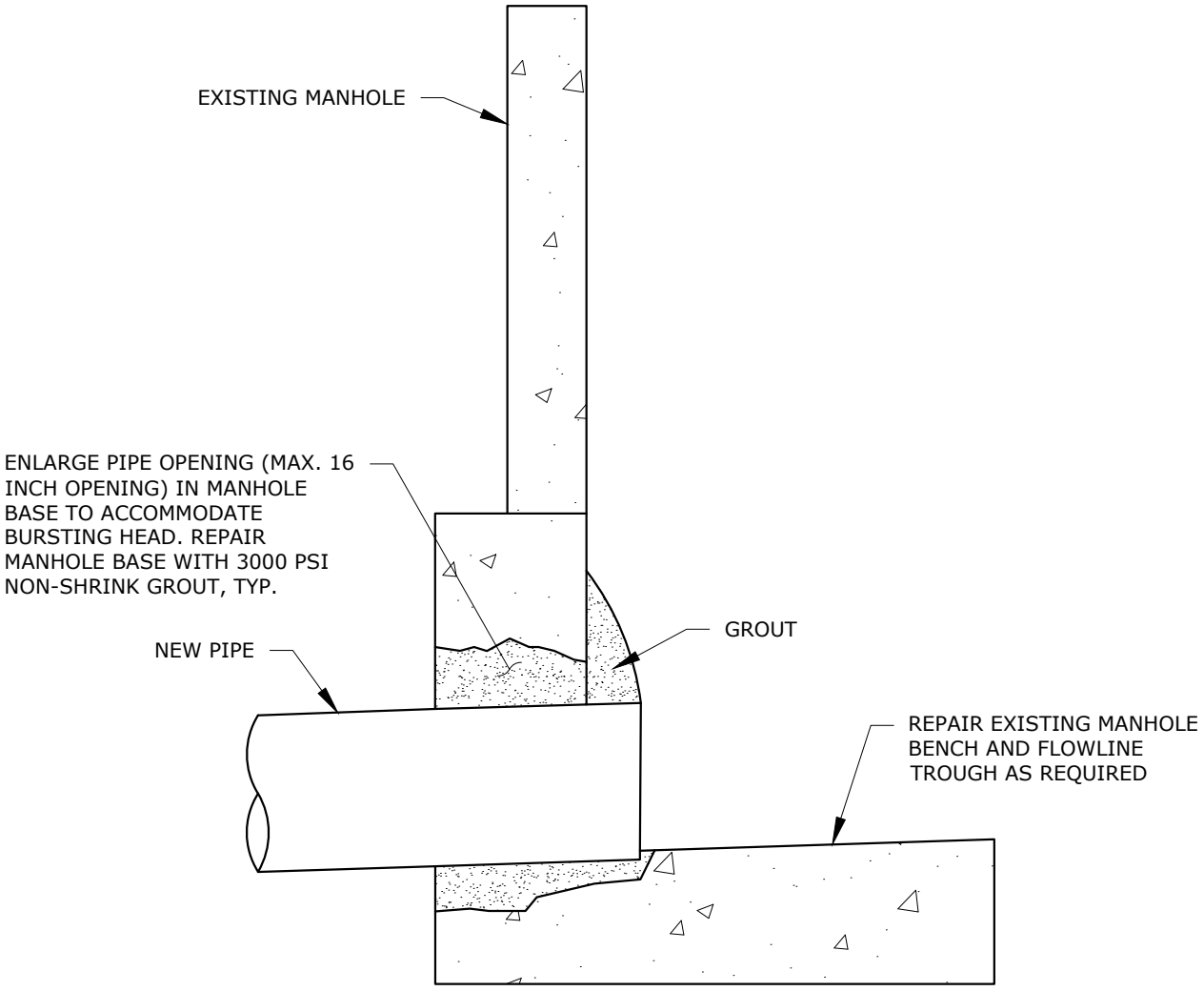
4. CONNECTION TO THE EXISTING LATERAL SHALL BE WITHIN 5 FEET MAX FROM THE CENTERLINE OF PIPE.

5. SEWER LATERAL CONNECTION TO BE WYE OR ROMAC CB FOR PVC MAINLINE, INSERTA TEE OR FUSION COUPLING FOR HDPE MAINLINE.

PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

PIPE BURSTING SEWER LATERAL RECONNECTION

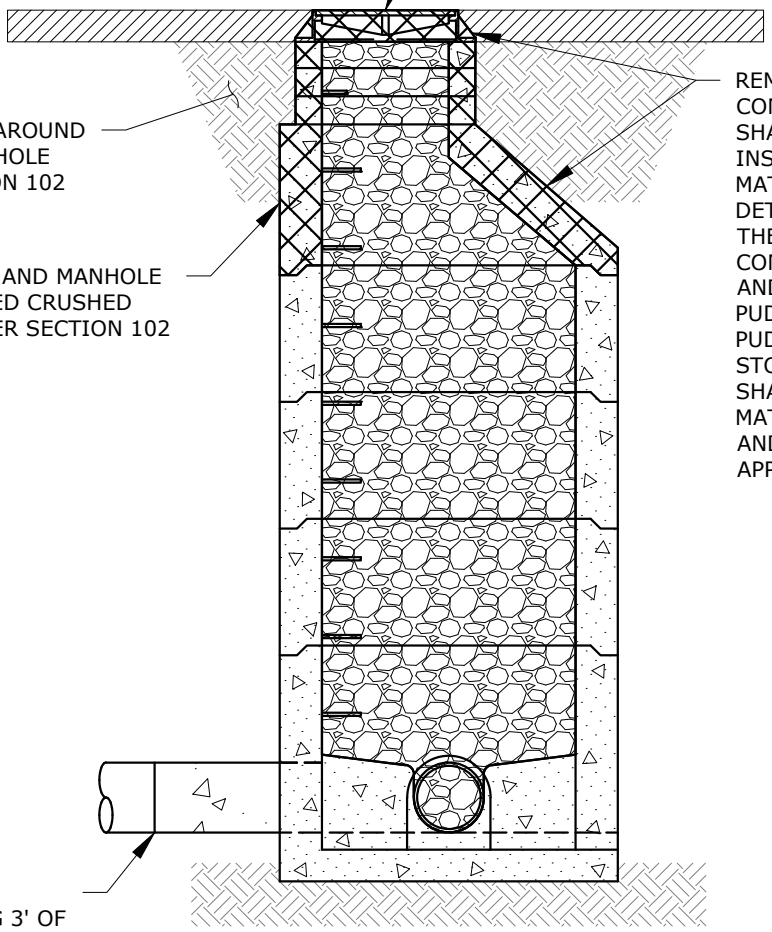
REVISION DATE:	STD DWG NO.
NOVEMBER 2025	2-12



PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

EXISTING MANHOLE CONNECTION

REVISION DATE:	STD DWG NO.
JANUARY 2022	2-13

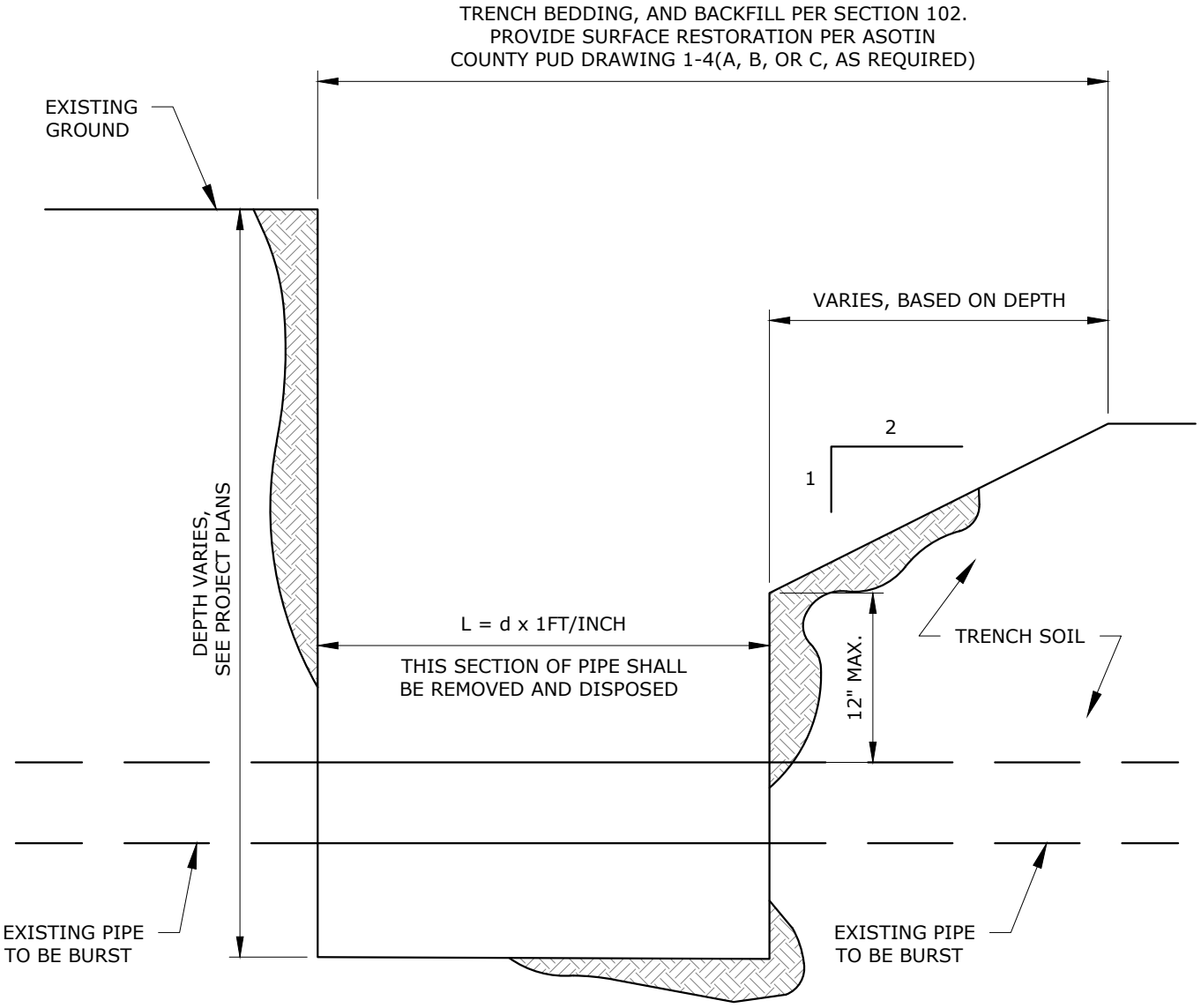


REMOVE FRAME, COVER, AND CONE SECTIONS. CONTRACTOR SHALL ALLOW THE PUD TO INSPECT ALL REMOVED MATERIALS AND THE PUD SHALL DETERMINE WHICH MATERIALS THE PUD WISHES TO RETAIN. CONTRACTOR SHALL DELIVER AND UNLOAD ALL MATERIALS THE PUD WISHES TO RETAIN TO THE PUD SEWER DEPARTMENT STORAGE YARD. CONTRACTOR SHALL REMOVE ALL OTHER MATERIALS FROM THE JOB SITE AND DISPOSE OF THEM AT AN APPROPRIATE SITE.

PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

MANHOLE ABANDONMENT

REVISION DATE:	STD DWG NO.
JANUARY 2022	2-14

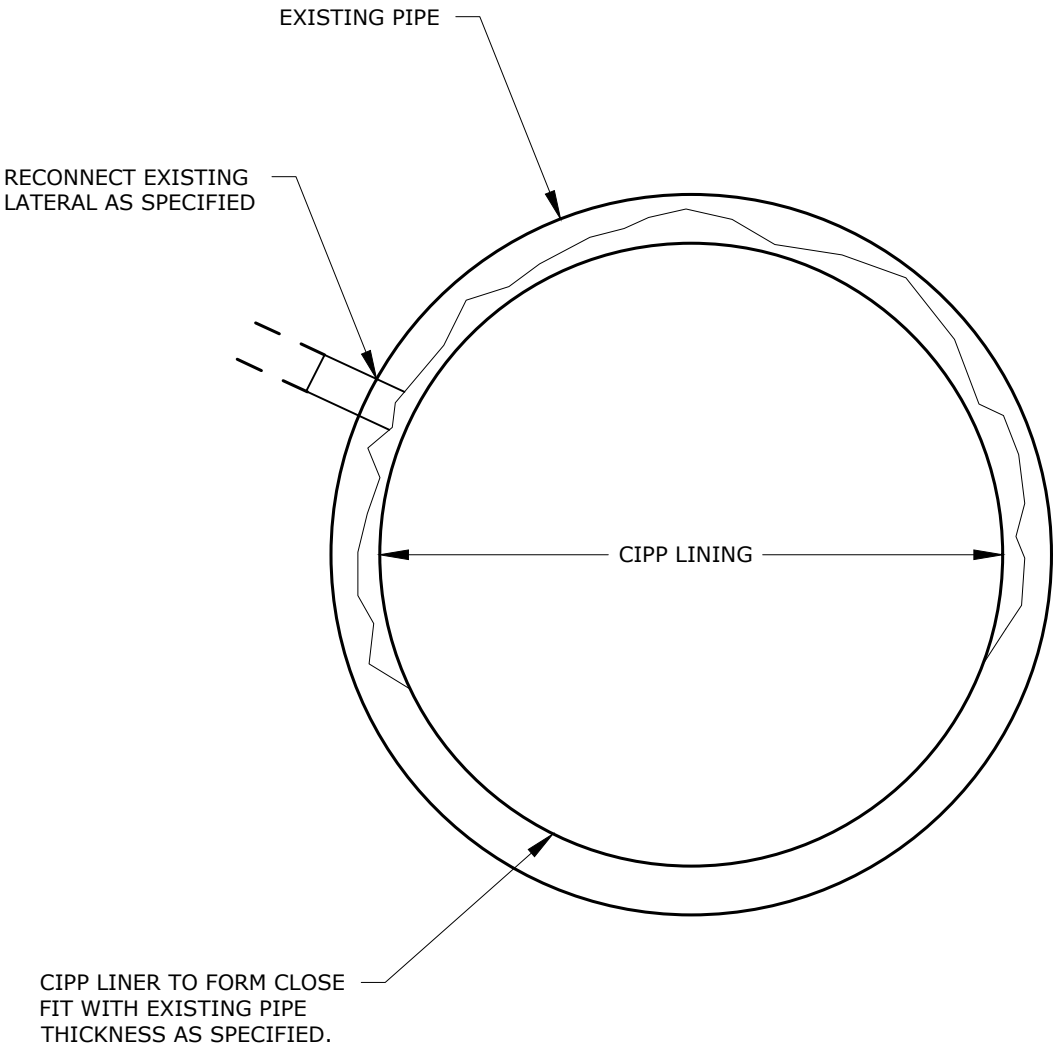


d = DIAMETER OF REPLACEMENT PIPE ININCHES

PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

TYP. BURSTING PIT

REVISION DATE:	STD DWG NO.
JANUARY 2022	2-15



NOTES:

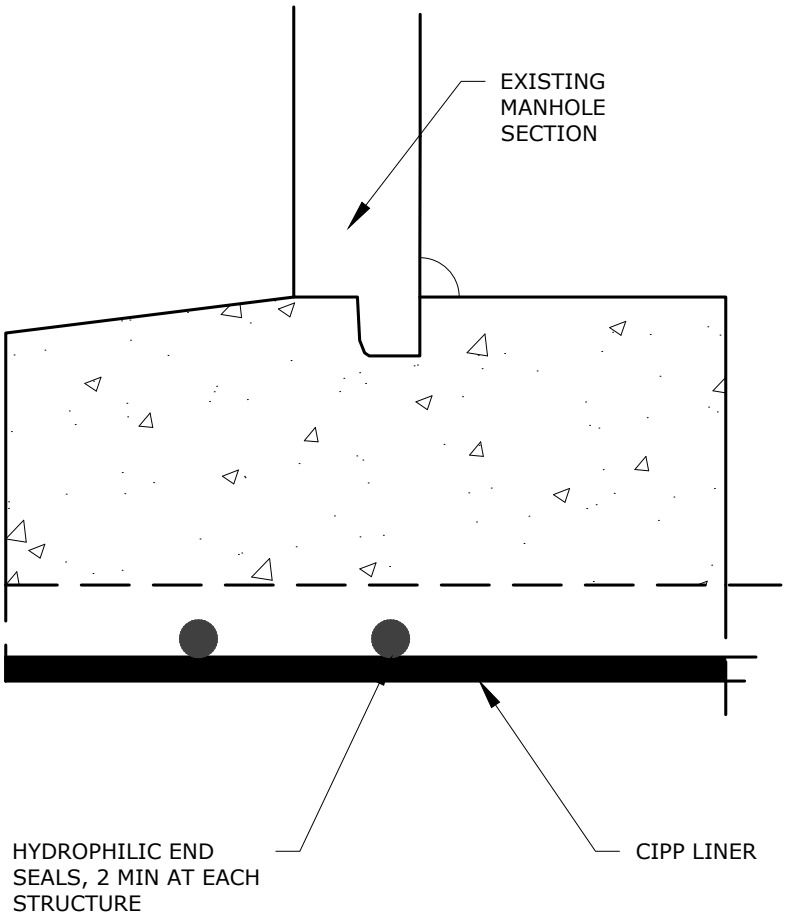
1. EXISTING INSIDE DIAMETER OF THE PIPE MAY HAVE AN IRREGULAR SHAPE (NON-CIRCULAR) AS A RESULT OF MATERIAL LOSS DUE TO CORROSION AND/OR EROSION.

2. CONTRACTOR SHALL VERIFY PIPE DIAMETER PRIOR TO ORDER OF PIPE LINER TO CONFIRM SIZE REQUIREMENTS.

PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

TYP. CIPP LINING CROSS SECTION

REVISION DATE:	STD DWG NO.
JANUARY 2022	2-16

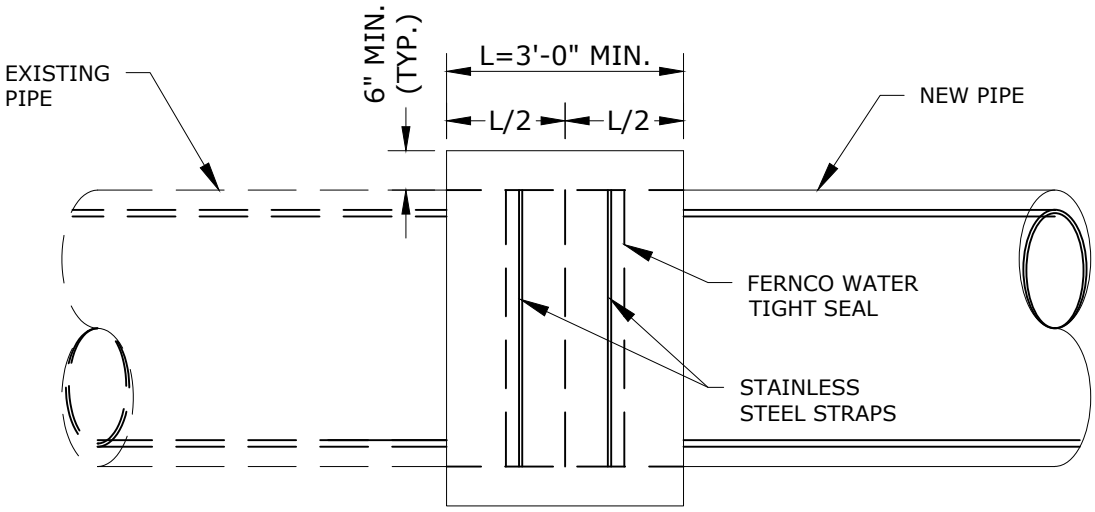


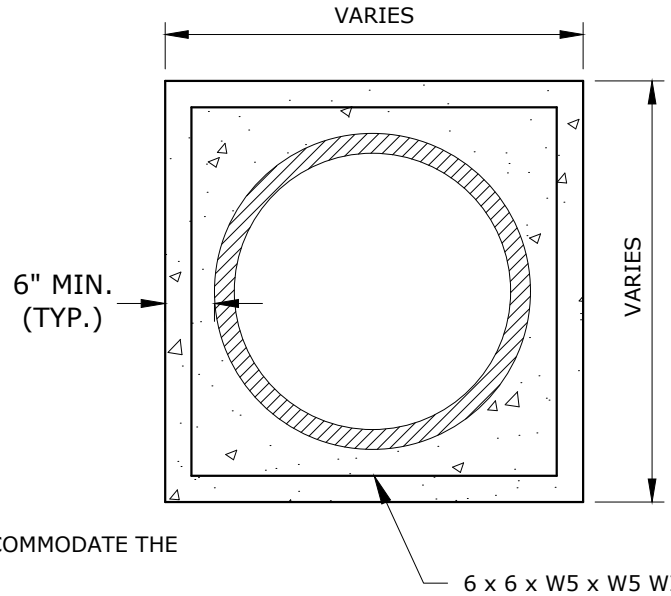
PUBLIC UTILITY DISTRICT
ASOTIN COUNTY

CIPP MANHOLE CONNECTION

REVISION DATE:
JANUARY 2022

STD DWG NO.
2-17





NOTES:

1. HAND DIG TRENCH AROUND THE PIPE TO ACCOMMODATE THE CLOSURE COLLAR CONCRETE.
2. CONTRACTOR SHALL HAND FORM THE TOP OF THE CLOSURE COLLAR.
3. PIPE INVERTS AND SIDE WALLS SHALL BE ALIGNED TO WITHIN 1/2" OF EACH OTHER PRIOR TO CASTING THE CONCRETE COLLAR.
4. FERNCO SHALL BE USED TO PROVIDE WATER TIGHT SEAL. PIPE MUST BE MEASURED AND FERNCO ORDERED TO ACCOMMODATE SIZE DIFFERENCES.
5. CONTRACTOR SHALL GROUT ACROSS JOINT TO MAKE A SMOOTH TRANSITION FROM OLD PIPE TO NEW PIPE.

PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

CONCRETE COLLAR PIPE CONNECTION

REVISION DATE:	STD DWG NO.
JANUARY 2022	2-18

STANDARD WATER SPECIFICATIONS AND DRAWINGS

FOR

ASOTIN COUNTY PUD

October 2026

CONSOR
300 E Mallard Drive, Suite 350
Boise, ID 83706
208.639.8185

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SECTION 300

PIPELINE TESTING AND DISINFECTION

PART 1 GENERAL

1.1 DESCRIPTION

A. This section covers field pressure testing, disinfection and purity testing of potable water systems piping, fittings and valves. All piping shall be flushed and hydrostatically pressure and leak tested. Water flowing in pipeline shall be verified to Asotin County PUD. Defective items revealed by the testing procedures shall be removed and replaced or otherwise corrected as directed by the Asotin County PUD. All costs for labor and materials necessary to conduct the flushing, testing and disinfecting procedures specified herein, and all costs of labor and materials required to remedy defective items shall be borne by the CONTRACTOR.

B. The CONTRACTOR shall provide 72-hour notification to the Asotin County PUD prior to conducting flushing, hydrostatic testing and disinfection. The CONTRACTOR shall provide coordination and scheduling required for the Asotin County PUD to witness and provide necessary labor for operating the Asotin County PUD's existing system during hydrostatic testing and disinfecting procedures. The CONTRACTOR shall not operate any part of the existing water system.

C. The CONTRACTOR shall perform flushing and testing of all pipelines and appurtenant piping for water or sewage and disinfection of all pipelines and appurtenant piping for potable water, complete, including conveyance of test water to point of use and all disposal thereof, all in accordance with the requirements of the Asotin County PUD and the Standard Specifications and Details.

D. Unless otherwise directed by the Asotin County PUD, new water mains and appurtenances must be completely installed, flushed, tested, disinfected, and satisfactory bacteriological sample results received prior to completing permanent connections to existing water system.

1.2 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

A. Codes and Standards: Comply with the provisions of the latest edition of the following codes, standards and specifications, except as otherwise shown and specified:

1. ANSI/AWWA B300 Hypochlorites

2. ANSI/AWWA B301 Liquid Chlorine

3. ANSI/AWWA C651 Disinfecting Water Mains

4. ANSI/AWWA C600 Installation of Ductile-Iron Water Mains and Their Appurtenances

5. ANSI/AWWA C605 Underground Installation of PVC Pressure Pipe and Fittings for Water

1.3 CONTRACTOR SUBMITTALS

A. A pipeline testing and disinfection plan will be required to be submitted by the CONTRACTOR for review and approval by the Asotin County PUD a minimum of one month before testing is to start. As a minimum, the CONTRACTOR's pipeline testing and disinfection plan shall include the following:

1. Testing schedule

2. Proposed equipment and chemicals

3. Proposed plan for water conveyance including flow rates

4. Proposed plan for water control

5. Proposed plan for water disposal including flow rates

6. Proposed measures to be incorporated in the project to minimize erosion while discharging water from the pipeline

7. Proposed plan for disinfection

8. Proposed plan for dechlorination including discharge points and discharge rates

9. Proposed plan for testing chlorine levels throughout the length of the pipeline including test locations

PART 2 PRODUCTS

2.1 EQUIPMENT

A. All test equipment, test forms (found at the end of this Section), chemicals for chlorination, sample bottles, temporary valves, bulkheads, or other water control equipment and materials shall be determined and furnished by the CONTRACTOR subject to the Asotin County PUD's review. No materials shall be used which would be injurious to the construction or its future functions.

B. As a minimum, the CONTRACTOR shall furnish the following equipment and materials for the testing:

Amount	Description
2	Graduated containers
1	Hydraulic pump with hoses, valves and fittings as needed and required for the testing and disinfection of the facilities.
2	Pressure gauges with pressure range at least 120% greater than the required maximum test pressure with graduations in two (2) psi increments. Gauges shall have been calibrated with 90 days of pressure testing.
As Req'd	Bacteriological test sample bottles

C. Chlorine for disinfection shall be in the form of liquid chlorine, sodium hypochlorite solution, or calcium hypochlorite granules or tablets.

D. Sodium hypochlorite and calcium hypochlorite shall be in accordance with the requirements of ANSI/AWWA B300. Liquid chlorine shall be in accordance with the requirements of ANSI/AWWA B301.

E. Bacteriological test sample bottles shall be obtained from the following facility:

Anatek Labs, Inc.
1282 Alturas Dr
Moscow, ID 83843
Phone: 208-883-2839

F. All temporary thrust restraint and equipment and facilities required for hydrostatic testing will be considered incidental.

PART 3 EXECUTION

3.1 HYDROSTATIC TESTING OF WATER MAINS EXCLUDING HDPE MAINS

A. All testing shall be observed by the Asotin County PUD and CONTRACTOR shall document and submit results to the Asotin County PUD within 3 days.

B. The CONTRACTOR shall make all necessary provisions for conveying water to the points of use and for the proper disposal of test water.

C. No section of the pipeline shall be hydrostatically tested until all field-placed concrete or mortar has attained full strength. At the CONTRACTOR's option, early strength concrete may be used when the full strength requirements conflict with schedule requirements. All such early applications shall be approved by the Asotin County PUD prior to each installation.

D. All piping shall be tested under a hydrostatic test pressure of 150 psi (+/- 5 psi) at the lowest point along the test section or as shown on the plans. If test pressure is greater than 150 psi, CONTRACTOR shall verify with ENGINEER appropriate thrust blocks and restraint is provided. Thrust blocks and restraint in these specifications is based on 150 psi. Testing shall be performed by filling the pipe with potable water from PUD distribution system with approved backflow assembly device or approved potable water truck. Allow for natural absorption to occur and apply the specified test pressure by pumping. Once the test pressure has been attained, the pump shall be valved off. The test will be conducted for one 2-hour period with the allowable leakage not to exceed value as per Paragraph E below.

E. During the test, pipe, fittings and valves with welded and/or flanged joints shall be completely watertight. Pipe, fittings and valves with rubber gasketed joints (mechanical joints or push-on joints) shall have a measured loss not to exceed the rate given in the following formula:

$$AL = \frac{LD(P)^{1/2}}{148{,}000}$$

In the above formula:

AL = allowable leakage, in gallons per hour
L = Length of pipe tested in feet
D = Nominal diameter of pipe in inches
P = Average test pressure during the leakage test in pounds per square inch

Hydrostic Test Allowable Leakage

Diameter (inch)	Length (ft)	Hydrostatic Test Pressure	Allowable Leakage (gallon/hour)
4	100	150	0.03
6	100	150	0.05
8	100	150	0.07
10	100	150	0.08
12	100	150	0.10
14	100	150	0.12
16	100	150	0.13
18	100	150	0.15
20	100	150	0.17
24	100	150	0.20

F. During the test period, operate the pump as required to maintain pressure in the pipe within 5 psi of the specified test pressure at all times. At the end of test period, operate the pump until the specified test pressure is again obtained. The pump suction shall be in a graduated barrel or similar device or metered so that the amount

of water, measured in gallons, required to restore the test pressure may be accurately measured.

G. If the test reveals any defects, leakage in excess of the allowable, or failure, the CONTRACTOR shall furnish all labor, equipment and materials required to locate and make necessary repairs. The testing of the line (and repairing of defects, excessive leakage, and failures) shall be repeated until a test satisfactory to the Asotin County PUD has been achieved. All costs for locating, repairing, and retesting shall be borne by the CONTRACTOR.

3.2 HYDROSTATIC TESTING OF HDPE WATER MAINS

A. All testing shall be observed by the Asotin County PUD. CONTRACTOR shall document and submit results to the Asotin County PUD within 3 days.

B. All HDPE pipe shall be hydrostatically tested twice. The first test shall be conducted above grade after the pipe is butt fused and ready for installation. The second test shall be conducted after the pipe is in place in the trench or, in the case of installation by the horizontal directional drilling method, the pipe has been pulled into place. Prior to conducting the second test, the pipe shall be flushed.

C. Before commencing each test, the pipeline shall be filled with potable water from PUD distribution system with approved backflow assembly device or approved potable water truck. Fill pipeline to the specified test pressure and allow to stand without makeup pressure until the pressure reaches equilibrium. Equilibrium will usually occur within 2 to 4 hours. After equilibrium has been reached, the test section shall be returned to the specified test pressure and the test period can begin.

D. Hydrostatic test shall be under a hydrostatic test pressure of 150 psi (+/- 5 psi) at the lowest point along the test section or as shown on the plans. If test pressure is greater than 150 psi, CONTRACTOR shall verify with ENGINEER appropriate thrust blocks and restraint is provided. Thrust blocks and restraint in these specifications is based on 150 psi. Testing shall be performed by applying the specified test pressure by pumping. Once the test pressure has been attained, the pump shall be turned off and disconnected from the test section. The test will be conducted for one two-hour period in accordance with Paragraph 3.1.F above with the allowable leakage not to exceed the value as per Paragraph 3.1.E above.

E. During the above-grade test, the pipe shall be visually inspected for leaks. All leaks shall be repaired before installing the pipe in the trench or pulling the pipeline into the borehole. Leaks at fusion joints shall be repaired by cutting out the leaking fusion joint, re-fusing the joint and conducting a new above-grade test.

F. The second pressure test shall be made after the first pressure test has been successfully completed and approved by the Asotin County PUD and the HDPE pipeline is installed. For HDPE pipe installed by the horizontal directional drilling method, the test section shall be the full length of pipeline that is pulled into place.

After the equilibrium period specified in Paragraph 3.2.C above, the pressure test shall proceed as specified in Paragraph 3.2.D above for a period of two (2) hours. Leakage shall not exceed that specified in Paragraph 3.1.E above. If the test fails, the installed pipe section shall be removed and replaced with new HDPE pipe.

G. The CONTRACTOR shall schedule pressure testing such that pressure changes due to thermal expansion or contraction of the pipe during the test period are minimized.

H. If the testing reveals any defects, any leakage, or any failure, the CONTRACTOR shall furnish all labor, equipment and materials required to locate and make necessary repairs. The testing of the line and repairing of defects, excessive leakage, and failures shall be repeated until a test satisfactory to the Asotin County PUD has been achieved. All costs for locating, repairing, and retesting shall be borne by the CONTRACTOR.

3.3 DISINFECTION OF WATER MAINS

A. After testing and repairing where necessary, all potable water systems shall be thoroughly flushed, cleaned, and disinfected by the CONTRACTOR in accordance with the latest version of AWWA C651. Chlorination by means of tablets (calcium hypochlorite) placed in each length of pipe during installation is specifically prohibited. Chlorination by means of powder (calcium hypochlorite) placed in each length of pipe during installation is acceptable.

B. Before sterilizing, flush all foreign matter from the pipeline. The CONTRACTOR is to provide, at no additional cost to the Asotin County PUD, hoses, temporary pipes, ditches, etc., as required to dispose of flushing water without damage to adjacent properties. Flushing velocities shall be at least 2.5 fps. For large diameter pipe where it is impractical or impossible to flush the pipe at 2.5 fps velocity, clean the pipe in place from the inside by brushing and sweeping, then flush the line at a lower velocity.

C. Potable water piping shall be disinfected with a solution containing a minimum 25 parts per million (ppm) and a maximum 50 ppm of chlorine. The chlorine solution shall remain in the piping system for a period of 24 hours at which time the sterilizing mixture shall have a strength of at least 10 ppm of chlorine. If check samples fail to produce acceptable results, the disinfection procedure shall be repeated at the expense of the CONTRACTOR until satisfactory results are obtained.

D. Disposal of any water containing chlorine shall be performed in accordance with the latest edition of AWWA C651, and any other state or local requirements. Disposal may be made into existing sanitary sewer systems providing approvals are obtained from Asotin County PUD. Chlorinated water may not be discharged to open stream channels or stormwater systems.

E. The CONTRACTOR shall collect samples after the pipeline is flushed in accordance with the latest edition of AWWA C651. The chlorine residual must be below 1.5 mg/L when the sample is taken. Two consecutive sets of acceptable samples, taken at least 24 hours apart, shall be collected from the new main. At least one set of samples shall be collected from every 1,200 feet (366 m) of the new water main, plus one set from the end of the line and at least one set from each branch. Chlorine residual testing results and samples shall be reviewed and approved by the Asotin County PUD.

F. Results of the bacteriological testing shall be submitted within 2 days of testing and be satisfactory with the Asotin County PUD and the State Department of Health and/or other appropriate regulatory agencies, or disinfection shall be repeated at the expense of the CONTRACTOR.

3.4 DISINFECTION OF WATER MAIN END CONNECTIONS AND TIE-INS

A. Disinfection and pressure testing of potable water piping and appurtenances at end connections which are required to remain in service due to restrictions in allowable shutdown time shall be pressure tested and disinfected as described below:

1. Prior to connecting new potable water piping and appurtenances with existing piping and appurtenances, the interior of all new pipe, fittings, valves and appurtenances shall be swabbed or sprayed with a 1% to 5% calcium hypochlorite solution. Swabbing or spraying connecting piping is acceptable for a maximum of length of 18 feet.

2. Following the disinfection procedure described above, connection of the new piping and appurtenances to the existing water system shall be made. During the system startup, the Asotin County PUD and CONTRACTOR shall visually inspect all new fittings, piping, valves and appurtenances for evidence of leakage. Any leakage observed during this period shall be promptly repaired by the CONTRACTOR, at the CONTRACTOR's expense as required by the Asotin County PUD.

3.5 HYDROSTATIC TESTING OF WATER SERVICE CONNECTIONS

A. Service Lines shall be flushed prior to hydrostatic testing service laterals. Water flowing from each service shall be verified to the Asotin County PUD prior to testing. This requirement is applicable only for newly installed service lines and is not required for the replacement of existing water service lines.

3.6 HYDROSTATIC TESTING OF FIRE SERVICE CONNECTIONS

A. Service lines serving fire services or sprinkler systems shall not be hydrostatically tested against water system or shut water system valve. CONTRACTOR to provide valve or caps to service line for duration of test. CONTRACTOR to provide any

restraint or thrust blocks required for test. Testing shall be inspected and observed by local Fire Marshall.

HYDROSTATIC PRESSURE TEST RECORD FORM

Date: Time:	Project: Client: City:	Report #:
Technician:	Inspector:	Weather:
From: Street:		
To: Street:		

Pipeline Data			
Pipe Diam. (in):			
Length (ft):			
Pipe Material:			
Test Data			
Pressure Gauge:	Type:	Range:	Calibration Date:
Required Test Pressure:		Allowable Leakage:	
Test Start Time:		Test End Time:	
Test Duration (ending – starting time):			
Actual Test Pressure:			
Actual Leakage:			
Results			
Comments:			
Inspection:	☐ Satisfactory ☐ Unsatisfactory		
Pressure Test:	☐ Satisfactory ☐ Unsatisfactory		
Operator Performing Work	Print:	Signature:	Date:
Inspector Witnessing Test:	Print:	Signature:	Date:

END OF SECTION

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SECTION 301

DUCTILE IRON PIPE, FITTINGS AND SPECIAL ITEMS

PART 1 GENERAL

1.1 DESCRIPTION

A. Work under this Section applies to the furnishing and installation of ductile iron pipe, fittings and special items for buried service. The CONTRACTOR shall furnish and install ductile iron pipe, fittings, valves, special items and all appurtenant work, complete in place, all in accordance with the requirements of the Standard Specifications and Drawings.

1.2 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

A. Commercial Standards

1. ANSI B16.1 Cast Iron Pipe Flanges and Flanged Fittings, Class 25, 125, 250, and 800
2. ANSI/NSF Standard 61 Drinking Water System Components
3. ASTM A126 Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings
4. ANSI/AWWA C104/A21.4 Cement-Mortar Lining for Ductile-Iron Pipe and Fittings
5. AWWA C105 Polyethylene Encasement for Ductile-Iron Pipe Systems
6. ANSI/AWWA C110/21.10 Ductile-Iron and Gray-Iron Fittings
7. ANSI/AWWA C111/A21.11 Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
8. ANSI/AWWA C115/A21.15 Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges
9. ANSI/AWWA C150/A21.50 Thickness Design of Ductile-Iron Pipe
10. ANSI/AWWA C151/A21.51 Ductile-Iron Pipe, Centrifugally Cast
11. ANSI/AWWA C153/A21.53 Ductile-Iron Compact Fittings for Water Service
12. AWWA C600 Installation of Ductile-Iron Water Mains and Their Appurtenances

1.3 SUBMITTALS

A. Product technical data and material data; including all pipe, fittings, restrained joint systems, and appurtenance information.

B. Lining and coating data.

C. Applicable material certifications and testing certificates.

D. Manufacturer's handling delivery storage and installation requirements.

E. Documentation of tracer wire continuity tests

1.4 QUALITY ASSURANCE

A. Unless otherwise noted, all water works materials provided for the project shall be new, of first class quality and shall be made by reputable manufacturers. All material of a like kind shall be provided from a single manufacturer unless otherwise approved by the Asotin County PUD. All material shall be carefully handled and installed in good working order free from defect in manufacture, storage and handling. Where an item is to be used but does not have its quality specified herein, it shall be equal to that specified in the appropriate American Water Works Association (AWWA) Standard Specification.

B. All references to standards of AWWA or other organizations shall be the latest versions of those standards.

PART 2 PRODUCTS

2.1 GENERAL

A. Ductile iron piping materials and specials shall meet the specifications of this Section and of the appropriate AWWA Standard Specifications. In the case of conflict, the more stringent specifications shall apply.

B. Unless otherwise specified herein or shown on the plans, the minimum working pressure rating of all water works material specified herein shall be 1.5 times the operating pressure or 150 psi minimum.

C. All coatings and materials specified herein that come in contact with potable water shall be National Sanitation Foundation (NSF) approved.

2.2 DUCTILE IRON PIPE

A. Ductile iron pipe shall conform to AWWA Standard C151 and shall be the standard push-on joint type or restrained joint type as identified on the drawings. Push-on joints shall be “TYTON” type or “Fas-Tite” type without exception. Unless otherwise specified herein or shown on the plans, ductile iron pipe shall be thickness

Class 52. Polyethylene encasement, where required on the drawings or specified elsewhere, shall conform to AWWA Standard C105.

B. All ductile iron pipe 24 inches in diameter or greater shall be fully gauged for the last 2 feet of each spigot end and shall meet the outside diameter standard dimensions and tolerances required for spigot ends along the last 2 feet of each pipe piece. Pipe shall be externally marked, in manufacturer's color, indicating gauged pipe. Where piping is to be cut, such pipes shall be fully gauged and shall meet the outside diameter standard dimensions and tolerances required for spigot ends long the entire length of pipe. A minimum of 30% of each size of piping greater than 24 inches in diameter provided for the project shall by fully gauged for the entire length of each pipe as described above.

C. Ductile iron pipe shall be cement mortar lined, interior and exterior sealed in accordance with ANSI/AWWA C104.A21.4.

D. Push-on or mechanical type pipe joints shall conform to AWWA Standard C111. Flanged ductile iron pipe shall conform to AWWA Standard C115.

E. Restrained Joint Ductile Iron Pipe

1. Restrained joint ductile iron pipe and fittings shall be provided as identified on the drawings and required for the application. Joint restraint for pipe shall be accomplished with an integral lock mechanism except as may be otherwise specified. Any such system shall be a manufacturer's standard proprietary design, shall be as recommended by the manufacturer for the application, and shall be performance proven.

2. Restraining components for pipe shall be ductile iron in accordance with applicable requirements of ANSI/AWWA C110/A21.10 and/or C153/A21.53 with the exception of the manufacturer's proprietary design dimensions. Push-on joints for such fittings shall be in accordance with ANSI/AWWA C111/A21.11.

3. The following is the approved list of restrained joint systems:

   a. "Thrust-Lock" Pacific States Cast Iron Pipe Company.
   b. "Fast Grip" American Cast Iron Pipe Company.
   c. "TR Flex" United States Pipe and Foundry Company.
   d. "Snap-Lok" Griffin Pipe Products Company.
   e. "Megalug" EBAA Iron, Inc.
   f. "Field-Lok" United States Pipe and Foundry Company.
   g. "Super Lock" Clow
   h. "Restrained Joint" McWane

   i. "MJ-TJ" pipe with "Megalugs" Pacific States Cast Iron Pipe Company.
   j. "Flex-Ring" American Cast Iron Pipe Company

4. Where such a system may require "Mega-Lugs" for restraint, "Mega-Lugs" shall be provided in quantities as may be required and shall be considered incidental to the joint restraint system. Restrained piping shall be pressurized following installation and prior to completing piping tie-ins.

5. Restrained joints for pipe shall be designed for a water working pressure as shown on the Drawings.

6. Joint restraint is required at all mechanical joint fittings and where specified on the plans. Joint restraint at mechanical joint fittings shall be accomplished with the following systems or approved equal:

    a. 4- to 12-inch pipe: GripRing Pipe Restrainer, as manufactured by Romac Industries, Inc.

    b. 14-inch pipe and greater: 470 Series Pipe Restraining System, as manufactured by Romac Industries, Inc.

F. Ductile iron pipe may be deflected both horizontally and vertically at the joints after assembly. The maximum pipe deflection shall not exceed one half of the manufacturer's stated joint deflection allowance.

2.3 FITTINGS AND SPECIALS

A. Fittings

1. Fittings used for joining ductile iron pipe shall be of the type, size and strength designated on the plans, elsewhere in the specifications, or in the proposal and, to the extent therein specified, shall conform to the appropriate specification in this section. Fittings shall have pressure ratings as specified above and as shown on the plans.

2. Fittings shall be mortar lined and seal coated. Mortar lining of fittings shall be factory installed only, unless otherwise directed by Asotin County PUD. All fitting lining interior surfaces shall be smooth finished.

3. Pipe fittings and specials used with ductile iron pipe shall be gray-iron or ductile iron and shall conform to AWWA Standard C110. Ductile iron (compact) fittings conforming to AWWA Standard C153 may be substituted in lieu of AWWA C110 fittings for fitting sizes 3 inches through 24 inches in diameter. Fittings shall be mechanical joint, push-on type, flanged or plain-end as required and shown on the plans. When fitting joints are to be restrained, pipe joint restraint systems as specified herein shall be used.

4. Joint restraint is required at all mechanical joint fittings and where specified on the plans. Joint restraint at mechanical joint fittings shall be accomplished with the following systems or approved equal:

a. 4- to 12-inch pipe: GripRing Pipe Restrainer, as manufactured by Romac Industries, Inc.

b. 14-inch pipe and greater: 470 Series Pipe Restraining System, as manufactured by Romac Industries, Inc.

B. Flanges

1. Threaded flanges shall meet the requirement of AWWA Standard C115 and shall be installed only on pipe with a minimum Class 53 wall thickness. All flanged fittings shall be provided with bolts and gaskets as specified herein. Flanges shall have flat faces and shall be attached with bolt holes straddling the vertical axis of the pipe unless otherwise shown. CONTRACTOR shall coordinate with pipe, valve and fitting suppliers to make certain that pipe, valve and fitting flanges match in bolt pattern.

C. Gaskets

1. Gaskets for flanged joints shall be as follows:

a. Pipe sizes up to 24-inch in diameter: Gaskets shall be full-face gaskets, premium red rubber, 1/8 inch thickness, Garlock 22, or equal.

b. Pipe sizes 24-inch and greater: Gaskets shall be ring gaskets, premium red rubber, 1/8-inch thickness, Garlock 22, or equal.

D. Bolts and Nuts

1. Bolts and nuts shall be carbon steel and shall conform to the requirements of ASTM A307 or ASTM A193 grade B7 with ASTM A194 grade 2H heavy hex nuts.

E. Flexible Couplings

1. All flexible couplings shall be cast or ductile iron in accordance with ASTM Standard A536 and high strength alloy bolts and nuts conforming to ANSI/AWWA C111.

2. Insulating flexible couplings shall be of the gasketed sleeve type with insulating boot and shall be Romac Industries, Inc. MACRO or ALPHA as shown on the Plans. All coupling materials shall be constructed to diameters that properly fit the pipe.

3. Insulating boot shall be fabricated from nitrile butadiene rubber suitable for water service with electric insulating properties in accordance with ASTM D2000 3 BA 715.

4. CONTRACTOR is responsible for selecting sleeve lengths appropriate to application, recognizing longer sleeves allow larger deflections and may ease installation.

F. Insulating Flanged Joints

1. Each complete insulating flange kit shall include a full faced gasket, a full-length pyrox insulating sleeve for each flange bolt and two pyrox insulating washers and two steel washers for each bolt. Gaskets shall be Garlock Style 3000 or equal.

G. Flexible Expansion Joints

1. Flexible expansion joints shall be installed in the locations indicated on the Drawings and shall be manufactured of ductile iron conforming to the material properties of ANSI/AWWA C153/A21.53. Flexible joints shall be provided with end connections as shown on the Plans. All flexible expansion joints shall consist of an expansion joint designed and cast as an integral part of a ball and socket type flexible joint, having a minimum of 15 degree deflection per ball and 4-inch expansion. Actual expansion and deflection requirements will be as shown on the Drawings. Each flexible expansion joint shall be hydrostatically tested to the manufacturer's published pressure rating prior to shipment. All pressure containing parts shall be lined with a minimum of 15 mils of fusion bonded epoxy conforming to the applicable requirements of ANSI/AWWA C213 and shall be holiday tested with a 1,500 volt spark test conforming to said specification. All flexible-expansion joints shall be Flex-Tend as manufactured by EBAA Iron, Inc. or approved equal.

H. Tapping Sleeves

1. Tapping sleeves shall be stainless steel conforming to 18-8 Type 304 stainless steel with stainless steel flanged end with ANSI 150 lb drilling. Bolts and hardware to be Type 304 stainless steel and the branch outlet shall be heavy stainless steel pipe. The gasket shall be full circumferential gasket. Tapping sleeve shall be Romac SST or approved equal. Tapping sleeve shall be lubed with pipe soap prior to installation.

2. Valve for tapping sleeve shall be cast iron body with fusion bonded epoxy coating. Valves shall be as specified in Sections 320, 321, 322, and 323.

I. Tracer Wire

1. Tracer wire shall be 12 gauge single strand copper insulated high molecular weight polyethylene (HMWPE) wire. The HMWPE insulated cover shall be blue and shall have a minimum thickness of 45 mils. The wire shall be UL rated for 1400 F.

J. Marking Tape

1. Marking tape shall consist of inert polyethylene plastic that is impervious to all known alkalis, acids, chemical reagents and solvents likely to be encountered in the soil. The tape shall be 3-4 inches in width and installed 1 foot above water main. The tape shall be blue and shall be imprinted continuously over its entire length in permanent black ink with the words “Caution Buried Water Line Below”

PART 3 EXECUTION

3.1 GENERAL

A. All materials, workmanship and installation shall conform to referenced AWWA Standards and other requirements of these specifications. The methods employed by the CONTRACTOR in the storage, handling, and installation of pipe, fittings, valves, hydrants, equipment and appurtenances shall be such as to ensure that the material, after it is placed, tested and permanently covered by backfilling is in as good a condition as when it was shipped from the manufacturer's plant. Should any damage occur to the material, repairs or replacement shall be made to the satisfaction of the Asotin County PUD.

B. Ductile iron pipe shall be installed in accordance with AWWA Standard C600, except as modified elsewhere in these specifications.

C. Sanitary Sewer Separation: The CONTRACTOR shall furnish all labor, equipment and materials required to replace sections of existing sanitary sewers or encase existing sanitary sewers in reinforced concrete as required to comply with Washington State Department of Health requirements for minimum separation of sanitary sewers. See also Section 102 - Excavating, Backfilling, and Compacting for Utilities.

3.2 PRODUCT HANDLING

A. Care shall be taken in handling and transporting to avoid damaging pipes and their coatings. Loading and unloading shall be accomplished with the pipe under control at all times and under no circumstances shall the pipe be dropped. Pipe shall be securely wedged and restrained during transportation and supported on blocks when stored in the shop or field.

3.3 INSPECTION

A. All pipe sections, specials, and jointing materials shall be carefully examined for defects and no piece shall be laid that is known to be defective. Gouges greater than or equal to 10% of pipe wall thickness shall be considered defective. Any defective piece installed shall be removed and replaced with a new pipe section in a manner satisfactory to the Asotin County PUD at the CONTRACTOR’s expense.

B. Asotin County PUD shall be allowed to identify and determine if material is defective. Defective material shall be marked with black spray paint and removed from the job site before the end of the day.

3.4 SURVEY LINE AND GRADE AND SURVEY MONUMENT REPLACEMENT

A. Refer to Section 102 – Excavating, Backfilling, and Compacting for Utilities, Part 3.2.

3.5 PREPARATION

A. Excavate trenches and prepare and maintain subgrade as described in these Specifications and shown on the Plans. Trench base shall be inspected prior to placement of the pipe. Remove large stones or other hard matter which could damage pipe or impede consistent pipe bedding backfilling or compaction.

B. All pipe trenches shall be excavated below the proposed pipe invert as shown on the Plans to accommodate the depths of pipe bedding material as scheduled on the Drawings.

C. Pipe cuts made with proper pipe cutting equipment shall be in accordance with the manufacture's recommendation. When required to re-bevel a pipe end for proper installation, the contractor shall utilize manufacture recommended bevel angle for the intended use.

1. Prior to assembly of field cut pipe, the reference mark shall be re-established with a permanent black marker. The location of the reference mark at the proper distance from the bevel end shall be in accordance with the manufacturer's recommendations.

D. Pipe Cleaning

1. each section of the pipe and each fitting shall be thoroughly cleaned before it is lowered into the trench. Cleaning of each pipe or fitting shall be accomplished by swabbing out, brushing out, blowing out with compressed air, or washing to remove all foreign matter.

2. If clean pipe sections and fittings cannot be placed in the trench without getting dirt into the open ends, the Asotin County PUD may require that a piece of tightly woven canvas be tied over the ends of the pipe and/or fitting until it has been lowered into position in the trench. After the pipe and/or fitting has been lowered into the trench, all foreign matter shall be completely brushed from the bell and spigot ends before assembly.

3.6 INSTALLATION

A. Install pipe and accessories in accordance with these specifications and the manufacturer's instructions.

B. Lift or roll pipe into position. Do not drop or drag pipe over prepared bedding.

C. Joints

1. Pipe jointing surfaces shall be clean and dry when preparing surfaces for joining. Lubricants, primers, adhesives, etc. shall be used as recommended by the pipe or joint manufacturer's specifications. The jointing materials or factory-fabricated joints shall then be placed, fitted, joined and adjusted in such a manner as to obtain a watertight joint. Trenches shall be kept water-free and as dry as possible during bedding, laying and jointing. As soon as possible after the joint is made, sufficient backfill material shall be placed along each side of the pipe to prevent movement of the pipe from any cause.

D. Water Main Hot Tapping

1. The CONTRACTOR shall furnish all tools and materials required for a complete installation including necessary testing.

2. The CONTRACTOR shall verify existing water main outside diameter size and material. CONTRACTOR shall contact Asotin County PUD prior to any excavation.

3. The CONTRACTOR shall schedule water main tap with Asotin County PUD 72 hours prior to installation date. CONTRACTOR shall excavate water main prior to PUD install. Excavated ditch shall be a minimum 4 feet wide and 10 feet long.

4. Asotin County PUD authorized representative shall install the gate valve and tapping sleeve on the water main and perform the water main tap. CONTRACTOR shall perform final connection after pressure test and bacteriological testing.

E. Install pipe and fittings to the line and grade specified on the Drawings, with joints centered, pipe properly supported and restrained against movement, and all valve stems plumb.

1. Where longitudinal slopes are 20% or greater, all pipe joints shall be restrained. Anchor blocks shall be used in conjunction with pipe joint restraint. Anchor blocks shall be 12 inches long and shall encase the pipe 12 inches thick at a minimum. Anchor blocks shall be placed 20 feet on center.

2. On unpaved slopes 20% or greater, timber baffles/hill holders shall be required at a maximum spacing of 18 feet on center, and a minimum of one (1) timber baffle/hill holder per each pipe length.

F. Lay pipe from the low end toward the high point. Provide a continuous, smooth invert. Bell holes shall be dug where necessary and the pipe shall be placed and supported on bedding material the full length of the barrel.

G. All loose dirt shall be removed from the bottom and the trench backfilled with specified bedding material to pipe laying grade.

H. The open ends of all pipes and special castings shall be plugged or otherwise closed with a watertight plug before leaving the work for the night, and at other times of interruption of the work. All pipe ends which are to be permanently closed shall be plugged or capped and restrained against internal pressure.

I. The weight of cast iron, ductile iron and other metallic fittings shall be supported by a poured-in-place concrete cradle. In-line valves shall be supported and anchored to an in-line thrust block as detailed in the Drawings.

J. Tracer Wire

1. Tracer wire is to be utilized on all pipelines for future locating purposes. Tracer wire shall be installed on the top centerline of the pipe. The wire shall be secured to the top of the pipe at maximum 5-foot intervals using 6-inch strips of 2-inch wide duct tape. The tracer wire shall be routed through all valve boxes (including isolation valves, air release valves, blowoffs and drain valves), meter boxes, fire hydrants and vaults to provide access to terminal ends of the wire. All locations of tracer wire intersections shall be soldered to provide electrical continuity and protected from adverse soil conditions with the use of shrink tubes or other approved waterproof connector devices. The result of the tracer wire installation shall be a continuous wire circuit electrical isolated from ground.

2. Tracer wire shall be installed in conjunction with all service lines and shall be connected to the water main tracer wire. Tracer wire shall be accessible from within the meter box and shall have electrical continuity with any tracer wire laid in conjunction with the waterline to which the service is tapped.

3. Tracer wire shall extend a minimum of 12-inches above grade at each valve box, meter box, and at each service tap to facilitate splicing, soldering and waterproofing.

4. Test for continuity and isolation from ground in the wire after all work has been completed on the test section. Perform intermediate testing after backfilling operations and prior to surface restoration work. Test continuity between access locations by use of a temporary wire connecting test points in-line with an ohmmeter. Measure resistance with an approved ohmmeter that has been property calibrated. The continuity of a test section will be accepted if the resistance of the test section does not exceed 5 ohms for each 500 feet of location wire being tested. Measure isolation from ground with an approve 1,000-volt Megger, applied for one minute. The isolation of a test section will be accepted if the isolation resistance of the test section is at least 10 megohms. Locate and repair all breaks or defects in the wire and re-test until specified results are obtained.

