CONTRACT DOCUMENTS

CITY OF WHITE SALMON, WASHINGTON

GARFIELD AVENUE WATER LINE IMPROVEMENTS

2021

anderson perry & associates, inc.
engineering · surveying · natural resources

214 E. Birch Street - Walla Walla, WA 99362 Ph: (509) 529-9260 Fax: (509) 529-8102
WALLA WALLA, WA. LA GRANDE, OR. REDMOND, OR. HERMISTON, OR.

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FOR

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ANDERSON PERRY & ASSOCIATES, INC.

Walla Walla, Washington
La Grande, Redmond, and Hermiston, Oregon

Job No. 250-14

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Contract Documents

SMALL PUBLIC WORKS AGREEMENT

SMALL PUBLIC WORKS AGREEMENT

Contract #:		WO#:	
Contractor:		Department:	
Name:		Date:	
Address:		Department Contact:	
Contact:		Phone:	
		Fax:	
Fax:		Email:	
Email:			

Insurance and Indemnification: The Contractor shall defend, indemnify and hold the City and all of its employees harmless from any and all liabilities, claims, damages, costs or expenses (including reasonable attorneys' fees) arising from or relating to the work performed under this Agreement to the extent of the Contractor's negligence. The Contractor waives, with respect to the City, its immunity under industrial insurance, Title 51 RCW. This waiver has been mutually negotiated by the parties. This indemnification shall survive the expiration or termination of this Agreement. Contractor shall secure and maintain, at its own cost and expense, Comprehensive General Liability and Property Damage insurance in the amount of not less than $1,000,000 for death or injury in any one occurrence and $1,000,000 for property damage in any one occurrence which provides, at a minimum, the following coverage:

Premises and Operation; Explosions, Collapse and Underground Hazards (Where Applicable); Products/Completed Operations; Contractual Liability; Broad Form Property Damage; Independent Contractors; and Personal Injury.

Contractor shall secure and maintain, at its own cost and expense, Comprehensive Auto Liability insurance in the amount of not less than $1,000,000 per occurrence which provides, at a minimum the following coverages:

Owned Vehicles; Non-Owned Vehicles; Hired Vehicles; Property Damage.

This coverage shall be issued from an insurance company authorized to do business in the State of Washington. The City shall be named as additional insured on said insurance coverage at least as broad as ISO CG 20 10 10 01 in a form acceptable to the City Attorney. The Contractor agrees to repair and replace all property of the City and all property of others damaged by the Contractor, Contractor's employees, subcontractors and agents. It is understood that the whole of the work under this contract is to be done at the Contractor's risk and that the Contractor is familiar with the conditions of materials, climatic conditions, and other contingencies likely to affect the work and has made their bid accordingly and that the Contractor will assume the responsibility and risk of all loss or damage to materials or work which may arise from any cause whatsoever prior to completion.

Warranties: If within one year after the completion date of the Work, defective and unauthorized Work is discovered, the Contractor shall promptly, upon written order by the City, return and in accordance with the City's instructions, either correct such work, or if such Work has been rejected by the City, remove it from the site and replace it with non-defective and authorized Work, all without cost to the City.

Nondiscrimination: The Contractor shall comply with all applicable federal and state laws, and city ordinances, for equal employment opportunity and nondiscrimination laws.

Gifts: The City's Code of Ethics and Washington State law prohibit City employees from soliciting, accepting, or receiving any gift, gratuity or favor from any person, firm or corporation involved in a contract or transaction. To ensure compliance with the City's Code of Ethics and state law, the Consultant shall not give a gift of any kind to City employees or officials.

Business License: The Contractor is required to submit proof of a City business license ($50) within ten (10) days of contract award. Failure to provide proof of a business license may delay payment of invoices.

Prevailing Wages: This contract is subject to prevailing wages according to RCW 39.12.020. Contractor shall file an Intent to Pay Prevailing Wage form and Affidavit of Wages Paid form with L&I and pay for all fees associated with filing the forms. Contractor shall submit the Intent and Affidavit forms, approved by L&I, to the City with payment request. No payment will be issued to the Contractor until the City receives both approved forms. If any work is subcontracted on this project, an approved Intent and Affidavit form must be submitted for each sub-contractor. If progress payments are made on this project, an approved Intent form must be received prior to issuing the first payment. An approved Affidavit form must be received prior to issuing final payment.

Bonds/Retainage: No Bid Bond is required. Contract Bond is required. For projects with an estimated total cost of less than $150,000, the contractor may elect to a 10% retainage in lieu of a Contract Bond (Performance and Payment Bond). Retainage is required. If a Performance and Payment Bond is provided retainage will be 5%.

