Methow Valley Irrigation District
Instream Flow Improvement Project
E1 Lateral Distribution System
Twisp, Washington

Technical Specifications

Prepared/Designed By:

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For:
U.S. Department of the Interior
Bureau of Reclamation
Pacific Northwest Region
Boise, Idaho

Contracting Organization:
Washington Water Project of Trout Unlimited
103 Palouse Street
Wenatchee, Washington 98801

January 2015

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These Technical Specifications were prepared under the supervision of a registered Professional Engineer.

January 19, 2015

David W. Rice, P.E. (WA License No. 40265)

Anchor QEA, LLC

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INSTREAM FLOW IMPROVEMENT PROJECT
E1 LATERAL DISTRIBUTION SYSTEM

METHOW VALLEY IRRIGATION DISTRICT
TWISP, WASHINGTON

FINAL BID SET

DIVISION 01 GENERAL REQUIREMENTS

SECTION 01 10 00
SUMMARY

PART 1 GENERAL

1.01 SUMMARY

A. Purpose and Intent

1. These Specifications are intended to provide requirements for Materials and Work needed to complete the construction of a pressurized irrigation distribution system that will replace the existing Methow Valley Irrigation District (MVID) E1 Lateral delivery system.

2. The intent of the Work is to construct a fully functional distribution system that will replace the existing MVID E1 Lateral delivery system. The system will operate under pressure and will be supplied by a full, pressurized pipeline installed under a separate contract that will replace the existing MVID East Canal.

3. The Work is to be performed for Washington Water Project of Trout Unlimited (WWP-TU), hereinafter referred to as the "Contracting Organization." The Contracting Organization will appoint a member, hereafter referred to as "Contracting Officer" (CO), who will enter into a contract to complete the above Work and will administer the Contract and funds for the Project. The CO will designate a Contracting Officer's Representative (COR) to address Contract questions and clarifications in the field during construction. The CO will also engage a Project Manager to provide overall Project coordination during construction, including supervising Construction Inspectors who will oversee work in the field. WWPT-TU Inspectors may direct the Contractor, as authorized by the CO or Project Manager.

4. The Contractor shall communicate directly with the COR for any questions arising during the construction of the Project. These shall include questions about the Contract, Drawings, and Design; requests for Change Orders; Requests for Payment; and Requests for Clarification, etc. The COR shall communicate with the Contractor, the Contracting Organization's Engineer, Inspector, Project Manager and/or the CO as necessary and will make such decisions in the field, as authorized by the Contracting Organization's Engineer and CO.

5. The U.S. Bureau of Reclamation (Reclamation), hereafter referred to as the "Contracting Organization's Engineer," has contracted with Anchor QEA, LLC, to develop these Specifications and Drawings and will provide engineering oversight during construction. The Contracting

Organization's Engineer, or their Consultant, will make recommendations to the CO regarding whether the Work is in compliance with these Specifications. The Contracting Organization's Engineer will also review all construction changes and make recommendations to the CO prior to the CO's approval of the changes.

6. The Contracting Organization's Engineer's personnel will act as Construction Observers during the Project to ensure that the Work is performed as designed by Reclamation. Reclamation's Construction Observers will not direct the Contractor's work in the field; they will inform the Contracting Officer's Engineer and Contractor regarding technical details of the pipe installation they observe, such as proper pipe installation, grade, line, or other requirements. They will communicate with the COR or Project Manager on all other matters. In addition, they may inform the COR of all observed deficiencies of the Contract work, permit violations, safety concerns, or other requirements.

7. MVID is the system owner who will own and operate the Project work after it is completed. They will appoint a Construction Observer(s) to ensure that the completed Project is operable and meets their needs. MVID Construction Observers will not direct the Contractor's work in the field. They may inform the COR of all observed deficiencies of the Contract work, permit violations, safety concerns, or other requirements.

B. Work Under this Contract

1. The Work included in this Contract consists of the following:

   a) Site preparation, clearing and grubbing, and placement of erosion and sediment control measures as needed to install the proposed pressurized irrigation distribution system.

   b) Demolition and removal of existing structures and obstructions.

   c) Trenching, backfilling, and compaction needed to install a fully functional pressurized irrigation distribution system.

   d) Furnishing and installing pressurized pipe, fittings, valves, and other appurtenances.

   e) Surface repair and other miscellaneous site improvements.

2. A more detailed summary of the Work is provided in Section 01 11 00 – Summary of Work.

1.02 DESCRIPTION OF REQUIREMENTS

A. Governing Regulations

1. Perform the Work in accordance with all applicable laws, codes, ordinances, and regulations. The Work shall be completed in accordance with the following:

   a) The Contract Documents.

   b) Applicable permits, laws, codes, ordinances, and regulations.

   c) The Washington State Department of Transportation (WSDOT) *Standard Specifications for Road, Bridge, and Municipal Construction* (2014 Edition).

   d) American Society for Testing and Materials (ASTM) Standards.

   e) American Water Works Association (AWWA) Standards.

   f) American National Standards Institute (ANSI).

   g) Town of Twisp Standards.

   h) Federal Highway Administration *Manual on Uniform Traffic Control Devices*.

   i) Any other applicable building codes and standards referenced in these Specifications.

   j) According to the manufacturer's recommendations.

2. The Contractor shall have an approved set of the Contract Documents on site at all times. The Contractor shall also have a copy of applicable permits and licenses, and the WSDOT *Standard Specifications for Road, Bridge, and Municipal Construction* (2014 Edition) on the site at all times.

3. Protection of natural resources: All work should be carried out in a manner consistent with the goal of completing the pressurized irrigation distribution system with the least possible disturbance to vegetation, wildlife, steep slopes, wetlands, streams, and their buffers. No disturbance, including access or storage of materials, shall occur within designated wetlands or below ordinary high water.

B. Contractor Responsibilities

1. Coordinate, furnish, and pay for all items, articles, materials, and operations listed, including all labor, materials, equipment, and incidentals

required for their completion. The Contractor is responsible for all construction means and methods and for the general coordination of the work of all trades.

2. Pay the required taxes.

3. Secure and pay for, as necessary for proper execution and completion of the Work:

   a) Permits

   b) Fees

   c) Licenses

   d) Bonds

4. Give required notices.

5. Enforce strict discipline and good order among employees and coordination of the Work by subcontractors.

6. Complete all work in conformance with existing labor laws, safety requirements, and other regulations, as required by the Town of Twisp, Okanogan County, the State of Washington, the Federal Government, and MVID. Assume sole and complete responsibility for job site conditions during the course of construction, including the safety of all persons and property. Protect all personnel, whether passers-by, occupants, or visitors to the site, from harm and injury. This requirement shall apply continuously and is not limited to normal working hours.

7. Visit the job site prior to construction and be responsible for verifying field conditions and dimensions. Confirm that the Work can be accomplished as described in these Specifications. Bring any discrepancies between the existing field conditions and the requirements of these Specifications to the attention of the COR prior to proceeding with construction.

8. Schedule and direct a Pre-construction Meeting with the Contracting Organization, the Owner, and the Contracting Organization's Engineer prior to any on-site work.

9. Make all necessary provisions to protect existing structures, roadways, drainage ways, culverts, utilities, vegetation, and other improvements until such items are to be disturbed or removed. All streets and access roads shall be repaired, if damaged, and left in a condition equal to or better than the original condition. Copies of the Easement Agreements will be made available, upon request, by the COR.

10. Use new materials, except as noted herein or otherwise approved by the COR.

11. Maintain required ingress and egress and other access as required by the Owner in accordance with governing codes and ordinances. Work and access shall be within established right-of-way or easements, unless otherwise approved by the COR. That Contractor shall not impact access to adjacent properties without prior approval from the property owner and the COR.

12. Comply with all requirements noted in the approved permits. Advise the COR of any conflicts between permit conditions and the Contract Documents.

13. Provide access, storage, and work space for all those engaged in the Work within existing right-of-way or easements, or as approved by the COR. The site shall be maintained in an orderly manner with debris and trash removed daily.

14. Protect existing utilities from any damage or interruption of service. If necessary, obtain permission from utility owners and relocate as required for completion of the Work.

15. Protect existing and adjoining structures and site features where noted, including: vegetation, access points, utilities, and work of any kind which is to remain from damage, defacement, or interruption of service, except as may be specially directed or authorized. All streets and access roads shall be repaired, if damaged, and left in a condition equal to or better than the original condition.

16. Repair property in and around the Project area. Items affected by construction activities shall be repaired or replaced following construction.

17. Maintain hand-drawn redlines, field notes, and photographs ("field documentation") of all improvements or variations as the Work progresses, as required by these Specifications. The Contractor's field documentation shall be maintained on site and shall be available for review by the COR, the Contracting Organization's Engineer, and the Owner at all times.

1.03 RELATED SECTIONS

A. Section 01 11 00 Summary of Work

B. Section 01 14 10 Use of Site

C. Section 01 33 00 Submittal Procedures

D. Section 01 42 00 References

E. Section 01 60 00 Product Requirements

1.04 CONTRACT TIME

A. The Work of this Contract shall commence immediately upon the receipt of a Notice to Proceed, and shall be substantially complete by June 5, 2015. Completion of Final Punch List items shall be achieved within the time period required in the Certificate of Substantial Completion.

B. Contract time may be changed by Change Order only.

1.05 LIQUIDATED DAMAGES

A. For each calendar day after the day fixed for substantial completion of the Project and/or the day fixed in the Certificate of Substantial Completion for the completion of the Final Punch List, the Contractor shall pay liquidated damages, as calculated by the formula in Section 1-08.9 of the *WSDOT Standard Specifications for Road, Bridge, and Municipal Construction* (2014 Edition).

B. Liquidated damages shall not be assessed when the delay in completion of the Work is due to an act of Force Majeure, such as earthquake, flood, or other cataclysmic phenomenon of nature or when a time extension has been granted by the Owner per Paragraph 1.04 B.

1.06 HAZARDOUS MATERIAL

A. No toxic or hazardous chemicals or materials are expected to be encountered during scheduled construction activities. Should any work activities required by this Contract result in discovery/disturbance of any hazardous material, the Contractor is directed to immediately cease work activity in the area found to be potentially hazardous, notify the COR, and await the COR's direction.

1.07 CUTTING AND PATCHING

A. The Contractor shall be responsible for all cutting and fitting or patching that may be required to complete the Work or to make several parts fit together properly. Execute cutting, fitting, and patching required to uncover work; provide for installation of ill-timed work; remove and replace defective work; remove and replace work not conforming to requirements of the Contract Documents; remove samples of work as specified for testing; and install specified work in existing construction.

1.08 SPECIFICATION FORMAT AND CONVENTIONS

A. Specification Format: These Specifications are generally organized into Divisions and Sections using the current Construction Specifications Institute's (CSI's) "Master Format" numbering system.

B. Section Identification: These Specifications use section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Contract Documents are in numeric sequence; however, unused sections are not included. Consult the Table of Contents at the beginning of the Contract Documents to determine numbers and names of sections in the Contract Documents.

C. Specification Content: These Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phases when used in particular situations. These conventions are as follows:

1. Abbreviated Language: Language used in these Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.

2. Imperative mood and streamlined language are generally used in these Specifications. Requirements expressed in the imperative mood are to be performed by the Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by the Contractor or by others when so noted.

1.09 DEFINITIONS

A. Design Drawings: Shall refer to the approved Contract Drawings prepared by the Contracting Agency's Engineer.

B. Design Specifications: Shall refer to the specifications developed by the Contractor.

C. Specifications: Shall refer to the specifications provided by the Contracting Organization's Engineer.

D. Contract Documents: Shall include these Specifications, the Contract, and Bidding Documentation.

E. Owner or District: The Agency that will own and operate the completed Project, MVID.

F. Contracting Organization: The Organization that is a party to the Contract, WWP-TU, and its designated representative.

G. Contracting Officer (CO): The Contracting Organization's Designated Representative, Lisa Pelly of WWP-TU, who will enter into a contract to complete the Work described herein and will administer the Contract and funds for the Project.

H. Contracting Officer's Representative (COR): The CO's Designated Representative, Roger Rowatt of WWP-TU, or his designated representative.

I. Contracting Organization's Engineer: The Agency responsible for development of these Specifications, Reclamation, and their designated representative and/or consultant.

J. Provide: Means to "furnish and install" as specified herein and as shown in the Contract Drawings.

1.10 PROJECT TEAM

A. Communication

1. The Contractor shall communicate directly with the Contracting Organization's Representative or a duly authorized representative unless authorized in writing.

B. Contracting Organization

Washington Water Project of Trout Unlimited
103 Palouse Street
Wenatchee, Washington 98801

C. Contracting Officer

Lisa Pelly
Washington Water Project of Trout Unlimited
103 Palouse Street
Wenatchee, Washington 98801
(509) 888-0970

D. Contracting Officer's Representative

Roger Rowatt
Washington Water Project of Trout Unlimited
c/o Van Hees Environmental
206 Glover Street
P.O. Box 377
Twisp, Washington 98856
(509) 699-8141

E. Owner

Methow Valley Irrigation District
P.O. Box 860
Twisp, Washington 98856
(509) 997-6843

F. Contracting Organization's Engineer

Justin Nielsen, EIT
United States Department of Interior
Bureau of Reclamation
Pacific Northwest Region
1150 North Curtis Road, Suite 100
Boise, Idaho 83706-1234
(208) 378-5022

G. Contracting Organization's Engineer's Consultant

David Rice, P.E.
Bob Montgomery, P.E.
Anchor QEA, LLC
720 Olive Way, Suite 1900
Seattle, Washington 98101
(206) 287-9130

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

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SECTION 01 11 00
SUMMARY OF WORK

PART 1 GENERAL

1.01 SUMMARY OF WORK

A. The Work included in this Contract consists of construction of a pressurized irrigation distribution system that will replace existing Methow Valley Irrigation District (MVID) E1 Lateral delivery system. The system will be supplied through 12-inch and 8-inch tees with valves installed on the MVID East Canal Pipeline, which will be constructed under a separate Contract. The East Canal Pipeline will be gravity fed through an inlet structure on the MVID East Canal, upstream of the tee to the E1 Lateral, and will be closed at the downstream end so that it operates full with pressures at the tee to the E1 Lateral expected to be in the range of 7 pounds per square inch (psi) to 12 psi.

B. The Contractor shall secure and pay for the following, as necessary for proper execution and completion of the Work:

1. Permits

2. Fees

3. Licenses

4. Bonds

C. The Contractor shall coordinate, furnish, and pay for all work items, articles, materials, and operations listed, including all labor, materials, equipment, and incidentals required for their completion. The Contractor is responsible for all construction means and methods and for the general coordination of the Work of all trades.

D. The principal components of work to be completed include the following:

1. Construction staking and surveying.

2. Site preparation, including placement and maintenance of temporary erosion and sediment control measures, establishing temporary construction access and staging areas, and clearing and grubbing areas to be excavated and backfilled.

3. Protection of existing utilities and other features to remain.

4. Demolition and removal of existing structures and obstructions.

5. Diversion and control of water during construction, including removal of water from excavations.

6. Sawcut and removal of existing pavement and repair or replacement of pavement following installation and testing of distribution pipe.

7. Trenching, backfilling, and compaction for installation of irrigation distribution pipe and appurtenances.

8. Preparation of a State Highway Crossing Plan and submittal of the plan to the Contracting Officer's Representative, Contracting Agency's Engineer, the Town of Twisp Public Works Director, and Washington State Department of Transportation for review and approval.

9. Installation of pipe sleeves for irrigation distribution pipe crossings at two locations under Washington State Highway 153/20, according to the approved State Highway Crossing Plan.

10. Installation of pipe sleeves at town road crossings and potable water main crossings, were shown in the Drawings.

11. Furnishing and installing irrigation distribution pipe and fittings.

12. Furnishing and installing valves and valve boxes.

13. Furnishing and installing turnout connections, where shown in the Drawings.

14. Furnishing and installing combination air release valve assemblies, where shown in the Drawings.

15. Furnishing and installing flush valve assemblies, where shown in the Drawings.

16. Furnishing and installing other irrigation distribution pipe appurtenances.

17. Furnishing and installing crushed rock surfacing to restore driveways, roadways, and access

18. Furnishing and placing seed to restore other areas disturbed by construction activities.

19. Final cleanup.

E. The Contractor shall furnish all equipment, materials, and labor necessary to test the pressurized irrigation delivery system as described in these Specifications and subject to the terms and conditions of the Contract.

F. The Contractor shall coordinate the Work with work completed by others to install a pipeline that will replace the existing MVID East Canal. The MVID East Canal Pipeline will include 12-inch and 8-inch tees, or saddles, with valves that will supply the MVID E1 Lateral distribution system and will be constructed under a separate Contract.

G. The Contractor shall prepare and submit As-built Drawings and other documentation described in these Specifications or in the Contract.

1.02 RELATED SECTIONS

A. Section 01 10 00 Summary

B. Section 01 14 00 Use of Site

C. Section 01 33 00 Submittal Procedures

D. Section 01 42 00 References

E. Section 01 70 00 Execution and Closeout Requirements

1.03 LOCATION

A. The Project is located in and near the town of Twisp, Washington, within public right-of-way, existing MVID ditch and lateral easements, or new easements secured by MVID for the purpose of constructing the pressurized irrigation distribution system.

1.04 ACCESS AND USE OF SITE

A. Access to the Project site will be from the public right-of-way at Washington State Highway 153/20, Twisp-Winthrop Road, Wagner Street, Marble Avenue, Burton Street, and Twisp Airport Road.

1.05 INTENT

A. The general intent of this Work is to provide more efficient distribution of irrigation water from connections to the MVID East Canal Pipeline that will be constructed under a separate contract. The distribution system will replace the existing MVID E1 Lateral system. The project will install 8,994 linear feet of distribution pipe, ranging in size from 2-inch to 12-inch nominal diameter.

1.06 SEQUENCE OF WORK

A. Where included in the description of the sequence of work, “days” refers to calendar days.

B. Time Allowed for Completion of Work

1. The Work of this Contract shall commence immediately upon the receipt of a Notice to Proceed, and shall be substantially complete by the completion date established in the Contract, unless otherwise approved by a Contract Time Change Order.

2. To the extent possible, the Contractor shall complete all construction activities during the non-irrigation season. The maximum irrigation season begins on May 1 and ends on September 30 each year.

3. The completion date and conditions established in the Contract allow for delay of irrigation service during the 2015 irrigation season to allow for sufficient time to construct and test the E1 Lateral distribution system. Time is of the essence in completing the work. The Contractor shall complete the system by the date established in the Contract to minimize the impact on irrigation deliveries, unless otherwise approved by a Contract Time Change Order.

C. Testing

1. Prior to substantial completion and acceptance by the Owner, the pressurized distribution system shall be pressure tested, as outlined in these Specifications.

D. Substantial Completion

1. Substantial completion shall be accomplished by the date established in the Contract, unless a Contract Time Change Order is in force.

1.07 WORK PERFORMED UNDER SEPARATE CONTRACT

A. The Contractor shall be aware of and become familiar with other related work to be performed under separate contracts with the Contracting Organization in the same or immediate area. The Contractor shall coordinate his work and cooperate with other Contractors performing related work. These include:

1. MVID East Canal Pipeline: The Contracting Organization has awarded a contract for construction of a pipeline that will replace the existing MVID East Canal delivery system near Twisp, Washington. Construction started on October 2014, and will be completed prior to the 2015 irrigation season.

2. MVID Upper West Distribution System: The Contracting Organization will award a contract for the construction of a pressurized irrigation distribution system that will replace the existing MVID West Canal. The distribution system will be supplied by a groundwater well supply system

(per Paragraph 3). Construction will begin in spring 2015 and will be completed prior to the 2016 irrigation season.

3. MVID Groundwater Well Supply System: The Contracting Organization has awarded a contract for the design and construction of a groundwater well pumping system to be constructed on Okanogan County Parcel 3322170384, directly south of Hank's Market, in Twisp, Washington. The Upper West distribution system will be supplied by the groundwater well supply system. Construction began in October 2014. The groundwater well supply system will be completed and operable prior to the 2016 irrigation season.

1.08 MAINTAINING IRRIGATION FLOWS

A. Construction of distribution pipelines in the alignment of the existing irrigation ditch or laterals shall not take place while the ditch and laterals are in use. The maximum irrigation season begins on May 1 and ends on September 30 each year. Use of the existing E1 Lateral may be delayed during construction, as allowed by the Contract. Work shall be completed in a manner that will minimize impact and delay of irrigation service.

1.09 SUBMITTALS

A. Where included in the submittal requirements, "days" refers to calendar days.

B. Submit the following in accordance with Section 01 33 00 – Submittal Procedures:

1. RSN 011100-1, Overall Progress Schedule

a) The Contractor shall develop and submit a progress schedule, highlighting timelines of critical work tasks and milestones no later than 15 days after the Contract is executed.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

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SECTION 01 14 10
USE OF SITE

PART 1 GENERAL

1.01 COST

A. Include in prices offered in the Bid Schedule for other items of work.

1.02 SUBMITTALS

A. Submit the following in accordance with Section 01 33 00 – Submittal Procedures:

1. RSN 011400-1, Land Use and Landscape Rehabilitation Plan

a) For each Contractor use site:

1) Show use, location, and extent of impact. Uses include but are not limited to the following:

- Buildings and service areas including: offices, shops, warehouses, storage areas, fuel and oil storage areas, and fabrication yards
- Parking areas, temporary roads, and haul routes
- Utilities including: air, power, and water lines; fire hydrants; and compressor stations
- First-aid and medical facilities
- Temporary fences

2) Describe methods to preserve, protect, and replace, restore, or repair, if damaged, vegetation (such as trees, shrubs, and grass) and other landscape features on or adjacent to the job site, which are not to be removed and which do not interfere with the Work required under this contract. Include methods to mark work area limits, protect disturbed areas, and prevent erosion.

3) Describe methods to protect, and repair if damaged, existing improvements and utilities at or near the job site.

4) Describe methods for removing temporary structures and facilities, cleanup, and rehabilitating site after completion of construction activities.

b) If changes in use are required during construction, submit a revised plan to the Contracting Officer's Representative (COR) for approval.

1.03 PROJECT CONDITIONS

A. Land, as shown in the Drawings, may be used for required construction facilities, staging of materials, and performance of the Work. Work shall be accomplished within the limits shown, unless otherwise approved by the COR.

B. Potential access and staging are shown on the Drawings for the Contractor's reference. The Contractor shall be responsible for identifying and arranging for use of staging and access areas that are outside existing easements.

C. Access and staging areas shall be approved by the COR prior to use.

D. Access and staging areas shall be within parcels that have undergone archeological review for permitting by the Contracting Organization. The potential access and staging areas shown on the Drawings are within parcels that have undergone archeological review. A map of all parcels that have undergone archaeological review will be made available, upon request, by the COR.

E. When private land is used for construction facilities, or other construction purposes, the Contractor shall make necessary arrangements associated with use of private land and release at project completion.

F. Do not interfere with work of other contractors in the vicinity of the Project site, or with reservations made for use of such land.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 CLEANING

A. Construction Equipment: Before bringing construction equipment on site, clean equipment to remove dirt, vegetation, and other organic material to prevent introduction of noxious weeds and invasive plant and animal species.

B. The COR will inspect construction equipment before allowing the equipment on site.

3.02 RESTORATION

A. Restore temporary construction roads to original contours and make impassable to vehicular traffic when no longer required.

B. After completion of the Work, scarify and grade land used for construction purposes and not required for completed installation or permanent access, so that surfaces blend with natural terrain and are in a condition that will provide proper drainage, and prevent erosion.

END OF SECTION

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SECTION 01 33 00
SUBMITTAL PROCEDURES

PART 1 GENERAL

1.01 COST

A. Include in prices offered in the Bid Schedule for other items of work.

1.02 SUMMARY

A. This Section provides procedures and requirements for Contractor submittal of Design Drawings, shop drawings, manufacturer's data and literature, test reports, samples, substitution requests, and other required documentation for review and approval prior to incorporation of products or procedures in the Work.

1.03 RELATED SECTIONS

A. Section 01 10 00 Summary

B. Section 01 11 00 Summary of Work

C. Section 01 60 00 Product Requirements

1.04 DEFINITIONS

A. Days: Calendar days.

B. Required Submittal Number (RSN): RSN identifies items to be submitted together as a complete submittal.

C. Shop Drawings: Drawings prepared for the Contractor to show fabrication details, dimensions, and configuration of materials and equipment specified or shown in the Design Drawings.