K. Marking Tape

1. Metallic marking tape shall be installed over all pipelines, with the exception of pipe installed utilizing trenchless installation methods. Marking tape shall be 3-4 inches in width and installed approximately 1 foot above the top of the pipe for its full length with the written warning words facing up.

L. Trench excavation and backfill of ductile iron piping system shall conform to the requirements of Section 102 - Excavation, Backfilling and Compacting for Utilities.

M. Thrust Restraint

1. All tees, plugs, caps, bends, offsets, as well as other appurtenances which are subject to unbalanced thrust, shall be properly braced with concrete thrust blocks unless otherwise specified in the drawings. Concrete thrust blocks shall have a minimum 28-day compressive strength of 3,000 psi. The concrete blocking shall bear against solid undisturbed earth at the side and bottom of the trench excavation and shall be shaped so as not to obstruct access to the joints of the pipe or fittings. Where shown on the plans or specified elsewhere in the Technical Specifications, the CONTRACTOR shall also provide internal or external joint restraint systems at the fittings and on all joints within the specified or shown distance on each side of the fitting or joint.

3.7 TESTING AND DISINFECTION OF DUCTILE IRON PIPE MAINS

A. Testing and disinfection of ductile iron pipe mains shall be done in accordance with Section 300 - Pipeline Testing and Disinfection, AWWA Standard C600, and AWWA Standard C651.

B. All chlorinated water used in disinfection of the water main shall either be discharged through an approved connection to a public sanitary sewer system or shall be dechlorinated to limits acceptable by the Washington State Department of Ecology prior to discharge into any storm drainage system or open drainage way. No chlorinated water shall be discharged into a storm drainage system or open drainage way without a dechlorination plan meeting state requirements. Any disposal of chlorinated water into sewer or storm drainage system shall meet local stormwater requirements and requires approval from the local jurisdiction and wastewater treatment plant.

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SECTION 302

POLYVINYL CHLORIDE (PVC) PRESSURE PIPE, FITTINGS, AND SPECIAL ITEMS

PART 1 GENERAL

1.1 DESCRIPTION

A. Work under this Section applies to the furnishing and installation of polyvinyl chloride (PVC) pressure pipe fittings and special items for buried service. The Contractor shall furnish and install polyvinyl chloride (PVC) pressure pipe, fittings and all appurtenant work, complete in place, all in accordance with the requirements of the plans and Standard Specifications and Details.

1.2 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

A. Commercial Standards

1. ANSI/AWWA C900 – Standard for Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4-inch Through 12-inch for Water Transmission and Distribution

2. ANSI/AWWA C905 – Standard for Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, Water Transmission Pipe, 14-inch Through 48-inch

3. ANSI/AWWA 605 – Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water

4. ANSI/ASTM D1784 – Standard Specification for Rigid Polyvinyl Chloride (PVC) Compounds and Chlorinated Polyvinyl Chloride (CPVC) Compounds

5. ASTM D1598 – Standard Test Method for Time-to-Failure of Plastic Pipe Under Constant Internal Pressure

6. ASTM D2241 – Standard Specification of Polyvinyl Chloride (PVC) Pressure-Rated Pipe (SDR Series)

7. ASTM F477 – Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe

8. ANSI/NSF Standard 61 – Drinking Water System Components

9. ANSI/AWWA C110/21.10 – Ductile-Iron and Gray-Iron Fittings

10. ANSI/AWWA C111/A21.11 – Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings

11. ANSI/AWWA C115/A21.15 – Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges

12. ANSI/AWWA C153/A21.53 – Ductile-Iron Compact Fittings for Water Service

13. AWWA M23 – AWWA Manual of Supply Practices - PVC Pipe—Design and Installation, Second Edition

1.3 SUBMITTALS

A. Product technical data and material data including all pipe, fittings, restrained joint systems, lining and appurtenance information, marking tape and tracer wire

B. Lining and coating data

C. Applicable material certifications and testing certificates

D. Manufacturer's handling delivery storage and installation requirements

E. Documentation of tracer wire continuity tests

1.4 QUALITY ASSURANCE

A. Unless otherwise noted, all water works materials provided for the project shall be new, of first class quality and shall be made by reputable manufacturers. All material of a like kind shall be provided from a single manufacturer unless otherwise approved by the Asotin County PUD. All material shall be carefully handled and installed in good working order free from defect in manufacture, storage and handling. Where an item is to be used but does not have its quality specified herein, it shall be equal to that specified in the appropriate American Water Works Association (AWWA) Standard Specification.

B. All references to standards of AWWA or other organizations shall be the latest versions of those standards.

PART 2 PRODUCTS

2.1 GENERAL

A. PVC piping materials shall meet the specifications of this Section and of the appropriate AWWA Standard Specifications. In the case of conflict, the more stringent specifications shall apply.

B. Unless otherwise specified herein or shown on the Plans, the minimum pressure rating of all water works materials specified herein shall be 1.5 times the operating pressure or 150 psi minimum.

C. All coatings and materials specified herein that come in contact with potable water shall be National Sanitation Foundation (NSF) approved.

2.2 POLYVINYL CHLORIDE (PVC) PRESSURE PIPE

A. PVC pressure pipe, 4 inches through 12 inches, shall be manufactured in accordance with AWWA C900 (latest revision), Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings for Water Transmission and Distribution, and shall meet the dimensional requirements of DR 18 pipe (Pressure Class 235) unless shown otherwise on the Drawings or specified elsewhere. PVC pipe greater than 12 inches in diameter shall be manufactured in accordance with AWWA C905 (latest revision), Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 14-inch through 48-inch, and shall meet the dimensional requirements of DR18 pipe (Pressure Class 235) unless shown otherwise on the drawings or specified elsewhere.

B. All PVC pipe shall be manufactured with an integral bell design capable of receiving an elastomeric gasket. Gaskets shall conform to ASTM F477.

C. All PVC pressure pipe shall be dimensionally compatible with standard cast/ductile iron fittings produced according to AWWA C110/A21.10 or AWWA C153/A21.53 as applicable (latest revision).

D. PVC pressure pipe may be deflected both horizontally and vertically at the joints after assembly. Deflection by bending of the pipe rather than at the joints is not allowed. The maximum pipe deflection shall not exceed one half of the manufacturer's stated joint deflection allowance.

E. Joint restraint, where required for PVC push-on pipe, will be accomplished with the following bell restraint systems, without exception:

1. 600 Series Pipe Restraining System, as manufactured by Romac Industries, Inc.

2. 470 Series Pipe Restraining System, as manufactured by Romac Industries, Inc.

F. Joint restraint for fittings are specified in Section 2.3.M

2.3 FITTINGS AND SPECIALS

A. Fittings used for joining PVC pressure pipe shall be of the type, size and strength designated on the plans, elsewhere in the specifications, or in the proposal and, to the extent therein specified, shall conform to the appropriate specification in this Section. Fittings shall have pressure ratings as specified above and as shown on the Plans.

B. Pipe fittings and specials used with PVC pressure pipe shall be gray-iron or ductile iron and shall conform to AWWA Standard C110. Ductile iron (compact) fittings conforming to AWWA Standard C153 may be substituted in lieu of AWWA C110 fittings for fitting sizes 3-inches through 24-inches in diameter. Fittings shall be mechanical joint, push-on type, flanged or plain-end as required and shown on the Plans. All fittings shall be provided with glands, bolts, restraint system and other

hardware as required for a complete installation and shall be considered incidental to the fittings and joint restraint systems. Fittings shall be Tyler Union or approved equal.

C. Pipe fittings and specials within above or below grade vaults shall be provided with Type 304 stainless steel bolts.

D. Fittings shall be mortar lined and seal coated. Mortar lining of fittings shall be factory installed only, unless otherwise directed by the Asotin County PUD. All fitting lining interior surfaces shall be smooth finished.

E. Flanges shall conform to either ANSI/AWWA C207 Class D or ANSI B 16.5 150-lb. class for 150 psi pressure rating and either ANSI/AWWA C207 Class E or ANSI B 16.5 150-pound class for pressure ratings between 150 and 275 psi. Flanges shall have flat faces and shall be attached with bolt holes straddling the vertical axis of the pipe unless otherwise shown. The CONTRACTOR shall coordinate with pipe, valve and fitting suppliers to make certain that pipe, valve and fitting flanges match in bolt pattern. Gaskets for flanged joints shall be full faced. Ring gaskets shall not be permitted.

F. Threaded flanges shall meet the requirement of AWWA Standard C115 and shall be installed only on pipe with a minimum Class 53 wall thickness. All flanged fittings shall be provided with bolts and gaskets as specified herein.

G. Flanged Insulating Joints

1. Insulating flanged joints shall conform to the following specifications:

    a. Flanged joints shall be assembled, lined and coated in shop. The joint assembly shall be delivered to the job site as a complete unit.

    b. After assembly, the joint shall be tested for continuity. Electrical resistance between flanges and between each bolt and each flange shall be not less than 100,000 ohms.

    c. Each complete insulating flange set shall include a full faced gasket, a full length insulating sleeve for each flange bolt, and two insulating washers and two steel washers for each bolt. Insulating sleeves and washers to be G-10 glass epoxy as manufactured by Accurate Plastics, Inc., or approved equal.

    d. Gaskets shall be full face and conform to ANSI B16.21, suitable for the operating and test pressures of the pipe system. Gaskets shall be non-asbestos and non-phenolic compressed sheet packing with nitrile rubber binder. Gaskets shall be Garlock 3000, or equal.

    e. Insulating washers shall be 3mm (1/8-inch) thick G-10 epoxy glass. Insulating washers shall fit within the bolt facing on the flange over the outside diameter of the sleeve, grind as necessary. Insulating sleeves shall

extend the full width of both flanges, except where one flange hole is threaded where the sleeve shall extend through one flange and the gasket.

f. Washers shall be cadmium plated steel where buried and stainless steel where submerged. Washers shall fit within the bolt facing on the flange, grind as necessary.

g. The complete assembly shall have an ANSI/AWWA pressure rating equal to or greater than that of the flanges between which the assembly is installed.

H. Insulating Union

1. Where required, insulating unions shall conform to the following specifications:

2. Insulating unions shall be brass with a ground joint. Joint connections to copper alloy pipe and tube shall be copper solder or threaded brass ground joints. Insulations shall be nylon, which is bonded and molded onto the metal body. Union shall be rated for the operating and test pressures of the pipe system.

I. Solid sleeves shall be of the long body design, mechanical joint.

J. Flexible Couplings

1. All flexible couplings shall be cast or ductile iron in accordance with ASTM Standard A536 and provided with high strength alloy bolts and nuts conforming to ANSI/AWWA C111.

2. The CONTRACTOR is responsible for selecting sleeve lengths appropriate to the application, recognizing longer sleeves allow larger deflections and may ease installation. Flexible couplings shall be furnished and installed as shown on the Plans.

3. Acceptable Manufacturer's:

a. ROMAC MACRO HP as manufactured by Romac Industries, Inc.
b. ROMAC ALPHA as manufactured by Romac Industries, Inc.

4. Joint restraint, where required for couplings, will be accomplished with the following systems, without exception:

a. 600 Series Pipe Restraining System, as manufactured by Romac Industries, Inc.

b. 470 Series Pipe Restraining System, as manufactured by Romac Industries, Inc.

K. Flexible Expansion Joints

1. Flexible expansion joints shall be installed in the locations indicated on the drawings and shall be manufactured of ductile iron conforming to the material properties of ANSI/AWWA C153/A21.53. Flexible joints shall be provided with end connections as shown on the Plans. All flexible expansion joints shall consist of an expansion joint designed and cast as an integral part of a ball and socket type flexible joint, having a minimum of 15 degree deflection per ball and 4-inch expansion. Actual expansion and deflection requirements will be as shown on the drawings. Each flexible expansion joint shall be hydrostatically tested to the manufacturer's published pressure rating prior to shipment. All pressure containing parts shall be lined with a minimum of 15 mils of fusion bonded epoxy conforming to the applicable requirements of ANSI/AWWA C213 and shall be holiday tested with a 1,500 volt spark test conforming to said specification. All flexible expansion joints shall be Flex-Tend as manufactured by EBAA Iron, Inc. or approved equal.

L. Taping Sleeves

1. Tapping sleeves shall be stainless steel conforming to 18-8 Type 304 stainless steel, with stainless steel flanged end with ANSI 150 lb drilling. Bolts and hardware to be Type 304 stainless steel and the branch outlet shall be heavy stainless steel pipe. The gasket shall be full circumferential gasket. Tapping sleeve shall be Romac SST or approved equal. Tapping sleeve shall be lubed with pipe soap prior to installation.

2. Valve for tapping sleeve shall be cast iron body with fusion bonded epoxy coating. Valves shall be as specified in Sections 320, 321, 322, and 323.

M. Joint Restraint

1. Joint restraint is required at all mechanical joint fittings and where specified on the Plans. Joint restraint shall be accomplished with the following systems or approved equal:

   a. 4- to 12-inch pipe: GripRing Pipe Restrainer, as manufactured by Romac Industries, Inc.

   b. 14-inch pipe and greater: 470 Series Pipe Restraining System, as manufactured by Romac Industries, Inc.

N. Restrained Flange Coupling Adaptor for PVC Pipe

1. Where PVC pressure pipe transitions to HDPE pipe, as shown on the Drawings, restrained flange coupling adapters (RFCA) for PVC pipe shall be used. Restrained flange coupling adapters shall be RFCA for PVC Pipe with a RomaGrip for PVC Pipe gland, as manufactured by Romac Industries, Inc., or approved equal.

2. Flange and gland body shall be ductile iron, meeting or exceeding ASTM A536, grade 65-45-12. Coating for flange and gland body shall be fusion bonded epoxy.

3. Gaskets shall be made from virgin styrene butadiene rubber (SBR) compounded for water and sewer service in accordance with ASTM D 2000 MBA 710. Flange gasket shall be O-Ring style made from nitrile butadiene rubber (NBR) in accordance with ASTM D 2000. Bolts and nuts shall be Type 304 stainless steel.

O. Tracer Wire

1. Tracer wire shall be 12 gauge single stranded copper insulated high molecular weight polyethylene (HMWPE) wire. The HMWPE insulated cover shall be blue and shall have a minimum thickness of 45 mils. The wire shall be UL rated for 140° F. Tape to fasten tracer wire to pipe shall be 3M Extra Heavy Duty Duct Tape.

P. Marking Tape

1. Marking tape shall consist of inert polyethylene plastic that is impervious to all known alkalis, acids, chemical reagents and solvents likely to be encountered in the soil. The tape shall be 3-4 inches in width and installed 1 foot above the water main. The tape shall be blue and shall be imprinted continuously over its entire length in permanent black ink with the words “Caution Buried Water Line Below”.

PART 3 EXECUTION

3.1 GENERAL

A. All materials, workmanship and installation shall conform to referenced AWWA Standards and other requirements of these specifications. The methods employed by the CONTRACTOR in the storage, handling, and installation of pipe, fittings and appurtenances shall be such as to insure that the material, after it is placed, tested and permanently covered by backfilling is in as good a condition as when it was shipped from the manufacturer's plant. Should any damage occur to the material, repairs or replacement shall be made to the satisfaction of the Asotin County PUD.

B. Polyvinyl chloride (PVC) pressure pipe shall be installed in accordance with AWWA Standard C605, except as modified elsewhere in these specifications.

C. Sanitary Sewer Separation: the CONTRACTOR shall furnish all labor, equipment and materials required to replace sections of existing sanitary sewers or encase existing sanitary sewers in reinforced concrete, as required to comply with Washington State Department of Health requirements for minimum separation of

sanitary sewers. See also Section 102 - Excavating, Backfilling, and Compacting for Utilities.

3.2 PRODUCT HANDLING

A. Care shall be taken in handling and transporting to avoid damaging pipes and their coatings. Loading and unloading shall be accomplished with the pipe under control at all times and under no circumstances shall the pipe be dropped. Pipe shall be securely wedged and restrained during transportation and supported on blocks when stored in the shop or field.

B. Storage: Store all pipe on a flat surface so as to support the barrel evenly. It is not recommended that pipe be stacked higher than four feet. Plastic pipe, if stored outside, shall be covered with an opaque material to protect it from the sunlight.

3.3 INSPECTION

A. All pipe sections, specials, and jointing materials shall be carefully examined for defects and no piece shall be laid that is known to be defective. Gouges greater than or equal to 10% of pipe wall thickness shall be considered defective. Any defective piece installed shall be removed and replaced with a new pipe section in a manner satisfactory to the Asotin County PUD at the CONTRACTOR's expense.

B. Asotin County PUD shall be allowed to identify and determine if material is defective. Defective material shall be marked with black spray paint and removed from the job site before the end of the day.

3.4 SURVEY LINE AND GRADE AND SURVEY MONUMENT REPLACEMENT

A. Refer to Section 102 – Excavating, Backfilling, and Compacting for Utilities, Part 3.2

3.5 PREPARATION

A. Excavate trenches and prepare and maintain subgrade as described in these Specifications and shown on the Plans. Trench base shall be inspected prior to placement of the pipe. Remove large stones or other hard matter which could damage pipe or impede consistent pipe bedding backfilling or compaction.

B. All pipe trenches shall be excavated below the proposed pipe invert as shown on the Plans to accommodate the depths of pipe bedding material as scheduled on the Drawings.

C. Pipe cuts made with proper pipe cutting equipment shall be in accordance with the manufacture's recommendation. When required to re-bevel a pipe end for proper installation, the contractor shall utilize manufacture recommended bevel angle for the intended use.

1. Prior to assembly of field cut pipe, the reference mark shall be re-established with a permanent black marker. The location of the reference mark at the proper distance from the bevel end shall be in accordance with the manufacturer's recommendations.

D. Pipe Cleaning

1. Each section of the pipe and each fitting shall be thoroughly cleaned before it is lowered into the trench. Cleaning of each pipe or fitting shall be accomplished by swabbing out, brushing out, blowing out with compressed air or washing to remove all foreign matter.

2. If clean pipe sections and fittings cannot be placed in the trench without getting dirt into the open ends, the Asotin County PUD may require that a piece of tightly woven canvas be tied over the ends of the pipe of fitting until it has been lowered into position in the trench. After the pipe of fitting has been lowered into the trench, all foreign matter shall be completely brushed from the bell and spigot ends before assembly.

3.6 INSTALLATION

A. Install pipe and accessories in accordance with these specifications and the manufacturer's instructions.

B. Lift or roll pipe into position. Do not drop or drag pipe over prepared bedding.

C. Joints

1. Pipe jointing surfaces shall be clean and dry when preparing surfaces for joining. Lubricants, primers, adhesives, etc. shall be used as recommended by the pipe or joint manufacturer's specifications. The jointing materials or factory-fabricated joints shall then be placed, fitted, joined and adjusted in such a manner as to obtain a watertight joint. Trenches shall be kept water-free and as dry as possible during bedding, laying and jointing. As soon as possible after the joint is made, sufficient backfill material shall be placed along each side of the pipe to prevent movement of the pipe from any cause.

D. Water Main Hot Tapping

1. The CONTRACTOR shall furnish all tools and materials required for a complete installation including necessary testing.

2. The CONTRACTOR shall verify existing water main size and material. CONTRACTOR shall contact Asotin County PUD prior to any excavation.

3. The CONTRACTOR shall schedule water main tap with Asotin County PUD 72 hours prior to installation date. CONTRACTOR shall excavate water main

prior to PUD install. Excavated ditch shall be a minimum 4 feet wide and 10 feet long.

4. Asotin County PUD authorized representative shall install the gate valve and tapping sleeve on the water main and perform the water main tap. CONTRACTOR shall perform final connection after pressure test and bacteriological testing.

E. Install pipe and fittings to the line and grade specified on the Drawings, with joints centered, pipe properly supported and restrained against movement, and all valve stems plumb.

1. Where longitudinal slopes are 20% or greater, all pipe joints shall be restrained. Anchor blocks shall be used in conjunction with pipe joint restraint. Anchor blocks shall be 12 inches long and shall encase the pipe 12 inches thick at a minimum. Anchor blocks shall be placed 20 feet on center.

2. On unpaved slopes 20% or greater, timber baffles/hill holders shall be required at a maximum spacing of 18 feet on center, and a minimum of one (1) timber baffle/hill holder per each pipe length.

F. Lay pipe from the low end toward the high point. Provide a continuous, smooth invert. Bell holes shall be dug where necessary and the pipe shall be placed and supported on bedding material the full length of the barrel.

G. All loose dirt shall be removed from the bottom and the trench backfilled with specified bedding material to pipe laying grade.

H. The open ends of all pipes and special castings shall be plugged or otherwise closed with a watertight plug before leaving the work for the night, and at other times of interruption of the work. All pipe ends which are to be permanently closed shall be plugged or capped and restrained against internal pressure.

I. The weight of cast iron, ductile iron and other metallic fittings shall be supported by a poured-in-place concrete cradle. In-line valves shall be supported and anchored to an in-line thrust block as detailed in the drawings.

J. Tracer Wire

1. Tracer wire is to be utilized on all PVC pipelines for future locating purposes. Tracer wire shall be installed on the top centerline of the pipe. The wire shall be secured to the top of the pipe at maximum 6-foot intervals using 6-inch strips of 2-inch wide 3M Extra Heavy Duty Duct Tape. The tracer wire shall be routed through all valve boxes (including isolation valves, air release valves, blowoffs and drain valves), meter boxes, fire hydrants and vaults to provide access to terminal ends of the wire. All locations of tracer wire intersections shall be soldered to provide electrical continuity and protected from adverse soil conditions with the use of shrink tubes or other approved waterproof connector

devices. The result of the tracer wire installation shall be a continuous wire circuit electrical isolated from ground.

2. Tracer wire shall be installed in conjunction with all service lines and shall be connected to the water main tracer wire. Tracer wire shall be accessible from within the meter box and shall have electrical continuity with any tracer wire laid in conjunction with the water line to which the service is tapped.

3. Tracer wire shall extend a minimum of 12-inches above grade at each valve box, meter box, and at each service tap to facilitate splicing, soldering and waterproofing.

4. Test for continuity and isolation from ground in the wire after all work has been completed on the test section. Perform intermediate testing after backfilling operations and prior to surface restoration work. Test continuity between access locations by use of a temporary wire connecting test points in-line with an ohmmeter. Measure resistance with an approved ohmmeter that has been property calibrated. The continuity of a test section will be accepted if the resistance of the test section does not exceed 5 ohms for each 500 feet of location wire being tested. Measure isolation from ground with an approve 1,000 volt Megger, applied for one minute. The isolation of a test section will be accepted if the isolation resistance of the test section is at least 10 megohms. Locate and repair all breaks or defects in the wire and re-test until specified results are obtained.

K. Marking Tape

1. Marking tape shall be installed over all PVC pipelines, with the exception of pipe installed utilizing trenchless installation methods. Marking tape shall be 3-4 inches in width and installed approximately 1 foot above the top of the pipe for its full length with the written warning words facing up.

2. Trench excavation and backfill of PVC piping system shall conform to the requirements of Section 102 - Excavation, Backfilling and Compacting for Utilities.

L. Thrust Restraint

1. All tees, plugs, caps, bends, offsets, as well as other appurtenances which are subject to unbalanced thrust, shall be properly braced with concrete thrust blocks unless otherwise specified in the drawings. Concrete thrust blocks shall have a minimum 28-day compressive strength of 3,000 psi. The concrete blocking shall bear against solid undisturbed earth at the side and bottom of the trench excavation and shall be shaped so as not to obstruct access to the joints of the pipe or fittings. Where shown on the Plans or specified elsewhere in the Technical Specifications, the CONTRACTOR shall also provide internal or

external joint restraint systems at the fittings and on all joints within the specified or shown distance on each side of the fitting or joint.

3.7 TESTING AND DISINFECTION OF PVC PIPE MAINS

A. Testing and disinfection of PVC pipe mains shall be done in accordance with Section 300 - Pipeline Testing and Disinfection, AWWA Standard C605, and AWWA Standard C651.

B. All chlorinated water used in disinfection of the water main shall either be discharged through an approved connection to a public sanitary sewer system or shall be dechlorinated to limits acceptable by the Washington State Department of Ecology prior to discharge into any storm drainage system or open drainage way. No chlorinated water shall be discharged into a storm drainage system or open drainage way without a dechlorination plan meeting state requirements. Any disposal of chlorinated water shall meet local stormwater requirements and requires approval from the local jurisdiction and local stormwater authority.

END OF SECTION

SECTION 303

HIGH DENSITY POLYETHYLENE PRESSURE PIPE

PART 1 GENERAL

1.1 SCOPE

A. This section covers high density polyethylene (HDPE) pressure pipe. HDPE pipe shall be furnished complete with all fittings, jointing materials and appurtenances.

1.2 REFERENCE SPECIFICATION

A. Refer to the latest edition of ANSI/AWWA C906, AWWA Standard for Polyethylene (PE) Pressure Pipe and Fittings, 4-inch through 63-inch, for Water Distribution and Transmission.

1.3 SUBMITTALS

A. Complete layout drawings, details and specifications covering all HDPE piping and accessories shall be submitted.

B. Certified copies of physical and chemical test results shall be submitted for the materials to be provided.

C. An affidavit of compliance and certification of special quality assurance testing shall be submitted.

D. Documentation of tracer wire continuity tests.

E. The following information shall be submitted by pipe and fitting suppliers:

1. Name of the pipe manufacturer and a list of the piping and quantities to be provided by manufacturer.

2. Name(s) of fitting manufacturer(s) and lists of fittings and quantities to be provided by manufacturer.

3. Pipe and fitting product data indicating conformance with this specification, applicable standards, and warranty provisions, including written documentation regarding any intended variance from this specification and applicable standards.

4. At the time of shipment, the supplier shall provide certified documentation of pipe and fitting conformance with this specification and applicable pipe and fitting standards specified herein.

F. The following information shall be submitted by fusion providers:

1. Documentation that each fusion technician has met requirements for joining proficiency for each type of fusion joint performed by the fusion technician under this specification.

2. Documentation of conformance with this specification and applicable standards, including written documentation regarding any intended variance from this specification and applicable standards. This will include fusion joint warranty information and recommended project specific fusion parameters, including criteria logged and recorded by data logger.

3. The following AS-RECORDED DATA is required from the contractor and/or fusion provider:

   a. Fusion reports for each fusion joint performed on the project, including joints that were rejected. Submittals of the fusion technician's joint reports are required as requested by the owner or engineer. Specific requirements of the fusion technician's joint report shall include:

      1) Pipe or fitting size and DR or pressure class rating
      2) Fusion equipment size and identification
      3) Fusion technician identification
      4) Job identification number
      5) Fusion number
      6) Fusion joining parameters
      7) Heat plate temperature
      8) Pre-heat soak time
      9) Heat soak time
      10) Fusion pressure time
      11) Fusion pressure
      12) Drag pressure
      13) Ambient Temperature
      14) Weather (sunny, rain, snow)
      15) Type of shelter if used

1.4 QUALITY ASSURANCE

A. MANUFACTURER REQUIREMENTS

1. High density polyethylene (HDPE) pipe and fittings shall be manufactured in accordance with the following standards:

   a. ASTM D3035 – 1/2-inch through 24-inch pipe
   b. ASTM F714 – 3-inch through 54-inch pipe
   c. AWWA C906 – 4-inch through 63-inch pipe and fabricated fittings
   d. ASTM D3261 – butt fusion fittings, saddles, and flange adapters

e. ASTM F1055 – electrofusion couplings and saddles
f. ASTM F2206 – fabricated fittings

B. FUSION TECHNICIAN REQUIREMENTS

1. Each fusion technician shall be individually qualified to make each type of fusion joint. Fusion joint types are butt fusion, saddle fusion and electrofusion. Qualification to make one type of fusion joint shall not qualify a fusion technician to make a different type of fusion joint.

2. Each fusion technician making butt fusion joints shall be qualified to make butt fusion joints in accordance with ASTM F2620. Qualification shall have occurred not more than 12 months before performing fusion joining on site in accordance with this specification. Qualification shall be a documented demonstration of proficiency by making joints in accordance with ASTM F2620 that are proved to be satisfactory by destructive testing in accordance with ASTM F2620.

3. Each fusion technician making saddle fusion joints shall be qualified to make saddle fusion joints in accordance with ASTM F2620. Qualification shall have occurred not more than 12 months before performing on-site fusion joining in accordance with this specification. Qualification shall be a documented demonstration of proficiency by making joints in accordance with ASTM F2620 that are proved to be satisfactory by destructive testing in accordance with ASTM F2620.

4. Each fusion technician making electrofusion fitting joints shall be qualified to make electrofusion fitting joints in accordance with ASTM F1290 and the electrofusion fitting manufacturer's recommended procedure. Qualification shall have occurred not more than 12 months before performing on-site fusion joining in accordance with this specification. Qualification shall be a documented demonstration of proficiency in making joints in accordance with ASTM F1290 and the electrofusion fitting manufacturer's recommended procedure, and proved to be satisfactory by destructive testing in accordance with ASTM F1290 and the electrofusion fitting manufacturer's recommended procedure.

C. WARRANTY

1. Pipe and fitting suppliers shall provide a one-year warranty covering defects in product material and workmanship. A successful pressure test or pressure leak test prior to the expiration of the warranty period shall not relieve the supplier of warranty responsibility for the full warranty term.

2. Fusion providers shall provide a one-year warranty from the project's substantial completion date covering defects in fusion joining workmanship that shall provide for remaking defective butt fusion, saddle fusion or electrofusion

joints. A successful pressure test or pressure leak test prior to the expiration of the warranty period shall not relieve the installer of warranty responsibility for the full warranty term.

PART 2 MATERIALS

2.1 GENERAL

A. The nominal diameters of the pipes are as shown on the Drawings.

2.2 PIPE AND FITTINGS FOR PRESSURE OR NON-PRESSURE SERVICE

A. PE4710 pipe and fitting material compound:

1. PE4710 material shall meet the requirements of ASTM D3350 and shall meet or exceed a cell classification of 445474 per ASTM D3350.

2. PE4710 material compound shall have a hydrostatic design stress (HDS) rating for water at 73°F (23°C) of not less than 1000 psi that shall be documented in the name of the material manufacturer in PPI TR-4.

3. PE4710 pipe and fitting material compound in PE4710 pipe and fittings shall contain color and ultraviolet (UV) stabilizer meeting the requirements of Code C or E per ASTM D3350. Code C material shall contain 2 to 3 percent carbon black to provide indefinite protection against UV degradation when material from the pipe is tested in accordance with ASTM D1603 or ASTM D4218. Code E material used for coextruded OD color stripes or a coextruded ID color layer shall contain sufficient UV stabilizer to protect the pipe against UV degradation for at least 24 months of unprotected outdoor exposure. Coextruded color PE compound material shall be PE4710 pipe material compound, varying only by color and UV stabilizer.

4. Clean rework materials derived from pipe production by the same manufacturer are acceptable as part of a blend with virgin material for the production of new pipe or tubing provided that the rework material is the same PE4710 material designation as the virgin material compound to which it is added. Finished products containing rework material shall meet the requirements of this specification.

B. PE4710 pipe and butt fusion fittings shall have square plain ends for butt fusion.

C. PE4710 pipe

1. Nominal straight lengths of 3 inches, and larger pipe shall be 40 ft. or 50 ft.

2. Pipe shall be black. Coextruded OD green stripes (for sewer application) or blue stripes (for water applications) shall be an acceptable option. A coextruded light

grey, light green, or light blue color ID layer to facilitate video ID inspection shall be an acceptable option.

3. Pipe shall be permanently marked using heated indent printing in accordance with the pipe size, including:

4. Nominal size and sizing system, e.g. IPS or DIPS

5. PE4710 material designation

6. DR or SDR

7. Standard designation, e.g. ASTM D3035

    a. The standard designation marking on the pipe shall serve as the manufacturer's certification that the pipe has been manufactured, sampled, and tested, and has been found to comply with the requirements of the standard.

8. Extrusion production-record code

9. Manufacturer's trademark or trade name

D. PE4710 Fittings

1. PE4710 butt fusion, saddle fusion, electrofusion, and fabricated fittings shall be manufactured from PE4710 material compound in accordance with this specification.

2. PE4710 fittings shall comply with ASTM D3261 for molded butt fusion and saddle fusion fittings, flange adapters, and MJ adapters, or shall comply with AWWA C906 or ASTM F2206 for fabricated butt fusion fittings, or shall comply with ASTM F1055 for electrofusion fittings.

3. PE4710 fittings shall comply with the marking requirements of ASTM D3261 for molded butt and saddle fusion fittings, flange adapters, and MJ adapters or shall comply with the marking requirements of AWWA C906 or ASTM F2206 for fabricated butt fusion fittings, or shall comply with the marking requirements of ASTM F1055 for electrofusion fittings.

2.3 FUSION JOINTS

A. Unless otherwise specified, PE4710 pipe and fittings shall be assembled in the field with butt fusion, saddle fusion or electrofusion joints. ASTM F2620 and the pipe manufacturer's recommended procedure shall be observed for butt fusion and saddle fusion joints. ASTM F1290 and the electrofusion fitting manufacturer's recommended joining procedure shall be observed for electrofusion joints.

B. Field butt fusion, saddle fusion, and electrofusion joints shall be made by fusion technicians who are qualified in accordance with this specification to make the specific fusion joint type.

C. Field fusion joints shall be recorded and documented in accordance with this specification.

2.4 CONNECTIONS WITH OTHER PIPE TYPES

A. Flexible Couplings

1. All flexible couplings shall be cast or ductile iron in accordance with ASTM Standard A536 and provided with high strength alloy bolts and nuts conforming to ANSI/AWWA C111.

2. The CONTRACTOR is responsible for selecting sleeve lengths appropriate to the application, recognizing longer sleeves allow larger deflections and may ease installation.

3. Use pipe stiffener for HDPE as recommended by the manufacturer.

4. Acceptable Manufacturer's: ROMAC MACRO HP or ALPHA

2.5 TRACER WIRE

A. For Open Trench: Tracer wire shall be 12-gauge single-stranded copper insulated high molecular weight polyethylene (HMWPE) wire. The HMWPE insulated cover shall be blue for potable water or green for pressure sewer and shall have a minimum thickness of 45 mils. The wire shall be UL rated for 1400 F. Tape to fasten tracer wire to pipe shall be 3M Extra Heavy Duty Duct Tape.

B. For Horizontal Directional Drill: Copper clad steel tracer wire shall be direct burial #12 AWG solid (0.0808-inch diameter), steel core hard drawn extra high strength horizontal directional drill tracer wire, 1,150 lb. average tensile break load, 45 mil high molecular weight, high density green polyethylene jacket complying with ASTM-D-1248, 30 volt rating, Copperhead Industries 1245G-EHS-2500 or equal.

2.6 MARKING TAPE

A. Marking tape shall consist of inert polyethylene plastic that is impervious to all known alkalis, acids, chemical reagents and solvents likely to be encountered in the soil. The tape shall be 3-4 inches in width and installed 1 foot above water main. The tape shall be blue and shall be imprinted continuously over its entire length in permanent black ink with the words “Caution Buried Water Line Below”

PART 3 EXECUTION

3.1 INSPECTION

A. Pipe and fittings shall be carefully examined for cracks and other defects immediately before installation. Gouges greater than or equal to 10% of pipe wall thickness shall be considered defective. Any defective piece installed shall be removed and replaced with a new pipe section in a manner satisfactory to the Asotin County PUD at the CONTRACTOR's expense.

B. Asotin County PUD shall be allowed to identify and determine if material is defective. All defective pipe and fittings shall be marked with black spray paint and removed from the site of the work.

3.2 SURVEY LINE AND GRADE AND SURVEY MONUMENT REPLACEMENT

A. Refer to Section 102 – Excavating, Backfilling, and Compacting for Utilities, Part 3.2

3.3 PREPARATION

A. The interior of all pipe and fittings shall be thoroughly cleared of all foreign matter prior to installation.

B. Precautions shall be taken to prevent foreign material from entering the pipe during installation.

3.4 HANDLING

A. Pipe, fittings and accessories shall be handled in a manner that will ensure installation in sound, undamaged condition. Equipment, tools and methods used in handling and installing pipe and fittings shall not damage or change the pipe and fittings. Hooks inserted in ends of pipe shall have broad, well-padded contact surfaces. Pipe shall not be stored uncovered in direct sunlight.

3.5 FUSION PROCESS

A. GENERAL

1. Butt and saddle fusion of PE4710 pipe and fittings shall be in accordance with ASTM F2620 and the manufacturer's recommended joining procedure.

2. Electrofusion of PE4710 pipe and fittings shall be performed in accordance with ASTM F1290 and the electrofusion fitting manufacturer's recommended procedure.

3. PE4710 pipe and fittings shall be fused by qualified fusion technicians, as documented by the fusion provider. Training records for qualified fusion technicians shall be available to engineer upon request.

4. Each fusion joint shall be recorded and logged by an electronic monitoring device (data logger) affixed to the fusion machine. Joint data shall be submitted as part of the as-recorded information, in accordance with this specification.

5. Butt fusion machines shall incorporate the following properties, including the following elements:

    a. HEAT PLATE – Heat plates and the non-stick coatings on heating surfaces shall be in good condition without heating surface gouges or scratches. The non-stick coating shall be intact, clean, and free of any contamination. Heater controls and temperature indicators shall function properly, and electrical cords and connections shall be in good condition. The heat plate shall maintain a uniform and consistent temperature on all areas of the heating surfaces on both sides of the heat plate.

    b. CARRIAGE – Carriage shall travel smoothly with no binding at less than 50 psi for hydraulic fusion machines. Clamps shall be in good condition with proper inserts for the pipe size being fused.

    c. GENERAL MACHINE - Overview of machine body shall yield no obvious defects, missing parts, or potential safety issues during fusion.

    d. DATA LOGGER - The current version of the pipe supplier's recommended and compatible software shall be used.

        1) Protective case shall be utilized for the hand held wireless portion of the unit.

        2) Data logger operations and maintenance manual shall be with the unit at all times.

        3) If fusing for extended periods of time, an independent 110V power source shall be available to extend battery life.

6. Other equipment specifically required for fusion processes shall include the following:

    a. Pipe rollers shall be used to support pipe to either side of the butt fusion machine and provide for vertical and lateral pipe alignment straight through the butt fusion machine.

    b. A protective enclosure that provides for full machine motion of the clamps, heat plate, fusion assembly and carriage shall be provided for fusion in inclement and/or windy weather. Pipe ends shall be covered or blocked where open pipe ends could allow excessive air to blow through the pipe.

    c. The fusion machine operations and maintenance manual shall be kept with the fusion machine at all times.

B. JOINT RECORDING

1. Each fusion joint shall be recorded and logged by an electronic monitoring device (data logger) connected to the fusion machine that shall register and/or record the parameters required by the manufacturer and these specifications.

   a. Each joint shall be logged by the data logger.

   b. Joints not logged by the data logger shall be rejected by the engineer, the contractor will be required to cut the pipe, remove the joint and re-fuse the segment to produce the joint report.

   c. Each joint shall be clearly marked on the pipe within 2 feet of the joint with an identifying number corresponding to the fusion report for that joint.

   d. The fusion technician shall submit all fusion data logging information to the engineer's representative at the end of each work day that encompasses fusion activity. The fusion technician shall submit the fusion reports in electronic PDF format.

   e. Pipe segments shall not be cut to final length or installed until all fusion records (for that segment) are reviewed and approved by the engineer's representative.

   f. If the engineer's representative determines that a segment of pipe contains a fusion joint that does not meet the manufacturer's requirements for fusion welding or appears to be defective in any way, the contractor shall cut out the joint and re-fuse the pipe segment at no additional cost to the owner.

3.6 INSTALLATION

A. The PE4710 pipe and fittings will be installed such that PE4710 pipe curvature is not less than the minimum bending radius recommended by the pipe manufacturer.

B. Direct burial installation of PE4710 non-pressure pipe shall be in accordance with ASTM D2321 and the pipe manufacturer's recommendations.

C. Pipe bursting for sewer applications installation of PE4710 shall be in accordance with Section 230.

D. Tracer Wire – Tracer wire is required for potable water open trench applications.

3.7 TAPPING FOR POTABLE AND NON-POTABLE WATER APPLICATIONS

A. PRESSURE APPLICATIONS

1. Tapping shall be performed using Romac 202N-H saddle or approved equal. Tapping by threading directly into the PE4710 pipe wall is prohibited.

2. Equipment used for tapping shall be made specifically for tapping PE4710 pipe:

    a. Tapping bits shall be either slotted “shell” style cutters, specifically made for PE4710 pipe or sharp “hole saws” made for cutting wood, if the contractor elects to use a “hole saw” the inspector shall verify its condition and require the contractor to purchase a new “hole saw” if defects are found or the unit has dull/missing teeth. In any case, excessive heat buildup by the pipe wall cutting process that results in the loss of material strength is not permitted and could result in the rejection of the work.

    b. Manually operated or power operated drilling machines may be used.

B. NON-PRESSURE APPLICATIONS

1. Tapping shall be performed using wye, Romac CB or approved equal. Use of Inserta Tee is prohibited unless an exception is obtained by Asotin County PUD.

3.8 TRACER WIRE

A. Open Trench:

1. Tracer wire is to be utilized on all pipelines for future locating purposes. Tracer wire shall be installed on the top centerline of the pipe. The wire shall be secured to the top of the pipe at maximum 10-foot intervals using 6-inch strips of 2-inch wide duct tape. The tracer wire shall be routed through all valve boxes (including isolation valves, air release valves, blowoffs and drain valves), meter boxes, fire hydrants and vaults to provide access to terminal ends of the wire. All locations of tracer wire intersections shall be soldered to provide electrical continuity and protected from adverse soil conditions with the use of shrink tubes or other approved waterproof connector devices. The result of the tracer wire installation shall be a continuous wire circuit electrical isolated from ground.

2. Tracer wire shall be installed in conjunction with all service lines and shall be connected to the water main tracer wire. Tracer wire shall be accessible from within the meter box and shall have electrical continuity with any tracer wire laid in conjunction with the waterline to which the service is tapped.

3. Tracer wire shall extend a minimum of 12-inches above grade at each valve box, meter box, and at each service tap to facilitate splicing, soldering and waterproofing.

4. Test for continuity and isolation from ground in the wire after all work has been completed on the test section. Perform intermediate testing after backfilling operations and prior to surface restoration work. Test continuity between access locations by use of a temporary wire connecting test points in-line with an ohmmeter. Measure resistance with an approved ohmmeter that has been property calibrated. The continuity of a test section will be accepted if the

resistance of the test section does not exceed 5 ohms for each 500 feet of location wire being tested. Measure isolation from ground with an approve 1,000-volt Megger, applied for one minute. The isolation of a test section will be accepted if the isolation resistance of the test section is at least 10 megohms. Locate and repair all breaks or defects in the wire and re-test until specified results are obtained.

B. Horizontal Directional Drill: Attach tracer wire to the outside crown of the pipe at 5-foot intervals with a minimum of three layers of 3M Extra Heavy Duty Duct Tape. For an installation using horizontal directional drilling (HDD) method, extend the tracer wire from the ends of the HDPE pipe to a plastic valve box at each end of the pipeline installation. For other installations, extend the tracer wire to plastic valve boxes along the pipeline route at approximate 1,000-foot intervals or as shown on the Drawings or as otherwise directed by the Asotin County PUD. Provide two (2) feet of slack at the ends of the wire. Demonstrate that the copper conductor is electrically continuous after installation of the pipeline.

3.9 MARKING TAPE

A. Marking tape shall be installed over all pipelines, with the exception of pipe installed utilizing trenchless installation methods. Marking tape shall be 3-4 inches in width and installed approximately 1 foot above the top of the pipe for its full length with the written warning words facing up.

3.10 HYDROSTATIC PRESSURE TESTING AND DISINFECTION

A. For Pressure Pipe: Test and disinfect all sections of HDPE pipe per the requirements of Section 300-Pipeline Testing and Disinfection.

3.11 CONNECTIONS TO HDPE PIPE

A. If the HDPE pipe is installed using horizontal directional drilling methods, after pullback of the HDPE pipe, the pipe shall remain in the drilled hole at least twenty-four (24) hours before any connections to or cutting of pipe are made.

END OF SECTION

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SECTION 310

WATER SERVICE CONNECTIONS

PART 1 GENERAL

1.1 DESCRIPTION

A. Work includes furnishing and installing service connections two (2) inches in diameter and smaller from the main to the water meter. The water meter shall be furnished and installed by others, unless specified otherwise elsewhere in the plans and Standard Specifications and Details.

1.2 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

A. ANSI/AWWA C800 Underground Service Line Valves and Fittings

B. ANSI/AWWA C900 Polyvinyl Chloride (PVC) Pressure Pipe 4 inch through 12 inch for Water Distribution

C. ANSI/AWWA C901 Polyethylene (PE) Pressure Pipe and Tubing, ½ inch through 3 inches for Water Service

D. ANSI/ASME B16.15 Cast Bronze Threaded Fittings, Classes 125 and 250

E. National Sanitation Foundation (NSF) Standard 61

F. Ductile Iron Pipe Research Association (DIPRA) Standards

1.3 SUBMITTALS

A. Product material data including all pipe, fittings and appurtenance information.

B. Provide pipe manufacturers, certificates stating that the materials have been sampled and tested in accordance with the provisions of the designated specifications and meet the requirements of the designated specifications. An authorized agent of each manufacturer shall sign the certificate.

C. Documentation of tracer wire continuity tests.

1.4 QUALITY ASSURANCE

A. Unless otherwise noted, all material of like kind shall be provided from a single manufacturer unless otherwise approved by the Asotin County PUD. All material shall be carefully handled and installed in good working order free from defect in manufacture, storage and handling. Where an item is to be used, but does not have its quality specified herein, it shall be equal to that specified in the appropriate American Water Works Association (AWWA) Standard Specification.

B. All references to Standards of AWWA or other organizations shall be the latest versions of those Standards.

PART 2 PRODUCTS

2.1 GENERAL

A. Service line materials shall conform to AWWA C800, ANSI/AWWA C900 and AWWA Standard C151 and as follows. Service line materials for normal pressure service applications shall be designed for a working pressure of 250 psig. All materials in contact with potable water shall be NSF Standard 61 approved. All brass and bronze products shall be no-lead.

2.2 SADDLES

A. Saddles for ¾-inch to 2-inch service lines shall have nylon coated saddle and double stainless steel straps. Saddles shall be double strap and shall be female iron pipe thread outlet. Saddles used on PVC shall be formed for PVC pipe and shall have flat, stainless steel straps. Saddles shall be Romac 202NS or approved equal.

2.3 CORPORATION STOPS

A. ¾-inch to 1-inch service lines shall have corporation stops made of lead-free brass. Corporation stops used with 3/4-inch and 1-inch outlet saddles shall have either AWWA tapered thread or male iron pipe thread inlets and outlet connections compatible with either copper or polyethylene tubing. Thread patterns for the saddle outlet and corporation stop inlet shall be the same. Corporation stops shall be manufactured by the Ford Meter Box Company.

B. Corporation stops used with 1 ½-inch and 2-inch outlet saddles shall be lead free and have male iron pipe thread inlets and outlet connections compatible with connecting service pipes. Corporation stops shall be manufactured by the Ford Meter Box Company. At the discretion of the Asotin County PUD 1 ½-inch and 2-inch services lines shall have corporation stops or square nut gate valves consistent with this section.

2.4 SERVICE PIPE

A. ¾-inch to 2-inch: Polyethylene Tubing Service Pipe - Polyethylene tubing service pipe shall meet the requirements of AWWA C901. Tubing shall be SDR 7, 250 psi.

B. 2-inch to 8-inch: Ductile Iron per Section 301 Ductile Iron Pipe, Fittings and Special Items and Polyvinyl Chloride (PVC) Pipe for per Section 302 PVC Pressure Pipe, Fittings and Special Items.

2.5 SERVICE FITTINGS

A. ¾-inch to 2-inch:

1. Fittings used for service connections shall be made of lead free brass. All fittings used shall meet or exceed the pressure rating of the pipe to which they are connected and shall meet the requirements of ASME B16.15. All water service fittings shall be manufactured by the Ford Meter Box Company.

2. Fittings used for polyethylene tubing shall have Ford Grip Joints and insert stiffeners.

3. Fittings for plain end iron pipe shall be Ford Pack Joint Coupling.

4. Copper setters for 1-1/2" and 2" services shall be model as specified on Standard Detail 3-10.

B. 2-inch to 8-inch:

1. Fittings used for joining pipe shall compatible with connecting service line and be of equal or greater pressure rating to the service line. Service Lines shall be per Section 301 Ductile Iron Pipe, Fittings and Special Items, Section 302 PVC Pressure Pipe, Fittings and Special Items.

2.6 METER BOXES

A. ¾-inch to 1-inch: In hardscape areas, meter box shall be 24-inch x 18-inch x 2-inch Pumice Meter Box manufactured by Quality Concrete. In landscape areas, meter box shall be Quality Concrete Pumice Meter Boxes or 20-inch PIP SDR 93.5 pipe. The Quality Concrete Pumice Meter Boxes will require two boxes for each service. For landscape areas, lid shall be Ford Meter Box frame and cover (Model X4-T for cover and lid or Model X3L-T for lid only). For hardscape areas, lid shall be Ford Meter Box Company – 11-1/2" overlapping lid with recessed hole for EMRM WA3-C-REC-463-T.

B. 1 1/2-inch to 2-inch: Meter box shall be Armor Cast 30" x 17" Meter Box with AMR cover, marked "WATER".

C. 4-inch: Meter box shall be pre-cast concrete vault manufactured by Wilbert Precast. Meter box shall be H-20 traffic load rated in traffic areas. Lid shall be cast iron frame and cover marked "WATER" and per Section 210 Sanitary Sewer Manhole and Cleanouts. Ladder steps factory installed to provide a continuous ladder of 12-inch center-to-center rung spacing. Steps shall be constructed of injection molded copolymer polypropylene and shall meet the requirements of ASTM C478 and AASHTO M 199. The polypropylene shall conform to ASTM D4101. They shall be Lane Polypropylene Steps or approved equal.

D. 6-inch to 8-inch: Meter box shall be pre-cast concrete vault manufactured by Wilbert Precast. Meter box shall be H-20 traffic load rate in traffic areas. Lid shall be cast iron frame and cover marked "WATER" and per Section 210 Sanitary Sewer Manhole and Cleanouts. Ladder steps factory installed to provide a continuous ladder of 12-inch center-to-center rung spacing. Steps shall be constructed of injection molded copolymer polypropylene and shall meet the requirements of ASTM C478 and AASHTO M 199. The polypropylene shall conform to ASTM D4101. They shall be Lane Polypropylene Steps or approved equal.

2.7 TRACER WIRE

A. Tracer wire shall be 12-gauge single stranded copper insulated high molecular weight polyethylene (HMWPE) wire. The HMWPE insulated cover shall be blue and shall have a minimum thickness of 45 mils. The wire shall be UL rated for 1400 F. Tape to fasten tracer wire to pipe shall be 3M Extra Heavy Duty Duct Tape.

2.8 MARKING TAPE

A. Metallic marking tape shall consist of inert polyethylene plastic that is impervious to all known alkalis, acids, chemical reagents and solvents likely to be encountered in the soil. The tape shall be 3-4 inches in width and installed 1 foot above the water main. The tape shall be blue and shall be imprinted continuously over its entire length in permanent black ink with the words "Caution Buried Water Line Below"

2.9 GATE VALVES

A. 1 ½-inch and 2-inch services lines shall have 2-inch gate valves installed per Section 321 Gate Valves and shall have inlets and outlet connections and fittings compatible with connecting service pipes. At the discretion of the Asotin County PUD 1 ½-inch and 2-inch services lines shall have corporation stops or gate valves consistent with this section.

B. 4-inch to 8-inch service lines shall have gate valves per Section 321 Gate Valves and shall have inlets and outlet connections and fittings compatible with connecting service pipes.

2.10 TAPPING SLEEVES

A. Tapping Sleeves on 4-inch to 8-inch service lines shall be stainless steel with full circumferential seal and stainless steel flange. Tapping Sleeves shall be Romac SST or approved equal.

PART 3 EXECUTION

3.1 GENERAL

A. All materials, workmanship and installation shall conform to referenced AWWA Standards and other requirements of these Specifications. The methods employed

by the CONTRACTOR in the storage, handling and installation of pipe, fittings, valves and appurtenances shall be such as to insure that the material, after it is placed, tested and permanently covered by backfilling, is in as good a condition as when it was shipped from the manufacturer's plant. Should any damage occur to the material, repairs or replacement shall be made to the satisfaction of the Asotin County PUD at no expense to the Asotin County PUD.

3.2 INSTALLATION

A. Construct the depth of trench for service connection piping to provide a minimum of four (4) feet of cover over the top of the pipe. Excavation, backfill and surface restoration shall be performed in accordance with SECTION 102 - EXCAVATING, BACKFILLING AND COMPACTING FOR UTILITIES and SECTION 110 PAVEMENT AND SURFACE RESOTRATION. All service connections under existing pavement, curbs, sidewalks or other surface improvements may be installed by trenchless construction techniques at the CONTRACTOR's option where ground conditions are favorable and such methods will not disturb foundations under curbs, sidewalks and other structures. The Asotin County PUD must approve all trenchless installation methods. Where trenchless pipe installation is used, payment for the pipe installation will be made for the equivalent trench excavation and backfill as if the open cut method was used. Payment will not be made for surface restoration including pavement, curbs, sidewalks and other surface improvements whose replacement is avoided by the tunneling method. Service 4-inch and larger shall have by-pass within vault.

1. For installations where the surface restoration includes pouring concrete to the water meter box, CONTRACTOR shall protect the meter box, cover, and the inside of the meter box assembly from unwanted coverages. Any accidental coverage of the meter box assembly of any concrete shall be cleaned before the concrete sets.

2. For meter box installations in new subdivisions or if final installation of the receiving building is not complete. The CONTRACTOR shall place a marker or protective post or pole 3' tall at a minimum at the location of the meter box to protect or call attention to its location.

3.3 CONCRETE VAULT

A. The CONTRACTOR shall safely install all precast items with no damage to the precast item or any other structure, piece of equipment, or appurtenance.

B. Precast structures shall be installed in accordance with the manufacturer's recommendations, unless otherwise required by the Asotin County PUD and the Drawings.

C. Subgrade Preparation: Subgrade shall be compacted to 95 percent of maximum density and covered with a minimum of six (6) inches, or as shown on the plans, of

aggregate base, which is also compacted to 95 percent of maximum density. The aggregate base shall be graded to a uniform, level surface to fully support the structure and to an elevation that will assure proper positioning of the top slab or lid and to allow pipe openings to match the grades for connecting pipes. Vault bases shall be set level so that base gravel fully and uniformly supports them in true alignment with uniform bearing throughout full circumference. Do not level the base sections by wedging gravel under the edges. Provisions shall be made to prevent flotation of the vault in high groundwater areas. Remove and keep all water clear from the excavation during construction and testing operations.

D. All vault joints shall be watertight and use rubber gaskets. Rubber gasketed joints installed in accordance with manufacturer's instructions. All joints shall then be filled with non-shrink grout inside and out so as to produce smooth interior and exterior surfaces. All manhole penetrations shall be watertight. Complete manholes shall be rigid.

E. Excavation, backfill and compaction as specified in SECTION 102 - EXCAVATING, BACKFILLING AND COMPACTING FOR UTILITIES.

3.4 WATER MAIN TAP

A. Make all service connections using saddles and tapping sleeves as specified and of the size and type suitable for use with the pipe being tapped.

3.5 PIPING

A. Install polyethylene tubing service as shown on the Plans or as specified elsewhere in this document. Cut service pipes using tools specifically designed to leave a smooth, even, and square end on the material being cut. Ream cut ends to the full inside diameter of the pipe. Clean pipe ends to a sound, smooth finish prior to using couplings which seal to the outside surface of the pipe. Adjust meter box to finished grade after the service piping has been installed and surface has been restored to the satisfaction of the Asotin County PUD.

3.6 RECONNECTING EXISTING SERVICES

A. Where shown on the Plans, reconnect existing service connections to the new water main in accordance with the applicable provisions of this Specification. Coordinate with the Asotin County PUD and notify affected customers of the service interruption at least 48 hours prior to service interruption. Customer shall also be notified of the check valve installed at the meter with notifications provided by Asotin County PUD.