Industrial Insurance Status: Contractor is responsible for maintaining a current status of their industrial insurance premiums with the Department of Labor and Industries (L&I). Prior to issuing final payment, the City will verify with L&I the status of the contractor's premiums. Under RCW 60.28 the City can withhold and pay the contractor's delinquent premiums from the final payment.

Payment Processing: The City shall pay the Contractor after final acceptance of each work order within 30 days of submittal of the invoice provided the City has received approved L&I forms.

Completion Date: June 15, 2021, work complete and ready for final payment.	Total Contract Fixed Price (Including Tax) *OR* Not to Exceed Total (Including Tax) applying schedule of rates and charges attached as Exhibit A:

Description of Work: The Base Bid Work for this project involves the construction of approximately 440 linear feet (LF) of 8-inch diameter pipe, valves, water services, asphalt removal and restoration, and other miscellaneous work required to complete the Project. The Work may include Alternate 1 Work that involves the construction of approximately 60 LF of 8-inch diameter pipe, 25 LF of 6-inch diameter pipe, and 180 LF of 2-inch diameter pipe; valves; one fire hydrant; water services; removal and restoration of asphalt concrete pavement and concrete sidewalks; and other miscellaneous work required to complete the Project.

The contractor should send invoices to the following address: PO Box 2139, White Salmon WA 98672. Unless otherwise agreed, payment is net 30 days less retainage.

Note:

The contractor shall not start work until the City orally provides a Notice to Proceed. This agreement shall terminate without cost if a Notice to Proceed is not issued within 60 days. The City will not issue a Notice to Proceed before approved evidence of insurance is received and an Intent to Pay Prevailing Wages is filed with the WA Dept. of Labor & Industries.

Contractor:

_____ _____
(Signature) (Date)

Print Name_____

City Department Approval:

_____ _____
(Signature) (Date)

Print Name _____

Distribution Account Codes: _____ - _____
Program Object

CONTRACT FORMS

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

NOTICE OF AWARD

Date of Issuance:

Owner: **City of White Salmon, Washington**

Engineer: **Anderson Perry & Associates, Inc.**

Project: **Garfield Avenue Water Line Improvements - 2021**

Bidder:

Bidder's Address:

TO BIDDER:

You are notified that Owner has accepted your Bid dated [_____] for the above Contract, and that you are the Successful Bidder and are awarded a Contract for the Garfield Avenue Water Line Improvements Base Bid (*and Alternate 1*).

The Contract Price of the awarded Contract is: **$_____**

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

1. **Notice of Award**

   Acknowledge acceptance of the Project award in the space provided on this Notice of Award form. Be sure to include the date, as well as the signature and title of the person signing the Award form. ***Return all 2 copies to the Owner.***

2. **Agreement Between Owner and Contractor**

   Date and sign all ***2*** copies of the attached Agreement form. ***Return all 2 copies*** to the Owner.

3. **Contract or Payment and Performance Bonds**

   Provide the Construction Contract or Payment and Performance Bonds. Enclosed are ***2*** copies of the Contract or Payment and Performance Bonds. Include an appropriate Power of Attorney which is properly dated with each of the bonds. **Additionally, note that the date shown on the Contract or Payment and Performance Bonds must be on or after the date shown on the Agreement.** The date on the Power of Attorney should be the same as shown on the Bond. Return **2** completed copies to the Owner.

4. **Certificate of Insurance**

   Provide insurance documentation. Standard ACORD forms from the insurance company will be required to be submitted. Be sure to include Worker's Compensation certificates. Provide endorsement naming the Owner as an additional insured. Return all ***2*** copies to the Owner.

5. Other Requirements

_____

_____

_____

_____

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

Within 20 days after you comply with the above conditions, Owner will return to you one fully executed counterpart of the Agreement and Contract Documents.

City of White Salmon, Washington
(OWNER)

By: _____
(AUTHORIZED SIGNATURE)

_____
(NAME)

_____
(TITLE)

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD is hereby acknowledged by _____
_____ this the _____ day of _____, 20____.

By: _____

Name: _____

Title: _____

Copy to Owner

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

NOTICE TO PROCEED

Owner:	**City of White Salmon, Washington**
Contractor:	
Engineer:	**Anderson Perry & Associates, Inc.**
Project:	**Garfield Avenue Water Line Improvements - 2021**
Effective Date of Contract:	

TO CONTRACTOR:

Owner hereby notifies Contractor that the Contract Times under the above Contract will commence to run on [_____, 20__].