1.05 SUBMITTAL REQUIREMENTS

A. Prepare and submit within 7 days after the effective date of the Notice to Proceed, a listing of all items for which submittals are required by these Specifications. Provide a schedule indicating the submittal dates for each submittal. Organize by Specification Section number and include the following information for all listed items:

1. Item identification.

2. Specification Section number.

3. Identification of those items that are substitutions or contain deviations from these Specifications.

4. Identification of those items that require other jurisdictional agency review and approval.

5. Columns for future use as information becomes available shall be provided for the following items:

a) Trade name, model, and catalog designation.

b) The scheduled need dates for control purposes.

c) Date submitted.

d) The date approval is needed.

e) The date on which material is needed.

B. In case of conflict between the requirements of this section and requirements included elsewhere in these Specifications, requirements listed elsewhere shall take precedence.

C. Professional Certifications

1. Sign and seal submittals requiring certification by a registered professional or by authorized manufacturer's representative.

D. Drawings and Data

1. Prepare Drawings and data in English.

2. Label Drawings and data with the Contract number and Bid Schedule item number(s).

3. Drawings

a) Cover sheet with drawing list and index.

b) Minimum identification in title block:

1) Contract number and title.

2) Contractor's drawing number.

c) Sheet Size: 22 x 34-inch (Full Size), 11 x 17-inch (Half Size).

d) Draw to scale with neat lettering using drafting equipment or computer drafting equipment.

e) Measurement units: U.S. customary units.

4. Product Data

a) Mark manufacturer's data for commercial products or equipment, such as catalog cut sheets, as follows:

1) Identify manufacturer's name, type, model, size, and characteristics.

2) Illustrate that product or equipment meets requirements of these Specifications.

3) Mark items to be furnished in a manner that will photocopy (no highlighting).

4) Strike through items that do not apply.

1.06 SUBMITTAL PROCEDURES

A. Submit only checked submittals. Submittals without evidence of Contractor's approval will be returned for resubmission.

B. Submit complete sets of required materials for each RSN as specified in "Submittals Required" column of Table 01 33 00 A – List of Submittals. A complete set includes all listed items for RSNs with multiple parts.

C. Submit an electronic copy in PDF format.

D. Include the following information in transmittal letters:

1. Contract number and title.

2. RSN for each attached submittal.

3. Number of sets for each RSN.

4. Identify submittal as initial or resubmittal.

E. More than one RSN may be submitted under a transmittal letter.

F. Send submittals required by Table 01 33 00 A – List of Submittals, to the Contracting Officer's Representative (COR):

Roger Rowatt
Washington Water Project of Trout Unlimited
c/o Van Hees Environmental
206 Glover Street
P.O. Box 377
Twisp, Washington 98856
rrowatt@tu.org
(509) 699-8141

1.07 REVIEW OF SUBMITTALS

A. Time Required

1. Time required to review submittals shall be 10 days for review of each submittal and resubmittal, unless otherwise specified.

2. Time required for review of each submittal or resubmittal begins when the COR receives complete sets of materials required for a particular RSN and extends through return mailing postmark date.

B. Time in Excess of Specified

1. The COR may extend the contract completion date to allow additional time for completing work affected by excess review time.

   a) The time extension will be to the extent that excess review time caused delay to the contract completion date.

   b) The time extension will not exceed the time used in excess of the specified number of days for review of submittals or resubmittals.

   c) Concurrent days of excess review time resulting from review of two or more separate submittals or resubmittals will be counted only once in extending the contract completion date.

2. No time extension will be allowed if the Contractor fails to make complete approval submittals in sequence and within time periods specified.

3. Adjustment for delay will be made only to the extent that:

   a) Approval was required under the contract, and

   b) Requests for approval were submitted properly, in a timely manner, and were approved.

C. Submittal Review

1. One set of submittals required for approval will be returned with a marking indicating that it is "Accepted," "Needs Resubmittal," or "Rejected."

2. Revise and resubmit submittals that are not accepted. Show changes and revisions with revision date. Describe reasons for significant changes in transmittal letter.

3. Resubmit returned submittals within 20 days after receiving comments, unless otherwise specified. Requirements for initial submittals apply to resubmittals.

4. Do not change designs without approval of the COR after submittal drawings, documentation, and technical data have been approved.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 GENERAL

A. Maintain one approved set of submittals at the work site and provide access to these submittals for the COR, Contracting Organization's Engineer, interested Government Agencies, and Owner.

Table 01 33 00 A – List of Submittals

RSN	Submittal title	Type *	Submittals required	Submittal required by	No. of sets to be sent to COR
011100-1	Progress Schedule	A	Overall Progress Schedule	Not more than 15 days after Contract is executed	PDF
011400-1	Land Use and Landscape Rehabilitation Plan	A	Land Use and Landscape Rehabilitation Plan	Not less than 15 days prior to use of the site	PDF

RSN	Submittal title	Type *	Submittals required	Submittal required by	No. of sets to be sent to COR
013510-1	Hazardous Material	A	Complete List of Hazardous Material and Materials Safety Data Sheets	Not less than 10 days prior to delivering hazardous materials to the site.	PDF
013520-1	Health and Safety Plan	A	Health and Safety Plan	Not less than 10 days prior to mobilization	PDF
014310-1	Quality Control Test Reports	I	Contractor Quality Control Test Reports	Not more than 5 days after testing is complete	PDF
014320-1	Quality Control Testing Plan and Reports	A	Contractor Quality Control Testing Plan and Reports	Not less than 10 days prior to mobilization	PDF
015526-1	Traffic Control Plan	A	Traffic Control Plan	Not more than 20 days after Contract is executed	PDF
015713-1	Construction Stormwater Pollution Prevention Plan (SWPPP)	A	Contractor Construction SWPPP	Not more than 20 days after Contract is executed	PDF
015713-2	Spill Prevention, Control, and Countermeasure (SPCC) Plan	A	Contractor SPCC Plan (Submit with Contractor SWPPP)	Not more than 20 days after Contract is executed	PDF
017000-1	Final As-built Drawings	A	Contractor's Final As-built Drawings	Prior to Final Acceptance	PDF
022100-1	Surveying Plan	A	Work layout, survey methods, and schedule	At least 15 days prior to beginning survey work	PDF
022100-2	Resume	A	Resume for responsible surveyor	At least 15 days prior to beginning survey work or changing personnel	PDF

RSN	Submittal title	Type *	Submittals required	Submittal required by	No. of sets to be sent to COR
022100-3	Accuracy Check Results	A	Accuracy check of government-established control	At least 10 days prior to beginning survey work	PDF
022100-4	Quantity Surveys and Computations	A	Quantity survey and computations	Accompanying progress payment requests	PDF
055000-1	Shop and Fabrication Detail Drawings	A	Shop drawings for hinged, locking, manhole covers	At least 15 days prior to fabrication	PDF
055000-2	Shop Drawings Other Miscellaneous Metal Fabrications	A	Shop drawings for other miscellaneous metal fabrications	At least 15 days prior to fabrication	PDF
312319-1	Diversion and Control of Water (DCW) Plan	A	Contractor's DCW Plan	With SWPPP, not more than 20 days after Contract is executed	PDF
312333-1	Imported Aggregate Materials	A	Particle Size Analysis Test Results for Imported Materials	Not less than 15 days prior to material placement	PDF
312333-2	CDF Backfill Material	A	Mix Design for CDF Backfill Material	Not less than 15 days prior to material placement	PDF
321123-1	Crushed Rock Surfacing	A	Particle Size Analysis Test Results for Imported Materials	Not less than 15 days prior to material placement	PDF
321216-1	Hot-mix Asphalt Design	A	Hot-mix Asphalt Design Documentation	Not less than 15 days prior to material placement	PDF
321216-2	Aggregate for Hot-mix Asphalt	A	Particle size analysis for Hot-mix Asphalt Aggregate	Not less than 15 days prior to material placement	PDF

RSN	Submittal title	Type *	Submittals required	Submittal required by	No. of sets to be sent to COR
330523-1	State Highway Crossings Plan	A	Contractor Proposed Highway Crossing Plan	Not more than 15 days after Contract is executed	PDF
331117-1	HDPE Pipe	A	HDPE Pipe Manufacturer Data	Not less than 15 days prior to ordering pipe	PDF
331117-2	HDPE Pipe Installation	A	HDPE Pipe Manufacturer Installation Recommendations	Not less than 15 days prior to ordering pipe	PDF
331117-3	Filling and Testing Plan	A	Plan for filling, pressure testing, and disposal of water	Not less than 15 days prior to pipe testing	PDF
331217-1	Gate Valves	A	Manufacturer Product Data, Certificate of Compliance	Not less than 15 days prior to ordering valves	PDF
331217-2	Combination Air Release Valves	A	Manufacturer Product Data, Certificate of Compliance	Not less than 15 days prior to ordering valves	PDF
331217-3	Flush Valve Assemblies	A	Schedule of materials	Not less than 15 days prior to ordering materials	PDF

* Type “A” indicates submittals for review and approval and “I” indicates submittals for information.

END OF SECTION

SECTION 01 35 10
MATERIAL SAFETY DATA SHEETS

PART 1 GENERAL

1.01 COST

A. Include in prices offered in the Bid Schedule for items of work for which hazardous materials are required.

1.02 SUBMITTALS

A. Submit the following in accordance with Section 01 33 00 – Submittal Procedures:

1. RSN 013510-1, Complete List of Hazardous Materials (LHM) and Material Safety Data Sheets (MSDS).

1.03 DELIVERY

A. Do not deliver any hazardous materials to the job site that are not included on the original or previously updated LHM and MSDS before receipt of updated LHM and MSDS by the Contracting Officer's Representative.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

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SECTION 01 35 20
SAFETY AND HEALTH

PART 1 GENERAL

1.01 COST

A. Include cost of complying with this Section in prices offered in the Bid Schedule for other items of work.

1.02 REFERENCES

A. Code of Federal Regulations (CFR)

29 CFR 1926 Safety and Health Regulations for Construction, current edition

B. Applicable State Safety and Health Regulations for Construction, current edition

OSHA Code current edition

1.03 SUBMITTALS

A. Submit the following in accordance with Section 01 33 00 – Submittal Procedures:

1. RSN 013520-2, Health and Safety Plan

a) The Contractor shall develop and maintain a safety program and submit a health and safety plan to the Contracting Officer's Representative (COR) no less than 10 days prior to mobilization. In addition to the normal safety procedures for the type of work and equipment being used, the safety plan must address specific hazards of the site including heat exposure, cold exposure, poisonous snakes, and other site-specific hazards.

1.04 DOCUMENTATION AND RECORDS

A. Prepare and retain all safety plans, programs, training content, and training records that are applicable to the scope of the Work and make them available to the COR unless they are already included in the written safety program. Some examples may include, but are not limited to:

1. Confined Space and when deemed necessary by existing and/or introduced hazards of Permit Required Confined Space through the Written Program and Training Records.

2. Forklifts and Other Industrial Trucks Training Records.

3. Electrical Safety Requirement Training Records.

4. Emergency Action Plans Written Program and Training Records.

5. Fall Protection Written Program and Training Records.

6. Fire Protection and Prevention Written Program and Training Records.

7. Flammable and Combustible Liquids Written Spill Control Plan.

8. General Safety and Health Provisions, Written Safety Program, and Regular Safety Inspection Records.

9. Hazard Communication Written Program and Training Records.

10. Ladder Written Compliance Program and Training Records.

11. Lead Written Program and Training Records.

12. Lockout/Tagout.

13. Blood-borne Pathogens Exposure Control Plan, Training Records.

14. Occupational Noise Exposure Written Program and Training Audiometric Testing Records.

15. Personal Protective Equipment (PPE) Hazard Assessments and Training Records.

16. Power Operated Hand Tools Training Records.

17. Respiratory Protection Written Program and Training Records.

18. Safety Training and Education Written Program and Training Records.

19. Scaffolds Training Records.

20. Steel Erection Training Records, if applicable.

21. Welding, Cutting, and Brazing Written Program and Training Records.

1.05 SAFETY AND HEALTH

A. Under no circumstances will on-site work, including mobilization, be permitted until the Health and Safety Plan has been approved by the COR.

B. Fully participate in a Contractor Safety Program Review meeting prior to mobilization. If applicable, include subcontractor management representatives.

C. Develop Job Hazard Analyses (JHA) for each distinct phase of work under the Contract.

1. Work will not begin on the phase of work until a JHA is provided to the COR in accordance with Article 1.03.

2. Activities involving hazardous materials shall have the appropriate Material Safety Data Sheets attached to the JHA.

3. The JHA must be completed on the form contained in the Post Award folder.

D. If a JHA and the COR deem necessary, the minimum work crew at any time on the construction site may consist of no less than two people and in accordance with other contractual obligations.

E. Establish workplace exposure assessments in accordance with federal, state, and local regulations and standard industrial hygiene practices to ensure personnel exposures are below regulated levels and exposures are maintained as low as reasonably achievable.

1. Exposure assessments must be provided to the COR prior to any activity, after any changes in a work condition, as specified in applicable regulations, upon request, and at least annually.

2. Exposure assessment will be based on outcomes from the basic characterization and incorporated into the JHA.

3. Exposure assessments are required for operations that include, but are not limited to operations that:

a) Use hazardous materials or physical agents including, but not limited to, toxic, reactive, biohazard, corrosive, flammable or those that have radiological properties.

b) Use PPE (e.g., respirators, chemical-resistant clothing, and chemical resistant gloves).

c) Require grinding, crushing, cutting, blasting, or other abrasive processes.

d) Involve tasks or operations that release metals (e.g., welding, grinding, soldering, brazing, cutting, burning, gouging, plasma cutting, and laser cutting).

e) Involve mixing, handling, storage, removal or application of thinners, catalysts, solvents, adhesives, epoxies, sealants, base coats, middle coats, top coats, fillers or resins.

f) Involve mixing, handling, storage, and application of pesticides/herbicides.

g) Involve work tasks, operations, or equipment that generate noise levels which equal or exceed 85 decibel A-weighted as an 8-hour time-weighted average.

h) Involve entry into a confined space.

i) Involve a work-related medical surveillance program or medical monitoring associated with work tasks, operations, regulatory task requirements, or unacceptable exposure.

j) Involve handling or working with or on equipment that handle bodily fluids or biological hazards.

k) Involve batching, mixing, cutting, chipping, crushing, coring, or drilling concrete.

l) Involve entering into an area, or conducting a work task or working on equipment, contaminated with rodent feces, dander, or nests.

4. In no case will any phase of work commence until an exposure assessment for that portion of the Work has been accepted by the COR.

F. Perform all training as required by federal, state, and local regulations prior to any activity that requires it.

1. Training records must be submitted to the COR upon request.

2. In no case shall an employee perform work until all required training is complete.

G. Contractor shall fully comply with Washington Administrative Code, and all other federal, state, and local codes and regulations as they apply.

H. Be cognizant of and ensure compliance with requirements set forth in the paragraphs above.

1. Contractor's responsibility applies to all operations, including those of the Contractor's Subcontractors.

2. When violations of safety and health requirements contained in these Specifications or referenced standards are called to the Contractor's attention by the Contracting Officer (CO) or the COR, immediately correct the condition to which attention has been directed.

3. Either oral or written notice shall be deemed sufficient.

I. When the Contractor fails or refuses to promptly correct a compliance directive, the CO or the COR may issue an order to stop all or any part of the Work.

1. When satisfactory corrective action is taken, an order to resume work will be issued.

2. The Contractor shall not be entitled to extension of time, nor to claim for damage, or to additional compensation by reason of either the directive or the stop order.

3. Failure of the CO or the COR to order discontinuance of any or all of the Contractor's operations shall not relieve the Contractor of the responsibility for the safety of personnel and property.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

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SECTION 01 42 00
REFERENCES

PART 1 GENERAL

1.01 COST

A. Include cost of complying with applicable codes and references in prices offered in the Bid Schedule for other items of work.

1.02 REFERENCES

A. Referenced editions of standard specifications, codes, and manuals form a part of these Specifications to the extent they are referenced.

B. These Specifications take precedence when conflicting requirements occur between these Specifications and a referenced standard.

1.03 JOB SITE REFERENCES

A. The Contractor shall maintain a copy of referenced standard specifications, codes, and manuals required for work in progress at the project site or fabrication site.

B. Make references available for use by the Contracting Officer's Representative (COR).

1.04 AVAILABILITY

A. Industrial and Governmental Documents

1. Addresses for obtaining some industrial and governmental (other than Federal and U.S. Bureau of Reclamation specifications and standards) specifications, standards, and codes are listed in Table 01 42 00 A – Addresses for Specifications, Standards, and Codes.

Table 01 42 00 A – Addresses for Specifications, Standards, and Codes

Acronym	Name and Address	Telephone
AASHTO	American Association of State Highway and Transportation Officials 444 N Capitol Street NW, Suite 249 Washington, D.C. 20001 www.transportation.org	(202) 624-5800

Acronym	Name and Address	Telephone
ACI	American Concrete Institute P.O. Box 9094 Farmington Hills, Michigan 48333 www.aci-int.org	(248) 848-3700
AISC	American Institute of Steel Construction One East Wacker Drive, Suite 3100 Chicago, Illinois 60601-2001 www.aisc.org	(312) 670-2400
ANSI	American National Standards Institute 1899 L Street, NW, 11th Floor Washington, D.C., 20036 www.ansi.org	(202) 293-8020
ASME	American Society of Mechanical Engineers 3 Park Avenue New York, New York 10016-5990 www.asme.org	(800) 843-2763
ASTM	ASTM International 100 Barr Harbor Drive West Conshohocken, PA 19428-2959 www.astm.org	(610) 832-9585
AWS	American Welding Society 8669 NW 36 Street, Suite 130 Miami, Florida 33166-6672 www.amweld.org	(800) 443-9353 (305) 443-9353
AWWA	American Water Works Association 6666 W. Quincy Avenue Denver, Colorado 80235 www.aws.org	(303) 794-7711
Ecology	Washington State Department of Ecology 15 West Yakima Avenue, Suite 200 Yakima, Washington 98902-3452 www.ecy.wa.gov	509-575-2490
FHWA	Federal Highway Administration Federal Highway Administration 711 Capitol Way, Suite 501 Olympia, Washington 98501 www.fhwa.dot.gov	(360) 753-9480

Acronym	Name and Address	Telephone
Okanogan PUD	Okanogan County Public Utility District 1331 2nd Avenue N P.O. Box 912 Okanogan, Washington 98840 www.okanoganpud.org	(509) 422-3310
Town of Twisp	Town of Twisp Public Works Department P.O. Box 278 118 S. Glover Street Twisp, Washington 98856 www.townoftwisp.com	(509) 997-4081
UL	Underwriters Laboratories Inc. 333 Pfingsten Road Northbrook, Illinois 60062-2096 www.ul.com	(847) 272-8800
WSDOT	Washington State Department of Transportation Administrative and Engineering Publications P.O. Box 47304 Olympia Washington 98504-7304 www.wsdot.wa.gov/	(360) 705-7430

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

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SECTION 01 43 10
QUALITY CONTROL TESTING FOR EARTHWORK

PART 1 GENERAL

1.01 COST

A. Include cost of complying with this Section in prices offered in the schedule for other items of work.

B. Progress Payments: If test reports are not submitted in a timely manner, the Contractor will be considered to be in non-compliance and delaying that phase of the Work for which the testing applies. The Contracting Officer's Representative (COR) may retain appropriate amounts of applicable progress payments or take other justified action as allowed by the contract clauses.

1.02 DESCRIPTION OF REQUIREMENTS

A. This Section provides requirements for quality control testing for earthwork, including trenching and backfilling for irrigation pipelines.

B. The Contractor shall, as needed, arrange and pay for quality control testing for earthwork to demonstrate compliance with the Contract requirements for the quality, placement, and performance of these materials. The Contractor shall submit the name and qualifications of the quality control testing laboratory for approval by the COR prior to performing the work. The Contractor shall also submit field and laboratory test results to the COR for review and approval.

C. The COR will, at their discretion, arrange and pay for additional quality control testing for earthwork in accordance with these Specifications. The Contractor shall, at the request of the COR, provide soil samples for testing. Quality control testing completed by the COR shall not relieve the Contractor from his obligation to meet the Contract requirements for the quality, placement, and performance of these materials.

1.03 RELATED SECTIONS

A.	Section 01 10 00	Summary
B.	Section 01 11 00	Summary of Work
C.	Section 01 33 00	Submittal Procedures
D.	Section 01 42 00	References
E.	Section 01 43 20	Quality Control for Materials Used in the Work

F. Section 31 23 33 Trenching and Backfilling

1.04 REFERENCES

A. ASTM D 422 Standard Test Method for Particle-Size Analysis of Soils

B. ASTM D 1557 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort ($56{,}000\ lb/ft^2$)

C. ASTM D 2216 Standard Test Method for Laboratory Determination of Water (Moisture) Control for Soil and Rock by Mass

D. ASTM D 2487 Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System)

E. ASTM D 2488 Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)

F. ASTM D 2922 Standard Test Methods for Density of Soil and Soil Aggregate in Place by Nuclear Methods (Shallow Depth)

G. ASTM D 3017 Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)

H. ASTM D 3666 Standard Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials

I. ASTM D 3740 Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction

J. ASTM D 4318 Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils

K. ASTM D 4718 Standard Practice for Correction of Unit Weight and Water Content for Soils Containing Oversized Particles.

L. ASTM E 543 Standard Specification for Agencies Performing Nondestructive Testing

1.05 QUALIFICATIONS

A. Testing laboratory and equipment: Employ an ASTM-certified independent laboratory operated under supervision of a Registered Professional Engineer to perform sampling and testing.

1. Testing is to be performed under the supervision of a Registered Professional Engineer and reports are to bear the seal of the Registered Professional Engineer.

2. Testing Laboratory Organization

   a) Testing soil and rock: Meet requirements of ASTM D 3740.

   b) Testing bituminous paving materials: Meet requirements of ASTM D 3666.

   c) Nondestructive testing: Meet requirements of ASTM E 543.

3. Calibrate measuring devices, laboratory equipment, and instruments and established intervals.

1.06 TESTING REQUIREMENTS AND MINIMUM FREQUENCY

A. An independent testing laboratory shall perform sampling, testing, and reporting, as shown in Table 01 43 10 A – Materials Testing Requirements and Frequency – Earthwork.

Table 01 43 10 A – Materials Testing Requirements and Frequency – Earthwork

Procedure	Test Standard	Standard Title	Standard Requirement	Minimum Frequency Of Testing
Soil Classification	ASTM D 2487	Classification of Soils for Engineering Purposes	Unified Soil Classification System	As required by the COR
Gradation	ASTM D 422	Particle-Size Analysis of Soils	As listed in the Specifications	As required by the COR
Atterberg Limits	ASTM D 4318	Liquid Limit, Plastic Limit, and Plasticity Index of Soils	As listed in the Specifications	As required by the COR
Moisture Content	ASTM D 2216	Laboratory Determination of Water (Moisture Content of Soil and Rock by Mass)	+/- 2% of optimum	As required by the COR
Laboratory Maximum Density	ASTM D 1557	Laboratory Compaction Characteristics of Soil Using Modified Effort	As listed in Specifications	As required by the COR

Procedure	Test Standard	Standard Title	Standard Requirement	Minimum Frequency Of Testing
Nuclear Method – In-place Density	ASTM D 2922	Density of Soil and Rock in Place by Nuclear Methods (Shallow Depth) Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)	As listed in Specifications	As required by the COR

1.07 SUBMITTALS

A. Submit the following in accordance with Section 01 33 00 – Submittal Procedures:

1. RSN 014310-1, Quality Control Test Reports

a) The Contractor shall provide copies of test reports from the Contractor's quality control testing, including:

1) Laboratory test reports for soils classification, gradation, Atterberg Limits, and moisture content

2) Field soil compaction test reports

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 FIELD QUALITY ASSURANCE

A. Testing performed by the COR will be used to verify that the Work performed by the Contractor conforms to the requirements of these Specifications and the Contract Drawings and is not intended to replace the Contractor's own quality control testing.

3.02 NON-COMPLIANCE

A. The COR will notify the Contractor of non-compliance with any of the foregoing requirements. The Contractor shall, after receipt of such notice, immediately take corrective action. Any notice, when delivered by the COR or its authorized

representative to the Contractor or its authorized representative at the site of the Work, shall be considered sufficient notice.