3.7 TRACER WIRE

A. Tracer wire is to be utilized on all water service lines for future locating purposes. Tracer wire shall be installed on the top centerline of the pipe. The wire shall be secured to the top of the pipe at maximum 6-foot intervals using 6-inch strips of 2-

inch wide 3M Extra Heavy Duty Duct Tape. The tracer wire shall be routed through meter boxes to provide access to terminal ends of the wire. All locations of tracer wire intersections shall be soldered to provide electrical continuity and protected from adverse soil conditions with the use of shrink tubes or other approved waterproof connector devices. The result of the tracer wire installation shall be a continuous wire circuit electrical isolated from ground.

B. Tracer wire shall be installed in conjunction with all service lines and shall be connected to the water main tracer wire. Tracer wire shall be accessible from within the meter box and shall have electrical continuity with any tracer wire laid in conjunction with the waterline to which the service is tapped.

C. Leave slack in mainline tracer wire equivalent to a 12-inch loop above grade at each valve box and at each service tap to facilitate splicing, soldering, and waterproofing.

D. Test for continuity and isolation from ground in the wire after all work has been completed on the test section. Perform intermediate testing after backfilling operations and prior to surface restoration work. Test continuity between access locations by use of a temporary wire connecting test points in-line with an ohmmeter. Measure resistance with an approved ohmmeter that has been properly calibrated. The continuity of a test section will be accepted if the resistance of the test section does not exceed 5 ohms for each 500 feet of location wire being tested. Measure isolation from ground with an approved 1,000-volt Megger, applied for one minute. The isolation of a test section will be accepted if the isolation resistance of the test section is at least ten (10) megohms. Locate and repair all breaks or defects in the wire and re-test until specified results are obtained.

3.8 MARKING TAPE

A. Marking tape shall be installed over all water service lines. Marking tape shall be 3-4 inches in width and installed approximately one (1) foot above the top of the pipe for its full length with the written warning words facing up.

3.9 FLUSHING, TESTING AND DISINFECTION

A. Flush, test and disinfect all service connections and appurtenances in accordance with Section 300-Pipeline Testing and Disinfection. All service lines shall be flushed prior to hydrostatic testing with water flowing verified to Asotin County PUD.

END OF SECTION

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SECTION 320

VALVES, GENERAL

PART 1 GENERAL

1.1 DESCRIPTION

A. The CONTRACTOR shall provide all tools, supplies, materials, equipment and labor necessary for furnishing, installing, adjusting and testing of all valves and appurtenant work, complete and operable, in accordance with the requirements of the plans and Standard Specifications and Details. Where buried valves are shown, the CONTRACTOR shall install valve boxes to grade, with covers and extensions.

B. The provisions of this Section shall apply to all valves and valve operators specified in Sections 321, 322 and 323 of these Specifications except where otherwise specified by the Asotin County PUD. Valves and operators in particular locations may require a combination of units, sensors, limit switches and controls specified in other Sections of these Specifications.

1.2 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

A. Commercial Standards

1. ANSI B16.1 Cast Iron Pipe Flanges and Flanged Fittings, Class 25, 125, 250 and 800
2. ANSI B16.5 Pipe Flanges and Flanged Fittings, Steel Nickel Alloy and other Special Alloys
3. ANSI/ASME B1.20.1 General Purpose Pipe Threads (Inch)
4. ASTM A 36 Specification for Structural Steel
5. ASTM A 48 Specification for Gray Iron Castings
6. ASTM A 126 Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings
7. ASTM A 536 Specification for Ductile Iron Castings
8. ASTM B 61 Specification for Steam or Valve Bronze Castings
9. ASTM B 62 Specification for Composition Bronze or Ounce Metal Castings
10. ASTM B 148 Specification for Aluminum Bronze Castings

11. ASTM B 584 Specification for Copper Alloy Sand Castings for General Applications
12. ANSI/AWWA C500 Gate Valves for Water and Sewerage Systems
13. ANSI/AWWA C502 Dry-Barrel Fire Hydrants
14. ANSI/AWWA C504 Rubber-Seated Butterfly Valves
15. ANSI/AWWA C507 Ball Valves 6 Inches Through 48 Inches
16. AWWA C508 Swing-Check Valves for Waterworks Service, 2 Inches Through 24 Inches NPS
17. ANSI/AWWA C509 Resilient-Seated Gate Valves for Water and Sewerage Systems
18. ANSI/AWWA C511 Reduced-Pressure Principle Backflow-Prevention Assembly
19. AWWA C550 Protective Interior Coatings for Valves and Hydrants
20. SSPC-SP1 Solvent Cleaning
21. SSPC-SP3 Power Tool Cleaning
22. SSPC-SP6 Commercial Blast Cleaning

1.3 SUBMITTALS

A. Shop Drawings -- Shop drawings of all valves and operators including associated wiring diagrams and electrical data, shall be furnished as specified in the Standard Specifications and Details and if specified in the individual valve sections.

B. Lining and coating data.

C. Manufacturer’s handling, delivery, storage and installation requirements.

D. Applicable material certifications and testing certifications and testing certificates.

1.4 QUALITY ASSURANCE

A. Valve Testing -- Unless otherwise specified, each valve body shall be tested under a test pressure equal to twice its design water-working pressure.

B. Bronze Parts -- Unless otherwise specified, all interior bronze parts of valves shall conform to the requirements of ASTM B 62, or, where not subject to dezincification, to ASTM B 584.

C. Certification -- Prior to shipment, the CONTRACTOR shall submit for all valves over 12 inches in size, certified, notarized copies of the hydrostatic factory tests, showing compliance with the applicable standards of AWWA, ANSI, ASTM, etc.

D. Unless otherwise noted, all water works materials provided for the project shall be new, of first class quality and shall be made by reputable manufacturers. All material of a like kind shall be provided from a single manufacturer unless otherwise approved by the Asotin County PUD. All material shall be carefully handled and installed in good working order free from defect in manufacture, storage and handling. Where an item is to be used but does not have its quality specified herein, it shall be equal to that specified in the appropriate American Water Works Association (AWWA) Standard Specification.

1.5 MATERIAL DELIVERY, STORAGE AND PROTECTION

A. All valves and accessories shall be delivered in a clean and undamaged condition and stored off the ground, to provide protection against oxidation caused by ground contact. All defective or damaged materials shall be replaced with new materials at no cost to the Asotin County PUD.

PART 2 PRODUCTS

2.1 GENERAL

A. Valve Flanges -- The flanges of valves shall be in accordance ANSI B16.1, ANSI B16.5 and ANSI/AWWA C115/A21.15 as required. The CONTRACTOR shall coordinate with pipe, valve and fitting suppliers to make certain that pipe, valve and fitting flanges match in bolt pattern.

B. Valve boxes, except those of special design as required by the plans, shall be of cast iron of the two-piece extension type with a cast iron cover. Valve boxes shall have walls not less than 3/16 inch thick at any point, and the internal diameter shall be not less than 5 inches. Valve box covers shall have the word “WATER” cast into them as appropriate to their place of use. Valve box covers shall be of design and construction which prevents dislodging and rotation from traffic and shall be of the type which allows a hand held pry bar to be applied for easy removal. Valve boxes shall be two-piece extension type heavy duty valve box top and bottom as manufactured by Tyler Union (Model 32U – Heavy Duty).

C. Protective Coating -- The valve manufacturer shall certify in writing that the required coating has been applied and tested in the manufacturing plant prior to shipment, in accordance with these Specifications. Flange faces of valves shall not receive protective coatings.

D. Valve Operators -- Valve operators shall be as shown or as specified for a valve type. Provide operator extensions to 12 inches below grade where depth to valve exceeds five (5) feet.

E. Valve Labeling -- If required by the drawings and/or these specifications, a label shall be provided on all exposed (not buried) shut-off valves exclusive of hose bibbs. The label shall be of 1/16-inch plastic or stainless steel, minimum two (2) inches by four (4) inches in size, and shall be permanently attached to the valve or on the wall adjacent to the valve as directed by the Asotin County PUD.

F. Bolts, Gaskets, Glands and Nuts -- Bolts, gaskets, glands, retainer glands, nuts and miscellaneous accessories required to install all valves shall be furnished and installed. Bolts and nuts for flanged connections shall be as specified elsewhere with American Standard regular unfinished square or hex heads. Gaskets for flanged connections shall be as specified elsewhere. Jointing materials for mechanical joints shall conform to AWWA C111.

G. Actuators -- Unless otherwise indicated, all valves and gates shall be furnished with manual actuators. Valves in sizes up to and including four (4) inches shall have direct acting lever or handwheel actuators of the manufacturer's best standard design. Larger valves and gates shall have gear-assisted manual actuators, with an operating pull of maximum 60 pounds on the rim of the handwheel. Actuators shall be sized for the valve design pressure in accordance with AWWA C504. All gear-assisted valves that are buried, submerged or located in below grade vaults and all gates shall have the actuators hermetically-sealed and grease-packed. All valves six (6) inches to 30 inches in diameter may have traveling-nut actuators, worm-gear actuators, and spur- or bevel-gear actuators, as appropriate for each valve. All buried valves shall be provided with two (2)inch square operating nuts.

PART 3 EXECUTION

3.1 VALVE INSTALLATION

A. General -- All valves, gates, operating units, stem extensions, valve boxes and accessories shall be installed in accordance with the manufacturer's written instructions and as shown and specified. All gates shall be adequately braced to prevent warpage and bending under the intended use. Valves shall be firmly supported to avoid undue stresses on the pipe. Stem extensions shall be braced at no greater than 10 feet intervals and be provided with double universal joints to allow for misalignment.

B. Access -- All valves shall be installed to provide easy access for operation, removal and maintenance and to avoid conflicts between valve operators and structural members or handrails.

C. Valve Accessories -- Where combinations of valves, sensors, switches and controls are specified, it shall be the responsibility of the CONTRACTOR to properly assemble and install these various items so that all systems are compatible and operating properly. The relationship between interrelated items shall be clearly noted on shop Drawing submittals.

D. Valve Boxes -- All buried valves shall be furnished with valve boxes. Valves shall be set in a concrete pad at finished grade as shown on the Plans.

E. Testing and Disinfection -- Valves to be tested concurrent with adjacent sections of pipe per 300 Pipeline Testing and Disinfection.

END OF SECTION

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SECTION 321

GATE VALVES

PART 1 GENERAL

1.1 DESCRIPTION

A. The CONTRACTOR shall furnish and install gate valves, complete and operable, as shown and specified herein, including coatings and linings, appurtenances, operators, and accessories, in accordance with the requirements of the plans and Standard Specifications and Details.

1.2 SUBMITTALS

A. As required by Section 320.

PART 2 PRODUCTS

2.1 GENERAL

A. Gate valves shall be furnished and installed as shown and as specified herein.

2.2 MATERIALS & MANUFACTURERS

A. Gate Valves, two (2) inches

1. Unless specified or shown otherwise, gate valves shall be two (2) inch resilient-seat type, with an iron body, non-rising stem, bolted bonnet, left opening and shall conform to AWWA Standard C509. Coatings and/or linings shall conform to AWWA Standard C550 and shall be suitable for potable water service. Valve ends shall be threaded. The CONTRACTOR, as specified in Section 320, shall furnish a valve box and cover with all buried service valves installed. Gate valve stem extensions shall be furnished and installed on deep buried valves as shown on the Plans and specified in Section 320. Acceptable manufacturers are as follows:

    a. AMERICAN-Series 2500 Resilient

B. Gate Valves, three (3) inches to twelve (12) inches

1. Gate valves for buried service shall be the resilient-seat type, with an iron body, non-rising stem, bolted bonnet, left opening and shall conform to AWWA Standard C509. Coatings and/or linings shall conform to AWWA Standard C550 and shall be suitable for potable water service. Valve ends shall be as

shown on the Plans. The CONTRACTOR, as specified in Section 320, shall furnish a valve box and cover with all buried service valves installed.

2. Gate valve stem extensions shall be furnished and installed on deep buried valves as shown on the Plans and specified in Section 320.

3. Acceptable manufacturers are as follows:

   a. AMERICAN-Series 2500 Resilient

PART 3 EXECUTION

3.1 GENERAL

A. Valve installation shall be in accordance with Section 320 and manufacturer's requirements.

END OF SECTION

SECTION 322

BUTTERFLY VALVES

PART 1 GENERAL

1.1 DESCRIPTION

A. The CONTRACTOR shall furnish and install butterfly valves, complete, as shown and specified herein, including coatings and linings, appurtenances, operators and accessories in accordance with the requirements of the Asotin County PUD and the Standard Specifications and Details.

1.2 SUBMITTALS

A. As required by Section 320.

PART 2 PRODUCTS

2.1 GENERAL

A. Butterfly valves furnished under this section shall be of the rubber seated, tight-closing type. Metal to metal seating surfaces shall not be used. Butterfly valves shall be bubble-tight at the rated pressure with flow in either direction, and shall be satisfactory for operation following long periods of inactivity. Valve discs shall rotate a full 90 degrees from the open position to closed position.

B. Butterfly valves shall be Class 150 unless otherwise called out on the plans. Class 150 valves shall meet the full requirements of AWWA Standard C504 for Class 150B. Class 250 valves shall conform to the requirements of AWWA Standard C504 subject to the requirements herein.

C. Valve shafts shall consist of the one-piece type or "stub-shaft" type. "Stub- shaft" type valve shafts shall be inserted a minimum of one and one-half (1-1/2) shaft diameters into the valve disk hub. Valve shafts shall have a minimum diameter extending through the valve bearings and into the valve disc, as specified in AWWA Standard C504. Valve shafts shall be full size for that portion of the shaft extending through the valve bearings, valve disc and shaft seal. Any portion of the shaft turned down for any reason shall have fillets with radii equal to the offset to minimize stress concentrations at the junction of the different shaft diameters. The turned down portion of the shaft shall be capable of transmitting the maximum operator torque without exceeding a torsional steel stress of 11,500 pounds per square inch (psi). Valve shafts shall be constructed of wrought stainless steel, model or carbon-steel, with stainless steel journals. When carbon-steel shafts and stainless steel

journals are used, static seals shall be provided to isolate the interior of the disc and the shaft from water.

D. Valve discs shall be of cast design with no external ribs transverse to the flow. The design shall be such to sustain full differential pressure across the closed valve disc without exceeding a working stress to one fifth of the tensile strength of the disc material. Valve discs shall be constructed from cast iron, alloy cast iron or ductile iron.

E. Rubber seats applied to either the body or the disc, shall be constructed from new, natural or synthetic rubber, secured to the valve body or disc, and designed to provide tight shut-off and facilitate removal and replacement at the site. Rubber seats shall mate with the following acceptable surfaces: stainless steel, monel, bronze Grade A, D or E, or alloy cast iron Rubber seats that are applied to the valve body and are penetrated by the valve shaft shall be adequately reinforced and clamped, mechanically secured, bonded or vulcanized to the valve body to prevent the seat from being inflated by pressure behind the valve seat. Rubber seats shall be resistant to microbiological attack, copper poisoning and ozone attack. All clamps and retaining rings for rubber seats shall be corrosion resistant.

F. Valve bearings shall be of the sleeve type contained in the hubs of the valve body. Sleeve bearings fitted into the valve body shall be of self-lubricating materials approved for use with potable water.

G. Valve shaft seals shall be designed for the use of standard split-v type packing, standard "O" ring seals or for pull down packing. "O" rings used for shaft seals shall be contained in a removable corrosion-resistant recess. Shaft seals shall be designed to allow seal replacement without removal of the valve shaft.

H. Manual operators for buried service valves and valves in below grade vaults shall be of the traveling nut, self- locking type and shall be designed to hold the valve in any intermediate position between full open and fully closed without creeping or fluttering. For buried services, operators shall be equipped with a 2-inch square-operating nut (left opening) and shall be fully gasketed and grease-packed. For valves in below grade vaults, operators shall be equipped with a handwheel and shall be fully gasketed and grease packed. A valve position indicator, if specified or shown, shall be furnished for all valves for installation in a valve box. The valve indicator shall be hermetically sealed for installation inside a cast iron valve box and shall show valve-disc position, direction of rotation and number of turns from full open to full close. The valve manufacturer shall provide the indicator.

I. All surfaces of the valve shall be clean, dry and free from grease before painting. For buried service valves and valves in below grade vaults, the interior and exterior valve surfaces shall be epoxy coated in accordance with AWWA Standard C550.

J. Acceptable Butterfly Valve manufacturers are as follows:

1. Pratt

2.2 CLASS 150 BUTTERFLY VALVES

A. Valve bodies shall be constructed of cast iron conforming to ASTM A-126 Class B (with integrally cast flanged or mechanical joint ends). Flange drilling shall be in accordance with ANSI/B16.1 standard for cast iron flanges. Two trunnions for shaft bearings shall be integral with each valve body. Body thickness shall be in strict accordance with AWWA C504.

B. Valve shafts shall be turned, ground and polished. Valve shafts shall be constructed of 18-8 Type 304 or Type 316 stainless steel. Shaft diameters must meet minimum requirements established by AWWA C504 for Class 150B.

2.3 CLASS 250 BUTTERFLY VALVES

A. Valve bodies shall be constructed of cast iron conforming to ASTM A-126 Class B (with integrally cast flanged or mechanical joint ends). Unless otherwise shown, Class 250 butterfly valve flanges shall have the same drilling as ANSI B16.1, Class 125 cast iron flanges and mechanical joint ends shall conform to ANSI 21.11. Two trunnions for shaft bearings shall be integral with each valve body.

B. Valve shafts shall be turned, ground and polished. Valve shafts shall be constructed of stainless steel, ASTM A-564, Type 630 or 18-18 Type 304.

PART 3 EXECUTION

3.1 GENERAL

A. Valve installation shall be in accordance with Section 320 - Valves, General and manufacturer's requirements. All valves 24-inches in diameter or larger shall be pressure and leakage tested at the project site and shall pass the field testing prior to installation.

END OF SECTION

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SECTION 323

MISCELLANEOUS VALVES

PART 1 GENERAL

1.1 DESCRIPTION

A. The CONTRACTOR shall furnish and install miscellaneous valves complete, as shown on the Drawings and/or specified herein, including coating and lining, appurtenances, operators and accessories.

B. Miscellaneous valves include non-freeze wall hydrant, combination air and vacuum valves, strainers and small swing check valves.

1.2 SUBMITTALS

A. As required by Section 320.

PART 2 PRODUCTS

2.1 MATERIALS AND MANUFACTURERS

A. Combination Air/Vacuum Valves

1. Air and vacuum valves shall be of the Combination Air Valve (CAV) type consisting of a kinetic air and vacuum valve and an air release valve contained in a single body housing. The valve shall be designed to exhaust large volumes of air when filling the pipeline, to release small quantities of air during operation and to admit large volumes or air upon impending vacuum during draining.

2. Body and cover materials shall be cast iron ASTM A126, Class B. Orifice floats and orifices shall be ASTM A240 stainless steel. Valve seats shall be Buna-N. Kinetic Compact Combination air valves shall be as manufactured by Val-Matic Series 100, APCO standard single body Series 140.

PART 3 EXECUTION

3.1 GENERAL

A. Valve installation shall be in accordance with Section 320 and manufacturer's requirements.

END OF SECTION

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SECTION 330

FIRE HYDRANTS

PART 1 GENERAL

1.1 DESCRIPTION

A. The CONTRACTOR shall furnish and install fire hydrants, complete and operable, as shown and specified herein, including coatings and linings, appurtenances, operators and accessories, in accordance with the requirements of the plans and Standard Specifications and Details.

1.2 SUBMITTALS

A. Shop Drawings
B. Lining and coating data
C. Manufacturer’s handling, delivery, storage and installation requirements.
D. Applicable material certifications, testing certifications and testing certificates.

PART 2 PRODUCTS

2.1 GENERAL

A. Fire hydrants shall be furnished and installed as shown on the Plans and as specified herein. All hydrants of like kind shall be provided from a single manufacturer for this project.

2.2 MATERIALS

A. Fire hydrants shall meet or exceed the requirements of AWWA Standard C502 and shall be equipped with a 5 ¼ - inch valve, three port nozzles, two of which are 2 ½ -inch hose nozzles and one 5- inch pumper nozzle. Hydrant shall be Waterous Pacer with Storz Nozzle.

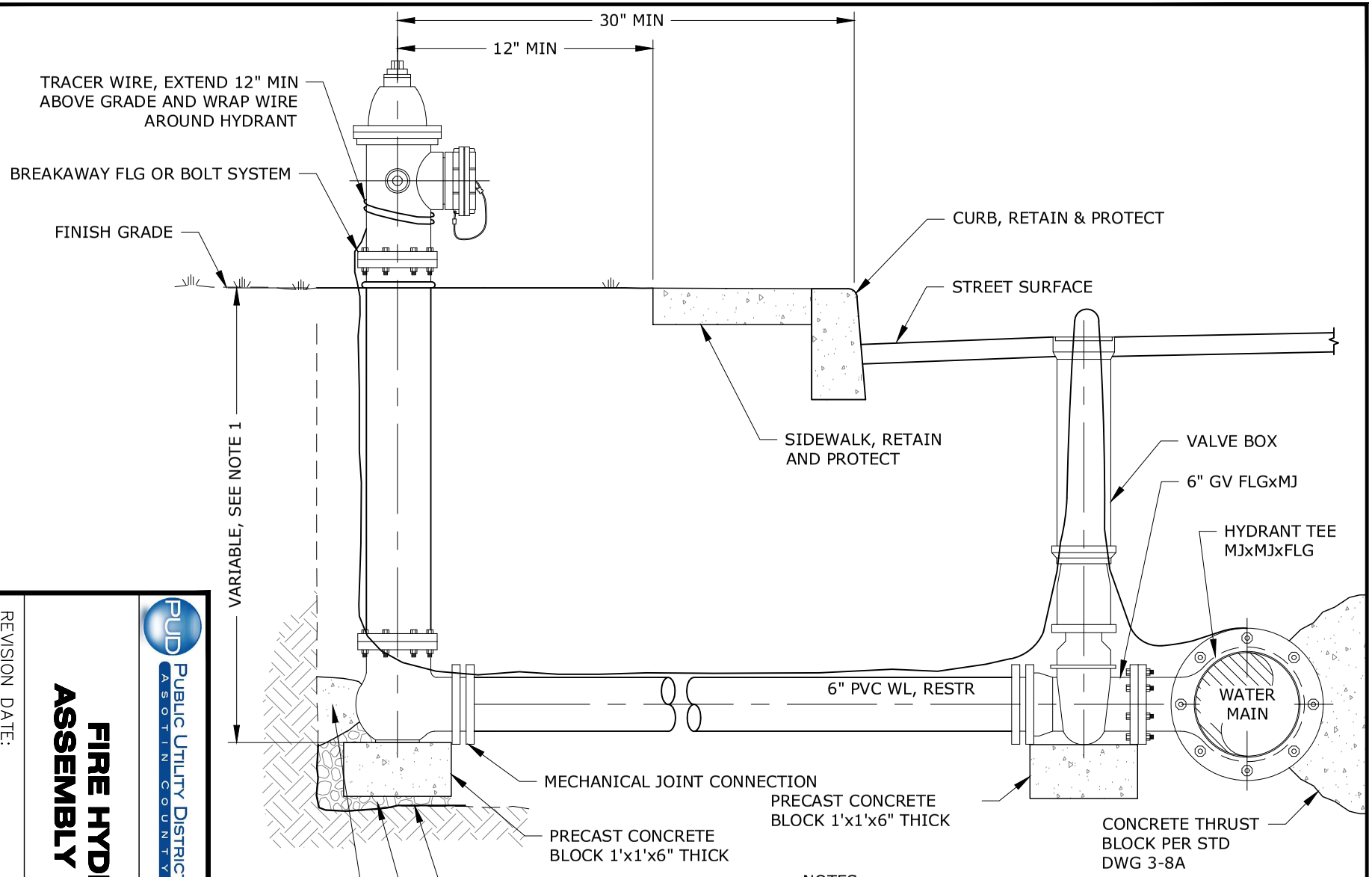
PART 3 EXECUTION

3.1 GENERAL

A. Hydrant assembly installation shall be in accordance with AWWA C600, manufacturer's requirements and as shown on the Plans.

END OF SECTION

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FIRE HYDRANT ASSEMBLY DETAIL

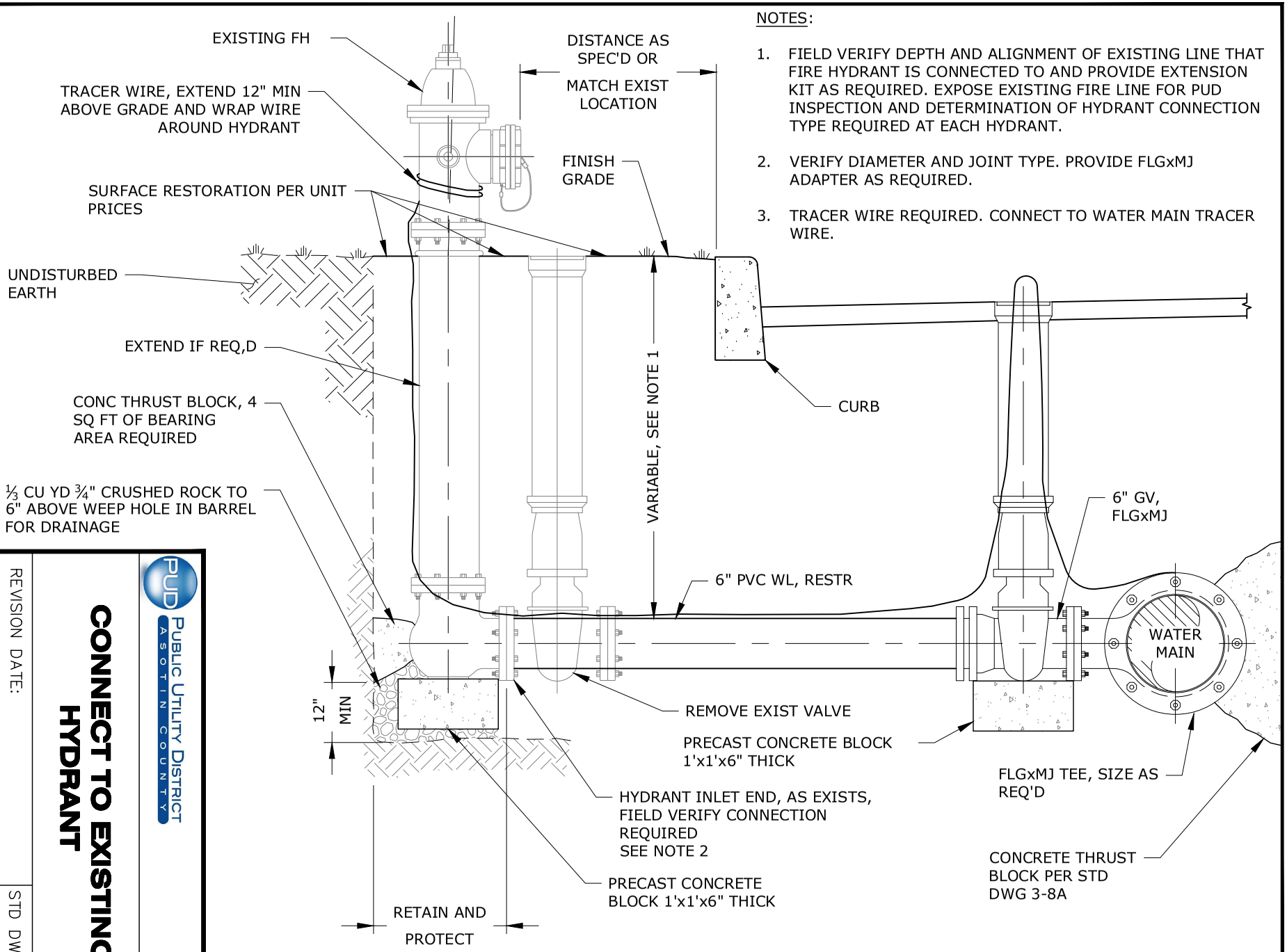
PUD Public Utility District Asotin County

REVISION DATE: JANUARY 2022

STD DWG NO. 3-1

NOTES:

1. IF WATER MAIN IS EXISTING, FIELD VERIFY DEPTH AND ALIGNMENT OF EXISTING MAIN. EXPOSE EXISTING WATER MAIN FOR PUD INSPECTION AND VERIFICATION OF CONNECTION TYPE REQUIRED AT THE WATER MAIN.
2. TRACER WIRE REQUIRED. CONNECT TO WATER MAIN TRACER WIRE.



NOTES:

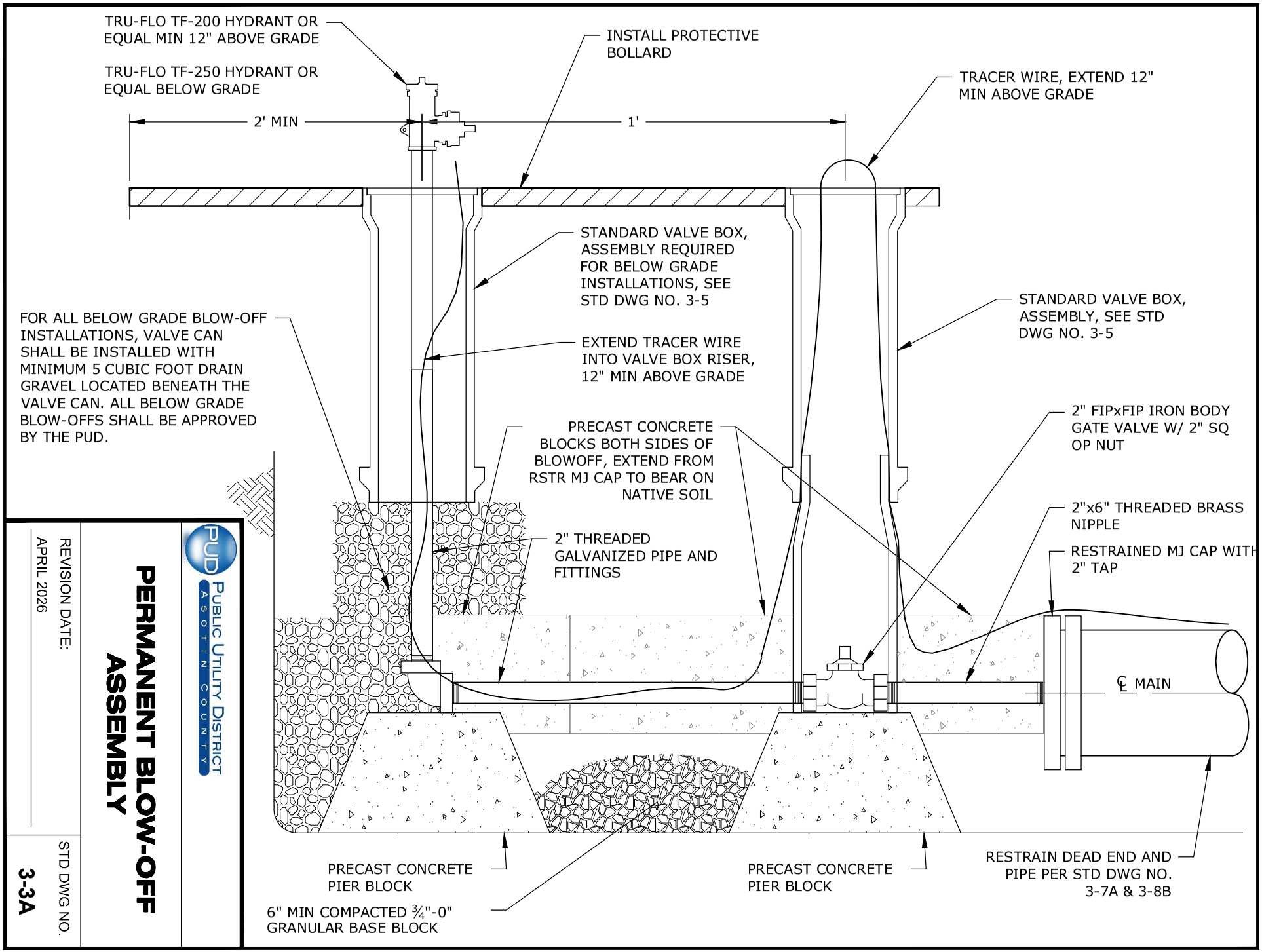
1. FIELD VERIFY DEPTH AND ALIGNMENT OF EXISTING LINE THAT FIRE HYDRANT IS CONNECTED TO AND PROVIDE EXTENSION KIT AS REQUIRED. EXPOSE EXISTING FIRE LINE FOR PUD INSPECTION AND DETERMINATION OF HYDRANT CONNECTION TYPE REQUIRED AT EACH HYDRANT.
2. VERIFY DIAMETER AND JOINT TYPE. PROVIDE FLGxMJ ADAPTER AS REQUIRED.
3. TRACER WIRE REQUIRED. CONNECT TO WATER MAIN TRACER WIRE.

PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

CONNECT TO EXISTING HYDRANT

REVISION DATE: JANUARY 2022

STD DWG NO. 3-2

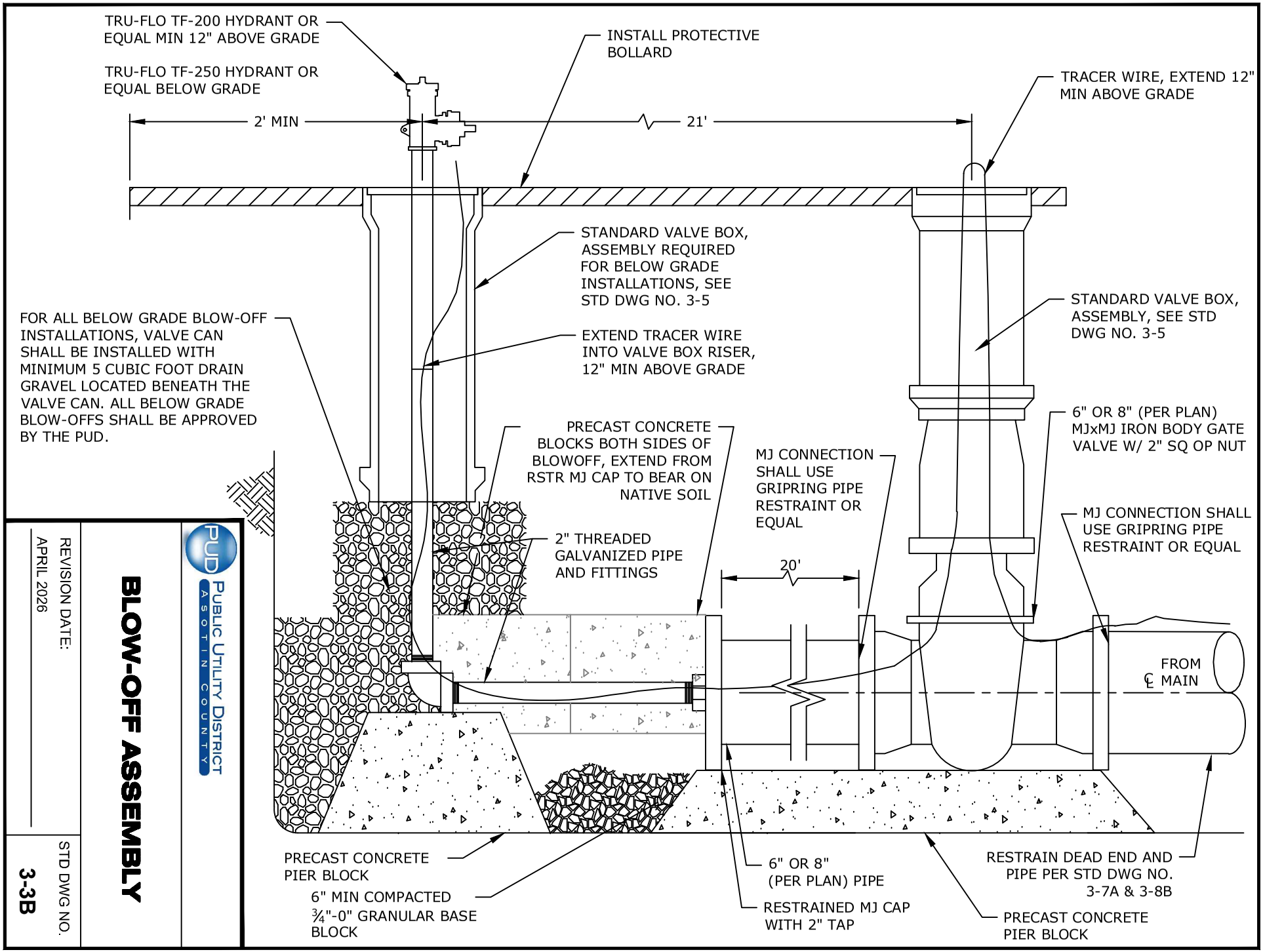


PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

PERMANENT BLOW-OFF ASSEMBLY

REVISION DATE: APRIL 2026

STD DWG NO. 3-3A

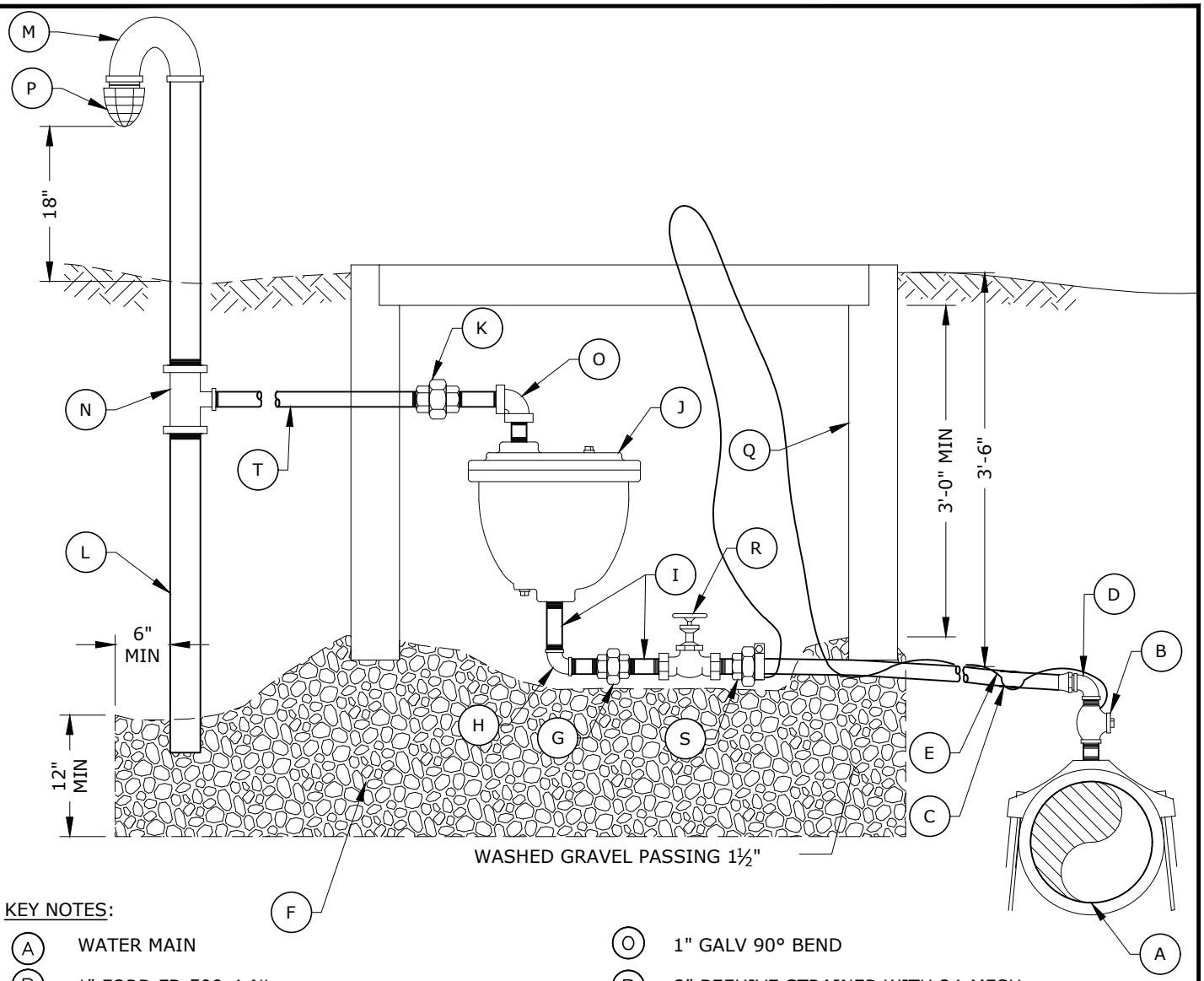


BLOW-OFF ASSEMBLY

PUD Public Utility District Asotin County

REVISION DATE: APRIL 2026

STD DWG NO. 3-3B



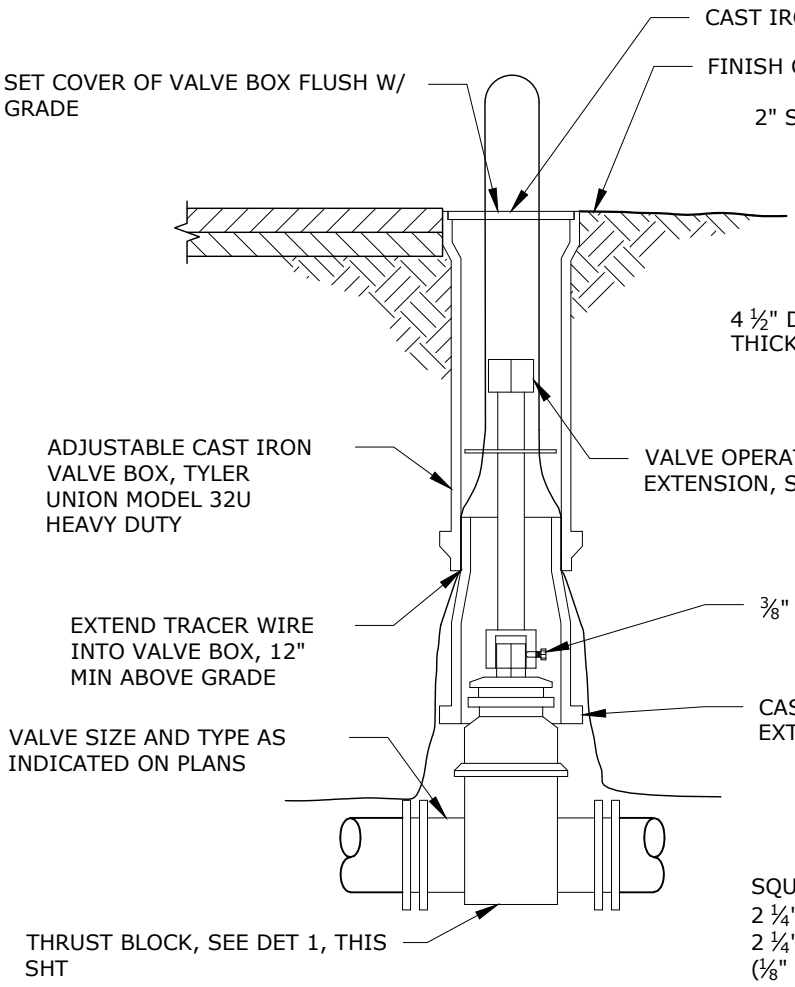
KEY NOTES:

- (A) WATER MAIN
- (B) 1" FORD FB-500-4-NL
- (C) 1" POLYETHYLENE SERVICE PIPE
- (D) 1" BRASS 90° ELL (MIPxPE)
- (E) TRACER WIRE, CONNECT TO WATER MAIN TRACER WIRE, EXTEND 12" MIN ABOVE GRADE
- (F) WASHED GRAVEL PASSING 1½"
- (G) 1" BRASS UNION
- (H) 1" BRASS 90° ELL
- (I) BRASS PIPE
- (J) 1" COMBINATION AIR AND VACUUM RELIEF VALVE
- (K) 1" GALV UNION
- (L) 2" GALV PIPE
- (M) 2" GALV STREET ELL (HORIZ)
- (N) 2"X1" GALV TEE (VERT)
- (O) 1" GALV 90° BEND
- (P) 2" BEEHIVE STRAINER WITH 24-MESH SCREEN
- (Q) ARMOR CAST 30"x17" METER BOX WITH AMR COVER, MARKED "WATER"
- (R) 1" CURB STOP
- (S) 1" BRASS CPLG (MIPxPE)
- (T) GALV PIPE

PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

AIR AND VACUUM RELEASE STATION

REVISION DATE:	STD DWG NO.
APRIL 2026	3-4



VALVE BOX
AND EXTENSION

VALVE OPERATING
NUT EXTENSION

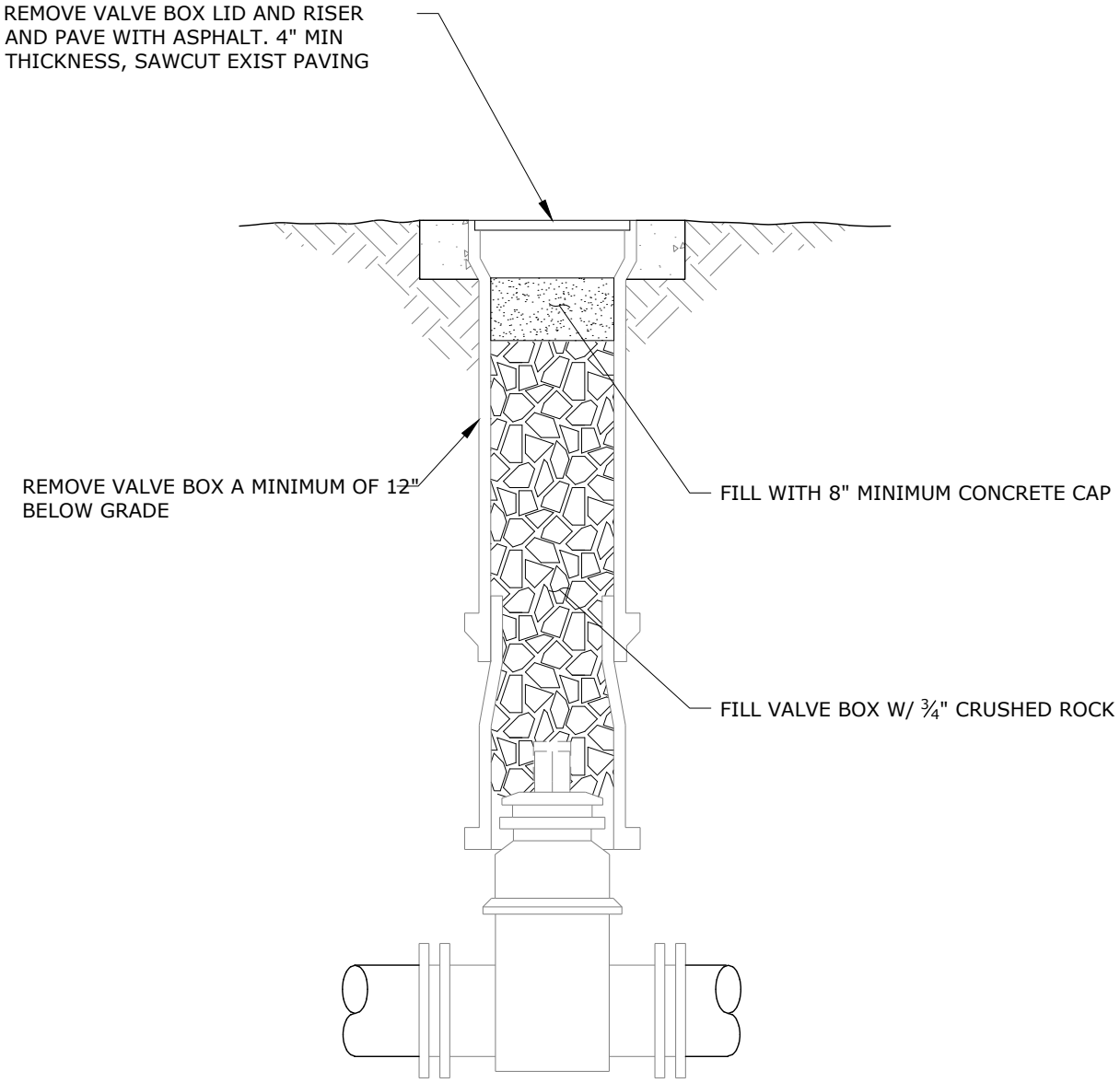
NOTES:

1. VALVE OPERATING NUT EXTENSIONS ARE REQUIRED WHEN THE VALVE NUT IS MORE THAN FIVE (5) FEET BELOW FINISHED GRADE.
2. ALL VALVE OPERATING NUT EXTENSIONS ARE TO BE MADE OF STEEL, SIZED AS NOTED, AND PAINTED WITH TWO (2) COATS OF METAL PAINT.

PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

BURIED VALVE AND BOX

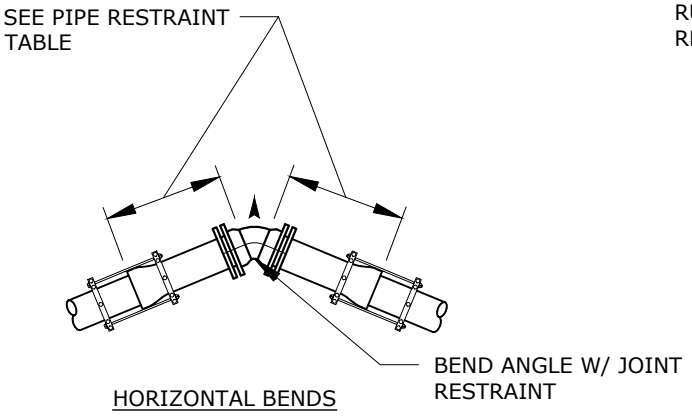
REVISION DATE:	STD DWG NO.
JANUARY 2022	3-5



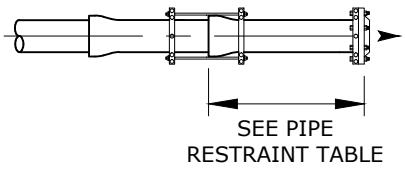
PUBLIC UTILITY DISTRICT
ASOTIN COUNTY

VALVE ABANDONMENT

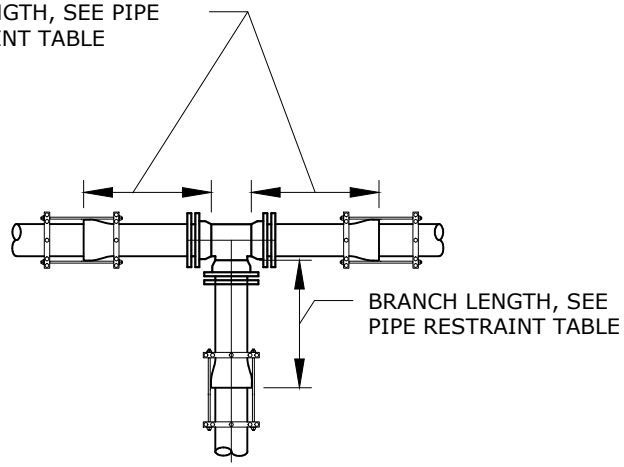
REVISION DATE:	STD DWG NO.
JANUARY 2022	3-6



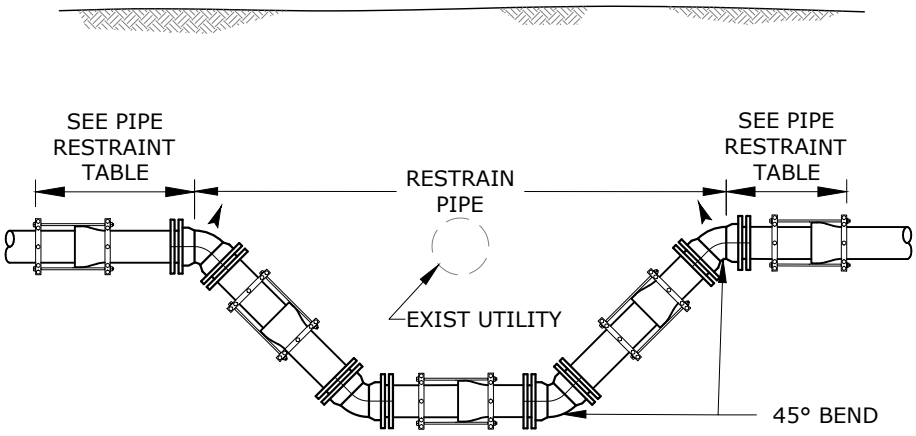
HORIZONTAL BENDS



DEAD END



TEE



VERTICAL OFFSET

NOTE:

1. SEE PUD STD DWG NO. 3-7B, FOR PIPE RESTRAINT TABLE

PUBLIC UTILITY DISTRICT
ASOTIN COUNTY

PIPE RESTRAINT DETAILS

REVISION DATE:	STD DWG NO.
JANUARY 2022	3-7A

PIPE RESTRAINT TABLE

PIPE SIZE (IN)	MINIMUM RESTRAINED PIPE LENGTH (FT)							
	HORIZONTAL BENDS				TEE		DEAD END	VERTICAL OFFSET (45° VERT BENDS)
	11¼°	22½°	45°	90°	RUN	BRANCH		
4	2	3	6	14	4	8	40	17
6	2	4	8	19	6	7	56	23
8	3	5	10	24	8	8	73	31
10	3	6	12	29	9	14	88	37
12	4	7	14	34	11	12	104	43
14	4	8	16	39	12	18	119	50
16	5	9	18	43	14	16	135	56

NOTES:

1. USE PIPE RESTRAINTS WHEN SHOWN ON PLANS. SEE PUD STANDARD SPECIFICATION SECTION 02640 POLYVINYL CHLORIDE (PVC) PRESSURE PIPE, FITTINGS AND SPECIAL ITEMS FOR ACCEPTABLE TYPES OF PIPE RESTRAINT.

2. PIPE RESTRAINT TABLE SHOWS THE MINIMUM LENGTH OF PIPE THAT MUST BE RESTRAINED. ALL PIPE JOINTS WITHIN THIS LENGTH SHALL BE RESTRAINED.

3. REQUIRED LENGTHS OF PIPE USING PIPE RESTRAINTS WERE CALCULATED USING THE ASSUMPTIONS LISTED BELOW. REQUIRED LENGTHS SHALL BE REVISED BY A REGISTERED PROFESSIONAL ENGINEER IF THE CONDITIONS IN THE FIELD VARY FROM THE ASSUMPTIONS LISTED BELOW:
   A. MINIMUM COVER = 4 FT
   B. MAXIMUM TEST PRESSURE = 150 PSI
   C. BEDDING SOIL TYPE = GM-SILTY GRAVEL OR GRAVEL SAND SILT MIXTURE.
   D. TRENCH TYPE = GRANULAR BEDDING PER DETAIL 2, SHT D-2
   E. SAFETY FACTOR = 2.0

4. IN-LINE VALVES REQUIRING PIPE RESTRAINTS SHALL HAVE PIPE RESTRAINTS FOR A LENGTH REQUIRED FOR DEAD END LINES ON BOTH SIDES OF THE VALVE.

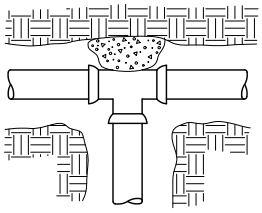
5. PEA GRAVEL SHALL NOT BE USED FOR ANY FILL.

PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

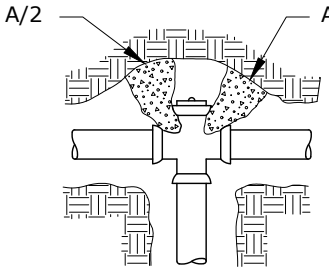
PIPE RESTRAINT TABLE AND NOTES

REVISION DATE: JANUARY 2022

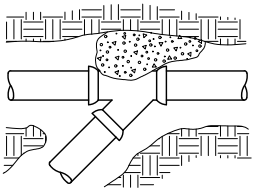
STD DWG NO. **3-7B**



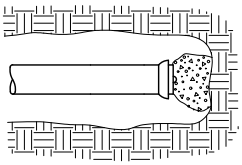
TEE



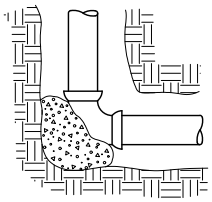
PLUGGED CROSS



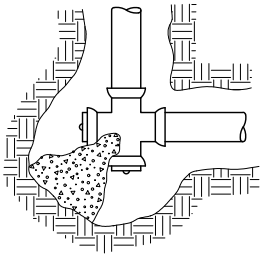
WYE



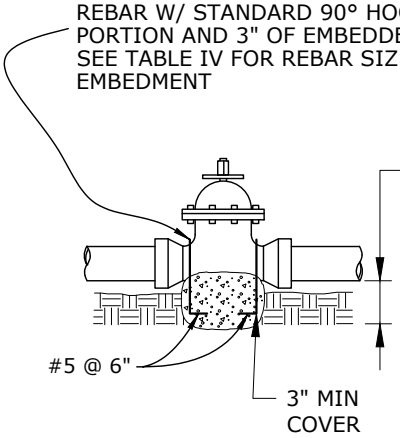
PLUG OR CAP



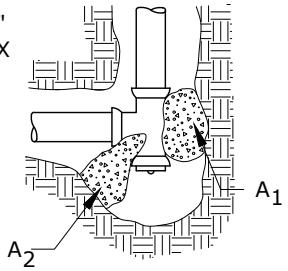
BEND



PLUGGED CROSS

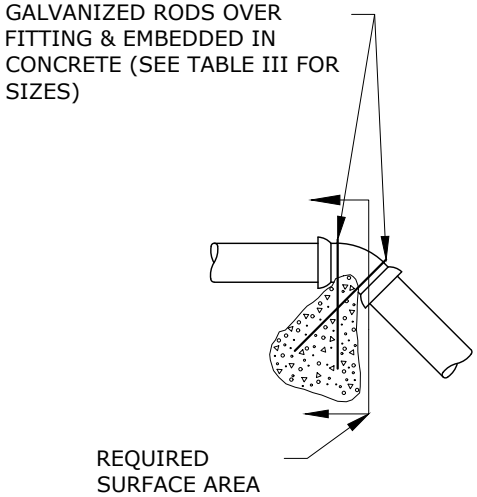


VALVE



PLUGGED TEE

PLAN



PROFILE

NOTES:

1. SEE PUD STD DWG NO. 3-8B, 3-8C FOR THRUST BLOCK TABLES AND NOTES.
2. INSTALL PRECAST CONCRETE BLOCKS WHENEVER POSSIBLE, OR AS SHOWN.
3. PROTECT & WRAP FITTINGS IN PLASTIC PRIOR TO POURING CAST-IN-PLACE BLOCK.

PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

THRUST BLOCK DETAILS AND NOTES

REVISION DATE: JANUARY 2022

STD DWG NO. 3-8A

TABLE I

MINIMUM SQUARE FEET OF THRUST AREA ONTO UNDISTURBED EARTH				
PIPE SIZE	TEE, PLUG OR VALVE	90° BEND	45° BEND	22 ½°, 11 ¼° BENDS OR REDUCER
3	1.0	1.1	1.0	1.0
4	1.4	2.0	1.1	1.0
6	3.2	4.5	2.4	1.2
8	5.7	8.0	4.3	2.2
10	8.8	12.5	6.8	3.4
12	12.7	18.0	9.7	5.0
14	17.3	24.5	13.3	6.8

*BEARING AREAS BASED UPON TEST PRESSURE OF 150 P.S.I. AND AN ALLOWABLE SOIL BEARING STRESS OF 2000 POUNDS PER SQUARE FOOT. TO COMPUTE BEARING AREAS FOR DIFFERENT TEST PRESSURES AND SOIL BEARING STRESSES, USE THE FOLLOWING EQUATION: BEARING AREA=(TEST PRESSURE/150) X (2000/SOIL BEARING STRESS) X (TABLE VALUE).

TABLE II

FITTING SIZE	BEND ANGLE					
	45°		22½°		11¼°	
	VOL(CY)	AREA(SF)	VOL(CY)	AREA(SF)	VOL(CY)	AREA(SF)
3	0.3	1.0	0.2	1.0	0.1	1.0
4	0.5	1.0	0.3	1.0	0.1	1.0
6	1.0	1.0	0.6	1.0	0.3	1.0
8	*	*	1.0	1.0	0.5	1.0
10	*	*	*	*	0.9	1.0
12	*	*	*	*	*	*
14	*	*	*	*	*	*

* THRUST BLOCK WITH VOLUME OVER 1 CY NOT ALLOWED FOR VERTICAL DOWNWARD BEND. USE RESTRAINED PIPE, SEE PUD STD DWG NO. 3-7A AND 3-7B.

TABLE III

FITTING SIZE	ROD SIZE	EMBEDMENT
12" AND LESS	#6	30"
14"-16"	#8	36"

PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

THRUST BLOCK TABLES

REVISION DATE: JANUARY 2022

STD DWG NO. 3-8B

TABLE IV THRUST BLOCK FOR VALVES

VALVE SIZE	BEARING AREA PLACED AGAINST UNDISTURBED EARTH IN SQ FT.	REBAR SIZE	MINIMUM EMBEDMENT OF REBAR
4"	1.3	#6	16"
6"	2.8	#8	16"
8"	5.1	#10	20"
12"	11.3	#10	20"

NOTES:

1. KEEP CONCRETE CLEAR OF JOINT AND JOINT ACCESSORIES.
2. CONCRETE THRUST BLOCKING SHALL BE POURED AGAINST UNDISTURBED EARTH.
3. REQUIRED VOLUMES OR BEARING AREAS IN TABLE I OR TABLE II AT FITTINGS SHALL BE AS INDICATED BELOW, ADJUSTED, IF NECESSARY, TO CONFORM TO ACTUAL TEST PRESSURE(S) AND ALLOWABLE SOIL BEARING STRESS(ES).
4. THRUST BLOCK VOLUMES FOR VERTICAL BENDS HAVING UPWARD RESULT AND THRUSTS ARE BASED ON TEST PRESSURE OF 150 PSIG AND THE WEIGHT OF CONCRETE =4050 LBS/CU YD. TO COMPUTE VOLUMES FOR DIFFERENT TEST PRESSURES, USE THE FOLLOWING EQUATION: VOLUME =(TEST PRESS/15O) X (TABLE VALUE).
5. THRUST BLOCKS FOR VERTICAL BENDS HAVING DOWNWARD RESULTANT THRUSTS SHOULD BE THE SAME AS FOR HORIZONTAL BENDS.
6. BEARING AREAS, VOLUMES, AND SPECIAL BLOCKING DETAILS SHOWN ON PLANS TAKE PRECEDENCE OVER THIS STANDARD.
7. BEARING AREA OF THRUST BLOCK SHALL NOT BE LESS THAN 1.0 SQ FT.
8. SEE PLANS AND PUD STANDARD SPECIFICATION 300, PIPELINE TESTING AND DISINFECTION FOR TEST PRESSURES.
9. CONSULT SOIL ENGINEER FOR ACTUAL SOIL BEARING PRESSURE.

PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

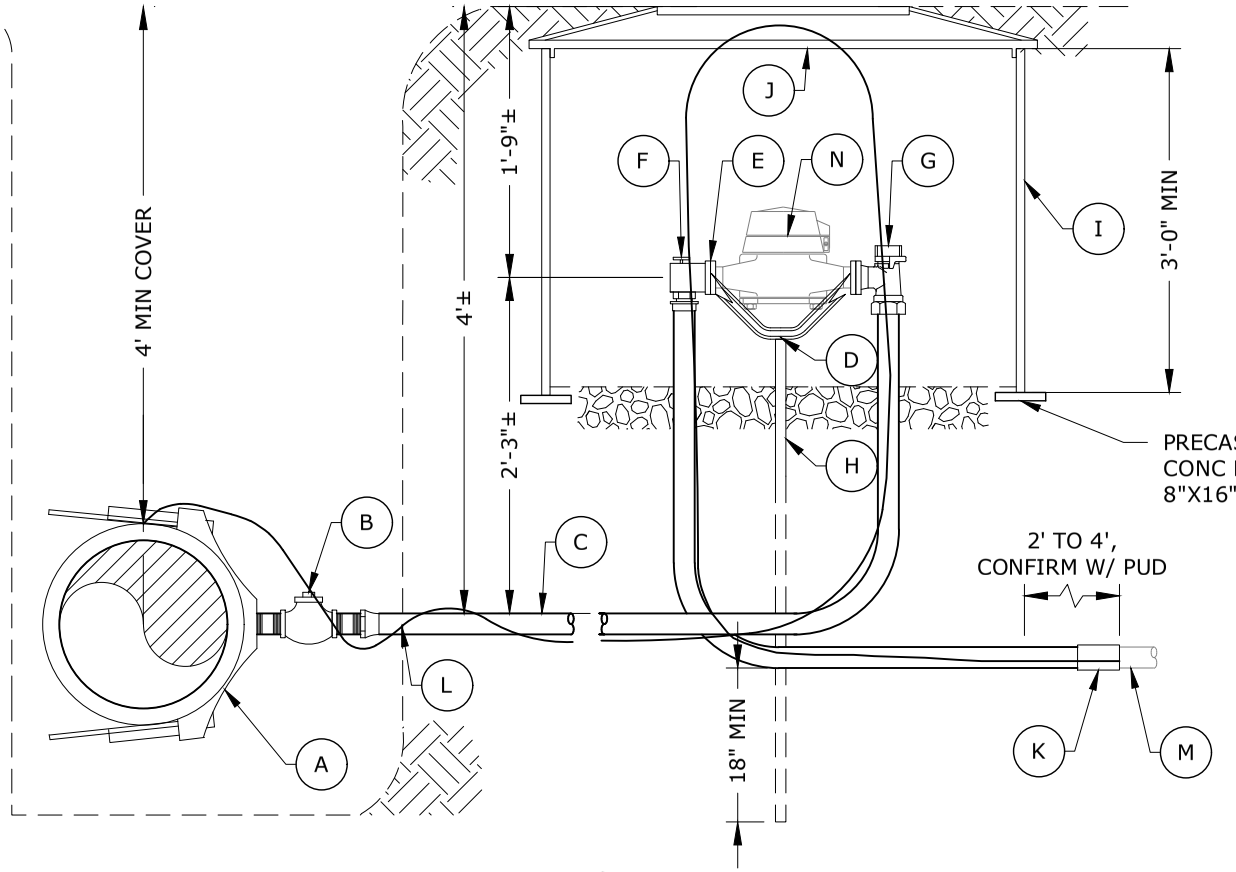
THRUST BLOCK TABLES AND NOTES

REVISION DATE: JANUARY 2022

STD DWG NO. 3-8C

NOTES:

1. REPLACE EXISTING METER BOX, RING, AND LID.
2. VERIFY EXISTING LINE SIZE AND MATERIAL FOR COUPLING. PROVIDE GRIP JOINT END WITH INSERT STIFFENER FOR NEW AND EXISTING SERVICE LINES.
3. EXTEND TRACER WIRE INTO EXISTING METER BOX, 12" MIN ABOVE GRADE. CONNECT TO WATER MAIN TRACER WIRE.
4. EXISTING SERVICE LINE SHALL BE ABANDONED. EXCAVATE EXISTING CORPORATION STOP AND TURN OFF PRIOR TO SWITCHING TO NEW WATER SERVICE.
5. ALL SERVICE LINE MATERIAL SHALL BE REBUILT WITH 1" MATERIAL, UNLESS OTHERWISE SHOWN. EXISTING METER MAY BE 3/4" OR 1", AS SHOWN ON PLANS. REFER TO KEY NOTE "O" FOR 3/4" METER.



KEY NOTES:

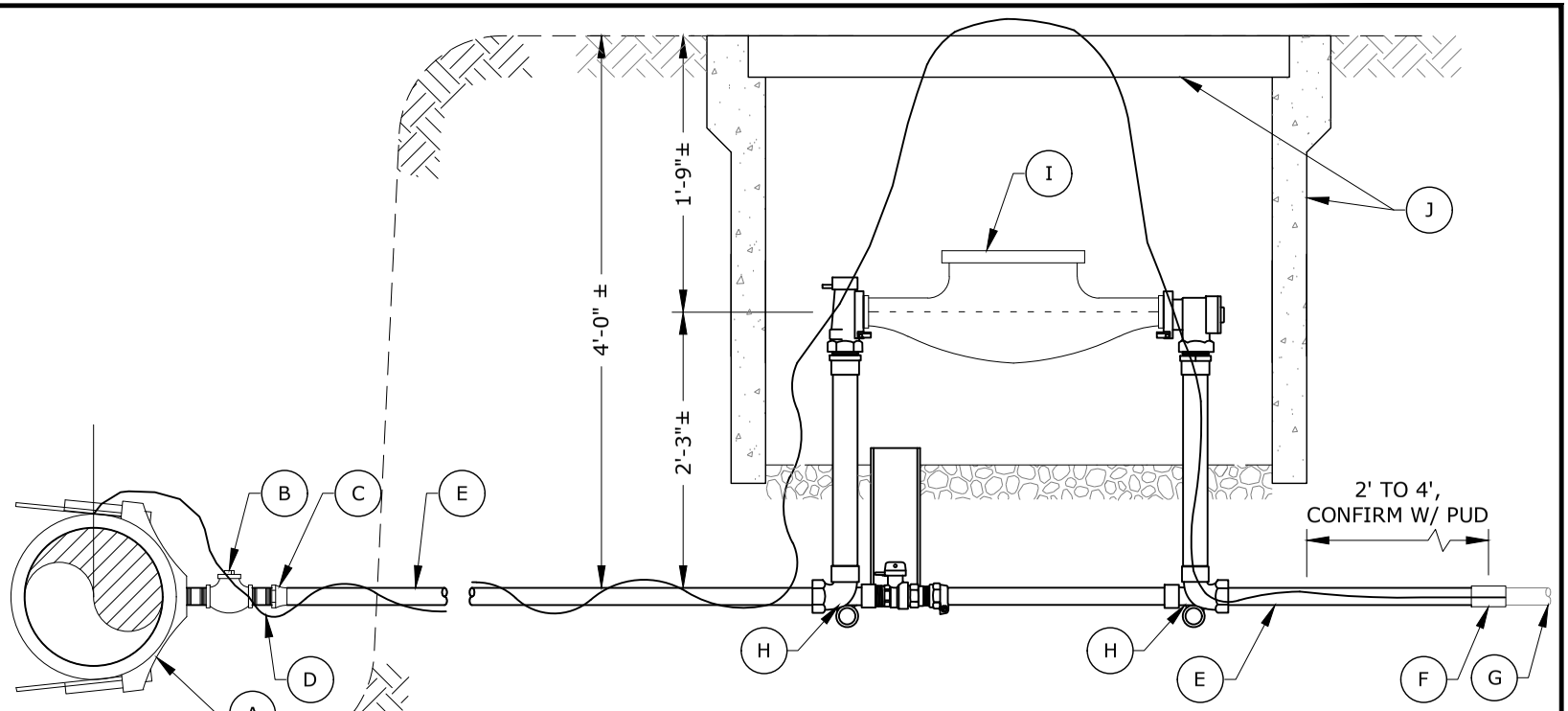
- (A) ROMAC DOUBLE STRAP NYLON SADDLE
- (B) FORD CORPORATION STOP FB1101-4-G-NL
- (C) 1" POLYETHYLENE SERVICE PIPE
- (D) FORD METER YOKE WITH PRONG Y504-P
- (E) FORD METER YOKE EXPANSION CONNECTION EC-4-NL
- (F) FORD ANGLE CHECK VALVE HA91-444-NL AND FORD MIPxPE GJ COUPLING C86-44-G-NL
- (G) FORD ANGLE VALVE AV96-444W-G-NL
- (H) 3/4" GALV PIPE TO SUPPORT YOKE
- (I) METER BOX PER SPECIFICATION SECTION 310
- (J) FRAME AND COVER PER SPECIFICATION SECTION 310
- (K) 3/4"X1" OR 1"X1" FORD GRIP COUPLING, CONFIRM EXIST SIZE
- (L) TRACER WIRE, NEW, SEE NOTE 3
- (M) EXIST SERVICE LINE - RETAIN AND PROTECT
- (N) NEW OR EXISTING METER - RETAIN AND PROTECT, RELOCATE METER WHEN SHOWN ON PLANS. LONG SPUDS A24 OR SHORT SPUDS A34 ARE REQUIRED TO ADAPT $\frac{3}{4}$" METER. VERIFY FITTINGS REQUIRED PRIOR TO INSTALLATION
- (O) FORD LONG SPUDS (A24) OR SHORT SPUDS (A34) ARE REQUIRED TO ADAPT TO $\frac{3}{4}$" METER. VERIFY FITTINGS REQUIRED PRIOR TO INSTALLATION

PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

REBUILD EXISTING OR NEW 1" SERVICE LINE W/ METER

REVISION DATE: JANUARY 2022

STD DWG NO. 3-9



REBUILD EXISTING OR NEW 1 ½" AND 2" SERVICE LINE W/ METER

PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

REVISION DATE: JANUARY 2022

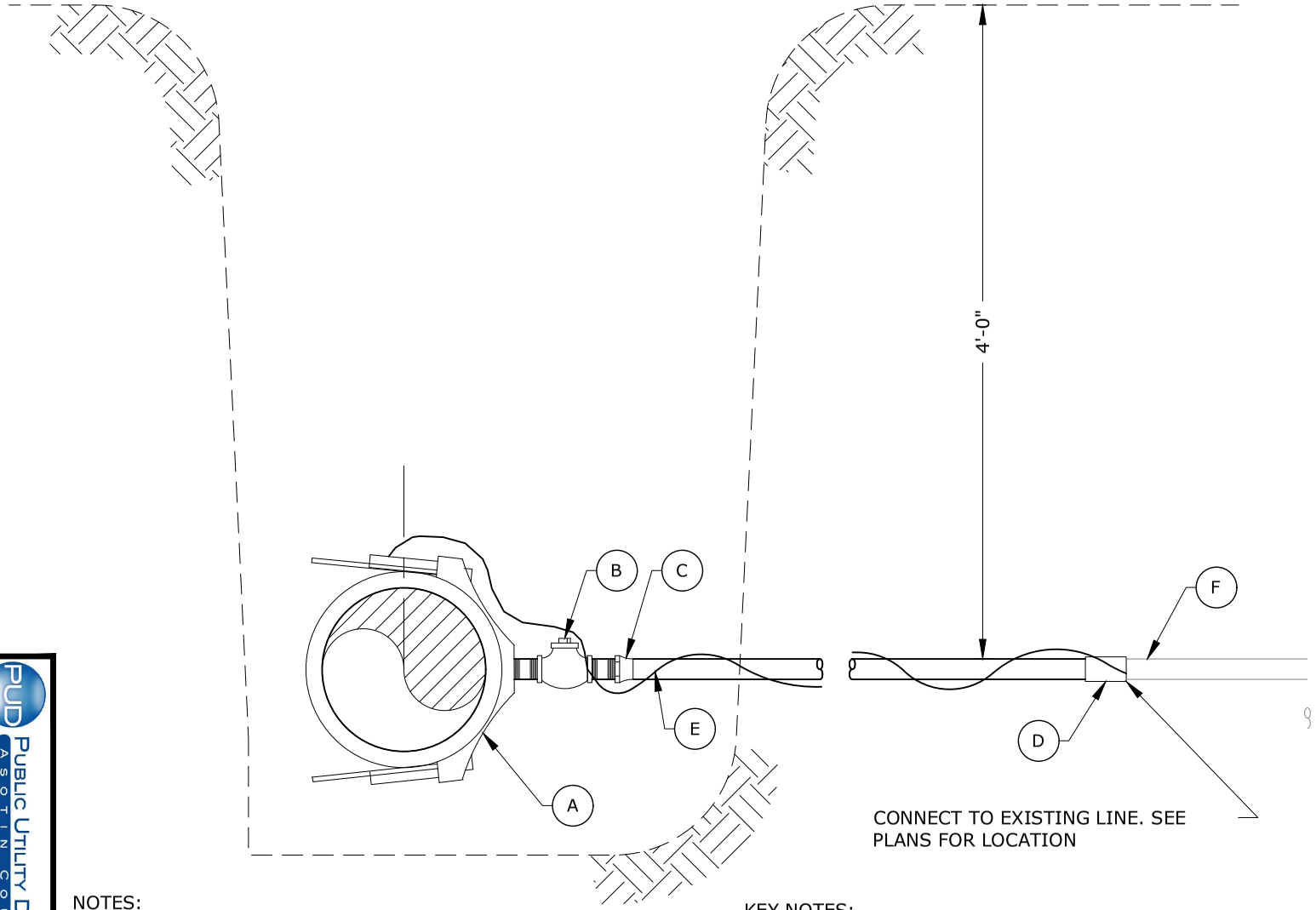
STD DWG NO. 3-10

NOTES:

1. VERIFY EXISTING LINE SIZE AND MATERIAL FOR COUPLING. PROVIDE GRIP JOINT END WITH INSERT STIFFENER FOR NEW AND EXISTING SERVICE LINES.
2. EXTEND TRACER WIRE INTO EXISTING METER BOX, 12" MIN ABOVE GRADE. CONNECT TO WATER MAIN TRACER WIRE.
3. EXISTING SERVICE LINE SHALL BE ABANDONED. EXCAVATE EXISTING CORPORATION STOP AND TURN OFF PRIOR TO SWITCHING TO NEW WATER SERVICE.
4. CONTRACTOR SHALL PROVIDE ALL MATERIALS NECESSARY TO CONNECT TO EXISTING METER.

KEY NOTES:

- (A) ROMAC DOUBLE STRAP NYLON SADDLE
- (B) DETERMINED BY ASOTIN COUNTY PUD: FORD CORP STOP OR 2" AMERICAN GV FIPxFIP W/ BRASS NIPPLES AND STANDARD VALVE BOX, SEE DWG NO. 3-5
- (C) FITTINGS AS REQ'D TO CONNECT TO PE SERVICE PIPE
- (D) TRACER WIRE - NEW, SEE NOTE 2
- (E) POLYETHYLENE SERVICE PIPE
- (F) FORD GRIP COUPLING PExPE, SEE NOTE 1
- (G) EXIST SERVICE, RETAIN & PROTECT
- (H) 18" FORD COPPER SETTER FIPxFIP - 1.5" VH76-18B-11-66-NL AND 2" VH77-18B-11-77-NL. FORD 1.5" OR 2" MIPxPEPJ AT BOTH CONNECTIONS INTO SETTER. 4" PVC HOUSING FOR CURB STOP.
- (I) NEW OR EXISTING METER, RETAIN & PROTECT EXISTING METER
- (J) (2) 17" x 30" x 18" ARMOR CAST BOXES WITH 17" x 30" AMR COVER, MARKED "WATER"



NOTES:

1. PROVIDE GRIP JOINT END WITH INSERT STIFFENER FOR NEW AND EXISTING SERVICE LINES.
2. CONNECT TO EXISTING TRACER WIRE FOR SERVICE LINE AND CONNECT TO WATER MAIN TRACER WIRE.
3. EXISTING SERVICE LINE SHALL BE ABANDONED. EXCAVATE EXISTING CORPORATION STOP AND TURN OFF PRIOR TO SWITCHING TO NEW WATER SERVICE.
4. FIELD VERIFY DEPTH, DIAMETER, AND MATERIAL OF EXISTING SERVICE LINE.

KEY NOTES:

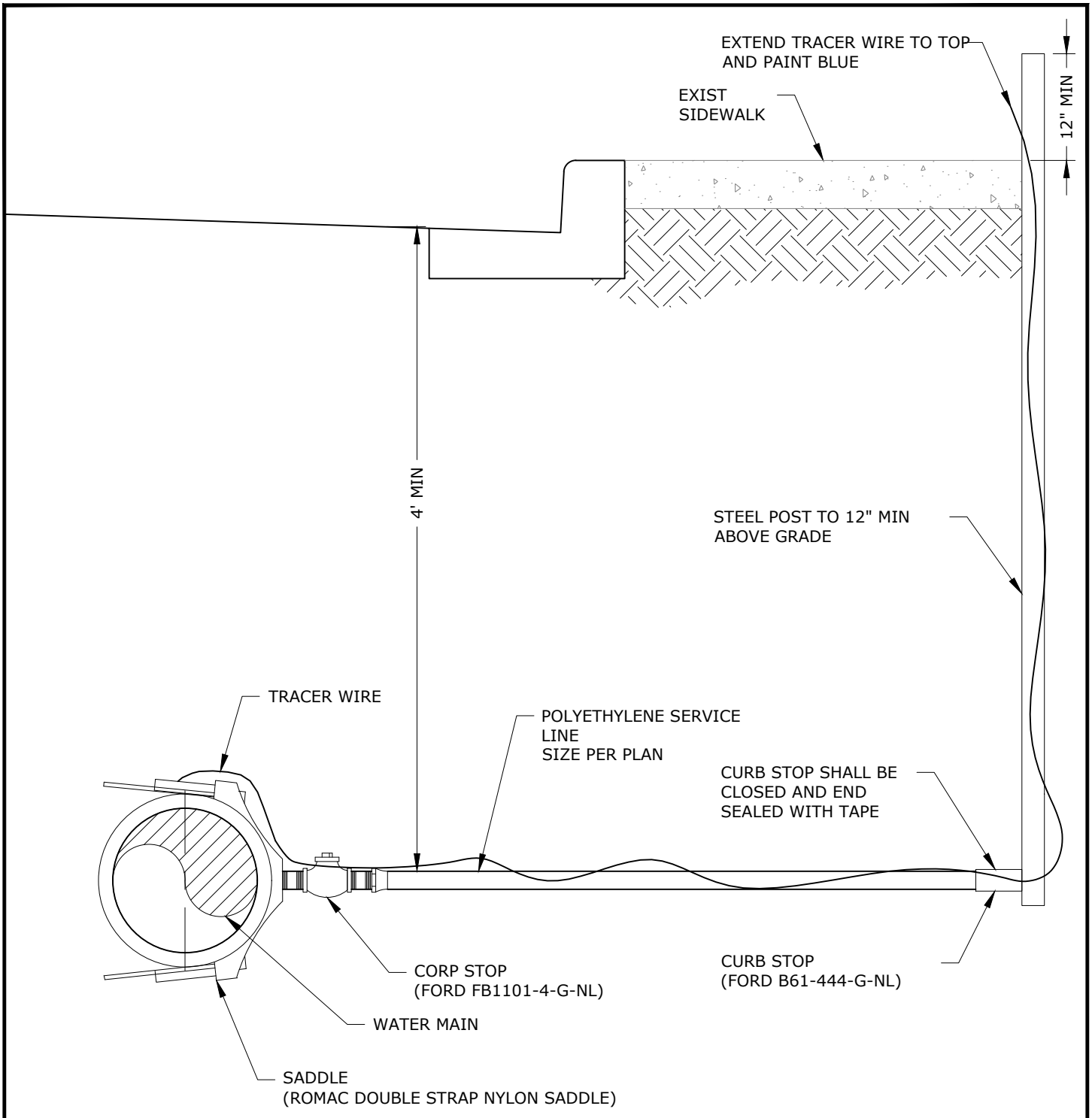
- (A) ROMAC DOUBLE STRAP NYLON SADDLE
- (B) FORD CORPORATION STOP FB1101-4-G-NL WITH GRIP JOINT AND INSERT STIFFENERS
- (C) POLYETHYLENE SERVICE PIPE
- (D) FORD GRIP COUPLING - SEE NOTE 1
- (E) TRACER WIRE, NEW, SEE NOTE 2
- (F) EXIST SERVICE LINE - RETAIN AND PROTECT

PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

TIE-OVER TO EXST 3/4" & 1" SERVICE LINE, CONNECT TO EXST WATER SERVICE

REVISION DATE: JANUARY 2022

STD DWG NO. 3-11



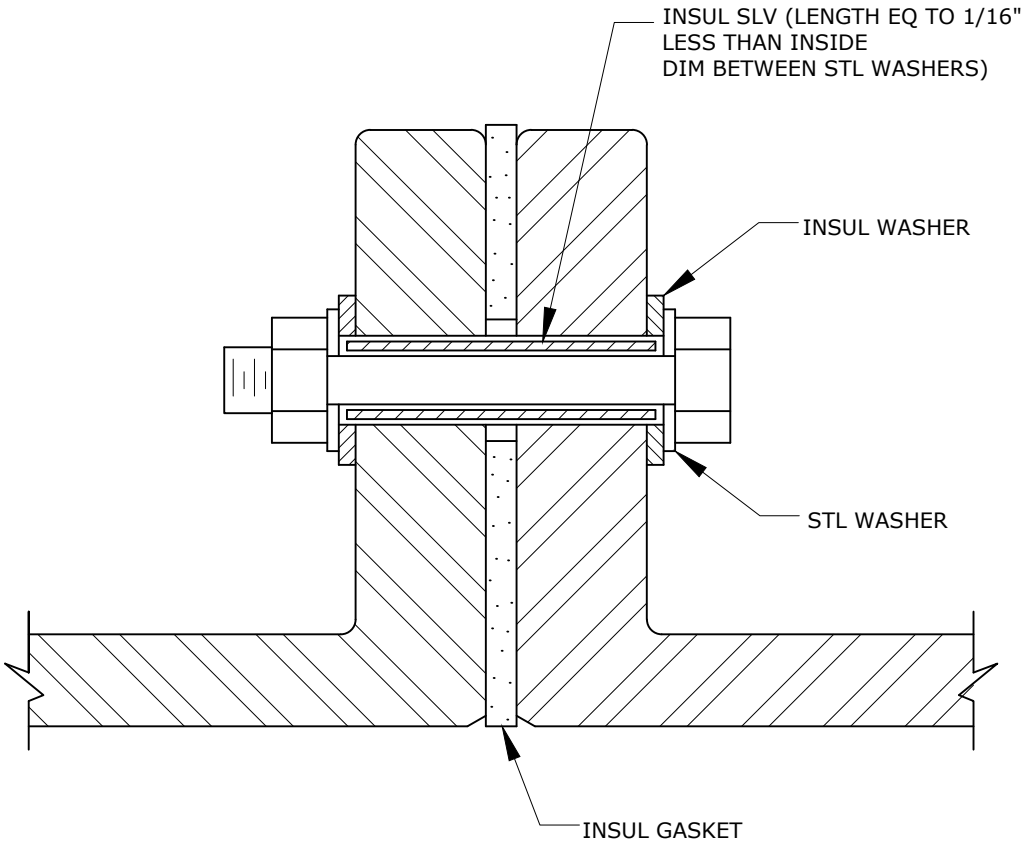
NOTE:

1. TRACER WIRE REQUIRED, MUST BE CONNECTED TO WATER MAIN TRACER WIRE.

PUD PUBLIC UTILITY DISTRICT
ASOTIN COUNTY

WATER SERVICE CONNECTION STUB OUT

REVISION DATE:	STD DWG NO.
JANUARY 2022	3-12



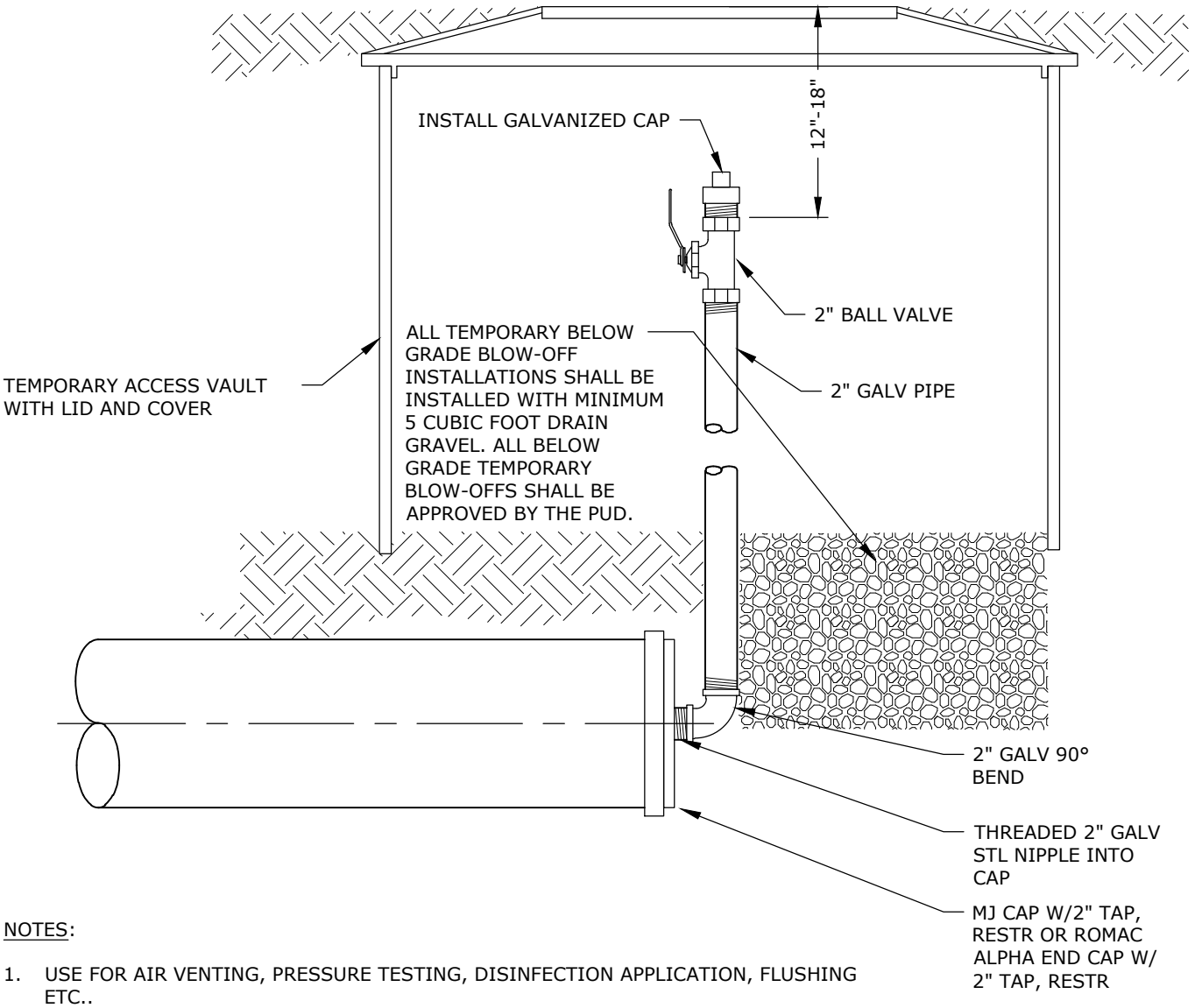
NOTE:

1. SEE PUD STANDARD SPECIFICATION, 301 DUCTILE IRON PIPES, FITTINGS AND SPECIAL ITEMS FOR INSULATING MATERIAL TYPES.

PUBLIC UTILITY DISTRICT
ASOTIN COUNTY

INSULATING FLANGE JOINT DETAIL

REVISION DATE:	STD DWG NO.
JANUARY 2022	3-13



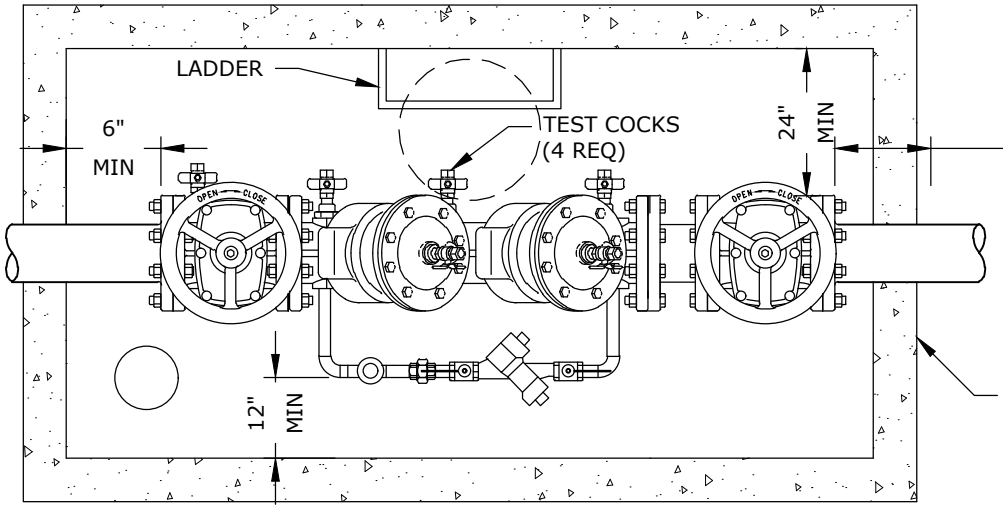
NOTES:

1. USE FOR AIR VENTING, PRESSURE TESTING, DISINFECTION APPLICATION, FLUSHING ETC..
2. CONTRACTOR SHALL USE 2-INCH RESTRAINED HOSE FOR FLUSHING.
3. RESTRAIN PIPE PER PUD STD DWG N0. 3-7A AND 3-7B.
4. TEMPORARY ACCESS VAULT WITH LID AND COVER, QUALITY CONCRETE BOX, PER SPECIFICATION 310, 2.6.A.
5. TEMPORARY ABOVE GRADE INSTALLATION ACCEPTABLE IN NON-TRAFFIC AREAS.

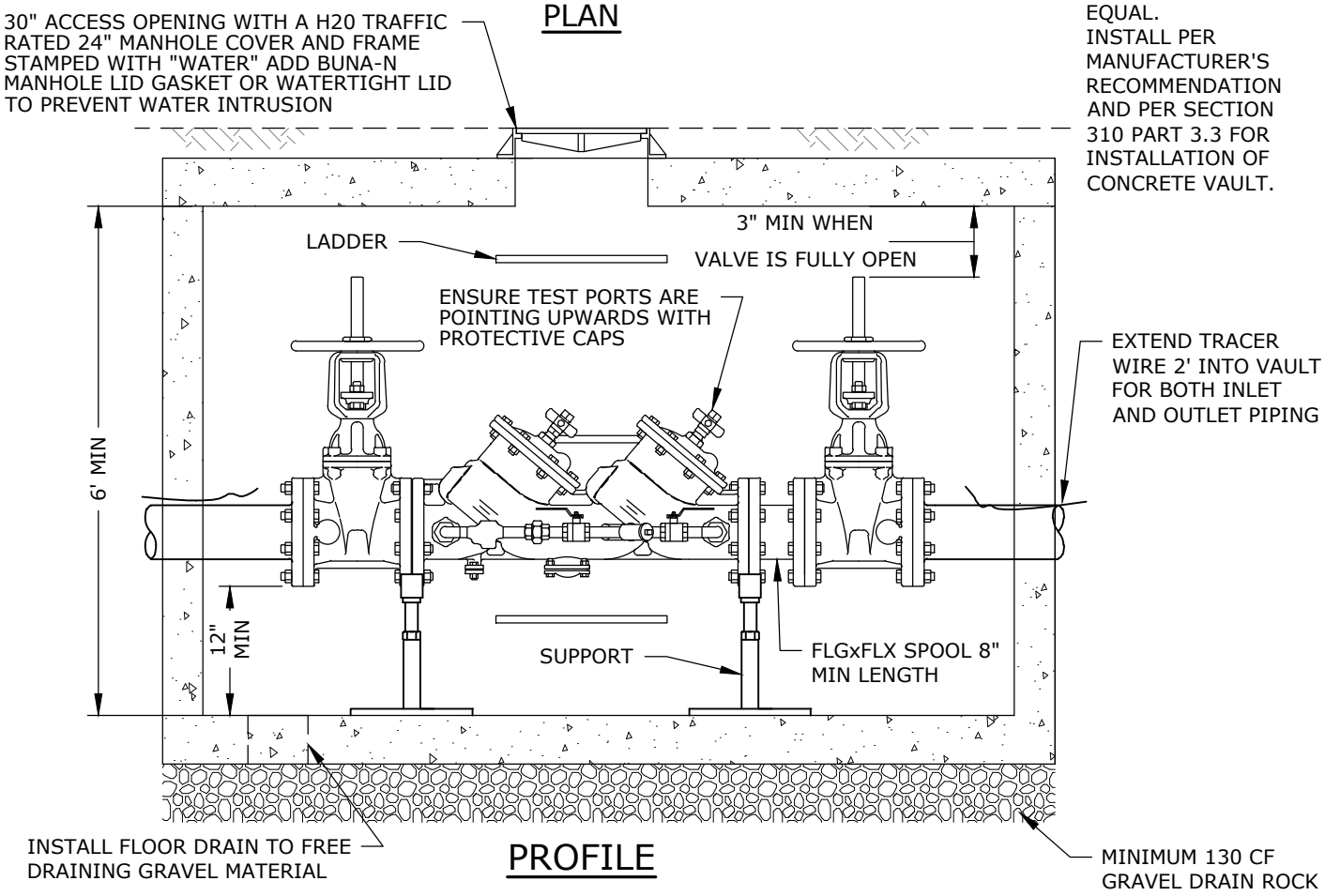
PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

TEMPORARY BLOW-OFF AND PRESSURE TEST POINT

REVISION DATE:	STD DWG NO.
APRIL 2026	3-14



PLAN



PROFILE

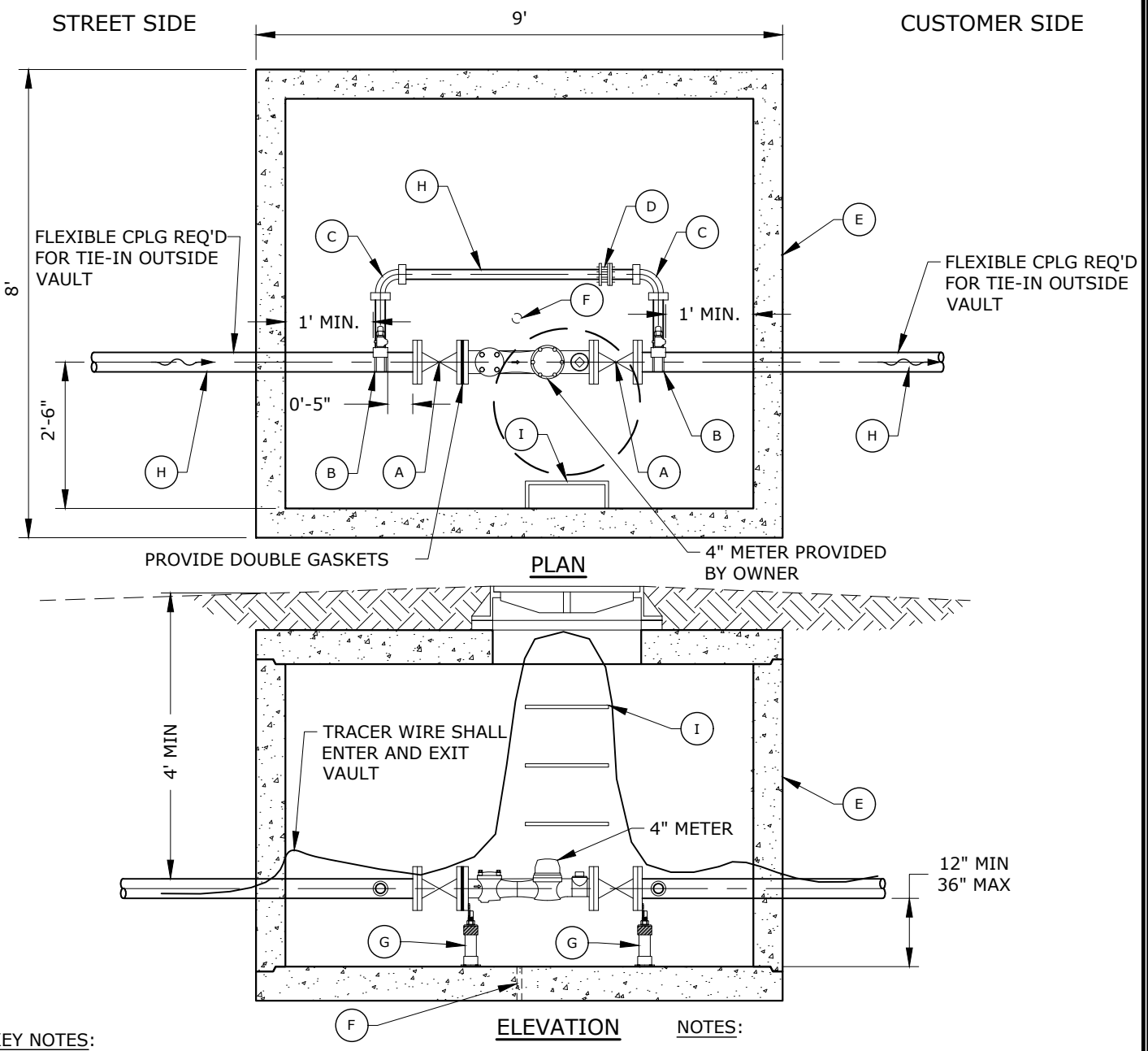
NOTES:

1. DOUBLE CHECK DETECTOR ASSEMBLY, WATTS SERIES 774DCDA OR APPROVED EQUAL.
2. APPROVED BACKFLOW-PREVENTION DEVICES ARE REQUIRED ON ALL PRIVATE FIRE LINES. THE DEVICE SHALL BE A DOUBLE-CHECK DETECTOR BACKFLOW PREVENTION ASSEMBLY INSTALLED ON THE BUILDING SIDE OF THE PROPERTY LINE. THE DEVICE SHALL BE SO PLACED AS TO ALLOW ACCESS FOR THE PUD TO READ THE METER AND TEST THE DEVICE UPON REQUEST.
3. THE CITY OF CLARKSTON AND ASOTIN COUNTY ARE THE JURISDICTIONAL ENTITY REGARDING PRIVATE FIRE HYDRANT REQUIREMENTS. THE SPECIFIC PLACEMENT AND SIZING SHALL BE DETERMINED BY THE FIRE MARSHAL.
4. FITTINGS AND SPECIALS SHALL BE PROVIDED WITH TYPE 304 SS BOLTS.

PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

STANDARD DOUBLE CHECK DETECTOR ASSEMBLY

REVISION DATE:	STD DWG NO.
APRIL 2026	3-15



KEY NOTES:

- (A) GATE VALVE, FLGxFLG W/ HANDWHEEL OR SQ NUT OP, SIZE AS SHOWN
- (B) 2" ROMAC DOUBLE STRAP SERVICE SADDLE W/ CORP STOP
- (C) 2" 90° BEND, THRD GALV. IRON
- (D) 2" ROMAC 501
- (E) WILBERT 1908 PRECAST UTILITY VAULT (6" MIN WALL AND 8" TOP THICKNESS), W/ MIN OF ONE(1)2" 30" DIAM GRADE RING WITH MORE AS REQUIRED, AND 30" DIAM RING AND COVER STAMPED WITH "WATER" OVER METER
- (F) WEEP HOLE
- (G) PIPE SUPPORT, SUPPORTING TEE, METER AND BYPASS
- (H) DI PIPE, FLGxPE, FOR MAINLINE, GALV. IRON FOR BYPASS, SIZE AS SHOWN OR AS APPROVED
- (I) OSHA APPROVED POLYPROPYLENE STEPS

NOTES:

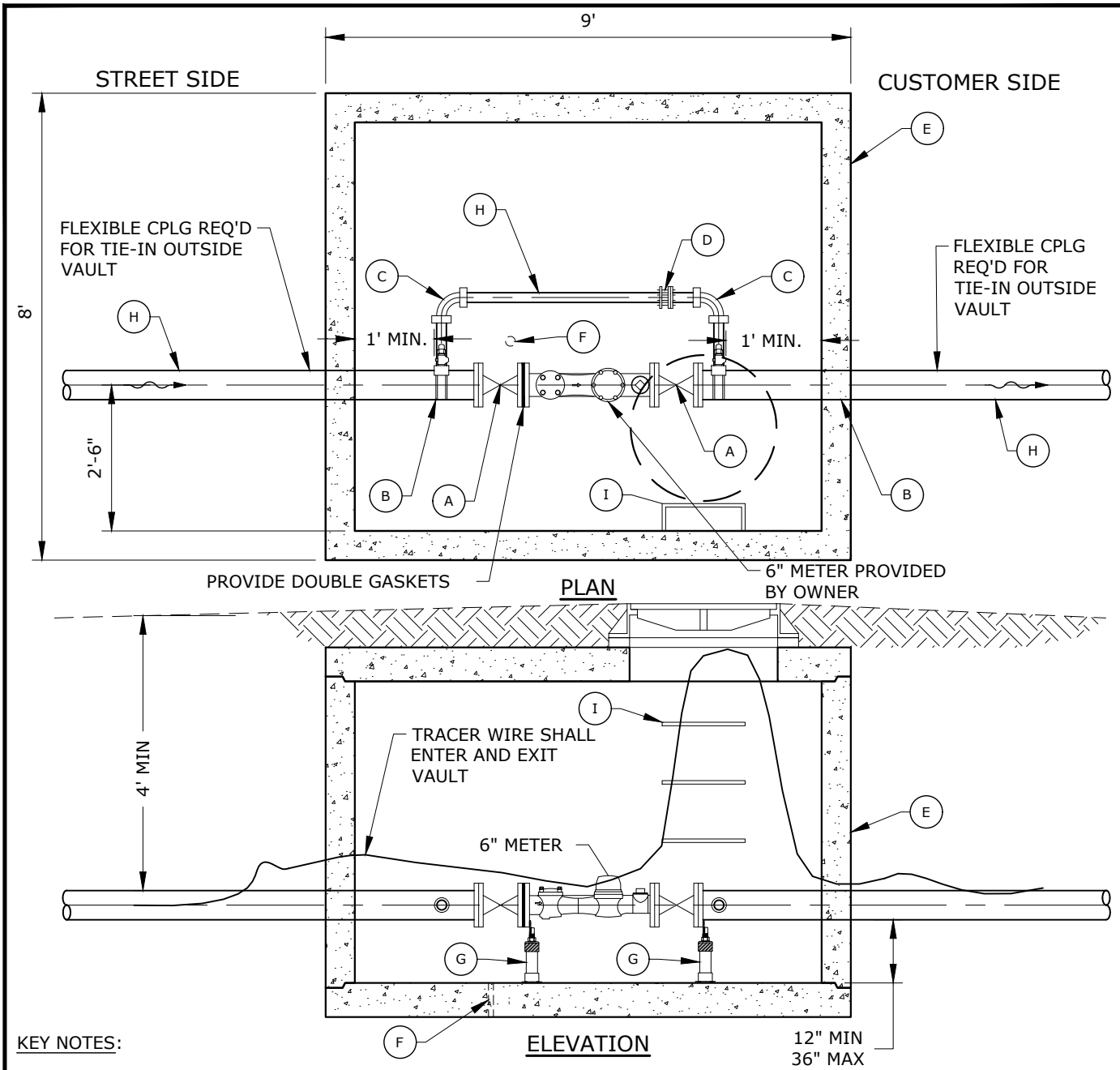
1. SEAL ALL OPENINGS IN VAULT WITH NON-SHRINK GROUT.
2. RESTRAIN PIPE OUTSIDE VAULT PER STD DWG 3-7A.
3. FITTINGS AND SPECIALS SHALL BE PROVIDED WITH TYPE 304 SS BOLTS.
4. CUSTOMER MAY REQUEST INCREASE IN SIZE OF BYPASS AND COORDINATE WITH PUD.

PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

WATER METER - 4"

REVISION DATE: JANUARY 2022

STD DWG NO. 3-16



KEY NOTES:

(A) GATE VALVE, FLGxFLG W/ HANDWHEEL OR SQ NUT OP, SIZE AS SHOWN

(B) 2" ROMAC DOUBLE STRAP SERVICE SADDLE W/ CORP STOP

(C) 2" 90° BEND, THRD GALV. IRON

(D) 2" ROMAC 501

(E) WILBERT 1908 PRECAST UTILITY VAULT (6" MIN WALL AND 8" TOP THICKNESS) W/ MIN OF ONE(1) 2" 30" DIAM GRADE RING WITH MORE AS REQUIRED, AND 30" DIAM RING AND COVER STAMPED WITH "WATER" OVER METER.

(F) WEEP HOLE

(G) PIPE SUPPORT, SUPPORTING TEE, METER AND BYPASS

(H) DI PIPE, FLGxPE, FOR MAINLINE, GALV. IRON FOR BYPASS, SIZE AS SHOWN OR AS APPROVED

(I) OSHA APPROVED POLYPROPYLENE STEPS

NOTES:

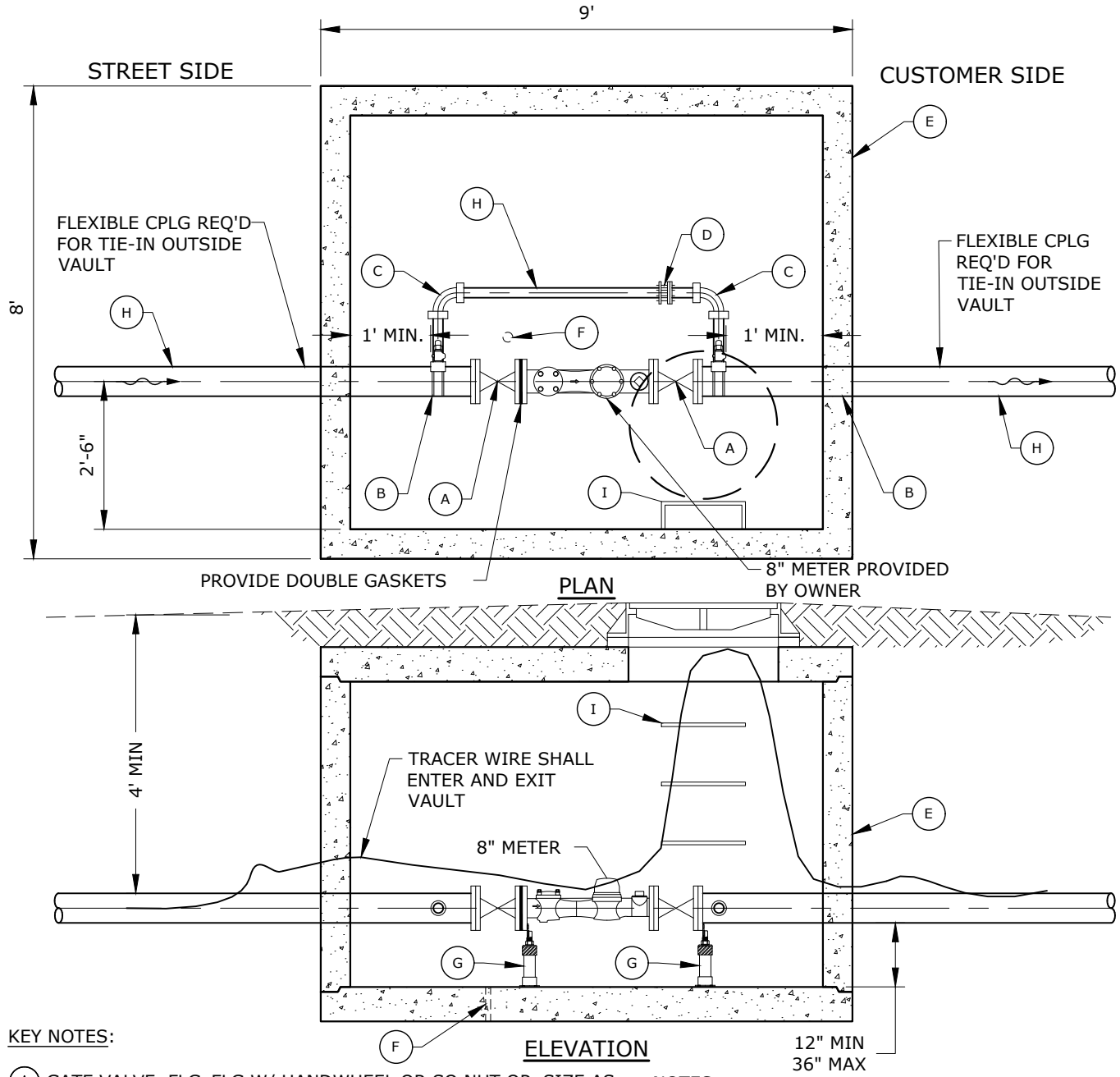
1. SEAL ALL OPENINGS IN VAULT WITH NON-SHRINK GROUT.
2. RESTRAIN PIPE OUTSIDE VAULT PER STD DWG 3-7A.
3. FITTINGS AND SPECIALS SHALL BE PROVIDED WITH TYPE 304 SS BOLTS.
4. CUSTOMER MAY REQUEST INCREASE IN SIZE OF BYPASS AND COORDINATE WITH PUD.

PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

WATER METER - 6"

REVISION DATE: JANUARY 2022

STD DWG NO. 3-17



KEY NOTES:

(A) GATE VALVE, FLGxFLG W/ HANDWHEEL OR SQ NUT OP, SIZE AS SHOWN

(B) 2" ROMAC DOUBLE STRAP SERVICE SADDLE W/ CORP STOP

(C) 2" 90° BEND, THRD GALV, IRON

(D) 2" ROMAC 501

(E) WILBERT 1908 PRECAST UTILITY VAULT (6" MIN WALL AND 8" TOP THICKNESS) W/ MIN OF ONE(1) 2" 30" DIAM GRADE RING WITH MORE AS REQUIRED, AND 30" DIAM RING AND COVER STAMPED WITH "WATER" OVER METER.

(F) WEEP HOLE

(G) PIPE SUPPORT, SUPPORTING TEE, METER AND BYPASS

(H) DI PIPE, FLGxPE, FOR MAINLINE, GALV. IRON FOR BYPASS, SIZE AS SHOWN OR AS APPROVED

(I) OSHA APPROVED POLYPROPYLENE STEPS

NOTES:

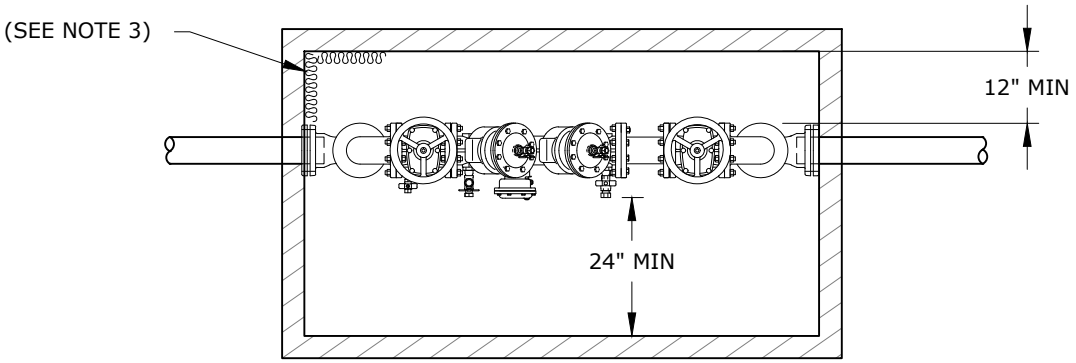
1. SEAL ALL OPENINGS IN VAULT WITH NON-SHRINK GROUT.
2. RESTRAIN PIPE OUTSIDE VAULT PER STD DWG 3-7A.
3. FITTINGS AND SPECIALS SHALL BE PROVIDED WITH TYPE 304 SS BOLTS.
4. CUSTOMER MAY REQUEST INCREASE IN SIZE OF BYPASS AND COORDINATE WITH PUD.

PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

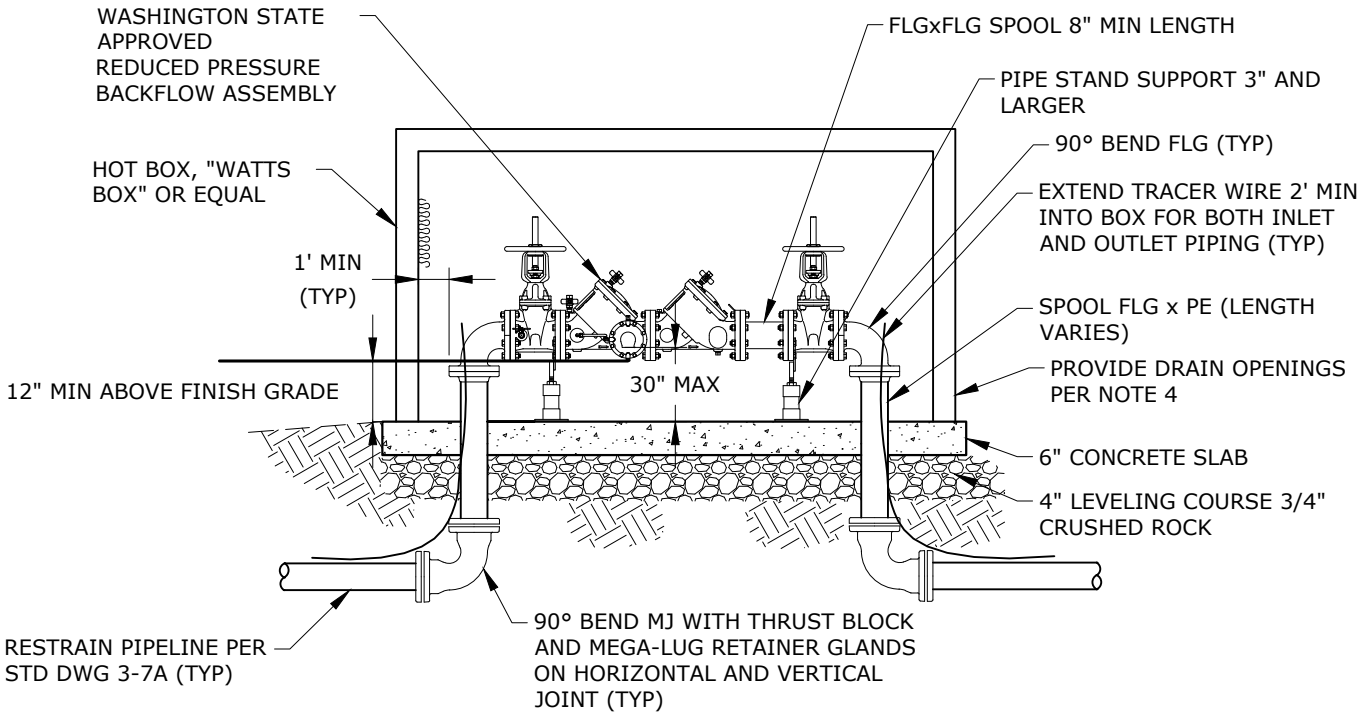
WATER METER - 8"

REVISION DATE: JANUARY 2022

STD DWG NO. 3-18



PLAN



ELEVATION

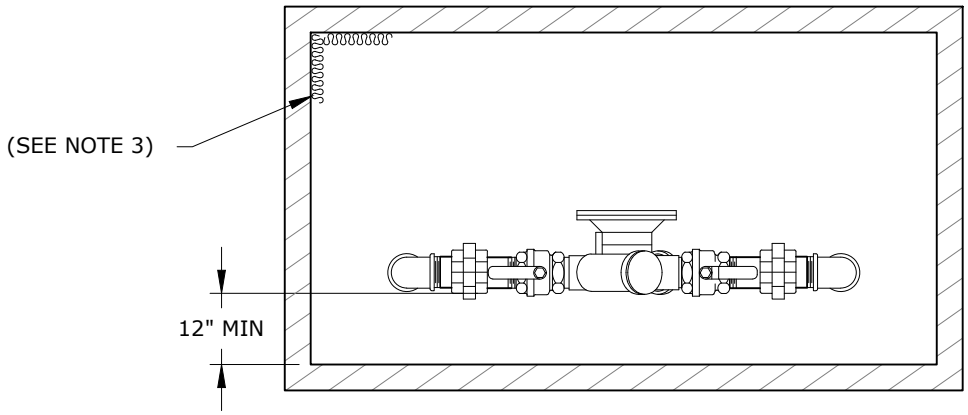
NOTES:

1. REDUCED PRESSURE BACKFLOW ASSEMBLY SHALL BE INSTALLED HORIZONTALLY UNLESS APPROVED FOR OTHER ORIENTATION.
2. ALL CLEARANCES APPLY TO OUTSIDE AND IN-BUILDING INSTALLATIONS.
3. STRUCTURE TO BE INSULATED AND HAVE A HEAT SOURCE TO PROVIDE PROTECTION FROM FREEZING TO -30° F.
4. ENCLOSURE SHALL INCLUDE A DRAIN TO EXTERIOR CAPABLE OF DRAINING A FULL RELIEF VALVE DISCHARGE.
5. ALL ASSEMBLIES SHALL BE FLANGED.
6. SEAL ALL OPENING IN CONCRETE PAD WITH NON-SHRINK GROUT.
7. BACKFLOW ASSEMBLY SHALL BE TESTED SAME DAY AS ACTIVATED FOR SERVICE AND TEST REPORT SENT TO PUD.
8. FITTINGS AND SPECIAL ITEMS SHALL BE PROVIDED WITH TYPE 304 SS BOLTS.

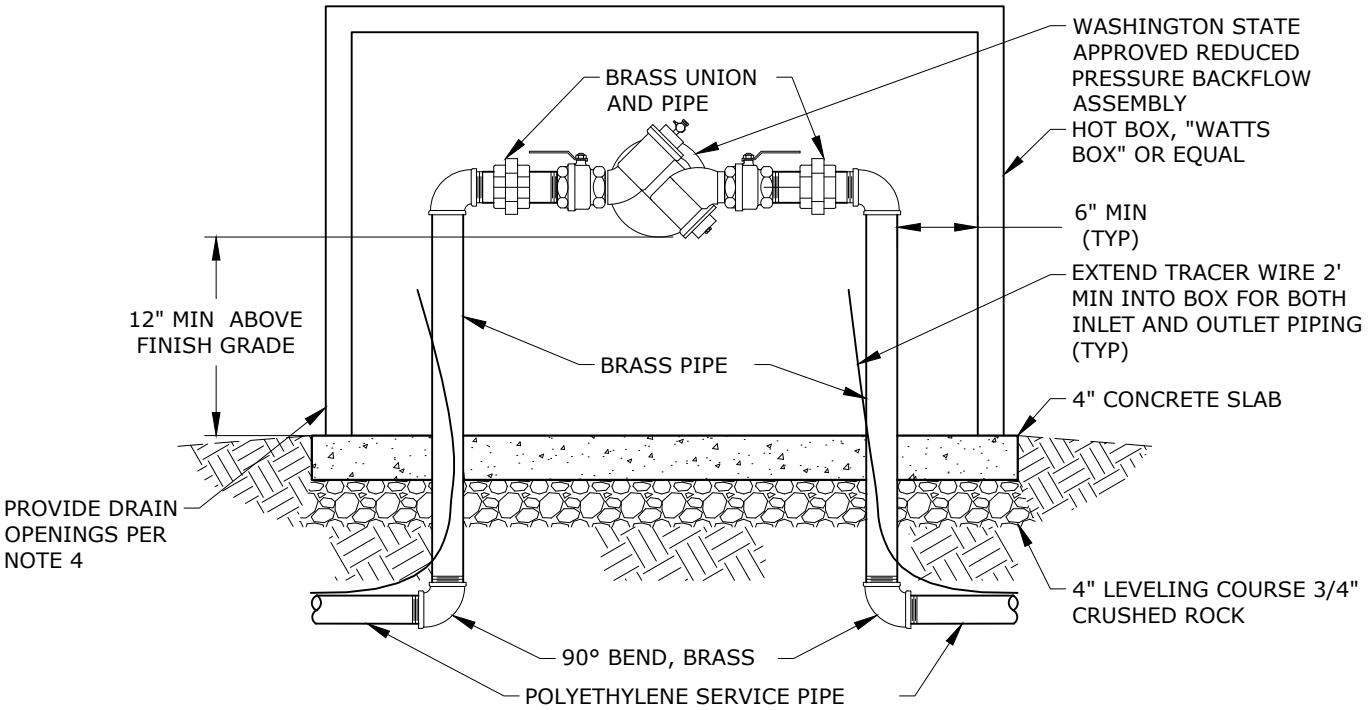
PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

REDUCED PRESSURE BACKFLOW ASSEMBLY - LARGER THAN 2"

REVISION DATE:	STD DWG NO.
JANUARY 2022	3-19



PLAN



ELEVATION

NOTES:

1. REDUCED PRESSURE BACKFLOW ASSEMBLY SHALL BE INSTALLED HORIZONTALLY UNLESS APPROVED FOR OTHER ORIENTATION.
2. ALL CLEARANCES APPLY TO OUTSIDE AND IN-BUILDING INSTALLATIONS.
3. STRUCTURE TO BE INSULATED AND HAVE A HEAT SOURCE TO PROVIDE PROTECTION FROM FREEZING TO -30° F.
4. ENCLOSURE SHALL INCLUDE A DRAIN TO EXTERIOR CAPABLE OF DRAINING A FULL RELIEF VALVE DISCHARGE.
5. SEAL ALL OPENINGS IN CONCRETE PAD WITH NON-SHRINK GROUT.
6. BACKFLOW ASSEMBLY SHALL BE TESTED SAME DAY AS ACTIVATED FOR SERVICE AND TEST REPORT SENT TO PUD.
7. FITTINGS AND SPECIAL ITEMS SHALL BE PROVIDED WITH TYPE 304 SS BOLTS.

PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

REDUCED PRESSURE BACKFLOW ASSEMBLY - 1" TO 2"

REVISION DATE:	STD DWG NO.
JANUARY 2022	3-20

What is Backflow?

Water systems depend on water pressure to keep flow in the proper direction through pipes and hoses. However, anything that causes a drop in water pressure can create a reverse flow, such as from a home's plumbing system back into the public water system. This is called backflow.

Why is Backflow Important?

Our community's water supply can become unsafe and unhealthy when backflow occurs and the plumbing system comes in contact with contaminants through backflow.

Preventing Backflow

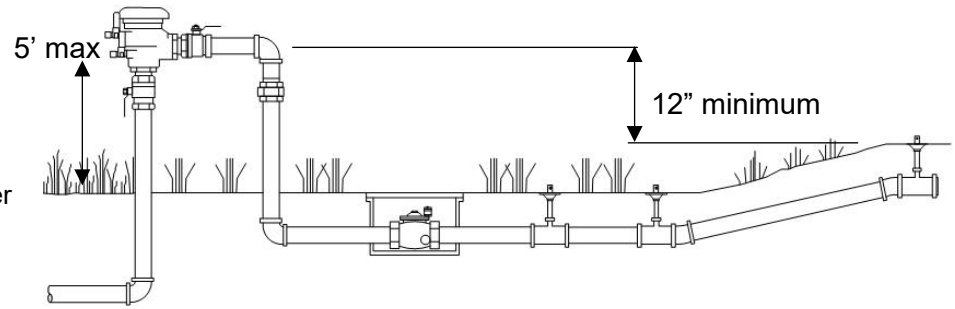
To protect our community's water system, **backflow prevention assemblies** are required if you have underground sprinkler systems.

Backflow Prevention For Landscape Irrigation Systems

The three types of acceptable backflow assemblies are shown to the right:

Pressure Vacuum Breaker Assembly

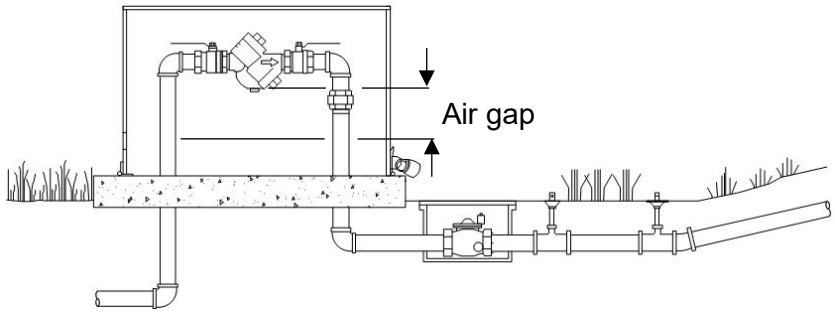
- The Pressure Vacuum Break Assembly (PVBA) may be installed to isolate all irrigation systems that do not use injectors or pumps to apply fertilizer and other agricultural chemicals.



- The PVBA shall be installed at least 12 inches above the highest point in the irrigation piping and no more than 5 feet above ground level.

Reduced Pressure Backflow Assembly

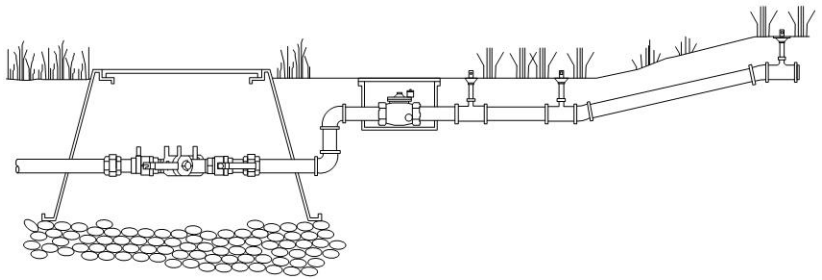
- The Reduced Pressure Backflow Assembly (RPBA) should be installed to isolate irrigation systems using injectors or pumps to apply fertilizer and other agricultural chemicals.



- Reduced pressure backflow assemblies must be installed above ground level.
- An approved air gap is required under the relief valve port.

Double Check Valve Assembly

- The Double Check Valve Assembly (DCVA) may be installed to isolate all irrigation systems that do not use injector or pumps to apply fertilizer and other agricultural chemicals.



- The DCVA may be installed in above ground or in a below-ground enclosure.

Asotin County PUD water customers are responsible for compliance with the following general installation guidelines:

- Assemblies may not be installed in ceilings, walls or crawl spaces.
- Assemblies must be installed with adequate clearance for testing and maintenance.
- You must obtain a plumbing permit before you install a backflow preventer.
- Assemblies must be installed according to the requirements of Asotin County PUD and must be installed by a certified Backflow Assembly Tester.
- All assemblies must be on the Washington State Approved Backflow Assembly List available through the Department of Health, (360) 236-3100/1-800-521-0323.
- Assemblies must be tested when they are first installed, after repair or relocation, and annually after installation by a State of Washington-certified Backflow Assembly Tester.
- A list of state-certified testers in the Asotin County PUD water service area is available from the Washington Department of Health, (360) 236-3141 or (800) 525-2536.

Asotin County
Public Utility District

1500 Scenic Way
P.O. Box 605
Clarkston, WA 99403

Phone: 509-758-1010
Fax: 509-758-1958

E-mail
pudservice@asotinpud.org

Learn more at
www.asotinpud.org/

www.asotinpud.org/backflowprevention.html

PUD
PUBLIC UTILITY DISTRICT
ASOTIN COUNTY

Asotin County PUD Sprinkler Backflow Guidance Document

Important Information about the PUD's Backflow Prevention Program and Your Responsibilities as a Property Owner

PUD
PUBLIC UTILITY DISTRICT
ASOTIN COUNTY

PLAN DRAWINGS

ASOTIN COUNTY PUD

2027 SEWER MAIN REPLACEMENT

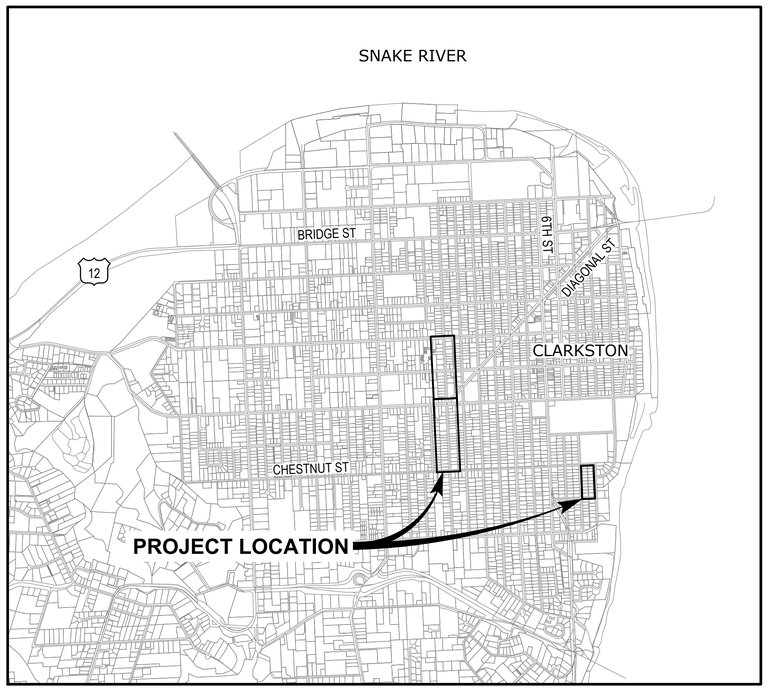
BID SET

PROJECT NO: W221198WA.10

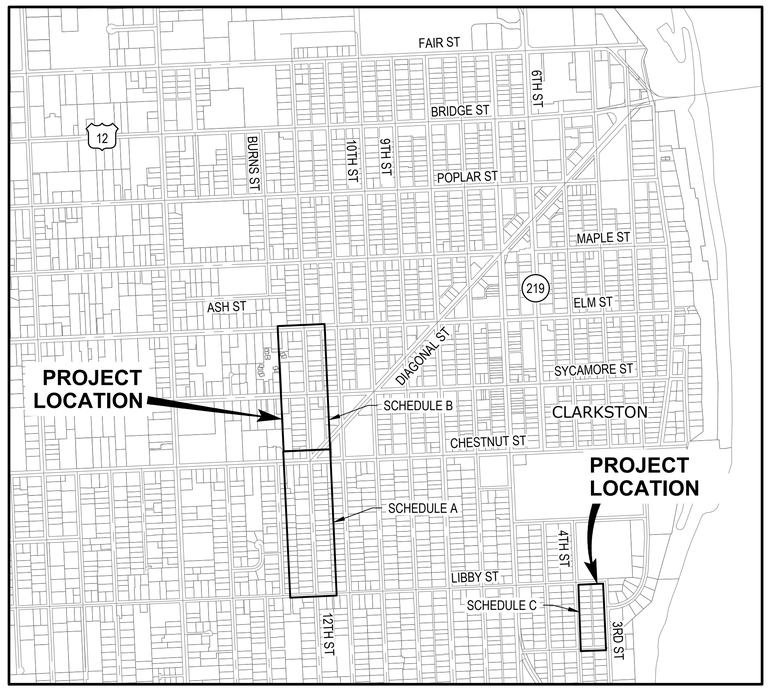
PUBLIC UTILITY DISTRICT
ASOTIN COUNTY

consor
300 E MALLARD DR, STE 350
BOISE, IDAHO 83706

SHEET INDEX	
SHEET	**DESCRIPTION**
GENERAL	
G-000	COVER SHEET
G-001	SYMBOLS AND LEGEND
G-002	GENERAL NOTES
G-003	ABBREVIATIONS
CIVIL	
C-001	SYMBOLS AND LEGEND
C-050	SCHEDULE A - EROSION CONTROL PLAN AND NOTES
C-051	SCHEDULE B & C - EROSION CONTROL PLAN
C-070	SCHEDULE A - TRAFFIC CONTROL PLAN
C-071	SCHEDULE B & C - TRAFFIC CONTROL PLAN
C-101	SCHEDULE A - STA A1+00 TO STA A4+80
C-102	SCHEDULE A - STA A4+80 TO STA A9+40
C-103	SCHEDULE A - STA A9+40 TO STA B14+20
C-104	SCHEDULE B - STA B14+20 TO STA B18+40
C-105	SCHEDULE B - STA B18+40 TO STA B23+00
C-106	SCHEDULE B - STA B23+00 TO STA B27+20
C-110	SCHEDULE C - STA C1+00 TO STA C4+40
C-501	DETAILS
C-502	DETAILS



VICINITY MAP
SCALE: 1" = 1500'

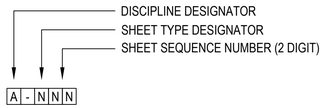


LOCATION MAP
SCALE: 1" = 750'

811
Know what's **below.**
Call before you dig.

Drawing Path and Name: A:_V-W\Projects\WA\Asotin County PUD\2022\W221198WA.10\12 CADD\12-5 Sheets\2027 Sewer Sheets\G-000.dwg, Plotted Date: October 13, 2026 9:43 AM By: Justin Deuel

SHEET INDEX DESIGNATIONS



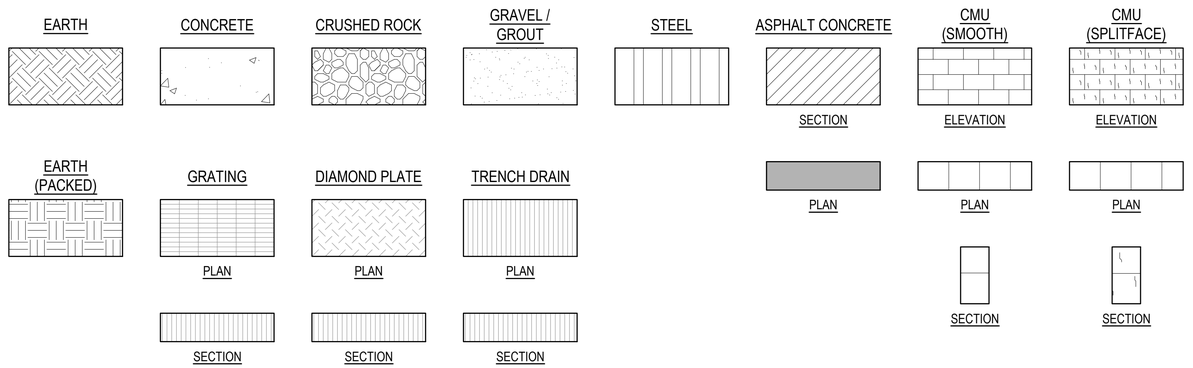
DISCIPLINE DESIGNATORS

G	GENERAL
C	CIVIL
L	LANDSCAPE
A	ARCHITECTURAL
S	STRUCTURAL
D	PROCESS
P	PLUMBING
M	MECHANICAL (HVAC)
F	FIRE PROTECTION
E	ELECTRICAL
I	INSTRUMENTATION AND P&IDS

SHEET TYPE DESIGNATORS

0	GENERAL
1	PLAN VIEWS
2	ELEVATIONS
3	SECTIONS
4	LARGE SCALE VIEWS
5	DETAILS
6	SCHEDULES AND DIAGRAMS
7	USER DEFINED
8	USER DEFINED
9	3D REPRESENTATION

MATERIAL PATTERNS



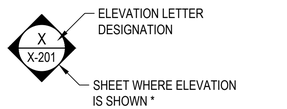
VIEW TITLE DESIGNATIONS

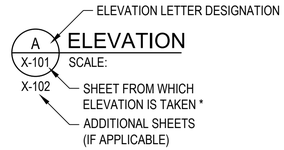
PLAN AND PROFILE

PLAN
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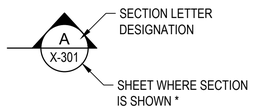
PROFILE
SCALE: 1"=X' HORIZ, 1"=X' VERT

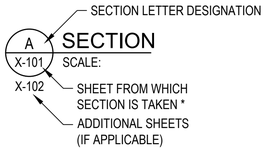
ELEVATION



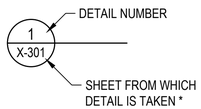


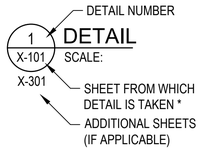
SECTION





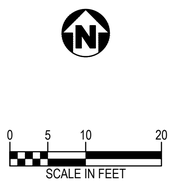
DETAIL





* NOTE: IF PLAN AND SECTION FOR DETAIL CALL-OUT AND DETAIL ARE SHOWN ON THE SAME DRAWING, DRAWING NUMBER IS REPLACED WITH A DASH.

NORTH ARROW AND SCALE BAR



GENERAL NOTE:

1. THIS IS A STANDARD GENERAL SHEET, NOT ALL OF THE INFORMATION SHOWN MAY BE USED ON THIS PROJECT.

Consultant: consor

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Sub Consultant:

Engineer's Seal: ERICW EIMER — STATE OF WASHINGTON — 24010252 — REGISTERED PROFESSIONAL ENGINEER — 10/29/2026

Client / Owner: PUD Public Utility District — Asotin County

Project Title:
ASOTIN COUNTY PUD
2027 SEWER MAIN REPLACEMENT

GENERAL

SYMBOLS AND LEGEND

Designed By: EAW	Consor Project No.: W221198WA.10
Drawn By: JSD	Issued On: ISSUED DATE
Checked By: WRK	Sheet: G-001
Approved By: EAW	0 1/2 1 IF BAR DOES NOT MEASURE 1" DRAWING IS NOT TO SCALE

Drawing Path and Name: A:_V-W\Projects\WA\Asotin County PUD\2022\W221198WA.10\12 CADD\12-5 Sheets\2027 Sewer Sheets\G-001.dwg, Plotted Date: October 13, 2026 9:43 AM By: Justin Deuel

GENERAL NOTES

1. ALL CONSTRUCTION OPERATIONS ARE TO BE ACCOMPLISHED IN ACCORDANCE WITH APPLICABLE STATE STATUES AND OSHA REGULATIONS.
2. ALL WORK SHALL COMPLY WITH THE CURRENT LOCAL AGENCY STANDARDS AND REQUIREMENTS.
3. THE CONTRACTOR SHALL SCHEDULE WORK IN SUCH A MANNER AS TO AVOID UNNECESSARY INCONVENIENCE TO THE OWNER OR THE PUBLIC.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL SURVEY MONUMENTS AND CORNER MARKERS. SURVEY MONUMENTS AND PROPERTY CORNER MARKERS DAMAGED BY CONSTRUCTION ACTIVITIES SHALL BE REESTABLISHED BY A REGISTERED PROFESSIONAL SURVEYOR LICENSED IN THE STATE IN WHICH THE WORK IS BEING PERFORMED.
5. CONTRACTOR SHALL MAINTAIN THE JOB SITE IN A SAFE, NEAT, AND WORKMANLIKE MANNER AT ALL TIMES. JOB SITE SAFETY SHALL NOT BE COMPROMISED.
6. DIMENSIONS TO STRUCTURES, REFERENCED PIPING, PAVING, AND OTHER IMPROVEMENTS ARE APPROXIMATE. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND CONDITIONS 14 DAYS IN ADVANCE OF THE CONSTRUCTION PROGRESS.
7. STRUCTURES SUCH AS CURBS AND GUTTERS, CONCRETE AND ASPHALT DRIVES AND WALKWAYS, PAVING BRICKS, FENCING, RETAINING WALLS, SIGNS, POSTS, MARKERS, ETC., CROSSED BY A UTILITY THAT ARE NOT INDICATED IN THE PLANS SHALL BE RESTORED BY THE CONTRACTOR TO PRECONSTRUCTION CONDITIONS.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING ROADS, BUILDINGS, OR OTHER STRUCTURES RESULTING FROM THE CONTRACTOR'S CONSTRUCTION ACTIVITIES. REPAIRS SHALL BE MADE TO PRECONSTRUCTION CONDITIONS.
9. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL APPLICABLE PERMITS REQUIRED TO PERFORM THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING STAGING AREAS REQUIRED TO PERFORM THE WORK.
11. THE CONTRACTOR SHALL MAINTAIN DRIVEWAY ACCESS TO ALL ADJOINING PROPERTIES ACCESSIBLE TO THE PUBLIC AND EMERGENCY VEHICLES. DESIGNS FOR MAINTAINING ACCESS WILL BE PREPARED BY THE CONTRACTOR AND SUBMITTED TO THE CONTROLLING AGENCY FOR THE REVIEW AND APPROVAL.
12. CONTRACTOR SHALL COMPLY WITH THE TRENCH PLATE REQUIREMENTS OF THE GOVERNING JURISDICTION. IF TRENCH PLATE REQUIREMENTS ARE NOT SPECIFIED, THE CONTRACTOR SHALL APPLY SKID RESISTANT COATING ON THE TRENCH PLATES AND COLD MIX ASPHALT CONCRETE TO THE EDGES. THE TRENCH PLATES SHALL BE NOTCHED INTO THE ASPHALT CONCRETE OR TRAVELED SURFACE TO PREVENT SLIPPAGE AND ROCKING UNDER TRAFFIC.
13. THE CONTRACTOR SHALL COMPLY WITH ALL FEDERAL, STATE, COUNTY, AND LOCAL LAWS AND ORDINANCES RELATING TO THE SAFETY AND CHARACTER OF WORK, EQUIPMENT, AND PERSONNEL. THIS INCLUDES, BUT IS NOT LIMITED TO SHEETING, SHORING, BRACING, VENTILATION, CONFORMANCE WITH TRAFFIC CONTROL AND MAINTENANCE OF BARRICADES AND WARNING DEVICES.
14. CONTRACTOR SHALL KEEP COMPLETE AND ACCURATE RECORD DRAWINGS OF THE WORK, UTILITY POTHOLE DATA, AND EXISTING CONDITIONS THAT HAVE CHANGED OR ARE DIFFERENT THAN SHOWN ON THE PLANS. UPON COMPLETION OF THE WORK, THE CONTRACTORS RECORD DRAWINGS SHALL BE SUBMITTED TO THE OWNER.
15. CONTRACTOR IS RESPONSIBLE FOR PROTECTING AND MAINTAINING ALL STORM DRAIN PIPES, STORM WATER FEATURES, OR DRAINAGE FACILITIES FROM DAMAGE DURING ALL STAGES OF CONSTRUCTION.
16. ALL EXISTING PAVEMENT MARKINGS AND SIGNAGE DISTURBED DURING CONSTRUCTION SHALL BE REPLACED BY CONTRACTOR AT NO EXPENSE TO OWNER.
17. CONTRACTOR WILL BE RESPONSIBLE FOR OBTAINING THE WATER FOR ALL PROJECT-RELATED ACTIVITIES INCLUDING BUT NOT LIMITED TO CONSTRUCTION, DUST CONTROL, TESTING, AND DISINFECTION. THE CONTRACTOR WILL BE RESPONSIBLE FOR COORDINATING WITH OWNER TO TAP EXISTING MAINS AND BRINGING WATER TO THE SITE.
18. CONTRACTOR WILL BE RESPONSIBLE FOR DEVELOPMENT OF A CONSTRUCTION STORMWATER POLLUTION PREVENTION PROGRAM. CONTRACTOR IS RESPONSIBLE FOR OBTAINING THE CONSTRUCTION PERMIT AND COMPLYING WITH ALL ASPECTS OF THE PERMIT.
19. NO POWER IS CURRENTLY AVAILABLE AT THE SITE. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL POWER NEEDED FOR CONSTRUCTION.
20. THE CONTRACTOR SHALL RESTORE THE SITE GRADING AND DRAINAGE TO PRECONSTRUCTION CONDITIONS.
21. APPROXIMATE BOREHOLE LOCATION PER GEOTECHNICAL EVALUATION REPORT, ASOTIN COUNTY PUD, ALLWEST. REFUSAL, IF ANY SHOWN ON PROFILES.
22. PIPE BURSTING PITS ARE SHOWN ON THE PLANS AS A PRELIMINARY LAYOUT, ACTUAL GEOMETRY AND LOCATIONS OF PITS SHALL BE DETERMINED BY THE SELECTED CONTRACTOR AND COORDINATED WITH THE ASOTIN COUNTY PUD. MINIMUM PIT STANDARDS FOR LAUNCHING AND RECEIVING PITS ARE SHOWN IN DETAIL 2-15, SHEET C-502. PIPE BURSTING PLAN SHALL INCLUDE PROPOSED INSTALLATION DIRECTION, PROPOSED BURSTING METHOD AND PROPOSED PIT LOCATIONS.
23. EXISTING UTILITY LOCATIONS ARE SHOWN BASED ON BEST DATA AVAILABLE AT TIME OF DESIGN. VERIFY EXISTING UTILITY LOCATIONS PRIOR TO CONSTRUCTION. POTHOLE TO IDENTIFY AND CONFIRM EXISTING UTILITY LOCATIONS AND DEPTHS.
24. PREPARE AND SUBMIT TO THE ASOTIN COUNTY PUD TEMPORARY TRAFFIC CONTROL PLAN, SANITARY SEWER BYPASS PUMPING PLAN, PIPE BURSTING, CIPP INSTALLATION PLAN, AND TEMPORARY SEDIMENTATION AND EROSION CONTROL PLAN FOR REVIEW AND APPROVAL PRIOR TO BEGINNING CONSTRUCTION. SEE ESC AND TCP SHEETS.
25. PROTECT ALL EXISTING LANDSCAPING AND EXISTING SURFACE FEATURES FROM DAMAGE DURING CONSTRUCTION UNLESS OTHERWISE NOTED. DISTURBED FEATURES SHALL BE REPLACED OR RESTORED TO EXISTING OR BETTER CONDITIONS IF DAMAGED OR REMOVED DURING CONSTRUCTION AT NO ADDITIONAL COST TO THE OWNER.
26. PROTECT STORM WATER SYSTEM FEATURES DURING CONSTRUCTION.
27. THE LOCATION SHOWN FOR SEWER SERVICE LATERALS IS APPROXIMATE AND FOR INFORMATION ONLY. THE CONTRACTOR SHALL FIELD LOCATE ALL SEWER LATERALS THROUGH PRE-INSTALLATION CCTV INSPECTION AND OTHER MEANS, PRIOR TO THE WORK.
28. WATER LINES, GAS AND OTHER UTILITIES ARE SHOWN ON THE DRAWINGS FOR INFORMATION ONLY AND TO MAKE THE CONTRACTOR AWARE OF OTHER UTILITIES THAT ARE POTENTIALLY IN THE AREA. THE CONTRACTOR IS RESPONSIBLE TO LOCATE AND PROTECT ALL ADJACENT AND CROSSING UTILITIES FROM DAMAGE DURING OR AS A RESULT OF CONSTRUCTION ACTIVITIES.
29. CONTRACTOR TO REFER TO ALLWEST GEOTECHNICAL EVALUATION DATED OCTOBER 2ND 2024. CONTRACTOR IS ADVISED THAT THE NATIVE MATERIAL INCLUDES GRAVEL OR COBBLES THAT ARE UNSUITABLE FOR TRENCH BACKFILL. IMPORT CLASS D BACKFILL (PER PUD SPECIFICATIONS) SHALL BE USED FOR TRENCH BACKFILL (ABOVE REQUIRED IMPORT PIPE BEDDING) IN AREAS WHERE NATIVE MATERIAL IS UNSUITABLE FOR TRENCH BACKFILL.

GENERAL PIPELINE NOTES:

1. ALL OPEN TRENCHES, WORK AREA, AND SHAFTS SHALL BE SLOPED OR HAVE A SHORING SYSTEM IN ACCORDANCE WITH OSHA, STATE, AND LOCAL REQUIREMENTS.
2. SCHEDULE TIE-INS IN ACCORDANCE WITH THE SEQUENCING REQUIREMENTS OF THE CONTRACT. SCHEDULE AND COORDINATE TIE-INS AROUND THE OWNER'S OPERATIONAL REQUIREMENT AND LIMITATION.
3. THE CONTRACTOR IS RESPONSIBLE FOR ARRANGING FOR REQUIRED INSPECTION. THE PRESENCE OR ABSENCE OF THE INSPECTOR WILL NOT RELIEVE THE CONTRACTOR OF FULL RESPONSIBILITY FOR THE PROPER PERFORMANCE OF THE WORK.

EXISTING UTILITY NOTES:

1. UTILITY LOCATIONS SHOWN ON PLANS ARE CONSIDERED APPROXIMATE ONLY. NO ELEVATIONS ARE SHOWN, AND NO INFORMATION WAS AVAILABLE DURING THE DESIGN PERIOD.
2. THE CONTRACTOR SHALL VERIFY LOCATION AND DEPTHS OF EXISTING UTILITIES BY CONTACTING ALL UTILITIES, AGENCIES, AND SUBSURFACE UTILITY LOCATING SERVICES (811). IN ADVANCE OF EXCAVATION, CONTRACTOR SHALL USE ALL EXISTING UTILITIES AND STRUCTURES ADJACENT TO THE WORK AREA, WHETHER INDICATED ON THE DRAWINGS OR NOT. SURVEY AND ACCURATELY RECORD THE LOCATIONS AND ELEVATIONS OF THE UTILITY CROSSINGS ON THE RECORD DRAWINGS. PREPARE AND SUBMIT THE UTILITY FIELD SURVEY INFORMATION TO THE OWNER FOR REVIEW ON A MONTHLY BASIS DURING THE COURSE OF CONSTRUCTION. SUBMITTAL SHALL INCLUDE UTILITIES SURVEYED THAT MONTH AND ASSOCIATED VERTICAL ELEVATIONS AND HORIZONTAL LOCATIONS (NORTHING AND EASTING COORDINATES) AND A LIST OF UTILITIES SURVEYED TO DATE. ALL COMPILED IN MICROSOFT EXCEL SPREADSHEET FORMAT. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH THE UTILITY AGENCY THE PROTECTION, REMOVAL, RECONSTRUCTION, AND/OR RECONNECTION OF EXISTING FACILITIES AS REQUIRED TO COMPLETE THE WORK. CONTRACTOR SHALL NOTIFY CONSTRUCTION MANAGER IMMEDIATELY OF ANY POTENTIAL UTILITY CONFLICTS.
3. SUPPORT ALL EXISTING UTILITIES AT CROSSING LOCATIONS. PROTECT EXISTING UTILITIES RUNNING PARALLEL TO CONSTRUCTED TRENCHES FROM DAMAGE CAUSED BY THE REMOVAL OF ADJACENT MATERIALS.
4. SOME UTILITY SERVICES MAY NOT BE SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL TAKE NECESSARY MEASURES TO LOCATE AND PROTECT SERVICE DURING CONSTRUCTION.
5. PRIOR TO CONSTRUCTION OF ANY NEW PIPELINE THAT TIES INTO AN EXISTING UTILITY, EXPOSE AND VERIFY LOCATION AND ELEVATION OF THE TIE-IN POINT. CONFIRM THE EXISTING PIPE MATERIAL AND ANY OTHER INFORMATION REQUIRED BY THE DRAWINGS. SURVEY AND ACCURATELY RECORD THE LOCATION AND ELEVATION OF THE TIE-IN POINT ON THE RECORD DRAWINGS.
6. BEFORE CONSTRUCTION IS STARTED, CONTRACTOR SHALL COORDINATE WITH THE OWNER OF EACH UTILITY AND DEFINE THE REQUIREMENTS AND METHODS TO ACCOMMODATE THE PROTECTION, TEMPORARY SUPPORT, ADJUSTMENT, OR RELOCATION OF ANY UTILITIES AFFECTED BY THE PROPOSED WORK.
7. CONTRACTOR IS RESPONSIBLE FOR COSTS INCURRED AS A RESULT OF UTILITY RELOCATIONS PERFORMED FOR THE CONTRACTOR'S CONVENIENCE.

SEWER NOTES:

1. PRIOR TO THE WORK, ALL SEWER COLLECTION LINES WITHIN THE SCOPE OF THIS PROJECT SHALL BE INSPECTED VIA CCTV TO IDENTIFY/VERIFY LOCATIONS OF EXISTING SERVICE LATERALS.
2. AFTER THE WORK IS COMPLETE, THE CONTRACTOR IS REQUIRED TO OBTAIN AND SUBMIT TO THE ASOTIN COUNTY PUD A FINAL CCTV INSPECTION OF THE INSTALLED PIPES PER SPECIFICATION SECTION 220.
3. CONTRACTOR SHALL ADJUST RING, REGROUT, AND REPAIR ANY EXISTING MANHOLE RING OR COVER AS NECESSARY IF DISTURBED WHEN CONNECTING A PROPOSED SEWER MAIN.
4. CONTRACTOR SHALL UTILIZE IMPORTED MATERIAL WHEN CROSSING EXISTING WATER SERVICES. MATERIAL SHALL BE PLACED ABOVE AND BELOW THE EXISTING WATER SERVICES.
5. CONTRACTOR SHALL FIELD VERIFY ALL SEWER LATERALS AND RE-CONNECT ALL ACTIVE SEWER LATERALS.
6. SOME EXISTING LATERALS MAY PROTRUDE INTO THE SEWER MAIN, HAVE BROKEN CONNECTION, OR CONTAIN ROOTS AT THE CONNECTION TO THE MAIN. CONTRACTOR TO FIELD VERIFY ALL SEWER LATERAL CONNECTIONS AND MITIGATE LATERAL CONNECTIONS (REPAIR CRACKS, PROTRUSIONS OR REMOVE ROOTS) AS NECESSARY PRIOR TO SEWER MAIN CONSTRUCTION.
7. NON PRE-CAST MANHOLES WHERE FIELD FORMED CHANNELS ARE UTILIZED (DOGHOUSE, ETC.) ARE REQUIRED TO HAVE A HARD-TROWEL FINISH ON THE MANHOLE BASE. ROUGH EDGES OR GROUTED CHANNEL SURFACES AND EDGES MUST BE FINISHED OR GROUND SMOOTH.
8. CONTRACTOR SHALL BE PREPARED TO RE-CONNECT ALL ACTIVE LATERALS REGARDLESS OF PIPE MATERIAL. EXISTING LATERAL PIPE MATERIALS MAY CONSIST OF CLAY, BITUMINOUS FIBER (ORANGEBURG), PVC, CAST IRON, ABS, HDPE, ETC.
9. EXISTING SEWER MAIN PIPE CONNECTIONS TO NEWLY INSTALLED MANHOLES MAY TRANSITION TO PVC PIPE PRIOR TO THE MANHOLE CONNECTION IF REQUIRED. THE TRANSITION BETWEEN EXISTING PIPE AND PVC PIPE SHALL UTILIZE A FERNCO STRONGBACK RC COUPLING WITH RIGID STAINLESS STEEL SHEAR RING. THE FERNCO COUPLING SHALL BE DESIGNED, SIZED, AND RATED FOR THE CONNECTED PIPE MATERIALS.

BYPASS NOTES:

1. ALL LATERALS DISRUPTED BY THE CONSTRUCTION ACTIVITIES SHALL BE RECONNECTED TO THE SEWER COLLECTION SYSTEM WITHIN 24 HOURS OF THE OUTAGE START TIME. CONTRACTOR MAY BYPASS LATERALS AS NECESSARY.
2. BYPASS PUMPING PIPES SHALL CONSIST OF LEAK FREE PIPES AND FITTINGS. IF WHEN INSPECTED DURING OPERATION, LEAKS ARE FOUND, THE CONTRACTOR SHALL REPLACE THE LEAKING FITTING/PIPE WITH NEW FITTINGS/PIPE AT NO ADDITIONAL COST TO THE ASOTIN COUNTY PUD.
3. CONTRACTOR SHALL INSPECT BYPASS SYSTEMS IN PLACE EACH DAY PRIOR TO THE START OF WORK.

PIPE BURSTING NOTES:

1. ALL HDPE PIPE FUSION SHALL BE PERFORMED BY A PERSON WHO IS CURRENTLY (AS OF THE DATE OF NTP) CERTIFIED. WHERE ELECTROFUSION COUPLERS ARE REQUIRED, THE EXISTING PIPE SHALL BE PREPARED PER THE MANUFACTURER'S RECOMMENDATIONS AND THE INSTALLATION OF THE FITTING SHALL BE BY A PERSON CERTIFIED TO DO THE WORK. DATA LOGGING IS REQUIRED FOR BUTT FUSION JOINTS.
2. ALL INTERIOR BEADS SHALL BE REMOVED FROM EACH BUTT FUSION JOINT MADE. EXTERIOR BEADS MAY REMAIN IN PLACE.
3. CONNECTIONS TO EXISTING MANHOLES SHALL BE MADE BY THE CONTRACTOR REMOVING ENOUGH OF THE BENCH AND WALL SECTIONS OF EXISTING MANHOLES TO ALLOW THE NEW PIPE TO BE INSTALLED AT GRADE. AFTER INSTALLATION, THE PIPE SHALL BE SECURED IN PLACE THROUGH THE INSTALLATION OF NON SHRINK GROUT. THE CONTRACTOR SHALL ENSURE A SMOOTH TRANSITION FROM THE PIPE TO THE MANHOLE.
4. THE CONTRACTOR SHALL DEVELOP AND SUBMIT TO THE ASOTIN COUNTY PUD A DRAFT PUBLIC NOTICE OR "DOOR HANGER" TO BE DISTRIBUTED TO RESIDENTS AND BUSINESSES DURING THE PROJECT.
5. CONTRACTOR SHALL NOTIFY IMPACTED RESIDENTS AND BUSINESSES A MINIMUM OF 1 WEEK IN ADVANCE OF THE WORK, AND THEN A SECOND TIME A MAXIMUM OF 24 HOURS IN ADVANCE OF THE WORK.
6. CONTRACTOR SHALL COMMUNICATE AND WORK WITH IMPACTED RESIDENCES,BUSINESSES AND THE ASOTIN COUNTY PUD REPRESENTATIVE TO LIMIT SEWER SERVICE OUTAGES TO THE EXTENT POSSIBLE.
7. CONTRACTOR SHALL ALLOW SUFFICIENT TIME FOR THE PIPE TO REST AFTER INSTALLATION PRIOR TO THE SERVICE RE-CONNECTION. ANY SHIFTED LATERALS SHALL BE RECONNECTED TO THE MAIN. SERVICE LATERALS SHALL BE RE-CONNECTED TO THE MAIN WITHIN 24 HOURS AFTER BEING DISCONNECTED. CONTRACTOR MAY BYPASS SERVICE LATERALS AS NECESSARY TO PREVENT BACKUPS. SERVICE LATERALS CAN NOT BACKUP INTO ANY RESIDENTIAL HOUSE OR BUSINESS UNDER ANY CIRCUMSTANCES.
8. CONTRACTOR SHALL BE PREPARED TO RE-CONNECT ALL ACTIVE LATERALS REGARDLESS OF PIPE MATERIAL. EXISTING LATERAL PIPE MATERIALS MAY CONSIST OF CLAY, BITUMINOUS FIBER (ORANGEBURG), PVC, CAST IRON, ABS, HDPE, ETC.