On that date, Contractor shall start performing its obligations under the Contract Documents. No Work shall be done at the Site prior to such date. In accordance with the Agreement, the date of readiness for final payment is June 15, 2021.

Before starting any Work at the Site, Contractor must comply with the following:

The Contractor is required to return 2 signed copies of this Notice to Proceed to the Owner within 10 days of the issue date.

Owner:	**City of White Salmon, Washington**
Authorized Signature:	_____
By:	_____
Title:	_____
Date Issued:	_____

Accepted:

Contractor:	_____
Authorized Signature:	_____
By:	_____
Title:	_____
Date:	_____

Copy: Engineer

CONDITIONS OF THE CONTRACT

SPECIAL PROJECT PROVISIONS

SPECIAL PROJECT PROVISIONS

The following Special Project Provisions are made a part of this contract and supersede any conflicting provisions or specifications provided in City of White Salmon Developer Standards for the Construction and Acceptance of Water and Sewer Facilities (Developer Standards), Adopted September 5, 2018.

ARTICLE 1 – DEFINED TERMS

1.01 Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

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

B. Agreement—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties, and designates the specific items that are Contract Documents.

C. Application for Payment—The form acceptable to Owner which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

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

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

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

G. Contract-The entire and integrated written contract between the Owner and Contractor concerning the Work.

H. Contract Documents-Those items so designated in the Agreement, and which together comprise the Contract.

I. Contract Price-The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents. .

J. Contract Times-The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.

K. Contractor-The individual or entity with which Owner has contracted for performance of the Work. This term is synonymous with the term "Developer" used in the City of White Salmon Developer Standards for Construction and Acceptance of Water and Sewerage Facilities, Adopted September 5, 2018.

L. Drawings-The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.

M. Effective Date of the Contract-The date, indicated in the Agreement, on which the Contract becomes effective.

N. Final Payment-Payment due to the Contractor after satisfactory completion of all corrections identified during the final inspection, and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, annotated Record Drawings, and other documents.

O. Milestone-A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date or by a time prior to Substantial Completion of all the Work.

P. Notice of Award-The written notice by Owner to a Bidder of Owner's acceptance of the Bid.

Q. Notice to Proceed-A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.

R. Owner-The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.

S. Progress Schedule-A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.

T. Project-The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.

U. Schedule of Submittals-A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer's review of the submittals and the performance of related construction activities.

V. Schedule of Values-A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

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

X. Site-Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands furnished by Owner which are designated for the use of Contractor.

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

Z. Subcontractor-An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.

AA. Substantial Completion-The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

BB. Successful Bidder-The Bidder whose Bid the Owner accepts, and to which the Owner makes an award of contract, subject to stated conditions.

CC. Unit Price Work-Work to be paid for on the basis of unit prices.

DD. Work-The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related

services such as testing, start-up, and commissioning, all as required by the Contract Documents.

ARTICLE 2 - SUMMARY OF WORK

2.01 The Base Bid Work for this project involves the construction of approximately 440 linear feet (LF) of 8-inch diameter pipe, valves, water services, asphalt removal and restoration, and other miscellaneous work required to complete the Project.

2.02 The Work may include Alternate 1 which involves the construction of approximately 60 LF of 8-inch diameter pipe, 25 LF of 6-inch diameter pipe, and 180 LF of 2-inch diameter pipe, valves, one fire hydrant, water services, removal and restoration of asphalt concrete pavement and concrete sidewalks, and other miscellaneous work required to complete the Project.

2.03 Special Project Requirements

The Contractor's Work and construction schedule shall include the following project requirements and considerations.

A. The Work includes crossing a high-pressure gas main (owner: Williams Pipeline). A minimum of 12 inches vertical clearance is required between the new water main and the high-pressure gas main. Sand backfill of the trench crossing is also required. Notify and coordinate the water main crossing of this high-pressure gas main with the utility.

B. Due to the timing of the Work, asphalt surface restoration work shall be performed under conditions conducive to asphalt placement. The asphalt restoration work shall be performed in accordance with WSDOT M41-10, latest edition.

C. Unless otherwise approved by the Owner, the Work shall be staged with the water main installation proceeding uphill with the bell ends facing upgrade.

D. Asphalt surface restoration is not required on NW Garfield Avenue as the Owner will be restoring the asphalt on this street as part of a later Transportation Improvement Board (TIB) funded project. Asphalt surface restoration is required on NW Washington Avenue and NW Michigan Avenue. Minimum thickness of the placed and compacted asphalt is 3 inches (greater than the 2 inches shown in Detail WD-22).