END OF SECTION

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SECTION 01 43 20
QUALITY CONTROL FOR MATERIALS USED IN THE WORK

PART 1 GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

A. Perform quality control testing in accordance with these Specifications for the materials used in the Work. When requested, the Contractor shall furnish certificates of tests of materials and equipment made at the point of manufacture by a recognized testing laboratory.

1.02 COST

A. Include in the applicable unit prices offered in the Bid Schedule for the Work requiring quality control testing.

B. Progress Payments: If test reports are not submitted in a timely manner, the Contractor will be considered to be in non-compliance and delaying that phase of the Work for which the testing applies. The Contracting Officer's Representative (COR) may retain appropriate amounts of applicable progress payments or take other justified action as allowed by the contract clauses.

1.03 RELATED SECTIONS

A.	Section 01 10 00	Summary
B.	Section 01 11 00	Summary of Work
C.	Section 01 33 00	Submittal Procedures
D.	Section 01 42 00	References
E.	Section 01 43 10	Quality Control Testing for Earthwork
F.	Section 31 23 33	Trenching and Backfilling

1.04 REFERENCES

A.	ASTM C 1077-10d	Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation
B.	ASTM D 3740-10	Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction

C. ASTM E 329-09 Agencies Engaged in Construction Inspection and/or Testing

D. ASTM E 543-09 Agencies Performing Nondestructive Testing

1.05 SUBMITTALS

A. Submit the following in accordance with Section 01 33 00 – Submittal Procedures:

1. RSN 014320-1, Quality Control Testing Plan and Reports

a) Provide the names of laboratories to perform testing and sampling.

b) Provide certification or qualifications of laboratory to perform specified testing.

c) Provide samples of report forms.

d) Quality Control Testing

1) List materials to be tested.

2) No change in the approved plan may be made without written concurrence by the COR.

e) On-Site Quality Control Plan

1) Include:

- List of personnel responsible for quality control and assigned duties. Include each person's qualifications.
- Methods of performing, documenting, and enforcing quality control.

2) If the plan requires any revisions or corrections, resubmit the plan within 10 days.

3) The Contracting Officer reserves the right to require changes in the plan during the contract period as necessary to obtain the quality specified.

4) No change in the approved plan may be made without written concurrence by the COR.

f) On-Site Quality Control Reports

1) Submit inspection and test results on the first workday following the date covered by the test.

2) Complete test results not later than 24 hours after the test was performed.

3) Off Site Inspection and Test Reports: Provide reports taken during production and prior to shipping.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 FIELD QUALITY ASSURANCE

A. Testing performed by the COR will be used to verify that the Work performed by the Contractor conforms to the requirements of these Specifications and the Contract Drawings and is not intended to replace the Contractor's own quality control testing.

3.02 NON-COMPLIANCE

A. The COR will notify the Contractor of non-compliance with any of the foregoing requirements. The Contractor shall, after receipt of such notice, immediately take corrective action. Any notice, when delivered by the COR or its authorized representative to the Contractor or its authorized representative at the site of the Work, shall be considered sufficient notice.

END OF SECTION

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SECTION 01 51 00
TEMPORARY UTILITIES

PART 1 GENERAL

1.01 COST

A. Include the cost of temporary utilities in prices offered in the Bid Schedule for other items of work.

1.02 REFERENCE

IEEE C2-2007 National Electrical Safety Code (NESC)®

1.03 SUMMARY

A. This Section includes general requirements relating to responsibilities for temporary construction facilities and controls, including temporary utilities, support facilities, and security.

1.04 RELATED SECTIONS

A. Section 01 00 00 Summary

B. Section 01 11 00 Summary of Work

C. Section 01 71 13 Mobilization

1.05 TEMPORARY ELECTRICITY

A. Electric power is available near the site.

B. Provide required electrical power for construction.

C. Arrange for temporary electrical service from the Okanogan Public Utility District or provide generators, transmission lines, distribution circuits, transformers, and other electrical equipment and facilities required for obtaining power and distributing power to points of use.

D. Comply with IEEE C2 clearances and spacing for temporary communications and electrical supply lines.

E. Remove temporary equipment and facilities upon completion of work under this Contract.

F. Refueling of generators shall be done in spill control areas outside of the ordinary high water line with appropriate spill prevention and containment measures, as designated by the Contracting Officer's Representative.

1.06 TEMPORARY WATER

A. Arrange for and provide water required for construction purposes.

B. Use water that meets specified requirements for water used in concrete, grouting, and other permanent work.

C. Convey water to points of use.

D. Remove temporary equipment and facilities upon completion of work under this Contract.

1.07 TEMPORARY SANITATION FACILITIES

A. Provide temporary sanitation facilities (i.e., “port-a-potties”) for use by the construction crew.

B. Provide for maintenance of temporary sanitation facilities for duration of construction activities.

C. Provide for removal of temporary sanitation facilities once construction activities are completed.

D. Provide a tightly covered trash receptacle for garbage, employee food scraps, and other waste.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01 55 00
VEHICLE ACCESS AND PARKING

PART 1 GENERAL

1.01 COST

A. Include the cost of establishing temporary vehicle access and parking during construction in prices offered in the Bid Schedule for other items of work.

1.02 REGULATORY REQUIREMENTS

A. Meet jurisdictional authority permit conditions and requirements for use of existing roadways and haul routes; including seasonal or other limitations or restrictions, payment of excess size and weight fees, and posting of bonds conditioned upon repair of damage.

B. Comply with applicable regulations for haul routes over public highways, roads, or bridges.

1.03 RELATED SECTIONS

A. Section 01 00 00 Summary

B. Section 01 11 00 Summary of Work

C. Section 01 71 13 Mobilization

1.04 SITE CONDITIONS

A. Construction easements for access to work from existing roads will be established by the Contracting Officer's Representative (COR).

1. Use only established roadways, parking areas, and haul routes, or temporary roadways, parking areas, and haul routes constructed by the Contractor when and as authorized by the Contracting Officer.

2. Unavailability of transportation facilities or limitations thereon shall not become a basis for claims for damages or extension of time for completion of the Work.

PART 2 PRODUCTS

2.01 MATERIALS

A. Materials needed to maintain and repair existing roadways, parking areas, and haul routes shall meet the requirements of the jurisdictional authority.

B. Materials needed to construct, maintain, and repair temporary roadways, parking areas, and haul routes shall meet the requirements of the COR.

C. Materials used to maintain roadways and parking areas constructed under this Contract and used by the Contractor for construction work shall meet the requirements specified herein for construction of those roadways and parking areas.

PART 3 EXECUTION

3.01 EXAMINATION

A. Investigate condition of available public or private roads for clearances, restrictions, bridge-load limits, bond requirements, and other limitations that affect or may affect access and transportation operations to and from the job site.

3.02 ESTABLISHED ROADWAYS AND PARKING AREAS

A. Established roadways and parking areas are available for the Contractor's use subject to existing restrictions and approval of the COR.

B. Designated areas of existing parking facilities may be used by construction personnel. Temporary parking areas shall meet the following requirements:

1. Arrange for temporary parking areas to accommodate use of construction personnel.

2. Provide additional off-site parking when site space is not adequate.

3. Locate as approved by the COR.

C. Designated existing on-site streets and driveways may be used for construction traffic. Tracked vehicles are not allowed.

3.03 TEMPORARY ROADWAYS AND PARKING AREAS

A. Roadways

1. Construct temporary all-weather surfaced roadways for access to serve construction area from public thoroughfares of a width and load-bearing capacity that will provide unimpeded traffic for construction purposes.

2. Construct temporary bridges or culverts at stream crossings or cross-drainage channels to allow for unimpeded surface drainage.

B. Parking Areas

1. Provide temporary parking areas to accommodate use of construction personnel.

2. Provide additional off-site parking when on-site space is not adequate.

3. Locate as approved by the COR.

3.04 HAUL ROUTES

A. Perform work on rights-of-way established by the COR as necessary to construct and maintain any roads, bridges, or drainage structures required for establishment and use of haul routes for construction operations.

B. Use existing available public highways, roads, or bridges as haul routes subject to applicable local regulations.

C. Minimize interference with or congestion of local traffic.

D. Provide barricades, flaggers, and other necessary precautions for safety of the public where haul routes cross public highways or roads.

3.05 MAINTENANCE

A. Maintain roadways, driveways, parking areas, and haul routes in a sound, smooth, and reasonably serviceable condition.

B. Maintain roadways, sideslopes, driveways and parking areas until completion and acceptance of all work under this Contract. As directed by the COR, defer placement of surfacing on roads or parking areas subject to heavy and deteriorating use by the Contractor's construction operations or equipment until latest practicable date within specified completion period.

C. Maintain surfacing of gravel-surfaced roads and parking areas in a serviceable condition until completion and acceptance of all work under this Contract.

D. Snow removal for convenience of the Contractor or to facilitate work operations of the Contractor is considered normal required maintenance.

3.06 REPAIR

A. Promptly repair ruts, broken pavement, potholes, low areas with standing water, and other deficiencies to maintain roadway and driveway surfacing and drainage in original or specified condition.

3.07 REMOVAL

A. Remove materials used to construct temporary roadways, parking areas, and haul routes prior to contract completion and stabilize the soil.

END OF SECTION

SECTION 01 55 26
TRAFFIC CONTROL

PART 1 GENERAL

1.01 PRICE

A. Traffic Control

1. Measurement: No measurement shall be made for this item as it will be paid as a lump sum.

2. Payment: Lump sum price offered in the Bid Schedule.

3. The lump sum price offered in the Bid Schedule shall include all labor, material, equipment, coordination, fees, and other incidental costs required to prepare, submit for approval, and implement a traffic control plan during construction of the project.

1.02 RELATED SECTIONS

A.	Section 01 00 00	Summary
B.	Section 01 11 00	Summary of Work
C.	Section 01 71 13	Mobilization
D.	Section 31 23 90	Trenching and Backfilling
E.	Section 32 12 16	Asphalt Paving
F.	Section 33 11 17	HDPE Irrigation Distribution Piping

1.03 REGULATORY REQUIREMENTS

A. Traffic Control shall meet Town of Twisp and Washington State Department of Transportation (WSDOT) requirements.

B. Traffic access shall be maintained for private property owners from the right-of-way or easement where the distribution pipe is installed. Access for private property owners shall be maintained at all times by keeping at least one lane open on town roadways. Temporary lane closures shall not exceed 4 hours, unless otherwise approved by the Contracting Officer's Representative (COR).

C. Temporary lane closures and signage shall meet the requirements of Figure 63-C of the Manual on Uniform Traffic Control Devices (MUTCD), "Example of One-

Lane, Two-Way Traffic Taper," or shall be as required by the Town of Twisp and WSDOT.

D. Requirements may include, at the option of the jurisdictional agency and/or Contracting Officer, implementation of Temporary Traffic Control measures as described in Section 1-10 Temporary Traffic Control of the WSDOT *Standard Specifications for Road, Bridge and Municipal Construction* (2014 Edition).

1.04 SUBMITTALS

A. Submit the following in accordance with Section 01 33 00 – Submittal Procedures:

1. RSN 015526-1, Traffic Control Plan.

a) Sumbit a detailed Traffic Control Plan that covers all construction activities that occur within and adjacent to public right-of-way. Plan shall, at a minimum, meet all requirements mandated by the Town of Twisp. Include:

1) Name of person who will be responsible for implementing and carrying out plan.

2) Name of persons trained and currently registered to perform traffic control activities.

3) Traffic control plan must be submitted for approval by COR and the Town of Twisp, as applicable.

PART 2 PRODUCTS

2.01 MATERIALS

A. Traffic Control Materials shall be in accordance with the Federal Highway Administration (FHWA) MUTCD.

PART 3 EXECUTION

3.01 EXECUTION

A. All traffic control activities shall conform to the submitted and approved Traffic Control Plan and the MUTCD.

B. The Contractor is responsible for updating the Traffic Control Plan, as applicable. Updates to the plan shall be submitted to the Town of Twisp (if applicable) and the COR for approval.

C. Updates to the plan may include, although are not limited to: change of named personnel in the plan, change of traffic control measures, and/or other unforeseen circumstances.

END OF SECTION

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SECTION 01 56 10
PROTECTION OF EXISTING INSTALLATIONS

PART 1 GENERAL

1.01 COST

A. Include prices offered in the Bid Schedule for other items of work.

B. Costs for repair of installations damaged by the Contractor's operations are the sole responsibility of the Contractor.

1.02 PROJECT CONDITIONS

A. Drawings included in these specifications show existing materials, equipment, and features but may not show all materials, equipment, and features existing at the job site.

B. Obtain the location of embedded conduit, pipe, cable, ground mat, and other buried items before performing any excavation. See Section 01 56 15 – Protection of Existing Utilities for additional requirements.

C. Coordinate with adjacent private property owners to locate buried irrigation pipe and other privately owned installations prior to excavation. Protect existing irrigation systems and other privately owned installation from damage.

D. Prior to construction, the Contractor shall visit the site to document existing conditions with photographs and video recordings. The Contractor shall make all field documentation available to the Contracting Officer's Representative (COR) at the COR's request.

1.03 RELATED SECTIONS

A. Section 01 56 15 Protection of Existing Utilities

B. Section 02 41 00 Demolition

C. Section 31 11 00 Clearing and Grubbing

D. Section 31 23 33 Trenching and Backfilling

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 PROTECTION

A. Provide protection for personnel and existing facilities from harm due to the Contractor's operations. Protection shall be subject to approval of the COR.

B. Arrange protective installations to permit operation of existing equipment and facilities while work is in progress.

3.02 ENCLOSURES

A. Enclose work area to prevent dust, spalls, chips, grit, and other foreign material from endangering personnel and contaminating or damaging equipment.

B. Provide enclosures to confine the Contractor's operations to the immediate work area.

3.03 REMOVAL OF PROTECTIVE INSTALLATIONS

A. Remove protective installations after the purpose for which they have been installed has been served. Materials furnished by the Contractor to provide protection shall remain property of the Contractor.

3.04 REPAIR

A. Repair, at the Contractor's expense, damage to existing installations due to the Contractor's operations or the Contractor's failure to provide proper protection. At the COR's option, damage may be repaired by the Owner, the Contracting Officer (CO), or their representatives, and the Contractor will be backcharged repair costs.

B. All areas disturbed by construction shall be returned to the original ground topography before construction ends, unless otherwise shown on the Drawings.

C. If disturbance of private irrigation pipe or installations is required to complete the work, the Contractor shall replace or repair the existing pipe or installation. The Contractor shall coordinate replacement, repair, relocation, or removal of existing installations with the private property owner and the CO.

END OF SECTION

SECTION 01 56 15
PROTECTION OF EXISTING UTILITIES

PART 1 GENERAL

1.03 PRICE

A. Location and Protection of Existing Utilities

1. Measurement: No measurement shall be made for this item as it will be paid as a lump sum.

2. Payment: Lump sum price offered in the Bid Schedule.

3. The lump sum price offered in the Bid Schedule shall include all labor, material, equipment, coordination, fees, and other incidental costs required to locate and protect existing utilities as specified herein.

4. The Contractor is alerted to the existence of RCW 19 Business Regulations – Miscellaneous, Chapter 19.122 Underground Utilities. Costs incurred as a result of this law and costs for repair of existing utility installations damaged by the Contractor's operations are the sole responsibility of the Contractor.

5. The Contractor shall be solely responsible for the cost of permits, inspections, and other fees levied by utility owners.

1.04 REFERENCES

A. IEEE C2-2007 National Electrical Safety Code (NESC)®

B. RCW 19.122 Underground Utilities

1.05 PROJECT CONDITIONS Drawings included in these Specifications show existing utilities, insofar as it has been possible to show them. The locations of existing utilities are shown for the Contractor's convenience and the Owner and Contracting Officer (CO) assume no responsibility for improper locations or incorrect utility information. The locations of existing utilities should be considered approximate, and the Contractor shall be responsible for field verifying utility locations and protecting existing utilities.

B. Contact the Utility Location Request Center (One Call Center) at 811 or 1-800-424-5555 for utility locations not less than 2 business days before the scheduled date for earthwork or trenching that may impact existing utilities.

C. Obtain the location of embedded conduit, pipe, cable, ground mat, and other buried items before performing any excavation.

D. Note the location and extent of overhead utilities. Caution shall be taken when working near overhead utilities. The Contractor shall be responsible for the safety of employees and equipment when working near overhead utilities.

E. Coordinate with adjacent private property owners to locate buried irrigation pipe and private utility services. Protect existing irrigation systems and other utility services from damage.

1.06 RELATED SECTIONS

A. Section 01 56 10 Protection of Existing Installations

B. Section 02 41 00 Demolition

C. Section 31 11 00 Clearing and Grubbing

D. Section 31 23 33 Trenching and Backfilling

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.03 COORDINATION

A. The Contractor shall be solely responsible for calling the utility locate center, coordinating with existing utility owners, and arranging for the movement or adjustment of existing utilities, as needed to complete the Work.

3.04 INTEREFERENCE WITH OPERATION OR MAINTENANCE

A. All existing utilities shall maintain continuous service and operation during the Contractor's operation, unless the Contractor receives written approval.

B. Do not interfere with operation or maintenance of existing utilities.

1. Provide for access to utilities in a manner satisfactory to owners and operators and the Contracting Officer's Representative (COR).

2. Provide required temporary structures; make necessary repairs, replacements, or similar operations; and furnish indemnity or other bonds.

3.05 ENCLOSURES

A. Enclose work area to prevent dust, spalls, chips, grit, and other foreign material from endangering personnel and contaminating or damaging equipment.

B. Provide enclosures to confine the Contractor's operations to the immediate work area.

3.06 REMOVAL OF PROTECTIVE INSTALLATIONS

A. Remove protective installations after the purpose for which they have been installed has been served. Materials furnished by the Contractor to provide protection shall remain property of the Contractor.

3.07 REPAIR

A. Repair, at the Contractor's expense, damage to existing installations due to the Contractor's operations or the Contractor's failure to provide proper protection. At the COR's option, damage may be repaired by the Owner, the CO, or their representatives, and the Contractor will be backcharged repair costs.

B. All areas disturbed by construction shall be returned to the original ground topography before construction ends, unless otherwise shown in the Drawings.

C. If disturbance of private irrigation pipe or installations is required to complete the Work, the Contractor shall replace or repair the existing pipe or installation. The Contractor shall coordinate replacement, repair, relocation, or removal of existing installations with the private property owner and the CO.

END OF SECTION

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SECTION 01 57 13
TEMPORARY EROSION AND SEDIMENT CONTROL

PART 1 GENERAL

1.01 PAYMENT

A. Temporary Erosion and Sediment Control (TESC)

1. Measurement: No measurement shall be made for this item as it will be paid as a lump sum.

2. Payment: Lump sum price offered in the Bid Schedule.

3. The lump sum price offered in the Bid Schedule shall include all labor, material, equipment, coordination, fees, and other incidental costs required to prepare a TESC Plan and implement the plan throughout construction, in accordance with these Specifications and applicable permit approvals.

1.02 SUMMARY

A. Section includes general requirements relating to responsibilities for temporary erosion and sediment controls to prevent water pollution during construction.

1.03 REFERENCES

A. Code of Federal Regulations (CFR)

1. 40 CFR, Part 112 Oil Pollution Prevention

B. Public Law

1. Sections 311, 402, and 404 Clean Water Act

1.04 RELATED SECTIONS

A. Section 01 57 19 Temporary Environmental Controls

B. Section 02 41 00 Demolition

C. Section 31 11 00 Clearing and Grubbing

D. Section 31 23 19 Dewatering

1.05 SUBMITTALS

A. Submit the following in accordance with Section 01 33 00 – Submittal Procedures:

1. RSN 015713-1, Construction Stormwater Pollution Prevention Plan (SWPPP)

   a) Submit a detailed Construction SWPPP following the template provided by the Washington State Department of Ecology (Ecology). The SWPPP shall include:

      1) Name of person who will be responsible for implementing and carrying out plan.

      2) Relationship of methods and descriptions herein to conditions of required permits specified in article titled "Contractor Responsibilities."

      3) Precautions that will be taken to avoid discharge or accidental spills of pollutants into a river, stream, watercourse, or lake.

      4) Demonstrated compliance with State and local waste disposal, sanitary sewer, or septic regulations.

      5) Methods of handling and treating wastewater, including drawings or maps indicating locations for evaporation or settling ponds, treatment facilities, best management practices to prevent water pollution, and discharge points. Provide estimates of amount of wastewater which may be handled and treated at each location.

      6) A plan view drawing or map showing TESC practices and methods for preventing or controlling runoff and erosion at construction sites, including:

         - Access and haul roads
         - Stockpile, borrow, and waste areas
         - Construction plant and equipment yards
         - All excavated surfaces
         - Areas containing slurry ponds or water treatment facilities
         - Buffer zones
         - Other impacted areas

7) Details and information for TESC practices and methods proposed by the Contractor, including vegetative practices, structural controls, silt fences, straw dikes, sediment and operator controls, stormwater controls, and solid waste controls. Address stormwater controls for appropriate stormwater management measures including velocity dissipators. Address solid waste controls for building materials and offsite tracking of sediment.

8) A Diversion and Control of Water plan documenting methods, locations, and details associated with dewatering excavations and management of dewatered water during construction, in accordance with Section 31 23 19 – Dewatering.

2. RSN 015713-2, Spill Prevention, Control, and Countermeasure (SPCC) Plan:

a) Submit an SPCC Plan with the Construction SWPPP, as required by Ecology, and:

1) Identify hazardous materials to be stored, used, or generated as part of the Work, including, but not limited to, gasoline, oils, and other chemicals.

2) Identify and provide a description of proposed controls that shall be implemented to prevent the release or spread of any hazardous materials found on site and encountered during construction that are not identified in the Contract Documents.

3) Identify and provide a description of proposed controls to be implemented for management of hazardous materials to be stored, used, or generated as part of the Work, including oil, gasoline, and solvents used in the operation and maintenance of on-site vehicles and machinery.

4) Include a description of methods and procedures to be followed during emergencies related to the spill, release, or unexpected discovery of hazardous materials (Emergency Action Plan) and a site plan showing locations where hazardous materials will be stored and used, and inspection and incident report forms.

5) The SPCC Plan shall be reviewed and certified by a registered professional engineer in accordance with

40 CFR, Part 112, and as required by section 311 of the Clean Water Act (Public Law 92-500 as amended).

1.06 REGULATORY REQUIREMENTS

A. Laws, Regulations, and Permits

1. Perform construction operations in such a manner to comply, and ensure subcontractors comply, with:

a) Applicable federal, state, and local laws, orders, regulations, and Water Quality Standards concerning control and abatement of water pollution.

b) Terms and conditions of applicable permits issued by permit issuing authority. If conflict occurs between federal, state, and local laws, regulations, and permit requirements, the most stringent shall apply.

B. Contractor Violations

1. If noncompliance occurs, report noncompliance to the Contracting Officer's Representative (COR) immediately (orally), with specific information submitted in writing within 2 calendar days.

2. Nonconformance with applicable federal, state, or local laws, orders, regulations, or Water Quality Standards may result in the COR stopping all site activity until compliance is ensured.

3. The Contractor shall not be entitled to any extension of time, claim for damage, or additional compensation by reason of such a work stoppage.

4. Corrective measures required to bring activities into compliance shall be at the Contractor's expense.

1.07 REQUIRED PERMITS

A. The Contractor will be responsible for applying for and securing a construction stormwater permit from Ecology. The Contractor shall become familiar with permit conditions prior to starting the Work and comply with all permit conditions through completion of the Work. Any penalties related to violation of permit conditions shall be the sole responsibility of the Contractor.

1.08 CONTRACTOR RESPONSIBILITIES

A. Preparation of a Construction SWPPP and SPCC Plan.

B. Securing a construction stormwater permit from Ecology.

C. Installation and Maintenance

1. Install temporary controls and maintain control facilities until construction and final stabilization/seeding are complete.

D. Monitoring

1. Conduct monitoring in order to meet the requirements of the permits which may include:

a) Sampling

b) Site inspections

c) Required laboratory tests to determine effluent characteristics

E. Reporting Results

1. Report all required monitoring results to appropriate agencies.

F. Recordkeeping

1. Retain records and data required by permits for the specified time period.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 TEMPORARY WATER POLLUTION CONTROLS

A. Control pollutants by use of sediment and erosion controls, wastewater and stormwater management controls, construction site management practices, and other controls including state and local control requirements.