CURED IN PLACE PIPE (CIPP) NOTES:

1. SEWER LATERAL RECONNECTIONS SHALL OCCUR THE SAME DAY THE INSTALLATION OF A CIPP LINER OCCURS.

Consultant: consor

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Sub Consultant:

Engineer's Seal: ERIC WEIMER STATE OF WASHINGTON 24010254 REGISTERED PROFESSIONAL ENGINEER 10/29/2026

Client / Owner: PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

Project Title:

ASOTIN COUNTY PUD
2027 SEWER MAIN REPLACEMENT

GENERAL

GENERAL NOTES

Designed By:	EAW
Drawn By:	JSD
Checked By:	WRK
Approved By:	EAW
Consor Project No.:	W221198WA.10
Issued On:	ISSUED DATE
Sheet:	G-002

0 1/2 1 IF BAR DOES NOT MEASURE 1" DRAWING IS NOT TO SCALE

Drawing Path and Name: A:_V-W\Projects\WA\Asotin County PUD\2022\W221198WA.10\12 CADD\12-5 Sheets\2027 Sewer Sheets\G-001.dwg, Plotted Date: October 29, 2026 9:59 AM By: Eric Weimer

@	AT
AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY & TRANSPORTATION OFFICIALS
AB	ANCHOR BOLT
ABAN(D)	ABANDON(ED)
ABS	ACRYLONITRILE BUTADIENE STYRENE
ABV	ABOVE / ALCOHOL BY VOLUME
AC	ASPHALTIC CONCRETE
ACP	ASPHALTIC CONCRETE PAVING
ADJ	ADJUSTABLE
ADJC	ADJACENT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHR	ANCHOR
AL	ALUMINUM
ALT	ALTERNATE
AMP	AMPERE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APPROX	APPROXIMATE
APPVD	APPROVED
APWA	AMERICAN PUBLIC WORKS ASSOCIATION
ARCH	ARCHITECTURAL
ARV	AIR RELEASE VALVE
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
ASR	AQUIFER STORAGE & RECOVERY
ASSN	ASSOCIATION
ASSY	ASSEMBLY
ASTM	AMERICAN SOCIETY FOR TESTING & MATERIALS
ATM	ATMOSPHERE
AUTO	AUTOMATIC
AUX	AUXILIARY
AVE	AVENUE
AVG	AVERAGE
AWWA	AMERICAN WATER WORKS ASSOCIATION
B&S	BELL & SPIGOT
BC	BOLT CIRCLE
BD	BOARD
BETW	BETWEEN
BF	BOTH FACE
BFD	BACKFLOW PREVENTION DEVICE
BFILL	BACKFILL
BFV	BUTTERFLY VALVE
BHP	BRAKE HORSEPOWER
BKGD	BACKGROUND
BLDG	BUILDING
BLK	BLOCK
BLVD	BOULEVARD
BM	BENCHMARK / BEAM
BMP	BEST MANAGEMENT PRACTICES
BO	BLOW-OFF
BOC	BACK OF CURB
BS	BOTH SIDES
BSMT	BASEMENT
BTF	BOTTOM FACE
BTU	BRITISH THERMAL UNIT
BV	BALL VALVE
BW	BOTH WAYS
C	CELSIUS
C TO C	CENTER TO CENTER
CARV	COMBINATION AIR RELEASE VALVE
CATV	CABLE TELEVISION
CB	CATCH BASIN
CCP	CONCRETE CYLINDER PIPE
CCW	COUNTER CLOCKWISE
CDOT	COLORADO DEPARTMENT OF TRANSPORTATION
CFM	CUBIC FEET PER MINUTE
CFS	CUBIC FEET PER SECOND
CHAN	CHANNEL
CHEM	CHEMICAL
CHFR	CHAMFER
CHKV	CHECK VALVE
CI	CAST IRON
CIP	CAST IRON PIPE
CIPC	CAST IN PLACE CONCRETE
CISP	CAST IRON SOIL PIPE
CJ	CONSTRUCTION JOINT
CL OR C/L	CENTER LINE
CL2	CHLORINE
CLG	CEILING
CLJ	CONTROL JOINT
CLR	CLEAR
CLSM	CONTROLLED LOW STRENGTH MATERIAL
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
CND	CONDUIT
CO	CLEANOUT
COL	COLUMN
COMB	COMBINATION
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUOUS / CONTINUATION
CONTR	CONTRACT(OR)
COORD	COORDINATE
COP	COPPER
CORP	CORPORATION
CORR	CORRUGATED
CP	CONTROL POINT
CPLG	COUPLING
CPVC	CHLORINATED POLYVINYL CHLORIDE
CR	CRUSHED ROCK
CS	COMBINED SEWER
CSP	CONCRETE SEWER PIPE
CT	COURT
CTR	CENTER
CU	CUBIC
CULV	CULVERT
CV	CONTROL VALVE
CW	CLOCKWISE / COLD WATER
CY	CUBIC YARDS
CYL	CYLINDER LOCK
D	DRAIN
DC	DIRECT CURRENT
DEFL	DEFLECTION
DEQ	DEPARTMENT OF ENVIRONMENTAL QUALITY
DET	DETAIL
DI	DUCTILE IRON
DIA	DIAMETER
DIM	DIMENSION
DIR	DIRECTION
DIST	DISTANCE
DN	DOWN
DR	DRIVE
DS	DOWNSPOUT
DWG	DRAWING
DWL	DOWEL
DWV	DRAIN WASTE AND VENT
DWY	DRIVEWAY
E / ELEC	ELECTRICAL
EA	EACH
ECC	ECCENTRIC
EF	EACH FACE
EL	ELEVATION
ELB	ELBOW
ENCL	ENCLOSURE
EOP	EDGE OF PAVEMENT
EQ	EQUAL
EQL SP	EQUALLY SPACED
EQUIP	EQUIPMENT
ESMT	EASEMENT
EW	EACH WAY
EXC	EXCAVATE
EXIST	EXISTING
EXP	EXPANSION
EXP BT	EXPANSION BOLT
EXP JT	EXPANSION JOINT
EXT	EXTERIOR
F	FAHRENHEIT
F TO F	FACE TO FACE
FAB	FABRICATE
FB	FLAT BAR
FCA	FLANGED COUPLING ADAPTER
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
FDN	FOUNDATION
FEXT	FIRE EXTINGUISHER
FF	FINISHED FLOOR / FAR FACE
FGL	FIBERGLASS
FH	FIRE HYDRANT
FIN	FINISH(ED)
FIPT	FEMALE IRON PIPE THREAD
FITG	FITTING
FL	FLOOR LINE
FLEX	FLEXIBLE
FLG	FLANGE
FLL	FLOW LINE
FLR	FLOOR
FM	FORCE MAIN
FO	FIBER OPTIC
FOC	FACE OF CONCRETE
FOF	FACE OF FINISH
FOM	FACE OF MASONRY
FOS	FACE OF STUDS
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FRP	FIBERGLASS REINFORCED PLASTIC
FT	FEET / FOOT
FTG	FOOTING
FUT	FUTURE
FXTR	FIXTURE
G	GAS
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GC	GROOVED COUPLING
GFA	GROOVED FLANGE ADAPTER
GI	GALVANIZED IRON
GIP	GALVANIZED IRON PIPE
GJ	GRIP JOINT
GL	GLASS
GLV	GLOBE VALVE
GND	GROUND
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GPS	GALLONS PER SECOND
GR	GRADE
GR LN	GRADE LINE
GRTG	GRATING
GV	GATE VALVE
GRVL	GRAVEL
GYP	GYPSUM
HB	HOSE BIBB
HC	HOLLOW CORE
HDPE	HIGH DENSITY POLYETHYLENE
HDR	HEADER
HDWE	HARDWARE
HGR	HANGER
HGT	HEIGHT
HH	HANDHOLD
HM	HOLLOW METAL
HMAC	HOT MIX ASPHALT CONCRETE
HNDRL	HANDRAIL
HOA	HAND-OFF-AUTO
HOR	HAND-OFF-REMOTE
HORIZ	HORIZONTAL
HP	HIGH PRESSURE / HORSEPOWER
HPG	HIGH PRESSURE GAS
HPT	HIGH POINT
HR	HOUR
HSB	HIGH STRENGTH BOLT
HV	HOSE VALVE
HVAC	HEATING, VENTILATION, AIR CONDITIONING
HWL	HIGH WATER LINE
HWY	HIGHWAY
HYD	HYDRANT
HYDR	HYDRAULIC
I&C	INSTRUMENTATION & CONTROL
IAW	IN ACCORDANCE WITH
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IF	INSIDE FACE
IMPVT	IMPROVEMENT
IN	INCH
INCC	INCLUDE(D)(ING)
INFL	INFLUENT
INJ	INJECTION
INSTL	INSTALLATION
INSUL	INSULATION
INTER	INTERCEPTOR
INTR	INTERIOR
INV	INVERT
IP	IRON PIPE
IPT	IRON PIPE THREAD
IR	IRON ROD
IRRIG	IRRIGATION
JT	JOINT
JUNC	JUNCTION
KPL	KICK PLATE
KVA	KILOVOLT AMPERE
KW	KILOWATT
KWY	KEYWAY
L	LENGTH
LAB	LABORATORY
LAV	LAVATORY
LB	POUND
LF	LINEAR FOOT
LIN	LINEAL
LN	LANE
LOC	LOCATION
LONG	LONGITUDINAL
LP	LOW PRESSURE
LPT	LOW POINT
LRG	LARGE
LS	LONG SLEEVE / LUMP SUM
LT	LEFT
LVL	LEVEL
LWL	LOW WATER LINE
MAN	MANUAL
MAT	MATERIAL
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MCP	MASTER CONTROL PANEL
MECH	MECHANICAL
MET	METAL
MFR	MANUFACTURER
MGD	MILLION GALLONS PER DAY
MH	MANHOLE
MIN	MINIMUM
MIPT	MALE IRON PIPE THREAD
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
MON	MONUMENT / MONOLITHIC
MOT	MOTOR
MP	MILEPOST
MSL	MEAN SEAL LEVEL
MTD	MOUNTED
NA	NOT APPLICABLE
NAVD	NORTH AMERICAN VERTICAL DATUM
NC	NORMALLY CLOSED
NF	NEAR FACE
NIC	NOT IN CONTRACT
NO / NO.	NORMALLY OPEN / NUMBER
NOM	NOMINAL
NORM	NORMAL
NRS	NON-RISING STEM
NTS	NOT TO SCALE
O TO O	OUT TO OUT
OC	ON CENTER
OD	OUTSIDE DIAMETER
OF	OVERFLOW / OUTSIDE FACE
OPNG	OPENING
OPP	OPPOSITE
ORIG	ORIGINAL
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
OVHD	OVERHEAD
P&ID	PROCESS & INSTRUMENTATION DIAGRAM
PC	POINT OF CURVE
PCC	POINT OF COMPOUND CURVE
PCVC	POINT OF CURVATURE ON VERTICAL CURVE
PE	PLAIN END
PERF	PERFORATED
PERM	PERMANENT
PERP	PERPENDICULAR
PG	PRESSURE GAUGE
PH	PIPE HANGER
PI	POINT OF INTERSECTION
PIVC	POINT OF INTERSECTION ON VERTICAL CURVE
PL OR P/L	PROPERTY LINE / PLATE / PLASTIC
PLBG	PLUMBING
PNL	PANEL
POC	POINT OF CURVATURE
POLY	POLYETHYLENE
PP	POWER POLE / PURPLE PIPE
PRC	POINT OF REVERSE CURVATURE
PRCST	PRECAST
PREP	PREPARATION
PRESS	PRESSURE
PRKG	PARKING
PROP	PROPERTY
PRV	PRESSURE REDUCING VALVE
PS	PUMP STATION
PSIG	POUNDS PER SQUARE INCH GAUGE
PSL	PIPE SLEEVE
PSPT	PIPE SUPPORT
PT	POINT OF TANGENCY
PTVC	POINT OF TANGENCY ON VERTICAL CURVE
PTW	PUMP TO WASTE
PV	PLUG VALVE
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
PW	POTABLE WATER
PWR	POWER
QTY	QUANTITY
RAD	RADIUS
RC	REINFORCED CONCRETE
RCP	REINFORCED CONCRETE PIPE
RD	ROAD / ROOF DRAIN
RDCR	REDUCER
REF	REFERENCE
REINF	REINFORCE(D)(ING)(MENT)
REQ'D	REQUIRED
RESTR	RESTRAINED
RFCA	RESTRAINED FLANGE COUPLING ADAPTER
RM	ROOM
RND	ROUND
RO	ROUGH OPENING
R/W	RIGHT-OF-WAY
RPBPD	REDUCED PRESSURE BACKFLOW PREVENTION DEVICE
RPM	REVOLUTIONS PER MINUTE
RR	RAILROAD
RST	REINFORCED STEEL
RT	RIGHT
SALV	SALVAGE
SAN	SANITARY
SC	SOLID CORE
SCHED	SCHEDULE
SD	STORM DRAIN
SDL	SADDLE
SDR	STANDARD DIMENSION RATIO
SECT	SECTION
SHLDR	SHOULDER
SHT	SHEET
SIM	SIMILAR
SLP	SLOPE
SLV	SLEEVE
SOLN	SOLUTION
SP	SOIL PIPE / SEWER PIPE
SPCL	SPECIAL
SPEC(S)	SPECIFICATION(S)
SPG	SPACING
SPL	SPOOL
SPRT	SUPPORT
SQ	SQUARE
SQ FT	SQUARE FOOT
SQ IN	SQUARE INCH
SQ YD	SQUARE YARD
SS	SANITARY SEWER
SST	STAINLESS STEEL
ST	STREET
STA	STATION
STD	STANDARD
STL	STEEL
STOR	STORAGE
STR	STRAIGHT
STRUCT	STRUCTURE / STRUCTURAL
SUBMG	SUBMERGED
SUCT	SUCTION
SV	SOLENOID VALVE
S/W	SIDEWALK
SWD	SIDEWATER DEPTH
SWGR	SWITCH GEAR
SYMM	SYMMETRICAL
SYS	SYSTEM
T OR TEL	TELEPHONE
T&B	TOP & BOTTOM
TAN	TANGENCY
TB	THRUST BLOCK
TBM	TEMPORARY BENCHMARK
TC	TOP OF CONCRETE / TOP OF CURB
TCE	TEMPORARY CONSTRUCTION EASEMENT
TDH	TOTAL DYNAMIC HEAD
TEMP	TEMPERATURE / TEMPORARY
T&G	TONGUE & GROOVE
THK	THICK / THICKNESS
THRD	THREAD (ED)
THRU	THROUGH
TP	TEST PIT / TOP OF PAVEMENT / TURNING POINT
TRANS	TRANSITION
TSP	TRI-SODIUM PHOSPHATE
TST	TOP OF STEEL
TW	TOP OF WALL
TYP	TYPICAL
UG	UNDERGROUND
UH	UNIT HEATER
UN	UNION
UON	UNLESS OTHERWISE NOTED
USGS	UNITED STATES GEOLOGIC SURVEY
V	VENT / VOLT
VAC	VACUUM
VB	VACUUM BREAKER
VBOX	VALVE BOX
VC	VERTICAL CURVE
VERT	VERTICAL
VFD	VARIABLE FREQUENCY DRIVE
VOL	VOLUME
VCP	VITRIFIED CLAY PIPE
VTR	VENT THROUGH ROOF
W	WATER
W/	WITH
W/IN	WITHIN
W/O	WITHOUT
W/W	WALL TO WALL
WD	WOOD
WF	WIDE FLANGE
WH	WATER HEATER
WI	WROUGHT IRON
WM	WATER METER
WP	WORKING POINT / WATERPROOFING
WS	WATER SERVICE
WT	WEIGHT
WTP	WATER TREATMENT PLANT
WTRT	WATERTIGHT
WWF	WELDED WIRE FABRIC
WWTF	WASTEWATER TREATMENT FACILITY
WWTP	WASTEWATER TREATMENT PLANT
X SECT	CROSS SECTION
XFMR	TRANSFORMER
YD	YARD DRAIN / YARD
YH	YARD HYDRANT
YR	YEAR
ZN	ZINC

GENERAL NOTE:

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Consultant:

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BRIDGETTE M. WRIGHT — STATE OF WASHINGTON — 24010254 — REGISTERED PROFESSIONAL ENGINEER

10/29/2026

Client / Owner:

PUBLIC UTILITY DISTRICT — ASOTIN COUNTY

Project Title:

ASOTIN COUNTY PUD
2027 SEWER MAIN REPLACEMENT

GENERAL

ABBREVIATIONS

Designed By:	EAW
Drawn By:	JSD
Checked By:	WRK
Approved By:	EAW
Consor Project No.:	W221198WA.10
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TOPOGRAPHIC LEGEND

	EXISTING	PROPOSED
WATERLINE	10"W	12"DI W
ELECTRICITY (UNDERGROUND)	E	E
OVERHEAD UTILITY	OVHD	OVHD
GAS	4"G	4"G
TELEPHONE/TELEMETRY	T	T
CABLE TELEVISION	CATV	CATV
COMMUNICATION	COM	COM
FIBER OPTIC	FO	FO
SANITARY SEWER LINE	8"SS	8"SS
SANITARY SEWER FORCE MAIN	6"SSFM	6"FM
STORM DRAIN	8"SD	8"SD
DRAIN	D	D
CULVERT	18"SD	18"SD
ABANDONED PIPE	10"W (ABAND)	
DEMOLISH/ REMOVE		
DRAINAGE DITCH		
TOP OF SLOPE	TOP	TOP
TOE OF SLOPE	TOE	TOE
CUT		C
FILL		F
BARBWIRE FENCE	X X X	X X X
CHAIN LINK FENCE		
WOOD FENCE		
TEMPORARY SILT FENCE		
GUARDRAIL		
ROCK WALL		
TREE/BUSH LINE		
WETLAND		
CENTERLINE		
RIGHT-OF-WAY	R/W	R/W
PROPERTY LINE		
EASEMENT		
EDGE OF PAVEMENT/AC		
PAVEMENT STRIPING		
EDGE OF GRAVEL		
CURB		
SIDEWALK	S/W	S/W
STRUCTURE OR FACILITY		
CONTOUR MINOR		
CONTOUR MAJOR	200	200
ADDRESS	100	
	PROPERTY OWNER	

	EXISTING	PROPOSED
MANHOLE	SS SD W C T	SS SD W C T
CLEAN-OUT		
CATCH BASIN/FIELD INLET		
THRUST BLOCK		
VALVE		
AIR INJECTION ASSEMBLY		
BLOW-OFF ASSEMBLY (PERMANENT)		
BLOW-OFF ASSEMBLY (TEMPORARY)		
AIR RELEASE ASSEMBLY		
FIRE HYDRANT ASSEMBLY		
WATER METER		
FIRE DEPARTMENT CONNECTION		
WATER IRRIGATION VALVE	IR	IR
PULL BOX/JUNCTION BOX		
COM RISER		
UTILITY POLE		
GUY WIRE		
LIGHT POST		
STREET LIGHT		
TRANSFORMER		
ELECTRICAL METER	M	
ELECTRICAL CABINET		
GAS METER		
GAS VALVE		
MAILBOX		
SIGN		
TREE DECIDUOUS		
TREE CONIFEROUS		
TREE TO BE REMOVED		
SURFACE ELEVATION	+ 176.63	+ 176.63
WETLAND FLAG		
BENCHMARK		
IRON ROD		
MONUMENT		
BORE/ POTHOLE		
TEST PIT		
BOLLARD		

SCHEMATIC	
	WELDED JOINT
	FLANGED JOINT
	GROOVED END JOINT
	MECHANICAL JOINT
	PUSH-ON JOINT (RUBBER GASKET)
	FLANGED COUPLING ADAPTER
	DOUBLE BALL FLEXIBLE EXTENSION COUPLING
	FLEXIBLE COUPLING W/ THRUST RING
	90° BEND UP
	90° BEND DOWN
	TEE UP
	TEE DOWN
	LATERAL UP
	LATERAL DOWN
	CONCENTRIC REDUCER
	ECCENTRIC REDUCER
	UNION
	BLIND FLANGE
	CAP/ PLUG
	LONG SLEEVE
	FLEXIBLE COUPLING
	FITTING (45°)
	STRAINER
	SIGHT GLASS
	PRESSURE GAUGE W/ COCK
	PRESSURE SWITCH W/ COCK
M	METER
SP	SLIP-ON JOINT PIPE
R	RESTRAINED JOINT PIPE

SCHEMATIC	
	BUTTERFLY VALVE
	GATE VALVE
	GLOBE VALVE
	BALL VALVE
	BALANCING VALVE
	PLUG VALVE (TOP)
	PLUG VALVE (SIDE)
	3-WAY PLUG VALVE
	CHECK VALVE
	SWING CHECK VALVE
	DOUBLE CHECK ASSEMBLY
	BALL SWING CHECK
	SILENT CHECK VALVE
	PRESSURE REDUCING VALVE
	ALTITUDE CONTROL VALVE
	SOLENOID VALVE
	RELIEF VALVE
	NEEDLE VALVE
	HOSE VALVE
	REDUCED PRESSURE BACKFLOW PREVENTER W/ GATE VALVES
	HOSE BIBB

GENERAL NOTE:

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Client / Owner: PUD Public Utility District, Asotin County

Project Title:

ASOTIN COUNTY PUD
2027 SEWER MAIN REPLACEMENT

CIVIL

SYMBOLS AND LEGEND

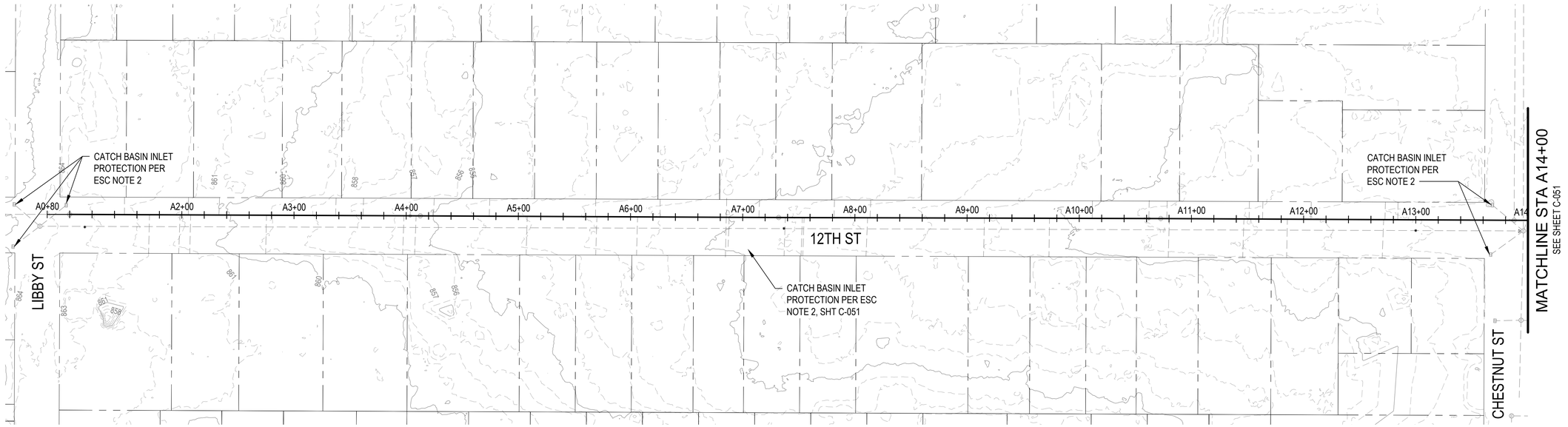
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Drawn By:	JSD
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Approved By:	EAW
Consor Project No.:	W221198WA.10
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EROSION CONTROL NOTES

1. BMPS SHALL BE USED THROUGHOUT THE PROJECT AREA DURING CONSTRUCTION AND SHALL BE INSTALLED PRIOR TO ANY CONSTRUCTION ACTIVITIES AND REMOVED AFTER PROJECT COMPLETION. AT A MINIMUM, BMPS SHALL BE INSPECTED AND MAINTAINED WEEKLY AND WITHIN 24 HOURS AFTER A STORM EVENT. INSPECTION REPORTS SHALL BE COMPLETED WEEKLY AND KEPT AT THE PROJECT SITE.
2. STORMWATER CATCH BASIN INLET PROTECTION SHALL BE PLACED AT ALL STORMWATER CATCH BASINS WITHIN AND IMMEDIATELY DOWNSTREAM OF THE PROJECT AREA PRIOR TO CONSTRUCTION PER WASHINGTON DEPARTMENT OF ECOLOGY, 2019, STORMWATER MANAGEMENT MANUAL FOR EASTERN WASHINGTON BMP C220E.
3. FIBER ROLLS/WATTLES SHALL BE PLACED AROUND AREAS OF EXCAVATION OUTSIDE THE RIGHT OF WAY UNTIL FINAL SURFACE STABILIZATION PER WASHINGTON DEPARTMENT OF ECOLOGY, 2019, STORMWATER MANAGEMENT MANUAL FOR EASTERN WASHINGTON BMP C235E.
4. SILT/SEDIMENT FENCE SHALL BE PLACED ALONG DRAINAGE SWALES PER WASHINGTON DEPARTMENT OF ECOLOGY, 2019, STORMWATER MANAGEMENT MANUAL FOR EASTERN WASHINGTON BMP C233E.
5. DISTURBED AREAS AND STOCKPILES LEFT INACTIVE FOR MORE THAN 14 CONSECUTIVE DAYS SHALL BE PROTECTED WITH TEMPORARY PERIMETER SEDIMENT BARRIER.
6. STREET SWEEPING TO REMOVE SEDIMENTS AND OTHER CONTAMINANTS DIRECTLY FROM THE PAVED SURFACES SHALL OCCUR WEEKLY AND BEFORE FORECASTED STORM EVENTS NEAR AREAS OF EXCAVATION. ALL MATERIALS COLLECTED DURING STREET SWEEPING SHALL BE DISPOSED OF AT AN OFF-SITE LOCATION.
7. ALL WASTE MATERIALS SHALL BE COLLECTED AND DISPOSED OF OFF-SITE. WASTE CONSTRUCTION MATERIALS SHALL NOT BE BURIED ON-SITE. ALL TRASH COLLECTED DURING CONSTRUCTION SHALL BE DISPOSED OF AT AN OFF-SITE LOCATION.
8. ALL MAJOR EQUIPMENT/VEHICLE FUELING AND MAINTENANCE SHALL BE PERFORMED OFF-SITE. ONLY MINOR EQUIPMENT MAINTENANCE SHALL OCCUR ON-SITE. ALL EQUIPMENT FLUIDS GENERATED FROM MAINTENANCE ACTIVITIES SHALL BE DISPOSED OF INTO DESIGNATED DRUMS STORED ON SPILL PALLETS.
9. ABSORBENT, SPILL-CLEANUP MATERIALS AND SPILL KITS SHALL BE AVAILABLE ON SITE. DRIP PANS SHALL BE PLACED UNDER ALL EQUIPMENT RECEIVING MAINTENANCE AND VEHICLES AND EQUIPMENT PARKED OVERNIGHT. VEHICLES AND EQUIPMENT SHAL BE INSPECTED ON EACH DAY OF USE. LEAKS SHALL BE REPAIRED IMMEDIATELY, OR THE PROBLEM VEHICLE(S) OR EQUIPMENT SHALL BE REMOVED FROM THE PROJECT SITE. KEEP AMPLE SUPPLY OF SPILL-CLEANUP MATERIALS ON-SITE AND IMMEDIATELY CLEAN UP SPILLS AND DISPOSE OF MATERIALS PROPERLY.
10. ALL EQUIPMENT AND VEHICLE WASHING SHALL BE PERFORMED OFF-SITE.
11. TEMPORARY SANITARY FACILITIES (PORTABLE TOILETS) SHALL BE PROVIDED BY CONTRACTOR AT THE SITE THROUGHOUT CONSTRUCTION. PORTABLE TOILET(S) SHALL BE LOCATED AWAY FROM CONCENTRATED FLOW PATHS AND TRAFFIC FLOW. THE PORTABLE FACILITIES SHALL BE CLEANED ACCORDING TO THE SUPPLIERS SCHEDULE. PORTABLE TOILETS WITH LEAKING HOLDING TANKS SHALL BE REMOVED FROM THE SITE AND REPLACED WITH NEW PORTABLE TOILETS.
12. APPROXIMATE AREA OF DISTURBANCE FOR CONSTRUCTION IS 8.70 ACRES.



PLAN
SCALE: 1"=50'

SCHEDULE A

Consultant: consor

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Engineer's Seal: ERICH W. EMMER, STATE OF WASHINGTON, 24010254, REGISTERED PROFESSIONAL ENGINEER — 10/29/2026

Client / Owner: PUD Public Utility District Asotin County

Project Title:
ASOTIN COUNTY PUD
2027 SEWER MAIN REPLACEMENT

CIVIL
SCHEDULE A

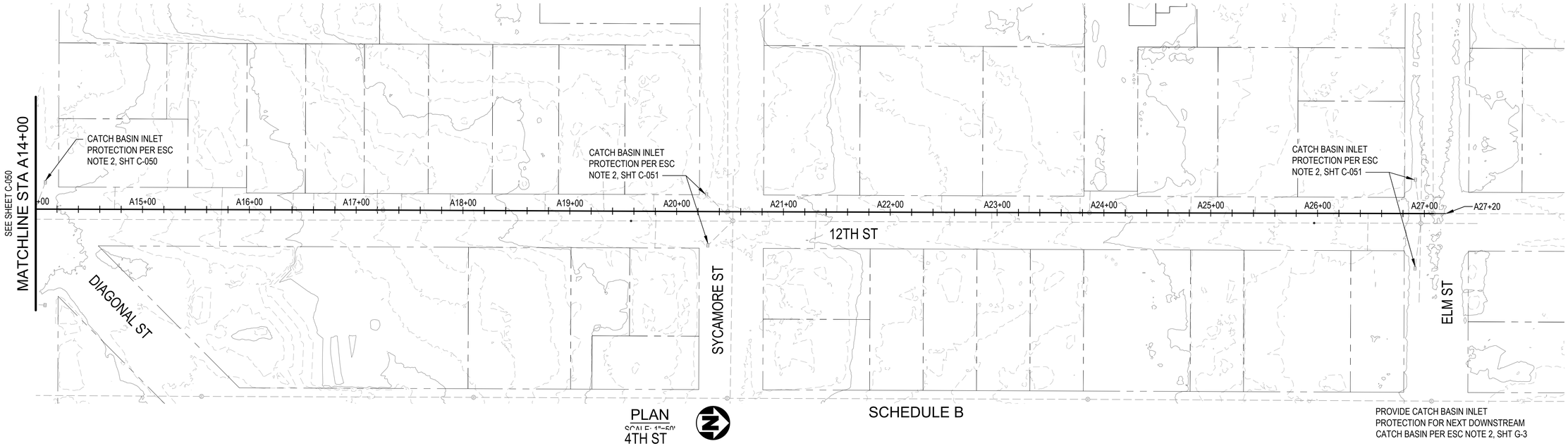
SCHEDULE A - EROSION CONTROL PLAN AND NOTES

Designed By:	JSD
Drawn By:	EAW
Checked By:	WRK
Approved By:	EAW

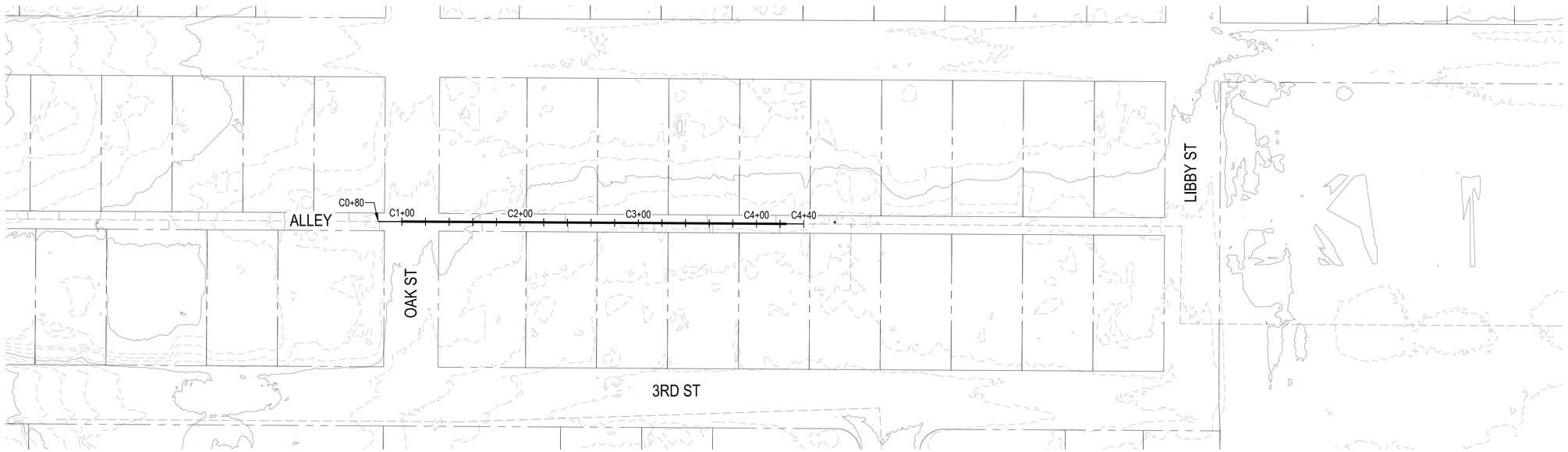
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PLAN

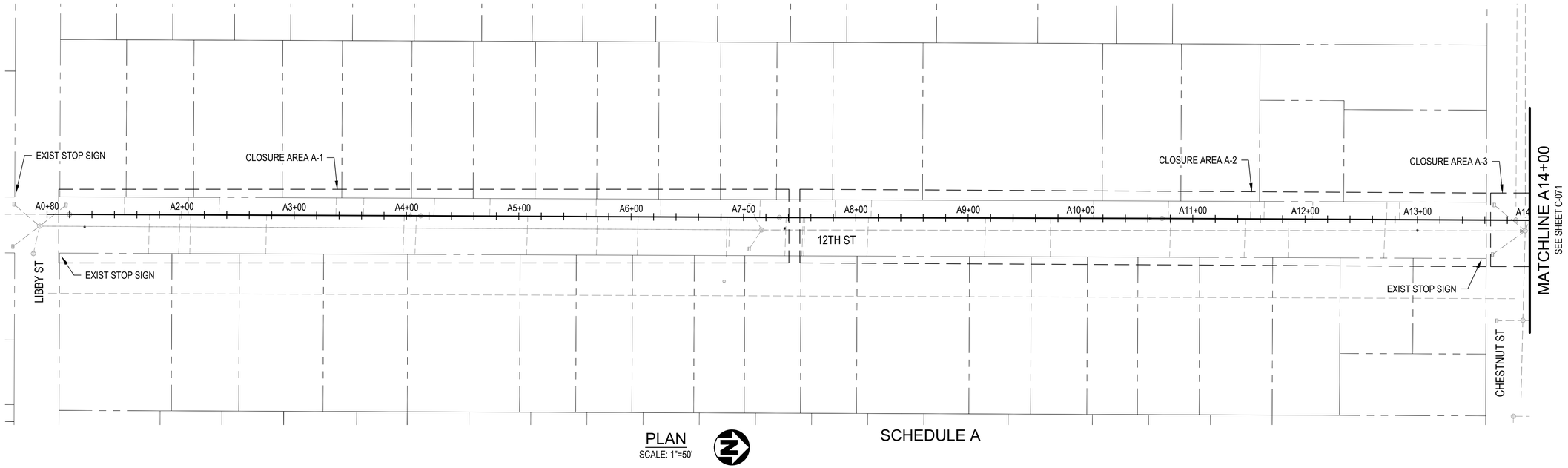


PLAN
SCALE: 1"=50'



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PLAN
SCALE: 1"=50'

SCHEDULE A

TRAFFIC CONTROL TABLE				
CLOSURE AREA	ROAD CLASS	CLOSURE AREA REQUIREMENTS	ROADS CLOSED	NOTES
A1	MAJOR COLLECTOR	SINGLE LANE CLOSURE WITH FLAGGER OR ROAD CLOSURE WITH DETOUR	12TH STREET	
A2	MAJOR COLLECTOR	SINGLE LANE CLOSURE WITH FLAGGER OR ROAD CLOSURE WITH DETOUR	12TH STREET	
A3	MAJOR COLLECTOR	ROAD CLOSURE WITH DETOUR	CHESTNUT STREET	FOR INTERSECTION WORK ONLY
B1	MAJOR COLLECTOR	SINGLE LANE CLOSURE WITH FLAGGER OR ROAD CLOSURE WITH DETOUR	12TH STREET	
B2	MAJOR COLLECTOR	ROAD CLOSURE WITH DETOUR	SYCAMORE STREET	FOR INTERSECTION WORK ONLY
B3	MAJOR COLLECTOR	SINGLE LANE CLOSURE WITH FLAGGER OR ROAD CLOSURE WITH DETOUR	12TH STREET	
B4	MAJOR COLLECTOR	ROAD CLOSURE WITH DETOUR	ELM STREET	FOR INTERSECTION WORK ONLY
C1	LOCAL ROAD	ROAD CLOSURE WITH DETOUR	OAK STREET	FOR INTERSECTION WORK ONLY
	ALLEY	ROAD CLOSURE WITH DETOUR	ALLEY BETWEEN 3RD AND 4TH STREET	

TRAFFIC CONTROL NOTES:

1. THE TRAFFIC CONTROL PLANS ARE SHOWN AS GENERAL REQUIREMENTS FOR TRAFFIC CONTROL. ADDITIONAL TRAFFIC CONTROL WILL BE REQUIRED. FINAL DETERMINATION OF TRAFFIC CONTROL NEEDS IN ACCORDANCE WITH APPLICABLE RULES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. SEE TRAFFIC CONTROL TABLE FOR SPECIFIC PROJECT REQUIREMENTS.
2. THE CONTRACTOR SHALL SUBMIT DETAILED CONSTRUCTION PHASING AND TRAFFIC CONTROL PLANS TO THE OWNER FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION. THE CONTRACTOR'S TRAFFIC CONTROL PLANS SHALL ADDRESS ADVANCE CONSTRUCTION AND DETAILED TRAFFIC CONTROL FOR EACH PHASE OF WORK, AND SHALL ACCOMMODATE PEDESTRIAN TRAFFIC AS WELL AS VEHICULAR TRAFFIC.
3. TRAFFIC CONTROL SIGN LOCATIONS ARE NOT DETAILED ON THE DRAWINGS. CONTRACTOR TO PROVIDE AS PART OF THE DETAILED TRAFFIC CONTROL PLANS.
4. THIS PLAN MAY BE MODIFIED IN THE FIELD BY THE ENGINEER.
5. ALL WORK SHALL CONFORM TO THE LATEST EDITION OF MUTCD, "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" FOR STREETS AND HIGHWAYS.
6. ALL TRAFFIC CONTROL DEVICES MUST BE RETRO-REFLECTIVE. ALL ADVANCE WARNING (AW) SIGNS MUST BE MOUNTED 7' HIGH. FOR NIGHT WORK, AW SIGNS MUST BE EQUIPPED WITH TYPE B FLASHERS AND DELINEATION DEVICES MUST HAVE STEADY-BURN TYPE C WARNING LIGHTS.
7. ALL WARNING FLAGS AND FLASHERS SHALL BE CONSIDERED AS INCIDENTAL TO THE TRAFFIC CONTROL BID ITEMS.
8. ONLY ONE CLOSURE SHALL BE IN PLACE AT A TIME, UNLESS APPROVED BY THE ASOTIN COUNTY PUD. ALL TEMPORARY TRAFFIC CONTROL DEVICES SHALL BE REMOVED FOLLOWING COMPLETION OF EACH CONSTRUCTION STAGE AND THE PERMANENT TRAFFIC CONTROL DEVICES SHALL BE RESTORED BY THE CONTRACTOR UPON COMPLETION OF PROJECT.
9. MAINTAIN ACCESS TO ALL PUBLIC AND PRIVATE APPROACHES.
10. ANY EXISTING SIGNS, SUCH AS SPEED LIMIT SIGNS, WHICH CONFLICT WITH CONSTRUCTION OPERATIONS AND APPROVED TRAFFIC CONTROL ACTIVITIES SHALL BE COVERED USING AN APPROVED METHOD. ALL SIGNS SHALL BE UNCOVERED ONCE CONSTRUCTION AND TRAFFIC CONTROL OPERATIONS NO LONGER CONFLICT WITH THE EXISTING SIGNS.
11. WORK CONDITIONS SHALL BE MONITORED BY THE CONTRACTOR UNDER VARYING CONDITION TRAFFIC VOLUMES, LIGHT, AND WEATHER TO ENSURE TRAFFIC CONTROL MEASURES ARE OPERATING EFFECTIVELY AND THAT ALL DEVICES USED ARE CLEARLY VISIBLE AT ALL TIMES AND IN GOOD REPAIR.
12. BACKFILL TRENCHES IF TWO-WAY TRAFFIC CANNOT BE MAINTAINED DURING NON-WORK HOURS. PLACE AND MAINTAIN TEMPORARY SURFACE, ACCEPTABLE TO THE OWNER, UNTIL FINAL SURFACE RESTORATION COMPLETED.
13. ALL TAPER LENGTHS AND CONSTRUCTION TRAFFIC CONTROL SIGNING, INCLUDING SPACING, SHALL MEET OR EXCEED THE REQUIREMENTS OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
14. NIGHT WORK WILL ONLY BE ALLOWED WITH PRIOR APPROVAL FROM THE ASOTIN COUNTY PUD. CONTRACTOR TO REQUEST APPROVAL A MINIMUM OF TWO WEEKS PRIOR TO ENSURE THAT ADEQUATE TIME IS AVAILABLE FOR OWNER TO COORDINATE WITH NEARBY RESIDENTS AND/OR BUSINESSES.
15. STAGING AND PARKING AREAS SHALL BE DETERMINED BY THE CONTRACTOR AND APPROVED BEFORE CONSTRUCTION MAY BEGIN.
16. ALL SIGNS AND CHANNELIZING DEVICES SHALL BE NEW OR IN LIKE NEW CONDITION AND SHALL MEET THE RETRO-REFLECTIVITY REQUIREMENTS OF THE MUTCD.
17. A CONTINUOUS ROUTE FOR ALL PEDESTRIANS, INCLUDING THE DISABLED, AND BICYCLISTS SHALL BE MAINTAINED ON ALL LEGS OF THE INTERSECTION AT ALL TIMES WHEN EXISTING FACILITIES ARE DISRUPTED. TEMPORARY FACILITIES SHALL BE DETECTABLE AND INCLUDE ACCESSIBILITY FEATURES CONSISTENT WITH THE ACCESSIBILITY REQUIREMENTS OF THE AMERICANS WITH DISABILITY ACT OF 1990 (ADA). ALL TEMPORARY PEDESTRIAN AND BICYCLE FACILITIES SHALL BE APPROVED BEFORE BEING IMPLEMENTED.
18. ALL DETOURING SHALL BE EQUAL OR GREATER ROAD CLASS. FOR EXAMPLE: LOCAL TO COLLECTOR OR LOCAL TO LOCAL.
19. CONTRACTOR SHALL OBTAIN ROW PERMIT FROM THE CITY OF CLARKSTON.

Consultant: consor

This document, and the ideas and designs incorporated herein, are Instruments of Professional Service of Consor and are not to be used, reused, or modified, in whole or in part, by any other person for any other purpose without the express written authorization of Consor.

Sub Consultant:

Engineer's Seal: ERICW EIMER, STATE OF WASHINGTON, 24010252, REGISTERED PROFESSIONAL ENGINEER, 10/29/2026

Client / Owner: PUD Public Utility District, Asotin County

Project Title:
ASOTIN COUNTY PUD
2027 SEWER MAIN REPLACEMENT

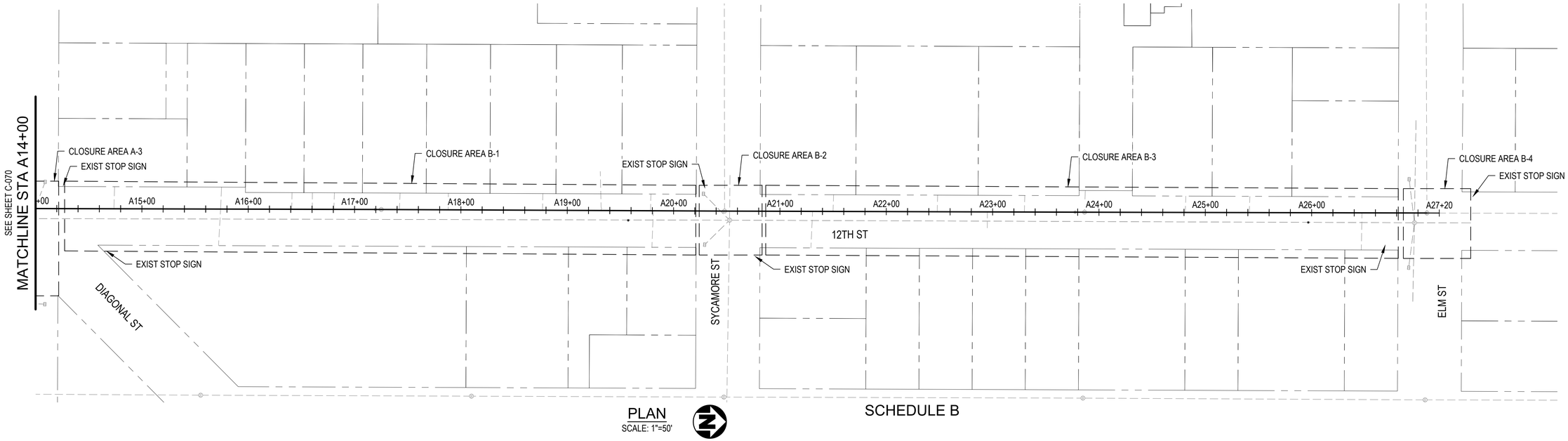
CIVIL
SCHEDULE A

SCHEDULE A - TRAFFIC CONTROL PLAN

Designed By:	EAW
Drawn By:	JSD
Checked By:	WRK
Approved By:	EAW
Consor Project No.:	W221198WA.10
Issued On:	ISSUED DATE
Sheet:	C-070

0 1/2 1 IF BAR DOES NOT MEASURE 1" DRAWING IS NOT TO SCALE

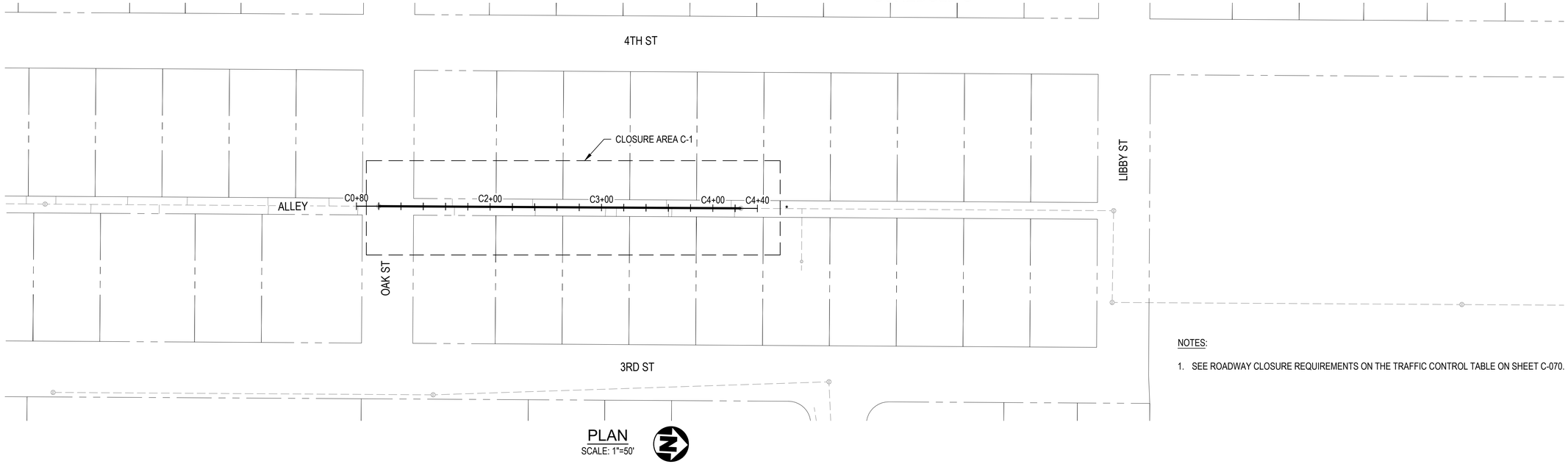
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PLAN
SCALE: 1"=50'

SCHEDULE B

SCHEDULE C



PLAN
SCALE: 1"=50'

NOTES:

1. SEE ROADWAY CLOSURE REQUIREMENTS ON THE TRAFFIC CONTROL TABLE ON SHEET C-070.

Consultant: consor

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Sub Consultant:

Engineer's Seal: ERICH W. EIMER, STATE OF WASHINGTON, 24010254, REGISTERED PROFESSIONAL ENGINEER, 10/29/2026

Client / Owner: PUD Public Utility District, Asotin County

Project Title:
ASOTIN COUNTY PUD
2027 SEWER MAIN REPLACEMENT

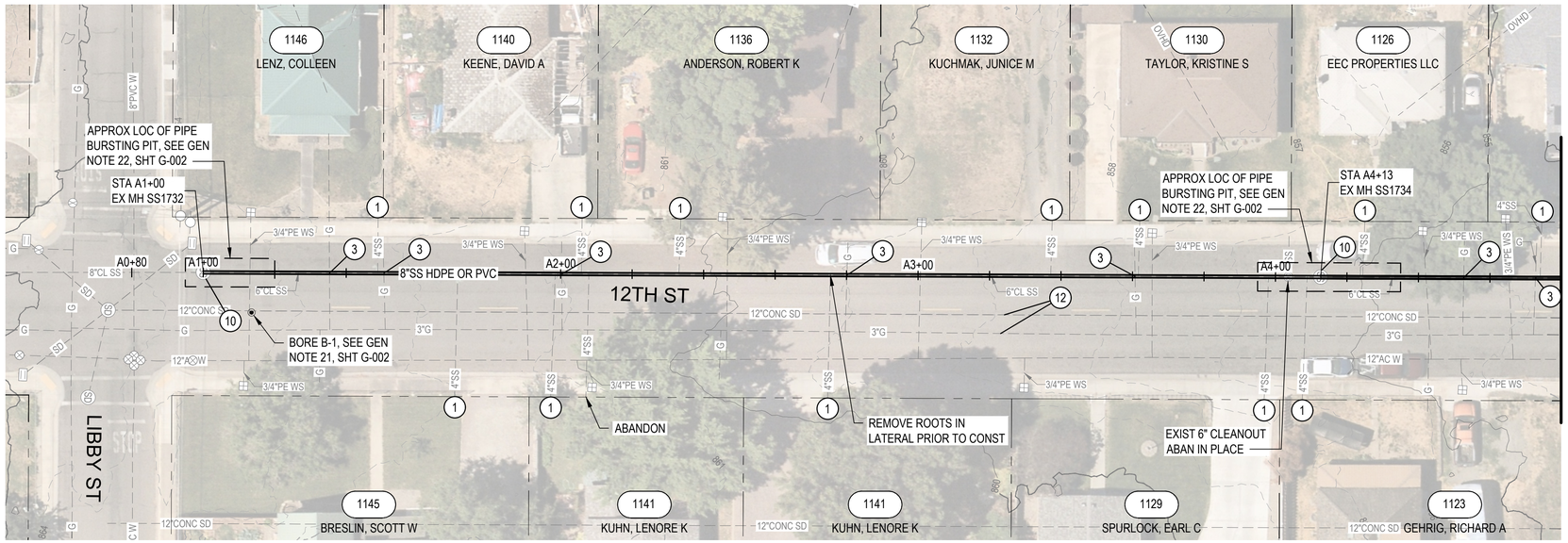
CIVIL
SCHEDULE B & C

SCHEDULE B & C - TRAFFIC CONTROL PLAN

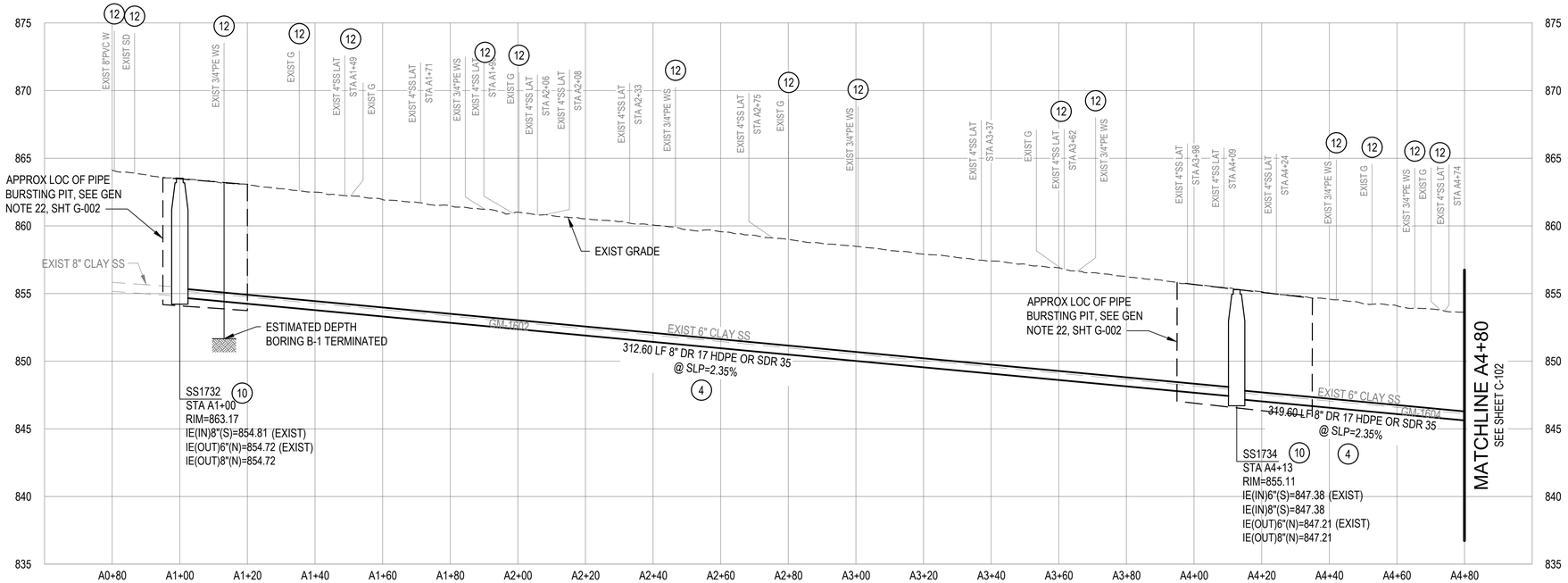
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Drawn By:	JSD
Checked By:	WRK
Approved By:	EAW
Consor Project No.:	W221198WA.10
Issued On:	ISSUED DATE
Sheet:	C-071

0 1/2 1 IF BAR DOES NOT MEASURE 1" DRAWING IS NOT TO SCALE

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PLAN
SCALE: 1"=20'



PROFILE
SCALE: 1"=20' HORIZ, 1"=5' VERT

KEY NOTES

(1) RECONNECT SERVICE CONN AT MAIN. ASOTIN COUNTY PUD STD DWG NO. 2-11 OR 2-12, SEE SHT C-502, FOR OPEN CUT AND PIPE BURSTING REPLACEMENT. SEE KEY NOTE 6 FOR CIPP REHABILITATION SERVICE RECONNECTIONS. PROVIDE PVMT REPAIR AS REQ'D.

(3) FOR PIPE BURSTING REPLACEMENT, CONTR SHALL EXC 1' BELOW DEPTH OF UTILITY TO PROVIDE RELIEF PIT PRIOR TO BURSTING. FOR OPEN CUT REPLACEMENT OR GENERAL EXC, CONTR SHALL POTHOLE UTILITY AND VERIFY LOCATION, MATERIAL AND DEPTH. CONTR SHALL PROTECT UTILITY. FOR ANY ASBESTOS CONC WATER PIPE ENCOUNTERED, CONTR SHALL NOT PRESSURIZE PIPE W/O BACKFILLING THE TRENCH.

(4) CONTR SHALL PROVIDE PIPE BURST OR OPEN CUT REPLACEMENT. CONTR SHALL SURFACE REPAIR PER STD DET 1-4B.

(7) CONN TO EXIST MH PER ASOTIN COUNTY PUD STD DWG NO. 2-13, OR 2-17 (FOR CIPP REHABILITATION), SEE SHT C-502.

(10) DEMO AND REMOVE EXIST MH IN ITS ENTIRETY, FURNISH AND INSTALL NEW 48" MH PER ASOTIN COUNTY PUD STD DWG NO. 2-1A, SHT C-501.

(12) PROTECT IN PLACE.

GENERAL NOTE:

1. FOR OPEN TRENCH CONSTRUCTION, CONTRACTOR TO REPLACE ROADWAY ASPHALT FROM EAST EDGE OF TRENCH TO THE WEST (NEAREST) CURB. CONTRACTOR TO MAINTAIN CLEAN, STRAIGHT, SAW-CUT LINES.

Consultant: consor

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Sub Consultant:

Engineer's Seal: ERIC W EIMER, STATE OF WASHINGTON, 24010254, REGISTERED PROFESSIONAL ENGINEER — 10/29/2026

Client / Owner: PUD Public Utility District, Asotin County

Project Title:

ASOTIN COUNTY PUD
2027 SEWER MAIN REPLACEMENT

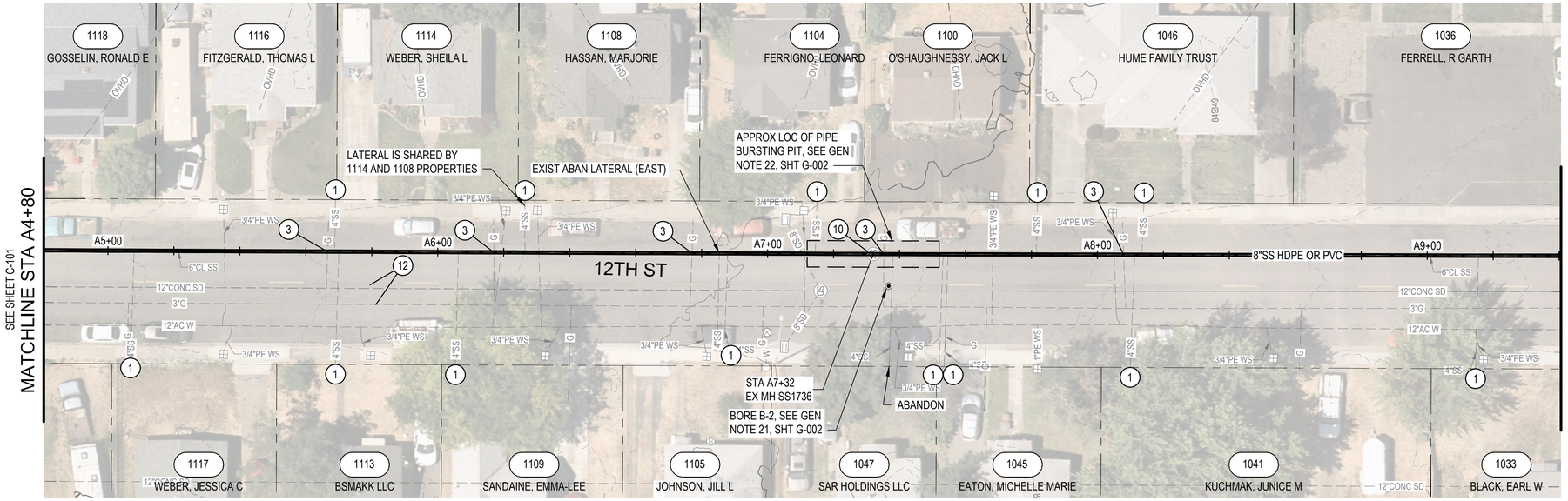
CIVIL
SCHEDULE A

STA A1+00 TO A4+80

Designed By:	EAW
Drawn By:	JSD
Checked By:	WRK
Approved By:	EAW
Consor Project No.:	W221198WA.10
Issued On:	ISSUED DATE
Sheet:	C-101

0 1/2 1 IF BAR DOES NOT MEASURE 1" DRAWING IS NOT TO SCALE

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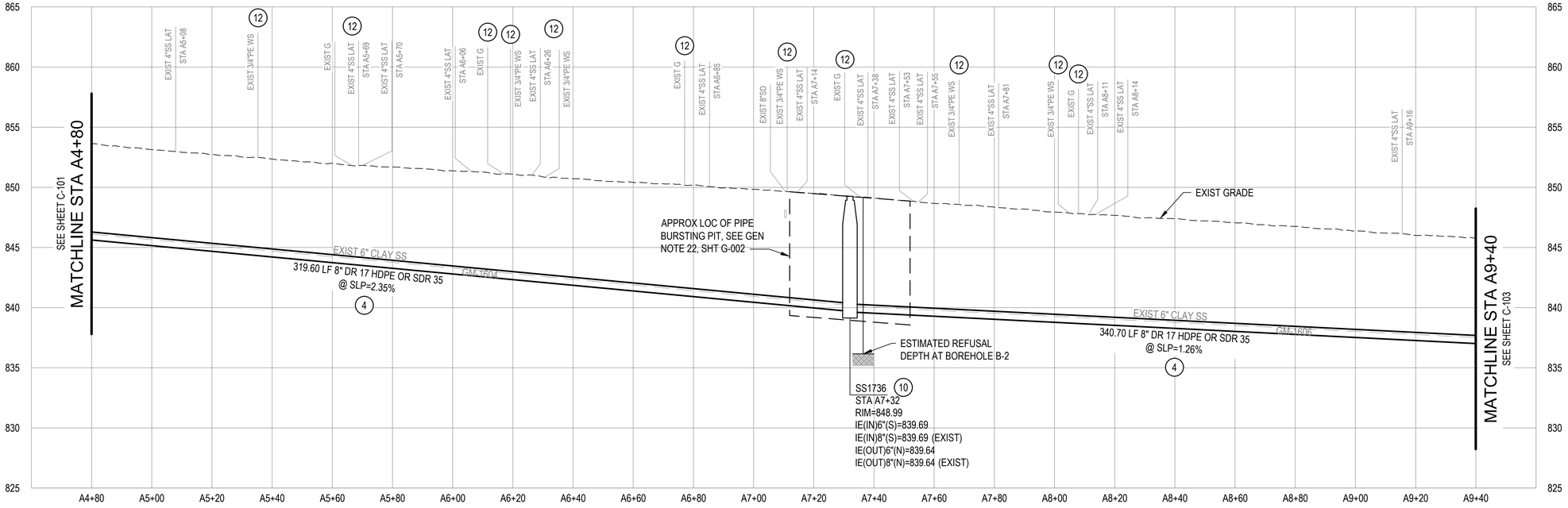
PLAN
SCALE: 1"=20'

KEY NOTES

1. RECONNECT SERVICE CONN AT MAIN. ASOTIN COUNTY PUD STD DWG NO. 2-11 OR 2-12, SEE SHT C-502, FOR OPEN CUT AND PIPE BURSTING REPLACEMENT. SEE KEY NOTE 6 FOR CIPP REHABILITATION SERVICE RECONNECTIONS. PROVIDE PVMT REPAIR AS REQ'D.
3. FOR PIPE BURSTING REPLACEMENT, CONTR SHALL EXC 1' BELOW DEPTH OF UTILITY TO PROVIDE RELIEF PIT PRIOR TO BURSTING. FOR OPEN CUT REPLACEMENT OR GENERAL EXC, CONTR SHALL POTHOLE UTILITY AND VERIFY LOCATION, MATERIAL AND DEPTH. CONTR SHALL PROTECT UTILITY. FOR ANY ASBESTOS CONC WATER PIPE ENCOUNTERED, CONTR SHALL NOT PRESSURIZE PIPE W/O BACKFILLING THE TRENCH.
4. CONTR SHALL PROVIDE PIPE BURST OR OPEN CUT REPLACEMENT. CONTR SHALL SURFACE REPAIR PER STD DET 1-4B.
10. DEMO AND REMOVE EXIST MH IN ITS ENTIRETY, FURNISH AND INSTALL NEW 48" MH PER ASOTIN COUNTY PUD STD DWG NO. 2-1A, SHT C-501.
12. PROTECT IN PLACE.