E. The Owner is utilizing cross-linked polyethylene pipe (PEX) for water service pipe instead of copper piping shown in the detail drawings.

2.04 Exclusions

The following is specifically excluded from the Contract Documents and are not part of the Work.

A. WS-8 – Liability Insurance – See Agreement.

B. WS-10 – Selection of Developer's Engineer

C. WS-11 - Authority of Developer's Engineer

D. WS-27 – Easements – all work is within the public right-of-way.

E. WS-55 – Recording

F. WS-56 - Completion Bond

G. WS-57 – Bill of Sale

2.05 Insurance and Indemnification

Insurance and indemnification requirements are described in the Small Public Works Agreement.

2.06 Bonds and Retainage

Bonds and retainage requirements are described in the Small Public Works Agreement. The bonds shall be in a form acceptable to the Owner's attorney.

ARTICLE 3 - ABBREVIATIONS

3.01 The following abbreviations of Associations, units of measurement, and miscellaneous items are defined as they may be used in these Contract Documents or on the Drawings. This list may not be all-inclusive.

Associations

AASHTO	-	American Association of State Highway and Transportation Officials	CRSI	-	Concrete Reinforcing Steel Institute
ACI	-	American Concrete Institute	DFPA	-	Douglas Fir Plywood Association
AGC	-	Associated General Contractors of America	DIPRA	-	Ductile Iron Pipe Research Association
AIA	-	American Institute of Architects	IBC	-	International Building Code
AISC	-	American Institute of Steel Construction	ICEA	-	Insulated Cable Engineers Association
AISI	-	American Iron and Steel Institute	IEEE	-	Institute of Electrical and Electronics Engineers
AITC	-	American Institute of Timber Construction	IPC	-	International Plumbing Code
ANSI	-	American National Standards Institute	IPCEA	-	Insulated Power Cable Engineers Association
APA	-	American Plywood Association	ITE	-	Institute of Transportation Engineers
APWA	-	American Public Works Association	NEMA	-	National Electrical Manufacturer's Association
AREA	-	American Railway Engineering Association	NFPA	-	National Fire Protection Association
ASCE	-	American Society of Civil Engineers	SAE	-	Society of Automotive Engineers
ASME	-	American Society of Mechanical Engineers	SDI	-	Steel Door Institute
ASTM	-	American Society for Testing and Materials	SSPC	-	Steel Structures Painting Council
AWS	-	American Welding Society	WWPA	-	Western Wood Products Association
AWWA	-	American Water Works Association			

Codes and Acts

MUTCD	-	Manual on Uniform Traffic Control Devices	RCW	-	Revised Code of Washington (Laws of the State)
NEC	-	National Electrical Code	SEPA	-	State Environmental Policy Act
NEPA	-	National Environmental Policy Act	UL	-	Underwriters Laboratories, Inc.
OAR	-	Oregon Administrative Rules	WAC	-	Washington Administrative Code

Federal Agencies

BIA	-	Bureau of Indian Affairs	NRCS	-	Natural Resources Conservation Service
BLM	-	Bureau of Land Management	OSHA	-	Occupational Safety and Health Administration
BOR	-	Bureau of Reclamation	USDA	-	U.S. Department of Agriculture
DOD	-	Department of Defense	USEPA	-	U.S. Environmental Protection Agency
FHWA	-	Federal Highway Administration	USFS	-	U.S. Forest Service
LCDC	-	Land Conservation and Development Commission	USFWS	-	U.S. Fish and Wildlife Service
NMFS	-	National Marine Fisheries Service			

State Agencies

WISHA	-	Washington Industrial Safety and Health Administration	WSDOT	-	Washington State Department of Transportation

Units of Measurement and Abbreviation
(Partial Listing)