B. Sediment and Erosion Controls

1. Establish methods for controlling sediment and erosion that address vegetative practices, structural control, silt fences, straw dikes, sediment controls, and operator controls as appropriate.

2. Institute stormwater management measures, as required, and solid waste controls that address controls for building materials and off-site tracking of sediment.

C. Stormwater Management Controls

1. Pollution Prevention Measures

a) Use methods of dewatering, unwatering, excavating, or stockpiling earth and rock materials which include prevention measures to control silting and erosion, and which will intercept and settle any runoff of sediment-laden waters.

b) Prevent wastewater from general construction activities from entering flowing or dry watercourses without the use of approved turbidity control methods.

c) Divert stormwater runoff from upslope areas away from disturbed areas.

2. Turbidity Prevention Measures

a) Use methods for prevention of excess turbidity, which include, but are not restricted to, intercepting ditches, settling ponds, gravel filter entrapment dikes, combinations thereof, or methods that are not harmful to aquatic life.

b) Wastewaters discharged into surface waters shall contain the least concentration of settleable material possible.

c) Do not operate mechanized equipment in waterbodies without having first obtained a Section 404 permit, and then only as necessary to construct crossings or perform the required construction.

3. If monitoring or inspection shows that the erosion controls are ineffective, mobilize work crews immediately to make repairs, install replacements, or install additional controls as necessary.

4. Remove and properly dispose of sediment from erosion controls once it has reached one-third of the exposed height of the control.

D. Construction Site Management

1. Contractor Construction Operations

a) Perform construction activities by methods that will prevent entrance or accidental spillage of solid matter, contaminants, debris, or other pollutants or wastes into streams, flowing or dry watercourses, lakes, wetlands, reservoirs, or underground water sources. Such pollutants and wastes include, but are not restricted to refuse, garbage, cement, sanitary waste, industrial waste, hazardous materials, radioactive substances, oil and other petroleum products, aggregate processing tailings, mineral salts, and thermal pollution.

2. Stockpiled or Deposited Materials

   a) Do not stockpile or deposit excavated materials or other construction materials near or on stream banks, lake shorelines, or other watercourse perimeters where they can be washed away by high water or storm runoff, or can, in any way, encroach upon the watercourse.

3. Oil Storage Tanks Management

   a) Storage Tank Placement: Place oil or other petroleum product (hereinafter referred to collectively as oil) storage tanks or containers at least 20 feet from streams, flowing or dry watercourses, lakes, wetlands, reservoirs, and any other water source in a discharge area.

   b) Storage Area Dikes: Construct storage area dikes at least 12 inches high or graded and sloped to permit safe containment of leaks and spills equal to the capacity located in each area plus a sufficient amount of freeboard to contain the 25-year rainstorm.

   c) Diked Area Barriers: Provide diked areas with an impermeable barrier at least 50 mils thick. Provide areas used for refueling operations with an impermeable liner at least 50 mils thick buried under 2 to 4 inches of soil.

   d) Underground Tank Prohibitions: Do not use underground storage tanks.

END OF SECTION

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SECTION 01 57 19
TEMPORARY ENVIRONMENTAL CONTROLS

PART 1 GENERAL

1.01 COST

A. Include in the prices offered in the Bid Schedule for other items of work.

B. Costs for damages and work stoppage resulting from insufficient environmental controls are the sole responsibility of the Contractor.

1.02 SUMMARY

A. This Section includes general requirements relating to responsibilities for temporary environmental controls, including dust control, air pollution control, light control, and noise restrictions.

1.03 RELATED SECTIONS

A. Section 01 57 13 Temporary Erosion and Sediment Control

B. Section 01 74 10 Cleaning and Waste Management

C. Section 02 41 00 Demolition

D. Section 31 11 00 Clearing and Grubbing

1.04 REGULATORY REQUIREMENTS

A. Comply with federal, state, and local laws and regulations.

B. Conform to most stringent requirement in cases of conflict between these Specifications and regulatory requirements.

C. The Contractor shall be responsible for damages resulting from dust originating from Contractor operations.

D. The Contracting Officer's Representative (COR) may stop any construction activity in violation of federal, state, or local laws and all additional expenses resulting from work stoppage will be the sole responsibility of the Contractor.

1.05 DUST CONTROL

A. Provide environmentally compatible dust control and abatement during construction.

B. Prevent, control, and abate dust pollution on rights-of-way provided by the COR or elsewhere during performance of the Work.

C. Provide labor, equipment, and materials, and use efficient methods wherever and whenever required to prevent dust nuisance or damage to persons, property, or activities, including, but not limited to crops, orchards, cultivated fields, wildlife habitats, dwellings and residences, agricultural activities, recreational activities, traffic, and similar conditions.

1.06 AIR POLLUTION CONTROL

A. Use reasonably available methods and devices to prevent, control, and otherwise minimize atmospheric emissions or discharges of air contaminants.

B. Do not operate equipment and vehicles that show excessive exhaust gas emissions until corrective repairs or adjustments reduce such emissions to acceptable levels.

1.07 LIGHT CONTROL

A. Direct stationary floodlights to shine downward at an angle less than horizontal.

B. Shield floodlights so that floodlights will not be a nuisance to surrounding areas.

C. Direct lighting so that residences are not in direct beam of light.

D. Correct lighting control problems when they occur as approved by the COR.

1.08 NOISE CONTROL

A. Follow the most stringent of noise restrictions in permits, or state or local regulations.

1. Do not exceed 80 decibels (daytime), as measured at noise-sensitive areas such as residences and schools during the hours of 7:00 a.m. to 7:00 p.m. Do not exceed noise levels of 65 decibels (nighttime) during the hours of 7:00 p.m. to 7:00 a.m.

2. Only construction activities approved by COR will be allowed during hours of 7:00 p.m. to 7:00 a.m.

3. Provide specialty mufflers for continuously running generators, pumps, and other stationary equipment to meet the decibel requirements above.

4. Compression brakes are not allowed.

5. Perform operations producing high-intensity impact noise during the hours of 7:00 am to 7:00 pm. Blasting, drilling, jackhammering, pile driving, or

other operations producing high-intensity impact noise may be performed at nighttime only with prior approval from the COR.

1.09 INVASIVE SPECIES CONTROL

A. The Contractor shall ensure that all equipment entering the project area be free of noxious weeds, invasive species and their propagules (such as an egg, bud, seed, spore or other offshoot, that aid in dispersal of the species and from which a new individual may develop) in accordance with State of Washington law. This shall include aquatic and terrestrial (i.e., land dwelling) species. Additional information on the specific species can be obtained through the local State Parks and Recreation office or use www.wise.wa.gov.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

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SECTION 01 57 50
TREE AND PLANT PROTECTION

PART 1 GENERAL

1.01 COST

A. Include in prices offered in the Bid Schedule for other items of work.

B. Costs for repair or treatment of injured vegetation and replacement of trees or shrubs shall be the sole responsibility of the Contractor.

1.02 RELATED SECTIONS

A. Section 01 56 10 Protection of Existing Installations

B. Section 02 41 00 Demolition

C. Section 31 11 00 Clearing and Grubbing

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 PRESERVATION AND PROTECTION

A. Preserve natural landscape, and preserve and protect existing vegetation not required or otherwise authorized to be removed.

1. Submit requests to remove vegetation not specifically designated for removal on the Drawings to the Contracting Officer's Representative (COR).

B. Conduct operations to prevent unnecessary destruction, scarring, or defacing of natural surroundings in the vicinity of the Work.

C. Move crews and equipment within the rights-of-way and over routes provided for access to the Work in a manner to prevent damage to grazing land, crops, or property.

D. Protect vegetation from damage or injury caused by construction operations, personnel, or equipment by the use of protective barriers or other methods approved by the COR.

E. Minimize, to the greatest extent practicable, clearings and cuts through vegetation. Irregularly shape authorized clearings and cuts to soften undesirable aesthetic impacts.

F. Do not use trees for anchorages except in emergency cases or as approved by the COR.

1. For such use, wrap the trunk with a sufficient thickness of approved protective material before any rope, cable, or wire is placed.

2. Submit requests to use trees for anchorage, except for emergencies. Include description of protective material.

G. Use safety ropes where tree climbing is necessary; do not use climbing spurs.

3.02 REPAIR OR TREATMENT

A. The Contractor is responsible for injuries to vegetation caused by Contractor operations, personnel, or equipment.

B. Repair or treat injured vegetation without delay and as recommended by and under direction of an experienced arborist or licensed tree surgeon approved by the COR. Provide qualifications of the arborist or licensed tree surgeon to the COR for approval prior to employment.

C. Restore construction roads to original contours and make impassable to vehicular traffic when no longer required.

D. Scarify and regrade, after completion of work, land used for construction purposes and not required for completed installation so that surfaces blend with natural terrain and are in a condition that will facilitate revegetation, provide proper drainage, and prevent erosion.

3.03 REPLACEMENT

A. Remove and properly dispose of trees or shrubs not required or otherwise authorized to be removed that, in the opinion of the COR, are damaged or injured beyond saving.

B. Replace removed tree or shrub with tree or shrub approved by the COR.

1. For a period of 1 year, guy or support as required, water, and maintain replacement trees and shrubs.

2. Remove and replace any replacement tree or shrub that dies within the 1-year period, and maintain such replacements for a period of 1 year from the date of replacement.

END OF SECTION

SECTION 01 57 90
PRESERVATION OF HISTORICAL AND ARCHEOLOGICAL DATA

PART 1 GENERAL

1.01 COST

A. Except as provided for an equitable adjustment, include in prices offered in the Bid Schedule for other items of work.

1.02 DEFINITIONS

A. Cultural Resources: Includes prehistoric, historic, architectural, and traditional cultural properties. These include, but are not limited to, human skeletal remains, archaeological artifacts, records, and material remains related to such property.

B. Cultural Items: Native American cultural items (i.e., funerary objects, sacred objects, objects of cultural patrimony, or human remains) for which protection is prescribed under the Native American Graves Protection and Repatriation Act (NAGPRA) - Public Law 101-601; 104 Stat. 3042, Section 3(d); and 43 CFR Part 10.4.

C. Human Remains: Physical remains of the body of a person.

D. Funerary Objects: Native American items that, as part of the death rite or ceremony of a culture, are reasonably believed to have been placed intentionally at the time of death or later with or near individual human remains.

E. Native American: Of, or relating to, a tribe, people, or culture that is indigenous to the United States.

F. Sacred Objects: Native American items that are specific ceremonial objects needed by traditional Native American religious leaders for the practice of traditional Native American religions by their present-day adherents. These items are specifically limited to objects that were devoted to a traditional Native American religious ceremony or ritual and which have religious significance or function in the continued observance or renewal of such ceremony.

G. Objects of Cultural Patrimony: Native American items having ongoing historical, traditional, or cultural importance central to the Indian tribe itself, rather than property owned by an individual tribal member. These objects are of such central importance that they may not be alienated, appropriated, or conveyed by any individual tribal member.

1.03 PROJECT CONDITIONS

A. Federal legislation provides for protection, preservation, and collection of scientific, prehistorical, historical, and archeological data, including relics and specimens, which might otherwise be lost due to alteration of terrain as a result of any federal construction project.

B. Any person who, without permission, injures, destroys, excavates, appropriates, or removes any historical or prehistorical artifact, object of antiquity, or archeological resource on public lands of the United States is subject to arrest and penalty of law.

C. Comply with state laws when operating on non-federal and non-Indian lands.

D. Discovery of Resources

1. When the Contractor, or any of the Contractor's employees, or parties operating or associated with the Contractor, in performance of this contract discover cultural resources on any lands:

   a) Immediately cease work at that location.

   b) Provide immediate verbal notification to the Contracting Officer (CO), giving the location and nature of the findings.

   c) Follow with written confirmation to the CO within 2 days.

2. In addition to notifying the CO, where the discovery occurs on state, municipal, or private lands, notify the appropriate state officials as prescribed by state law.

3. Exercise care so as not to disturb or damage cultural resources uncovered during construction activities and provide such cooperation and assistance as may be necessary to preserve the findings for removal or other disposition by the CO.

4. Do not resume work in the area of discovery until receipt of written notice to proceed from the CO.

5. Where appropriate by reason of discovery, the CO may order delays in time of performance or changes in work, or both. When such delays or changes are ordered, an equitable adjustment will be made in the contract in accordance with applicable clauses of the contract.

6. Include permission for COR access in arrangements for use of private lands for use areas or borrow sources. COR access to the private land shall be to identify cultural resources and conduct appropriate inspections.

7. Insert this Section in subcontracts which involve performance of work on job site terrain.

1.04 RELATED SECTIONS

A.	Section 01 56 10	Protection of Existing Installations
B.	Section 02 41 00	Demolition
C.	Section 31 11 00	Clearing and Grubbing
D.	Section 31 23 33	Trenching and Backfilling

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

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SECTION 01 60 00
PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 COST

A. When a separate item which includes furnishing of a material is provided in the Bid Schedule, include cost of furnishing, hauling, storing, and handling in the price offered in the Bid Schedule for the item.

B. When a separate item is not provided in the Bid Schedule for furnishing a material, include cost of furnishing, hauling, storing, and handling in the price offered in the schedule for work for which the material is required.

1.02 REFERENCES

A. American Society of Mechanical Engineers (ASME)

1.	ASME B1.1-03 (2008)	Unified Inch Screw Threads, (UN and UNR Thread Form)
2.	ASME B1.20.1-83(2006)	Pipe Threads, General Purpose, Inch

1.03 DEFINITIONS

A. Essential Characteristics: As used in these Specifications, the term “essential characteristics” is synonymous with the term “salient characteristics.”

B. Salient Characteristics: Those qualities of an item that are essential to ensure that the intended use of the item can be satisfactorily realized.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Transport and handle manufactured products in accordance with manufacturer’s instructions.

B. Store and protect manufactured products in accordance with manufacturer’s instructions and these Specifications. Obtain these instructions from the manufacturer before delivery of materials to job site. Maintain a copy of these instructions at the job site.

C. Remove and replace damaged items with new items.

D. Protect materials subject to adverse effects from moisture, sunlight, ultraviolet light, or weather during storage at job site.

E. Store curing compounds, sealants, adhesives, paints, coatings, sealers, joint compounds, grouts, and similar products at the temperature and environmental conditions recommended by manufacturer.

1.05 MAINTENANCE

A. Extra Materials

1. Furnish additional maintenance materials specified as "extra materials" in these Specifications. Provide maintenance material identical to installed material and provide from the same manufacturer's production lot as installed material.

2. Package extra materials for storage and label with complete product information on packaging.

3. Deliver extra materials to the job site and place in storage as directed by the Contracting Officer's Representative (COR).

PART 2 PRODUCTS

2.01 MATERIALS

A. Provide materials required for completion of the Work.

B. Provide type and quality that meet the requirements outlined in these Specifications. Make a diligent effort to procure specified materials from any and all sources.

C. Materials and equipment shall be approved by the COR, the Contracting Organization's Engineer, and the Owner.

D. Materials and equipment shall be new and undamaged, unless otherwise approved by the COR. Furnish new materials conforming to referenced standards unless otherwise specified.

E. For materials not covered by these or referenced specifications, furnish standard commercial quality materials.

F. If materials deviate from or are not covered by recognized specifications and standards, submit, for approval, justification for and exact nature of the deviation, and complete specifications for materials proposed for use.

G. Make parts accurately to standard gauge where possible.

1. Use unified screw threads conforming to ASME B1.1 or B1.20.1 for threads, including but not limited to those of bolts, nuts, screws, taps, pipes, and pipefittings.

2. For internal connections only, the Contractor may deviate from ASME standards, provided a complete set of taps and dies are furnished as required to facilitate repair or replacement.

H. Permanently mark fasteners with a symbol identifying the manufacturer and with symbol(s) indicating grade, class, type, and other identifying marks in accordance with reference or applicable standard.

2.02 SUBSTITUTIONS

A. If materials required by these Specifications become unavailable, because of government priorities or other causes, substitute materials may be used.

B. Obtain written approval to use substitute materials from the COR. State in the request for approval the amount of the adjustment, if any, to be made in favor of the Contracting Officer (CO).

C. The COR's determination as to whether substitution will be permitted and as to what substitute materials may be used, shall be final and conclusive.

D. If approved substitute materials are of less value to Methow Valley Irrigation District or involve less cost to the Contractor than specified material, a contract adjustment will be made in favor of the CO. Where the amount involved or the importance of substitution warrants, a deductive modification to the contract will be issued.

E. No payments in excess of prices offered in the schedule will be made because of substitution of one material for another or because of use of one alternate material in place of another.

2.03 WORKMANSHIP

A. Accurately manufacture and fabricate materials in accordance with best modern practice and requirements of these Specifications, notwithstanding minor errors or omissions therein.

B. Use liberal factors of safety and adequate shock-absorbing features in designs, especially for parts subjected to variable stress or shock, including alternating or vibrating stress or shock.

C. Include provisions that prevent components from loosening for shock-absorbing features and parts subject to vibration.

2.04 SOURCE QUALITY ASSURANCE

A. Materials will be subject to inspection at any one or more of the following locations, as determined by the COR:

1. At place of production or manufacture.

2. At shipping point.

3. At job site.

B. To provide for inspection, provide at time of issuance, copies of purchase orders, including drawings and other pertinent information, covering material on which inspection will be made as advised by the COR, or provide other evidence if such purchase orders are issued verbally or by letter.

C. Inspection of materials at any location specified above or waiving of inspection shall not be construed as being conclusive as to whether materials and equipment conform to Contract requirements nor shall the Contractor be relieved thereby of the responsibility for furnishing materials meeting the requirements of these Specifications.

D. Acceptance of materials will be made only at the job site.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install products in accordance with manufacturer's recommendations unless otherwise specified.

3.02 FIELD QUALITY CONTROL

A. Final inspection and acceptance of materials will be made only at the job site after installation and testing.

END OF SECTION

SECTION 01 70 00
EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.01 COST

A. Include in prices offered in the Bid Schedule for other items of work.

1.02 GENERAL

A. Prior to commencing demobilization, the Contractor shall review all construction elements with the Contracting Officer's Representative (COR), who will give approval of the final site review.

B. Prior to requesting final site review, the Contractor shall verify that the Project is complete in all aspects.

C. Final site review approval is contingent on the successful completion of: construction of design elements, cleaning of the site, removal of all construction access routes and staging areas, restoration of areas disturbed by construction activities, and other tasks as outlined in these Specifications and in the Drawings.

1.03 RELATED WORK DESCRIBED ELSEWHERE

A. The provisions and intent of the Contract apply to this work as if specified in this Section. Work related to this Section is described throughout these Specifications.

1.04 REGULATORY REQUIREMENTS

A. Comply with federal, state, and local laws and regulations.

B. Comply with all construction and project permits available.

C. Conform to most stringent requirement in cases of conflict between the Specifications and regulatory requirements.

1.05 CLOSEOUT SUBMITTALS

A. Submit the following in accordance with Section 01 33 00 – Submittal Procedures:

1. RSN 017000-1, Final As-built Drawings

a) Submit Final As-built Drawings in PDF format and in AutoCAD Civil 3D 2012 format

PART 2 PRODUCTS

2.01 WARRANTY

A. The Contractor warrants the labor, materials and equipment delivered under the Contract to be free from defects in design, material, or workmanship, and against damage caused prior to final inspection. Unless otherwise specified, this warranty extends for a period of two full irrigation seasons, beginning with the first irrigation season when the pressurized distribution system is in full operation.

B. The Contractor shall promptly (within 48 hours) repair or replace all defective or damaged items delivered under the Contract. The Contractor will haul away all defective or damaged items prior to Substantial Completion.

C. In the event of equipment failure, during such time, or in such a location that immediate repairs are mandatory, the Contractor shall respond promptly, irrespective of time. If the Contractor is not available, the Owner will affect repairs. The Contractor shall then reimburse the Owner for parts and labor necessary to correct deficiencies as defined within the warranty clause and time.

PART 3 EXECUTION

3.01 TESTING

A. The Contractor shall successfully complete pressure testing of the pressurized distribution system in accordance with the requirements of Section 33 11 17.

3.02 FINAL AS-BUILT DRAWINGS

A. The Contractor shall maintain hand drawn redlines, field notes and photographs ("field documentation") of all improvements or variations as the Work progresses. The Contractor's field documentation shall be maintained on-site and shall be available for review by the Contracting Officer, the COR, and the Owner at all times.

B. Maintain two sets of full-size prints of the Contract Drawings at the job site.

1. Mark and dimension to show variations between actual construction and that indicated or specified in the approved Contractor-furnished Design Drawings.

    a) Include buried or concealed construction and utilities.

    b) Include existing items, topographic features, and utility lines revealed during construction that differ from those shown on the Contract Documents.

2. Mark Drawings to define construction actually provided where choice of materials or methods is permitted in these Specifications, or where variations in scope or character of work from that of the original Contract are authorized.

C. Use standard drafting practice to represent changes and include supplementary notes, legends, and details necessary to clearly portray as-built construction.

D. Mark Drawings in the following colors:

1. Red: Additions to original Drawings.

2. Green: Deletions to original Drawings.

3. Blue: Notations necessary for explanation of As-built Drawings.

E. Upon completion of the Work, sign the marked prints as certified correct.

F. The Contractor shall contract with a Professional Land Surveyor licensed in the State of Washington to acquire the field data required to create the Record Drawings. The Contractor's Surveyor shall be the Surveyor of Record for the Record Drawings. All field locations shall be associated with an establish benchmark or an easily measured object in the field, such as a light pole, manhole, vault, etc.

G. The Contractor shall prepare Final As-built Drawings that incorporate the hand-drawn redlines maintained during construction, in a format compatible with AutoCAD 2012 Civil 3D. The Contractor shall furnish a full-sized hard copy (22 x 34-inch sheets), a digital copy (in PDF format), and electronic drawing files in AutoCAD 2012 Civil 3D format of the final Record Drawings. Electronic files shall be provided on a CD, DVD, or other portable digital storage device.

H. Final As-built Drawings shall be complete and accepted by the Owner and COR prior to final acceptance.

I. As-built Drawings shall be in accordance with horizontal and vertical control used by the Contractor to develop the detailed Design Drawings.

J. Once final site review is approved by the COR, the Contractor may commence demobilization activities.

END OF SECTION

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SECTION 01 71 13
MOBILIZATION

PART 1 GENERAL

1.01 PRICE

A. Mobilization/Demobilization

1. Measurement: No measurement shall be made for this item as it will be paid as a lump sum. To facilitate review and processing of monthly pay requests, hours shall be submitted with the pay request.

2. Payment: Lump sum price offered in the Bid Schedule up to a maximum of 7.5% of the Construction Total.

1.02 SUMMARY

A. Work shall consist of mobilizing equipment and supplies and securing bonds and permits necessary to do the Work as stated in the Contract and/or agreement and demobilization of excess materials and equipment from the job site.

1.03 FORCES AND EQUIPMENT

A. Mobilization may include costs for transporting personnel, equipment, operating supplies to the site, establishment of necessary facilities for the Contractor's operation and any permits, insurance, and/or bonds required to do the Work.

B. Demobilization may include the removal of equipment and facilities that were necessary to do the Work.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

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SECTION 01 74 10
CLEANING AND WASTE MANAGEMENT

PART 1 GENERAL

1.01 COST

A. Include in prices offered in the Bid Schedule for other items of work except as specified.

B. Cost of environmental site assessments are the Contractor's sole responsibility.

1.02 REFERENCES

A. Code of Federal Regulations (CFR)

1.	40 CFR 243	Guidelines for the Storage and Collection of Residential, Commercial, and Institutional Solid Waste
2.	40 CFR 261	Identification and Listing of Hazardous Waste
3.	40 CFR 262	Standards Applicable to Generators of Hazardous Waste
4.	40 CFR 263	Standards Applicable to Transporters of Hazardous Waste
5.	40 CFR 268	Land Disposal Restrictions

1.03 DEFINITION

A. Hazardous Waste: Defined as hazardous by 40 CFR 261.3 or by other federal, state, or local laws or regulations.

B. Non-hazardous Waste

1. Solid Waste: Defined as a waste by 40 CFR 243.101 and 40 CFR 261, or by other federal, state, or local laws or regulations.