GENERAL NOTE:

1. FOR OPEN TRENCH CONSTRUCTION, CONTRACTOR TO REPLACE ROADWAY ASPHALT FROM EAST EDGE OF TRENCH TO THE WEST (NEAREST) CURB. CONTRACTOR TO MAINTAIN CLEAN, STRAIGHT, SAW-CUT LINES.



PROFILE
SCALE: 1"=20' HORIZ, 1"=5' VERT

Consultant: consor

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Sub Consultant:

Engineer's Seal: ERIC W EIMER — STATE OF WASHINGTON — 24010254 — REGISTERED PROFESSIONAL ENGINEER — 10/29/2026

Client / Owner: PUD Public Utility District, Asotin County

Project Title:

ASOTIN COUNTY PUD
2027 SEWER MAIN REPLACEMENT

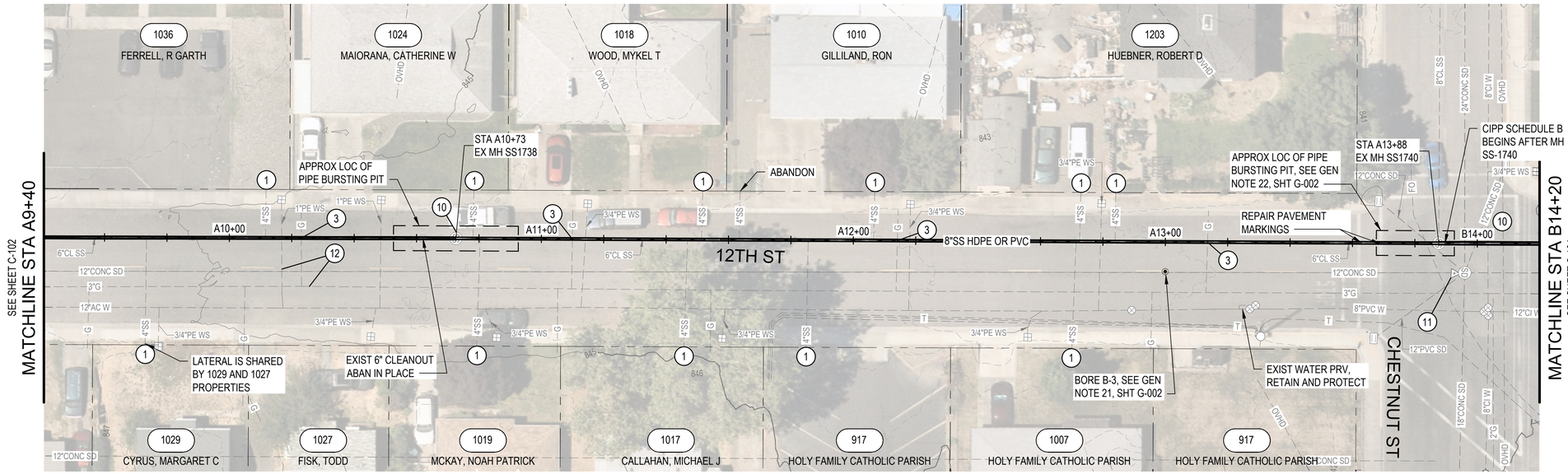
CIVIL
SCHEDULE A

STA A4+80 TO A9+40

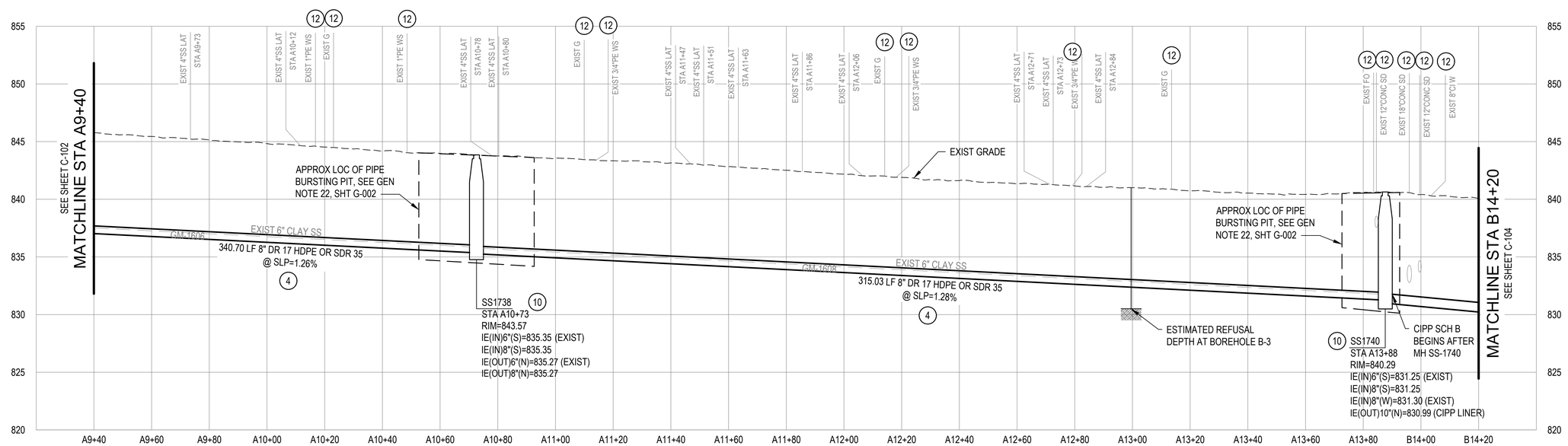
Designed By:	EAW
Drawn By:	JSD
Checked By:	WRK
Approved By:	EAW
Consor Project No.:	W221198WA.10
Issued On:	ISSUED DATE
Sheet:	C-102

0 1/2 1 IF BAR DOES NOT MEASURE 1" DRAWING IS NOT TO SCALE

Drawing Path and Name: A:_V-W\Projects\WA\Asotin County PUD\2022\W221198WA.10\12 CADD\12-5 Sheets\2027 Sewer Sheets\C-102.dwg, Plotted Date: October 16, 2026 4:08 PM By: Eric Weimer



PLAN
SCALE: 1"=20'



PROFILE
SCALE: 1"=20' HORIZ, 1"=5' VERT

KEY NOTES

1. RECONNECT SERVICE CONN AT MAIN. ASOTIN COUNTY PUD STD DWG NO. 2-11 OR 2-12, SEE SHT C-502, FOR OPEN CUT AND PIPE BURSTING REPLACEMENT. SEE KEY NOTE 6 FOR CIPP REHABILITATION SERVICE RECONNECTIONS. PROVIDE PVMT REPAIR AS REQ'D.
3. FOR PIPE BURSTING REPLACEMENT, CONTR SHALL EXC 1' BELOW DEPTH OF UTILITY TO PROVIDE RELIEF PIT PRIOR TO BURSTING. FOR OPEN CUT REPLACEMENT OR GENERAL EXC, CONTR SHALL POTHOLE UTILITY AND VERIFY LOCATION, MATERIAL AND DEPTH. CONTR SHALL PROTECT UTILITY. FOR ANY ASBESTOS CONC WATER PIPE ENCOUNTERED, CONTR SHALL NOT PRESSURIZE PIPE W/O BACKFILLING THE TRENCH.
4. CONTR SHALL PROVIDE PIPE BURST OR OPEN CUT REPLACEMENT. CONTR SHALL SURFACE REPAIR PER STD DET 1-4B.
10. DEMO AND REMOVE EXIST MH IN ITS ENTIRETY, FURNISH AND INSTALL NEW 48" MH PER ASOTIN COUNTY PUD STD DWG NO. 2-1A, SHT C-501.
11. CONTR SHALL RETAIN AND PROTECT MONUMENT.
12. PROTECT IN PLACE.

GENERAL NOTE:

1. FOR OPEN TRENCH CONSTRUCTION, CONTRACTOR TO REPLACE ROADWAY ASPHALT FROM EAST EDGE OF TRENCH TO THE WEST (NEAREST) CURB. CONTRACTOR TO MAINTAIN CLEAN, STRAIGHT, SAW-CUT LINES.

Consultant: consor

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Sub Consultant:

Engineer's Seal: ERIC W EIMER, STATE OF WASHINGTON, 24010252, REGISTERED PROFESSIONAL ENGINEER, 10/29/2026

Client / Owner: PUD Public Utility District, Asotin County

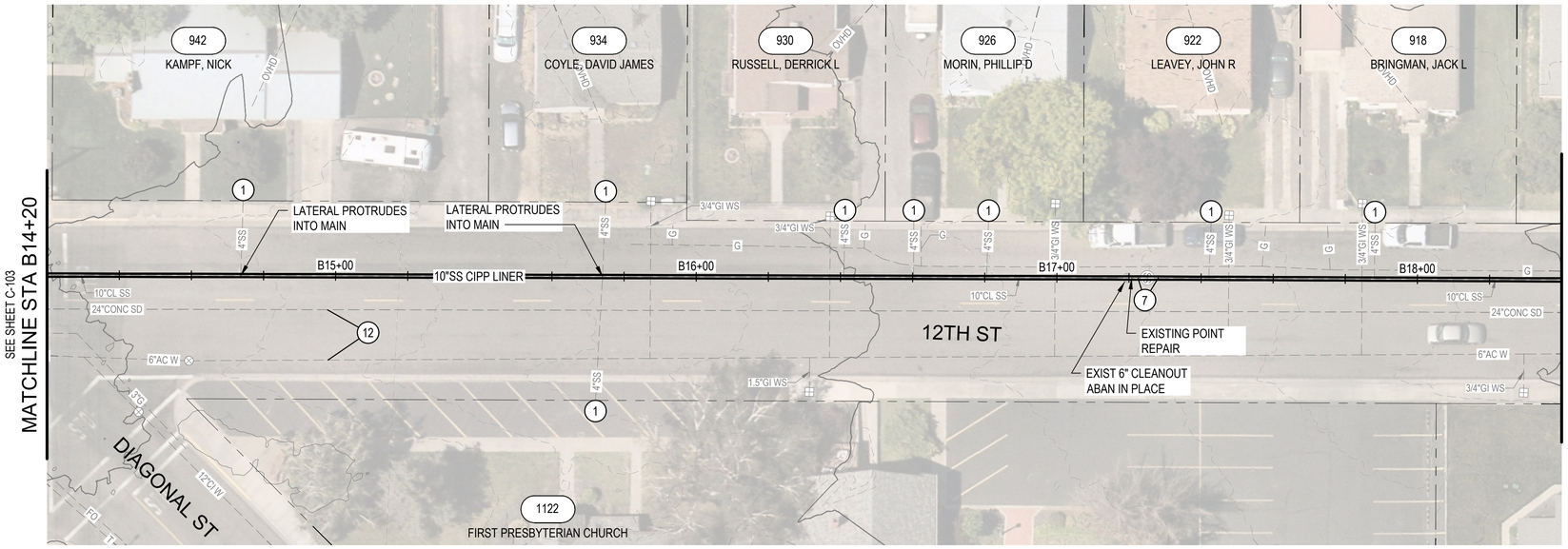
Project Title: ASOTIN COUNTY PUD
2027 SEWER MAIN REPLACEMENT

CIVIL
SCHEDULE A & B

STA A9+40 TO STA B14+20

Designed By: EAW	Consor Project No.: W221198WA.10
Drawn By: JSD	Issued On: ISSUED DATE
Checked By: WRK	Sheet: C-103
Approved By: EAW	0 1/2 1 IF BAR DOES NOT MEASURE 1" DRAWING IS NOT TO SCALE

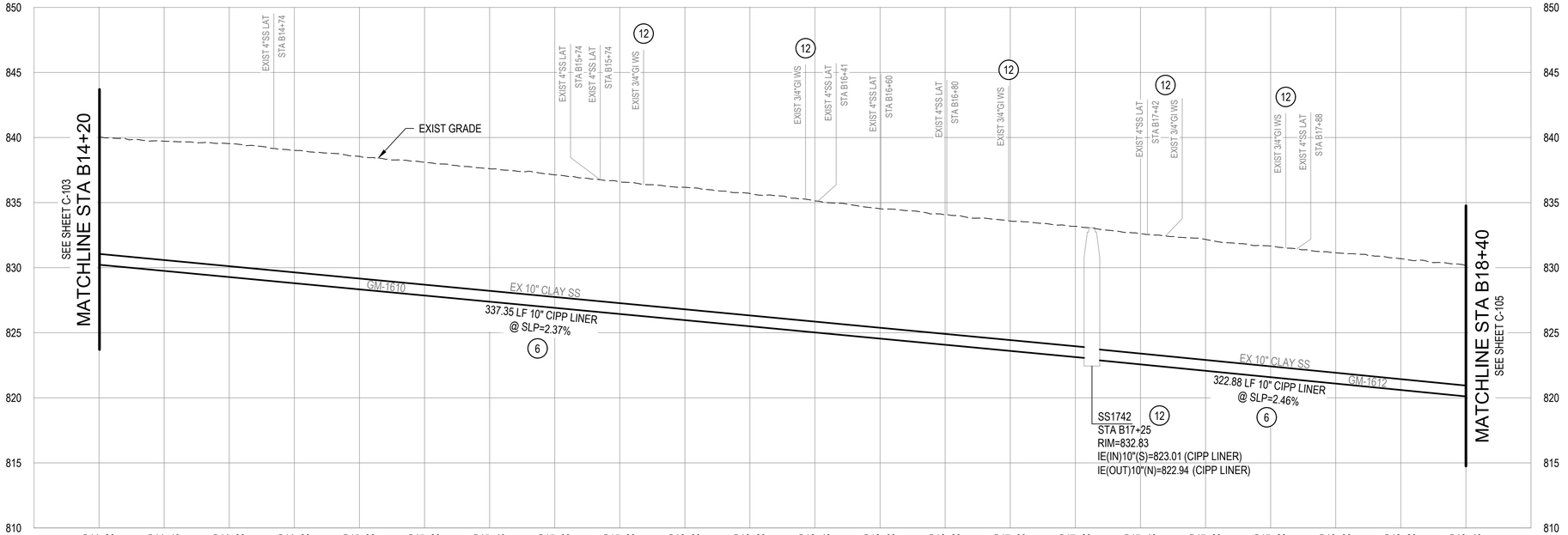
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PLAN
SCALE: 1"=20'

KEY NOTES

1. RECONNECT SERVICE CONN AT MAIN. ASOTIN COUNTY PUD STD DWG NO. 2-11 OR 2-12, SEE SHT C-502, FOR OPEN CUT AND PIPE BURSTING REPLACEMENT. SEE KEY NOTE 6 FOR CIPP REHABILITATION SERVICE RECONNECTIONS. PROVIDE PVMT REPAIR AS REQ'D.
6. CONTR SHALL PROVIDE CIPP REHABILITATION. PROVIDE SERVICE RECONNECTION PER SPECS. SEE ASOTIN COUNTY PUD STD DWG NO. 2-16, SHT C-502.
7. CONN TO EXIST MH PER ASOTIN COUNTY PUD STD DWG NO. 2-13, OR 2-17 (FOR CIPP REHABILITATION), SEE SHT C-502.
12. PROTECT IN PLACE.



PROFILE
SCALE: 1"=20' HORIZ, 1"=5' VERT

Consultant: consor

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Sub Consultant:

Engineer's Seal: ERIC W EIMER, STATE OF WASHINGTON, 24010254, REGISTERED PROFESSIONAL ENGINEER, 10/29/2026

Client / Owner: PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

Project Title:
ASOTIN COUNTY PUD
2027 SEWER MAIN REPLACEMENT

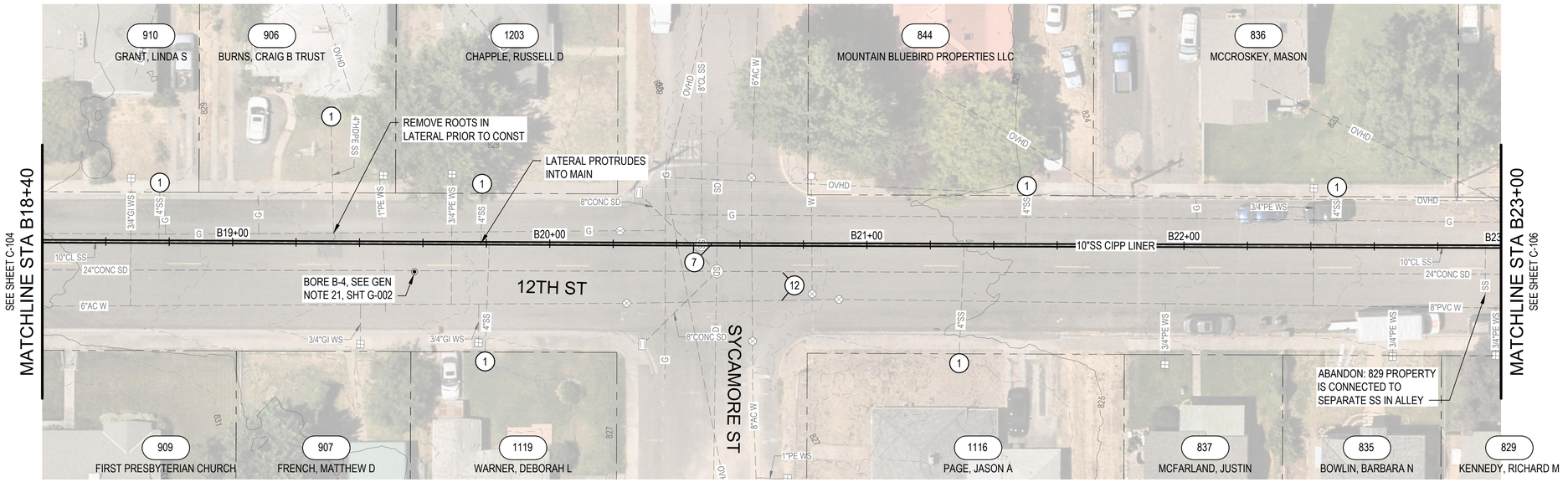
CIVIL
SCHEDULE B

STA B14+20 TO B18+40

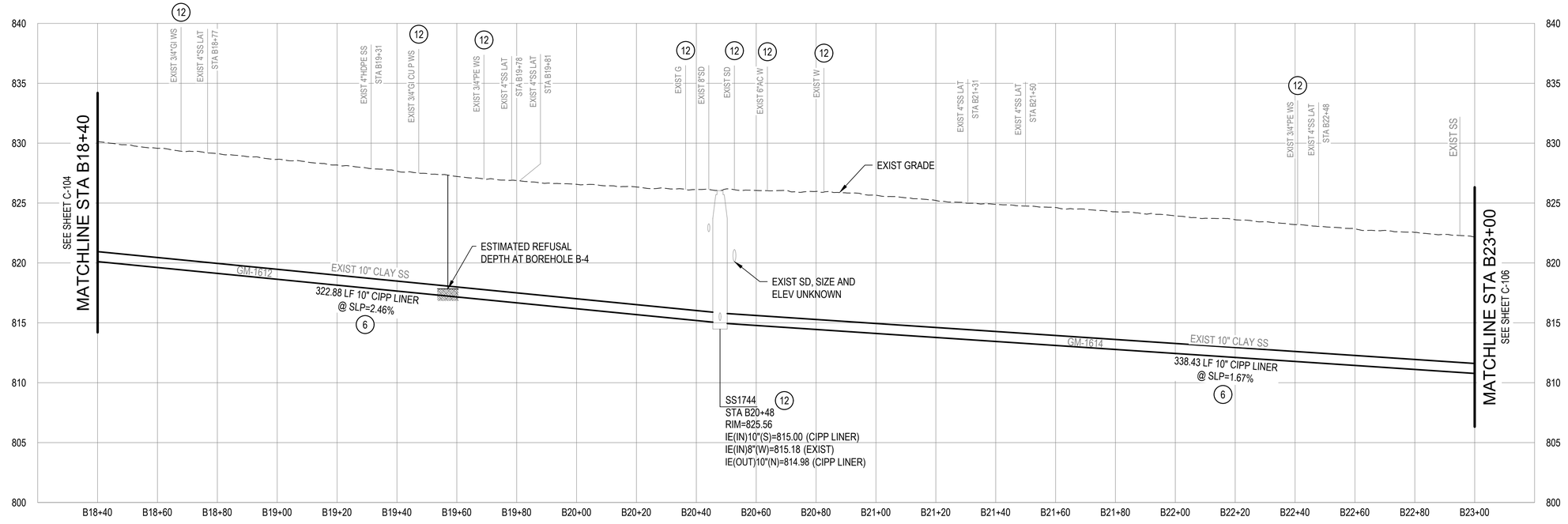
Designed By:	EAW
Drawn By:	JSD
Checked By:	WRK
Approved By:	EAW
Consor Project No.:	W221198WA.10
Issued On:	ISSUED DATE
Sheet:	C-104

0 1/2 1 IF BAR DOES NOT MEASURE 1" DRAWING IS NOT TO SCALE

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PLAN
SCALE: 1"=20'



PROFILE
SCALE: 1"=20' HORIZ, 1"=5' VERT

KEY NOTES

1. RECONNECT SERVICE CONN AT MAIN. ASOTIN COUNTY PUD STD DWG NO. 2-11 OR 2-12, SEE SHT C-502, FOR OPEN CUT AND PIPE BURSTING REPLACEMENT. SEE KEY NOTE 6 FOR CIPP REHABILITATION SERVICE RECONNECTIONS. PROVIDE PVMT REPAIR AS REQ'D.
6. CONTR SHALL PROVIDE CIPP REHABILITATION. PROVIDE SERVICE RECONNECTION PER SPECS. SEE ASOTIN COUNTY PUD STD DWG NO. 2-16, SHT C-502.
7. CONN TO EXIST MH PER ASOTIN COUNTY PUD STD DWG NO. 2-13, OR 2-17 (FOR CIPP REHABILITATION), SEE SHT C-502.
12. PROTECT IN PLACE.

Consultant: consor

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Sub Consultant:

Engineer's Seal: ERIC W ELMER, STATE OF WASHINGTON, 24010254, REGISTERED PROFESSIONAL ENGINEER, 10/29/2026

Client / Owner: Public Utility District, Asotin County

Project Title:
ASOTIN COUNTY PUD
2027 SEWER MAIN REPLACEMENT

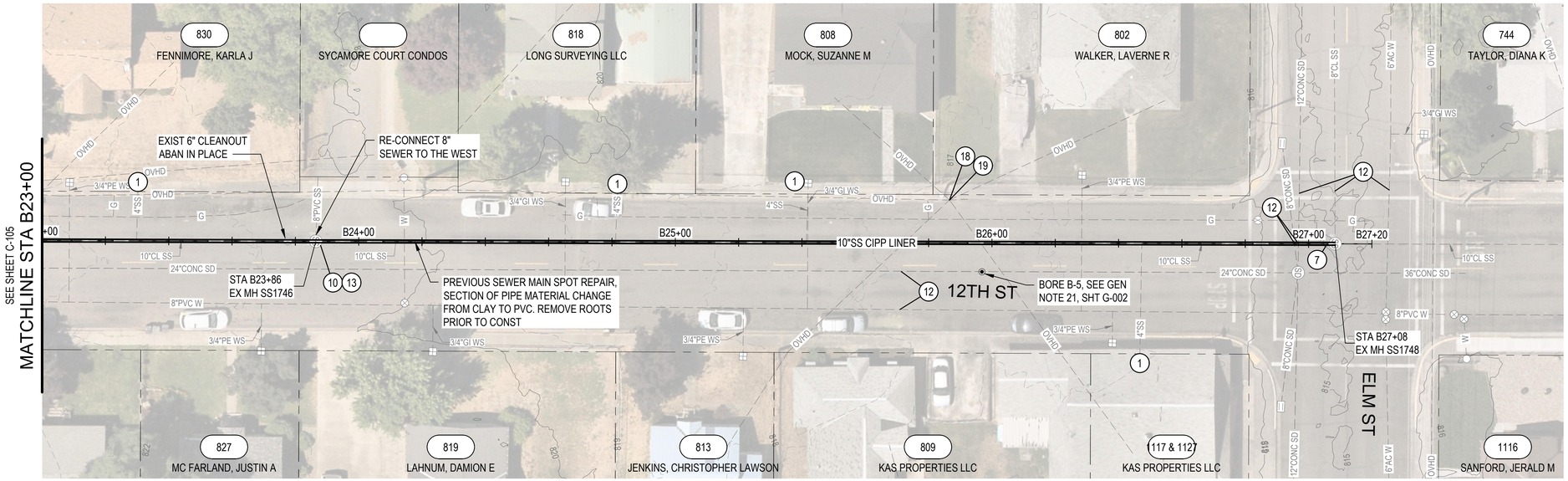
CIVIL
SCHEDULE B

STA B18+40 TO STA B23+00

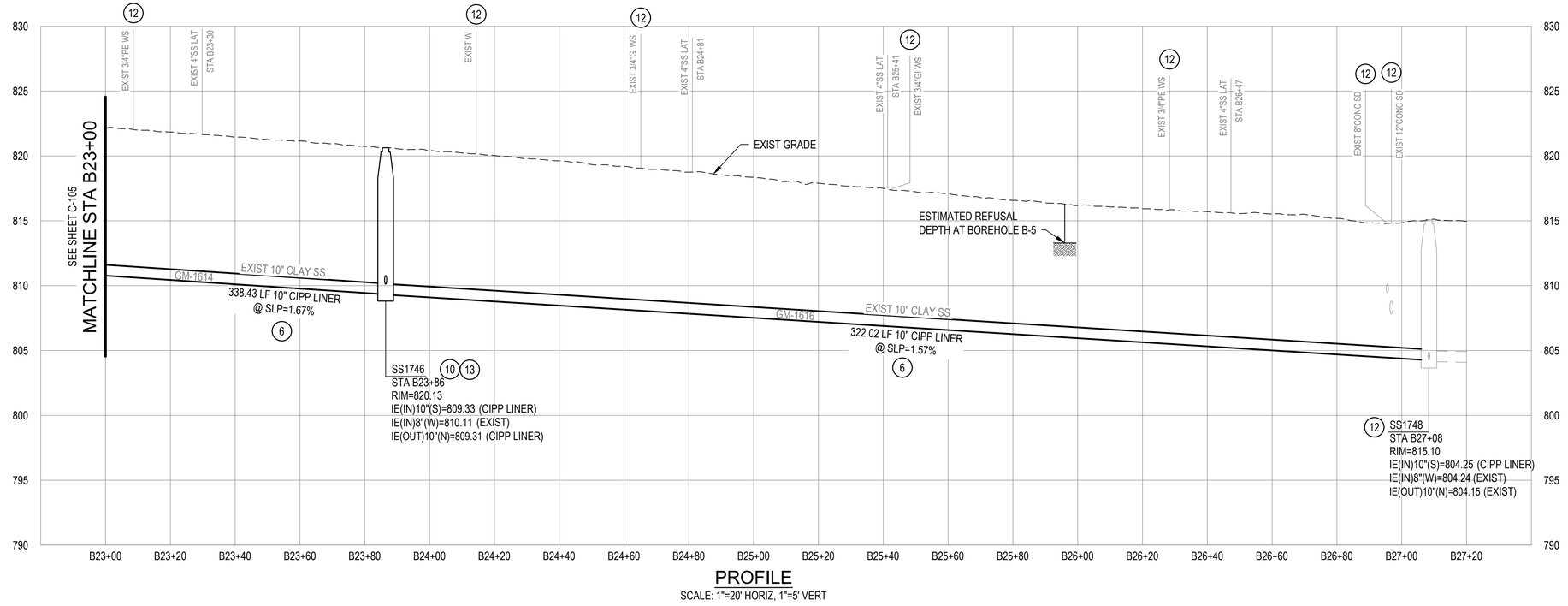
Designed By:	EAW
Drawn By:	JSD
Checked By:	WRK
Approved By:	EAW
Consor Project No.:	W221198WA.10
Issued On:	ISSUED DATE
Sheet:	C-105

0 1/2 1 IF BAR DOES NOT MEASURE 1" DRAWING IS NOT TO SCALE

Drawing Path and Name: A:_V-W\Projects\WA\Asotin County PUD\2022\W221198WA.10\12 CADD\12-5 Sheets\2027 Sewer Sheets\C-105.dwg, Plotted Date: October 13, 2026 9:55 AM By: Justin Deuel



PLAN
SCALE: 1"=20'



PROFILE
SCALE: 1"=20' HORIZ, 1"=5' VERT

KEY NOTES

1. RECONNECT SERVICE CONN AT MAIN. ASOTIN COUNTY PUD STD DWG NO. 2-11 OR 2-12, SEE SHT C-502, FOR OPEN CUT AND PIPE BURSTING REPLACEMENT. SEE KEY NOTE 6 FOR CIPP REHABILITATION SERVICE RECONNECTIONS. PROVIDE PVMT REPAIR AS REQ'D.
6. CONTR SHALL PROVIDE CIPP REHABILITATION. PROVIDE SERVICE RECONNECTION PER SPECS. SEE ASOTIN COUNTY PUD STD DWG NO. 2-16, SHT C-502.
7. CONN TO EXIST MH PER ASOTIN COUNTY PUD STD DWG NO. 2-13, OR 2-17 (FOR CIPP REHABILITATION), SEE SHT C-502.
10. DEMO AND REMOVE EXIST MH IN ITS ENTIRETY, FURNISH AND INSTALL NEW 48" MH PER ASOTIN COUNTY PUD STD DWG NO. 2-1A, SHT C-501.
12. PROTECT IN PLACE.
13. CONTR SHALL FURNISH NEW SDR 35 PVC FOR THE NEW MH (INCLUDING IN MH PRICE) AND CONN TO EXIST PIPE PER ASOTIN COUNTY STD DWG NO. 2-18.
18. EXIST LOW OVHD POWERLINES.
19. OVHD POWER INFORMATION SOURCED FROM AVISTA MAY NOT MATCH EXIST POWER POLE GIS INFROMATION. CONTR SHALL VERIFY EXIST CONDITIONS ON SITE PRIOR TO CONST.

Consultant: consor

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Sub Consultant:

Engineer's Seal: ERIC W ELMER, STATE OF WASHINGTON, 24010254, REGISTERED PROFESSIONAL ENGINEER, 10/29/2026

Client / Owner: PUD Public Utility District, Asotin County

Project Title:

ASOTIN COUNTY PUD
2027 SEWER MAIN REPLACEMENT

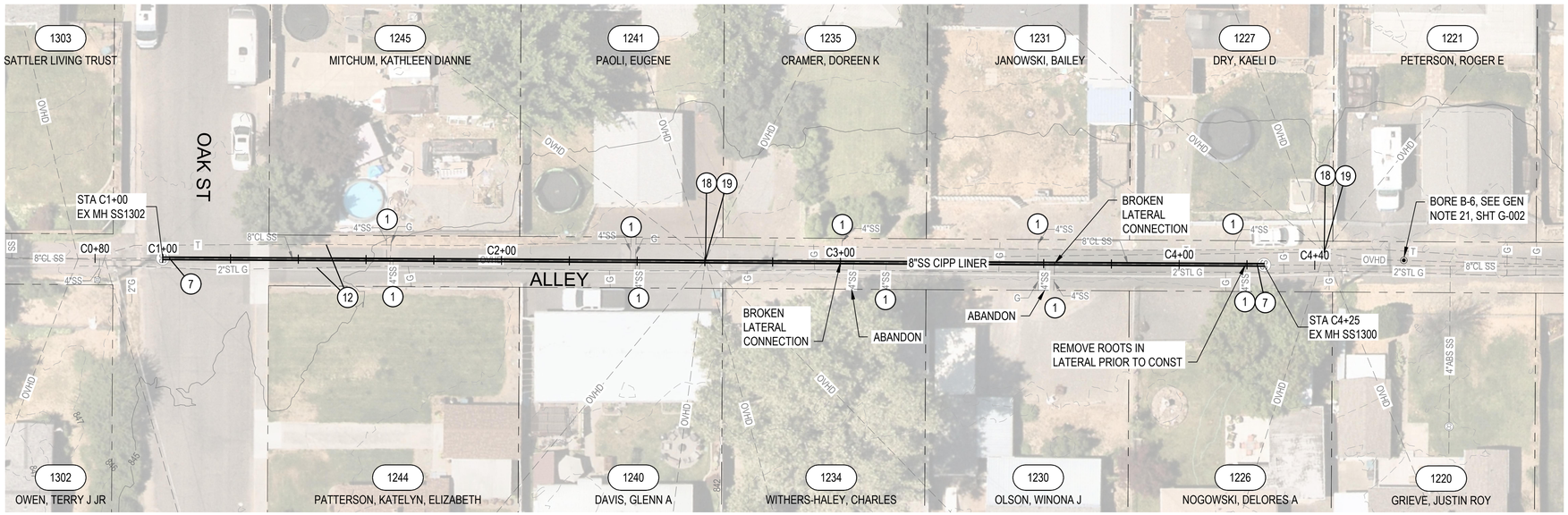
CIVIL
SCHEDULE B

STA B23+00 TO STA B27+20

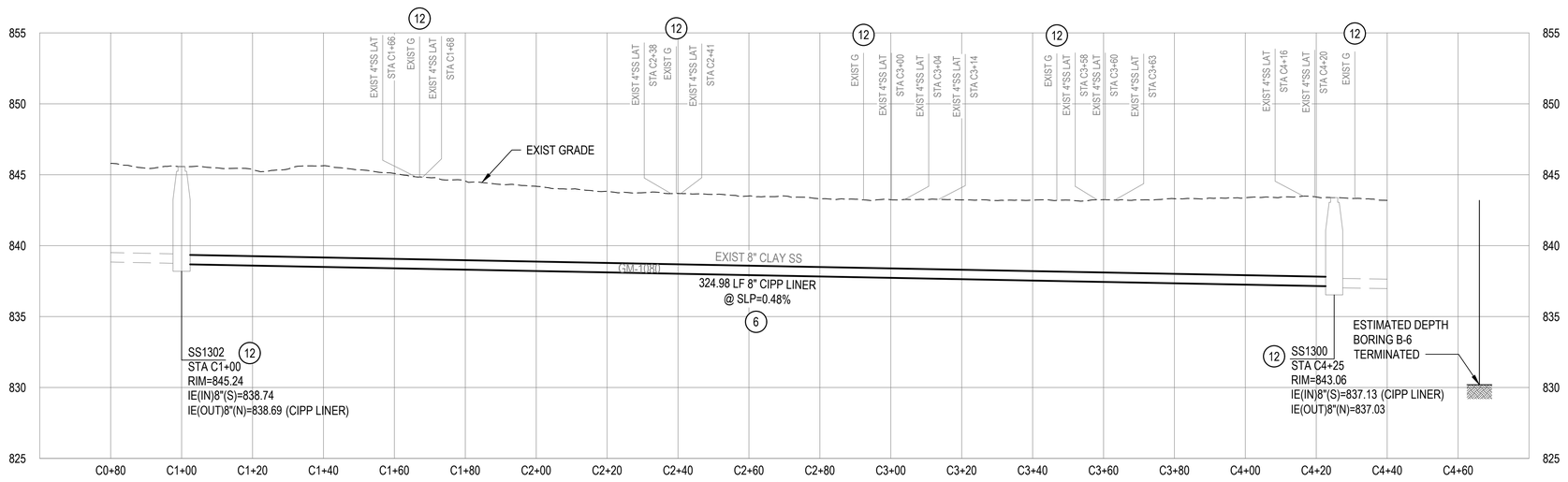
Designed By:	EAW
Drawn By:	JSD
Checked By:	WRK
Approved By:	EAW
Consor Project No.:	W221198WA.10
Issued On:	ISSUED DATE
Sheet:	C-106

0 1/2 1 IF BAR DOES NOT MEASURE 1" DRAWING IS NOT TO SCALE

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PLAN
SCALE: 1"=20'



PROFILE
SCALE: 1"=20' HORIZ, 1"=5' VERT

KEY NOTES

1. RECONNECT SERVICE CONN AT MAIN. ASOTIN COUNTY PUD STD DWG NO. 2-11 OR 2-12, SEE SHT C-502, FOR OPEN CUT AND PIPE BURSTING REPLACEMENT. SEE KEY NOTE 6 FOR CIPP REHABILITATION SERVICE RECONNECTIONS. PROVIDE PVMT REPAIR AS REQ'D.
6. CONTR SHALL PROVIDE CIPP REHABILITATION. PROVIDE SERVICE RECONNECTION PER SPECS. SEE ASOTIN COUNTY PUD STD DWG NO. 2-16, SHT C-502.
7. CONN TO EXIST MH PER ASOTIN COUNTY PUD STD DWG NO. 2-13, OR 2-17 (FOR CIPP REHABILITATION), SEE SHT C-502.
12. PROTECT IN PLACE.
18. EXIST LOW OVHD POWERLINES.
19. OVHD POWER INFORMATION SOURCED FROM AVISTA MAY NOT MATCH EXIST POWER POLE GIS INFORMATION. CONTR SHALL VERIFY EXIST CONDITIONS ON SITE PRIOR TO CONST.

Consultant: consor

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Sub Consultant:

Engineer's Seal: ERICW EIMER, STATE OF WASHINGTON, 24010252, REGISTERED PROFESSIONAL ENGINEER, 10/29/2026

Client / Owner: PUD PUBLIC UTILITY DISTRICT ASOTIN COUNTY

Project Title:
ASOTIN COUNTY PUD
2027 SEWER MAIN REPLACEMENT

CIVIL
SCHEDULE C

STA C1+00 TO STA C4+40

Designed By: EAW	Consor Project No.: W221198WA.10
Drawn By: JSD	Issued On: ISSUED DATE
Checked By: WRK	Sheet: C-110
Approved By: EAW	0 1/2 1 IF BAR DOES NOT MEASURE 1" DRAWING IS NOT TO SCALE

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NOTES:

1. ALL WORK SHALL COMPLY WITH ASOTIN COUNTY PUD STANDARD SPECIFICATIONS AND DETAILS.
2. ALL WORK SHALL BE SUBJECT TO INSPECTION PER SPECIFICATION SECTION 103.
3. BMPS AND EROSION CONTROL SHALL BE USED THROUGHOUT THE PROJECT AREA AS REQUIRED BY ASOTIN COUNTY AND CITY OF CLARKSTON.
4. CONTRACTOR IS RESPONSIBLE FOR TRAFFIC CONTROL, SHUTDOWN RESTRICTIONS TO CRITICAL FACILITIES, AND PERMITTING REQUIREMENTS FOR ASOTIN COUNTY AND CITY OF CLARKSTON.
5. RETAIN AND PROTECT ALL EXISTING UTILITIES. PRIVATE UTILITIES (PHONE, GAS, POWER) THAT REQUIRE RELOCATION FOR PROPOSED IMPROVEMENTS SHALL BE COMPLETED THROUGH COORDINATION WITH THE PRIVATE UTILITY.
6. RETAIN AND PROTECT EXISTING FENCES, RETAINING WALLS, DRIVEWAYS, LANDSCAPE AREAS, AND VEGETATION TO THE GREATEST EXTENT POSSIBLE. REPAIR SURFACES (LANDSCAPE, CONCRETE, ASPHALT, ETC.) TO RETURN ALL AREAS TO EXISTING CONDITIONS PER SPECIFICATION SECTION 110.
7. CONTRACTOR SHALL NOTIFY ASOTIN COUNTY PUD REPRESENTATIVE FOR ACCEPTANCE INSPECTION AND TO OBTAIN GPS SURVEY INFORMATION ON ALL MANHOLES, BENDS, FITTINGS, VALVES, METERS, TAPPING SADDLES, SEWER STUBS, WATER SERVICES, AND CLEAN OUTS PRIOR TO BACKFILLING.
8. THE EXISTING UTILITY PIPE SIZE, TYPE, LOCATION, AND ELEVATION ARE APPROXIMATE. EXISTING UTILITIES WERE LOCATED FROM SURVEYED FIELD MARKINGS OR OTHER MARKINGS PROVIDED BY PUD. EXACT LOCATION MAY VARY FROM THAT SHOWN. CONTRACTOR TO POTHOLE AND FIELD VERIFY SIZE, TYPE, AND LOCATION OF ALL EXISTING UTILITIES PRIOR TO EXCAVATION. IF EXISTING UTILITIES ARE IN CONFLICT WITH NEW UTILITIES, CONTRACTOR SHALL CONTACT PUD REGARDING MINOR REALIGNMENT. COSTS FOR MINOR ADJUSTMENTS TO BE INCLUDED IN CONTRACTOR'S UNIT PRICES.
9. WATER MAINS SHALL BE ABANDONED PER SPECIFICATION SECTION 102.
10. ALL WATER MAINS SHALL BE PRESSURE TESTED AND DISINFECTED PER SPECIFICATION SECTION 300.
11. ALL WATER SERVICES AND EXISTING WATER MAINS SHALL BE LEFT IN SERVICE UNTIL THE NEW WATER MAIN IS TESTED AND ACCEPTED BY THE PUD. COORDINATE ALL WATER MAIN AND SERVICE SHUTDOWNS WITH ASOTIN COUNTY PUD. A MINIMUM 72-HOUR ADVANCED NOTICE PRIOR TO SHUTDOWN IS REQUIRED.
12. CONTRACTOR IS RESPONSIBLE FOR DISPOSING OF FLUSHING AND TESTING WATER.
13. CONTRACTOR SHALL POTHOLE AND FIELD VERIFY DEPTH OF EXISTING WATER MAIN AND UTILITIES. ADJUST GRADE ACCORDINGLY TO COMPLETE CONNECTION.
14. DEFLECT PIPE AND FITTING JOINTS AS REQUIRED TO ACHIEVE ALIGNMENT SHOWN. MAXIMUM PIPE JOINT DEFLECTION SHALL NOT EXCEED 50% OF THE MANUFACTURER'S ALLOWABLE JOINT DEFLECTION.
15. WATER MAIN DEPTH AND COVER SHALL BE A MINIMUM OF 4' MEASURED TO TOP OF PIPE FROM FINISH GRADE, UNLESS OTHERWISE SHOWN IN THE DRAWINGS.

PUBLIC UTILITY DISTRICT ASOTIN COUNTY

GENERAL NOTES

REVISION DATE:	STD DWG NO.
JANUARY 2022	1-0A

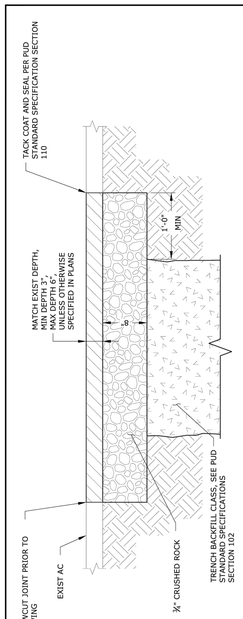
NOTES:

1. IF UNABLE TO ACHIEVE 18" VERTICAL OR 10' HORIZONTAL SEPARATION BETWEEN POTABLE AND NON-POTABLE PIPELINES, INSTALL POTABLE PIPELINE IN CASING PER SPECIFICATION SECTION 120.
2. TRENCH BACKFILL SHALL BE TYPE B PER SPECIFICATION SECTION 102 AND STANDARD DRAWING 1-6, UNLESS OTHERWISE SHOWN IN THE DRAWINGS. ALL MATERIAL SHALL BE DRY AND NOT FROZEN.
3. EXCAVATIONS SHALL NOT BE LEFT UNATTENDED.
4. AT THE END OF EACH WORK DAY ALL OPEN TRENCHES SHALL BE BACKFILLED OR TEMPORARILY COVERED AND OPEN PIPE ENDS SHALL BE CLOSED WITH A WATERTIGHT MECHANICAL PLUG.
5. CONTRACTOR TO MAINTAIN INGRESS/EGRESS FROM ALL PRIVATE PROPERTY DRIVEWAYS DURING CONSTRUCTION.
6. GRIP RING PIPE RESTRAINER IS REQUIRED AT ALL MJ FITTINGS PER SPECIFICATION SECTION 301.
7. INSTALL THRUST BLOCKS AS SHOWN IN THE DRAWINGS AND WHERE REQUIRED PER SPECIFICATIONS AND STANDARD DRAWINGS 3-8A, 3-8B, AND 3-8C.
8. STREET REPAIR SECTION PER STANDARD DRAWINGS 1-4A,1-4B, 1-4C, 1-8A, 1-8B AS INDICATED ON DRAWINGS OR AS DIRECTED BY THE PUD.

PUBLIC UTILITY DISTRICT ASOTIN COUNTY

GENERAL NOTES CONT.

REVISION DATE:	STD DWG NO.
JANUARY 2022	1-0B



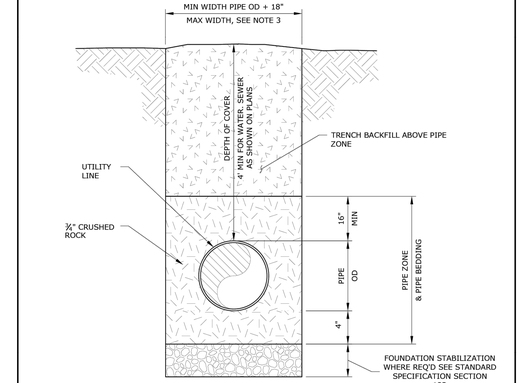
NOTES:

1. COMPLY WITH PUD STANDARD SPECIFICATION SECTION 110, PAVEMENT AND SURFACE RESTORATION.
2. SAWCUT LOCATIONS SHOWN ARE AT MINIMUM SETBACK FROM TRENCH EDGE. ADJUST LOCATION TO MAKE CUTS STRAIGHT AND WITHIN 3' TO THE EDGE OF PAVING OR AS REQUIRED TO REMOVE PAVEMENT DAMAGED BY CONSTRUCTION ACTIVITIES.

PUBLIC UTILITY DISTRICT ASOTIN COUNTY

CITY OF CLARKSTON STREET REPAIR - AC TYPE "B"

REVISION DATE:	STD DWG NO.
JANUARY 2022	1-4B



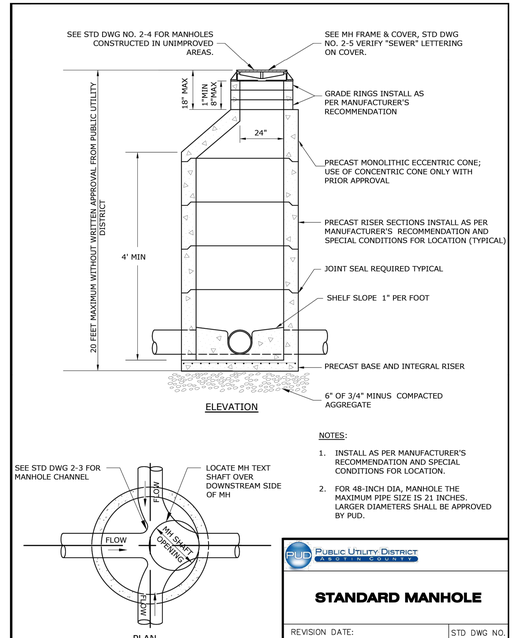
NOTES:

1. CONTRACTOR SHALL PROTECT PIPE DURING COMPACTION TESTING. PROVIDE MINIMUM 16" COMPACTED MATERIAL ABOVE PIPE PRIOR TO COMPACTION TESTING. CONTRACTOR RESPONSIBLE FOR ANY REQ'D REPAIR DUE TO DAMAGE FROM TESTING INSTRUMENTS.
2. CONTRACTOR SHALL COMPACT PIPE BEDDING, PIPE ZONE, AND TRENCH BACKFILL PER SPECIFICATION SECTION 102.
3. TRENCH MAXIMUM WIDTH TO BE PIPE O.D. PLUS 24". FOR PIPE 14" DIA OR SMALLER, MAX WIDTH TO BE 40".
4. HAND TAMP UNDER PIPE HAUNCHES AND PROVIDE UNIFORM SUPPORT UNDER PIPE BARREL.

PUBLIC UTILITY DISTRICT ASOTIN COUNTY

TYPICAL TRENCH

REVISION DATE:	STD DWG NO.
JANUARY 2022	1-6



ELEVATION

PLAN

NOTES:

1. INSTALL AS PER MANUFACTURER'S RECOMMENDATION AND SPECIAL CONDITIONS FOR LOCATION.
2. FOR 48-INCH DIA, MANHOLE THE MAXIMUM PIPE SIZE IS 21 INCHES. LARGER DIAMETERS SHALL BE APPROVED BY PUD.

PUBLIC UTILITY DISTRICT ASOTIN COUNTY

STANDARD MANHOLE

REVISION DATE:	STD DWG NO.
JANUARY 2022	2-1A

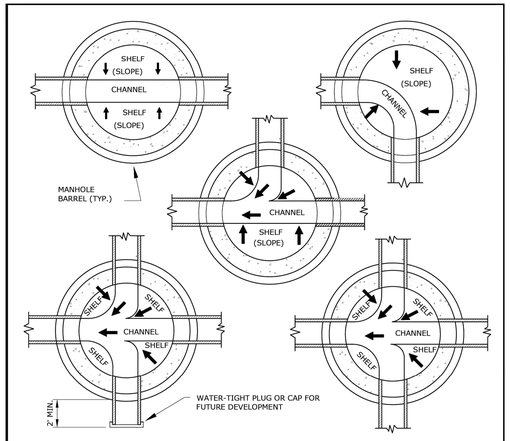
NOTES:

1. ALL UNITS TO MEET OR EXCEED THE REQUIREMENTS OF ASTM C478/AASHTO M199. JOINTS SHALL BE RUBBER GASKET CONFORMING TO ASTM C443 AND SHALL BE GROUTED FROM THE INSIDE. LIFT HOLES SHALL BE GROUTED FROM THE OUTSIDE AND INSIDE OF THE MANHOLE.
2. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" INCHES MINIMUM.
3. RISERS, UNIT SECTIONS AND THE FRAME SHALL NOT BE MORE THAN ONE INCH OUT OF ALIGNMENT WITH THE MANHOLE BASE; PIPES SHALL BE FLUSH WITH INSIDE EDGE OF MANHOLE.
4. ADJUSTMENT RINGS SHALL MEET ASTM C478 USE NON-SHRINK GROUT TO SET AND SEAL, MINIMUM ½ INCH OF NON-SHRINK GROUT BETWEEN ONE AND RING(S). PROVIDE SMOOTH FINISH ON INTERIOR OF RINGS.
5. ALL MANHOLE JOINTS SHALL BE MADE WITH CONTINUOUS FLEXIBLE RUBBER MANHOLE GASKET.
6. MANHOLES IN AREAS OF HIGH GROUNDWATER WILL HAVE THE EXTERIOR SURFACE OF MANHOLE TO HAVE EXTENDED BASE FOR ANTI-FLOTATION, SIZE FOR SITE CONDITIONS. THE MANHOLE COATED WITH WATERPROOF MEMBRANE. JOINTS SHALL BE FURTHER SEALED WITH 12 INCH WIDE 'BESTSEAL WRAP' JOINT SEALANT FROM BESTFITT GASKET CO.
7. CONNECTION TO MANHOLE SHALL BE MADE USING RESILIENT CONNECTOR CONFORMING TO ASTM C923 SUCH AS KOR-N-SEAL, A-LOK OR APPROVED EQUAL.
8. WHERE CONCRETE OR DUCTILE IRON PIPE IS USED, STANDARD COUPLINGS SHALL BE PROVIDED FOR FLEXIBLE CONNECTIONS TO MANHOLE.
9. FOR A 48-INCH DIAM. MANHOLE THE MAXIMUM PIPE SIZE ALLOWABLE IS 21 INCHES. PIPE DIAMETERS LARGER THAN 21 INCHES MUST BE APPROVED BY THE PUD.
10. FOR UNIMPROVED AREAS, CONSTRUCT MANHOLE LID 6 INCHES ABOVE EXISTING GROUND IN AREAS OUTSIDE HARDSCAPE SURFACING UNLESS APPROVED BY PUD. PROVIDE CONCRETE COLLAR PER STANDARD DRAWING NO. 2-4.
11. TESTING IS REQUIRED FOR ALL INSTALLATIONS.

PUBLIC UTILITY DISTRICT ASOTIN COUNTY

STANDARD MANHOLE NOTES

REVISION DATE:	STD DWG NO.
JANUARY 2022	2-1C



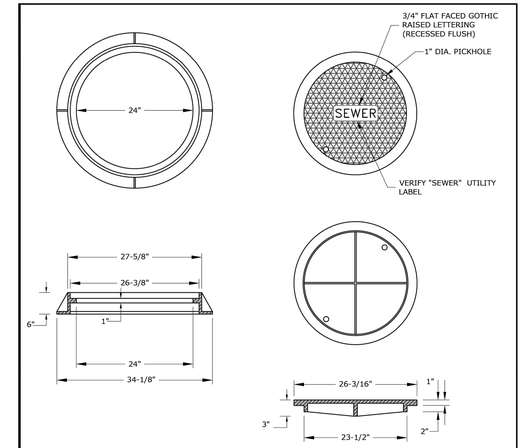
NOTES:

1. SLOPE ALL SHELVES TO CHANNEL AT 1:12.
2. SEE PLAN & PROFILE SHEETS FOR SLOPE OF CHANNEL.
3. FOR PIPES OF DIFFERENT SIZES, THE TOP OF PIPE (CROWN) SHALL BE AT THE SAME ELEVATION.
4. PROVIDE MINIMUM 0.1 FOOT IN-OUT DROP FOR STRAIGHT RUNS AND 0.2 FOOT IN-OUT DROP FOR ALL THE RUNS. PROVIDE 0.1 FOOT IN-OUT DROP FOR STRAIGHT RUNS, 0.2 FOOT IN-OUT DROP FOR 1 SIDE CHANNEL AND 0.3 FOOT IN-OUT DROP FOR 2 SIDE CHANNELS.