2. Construction and Demolition Waste: Defined by 40 CFR 243.101, or by other federal, state, or local laws or regulations.

1.04 RELATED SECTIONS

A.	Section 01 11 00	Summary of Work
B.	Section 02 41 00	Demolition

C. Section 01 70 00 Execution and Closeout Requirements

D. Section 31 11 00 Clearing and Grubbing

1.05 QUALIFICATIONS

A. Environmental Consultant: Minimum 3 years of experience in conducting environmental site assessments for similar construction.

1.06 REGULATORY REQUIREMENTS

A. Comply with federal, state, and local laws and regulations.

B. Conform to most stringent requirement in cases of conflict between these Specifications and regulatory requirements.

1.07 PROJECT CONDITIONS

A. Report waste materials discovered at the job site to the Contracting Officer (CO).

1. If waste is hazardous, the CO may order delays in time of performance or changes in work, or both.

2. If such delays or changes are ordered, an equitable adjustment will be made in the Contract in accordance with applicable clauses of the Contract.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 TESTS

A. Test unknown waste materials found at the job site that may be hazardous.

3.02 PROGRESS CLEANING

A. Keep work and storage areas free from accumulations of waste materials and rubbish.

3.03 FINAL CLEANUP

A. Remove temporary plant facilities, temporary buildings, concrete footings and slabs, rubbish, unused materials, concrete forms, loose rocks, and other similar waste materials that are not part of permanent work.

B. Restore fences, posts, mailboxes, and other private property.

C. Clean and restore finished surfaces to match their existing condition, as directed by the Contracting Officer's Representative. Finished seeded surfaces shall be raked and suitable mowing with a conventional lawn mower.

3.04 NON-HAZARDOUS WASTE DISPOSAL

A. Recycle or stockpile solid waste and construction or demolition waste for reuse whenever possible.

B. Combustible Waste Materials: Dispose by removal from job site.

C. Noncombustible Waste Materials: Dispose by removal from job site.

D. Disposal by Removal

1. Dispose of waste materials at a permitted landfill. Make arrangements with the CO for use of landfill and pay required fees.

E. Do not burn waste materials.

F. Do not bury waste materials.

3.05 HAZARDOUS WASTE DISPOSAL

A. Recycle hazardous waste whenever possible.

B. Provide a hazardous waste manifest for approval and signature.

C. Transport hazardous waste in accordance with 40 CFR 263.

D. Dispose of waste materials known or found to be hazardous at permitted treatment or disposal facilities approved by the Hazardous Waste Materials Coordinator or designee.

E. Ensure land disposal of hazardous waste is in accordance with 40 CFR 268.

F. Provide a returned signed original hazardous waste manifest following acceptance of waste at the designated facility.

3.06 SITE ASSESSMENT

A. If the Work requires generation or storage of hazardous waste on the project site, upon completion of work, perform a site assessment at the following areas for work done under these Specifications:

1. Hazardous waste accumulation areas.

2. Petroleum dispensing and storage areas, and hazardous material storage areas where aggregate storage of petroleum or hazardous materials at job site was over 110 gallons.

B. Employ a qualified environmental consultant to perform assessments.

C. Demonstrate and document by appropriate analytical sampling that site contamination is less than state action cleanup levels.

3.07 RECORDS

A. Keep records of types and amounts of waste materials produced.

B. Keep records of waste material disposal.

END OF SECTION

SECTION 02 21 00
SURVEYS

PART 1 GENERAL

1.01 PAYMENT

A. Construction Surveying

1. Measurement: No measurement shall be made for this item as it will be paid as a lump sum.

2. Payment: Lump sum price offered in the Bid Schedule.

1.02 SUMMARY

A. Work includes completion of surveys during construction to accomplish the following:

1. Establish temporary survey monuments and benchmarks as necessary.

2. Establish and stake the Project and clearing limit boundaries.

3. Complete all calculations, surveying, and measurements required for setting and maintaining necessary lines and grades.

1.03 RELATED SECTIONS

A.	Section 01 11 00	Summary of Work
B.	Section 01 70 00	Execution and Closeout Requirements
C.	Section 31 11 00	Clearing and Grubbing
D.	Section 31 23 33	Trenching and Backfilling
E.	Section 33 11 17	HDPE Irrigation Distribution Piping
F.	Section 33 11 18	Ductile Iron Irrigation Distribution Piping

1.04 DEFINITIONS

A. Benchmark: A relatively permanent or temporary material object, natural or artificial, bearing a marked point whose elevation above or below an adopted surface (datum) is known; a vertical control point.

B. Monument: A relatively permanent or temporary marker, natural or artificial, bearing a marked point whose position relative to an adopted reference system of coordinates (datum) is known; a horizontal control point.

C. Marker: A general term for temporary or permanent, natural or artificial objects which includes both benchmarks and monuments.

D. United States Survey Foot: Exactly 1200/3937 of a meter.

1.05 SUBMITTALS

A. Submit the following in accordance with Section 01 33 00 – Submittal Procedures:

1. RSN 022100-1, Surveying Plan

   a) Describe work layout and survey methods.

   b) Include surveying schedule.

2. RSN 022100-2, Resume

   a) Engineer or surveyor responsible for supervising and directing survey work.

3. RSN 022100-3, Accuracy Check Results

   a) Accuracy check of Government-established primary control.

4. RSN 022100-4, Quantity Surveys and Computations

   a) Survey data is required to support progress payments. Include itemized statement for work supported by computations, diagrams, drawings, spreadsheets, and, if applicable, survey software printouts.

1.06 PRIMARY CONTROL AND EXISTING FEATURES

A. The government has established primary control to be used for establishing work lines and grades. The government-established primary control shall be provided in electronic format by the Contracting Officer's Representative (COR) to the Contractor for use in developing detailed Design Drawings and establishing work lines and grades.

B. Primary control consists of existing features and horizontal control points in the vicinity of the Project.

C. Check and verify primary control and resolve discrepancies with COR before beginning work. The Contractor shall reference an established benchmark for checking and verifying primary control.

D. Preserve and maintain primary control points until otherwise authorized. The COR may re-establish damaged or destroyed primary control points and backcharge the re-establishment cost to the Contractor.

1.07 QUALIFICATIONS

A. Provide experienced construction surveyors under supervision and direction of an engineer or surveyor with minimum of 2 years of experience in charge of construction surveys for construction similar in nature to that required by this Contract.

B. Survey equipment shall include modern electronic equipment and software capable of accuracies required herein and compatible with Autodesk AutoCAD Civil 3D 2012.

PART 2 PRODUCTS

2.01 SURVEYING MATERIALS AND EQUIPMENT

A. Provide materials and equipment required for surveying work, including, but not limited to instruments, stakes, spikes, steel pins, templates, platforms, and tools.

B. Except as required to be incorporated in work or left in place, surveying materials and equipment will remain property of the Contractor.

PART 3 EXECUTION

3.01 LAYOUT OF WORK SURVEYS

A. Establish lines and grades for work layout from government-established primary control points, as corrected by the Contractor's check and verification of primary control points.

B. Establish measurements required for work execution to specified tolerances.

C. Provide stakes, markers, and other survey controls necessary to control, check, and guide construction.

D. Electronic surveys shall use a combination of points, lines, and breaklines. Use breaklines for distinct surface features, slope breaks, road and pavement edges, edge-of-water, structures, and utilities.

3.02 QUANTITY SURVEYS AND COMPUTATIONS

A. Perform surveys and computations to determine actual quantities of work performed or placed during each progress payment period. Progress payment requests will not be considered complete without acceptable computations.

B. Perform final quantity computations using surveys of original features and ground and final paylines shown in the Drawings as directed. Final quantity computations shall include detailed drawings, sections, and computer or hand calculations.

C. Perform quantity surveys in the presence of the COR, unless specifically waived. Notify the COR at least 24 hours before performing a quantity survey.

D. Quantity survey and computation methods, level of detail, documentation, and presentation shall be clear and understandable, shall produce accuracy within 2%, and are subject to checks and final approval by the COR.

3.03 SURVEY REQUIREMENTS

A. Alignment Staking

1. Each 100 feet on tangent and each 25 feet on curves.

2. At each change in slope and horizontal angle point.

B. Slope Staking

1. Each 100 feet on tangent and each 25 feet on curves.

2. At each change in slope and horizontal angle point.

3. Re-stake every 10 feet in elevation.

C. Structures: Stake out structures and turnout locations before and during construction.

D. Quantity Surveys: As needed to justify quantity calculations. The government will provide original ground model and topography in electronic format.

E. Clearing and Excavation Limits: Stake out clearing and excavation limits as shown in the Drawings, or as directed by the COR. The COR will provide a map and instructions for surveying clearing and excavation limits.

F. As-built: As required to verify construction alignments, limits, and elevations for final as-built drawings.

3.04 ACCURACY

A. Degree of Accuracy

1. Horizontal Alignment: Within 0.1 foot at ends of pipeline, structures, and other critical locations, or as directed by the COR.

2. Existing Structure, Original Ground, and Quantity Surveys: Within 0.1 foot, horizontally and vertically.

3. Structure Points and Anchor Bolt Locations: Set within 0.1 foot, except where installation or operation considerations require high tolerances.

4. Vertical Elevation and Profile: Within 0.05 feet for structural components and pipeline elevations. The finished pipeline profile shall be free of sags, unless shown in the Drawings.

3.05 FIELD RECORDS

A. Record original field notes, computations, and other surveying data in an electronic data collection device.

B. Electronic raw and edited data files with hard copy printouts shall be submitted as the records of survey.

C. Other records of survey data collection and recording shall require approval of the COR.

END OF SECTION

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SECTION 02 41 00
DEMOLITION

PART 1 GENERAL

1.01 PAYMENT

A. Demolition

1. Measurement: No measurement shall be made for this item as it will be paid as a lump sum.

2. Payment: Lump sum price offered in the Bid Schedule.

3. The lump sum price offered in the schedule shall include all labor, equipment, and materials needed to remove, salvage where possible, haul, and dispose of existing pipe, structures, other obstructions and debris necessary to complete the Work.

1.02 SUMMARY

A. Remove, salvage where possible, haul, and dispose of existing irrigation pipe, structures, fencing, and other obstructions and debris necessary to construct the proposed pipeline and associated improvements.

1.03 RELATED SECTIONS

A.	Section 01 11 00	Summary of Work
B.	Section 01 56 10	Protection of Existing Installations
C.	Section 01 56 15	Protection of Existing Utilities
D.	Section 01 57 50	Tree and Plant Protection
E.	Section 01 70 00	Execution and Closeout Requirements
F.	Section 31 11 00	Clearing and Grubbing

1.04 PROJECT CONDITIONS

A. Cease work immediately if demolition operations come into contact with electrical conduit containing or suspected of containing energized circuits and notify the Okanogan County Public Utility District (PUD). Do not resume work until directed by the Okanogan County PUD.

B. Coordinate performance of demolition work that will be noisy, malodorous, or create dust with the Contracting Officer's Representative (COR) to avoid environmental damage or health concerns.

C. Repair or replace existing materials to remain in place if damaged during demolition to the satisfaction of the COR.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 PREPARATION

A. Protect existing materials that are shown on the Drawings or designated by the Contracting Officer's Representative to remain or to be removed for future installation by others, in accordance with Section 01 56 10 – Protection of Existing Installations.

B. Verify the location of existing utilities and protect as necessary prior to the start of demolition, in accordance with Section 01 56 15 – Protection of Existing Utilities.

3.02 REPAIR

A. Repair surfaces exposed by demolition operations to provide uniform appearance with surrounding surfaces.

3.03 DISPOSAL

A. Dispose of removed materials in accordance with Section 01 74 10 – Cleaning and Waste Management.

END OF SECTION

SECTION 05 50 00
METAL FABRICATIONS

PART 1 GENERAL

1.01 COST

A. Include the cost of furnishing and installing miscellaneous metal fabrications in the prices offered in the Bid Schedule for items where metal fabrications are required.

1.02 SUMMARY

A. The Work shall consist of furnishing and installing:

1. Locking, galvanized steel access covers to be installed over access risers and manholes where shown in the Drawings.

2. Other miscellaneous metal for pipe appurtenances.

1.03 RELATED SECTIONS

A. Section 01 11 00 Summary of Work

B. Section 33 11 17 HDPE Irrigation Distribution Piping

1.04 REFERENCES

A. American Institute of Steel Construction (AISC)

1. AISC 316-89 Manual of Steel Construction – Allowable Stress Design – Ninth Edition

B. American Society of Mechanical Engineers (ASME)

1. ASME B18.2.1-1996 Square and Hex Bolts and Screws (Inch Series)

C. ASTM International (ASTM)

1. ASTM A36/A36M Carbon Structural Steel

2. ASTM A 48/A 48M-03 Gray Iron Castings

3. ASTM A123/A123M Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products

4. ASTM A153/A153M Zinc Coating (Hot-Dip) on Iron and Steel Hardware

5.	ASTM A307	Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength
6.	ASTM A325	Structural Bolts, Steel, Heat Treated 120/105 ksi Minimum Tensile Strength
7.	ASTM A385	Practice for Providing High-Quality Zinc Coatings (Hot-Dip)
8.	ASTM A500/A500M	Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
9.	ASTM A501	Hot-Formed and Seamless Carbon Steel Structural Tubing
10.	ASTM A563	Carbon and Alloy Steel Nuts
11.	ASTM A668/A668M	Steel Forgings, Carbon and Alloy, for General Industrial Use
12.	ASTM F436	Hardened Steel Washers
13.	ASTM F844	Washers, Steel, Plain (Flat), Unhardened for General Use

D. American Welding Society, Inc. (AWS)

1.	AWS D1.1/D1.1M	Structural Welding Code – Steel

E. Federal Specifications (FS)

1.	FS FF-S-85C	Screw, Cap, Slotted and Hexagon Head

1.05 SUBMITTALS

A. Submit the following in accordance with Section 01 33 00 – Submittal Procedures:

1. RSN 055000-1, Shop and Fabrication Detail Drawings for Hinged, Locking Manhole Covers

2. RSN 055000-2, Shop Drawings Other Miscellaneous Metal Fabrications

1.06 QUALIFICATION OF WELDERS

A. Welder shall be able to demonstrate prior experience with procedures, materials, and equipment of the type required for the Work.

1.07 DELIVERY, STORAGE, AND PROTECTION

A. Protect metal fabrications from corrosion, deformation, and other types of damage.

B. Store items in an enclosed area free from contact with soil and weather.

C. Remove and replace damaged items with new items.

PART 2 PRODUCTS

2.01 MATERIALS

A. Arc-welding Electrodes

1. Filler metal and required shielding gases or fluxes: AWS D1.1

2. Filler metal for steel, minimum tensile strength: 70,000 psi

3. Aluminum alloy filler metal: AWS classification 4043

B. Bolts, Nuts, and Washers

1. Eyebolts: Forged steel, ASTM A668, class C

2. Nuts: ASTM A563

3. Capscrews: FS FF-S-85

4. Washers

a) For use with ASTM A325 bolts: ASTM F436

b) Unhardened for general use: ASTM F844

5. Bolts

a) ASTM A307, except for anchor bolts and studbolts

b) Provide anchor bolts as shown in the Drawings

c) ASTM A36 steel

d) Length of bolt threads: ASME B18.2.1

e) Thread class: 2 free-fit, American National coarse-thread series

6. Stud Bolts

a) Suitable for end welding to steel with automatically timed stud-welding equipment

C. Access Covers

1. Locking, hinged manhole cover, as shown in the Drawings

2. Miscellaneous Structural Steel

D. Miscellaneous Structural Steel

1. Steel Plate: ASTM A36

2. Angles: ASTM A36

3. Other Shapes: ASTM A36

4. Galvanized per ASTM A123

2.02 ANCHORS

A. Expansion Anchors

1. AISI Type 316 stainless steel, when submerged in water, or hot-dip galvanized

2. Self-drilling anchors, snap-off or flush type

3. Bolt length as shown in the Drawings

B. Wedge Anchors

1. AISI Type 316 stainless steel, when submerged in water, or hot-dip galvanized

2. Bolt length as shown in the Drawings

C. Stud Anchors

1. ASTM A108, deformed bar anchors and stud anchors

2. Flux-filled ends suitable for end welding to steel with automatically timed stud-welding equipment

2.03 FABRICATION

A. Fabricate metalwork in accordance with AISC M016, and these Specifications.

1. Perform welding in accordance with AWS D1.1.

2. Grind all welds smooth.

B. If straightening is necessary, use methods that will not injure the metal.

C. After shop work completion and before galvanizing, clean material of rust, loose scale, dirt, oil, grease, slag and other foreign substances from welded areas.

D. Galvanizing

1. Galvanize items of metalwork unless otherwise specified or shown in the Drawings in accordance with ASTM A123 and A385.

2. Galvanize bolts, nuts, washers, and lockouts in accordance with ASTM A153. Remove excess spelter or centrifugal spinning.

3. Galvanizing Repair

a) Re-dip material with damaged galvanizing unless damage is local and can be repaired by zinc primer.

b) If the galvanized coating becomes damaged after being dipped twice, material will be rejected.

c) Repair procedure where local paint repair is authorized:

1) Clean damaged areas by wiping with clean rags saturated with mineral spirits or xylene, followed by wire brushing.

2) Re-clean areas with solvent to remove residue.

3) Apply two or more coats of zinc primer:

- Total minimum dry-film thickness: 4 mils
- Zinc primer: MIL-DTL-24441/19

PART 3 EXECUTION

3.01 PREPARATION

A. Where locations and dimensions of miscellaneous metalwork shown in the Drawings are tentative and subject to change dependent upon equipment furnished, confirm locations and dimensions prior to fabrication of miscellaneous metalwork.

3.02 INSTALLATION

A. Anchors

1. The Contractor may use suitable adhesive, expansion, or wedge anchors meeting the requirements of this section in lieu of embedded anchors shown on Drawings, provided that anchors are approved by the Contracting Officer.

2. Drill holes for anchors straight, true, and of the diameter recommended by the anchor manufacturer.

3. Install anchors in accordance with manufacturer's recommendations.

4. Follow manufacturer's recommendations when embedded steel or reinforcement is encountered during drilling of anchors.

5. When drilling water is used, clean surfaces of concrete to remain exposed immediately to prevent discoloration.

B. Galvanizing Repair

1. Clean damaged areas by wiping with clean rags saturated with mineral spirits or xylene, followed by wire brushing.

2. Re-clean areas with solvent to remove residue.

3. Apply two or more coats of zinc primer:

a) Total minimum dry-film thickness: 4 mils

b) Zinc primer: MIL-DTL-24441/19

C. Holes in Metalwork

1. Drill, or drill and tap as required, holes in metalwork required for installation.

END OF SECTION

SECTION 31 02 10
WATER FOR DUST ABATEMENT

PART 1 GENERAL

1.01 COST

A. Include in the lump sum price offered in the Bid Schedule for Temporary Erosion and Sediment Control, in accordance with Section 01 57 13.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 APPLYING WATER FOR DUST ABATEMENT

A. Provide water in accordance with Section 01 51 00 – Temporary Utilities, or from another source approved by the Contracting Officer's Representative (COR).

B. Provide means of conveying water to point of use and applying water.

C. Use pressure spray or distributor bar to apply water evenly.

D. Apply water for dust abatement as directed by the COR.

E. Provide when required by local ordinances.

END OF SECTION

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SECTION 31 11 00
CLEARING AND GRUBBING

PART 1 GENERAL

1.01 PAYMENT

A. Clearing and Grubbing

1. Measurement: No measurement shall be made for this item as it will be paid as a lump sum.

2. Payment: Lump sum price offered in the Bid Schedule.

3. The lump sum price offered in the Bid Schedule shall include all material, tools, labor, and equipment needed to complete all clearing and grubbing work as described in these Specifications and as shown in the Drawings.

   a) Where pipeline is within the paved public right-of-way, no clearing and grubbing shall be required.

   b) Where pipeline is not within the paved public right-of-way, clearing and grubbing shall be limited to the clearing limits shown in the Drawings, which are typically 15 feet maximum in width, except where private property constrains the clearing limits.

   c) Clearing and grubbing shall include staging areas, stockpile areas, access routes, and areas excavated for use as backfill.

1.02 DEFINITIONS

A. Vegetation: Trees, shrubs, brush, stumps, exposed roots, down timber, branches, grass, and weeds.

1.03 RELATED SECTIONS

A.	Section 01 11 00	Summary of Work
B.	Section 01 55 00	Vehicle Access and Parking
C.	Section 01 56 10	Protection of Existing Installations
D.	Section 01 56 15	Protection of Existing Utilities
E.	Section 01 57 13	Temporary Erosion and Sediment Control
F.	Section 01 57 50	Tree and Plant Protection

G. Section 02 21 00 Surveys

H. Section 02 41 00 Demolition

I. Section 31 14 10 Stripping

1.04 PROJECT CONDITIONS

A. Preserve and protect vegetation designated for preservation within the clearing limits and vegetation outside the clearing limits, as shown on the Drawings and in accordance with Section 01 57 50 – Tree and Plant Protection.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 PREPARATION

A. Protect existing vegetation and materials designated by the Contracting Officer's Representative (COR) to remain or to be removed for future installation by others, in accordance with Section 01 56 10 – Protection of Existing Installations and Section 01 57 50 – Tree and Plant Protection.

B. Verify the location of existing utilities and protect as necessary prior to the start of demolition in accordance with Section 01 56 15 – Protection of Existing Utilities.

3.02 CLEARING

A. Locate and clearly mark the clearing limits and landscape to be preserved.

B. Clear pipeline corridor, access and staging areas, and borrow areas as follows:

1. Where pipeline is outside the existing right-of-way, clear vegetation within the clearing limits shown on the Drawings which are typically 15 feet maximum in width, except where private property constrains the clearing limits.

2. Clear staging areas, stockpile areas, access routes, and areas excavated for use as backfill.

C. Clear adjacent to cut and fill sections a minimum distance of 1 foot outside of slope lines. Do not clear beyond the clearing limits shown on the Drawings.

D. Remove vegetation and other debris as directed by the COR.

3.03 GRUBBING

A. Remove stumps, roots, and vegetation to a minimum of 12 inches below final excavation lines and grades, or until organic matter is removed from all cleared areas, as outlined in Article 3.02.

B. Perform grubbing in advance of trenching, excavation, and grading work.

3.04 REPAIR

A. Repair surfaces exposed by site clearing operations to provide uniform appearance with surrounding surfaces.

3.05 DISPOSAL OF CLEARED MATERIAL

A. Dispose of removed materials at a location approved by the COR in accordance with applicable permits, and local, state, and federal laws and regulations, and as specified in Section 01 74 10 – Cleaning and Waste Management.

END OF SECTION

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SECTION 31 14 10
STRIPPING

PART 1 GENERAL

1.01 COST

A. Include in the per acre price offered in the Bid Schedule for Clearing and Grubbing, in accordance with Section 31 11 00.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 STRIPPING

A. Strip topsoil from areas to be excavated, areas adjacent to trench excavation that will be used to stockpile excavated material for sorting and reuse, access and service roads, and borrow areas.

B. Strip topsoil to a minimum depth of 8 inches and to a maximum depth of 12 inches, as directed by the Contracting Officer's Representative (COR).

3.02 USE OF TOPSOIL

A. Do not use topsoil removed by stripping for backfill or constructing embankments.

B. Segregate and stockpile topsoil for use in restoration work.

C. Transport and place topsoil over areas to be seeded to a depth of 6 inches.

D. Waste excess topsoil by spreading over disturbed construction areas prior to seeding as directed by the COR.

3.03 STOCKPILE

A. Transport and stockpile topsoil as necessary prior to final hauling and placing.

B. Do not compact topsoil in stockpile.

C. Protect stockpile from contamination and erosion.

END OF SECTION

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SECTION 31 23 19
DEWATERING

PART 1 GENERAL

1.01 COST

A. Include in prices offered in the Bid Schedule for items of work that require dewatering and control of surface water or groundwater for construction.

1.02 GENERAL

A. Limited geologic and groundwater information is available for the entire site. The Contractor shall make his/her own investigations and shall determine the extent and difficulty of removal of water from excavations.

B. The irrigation lateral will not be operational during the period of construction and the Contractor will not need to divert irrigation flows.

C. Conditions which may influence groundwater and surface water conditions at the site include:

1. Frequency and rate of precipitation at the site.

2. Subsurface conditions including natural layering, thickness and permeability of materials, and groundwater levels.

3. Efficiency of pumps, collectors, and discharge systems.

1.03 REQUIREMENT

A. Identify, select, furnish, install, maintain, and operate temporary pumps, pipe, and other equipment necessary for removal of water from the various parts of the Work, and for maintaining the foundations and other parts of the Work free from water as required for constructing each part of the Work. All water control shall conform to the appropriate construction permit documents.

1.04 DEFINITIONS

A. Dewatering: Removal and control of groundwater from pores or other open spaces in soil or rock formations to allow construction activities to proceed as intended, and includes relief of groundwater pressure.

B. Unwatering

1. Control and removal of ponding, seeping, or flowing surface water except as otherwise provided, emerging subsurface water from excavated

surfaces, and from precipitation within and adjacent to excavations and construction zones using channels, ditches, gravel drains, gravel blankets, pipes, sumps, pumps, and discharge lines.

2. Includes a controlled discharge of effluent waters.

1.05 SUBMITTALS

A. Submit in accordance with Section 01 33 00 – Submittal Procedures:

1. RSN 312319-1, Diversion and Control of Water (DCW) Plan

a) Submit with Construction Stormwater Pollution Prevention Plan (SWPPP) in accordance with Section 01 57 13 – Temporary Erosion and Sediment Control.

b) Show proposed methods for removal and control of water from excavations and construction zones.

c) The plan may be placed in operation upon approval, but nothing in this paragraph shall relieve the Contractor from full responsibility for the adequacy of dewatering methods and installations.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 DEWATERING

A. Provide, maintain, and operate necessary pumps and other equipment for removal of water from excavations and trenches for structures and pipe that are to be constructed.

B. Accomplish dewatering, as needed, by use of motor or engine-driven pumps with adequate lift capacity, discharge piping, hoses and piping, valves, and intakes.

C. If a generator is to be used to operate pumping equipment, generator shall be placed above the high water line within an approved spill protection area.

D. Provide dewatering facilities capable of operating in freezing temperatures if freezing weather conditions occur.

E. Monitor and control discharge in accordance with Section 01 57 13 – Temporary Erosion and Sediment Control and the permits required under that Section.

3.02 DEWATERING BELOW GROUNDWATER LEVEL

A. Where excavation and trenching extends below the groundwater level, dewater the portion below the groundwater level in advance of excavation.

B. Dewater to prevent loss of fines from the foundation, maintain the stability of the excavation, and allow construction work to be performed in the dry.

3.03 SEEPAGE CONTROL

A. Before excavating to final grade for pipe and structures, bring the water level to an elevation at least 3 feet below the required subgrade elevation.

B. Maintain this water level until pipe has been placed, structures have been completed, and backfill has been placed.

C. After backfill has been placed, with approval of the COR, allow groundwater to rise to natural levels.

D. Control pumping and dewatering operations so that the groundwater level rises slowly and uniformly along the entire length of pipe and around each structure.

END OF SECTION

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SECTION 31 23 33
TRENCHING AND BACKFILLING

PART 1 GENERAL

1.01 PAYMENT

A. Trench Excavation

1. Measurement: No measurement shall be made for this item as it will be paid as a lump sum.

2. Payment: Lump sum price offered in the Bid Schedule.

3. The lump sum price offered in the Bid Schedule shall include all materials, tools, labor, and equipment necessary to excavate trenches for installation of all pressurized irrigation distribution pipe, fittings, and appurtenances.

4. The lump sum price offered in the Bid Schedule shall include all materials, tools, labor, and equipment needed for saw cutting and pavement removal; excavating for installation of irrigation pipe and appurtenances; removal of cobbles, buried timber, or other obstructions in the trench section; pumping, unwatering and dewatering; removing temporary construction where required; stockpiling excavated material for backfill; and disposal of unused or wasted excavated materials for installation of all pressurized irrigation distribution pipe, fittings, and appurtenances.

5. Over-excavation performed beyond lines and limits shown in the Drawings and backfill and compaction of backfill for such over-excavation shall be at the expense of the Contractor.

B. Placement and Compaction of Pipe Bedding

1. Measurement: Per cubic yard of pipe bedding placed and compacted to the lines and lengths shown in the Drawings.

2. Payment: Per cubic yard price offered in the Bid Schedule.

3. The per cubic yard price offered in the Bid Schedule shall include all materials, tools, labor, and equipment necessary to furnish, place, and compact pipe bedding to the lines and lengths shown in the Drawings for installation of all pressurized irrigation distribution pipe, fittings, and appurtenances.

C. Placement and Compaction of Select Backfill

1. Measurement: Per cubic yard of select backfill material placed and compacted to the lines and lengths shown in the Drawings.

2. Payment: Per cubic yard price offered in the Bid Schedule.

3. The per cubic yard price offered in the Bid Schedule shall include all materials, tools, labor, and equipment necessary to furnish, place, and compact select backfill to the lines and lengths shown in the Drawings for installation of all pressurized irrigation distribution pipe, fittings, and appurtenances.

4. The volume of the pipe will be deducted based on the pipe diameters shown in the Drawings, regardless of the actual diameters of the pipe furnished.

D. Placement and Compaction of Final Backfill

1. Measurement: No measurement shall be made for this item as it will be paid as a lump sum.

2. Payment: Lump sum price offered in the Bid Schedule.

3. The lump sum price offered in the Bid Schedule shall include all materials, tools, labor, and equipment necessary to place and compact final backfill to the lines and lengths shown in the Drawings for installation of all pressurized irrigation distribution pipe, fittings, and appurtenances.

1.02 SUMMARY

A. This Work includes:

1. Trenching, backfilling, and compaction for pressurized irrigation distribution pipelines.

2. Miscellaneous excavation and compaction.

1.03 RELATED SECTIONS

A. Section 02 21 00 Surveys

B. Section 31 11 00 Clearing and Grubbing

C. Section 31 14 10 Stripping

D. Section 31 23 19 Dewatering

E. Section 31 23 90 Disposal of Excavated Materials

F. Section 31 50 00 Excavation Support and Protection

G. Section 33 11 17 HDPE Irrigation Distribution Piping

1.04 REFERENCES

A. American Society of Testing and Materials (ASTM)

1. ASTM D 422 Standard Test Method for Particle-Size Analysis of Soils

2. ASTM D 1557 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 lb/ft^2)

3. ASTM D 2922 Standard Test Methods for Density of Soil and Soil Aggregate in Place by Nuclear Methods

B. Washington State Department of Transportation (WSDOT)

1. WSDOT *Standard Specifications for Road, Bridge, and Municipal Construction* (2014 Edition)

1.05 SUBMITTALS

A. Submit the following in accordance with Section 01 33 00 – Submittal Procedures:

1. RSN 312333-1, Imported Aggregate Materials

a) The Contractor shall submit source information and particle size analysis (gradation) test results for approval of imported aggregate and soil materials prior to hauling materials to the site.

2. RSN 312333-2, CDF Backfill

a) The Contractor shall submit a mix design with aggregate gradations and batch plant certifications for approval prior to placing CDF backfill, if applicable.

1.06 REQUIREMENTS

A. The Contracting Organization reserves the right to reject materials that, in the opinion of the Contracting Officer's Representative (COR), are determined to be substandard for any reason. In the event material is hauled to the site without

prior approval and is determined by the COR to be unacceptable, all materials shall be removed from the site at no additional cost to the Owner.

1.07 DEFINITIONS

A. Overexcavation: Excavation beyond specified lines as directed by the COR to remove unsuitable foundation material.

B. Additional Excavation: Excavation performed for the convenience, fault, or operation of the Contractor beyond specified or directed excavation lines.

C. Relative Compaction: The ratio, in percent, of as-compacted field dry density to laboratory maximum dry density as determined by ASTM D 1557. Apply corrections for oversize material to either as-compacted field dry density or maximum dry density, as determined by the Contracting Officer (CO).

D. Optimum Moisture Content: Shall be determined in accordance with ASTM D 1557 to determine maximum dry density for relative compaction. Determine field moisture content on basis of fraction passing 3/4-inch sieve.

PART 2 PRODUCTS

2.01 EXCAVATED MATERIALS

A. The Contractor's operations in excavations shall be such that excavations will yield as much suitable material for use in permanent construction required under these Specifications as practicable.

B. Place excavated materials that are too wet for immediate compaction temporarily in stockpiles until moisture content is reduced sufficiently to permit them to be placed and properly compacted to meet the requirements of these Specifications.

2.02 BACKFILL MATERIALS

A. Use backfill material from material excavated in required excavations, where possible. If sufficient suitable material is not available from on-site excavations, obtain additional material from commercial borrow sources as approved by the COR.

1. The CO makes no guarantee that the specified backfill materials are available from materials obtained from excavations for pipe trenches and structures.

2. Process on-site materials as needed to produce materials meeting the requirements of these Specifications.

B. Pipe Bedding

1. Pipe zone backfill and bedding shall be furnished, placed, and compacted in accordance with the standard trench details shown in the Drawings. Pipe zone bedding shall be imported material or suitable native material meeting the requirements of Section 9-03.12(3) of the WSDOT *Standard Specifications for Road, Bridge, and Municipal Construction* (2014 Edition).

C. Select Backfill

1. Select backfill used as backfill over pipe in the pipe zone shall be imported material or suitable native material meeting the requirements of Section 9-03.12(3) of the WSDOT *Standard Specifications for Road, Bridge, and Municipal Construction* (2014 Edition).

D. Final Backfill

1. Final Backfill in trenches and other excavations shall be suitable native material or imported material free of organic material, frozen lumps, wood, concrete, other debris, and rock larger than 3 inches in maximum dimension. Final backfill shall be approved by the COR before placement.

E. Controlled Density Fill

1. Where crossing a paved WSDOT right-of-way, if the Town of Twisp and WSDOT approve an open trench cut construction method, the Contractor shall backfill with CDF to the lines and grades shown in the Drawings. CDF shall be a ready-mixed, flowable, self-consolidating, low-shrink material consisting of sand, Portland cement, water, and admixtures. CDF shall fill the trench completely without leaving any void spaces. CDF shall meet the requirements of Section 2-09.3(1)E of the WSDOT *Standard Specifications for Road, Bridge, and Municipal Construction* (2014 Edition).

PART 3 EXECUTION

3.01 TRENCHING

A. Excavate trenches for pipe and appurtenances to the lines, grades, and dimensions shown in the Drawings.

B. Finish the bottom of the trench to the lines and grades shown in the Drawings.

C. Perform trench excavation in the dry. Dewater area to be excavated in accordance with Section 31 23 19 – Dewatering.

D. Do not excavate in frozen material without the written approval of the COR.

3.02 OVEREXCAVATION

A. If foundation material is excavated beyond lines required to receive the structure, fill overexcavation with suitable materials and compact in accordance with Article 3.05.

B. If foundation material is disturbed or loosened during excavation or otherwise, compact foundation in place or remove and replace it with suitable material and compact in accordance with Article 3.05.

3.03 STOCKPILE

A. Stockpile excavated materials meeting the material requirements for final backfill until processed or placed as backfill material.

B. Do not compact stockpiled material.

3.04 DISPOSAL

A. Excess material from excavations shall be disposed of at a suitable location off site, as required by the COR, or by spreading and/or mounding the fill within the disturbed area. The COR shall approve the method and location of disposal prior to excavation.

B. Dispose of excavated materials that are unsuitable for, or are in excess of, embankment, backfill, or other earthwork requirements, as directed by the COR.

3.05 PLACEMENT OF BACKFILL

A. General Backfill

1. Place backfill to the lines and grades specified, or as directed by the COR.

2. Place backfill in the dry for structures above the high water line. Dewater excavations for structures above the high water line as outlined in Section 31 23 19 – Dewatering.

3. Place structural fill below and around reinforced concrete structures as specified or directed by the COR. Place structural fill in 6-inch lifts and compact to 95% of maximum dry density as determined by ASTM D 1557.

4. Outside paved roadways, place additional backfill in excavations to the depth and lines specified. Place backfill in 6-inch lifts and compact to 90% of maximum dry density as determined by ASTM D 1557.

5. In paved roadways, place additional backfill in excavations to the depth and lines specified. Place backfill in 6-inch lifts and compact to 95% of maximum dry density as determined by ASTM D 1557.

6. Where backfill is to be placed behind or against concrete structures, compaction of backfill against structures shall not be allowed until the concrete has reached its 7-day strength.

7. Topsoil shall be replaced to match the grades and lines of the existing ground on either side of the excavation. Topsoil backfill should remain loose.

8. The type and amount of material used for backfill, and the manner of placing material shall be subject to approval by the COR.

9. Do not place backfill material when either the material or the surfaces on which it is to be placed are frozen.

10. Do not use material removed in stripping or high in organic matter for backfill material. Stockpile instead for use as topsoil.

B. Trench Bedding and Backfill

1. Place pipe bedding in trench to the lines and grades shown on the Drawings. Place pipe bedding in 6-inch lifts and compact to 90% of maximum dry density as determined by ASTM D 1557.

2. Place select backfill carefully around the pipe to the lines and grades specified. Select backfill shall be brought up simultaneously on both sides of the pipe to the top of pipe. Place select backfill in 6-inch lifts and compact to 90% of maximum dry density as determined by ASTM D 1557 for backfill outside paved roadways. For backfill within paved roadways, place select backfill in 6-inch lifts and compact to 95% of maximum dry density as determined by ASTM D 1557.

3. Place final backfill to the top of the trench. Place final backfill in 6-inch lifts and compact to 90% of maximum dry density as determined by ASTM D 1557 for backfill outside paved roadways. For backfill within paved roadways, place final backfill in 6-inch lifts and compact to 95% of maximum dry density as determined by ASTM D 1557.

4. Do not place backfill in pipe trenches when either the material or the surfaces on which the backfill will be placed are frozen.

3.06 COMPACTION OF BACKFILL

A. The Contractor shall compact backfill by means of an appropriately sized static, vibratory, or impact type compactor suited to the soil and physical restrictions of

the area to be compacted. Although the Contractor is responsible for the selection of the method of compaction, selection of an inappropriate method shall not relieve the Contractor of the responsibility to achieve the specified result. Jetting, sluicing, or water settling will not be permitted.

B. Topsoil shall not be compacted.

C. The COR will perform compaction testing, as needed, to ensure compliance with the compaction requirements of these Specifications, as follows:

1. The COR shall, at his discretion, obtain and pay for the services of an independent soils testing laboratory to conduct on-site density tests during material placement.

2. The frequency of compaction testing shall be as determined by the COR.

3. Compaction testing performed by the COR shall not relieve the Contractor of his obligation to place and compact trench backfill materials as required in these Contract Documents.

3.07 PROTECTION

1. To provide adequate protection for compacted backfill in and around pipe, the COR reserves the right to direct the Contractor to place a sufficient amount of backfill or embankment material over compacted backfill within 72 hours after compaction.

END OF SECTION

SECTION 31 23 90
DISPOSAL OF EXCAVATED MATERIALS

PART 1 GENERAL

1.01 COST

A. Include cost of disposal of excavated materials in prices offered in the Bid Schedule for items of work that require excavation.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 MATERIAL PLACEMENT

A. Use suitable material from required excavations, or as much thereof as may be required, for backfill or other required earthwork. Temporary potential stockpile locations and procedures for stockpiling shall be subject to approval by the Contracting Officer's Representative (COR).

3.02 DISPOSAL OF EXCAVATED MATERIALS

A. Dispose of material from required excavations not suitable for or required for backfill, embankment, and topsoil by removal from the site or waste on site as direct by the COR. The location of off-site disposal shall be approved by the COR prior to excavation.

B. Waste areas for excavated materials shall be as directed by the COR.

C. Do not waste material by dumping from the top of slope.

D. Grade waste banks to reasonably even and uniform surfaces that blend with the natural terrain.

1. Minimum slope: 2%

2. Maximum slope: 4 horizontal to 1 vertical (4H:1V)

E. Cover waste banks with topsoil in accordance with Section 31 14 10 – Stripping.

F. Seed surface of waste banks in accordance with Section 32 92 19 – Seeding.

END OF SECTION

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SECTION 31 50 00
EXCAVATION SUPPORT AND PROTECTION

PART 1 GENERAL

1.01 PRICE

A. Excavation Support and Protection

1. Measurement: No measurement shall be made for this item as it will be paid as a lump sum.

2. Payment: Lump sum price offered in the Bid Schedule

a) The lump sum price offered in the Bid Schedule shall include all materials, tools, labor, and equipment necessary to furnish, install, maintain, and remove trench boxes, shoring, sheeting, timbering, or other trench protection devices.

1.02 GENERAL

A. This Section includes requirements for excavation support and protection for trenches and other open excavations more than 4 feet in depth.

1.03 REFERENCES

A. The following is a list of standards that may be referenced in this Section:

1. Occupational Safety and Health Act (OSHA):

a) Construction Industry Standards

b) Occupational Safety and Health Standards

2. Washington Industrial Safety and Health Act (WISHA)

a) Chapter 296-155, Part N, WAC – Washington Safety Standards for Construction Work; Excavation, Trenching, and Shoring

1.04 REQUIREMENTS

A. The Contractor shall be responsible for planning, designing, installing, maintaining, and removing support and protection for excavations and trenches in accordance with Chapter 296-155, Part N, WAC and applicable OSHA and WISHA requirements.

B. Excavation support systems shall be designed and installed to protect surrounding property and structures. Excavation support systems shall also be designed so

that installation and removal of the support systems does not disturb soil adjacent to or below the required excavation or trench section. Excavation and trenching shall be to the lines shown in the Drawings and in accordance with Section 31 23 33 – Trenching and Backfilling.

C. Excavation support systems shall be designed to meet water control requirements, as specified in Section 31 23 19 – Dewatering.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 GENERAL

A. Construct the excavation to the lines shown in the Drawings and as specified in Section 31 23 33 – Trenching and Backfilling. Install and remove support systems in such a manner as not to disturb soil adjacent to the trench or below the trench or excavation. Installation of horizontal strutting below the barrel of a pipe and use of the pipe as a support are not permitted.

B. Unless otherwise indicated, remove all sheeting, shoring, and bracing after placement and compaction of backfill.

END OF SECTION

SECTION 32 11 23
AGGREGATE BASE COURSES

PART 1 GENERAL

1.01 PAYMENT

A. Placement and Compaction of Crushed Rock Surfacing

1. Measurement: Per ton of crushed rock surfacing placed and compacted to the lines and lengths shown in the Drawings.

2. Payment: Per ton price offered in the Bid Schedule.

3. The per ton price offered in the Bid Schedule shall include all materials, tools, labor, and equipment necessary to furnish, place, and compact crushed rock surfacing to the lines and lengths shown in the Drawings for access driveways, roadway repair, and driveway repair.

1.02 SUMMARY

A. This work includes placement and compaction of crushed rock surfacing for access driveways and repair of existing driveways and roadways.

1.03 RELATED SECTIONS

A.	Section 01 10 00	Summary
B.	Section 01 11 00	Summary of Work
C.	Section 01 55 00	Vehicle Access and Parking
D.	Section 02 21 00	Surveys
E.	Section 31 11 00	Clearing and Grubbing
F.	Section 32 12 16	Asphalt Paving

1.04 REFERENCES

A. The following is a list of standards that may be referenced in this Section:

1. WSDOT *Standard Specifications for Road, Bridge, and Municipal Construction* (2014 Edition)

1.05 SUBMITTALS

A. RSN 321123-1, Crushed Rock Surfacing

1. The Contractor shall submit source information and particle size analysis (gradation) test results for approval of imported crushed rock surfacing prior to hauling materials to the site.

2. At least 15 days prior to delivery of crushed rock surfacing, notify the Contracting Officer's Representative (COR) in writing of intended source and provide information satisfactory to the COR that the material meets the requirements of the Contract. Provide the COR free access to the source.

PART 2 PRODUCTS

2.01 CRUSHED ROCK SURFACING

A. Crushed rock surfacing shall be hard, dense, and durable and shall meet the requirements of Section 9-03.9(3) of the WSDOT *Standard Specifications for Road, Bridge, and Municipal Construction* (2014 Edition).

PART 3 EXECUTION

3.01 PLACEMENT AND SPREADING

A. Crushed rock surfacing shall be dumped and smoothed by moving rocks into position in such a manner as to ensure the material when in place is stable and without tendency to slide.

B. Place, spread, and compact in accordance with the requirements for the "Road Mix Method" outlined in Section 4-04.3(4) of the WSDOT *Standard Specifications for Road, Bridge and Municipal Construction* (2014 Edition).

C. Place crushed rock surfacing in 6-inch maximum lifts to the depths and thicknesses shown on the Drawings and compact to 95% of maximum dry density, as determined by ASTM D 1557.

END OF SECTION

SECTION 32 12 16
ASPHALT PAVING

PART 1 GENERAL

1.01 PAYMENT

A. Asphalt Paving

1. Measurement: Per ton of asphalt paving placed and compacted to the lines and lengths shown in the Drawings.

2. Payment: Per ton price offered in the Bid Schedule.

3. The per ton price offered in the Bid Schedule shall include all materials, tools, labor, and equipment necessary to furnish, place, compact, and seal hot-mix asphalt to the lines and lengths shown in the Drawings for repair of roadways and driveways.

1.02 SUMMARY

A. This Work includes furnishing, placing, compacting, and sealing hot-mix asphalt to the lines and lengths shown in the Drawings for repair of roadways and driveways.

1.03 RELATED SECTIONS

A.	Section 01 10 00	Summary
B.	Section 01 11 00	Summary of Work
C.	Section 01 55 00	Vehicle Access and Parking
D.	Section 02 21 00	Surveys
E.	Section 31 11 00	Clearing and Grubbing
F.	Section 32 11 23	Aggregate Base Courses

1.04 REFERENCES

A. The following is a list of standards that may be referenced in this Section:

1.	WSDOT	*Standard Specifications for Road, Bridge, and Municipal Construction* (2014 Edition)
2.	Town of Twisp	Construction Standards

1.05 QUALITY CONTROL

A. Unless otherwise referenced or modified herein, quality control and quality standards for this Section shall be as specified in the Washington State Department of Transportation (WSDOT) *Standard Specifications for Road, Bridge, and Municipal Construction* (2014 Edition); and Amendments (2014 Edition).

B. Testing shall comply with the WSDOT *Standard Specifications for Road, Bridge, and Municipal Construction* (Current Edition) Sections 9-03.8(2) and 9-03.20. Aggregates for the Hot Mix Asphalt (HMA) Class specified shall meet the requirements for pavements having less than 3 million Equivalent Single Axle Loads (ESALs) in accordance with Section 9-03.8(2). Tests must be performed by a certified testing agency or licensed laboratory. Two copies of the results of each test shall be submitted to the Contracting Officer's Representative for approval prior to continuation of the Work to be tested.

C. Other tests as may be referenced elsewhere in this Section.

1.06 SUBMITTALS

A. Submit the following in accordance with Section 01 33 00 – Submittal Procedures:

1. RSN 321216-1, Hot-mix Asphalt Design

   a) Submit hot-mix asphalt mix design documentation, data, and batch plant certification.

2. RSN 321216-2, Aggregate for Hot-mix Asphalt

   a) Submit particle size analysis test results and origin of material for aggregate to be used for hot-mix asphalt.

PART 2 PRODUCTS

2.01 ASPHALT MATERIALS

A. Bituminous Materials

1. Medium curing liquid asphalt binder, grade PG 64-22, in accordance with Section 9-02 of the WSDOT *Standard Specifications for Road, Bridge, and Municipal Construction* (2014 Edition).

2. 5.5% to 6.0% of the total mixture.

B. Aggregate

1. Aggregate for class 1/2-inch hot-mix asphalt mix, in accordance with Section 9-03.8 of the WSDOT *Standard Specifications for Road, Bridge, and Municipal Construction* (2014 Edition).

C. Asphalt Emulsion (Tack Coat)

1. Emulsified asphalt grade CSS-1, in accordance with Section 9-02 of the WSDOT *Standard Specifications for Road, Bridge, and Municipal Construction* (2014 Edition).

D. Asphalt Joint and Crack Sealant

1. Rubberized asphalt, in accordance with Section 9-04.2 of the WSDOT *Standard Specifications for Road, Bridge, and Municipal Construction* (2014 Edition).