PUBLIC UTILITY DISTRICT ASOTIN COUNTY

STANDARD MANHOLE CHANNEL

REVISION DATE:	STD DWG NO.
JANUARY 2022	2-3



NOTES:

1. MANHOLE FRAME AND COVER D&L FOUNDRY A-2004 OR APPROVED EQUAL VERIFY "SEWER" UTILITY LABEL LETTERING ON COVER.
2. COVER MATERIAL SPECIFICATION GRAY IRON (ASTM A48 CL35B)

PUBLIC UTILITY DISTRICT ASOTIN COUNTY

MANHOLE FRAME AND COVER

REVISION DATE:	STD DWG NO.
JANUARY 2022	2-5

Consultant: consor

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Sub Consultant:

Engineer's Seal: ERIC W. EIMER, STATE OF WASHINGTON, 24010254, REGISTERED PROFESSIONAL ENGINEER, 10/29/2026

Client / Owner: PUBLIC UTILITY DISTRICT ASOTIN COUNTY

Project Title:

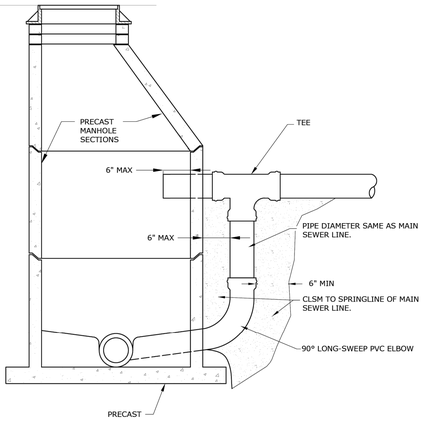
ASOTIN COUNTY PUD
2027 SEWER MAIN REPLACEMENT

CIVIL

DETAILS

Designed By: EAW	Consor Project No.: W221198WA.10
Drawn By: JSD	Issued On: ISSUED DATE
Checked By: WRK	Sheet: C-501
Approved By: EAW	0 1/2 1 IF BAR DOES NOT MEASURE 1" DRAWING IS NOT TO SCALE

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MANHOLE SECTION

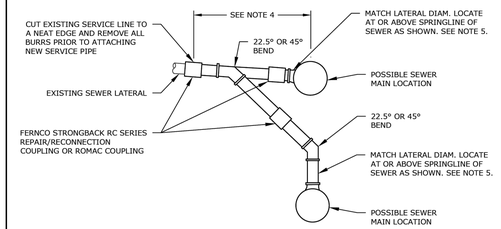
NOTES:

1. AN OUTSIDE DROP CONNECTION IS REQUIRED FOR A SEWER ENTERING A MANHOLE AT AN ELEVATION OF 24 INCHES OR MORE ABOVE THE MANHOLE.

PUBLIC UTILITY DISTRICT ASOTIN COUNTY

MANHOLE DROP EXTERIOR

REVISION DATE:	STD DWG NO.
JANUARY 2022	2-6



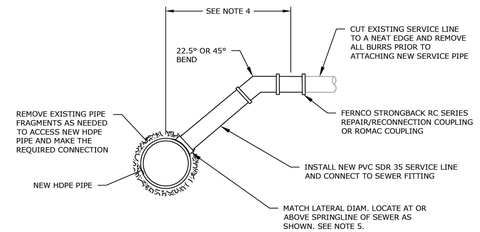
NOTES:

1. IF SEWER LATERAL IS DAMAGED OR HAS TO BE RELOCATED DURING CONSTRUCTION, RELOCATE/REPAIR SEWER PIPE AND RECONNECT USING A FERNCO RC SERIES STRONGBACK COUPLING OR ROMAC COUPLING.
2. INSPECTION OF WORK IS REQUIRED AND MUST BE APPROVED BY THE PUD.
3. SEWER LATERAL PIPE SHALL BE SDR-35 AND JOINTS SHALL BE GASKETED.
4. CONNECTION TO THE EXISTING LATERAL SHALL BE WITHIN 5 FEET MAX FROM THE CENTERLINE OF PIPE.
5. SEWER LATERAL CONNECTION TO BE WYE OR ROMAC CB FOR PVC MAINLINE, INSERTA TEE OR FUSION COUPLING FOR HDPE MAINLINE.

PUBLIC UTILITY DISTRICT ASOTIN COUNTY

SEWER LATERAL RELOCATION/ RECONNECTION

REVISION DATE:	STD DWG NO.
NOVEMBER 2025	2-11



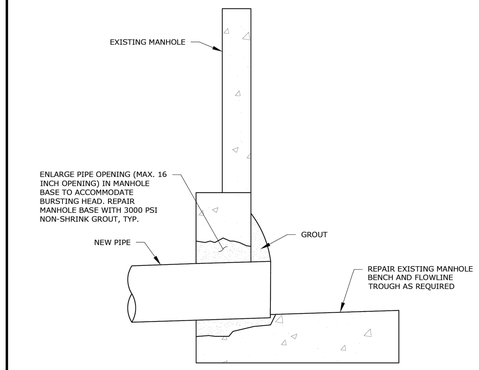
NOTES:

1. IF SEWER LATERAL IS DAMAGED OR HAS TO BE RELOCATED DURING CONSTRUCTION, RELOCATE/REPAIR SEWER PIPE AND RECONNECT USING A FERNCO RC SERIES STRONGBACK COUPLING OR ROMAC COUPLING.
2. INSPECTION OF WORK IS REQUIRED AND MUST BE APPROVED BY THE PUD PRIOR TO BACKFILL.
3. SEWER LATERAL PIPE SHALL BE SDR-35 WITH GASKETED JOINTS.
4. CONNECTION TO THE EXISTING LATERAL SHALL BE WITHIN 5 FEET MAX FROM THE CENTERLINE OF PIPE.
5. SEWER LATERAL CONNECTION TO BE WYE OR ROMAC CB FOR PVC MAINLINE, INSERTA TEE OR FUSION COUPLING FOR HDPE MAINLINE.

PUBLIC UTILITY DISTRICT ASOTIN COUNTY

PIPE BURSTING SEWER LATERAL RECONNECTION

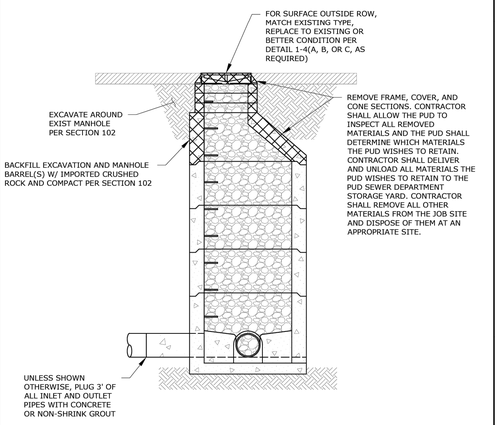
REVISION DATE:	STD DWG NO.
NOVEMBER 2025	2-12



PUBLIC UTILITY DISTRICT ASOTIN COUNTY

EXISTING MANHOLE CONNECTION

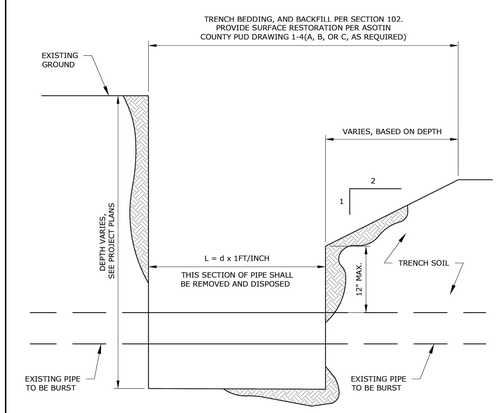
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JANUARY 2022	2-13



PUBLIC UTILITY DISTRICT ASOTIN COUNTY

MANHOLE ABANDONMENT

REVISION DATE:	STD DWG NO.
JANUARY 2022	2-14

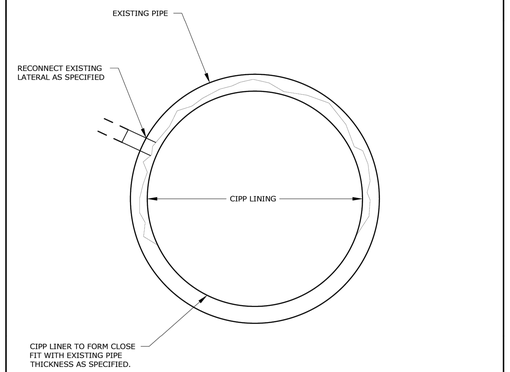


d = DIAMETER OF REPLACEMENT PIPE ININCHES

PUBLIC UTILITY DISTRICT ASOTIN COUNTY

TYP. BURSTING PIT

REVISION DATE:	STD DWG NO.
JANUARY 2022	2-15



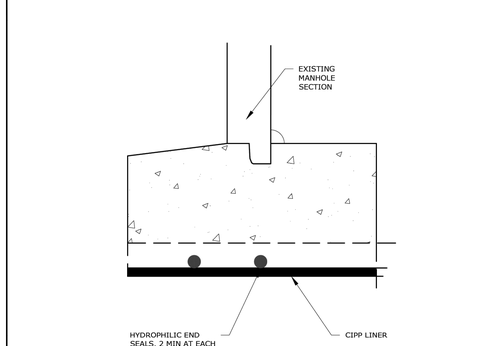
NOTES:

1. EXISTING INSIDE DIAMETER OF THE PIPE MAY HAVE AN IRREGULAR SHAPE (NON-CIRCULAR) AS A RESULT OF MATERIAL LOSS DUE TO CORROSION AND/OR EROSION.
2. CONTRACTOR SHALL VERIFY PIPE DIAMETER PRIOR TO ORDER OF PIPE LINER TO CONFIRM SIZE REQUIREMENTS.

PUBLIC UTILITY DISTRICT ASOTIN COUNTY

TYP. CIPP LINING CROSS SECTION

REVISION DATE:	STD DWG NO.
JANUARY 2022	2-16



PUBLIC UTILITY DISTRICT ASOTIN COUNTY

CIPP MANHOLE CONNECTION

REVISION DATE:	STD DWG NO.
JANUARY 2022	2-17

Consultant: consor

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Sub Consultant:

Engineer's Seal: ERICH WEIMER, STATE OF WASHINGTON, 24010254, REGISTERED PROFESSIONAL ENGINEER, 10/29/2026

Client / Owner: PUBLIC UTILITY DISTRICT ASOTIN COUNTY

Project Title:

ASOTIN COUNTY PUD
2027 SEWER MAIN REPLACEMENT

CIVIL

DETAILS

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APPENDICES

October 2, 2024

Consor
345 Bobwhite Court, Suite 230
Boise, Idaho 83706

Attention: Mr. Dennis Galinato, P.E.

RE: **Geotechnical Evaluation**
Asotin County PUD / City of Clarkston Sewer Replacement
Alley locations are as follows: Alley between 3rd and 4th Streets, Alley between Oak and Libby Streets; and Alley between 9th and 10th Streets, between Fair Street and Bridge Street
Clarkston, Washington
ALLWEST Project No. 324-121G

Mr. Galinato,

ALLWEST has completed the authorized geotechnical evaluation for the proposed sewer replacement project located at Alley locations are as follows: Alley between 3rd and 4th Streets, Alley between Oak and Libby Streets; and Alley between 9th and 10th Streets, between Fair Street and Bridge Street in Clarkston, Washington. The purpose of this evaluation was to characterize the soil and geologic conditions on the property and prepare the attached report with the results of the field evaluation and our geotechnical recommendations to assist with design and construction of the proposed project.

We appreciate the opportunity to provide services to you on this project. If you have any questions or need additional information, please call.

Sincerely,

ALLWEST

Prepared by:



Scott Fraser, P.E.
Senior Geotechnical Engineer

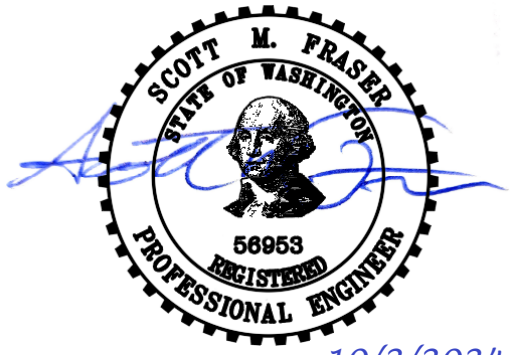
Reviewed by:



Samuel P. Sommers, P.E.
Senior Geotechnical Engineer

GEOTECHNICAL EVALUATION
ASOTIN COUNTY PUD / CITY OF CLARKSTON SEWER REPLACEMENT
ALLEY LOCATIONS ARE AS FOLLOWS: ALLEY BETWEEN 3RD AND 4TH STREETS, ALLEY BETWEEN OAK AND LIBBY STREETS; AND ALLEY BETWEEN 9TH AND 10TH STREETS, BETWEEN FAIR STREET AND BRIDGE STREET
CLARKSTON, WASHINGTON
ALLWEST PROJECT NO. 324-121G

October 2, 2024



10/2/2024

Prepared for:
CONSOR
345 BOBWHITE COURT, SUITE 230
BOISE, IDAHO 83706

Prepared by:
ALLWEST
2705 E. MAIN STREET
LEWISTON, IDAHO 83501

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GEOTECHNICAL EVALUATION
ASOTIN COUNTY PUD / CITY OF CLARKSTON SEWER REPLACEMENT ALLEY LOCATIONS ARE AS FOLLOWS: ALLEY BETWEEN 3RD AND 4TH STREETS, ALLEY BETWEEN OAK AND LIBBY STREETS; AND ALLEY BETWEEN 9TH AND 10TH STREETS, BETWEEN FAIR STREET AND BRIDGE STREET CLARKSTON, WASHINGTON

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Appendix A – Vicinity Map, Exploration Location Maps
Appendix B – Boring Logs, Unified Soil Classification System
Appendix C – Laboratory Test Results

EXECUTIVE SUMMARY

ALLWEST has completed the authorized geotechnical evaluation for the Asotin County PUD / City of Clarkston Sewer Replacement project located on Alley locations are as follows: Alley between 3rd and 4th Streets, Alley between Oak and Libby Streets; and Alley between 9th and 10th Streets, between Fair Street and Bridge Street in Clarkston, Washington. The purpose of this evaluation was to assess the subsurface conditions on the project site with respect to the planned construction. Our services were provided in accordance with our proposal no. 323-121G dated June 25, 2024. This report details the results of the field evaluation and laboratory testing and presents our geotechnical recommendations to assist the design and construction of the planned construction.

The site is suitable for the proposed construction provided the recommendations in this report are followed and the associated risks are acceptable to the owner. Close monitoring of the construction operations discussed herein will be critical in achieving the design subgrade support. If we are not retained to provide required construction observation and materials testing services, we cannot be responsible for soil engineering related construction errors or omissions.

The following geotechnical considerations were identified:

- Dense to very dense gravel with cobbles was observed in borings B-2 to B-5 (12th Street), B-6 (alley between 3rd and 4th Street), B-7 (alley between 9th and 10th Street), and B-8 (Ash Street) in the depths planned for pipe bursting and/or trenching.
- The other soils observed in the borings generally consisted of silt with varied amounts of sand or sand with varied amounts of silt.
- Pavement sections of 2½-inches asphaltic concrete over a minimum of 6-inches crushed aggregate base is recommended to replace areas disturbed by construction activities in the alley. A pavement section of and 3 inches of asphaltic concrete over a minimum of 6-inches crushed aggregate base is recommended for 12th and Ash Streets.

This summary should be used in conjunction with the entire report for design purposes. It should be recognized that details were not included or fully developed in this section, and the report must be read in its entirety for a comprehensive understanding of the items contained herein. Section 8.0 EVALUATION LIMITATIONS should be read for an understanding of the report limitations.

GEOTECHNICAL EVALUATION
ASOTIN COUNTY PUD / CITY OF CLARKSTON SEWER REPLACEMENT
ALLEY LOCATIONS ARE AS FOLLOWS: ALLEY BETWEEN 3RD AND 4TH STREETS, ALLEY BETWEEN OAK AND LIBBY STREETS; AND ALLEY BETWEEN 9TH AND 10TH STREETS, BETWEEN FAIR STREET AND BRIDGE STREET
CLARKSTON, WASHINGTON

1.0 PROJECT DOCUMENTS

The following documents were provided to and reviewed by ALLWEST to help develop our understanding of the planned development:

- Asotin County PUD 2023 Sewer Main Replacement, 30% Submittal, prepared by Consor, project number W221198WA.04, dated May 2023.

2.0 PROJECT DESCRIPTION

We understand the existing sewer main will be replaced using pipe bursting techniques cured-in-place-pipe lining (CIPP) in 12th Street; CIPP in the alleys; and open trench replacement in Ash Street.

3.0 EVALUATION PROCEDURES

To complete this evaluation, we reviewed soil and geologic literature for the project site and surrounding area. We evaluated the subsurface conditions at the site by drilling eight borings throughout the project site. Information obtained from the field evaluation, laboratory testing, and geotechnical analyses was utilized to develop the recommendations presented in this report.

4.0 SITE CONDITIONS

The alleys between 3rd and 4th Streets and 9th and 10th Steets are paved with asphalt pavement that is in good condition and is approximately 3½ inches thick. In addition to the sewer, underground utilities in close proximity also include water, fiber optics, and natural gas. The pavements along the subject portions of 12th Street are generally in poor to fair condition and ranges in thickness from 1½ to 4 inches. Other underground utilities in these streets are spaced farther apart than in the alley.

4.1 Subsurface Conditions

4.1.1 Published Geologic and Soil Information

Natural soils in the project area are mapped as Clarkston gravel (TQc) and Missoula floods backwater deposits (Qm) on the "Geologic Map of the Clarkston 15-Minute Quadrangle,

Washington and Idaho", prepared by the Washington Department of Natural Resources, Division of Geology and Earth Resources, Hooper, P.R., et al, 1985. The Clarkston gravel is reported to consist of well-rounded cobbles to small boulders in an uncemented bimodal pebbly and medium-grained sand. The Missoula floods backwater deposits are reported to consist of rhythmite deposits of cross-bedded gravel grading upwards into sand and silt.

The USDA Natural Resources Conservation Service (NRCS) has mapped the near-surface soils (upper 5 feet) in all three streets as Chard loam, 2 to 5 percent slopes. The Chard loam is described as loam and sandy loam derived from loess and glaciofluvial deposits.

4.1.2 Subsurface Exploration Program

We observed the drilling of eight borings at the project sites on July 30, 2024. The borings were drilled with a trailer mounted G2400 drill rig equipped with hollow-stem augers. The approximate locations of the borings are shown on Figures A-2A Exploration Plan-North and A-2B Exploration Location Plan-South in Appendix A. The subsurface profiles and soil conditions observed in the borings were logged, visually described, and classified in accordance with ASTM D2488.

Samples of the subsurface materials were collected from the borings as follows:

- Standard split spoon samplers having an outside diameter of 2 inches were driven into the various subsurface materials at the bottom of a borehole using a 140-pound automatic hammer falling 30 inches (ASTM International (ASTM) Method D1586). The number of blows required for the sampler to penetrate each 6-inch increment to a total depth of up to 18 inches is recorded. The sum of the number of blows required for the second and third 6-inch increments of penetration is termed the "standard penetration resistance" or "N-value". In cases where 50 blows are insufficient to advance through a 6-inch interval, the penetration after 50 blows is recorded and the test concluded. The N-value provides an indication of the relative density or consistency of the subsurface materials.

- Disturbed grab and bulk samples representative of soil conditions from select locations were obtained from hollow-stem auger cuttings returned to the surface.

Detailed descriptions of the soil observed within the borings are presented on individual boring logs in Appendix B of this report. The descriptive soil terms used on the boring logs, and in this report, can be referenced by the *Unified Soil Classification System (USCS)*. A summary of the USCS is included in Appendix B. The subsurface conditions may vary between exploration locations; such changes in subsurface conditions may not be apparent until construction.

Summaries of the subsurface profiles for each of the roadways follow:

Alleys between 3rd and 4th Streets and 9th and 10th Streets – The subsurface profile observed in borings B-6 and B-7 generally consisted of natural silty sand overlying natural poorly graded gravel with varied amounts of silt and cobbles.

12th Street – The subsurface profile observed in the north end of McCarroll Street beneath the pavement section (boring B-5) consisted of approximately 6 inches of silt overlying dense to very dense poorly graded gravel with silt, sand, and cobbles. Practical auger refusal was encountered on very dense gravel and cobbles at an approximate depth of 4½ feet in boring B-5. The subsurface profile in the other four borings drilled in 12th Street (B-1 near Libby Street to B-4 near Sycamore Street, from south to north) generally consisted of silty fine sand to sandy silt overlying poorly graded gravel with silt and cobbles below the pavement section.

Ash Street – The subsurface profile in Ash Street (boring B-8) consisted of approximately 4½ feet of sandy silt overlying three feet of very dense poorly graded gravel with silt, sand, and cobbles overlying very stiff sandy silt with gravel to 9 feet below the existing ground surface.

4.2 Groundwater Conditions

We did not encounter groundwater within our explorations. We did not observe surface water on the property during our evaluation. Changes in precipitation, irrigation, construction, or other factors may impact depth to groundwater and the surface water flow on the property and therefore, conditions may be different during construction.

5.0 LABORATORY TESTING

We performed laboratory testing to supplement field classifications and to assess some of the soil engineering properties and parameters. The laboratory testing included moisture content (ASTM D2216), fines content (ASTM D1140), water soluble sulfates (EPA 300.0), pH (ASTM D4972), and resistivity (ASTM G187). The laboratory test results are included in Appendix C of this report, and some results are also summarized on the test pit logs in Appendix B.

5.1 Moisture Content

The moisture content test results indicate the near surface soils are generally moist to very moist and likely near or slightly above the optimum moisture content for compaction.

5.2 Classification

Percent finer than the No. 200 sieve gradation testing (fines content) test results indicate the tested on-site soils generally consist of silty fine-grained sand and sandy silt.

5.3 Chemical Analysis

Factors which contribute to soil corrosion of buried metal structures include soil resistivity, pH, presence of water and oxygen, and soluble salts. Soil minimum resistivity and pH are typically regarded as the primary indicators of soil corrosion potential. In general, fine-grained soils (silt and clay) have lower resistivity and present a greater potential for corrosion. With an increase in soil moisture content, resistivity generally decreases, and corrosion potential generally increases. Soils with low pH and relatively high resistivity are also corrosive.

Generalized effects of soil resistivity and pH with respect to corrosion potential are summarized in the following table, based on information available from the National Association of Corrosion Engineers (NACE).

Table 1: Soil Corrosivity for Buried Metal

Parameter	Soil Corrosivity
Soil Resistivity (ohm-cm)	
>20,000	Essentially Non-corrosive
10,000 – 20,000	Mildly corrosive
5,000 – 10,000	Moderately corrosive
3,000 – 5,000	Corrosive
1,000 – 3,000	Highly Corrosive
<1,000	Extremely Corrosive
Soil pH	
<5.5	Extremely corrosive
5.5 – 6.5	Moderately corrosive
6.5 – 7.5	Neutral
>7.5	None (alkaline)

Results of resistivity testing suggest these on-site soils have the potential to exhibit moderately corrosive behavior to buried metal in contact with them. A licensed engineer experienced with corrosion should be consulted to determine appropriate protection measures. Where possible, it is recommended that non-corrosive materials be used in lieu of metal conduits, and ductile iron pipe (if used) be encased with polyethylene tubing.

The American Concrete Institute Standard 318 (ACI 318) presents durability requirements for concrete based on the exposure category and class of the structure, dependent on the ground and weather situation of the area. Sulfate attack (exposure category S) is one of the most important factors that influences the long-term durability of concrete structures when exposed to potentially corrosive environments such as soil or groundwater. The exposure class influences proportion of mixture, type of cement and cementitious materials, and percentage of chemical admixtures like air-entrainment admixture.

Durability requirements for concrete in contact with water or soil that contains sulfate ions which can solute in water are summarized in the following table, based on information available from ACI 318. The degree of severity of concrete exposure to sulfate attack constitute the four classes presented.

Table 2: Soil Corrosivity for Concrete

Exposure Class	Water-Soluble Sulfate (SO_4^{2-}) in Soil (percent by mass)	Maximum Water/Cement Ratio	ASTM C150 Cement Type
S0	$SO_4^{2-} < 0.10$	N/A	No type restriction
S1	$0.10 \leq SO_4^{2-} < 0.20$	0.50	II
S2	$0.20 \leq SO_4^{2-} < 2.00$	0.45	V
S3	$SO_4^{2-} > 2.00$	0.45	V plus pozzolan or slag

Water-soluble sulfate content testing results indicate a low exposure to sulfate attack in normal strength concrete exposed to these materials. Based on testing results, Exposure Category S0 (ACI 318) may be specified for concrete in direct contact with on-site soils.

6.0 CONCLUSIONS AND RECOMMENDATIONS

Our understanding of the proposed project and surface and subsurface site conditions were presented in the previous sections of this report. The following conclusions and recommendations are based on this understanding. If the proposed construction changes or if unforeseen conditions are encountered, we must be given the opportunity to review the new information and, if necessary, update our recommendations. Additionally, we should be given the opportunity to review the plans and specifications to determine whether the recommendations presented in this report were properly incorporated.

6.1 Excavation

Based on the conditions observed within our explorations, we anticipate excavation of the on-site soil can be achieved with typical heavy duty excavation equipment. Temporary excavation slope stability is a function of many factors, including:

- The presence and abundance of groundwater;
- The type and density of the various soil strata;
- The depth of cut;
- Surcharge loadings adjacent to the excavation; and
- The length of time the excavation remains open.

It is exceedingly difficult under the variable circumstances to pre-establish a safe and "maintenance-free" temporary cut slope angle. Therefore, it is the responsibility of the contractor to maintain safe temporary slope configurations since the contractor is continuously at the job site, able to observe the nature and condition of the cut slopes, and able to monitor the subsurface materials and groundwater conditions encountered. Unsupported vertical slopes or cuts deeper than 4 feet are not recommended if worker access is necessary. The cuts should be adequately sloped, shored, or supported to prevent injury to personnel from local sloughing and spalling. The excavation should conform to applicable federal, state, and local regulations. Regarding trench wall support, the site soil is considered Type C soil according to OSHA guidelines and therefore should not exceed a 1.5H:1V (horizontal to vertical) temporary slope.

6.2 Materials

The on-site soils are suitable for replacement in excavations provided material larger than 3 inches is removed.

Import materials should consist of granular soil, free of organics, debris, and other deleterious material and meet the following criteria. Import materials should be approved by the Geotechnical

Engineer prior to delivery to the site. Our recommended requirements for structural fill and utility trench backfill materials are provided in *Table 3*.

Table 3. Structural Fill / Utility Trench Backfill Recommendations

Fill Type	Criteria
Equipment Access Excavations / Utility Trench Backfill	Maximum size ≤ 2 inches; Passing No. 200 Sieve ≤ 15%; Non-plastic
Top or Base Course	Washington Department of Transportation (WSDOT) Standard Specification 9-03.9(3)

6.3 Fill Placement and Compaction

Fill should be placed in lift thicknesses which are appropriate for the compaction equipment used. Typically, eight-inch loose lifts are appropriate for typical rubber tire and steel drum compaction equipment. Lift thicknesses should be reduced to four inches for hand operated compaction equipment. Fill should be moisture conditioned to within two percentage points of the optimum moisture content prior to placement to facilitate compaction. Utility trench backfill and top/base course should be compacted to a minimum of 95 percent of the maximum dry density established by AASHTO T-180 (modified Proctor).

Fill materials which are too coarse to establish a relevant moisture-density relationship curve (Proctor) and associated density test results with a nuclear densometer in accordance with ASTM methodology (greater than 30 percent retained on a ¾-inch sieve), a method-based compaction specification should be established in accordance with ASTM D1557. The compaction method should be established by making repeated passes with appropriately sized compaction equipment over the subgrade with appropriate soil moisture conditioning until a dense and unyielding surface is achieved (a minimum of six, full-coverage passes is recommended). For areas where a large compactor cannot access, a walk-behind articulating trench roller or heavy plate compactor may be used if approved by the geotechnical engineer. Where appropriate, a Proctor should be performed to assist in evaluating appropriate moisture and density conditions of the method-based compaction procedures. Success in executing proper compaction control is highly dependent upon the quality and experience of the contractor and inspector.

6.4 Wet Weather Construction

Due to the climatic effects in this region during late fall, winter, and spring (generally wet conditions), we recommend construction (especially site grading) take place during the summer and early fall season, if possible. If construction occurs during or immediately after excessive precipitation, it may be necessary to over-excavate and replace wet subgrade soil which might otherwise be suitable.

We recommend earthwork for this site be scheduled for the drier seasons of the year. If construction is undertaken in wet periods of the year, it will be important to slope the ground surface to provide drainage away from construction.

6.5 Cold Weather Construction

If site grading and construction are anticipated during cold weather, we recommend good winter construction practices be observed. Snow and ice should be removed from excavated and fill areas prior to additional earthwork or construction. Structural portions of the construction should not be placed on frozen ground; nor should the supporting soils be permitted to freeze during or after construction. Frozen soils should not be used as fill.

6.6 Pavement

We understand new asphalt pavement will likely be constructed in the project area in areas disturbed by construction. The following assumptions were used in developing our recommendations for the pavement section thickness. If actual traffic loading varies from that stated in the following table, we should be notified so we may reevaluate or recommendations.

Table 4. Pavement Design Parameters

Criteria	Assumed Value
ESAL – 12th Street and Ash Street	25,000
ESAL – Alley Sections	10,000
Pavement Life	20 years
Subgrade California Bearing Ratio (CBR)	7%
Reliability	85%
Initial Serviceability	4.2
Terminal Serviceability	2.0

The following pavement sections are recommended based on stated ESALs and assumptions.

Table 5. Recommended Pavement Sections

Pavement Area	Flexible Pavement	
	Asphalt (in.)	Top or Base Course (in.)
Alley Sections*	2½	6
12th Street and Ash Street	3	6

* Alley locations are as follows: Alley between 3rd and 4th Streets, Alley between Oak and Libby Streets; and Alley between 9th and 10th Streets, between Fair Street and Bridge Street.

Prior to placement of base course, the subgrade should be compacted to a minimum of 95 percent of the maximum dry density determined by AASHTO T-180 (modified Proctor).

We recommend specifying crushed aggregate base meeting the requirements of the WSDOT Standard Specification 9-03.9 for ⅝ or ¾-inch crushed surfacing top or base course. We recommend the asphalt concrete pavement meet the requirements of WSDOT Standard

Specification 5-04 for plant mix asphalt concrete pavements. We recommend the asphalt concrete pavement meet the requirements of WSDOT Standard Specification 5-04 for plant mix asphalt concrete pavements. We recommend the crushed aggregate top/base course be compacted to a minimum of 95 percent of the modified Proctor maximum dry density (AASHTO T-180). We recommend the asphaltic concrete surface be compacted to minimum of 92 percent of the Rice density.

Pavements should be sloped to provide rapid drainage of surface water. Water allowed to pond on or adjacent to the pavements could saturate the subgrade and contribute to premature pavement deterioration. In addition, the pavement subgrade should be graded to provide positive drainage within the crushed aggregate base section.

The pavement sections provided in this report represent minimum recommended thicknesses. Therefore, preventive maintenance should be planned and provided for through an on-going pavement management program. Preventive maintenance activities are intended to slow the rate of pavement deterioration, and to preserve the pavement investment. Preventive maintenance consists of both localized maintenance (e.g., crack, and joint sealing and patching) and global maintenance (e.g., surface sealing). Preventive maintenance is usually the first priority when implementing a planned pavement maintenance program and provides the highest return on investment for pavements.

7.0 ADDITIONAL RECOMMENDED SERVICES

We recommend ALLWEST be retained to provide construction materials testing and observation to verify the soil and geologic conditions and the report recommendations are incorporated into the actual construction. The design engineer of record should determine applicable testing and special inspection requirements in accordance with the governing code documents. If we are not retained to provide required construction observation and materials testing services, we cannot be responsible for soil engineering related construction errors or omissions.

8.0 EVALUATION LIMITATIONS

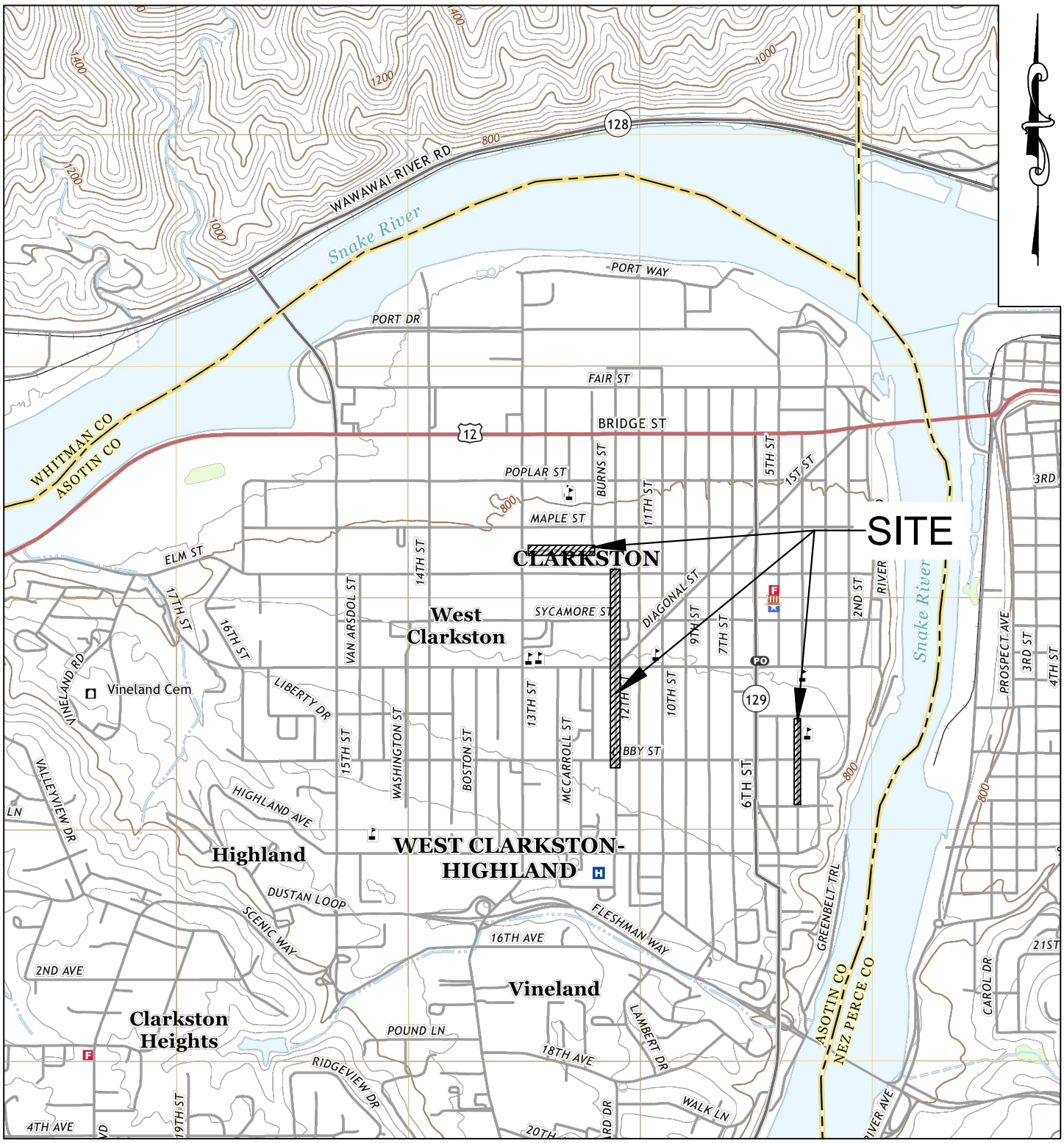
This report has been prepared to assist the planning and design for the Asotin County PUD / City of Clarkston Sewer Replacement project located at Alley locations are as follows: Alley between 3rd and 4th Streets, Alley between Oak and Libby Streets; and Alley between 9th and 10th Streets, between Fair Street and Bridge Street in Clarkston, Washington. Reliance by any other party is prohibited without the written authorization of ALLWEST. Our services consist of professional opinions and conclusions made in accordance with generally accepted geotechnical engineering principles and practices in the local area at the time this report was prepared. This acknowledgement is in lieu of all warranties, express or implied.

The following appendices complete this report:

Appendix A – Vicinity Map, Boring Location Maps
Appendix B – Boring Logs, Unified Soil Classification System
Appendix C – Laboratory Test Results

Appendix A

Vicinity Map
Exploration Location Maps



BASEMAP SOURCES: USGS TOPOGRAPHIC MAP, CLARKSTON QUADRANGLE WASHINGTON-IDAHO, 7.5-MINUTE SERIES, DATED 2020

ALLWEST
2705 E. Main Street
Lewiston, Idaho
(208) 743-5710
www.allwesttesting.com

FIGURE A-1: VICINITY MAP

PROJECT:	324-121G ASOTIN CO. PUD / CITY OF CLARKSTON SEWER		
LOCATION:	CLARKSTON, WASHINGTON		
CLIENT:	CONSOR		
DATE:	OCTOBER 2024	SCALE:	1-IN = 2,000 FT



BASEMAP SOURCE: 2012 NOAA ORTHO-RECTIFIED COLOR MOSAIC OF OREGON: LAKE UMATILLA TO CLARKSON

LEGEND:

B-# BORING NUMBER AND APPROXIMATE LOCATION

ALLWEST
2705 E. Main Street
Lewiston, Idaho
(208) 743-5710
www.allwesttesting.com

FIGURE A-2A: EXPLORATION LOCATION MAP NORTH			
PROJECT:	324-121G ASOTIN CO. PUD / CITY OF CLARKSTON SEWER		
LOCATION:	CLARKSTON, WASHINGTON		
CLIENT:	CONSOR		
DATE:	OCTOBER 2024	SCALE:	UNKNOWN



BASEMAP SOURCES: 2012 NOAA ORTHO-RECTIFIED COLOR MOSAIC OF OREGON; LAKE UMATILLA TO CLARKSON

LEGEND:

B-# BORING NUMBER AND APPROXIMATE LOCATION

ALLWEST

2705 E. Main Street
Lewiston, Idaho
(208) 743-5710
www.allwesttesting.com

FIGURE A-2B: EXPLORATION LOCATION MAP SOUTH

PROJECT:	324-121G ASOTIN CO. PUD / CITY OF CLARKSTON SEWER		
LOCATION:	CLARKSTON, WASHINGTON		
CLIENT NAME:	CONSOR		
DATE:	OCTOBER 2024	SCALE:	UNKOWN

Appendix B

Boring Logs
Unified Soil Classification System

Asotin County PUD / Clarkston Sewer Replacement

12th Street

B-1

Project No.:	324-121G	Date Completed:	07/30/2024	Water Level At Time Of Drilling: N/A	
Logged By:	Shawn Turpin	Depth:	11.5'		
Drilling Co.:	GEOWEST	Method:	Hollow Stem Auger		
Driller:	Skyler	Hammer Type:	Auto		
Rig Type:	G2400	Coordinates:	46.410886, -117.053440		
Location Accuracy:	250' N of Bridge St MH +4' E of pavement	Surface Elevation:	N/A		
		Datum:	-		

Elevation (ft)	Depth (ft)	Soil Description and Remarks	Graphic Log	Samples: Sample Number	Sample Type	Recovery Length (in)	Blow Counts (N-Value)	N60	Lab: % Gravel	% Sand	% Fines	Moisture Content (%)
	0	Silty SAND (SM); low plasticity fines, loose, slightly moist, fine-grained, brown		1-1	SPT	24	6-3-3-3 (6)				36	
	5			1-2	SPT	18	3-8-11 (19)					7
		Silty GRAVEL with sand (GM); occasional sand lenses, medium dense, slightly moist to moist, coarse, subangular to subround, brown										
	10			1-3	SPT	18	12-10-6 (16)					7

Boring terminated at 11.5'.

NOTES: Boring backfilled upon completion.

Asotin County PUD / Clarkston Sewer Replacement

12th Street

B-2

Project No.:	324-121G	Date Completed:	07/30/2024	Water Level At Time Of Drilling:	N/A
Logged By:	Shawn Turpin	Depth:	14.5'		
Drilling Co.:	GEOWEST	Method:	Hollow Stem Auger		
Driller:	Skyler	Hammer Type:	Auto		
Rig Type:	G2400	Coordinates:	46.410886, -117.053440		
Location Accuracy:	60' W of Burns St & 5' S of N curb	Surface Elevation:	~838.7'		
		Datum:	-		

Elevation (ft)	Depth (ft)	Soil Description and Remarks	Graphic Log	Samples: Sample Number	Sample Type	Recovery Length (in)	Blow Counts (N-Value)	N60	Lab: % Gravel	% Sand	% Fines	Moisture Content (%)
838.7		ASPHALT; fair condition, black										
		Silty SAND (SM); very loose to loose, moist, fine-grained, brown		2-1	SPT	24	3-3-2-3 (5)					
	2.5										30	9
835												
	5			2-2	SPT	18	x-1-2 (3)					15
	7.5											
830												
	10	Poorly graded GRAVEL with silt and sand (GP-GM); cobble, very dense, moist, coarse, subangular to subround, brown to grey		2-3	SPT	18	22-33-21 (54)					5
	12.5											
825				2-4	SPT	18	20-25-31 (56)					

Practical auger refusal on dense gravel at 13'. SPT advanced to 14.5'.

NOTES: Boring backfilled upon completion.

Asotin County PUD / Clarkston Sewer Replacement

12th Street

B-3

Project No.:	324-121G	Date Completed:	07/30/2024	Water Level At Time Of Drilling:	
Logged By:	Shawn Turpin	Depth:	10.5'	N/A	
Drilling Co.:	GEOWEST	Method:	Hollow Stem Auger		
Driller:	Skyler	Hammer Type:	Auto		
Rig Type:	G2400	Coordinates:	-, -		
Location Accuracy:	65' S of Elm St & 3' W of E curb	Surface Elevation:	N/A		
		Datum:	-		

Elevation (ft)	Depth (ft)	Soil Description and Remarks	Graphic Log	Samples: Sample Number	Sample Type	Recovery Length (in)	Blow Counts (N-Value)	N60	Lab: % Gravel	% Sand	% Fines	Moisture Content (%)
		ASPHALT; fair condition, black		3-1	SPT	24	6-5-6-5 (11)					
		BASE COARSE; moderately compacted, moist, angular, grey										
	2.5	Silty SAND (SM); loose to medium dense, moist, fine-grained, brown									28	10
	5			3-2	SPT	18	1-1-2 (3)					
	7.5											
	10	Poorly graded GRAVEL with silt and sand (GP-GM); cobbles, very dense, moist, coarse, subangular to subround, grey		3-3	SPT	0	50 (0)					
		Practical auger refusal on dense gravel/cobbles at 10.5'.										

NOTES: Boring backfilled upon completion.

Asotin County PUD / Clarkston Sewer Replacement

12th Street

B-4

Project No.:	324-121G	Date Completed:	07/30/2024	Water Level At Time Of Drilling:	
Logged By:	Shawn Turpin	Depth:	11'	N/A	
Drilling Co.:	GEOWEST	Method:	Hollow Stem Auger		
Driller:	Skyler	Hammer Type:	Auto		
Rig Type:	G2400	Coordinates:	-, -		
Location Accuracy:	50' S of Sycamore & 5' E of W curb	Surface Elevation:	N/A		
		Datum:	-		

Elevation (ft)	Depth (ft)	Soil Description and Remarks	Graphic Log	Samples: Sample Number	Sample Type	Recovery Length (in)	Blow Counts (N-Value)	N60	Lab: % Gravel	% Sand	% Fines	Moisture Content (%)
	0	ASPHALT; poor condition, black		4-1	SPT	24	11-7-4-3 (11)					
		BASE COARSE; moderately compacted, slightly moist, angular, grey										
		Sandy SILT (ML); fine-grained sand, loose, moist, non-plastic to low plastic, brown										8
	2.5											
	5			4-2	SPT	18	2-4-4 (8)				50	12
	7.5	Poorly graded GRAVEL with silt and sand (GP-GM); cobbles, very dense, slightly moist, coarse, subangular to subround, grey										
	10			4-3	SPT	18	18-22-41 (63)					3

Practical auger refusal on dense gravel at 9.5'. SPT advanced to 11'.

NOTES: Boring backfilled upon completion.

Asotin County PUD / Clarkston Sewer Replacement

12th Street

B-5

Project No.:	324-121G	Date Completed:	07/30/2024	Water Level At Time Of Drilling:	
Logged By:	Shawn Turpin	Depth:	4.5'	N/A	
Drilling Co.:	GEOWEST	Method:	Hollow Stem Auger		
Driller:	Skyler	Hammer Type:	Auto		
Rig Type:	G2400	Coordinates:	-, -		
Location Accuracy:	70' S of Chesnut & 5.5' E of W curb	Surface Elevation:	N/A		
		Datum:	-		

Elevation (ft)	Depth (ft)	Soil Description and Remarks	Graphic Log	Samples: Sample Number	Sample Type	Recovery Length (in)	Blow Counts (N-Value)	N60	Lab: % Gravel	% Sand	% Fines	Moisture Content (%)
		ASPHALT										
		BASE COARSE; moderately compacted, moist, angular, brown		5-1	SPT	24	11-9-16-20 (25)				69	17
	2.5	Sandy SILT (ML); fine-grained sand, medium dense, very moist, non-plastic to low plastic, dark brown										
		Poorly graded GRAVEL with silt and sand (GP-GM); cobbles, dense to very dense, moist, coarse, subangular to subround, brown to grey		5-2	SPT	18	24-24-50 (74)					2
		Practical auger refusal on dense gravel/cobbles at 3'. SPT advanced to 4.5'.										

NOTES: Boring backfilled upon completion.

Asotin County PUD / Clarkston Sewer Replacement

12th Street

B-6

Project No.:	324-121G	Date Completed:	07/30/2024	Water Level At Time Of Drilling:	N/A
Logged By:	Shawn Turpin	Depth:	13'		
Drilling Co.:	GEOWEST	Method:	Hollow Stem Auger		
Driller:	Skyler	Hammer Type:	Auto		
Rig Type:	G2400	Coordinates:	-, -		
Location Accuracy:	7' S of 1046/1100 PL & 4' E of W curb	Surface Elevation:	N/A		
		Datum:	-		

Elevation (ft)	Depth (ft)	Soil Description and Remarks	Graphic Log	Samples: Sample Number	Sample Type	Recovery Length (in)	Blow Counts (N-Value)	N60	Lab: % Gravel	% Sand	% Fines	Moisture Content (%)
	0	ASPHALT; good condition, black										
		BASE COARSE; moderately compacted, moist, angular, brown to grey		6-1	SPT	24	10-4-3-2 (7)					
	2.5	Silty SAND (SM); loose to medium dense, moist, fine-grained, brown to grey									62	16
	5			6-2	SPT	18	2-7-8 (15)				28	11
	7.5											
		Poorly graded GRAVEL with silt and sand (GP-GM); dense, moist, coarse, subangular to subround, brown										
	10	Silty SAND (SM); medium dense, moist, fine-grained, brown		6-3	SPT	18	7-16-26 (42)					
		GRAVEL with sand (GM); dense, moist, fine to coarse, subangular to subround, brown										
	12.5											
		Boring terminated at 13'.										

NOTES: Boring backfilled upon completion.

Asotin County PUD / Clarkston Sewer Replacement

12th Street

B-7

Project No.:	324-121G	Date Completed:	07/30/2024	Water Level At Time Of Drilling:	N/A
Logged By:	Shawn Turpin	Depth:	11.75'		
Drilling Co.:	GEOWEST	Method:	Hollow Stem Auger		
Driller:	Skyler	Hammer Type:	Auto		
Rig Type:	G2400	Coordinates:	-, -		
Location Accuracy:	75' N of Libby St & 5' E of W curb	Surface Elevation:	N/A		
		Datum:	-		

Elevation (ft)	Depth (ft)	Soil Description and Remarks	Graphic Log	Samples: Sample Number	Sample Type	Recovery Length (in)	Blow Counts (N-Value)	N60	Lab: % Gravel	% Sand	% Fines	Moisture Content (%)
		ASPHALT; good condition, black										
		BASE COARSE; moderately compacted, moist, angular, brown to grey		7-1	SPT	24	9-4-2-2 (6)					
	2.5	Silty SAND (SM); loose to medium dense, moist, fine-grained, brown									58	14
	5			7-2	SPT	18	4-4-12 (16)				29	9
	7.5	Poorly graded GRAVEL with silt and sand (GP-GM); occasional cobbles, very dense, moist, coarse, subangular to subround, brown to grey										
	10			7-3	SPT	18	10-16-50 (66)					
		Practical auger refusal on dense gravel cobbles at 11.75'.										

NOTES: Boring backfilled upon completion.

Asotin County PUD / Clarkston Sewer Replacement

12th Street

B-8

Project No.:	324-121G	Date Completed:	07/30/2024	Water Level At Time Of Drilling:	
Logged By:	Shawn Turpin	Depth:	9'	N/A	
Drilling Co.:	GEOWEST	Method:	Hollow Stem Auger		
Driller:	Skyler	Hammer Type:	Auto		
Rig Type:	G2400	Coordinates:	-, -		
Location Accuracy:	285' N of Oak St & 4' E of E edge of pavement	Surface Elevation:	N/A		
		Datum:	-		

Elevation (ft)	Depth (ft)	Soil Description and Remarks	Graphic Log	Samples: Sample Number	Sample Type	Recovery Length (in)	Blow Counts (N-Value)	N60	Lab: % Gravel	% Sand	% Fines	Moisture Content (%)
		Sandy SILT (ML); fine-grained sand, very soft, moist, non-plastic to low plastic, brown		8-1	SPT	24	2-1-x-1 (1)				59	18
	2.5	Poorly graded GRAVEL with silt and sand (GP-GM); medium dense, moist, fine to coarse, subangular to subround, brown		8-2	SPT	18	6-8-9 (17)					3
	7.5	Sandy SILT with gravel (ML); fine-grained sand, very stiff, moist to very moist, non-plastic to low plastic, brown		8-3	SPT	18	8-8-10 (18)					
		Boring terminated at 9'.										

NOTES: Boring backfilled upon completion.

SOIL CLASSIFICATION CHART (ASTM D2487 & D2488)

MAJOR DIVISIONS		GROUP SYMBOL	TYPICAL SOIL NAMES
COARSE-GRAINED SOILS (>50% is retained on the #200 sieve)	GRAVEL	GW	Well-graded gravel, gravel-sand mixtures, little or no fines.
		GP	Poorly-graded gravel, gravel-sand mixtures, little or no fines.
		GM	Silty gravel, gravel-sand-silt mixtures.
		GC	Clayey gravel, gravel-sand-silt-clay mixtures.
	SAND	SW	Well-graded sand, gravelly sand, little or no fines.
		SP	Poorly-graded sand, gravelly sand, little or no fines.
		SM	Silty sand, sand-silt mixtures.
		SC	Clayey sand, sand-clay mixtures.
FINE-GRAINED SOILS (>50% passes through the #200 sieve)	SILT AND CLAY (Liquid Limit <50)	ML	Inorganic silt, non-plastic to low plasticity, gravelly silt, sandy silt, clayey silt.
		CL	Inorganic clay of low to medium plasticity, gravelly clay, sandy clay, silty clay (CL-ML), lean clay.
		OL	Organic silt and organic silty clay of low plasticity.
	SILT AND CLAY (Liquid Limit >50)	MH	Inorganic silt, micaceous or diatomaceous fine sandy or silty soils, elastic silt.
		CH	Inorganic clay of high plasticity, fat clay.
		OH	Organic clay of medium to high plasticity.
ORGANIC SOILS		PT	Peat and other highly organic soils.
MOISTURE		Dry	Absence of moisture in sample. Dusty, dry to the touch.
		Slightly Moist	Moisture in sample is below the optimum moisture content. Grains adhere slightly though surface tension.
		Moist	Moisture in sample is at or near optimum moisture content. No free water is visible.
		Wet	Moisture in sample is above the optimum moisture content. Free water is visible in sample.
CEMENTATION		Weak	Crumbles or breaks with handling or slight finger pressure.
		Moderate	Crumbles or breaks with considerable finger pressure.
		Strong	Will not crumble or break with finger pressure.

TYPICAL SOIL DESCRIPTORS

Description	SPT Blow Counts
Very loose	less than 4
Loose	4 to 10
Medium dense	11 to 29
Dense	30 to 50
Very dense	greater than 50

Material	Sieve Sizes
Boulders	greater than 12"
Cobbles	3" to <12"
Coarse gravel	3/4" to <3"
Fine gravel	#4 to <3/4"
Coarse sand	<#4 to #10
Medium sand	<#10 to #40
Fine sand	<#40 to #200
Silt or clay	less than #200

Sieve Number	Aperture
#4	4.76 mm (0.187 in)
#10	2.00 mm (0.0787 in)
#40	0.42 mm (0.0165 in)
#200	0.074 mm (0.00291 in)

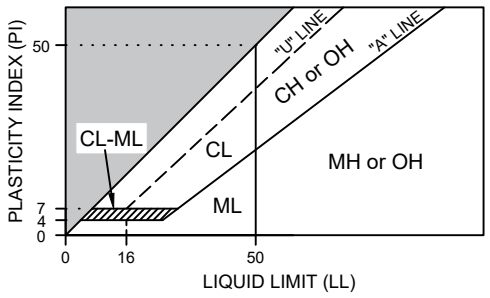
Description	SPT Blow Counts
Very soft	less than 2
Soft	2 to 3
Medium stiff	4 to 8
Stiff	9 to 15
Very stiff	16 to 29
Hard	30 to 50
Very Hard	greater than 50

Plasticity	Soil Characteristics
Non-plastic	Cannot be rolled at any water content.
Low	A thread can barely be rolled while moist.
Medium	A thread can be rolled easily but cannot be rerolled after reaching the plastic limit.
High	A thread can be rolled and re-rolled several times after reaching the plastic limit.

Definitions

Liquid Limit (LL)	Moisture content at which soil changes state from plastic to liquid.
Plastic Limit (PL)	Moisture content at which soil changes state from semi-solid to plastic.
Plasticity Index (PI)	Range of moisture contents at which a soil behaves plastically (LL-PL=PI).

PLASTICITY CHART (ASTM D4318)



ALLWEST

Appendix C

Laboratory Test Results

Table C-1: Summary of Laboratory Test Results

Boring No.	Depth (feet)	Water Content (%)	Gradation		Water Soluble Sulfates (mg/kg-dry)	pH	Resistivity (ohm-cm)	Sample Classification
			Gravel (%)	Silt / Clay (%)				
B-1	0-2			36	14.1	7.7	5,600	Silty sand (SM)
B-1	5-6½	5						Silty sand (SM)
B-1	10-11½	7						Silty gravel with sand (GM)
B-2	2½-4	9		30		7.1	7,200	Silty sand (SM)
B-2	5-6½	15						Silty sand (SM)
B-2	10-11½	5						Poorly graded gravel with silt and sand (GP-GM)
B-3	1½-6½	10		28	11.1	7.8	3,500	Silty sand (SM)
B-4	2½-4	8						Sandy silt (ML)
B-4	5-6½	12		50				Sandy silt (ML)
B-4	9½-11	3						Poorly graded gravel with silt and sand (GP-GM)
B-5	4"-1'10"	17		69				Sandy silt (ML)
B-5	3-4½	2						Poorly graded gravel with silt and sand (GP-GM)
B-6	3½-5	16		62				Sandy silt (ML)
B-6	5-6½	11		28	14.7	7.1	4,700	Silty sand (SM)
B-7	3½-5	14		58				Sandy silt (ML)
B-7	5-6½	9		29				Silty sand (SM)
B-8	0&7½	18		59	18.0	6.7	3,200	Sandy silt (ML)
B-8	5-6½	3						Poorly graded gravel with silt and sand (GP-GM)

ALLWEST

Summary of Laboratory Test Results
Asotin County PUD / City of Clarkston Sewer Replacement
Various Streets
Clarkston, Washington

ALLWEST Project No.: 324-121G