PART 3 EXECUTION

3.01 NEW ASPHALT PAVING (INCLUDING PATCHING)

A. In areas of new paving, or where existing paving has been removed for installation of distribution pipe and appurtenances, new asphaltic concrete paving shall be placed over compacted base aggregate meeting the requirements of Section 32 11 23 – Aggregate Base Courses.

B. Install asphalt per Article 3.04. Minimum asphalt thickness shall be as shown in the Drawings.

1. New asphalt patching shall meet the grade of adjacent existing asphaltic concrete paving (to remain). Edges of new and existing pavement shall be flush without ridges or gaps.

3.02 REPAIR OF EXISTING ASPHALT

A. All trench and pavement cuts will be made uniformly by wheel or saw cutting. If edge of trench line degrades, ravels, or is non-uniform, additional saw cutting will be required prior to final patch or paving.

B. Apply a tack coat, as specified in Paragraph 2.01-C, to the existing pavement and edge of cut, as specified in Section 5-04 of the WSDOT *Standard Specifications for Road, Bridge, and Municipal Construction* (2014 Edition). Asphalt concrete more than 3 inches thick will be placed in equal lifts with a minimum thickness of at least 2 inches.

C. Connection to existing asphalt at centerline, lane edges, and overlay ends shall be made by grinding. Feathering of asphalt is not acceptable without written

approval from the Town of Twisp Public Works Director. Grind can be a few inches off centerline to avoid existing striping.

D. Surface smoothness will be pursuant to Section 5-04 of the WSDOT *Standard Specifications for Road, Bridge, and Municipal Construction* (2014 Edition). Paving will be corrected by removal and repaving of the trench only.

E. Asphalt concrete pavement for wearing course will not be placed on any traveled way between October 1 and April 1 without written approval from the Town of Twisp Public Works Director.

F. Asphalt concrete will not be placed on any wet surface, or when the average surface temperatures are below freezing, or when weather conditions otherwise prevent the proper handling or finishing of the bituminous mixtures.

G. All joints on trenching or overlays will be sealed using crack sealant as specified in Paragraph 2.01-D.

H. When trenching within the roadway shoulder(s), the shoulder should be restored to its original or better condition.

I. The final patch will be completed as soon as possible after first opening the trench. The final patch shall be completed within 5 days of opening the trench, unless otherwise approved by the Town of Twisp Public Works Director. This time frame may be adjusted if delays are due to inclement paving weather or other adverse conditions that may exist, with approval from the Town of Twisp Public Works Director.

3.03 TACK COAT

A. The allowable temperature range for tack coat material is 290 to 325° Fahrenheit.

B. Where the new asphaltic concrete abuts a curb or gutter, cold pavement joint, trimmed meet line, or any metal surface, a thin tack coat of asphalt shall be applied on the vertical face of the abutting surface by hand painting prior to paving. The application on the contact surfaces shall be thin and uniform in order to avoid an accumulation of excess asphalt in puddles. The Contractor shall not apply the tack coat on vertical contact surfaces above the finished height of the asphalt concrete being placed.

3.04 ASPHALT

A. Placement: A course of asphaltic concrete shall be installed to the lines and grades as indicated on the drawings. The hot plant mix shall have an installation temperature of 275° to 300°.

B. Compaction: Compaction of the asphalt concrete pavement shall conform to the requirements of WSDOT *Standard Specifications for Road, Bridge, and*

Municipal Construction (2014 Edition) Section 5-04.3(10)A. Density of the pavement in place shall be a minimum of 91% or the reference maximum density as determined by WSDOT Test Method 705. The reference maximum density shall be determined as the moving average of the most recent five determinations for the lot of asphalt concrete being placed. Asphalt concrete shall be compacted in maximum 3-inch lifts in areas that are to be used as parking lots, service roads, ramps, and other load bearing surfaces.

C. Curing and Cleaning: New asphalt pavement must be completely cured (minimum of 7 days of warm, dry weather, longer if cold or damp), prior to application of any materials. Pavement needs to be clean and free of all foreign matter. A high-pressure washer, air broom, or hand sweeper shall be used; removal of grease and oil requires the use of a strong detergent. After using detergents the surface must be thoroughly flushed with water.

END OF SECTION

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SECTION 33 05 23
TRENCHLESS UTILITY INSTALLATION

PART 1 GENERAL

1.01 PAYMENT

A. State Highway Crossings

1. Measurement: No measurement shall be made for this item, as it will be paid as a lump sum.

2. Payment: Lump sum price is offered in the Bid Schedule.

3. The lump sum price offered in the Bid Schedule shall include all materials, tools, labor, and equipment necessary to install pipe sleeves for installation of irrigation pipe across Washington State Highway 153/20 at two locations within the Town of Twisp.

4. The lump sum price offered in the Bid Schedule shall include all materials, tools, labor, and equipment needed to complete the following work for installation of pressurized irrigation distribution pipe crossing Washington State Highway 153/20 at two locations within the Town of Twisp:

   a) Verifying buried utility locations and subsurface soil conditions in enough detail to develop a highway crossing plan

   b) Submittal of a highway crossing plan for review and approval by the Contract Officer's Representative (COR), Engineer, Town of Twisp, and the Washington State Department of Transportation (WSDOT)

   c) Securing a right-of-way permit or other approvals necessary from the Town of Twisp and WSDOT

   d) Saw cutting and pavement removal (if necessary)

   e) Excavation of drilling and receiving pits or utility trenches, protection of excavations, removal of cobbles, buried timber, or other obstructions in the excavations, and pumping, unwatering and dewatering;

   f) Trenchless installation of utility sleeves under the highway at each crossing location, or, if approved by the Town of Twisp and WSDOT, installation of a utility sleeve in an open trench excavation

g) Stockpiling excavated material for backfill, and disposal of unused or wasted excavated materials

1.02 SUMMARY

A. This Work includes:

1. Call for filed locations and field verification of the type, location, depth, and size of existing utilities at two proposed irrigation distribution pipe crossings at Washington State Highway 153/20 in the Town of Twisp

2. Preparation of a State Highway Crossings Plan detailing the Contractor's proposed methods, equipment, and installation of pipe sleeves for two proposed irrigation distribution pipe crossings at Washington State Highway 153/20 in the Town of Twisp

3. Securing approvals and permits, including traffic control plans, from the Town of Twisp and WSDOT for installation of state highway crossings, as required by the Town of Twisp and WSDOT

4. Trenchless installation of pipe sleeves for pressurized distribution pipe crossing Washington State Highway 153/20 at two locations within the Town of Twisp, if required by the Town of Twisp

5. If approved by the Town of Twisp and WSDOT, installation of pipe sleeves for pressurized distribution pipe crossing Washington State Highway 153/20 at two locations within the Town of Twisp by trenching and backfill, consistent with Section 31 23 33 – Trenching and Backfilling

6. All traffic control, excavation, excavation protection, existing utilities protection, dewatering, backfill, pavement repair, and other work required to complete installation of pipe sleeves for pressurized distribution pipe crossing Washington State Highway 153/20 at two locations within the Town of Twisp

1.03 RELATED SECTIONS

A.	Section 02 21 00	Surveys
B.	Section 31 23 19	Dewatering
C.	Section 31 23 33	Trenching and Backfilling
D.	Section 31 23 90	Disposal of Excavated Materials
E.	Section 31 50 00	Excavation Support and Protection
F.	Section 33 11 17	HDPE Irrigation Distribution Piping

1.04 REFERENCES

A. WSDOT

1.	WSDOT	*Standard Specifications for Road, Bridge, and Municipal Construction* (2014 Edition)

B. Federal Highway Administration (FHWA)

1.	MUTCD	Manual on Uniform Traffic Control Devices for Streets and Highways (2009 Edition, with 2012 Revisions)

1.05 REGULATORY REQUIREMENTS

A. The Town of Twisp has final review and approval authority for State highway crossings within the Town of Twisp. State highway crossings within the Town of Twisp shall require review and approval by the Town of Twisp Public Works Director.

B. The Town of Twisp Public Works Director has indicated that State highway crossings within the Town of Twisp shall also require review and approval by WSDOT. WSDOT has provided the following guidance based on review of draft design documentation:

1. This section of State Highway 153/20 is not scheduled for paving by WSDOT until 2019.

2. A trenchless construction method will be required for State highway crossings unless an open trench cut is approved through a variance process or by the Town of Twisp, for crossings within the Town's jurisdiction.

3. The Contracting Agency will prepare and submit variance applications forms to WSDOT for highway crossings concurrent with the bidding process.

4. If an open trench cut is approved by the Town of Twisp and WSDOT, the open trench cut and restoration shall be as shown in the Drawings, or as otherwise required by the Town of Twisp and WSDOT.

C. WSDOT's review comments provided following review of the draft design documentation are included as Attachment B.

D. A copy of the variance application submitted by the Contracting Agency will be made available, upon request, by the COR.

1.06 REQUIREMENTS

A. The Contractor shall be responsible for selecting a method for installing sleeves for irrigation distribution pipe crossing Washington State Highway 153/20 at two locations within the Town of Twisp. If the variance application submitted by the Owner is approved, the Contractor may consider an open trench cut, as shown in the Drawings. If WSDOT and the Town of Twisp do not approve an open trench cut, pipe sleeves shall be installed by a trenchless construction method, such as:

1. Horizontal boring or jacking

2. Directional drilling

B. The Contractor shall prepare and submit a State Highway Crossings Plan for review and approval by the COR, Contracting Agency's Engineer, Town of Twisp Public Works Director, and WSDOT, in accordance with Paragraph 1.07.

1.07 SUBMITTALS

A. Submit the following in accordance with Section 01 33 00 – Submittal Procedures:

1. RSN 330523-1, State Highway Crossings Plan

a) The Contractor shall submit a plan detailing proposed methods, equipment, and installation of pipe sleeves for two proposed irrigation distribution pipe crossings at Washington State Highway 153/20 in the Town of Twisp. The detailed plan shall include:

1) Results of potholing or other work completed to verify the locations, depths, sizes, and types of utilities at State highway crossing locations.

2) Results of potholing or other work completed to verify subsurface soil conditions at State highway crossing locations.

3) Detailed drawings (plan view and section view) showing the proposed method and installation requirements for installing a utility sleeve at each State highway crossing location.

4) A short written summary of the proposed method, equipment to be used, and requirements for installing a utility sleeve at each State highway crossing location. The detailed drawings and narrative shall demonstrate compliance with Town of Twisp and WSDOT requirements for State highway crossings.

5) Qualifications of the personnel or subcontractor that will be performing horizontal drilling, jacking, or directional drilling work.

6) A Traffic Control Plan consistent with the crossing method proposed, in accordance with Town of Twisp and WSDOT requirements. The Traffic Control Plan shall be consistent with the requirements of Section 01 55 26 – Traffic Control.

PART 2 PRODUCTS

2.01 BACKFILL MATERIALS

A. Backfill materials for drill pit excavations, receiving pit excavations, or open trench cuts required to complete the State highway crossings shall be in accordance with Section 31 23 33 – Trenching and Backfilling.

2.02 PIPE SLEEVE

A. Pipe sleeves installed a State highway crossings shall be as follows:

1. Horizontal Drill or Jack – Steel pipe or concrete pipe, as required for the method and equipment selected and as indicated in the Contractor's approved State Highway Crossing Plan

2. Directional Drilling – HDPE, IPS, DR 32.5 pipe meeting the material requirements for PE 4710 pipe specified by the plastic pipe institute (PPI)

3. Open Trench Cut – PVC, SDR 32.5 (125-psi or greater rating)

2.03 ASPHALT REPAIR

A. Asphalt repair and materials shall be in accordance with Section 32 12 16 – Asphalt Paving.

2.04 EQUIPMENT

A. Drilling, boring, jacking, or trenching equipment shall be as specified by the Contractor in the approved State Highway Crossing Plan.

PART 3 EXECUTION

3.01 PREPARATION

A. Prior to submitting a proposed State Highway Crossing Plan, the Contractor shall verify existing field conditions, as follows:

1. Utilities

   a) The Contractor shall contact the Utility Locating Request Center (One-call Center) in accordance at 811 or 1-800-424-5555, in accordance with Section 01 56 15 – Protection of Existing Utilities at least two (2) business days prior to field verification of utility locations.

   b) The Contractor shall pothole or perform other excavations necessary to verify the location, depth, size, and type of utilities at the proposed highway crossings.

2. Subsurface soil conditions

   a) No subsurface soil exploration has been done to verify soil conditions at the proposed State highway crossing locations.

   b) The Contractor shall collect and review available soil mapping, nearby well logs, or other information.

   c) The Contractor shall, at their discretion, complete potholing or subsurface soil investigations to verify anticipated subsurface soil conditions at the State highway crossing locations.

3.02 GENERAL

A. Pipe sleeves shall be installed at State highway crossing in accordance with the approved Contractor-supplied State Highway Crossing Plan and shall meet Town of Twisp and WSDOT requirements.

3.03 DRILLING AND RECEIVING PITS

A. The Contractor shall locate all drilling and receiving pits with Methow Valley Irrigation District easements or the public right-of-way, unless otherwise approved by the COR.

B. Drilling and receiving pits for horizontal boring or directional drilling shall be excavated, backfilled, and protected in accordance with Section 31 23 33 – Trenching and Backfilling and Section 31 50 00 – Excavation Support and Protection.

3.04 TRAFFIC CONTROL

A. The Contractor shall be responsible for diverting and controlling traffic during construction of State highway crossings, in accordance with the Traffic Control Plan included with the approved Contractor-supplied State Highway Crossing Plan.

B. The Traffic Control Plan shall be consistent with the requirements of Section 01 55 26 – Traffic Control.

C. Temporary lane closures and signage shall meet the requirements of Figure 63-C of the Manual on Uniform Traffic Control Devices (MUTCD), "Example of One-Lane, Two-Way Traffic Taper," or as required by the Town of Twisp and WSDOT.

END OF SECTION

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SECTION 33 11 17
HDPE IRRIGATION DISTRIBUTION PIPING

PART 1 GENERAL

1.01 PAYMENT

A. 2-inch HDPE Pipe and Fittings (200-psi Rating)

1. Measurement: Per linear foot of pipe installed

a) Measurement shall be made along the centerline of the pipe between the ends of the pipes in place, continuous through joints, fittings, and bends with no allowance for laps in joints.

2. Payment: Per foot price offered in the Bid Schedule

3. The per foot price offered in the Bid Schedule shall include all material, tools, labor, and equipment needed to furnish pipe and fittings, lay the pipe, join the pipe per the manufacturer's recommendations, install fittings and appurtenances, and test the pipe.

4. The cost of trenching and placement of backfill for pipe installation will be made in accordance with Section 31 23 33 – Trenching and Backfilling.

B. 3-inch HDPE Pipe and Fittings (80-psi Rating)

1. Measurement and Payment: Same as Paragraph 1.01 A

C. 4-inch HDPE Pipe and Fittings (80-psi Rating)

1. Measurement and Payment: Same as Paragraph 1.01 A

D. 6-inch HDPE Pipe and Fittings (80-psi Rating)

1. Measurement and Payment: Same as Paragraph 1.01 A

E. 8-inch HDPE Pipe and Fittings (80-psi Rating)

1. Measurement and Payment: Same as Paragraph 1.01 A

F. 8-inch HDPE Pipe and Fittings (200-psi Rating)

1. Measurement and Payment: Same as Paragraph 1.01 A

G. 10-inch HDPE Pipe and Fittings (80-psi Rating)

1. Measurement and Payment: Same as Paragraph 1.01 A

H. 12-inch HDPE Pipe and Fittings (80-psi Rating)

1. Measurement and Payment: Same as Paragraph 1.01 A

I. 1-1/2-inch Turnout Connection

1. Measurement: Per each turnout connection installed.

2. Payment: Per each price offered in the Bid Schedule.

3. The per each price offered in the Bid Schedule shall include all material, tools, labor, and equipment needed to furnish and install turnout pipe, fittings, valves, boxes, and other items necessary to complete each turnout connection as shown in the Drawings.

J. 2-inch Turnout Connection

1. Measurement and Payment: Same as Paragraph 1.01 I

K. 3-inch Turnout Connection

1. Measurement and Payment: Same as Paragraph 1.01 I

L. 6-inch Turnout Connection

1. Measurement and Payment same as Paragraph 1.01 I

M. PVC Sleeves for Town Roadway Crossings and Domestic Water Crossings

1. Measurement: No measurement shall be made for PVC Sleeves for Town Roadway Crossings and Domestic Water Crossings as they will be paid as a lump sum.

2. Payment: Lump sum price offered in the Bid Schedule.

3. The lump sum price offered in the Bid Schedule for PVC Sleeves for Town Roadway Crossings and Domestic Water Crossings shall include all material, tools, labor, and equipment needed to furnish and install PVC pipe sleeves, spacers, and couplings to seal the ends of the sleeves at town roadway crossings, domestic water crossings, and at service laterals that cross town roadways, as shown in the Drawings.

N. Extend 1-1/2-inch HDPE Service Pipe (Optional)

1. Measurement: Per linear foot of additional pipe installed

a) Measurement shall be made along the centerline of the pipe between the ends of the pipes in place, continuous through joints, fittings, and bends with no allowance for laps in joints.

2. Payment: Per foot price offered in the Bid Schedule

3. The Contracting Organization has included optional bid items for extending service pipe from the customer's turnout box to a point of connection to the customer's irrigation system on the customer's property as a basis for negotiating these extensions. The Contracting Agency will, at its discretion, request this additional work and will negotiate payment for the work based on the unit price offered in the bid schedule. The Contracting Agency makes no guarantee regarding the quantity of optional work that will be required.

4. The per foot price offered in the Bid Schedule all material, tools, labor, and equipment needed to furnish pipe and fittings, lay the pipe, join the pipe per the manufacturer's recommendations, install fittings and appurtenances, and test the pipe.

5. The cost of trenching and placement of backfill for pipe installation will be made in accordance with Section 31 23 33 – Trenching and Backfilling.

O. Extend 2-inch HDPE Service Pipe (Optional)

1. Measurement and Payment: Same as Paragraph 1.01 N

P. Extend 3-inch HDPE Service Pipe (Optional)

1. Measurement and Payment: Same as Paragraph 1.01 N

Q. Extend 6-inch HDPE Service Pipe (Optional)

1. Measurement and Payment: Same as Paragraph 1.01 N

1.02 SUMMARY

A. This section includes the following:

1. Requirements for installation of pressurized HDPE irrigation distribution pipe and fittings.

2. Requirements for installation of turnout connections to HDPE irrigation distribution pipe and fittings.

1.03 RELATED SECTIONS

A. Section 01 10 00 Summary

B. Section 01 11 00 Summary of Work

C. Section 02 21 00 Surveys

D. Section 31 11 00 Clearing and Grubbing

E. Section 31 23 33 Trenching and Backfilling

1.04 REFERENCES

A. American Society of Testing and Materials (ASTM)

1. ASTM D 3350 Polyethylene (PE) Plastic Pipe and Fittings Materials
2. ASTM F412 Terminology Relating to Plastic Piping Systems
3. ASTM F 714 PE Plastic Pipe (SDR-PR) Based on Outside Diameter
4. ASTM F 2206 Fabricated Fittings of Butt-Fused Polyethylene (PE) Plastic Pipe, Fittings, Sheet Stock, Plate Stock, or Block Stock
5. ASTM F 2620 Heat Fusion Joining of PE Pipe and Fittings

B. American Water Works Association (AWWA)

1. AWWA C906 PE Pressure Pipe and Fittings, 4 In. (100 mm) Through 63 In. (1,575 mm), for Water Distribution and Transmission

C. American Society of Mechanical Engineers (ASME)/American National Standards Institute (ANSI)

1. ASME/ANSI B16.1 Cast Iron Pipe Flanges and Flanged Fittings
2. ASME/ANSI B16.5 Pipe Flanges and Flanged Fittings

D. Plastic Pipe Institute (PPI)

1. PE3408 PPI High-density Polyethylene (HDPE) Material Designation

E. Washington State Department of Transportation (WSDOT)

1. WSDOT *Standard Specifications for Road, Bridge, and Municipal Construction* (2014 edition)

1.05 SUBMITTALS

A. Submit the following in accordance with Section 01 33 00 – Submittal Procedures:

1. RSN 331117-1, HDPE Pipe

a) Submit data from the manufacturer showing pipe dimensions and material specifications.

b) Submit certification that pipe material meets specification requirements.

2. RSN 331117-2, HDPE Pipe Installation

a) Pipe Deflection and Minimum Bending Radius Recommendations

b) Fusion Recommendations

1) Fusion Temperature

2) Interface Pressure

3) Cooling Time

c) Pipe Fusion Operator Qualifications

3. RSN 331117-3, Filling and Testing Plan

a) Proposed rate, time, and procedure for filling and pressure testing the distribution pipe and appurtenances.

b) Proposed method of disposing of water drained from pipeline to enable repair of leaks.

1.06 QUALIFICATIONS

A. Use personnel adequately trained and qualified to perform fusion joining of HDPE pipe.

B. Use personnel skilled and experienced in laying HDPE pipe with butt fusion joints.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Do not drop pipe or fittings or subject the pipe to unnecessary jarring, impact, or other treatment that could damage the pipe. Follow the manufacturer's recommendations when hauling, unloading, handling, and storing the pipe. Do

not push or pull pipe and fittings over sharp objects or drop anything onto the pipe and fittings.

B. If any length of pipe shows kinks, buckles, cuts, gouges, or any other damage that, in the opinion of the COR, will affect the performance of the pipe, the pipe shall be removed from the work site and replaced by a length of undamaged pipe of equal or greater design strength at the expense of the Contractor.

C. Do not store pipe in the yard or on the job site in direct sun or under any other conditions that would cause degradation of the pipe.

1. At a minimum, wrap pipe in an adequately fastened opaque covering.

a) In warm climates, allow air circulation through and around the pipe by puncturing or cutting the covering in the area of the pipe ends.

D. Support and store pipe above ground surface.

E. Transport coated fittings with padded bolsters between the pipes. Use heavy padding under ties.

PART 2 PRODUCTS

2.01 HDPE IRRIGATION PIPE AND FITTINGS

A. HDPE irrigation pipe shall meet the following requirements:

1. Pipe shall be manufactured from a PE 4710 resin, as defined by the PPI.

2. The resin material will meet the specifications of ASTM D 3350 with a cell classification of 445574C.

3. Pipe shall have a manufacturing standard of ASTM F 714, and shall meet the requirements of AWWA C906, for pipe 4 inches and larger, and AWWA C901, for PE pipe 3 inches and smaller.

4. Pipe shall be provided in the sizes and dimension ratios (DR) shown in the Pipe Schedule in the Drawings.

5. Material shall be homogeneous and uniform in color, opacity, density, and other properties.

6. Pipe shall be continuously marked with the name of the manufacturer, the nominal pipe size, the manufacturer’s standard reference, and the production code.

7. The pipe shall contain no recycled compounds except that generated in the manufacturer's own plant from resin of the same specification from the same raw material.

8. Pipe shall be marked purple or labeled "non-potable."

B. Fittings for HDPE irrigation shall meet the following requirements:

1. HDPE fittings shall meet the requirements of AWWA C906 and ASTM F2206 and shall be made of the same material as the adjoining pipe.

2. HDPE fittings shall have the same pressure rating as the adjoining pipe.

3. Connections from HDPE to PVC pipe shall be made using a solid, bolted sleeve type coupling designed for joining HDPE to PVC. A stainless steel stiffener shall be used wherever plain end HDPE pipe is coupled to another pipe.

4. Connections from HDPE to flanged fittings shall be made using a molded HDPE flanged adapter with a ductile iron or stainless steel backing ring.

5. Where flanged fittings are required, flanges shall have bolt holes consistent with ASME/ANSI 16.1 Class 125 or ASME/ANSI B16.5 Class 150. Flanges and bolt holes shall be compatible with adjoining pipe, valve, or fitting.

2.02 TURNOUT CONNECTIONS

A. Service Saddles

1. Service Saddle for 1-1/2-inch and 2-inch Turnout Connections

a) Painted ductile iron saddle with two type 304 stainless steel straps

b) Female Iron Pipe Thread (FIPT) thread connection

c) Type 304 or 316 stainless steel hardware

d) Pressure rating same as pipe

e) Romac Style "202N-H," or approved equal

2. Service Saddle for 3-inch and 6-inch Turnout Connections

a) Stainless steel or epoxy-coated steel tapping sleeve

b) Flanged connection

c) Type 304 or 316 stainless steel hardware

d) Pressure rating same as pipe

e) Romac Style “SST-H,” “FTS423-H”, or approved equal

B. Turnout Pipe, Couplings and Fittings

1. Turnout pipe size 2-inch and smaller shall be DR 11 (200-psi rating) PE Tubing (CTS) meeting the requirements of PE 4710, as defined by the PPI.

2. Turnout pipe size 3-inch and larger shall be DR 26 (Class 80-psi rating) PE Pipe (IPS) meeting the requirements of PE 3408, as defined by the PPI.

3. Pipe, couplings, and fittings shall be as shown in the Drawings. Turnout materials shall be approved by the COR prior to installation.

4. Pipe shall be marked purple, or labeled “non-potable.”

C. Turnout Valves

1. Gate Valves: See Section 32 12 17 – Irrigation Distribution Valves

2. Pressure Reducing Valves: See Section 32 12 17 – Irrigation Distribution Valves

D. Sleeves

1. Where services cross under town roadways, service pipe shall be installed in a PVC sleeve, as shown in the Drawings.

E. Other

1. Other Turnout Fittings and Appurtenances: As shown in the Drawings

2.03 RELATED ITEMS

A. Detectable Marking Tape and Locating Wire

1. Install detectable marking tape and locating wire over all buried, pressurized plastic irrigation pipe.

2. Tape shall be placed at least 6 inches above the pipe and shall extend along the full length of pressurized pipe.

3. The locating wire shall be placed at least 3 inches above the pipe and shall extend along the full length of the pressurized pipe.

4. Detectable Marking Tape shall meet the requirements of Section 9-15.18 of the WSDOT *Standard Specifications for Road, Bridge and Municipal Construction* (2014 edition).

B. Indicator Posts

1. All gate valves (mainline, turnout, and lateral) and air relief valves not installed in a roadway or driveway shall have indicator posts set a minimum of 4 feet above grade.

2. Indicator posts shall be in accordance with the Chain Link Fence Manufacturers Institute (CLFMI) 2.375 inch diameter Type I or II pipe post, set in concrete.

3. Posts shall be set within 1.5 feet from valve boxes.

C. Concrete Thrust Blocking

1. The Contractor shall be responsible for restraining pressurized pipe against unresolved hydrostatic forces. Concrete thrust blocking shall be used as shown in the Drawings to restrain pipe and fittings. Blocking shall be placed at bends, tees, caps, blind flanges, wyes, valves, and other fittings.

2. Concrete for thrust blocking shall be commercial concrete per Section 6-02.3(2) of the WSDOT *Standard Specifications for Road, Bridge, and Municipal Construction* (2014 edition).

3. Concrete thrust blocking shall bear against undisturbed native soil at the sides and bottom of the trench excavation and shall be shaped as not to obstruct access to the joints of the pipe or fittings. Where bearing area against undisturbed native soil is not available, the Contractor may use restrained joint fittings. The Contractor shall submit the locations and type of restrained joint fittings to be used for approval by the COR prior to installation.

PART 3 EXECUTION

3.01 LAYING PIPE

A. Install HDPE pipe in accordance with the manufacturer's recommendations.

B. Lay pipe to lines and grades shown in the Drawings within the following tolerances:

1. Vertical departure: 1/4-inch

C. Keep the pipe trench free of water during pipe installation in accordance with Section 31 23 19 – Dewatering

D. Carefully grade the pipe trench to provide uniform support along the bottom of the pipe and place a uniform lift of bedding.

E. Bring HDPE pipe to within 5° F of earth temperature prior to cutting to length for placement.

F. Complete joints prior to placing the pipe in the trench, per Article 3.02.

G. Carefully lower pipe and accessories into the trench by means of derrick, rope, belt slings, or other equipment that will not cause damage to the pipe.

H. Rest the full length of each section of pipe solidly upon the compacted pipe bedding and place a lift of select backfill up to the pipe spring line.

I. Make changes to alignment and grade by installing fabricated HDPE bends or by bending the pipe, as allowed by the manufacturer, to match the proposed alignment and grade. Minimum cold (field) bending radii shall be as shown in the Drawings.

J. After pipe laying and fusion joining operations are complete, clean the inside of the pipe and remove debris. When pipe laying is in progress, keep ends of pipelines closed.

3.02 FUSION

A. Clean pipe of all shavings and other debris prior to joining pipe.

B. Join HDPE pipe by the method of thermal butt or side wall fusion, outlined in ASTM F 2620. Perform fusion joining in accordance with the procedures established by the manufacturer.

C. Sections of PE pipe should be joined into continuous lengths on the job site above ground.

D. The butt fusion equipment used in the joining procedures should be capable of meeting all conditions recommended by the pipe manufacturer.

E. The butt fusion joining shall produce a joint weld strength equal to or greater than the tensile strength of the pipe itself.

F. Do not perform pipe fusion in water or when trench conditions are unsuitable for the Work. Prevent water from coming in contact with the fusion heater plate.

G. Socket fusion, hot gas fusion, threading, solvents, and epoxies are not allowed.

3.03 INSTALLATION OF TURNOUT CONNECTIONS

A. Verify turnout locations before beginning the installation of the turnout connection. The Owner shall stake all turnout locations prior to installation.

B. Tap the pipe according the recommendations of the manufacturer of the tapping sleeve or saddle, and as shown in the Drawings.

C. Furnish pipe and fittings as shown in the Drawings.

D. Take care to carefully place and compact bedding and backfill around each turnout connection as specified in Section 31 23 33 – Trenching and Backfilling to ensure that connections to the pipe are not damaged during compaction and settlement of backfill over the pipe.

E. Install turnout pipe in accordance with Articles 3.01 and 3.02.

3.04 INSPECTION AND TESTING

A. HDPE pipe, fittings, and appurtenances shall be tested under a hydrostatic pressure of at least 2 times the maximum working pressure of the pipe. Test pressures shall be as shown in the Pipe Schedule in the Drawings.

B. Hydrostatic pressure test procedures shall be in accordance with those outlined in Section 7-09.3(23) of the WSDOT *Standard Specifications for Road, Bridge, and Municipal Construction* (2014 Edition), except as modified herein.

C. Test sections shall not exceed 1,500 feet in length.

D. The Contractor shall provide pumps, hoses, fittings, and other equipment needed to perform the pressure tests. The Contractor shall also arrange for water to be made available for pressure testing.

E. Disinfection is not required.

F. Pressure testing shall be coordinated through the COR and witnessed by the COR or the Contracting Organizations' Engineer. Notify the COR at least 24 hours before applying pressure to the pipeline.

END OF SECTION

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SECTION 33 12 17
IRRIGATION DISTRIBUTION VALVES

PART 1 GENERAL

1.01 PAYMENT

A. 2-inch Gate Valve with Box

1. Measurement: Per each gate valve installed on a main line or lateral. Gate valves installed as part of turnout connections, combination air-release valve assemblies, and flush valve assemblies are not included in this item.

2. Payment: Per each price offered in the Bid Schedule.

3. The per each price offered in the Bid Schedule shall include all costs for labor, materials, tools, and equipment necessary to furnish and install the specified gate valve, valve box, indicator post, and associated equipment.

B. 3-inch Gate Valve with Box

1. Measurement and Payment: Same as Paragraph 1.01 A.

C. 4-inch Gate Valve with Box

1. Measurement and Payment: Same as Paragraph 1.01 A.

D. 6-inch Gate Valve with Box

1. Measurement and Payment: Same as Paragraph 1.01 A.

E. 8-inch Gate Valve with Box

1. Measurement and Payment: Same as Paragraph 1.01 A.

F. Combination Air Release Valve Assembly

1. Measurement: Per each combination air release valve assembly installed.

2. Payment: Per each price offered in the Bid Schedule.

3. The per each price offered in the Bid Schedule shall include all costs for labor, materials, tools, and equipment necessary to furnish and install the specified valves, box, associated pipe, fittings, tapping sleeve, and other appurtenances, as shown in the Drawings.

G. Flush Valve Assembly

1. Measurement: Per each flush valve assembly installed.

2. Payment: Per each price offered in the Bid Schedule.

3. The per each price offered in the Bid Schedule shall include all costs for labor, materials, tools, and equipment necessary to furnish and install the specified valves, box, associated pipe, fittings, tapping sleeve, and other appurtenances, as shown in the Drawings.

1.02 COST

A. The cost of gate valves installed at customer turnout connections shall be included in the price per each turnout connection, in accordance with Sections 33 11 16 – PVC Irrigation Distribution Piping and 33 11 17 – HDPE Irrigation Distribution Piping.

1.03 SUMMARY

A. This Section includes the following:

1. Requirements for installation of gate valves with boxes at locations shown in the Drawings for isolation of the irrigation distribution system.

2. Requirements for installation of combination air release valve assemblies at locations shown in the Drawings.

3. Requirements for installation of flush valve assemblies at the location shown in the Drawings.

4. Requirements for installation of a flush line to discharge water from the irrigation distribution system to the existing ditch.

1.04 RELATED SECTIONS

A.	Section 01 10 00	Summary
B.	Section 01 11 00	Summary of Work
C.	Section 02 21 00	Surveys
D.	Section 31 11 00	Clearing and Grubbing
E.	Section 31 23 33	Trenching and Backfilling
F.	Section 33 11 17	HDPE Irrigation Distribution Piping

1.05 REFERENCE STANDARDS

A. American Water Works Association (AWWA)

1.	AWWA C509	Resilient-Seated Gate Valves for Water Supply Service
2.	AWWA C512	Air Release, Air/Vacuum, and Combination Air Valves for Waterworks Service
3.	AWWA C515	Reduced-Wall, Resilient-Seated Gate Valves for Water Supply Service

B. Washington State Department of Transportation (WSDOT)

1.	WSDOT	*Standard Specifications for Road, Bridge, and Municipal Construction* (current edition)

1.06 SUBMITTALS

A. Submit in accordance with Section 01 33 00 – Submittal Procedures:

1. RSN 331217-1, Gate Valves

   a) Submit data from the manufacturer showing valve dimensions and material specifications.

   b) Submit a certificate of compliance with AWWA C509 or C515, for valves 2 inches and larger.

   c) Submit manufacturer's installation, operation, and maintenance instructions.

2. RSN 331217-2, Combination Air Release Valves

   a) Submit data from the manufacturer showing valve dimensions and material specifications.

   b) Submit a certificate of compliance with AWWA C512.

   c) Submit manufacturer's installation, operation, and maintenance instructions.

   d) Submit schedule of pipe, fittings, and other equipment to be used to complete installation of the air release valve assembly.

3. RSN 331217-3, Flush Valve Assemblies

a) Submit schedule of pipe, fittings, and other equipment to be used to complete installation of the air release valve assembly.

PART 2 PRODUCTS

2.01 VALVES

A. Gate Valves (2-inch diameter and larger)

1. Type: Resilient wedge, in accordance with AWWA C509 or C515.

2. Body: Ductile iron.

3. Stem: Non-rising, stainless steel.

4. Joints: Mechanical joint or flanged.

5. Operator: Square-nut operator with operator extension (as needed).

6. Lining and Coating: Lined and coated at the place of manufacture with fusion-bonded epoxy.

7. Valves shall have a smooth, unobstructed waterway free from any sediment pockets.

8. Each valve shall have the manufacturer's name, pressure rating, and year of manufacture cast on the body.

B. Gate Valves (1 1/2-inch diameter and smaller)

1. Type: Low lead bronze gate valve.

2. Body: Bronze.

3. Stem: Bronze.

4. Joints: FIPT.

5. Operator: Square-nut operator with operator extension (as needed).

6. Valves shall have a smooth, unobstructed waterway free from any sediment pockets.

7. Each valve shall have the manufacturer's name, pressure rating, and year of manufacture cast on the body.

C. Combination Air Release Valves

1. Type: Combination air release valve, in accordance with AWWA C512.

2. Body: Cast iron or ductile iron.

3. Float, Float Arm, Retaining Ring, Hardware: Stainless steel.

4. Val-matic No. 201-C, Apco No. 143-C, or approved equal.

2.02 RELATED EQUIPMENT

A. Valve Boxes – Gate Valves

1. Cast iron, two-piece slip type with a 5-1/4-inch minimum inside diameter.

2. Covers shall be marked "IRRIGATION."

3. Each valve box shall be complete with a cover and shall extend from the valve nut operator to the finished ground surfaces.

B. Indicator Posts

1. All gate valves (mainline, turnout, and lateral) and air relief valves not installed in a roadway or driveway shall have indicator posts set a minimum of 4 feet above grade.

2. Indicator posts shall be in accordance with the Chain Link Fence Manufacturers Institute (CLFMI) 2.375 inch diameter Type I or II pipe post, set in concrete.

3. Posts shall be set within 1.5 feet from valve boxes.

C. Other

1. Pipe, fittings, boxes, and equipment needed to complete combination air release valve assemblies and flush valve assemblies shall be as shown in the Drawings.

PART 3 EXECUTION

3.01 PREPARATION

A. Inspect valves upon delivery at the site to ensure proper working order. Verify that valves operate from the fully opened to fully closed position without sticking or binding. If valves stick or bind, repair or replace the valve before installation.

B. Clean flanges or threads, bolts, and nuts with a wire brush.

C. Lubricate bolts with oil and graphite before installation.

D. Lubricate valve operators in accordance with manufacturer's recommendations.

3.02 INSTALLATION

A. Valves shall be installed in the locations shown in the Drawings and in accordance with the manufacturer's recommendations.

B. Install valves so that bolt holes straddle the horizontal and vertical centerlines of the pipe run to which the valves are connected.

C. Valves and valve boxes shall be set plumb. Valve boxes shall be set flush with the finish ground surface.

END OF SECTION

ATTACHMENT A
ENVIRONMENTAL PERMITS

ATTACHMENT B
WSDOT STATE HIGHWAY CROSSING REVIEW COMMENTS AND REQUIREMENTS

MVID 90% Plan Review Comments (1/7/2015)

WSDOT will issue a Utility Permit (No. 7898) for the facilities along and crossing SR 153 R/W near MP 30.03. WSDOT will comment on roadway restoration for the proposed open-cut crossings inside the Town of Twisp on SR 20 near MP 202.27 and SR 20 near MP 202.68. Be advised that the Town of Twisp is working on a Grant for a sidewalk project along the south side of SR 20 from Wagner St. to Twisp Airport Rd.

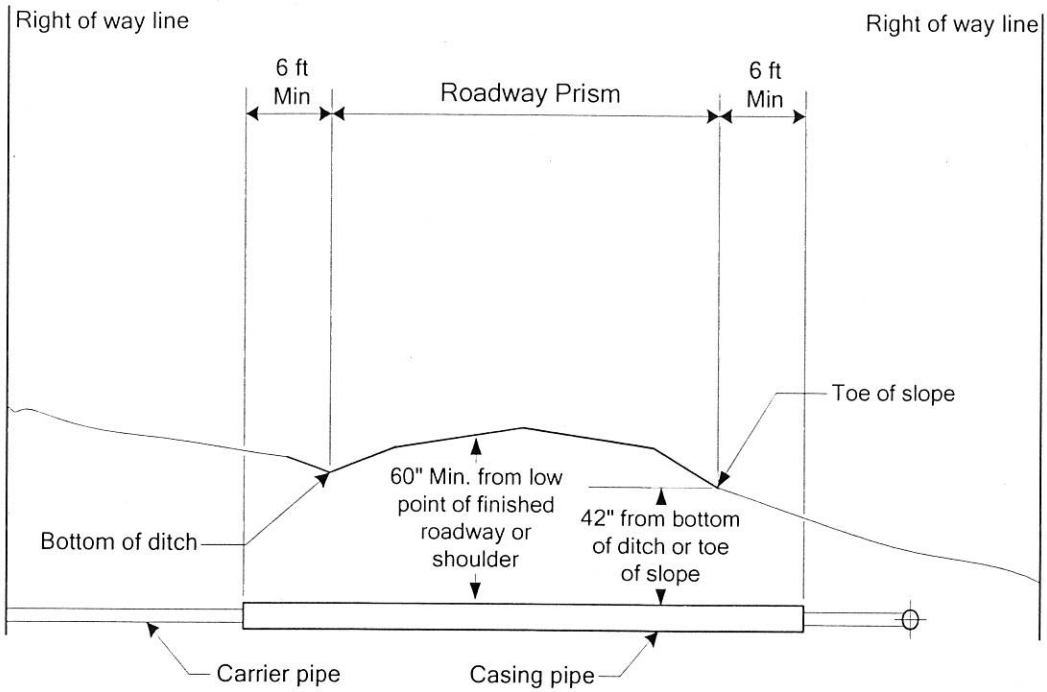
The two open-cut crossings on SR 20 are within the jurisdiction of the Town of Twisp. The Town has final approval to allow/disallow this construction method. This section of SR 20 will not be paved by WSDOT until 2019. If the Town approves the open-cut crossings, the trench/pavement restoration shall be; 0.5' Pipe Bedding, CDF backfill, 1.0' of Crushed Surfacing Base Coarse, 0.5' HMA.

The open-cut crossing on SR 153 is in the jurisdiction of WSDOT. This section of SR 153 will not be paved by WSDOT until 2019. WSDOT-NCR typically allows open-cuts only when justified through the Variance process and when paving will occur within 18 months. Therefore MVID will need to use a trenchless construction method for the crossing unless a variance for an open-cut crossing can be justified. The variance justification forms are attached.

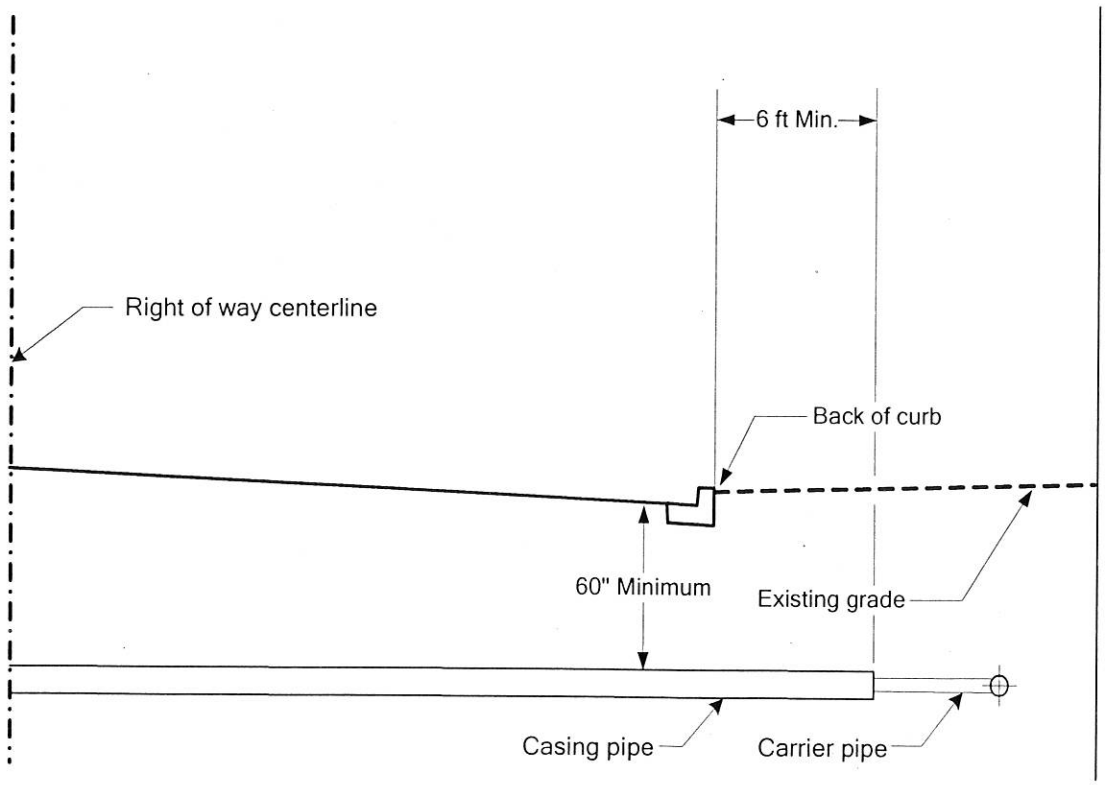
Are there existing facilities within the highway right of way that will be deactivated or removed during this project?

Recommendations for facilities along & crossing SR 20 inside the Town of Twisp:
With CDF as a backfill material around the casing pipe, the trench width should be limited to Pipe OD + 24". Assuming the Town approves the open-cut.
Casings should meet or exceed the specifications for Culvert Pipe, Schedule A (Std. Spec. 7-02.1 & .2)
*SDR35 for Solid Wall PVC up to 15"; SDR32.5 for HDPE; ASTM F2736 for Dual-Wall Polypropylene up to 30"
The irrigation carrier pipe should have a pressure rating of 200 psi

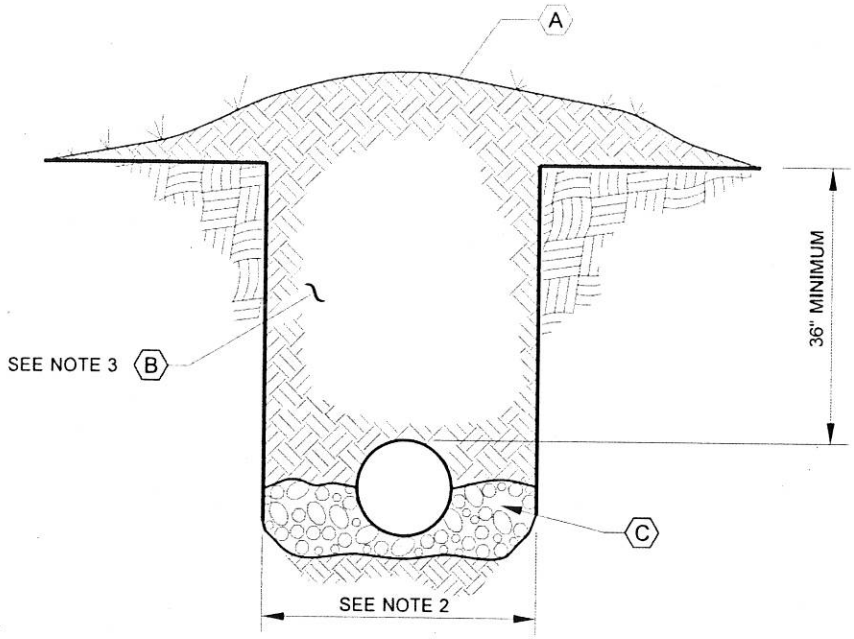
Requirements for facilities along and crossing SR 153 R/W (WSDOT Permit No. 7898)
-The Utility shall complete an Application for Utility Permit for review / approval by WSDOT.
-The MVID or its Contractor shall have liability insurance and name WSDOT as an additional insured on the policy (see special provisions for limits).
-The MVID shall have a Blanket Bond or a Surety Bond for this work.
-Provide a cross-section (R/W to R/W) of the highway crossing (60-scale max. H/V) with the application. Show the pipe, casing and excavation limits on the cross-section.
-The casing shall be installed using a trenchless construction method, unless approved otherwise.
-The casing pipe shall have 60" min. cover under the pavement and 36" or 42" cover beyond the pavement (see attached detail).
-The casing shall extend at least 6' beyond ditch bottom or fill slope (see attached detail).
-The casing shall meet or exceed specifications for Culvert Pipe, Schedule A (Std. Spec. 7-02.1 & .2).
-The irrigation carrier pipe shall have 36" min. cover outside the roadway prism (see attached detail).
-The irrigation carrier pipe shall have a pressure rating of 200 psi.
-Roadside restoration may require temporary erosion control and re-seeding.
-MVID has an existing Utility Permit (No. 3689) with WSDOT for 16 irrigation crossings. This document shall be updated to document all changes to the MVID facilities upon completion of the project.
-All MVID pipes 12"+ diameter that will be deactivated shall be removed or backfilled.
-Remove or backfill all deactivated water vaults etc. as directed by WSDOT.



Rural Casing Installation
Figure 120-9



Urban Casing Installation
Figure 120-10



TRENCH CROSS SECTION

NTS

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 placed equal to half the diameter of the pipe/casing or six (6) inches, whichever is less.

GENERAL 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 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.

Open Trench Detail

Figure 120-4b