AC	-	Asbestos Cement or Asphalt Concrete	L	-	Liter
ACP	-	Asphalt Concrete Pavement	Lb.	-	Pound(s)
BST	-	Bituminous Surface Treatment	L.F. or Lin. Ft.	-	Linear Foot (Feet)
CDR	-	Controlled Density Fill	LS or L.S.	-	Lump Sum
C.I.	-	Cast Iron	Max.	-	Maximum
CL	-	Centerline	MH	-	Manhole
C.O.	-	Clean Out	MJ	-	Mechanical Joint
Cl.	-	Class	Min.	-	Minimum
cfm	-	Cubic Feet Per Minute	MPH	-	Miles Per Hour
Conc.	-	Concrete	NBR	-	Nitrile Butadiene Rubber
Culv.	-	Culvert	N.T.S.	-	Not to Scale
CY, C.Y., or Cu. Yd.	-	Cubic Yard(s)	O.C.	-	On Center
			O.D.	-	Outside Diameter
DI	-	Ductile Iron	PL	-	Plate
Dia.	-	Diameter	PVC	-	Polyvinyl Chloride
Ea.	-	Each	psi	-	Pounds Per Square Inch
Elev., EL, or El.	-	Elevation	Q	-	Flow Rate
Est.	-	Estimate or Estimated	R	-	Radius
Extg.	-	Existing	REQD.	-	Required
F	-	Fahrenheit	RPM	-	Revolutions Per Minute
F.F.	-	Finished Floor	R/W	-	Right-of-Way
FLG	-	Flange	SS	-	Sanitary Sewer
Fpc	-	Specified Tensile Strength of Prestressed Tendon.	SBR	-	Styrene Butadiene Rubber
			SCH	-	Schedule
fps	-	Feet Per Second	SD	-	Storm Drain
Ft.	-	Foot or Feet	SF, S.F., or Sq. Ft.	-	Square Foot
gpm	-	Gallons Per Minute	Sht.	-	Sheet
HDPE	-	High Density Polyethylene	Stl.	-	Steel
HMAC	-	Hot-Mix Asphalt Concrete	SWL	-	Static Water Level
Hp	-	Horsepower	SY, S.Y., or Sq. Yd.	-	Square Yard
I.D.	-	Inside Diameter	TDH	-	Total Dynamic Head
I/I	-	Infiltration/Inflow	TM	-	Test Method
In.	-	Inch or Inches	Typ.	-	Typical
Incl.	-	Including	W	-	Water
Inv. El.	-	Invert Elevation			
Irr	-	Irrigation			

ARTICLE 4 - PROJECT WORK MEETINGS

4.01 Preconstruction Conference

A. A preconstruction conference shall be held prior to the Work commencing on the project. The Contractor, Owner, agencies, utilities, and other appropriate parties shall attend. The meeting shall be held to discuss general contracting procedures, communications, roles and responsibilities, quality control, work schedule, submittals, and other topics that relate to the Work as appropriate.

B. The Contractor shall also attend and participate in preconstruction conference(s) for other Work at the Site to discuss the topics described in the preceding paragraph and discuss the Contractor's authority and responsibilities on the Site.

4.02 Progress Meetings

The Contractor and/or their superintendent shall meet with the Owner on a regular basis to review the progress of the Work, Work schedule, Project concerns, etc., as may be appropriate. The intent of this meeting will be to keep communication channels open and to keep all parties informed as to the status of the Work. Generally, the meeting shall be held weekly; however, it may be scheduled at other times if needed.

ARTICLE 5 - MOBILIZATION/DEMOBILIZATION

5.01 Mobilization shall consist of preparatory work and operations including, but not limited to, those necessary for the movement of personnel, equipment, supplies, and incidentals to the Project Site for the establishment of offices, staging areas, and other facilities necessary for Work on the Project, for premiums on bond and insurance for the Project, permits, transfer/renewal of construction stormwater permit, special fees, and for other work and operations which the Contractor must perform or costs the Contractor must incur before beginning Work on the Project.

5.02 Demobilization shall consist of work and operations including, but not limited to, those necessary for the movement of personnel, equipment, and incidentals from the Project Site, as well as termination of construction stormwater permit, final disposition of demolished items, Project closeout, etc.

ARTICLE 6 - PROJECT SAFETY

6.01 The Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work, including excavation safety. The Contractor shall comply with all applicable Laws and Regulations, ordinances, rules, and orders of any public body having jurisdiction as it relates to Project and Work safety.

6.02 The Contractor shall maintain local access to area residents and emergency traffic throughout the life of the Project and coordinate construction activities closely with area residents to keep them informed of operations that may impact their use of any streets or roadways.

6.03 All signs, barricades, barriers, lights, cones, trench boxes, shoring/bracing, and other such "devices" required to warn, protect, or direct the public and workmen during the life of the Contract shall be furnished, installed, moved, and removed by the Contractor. When conditions warrant their use, flagpersons shall also be provided by the Contractor. The determination of what measures are required, in addition to those specifically called for by the Drawings and Specifications, shall be solely the responsibility of the Contractor.

6.04 The Engineer and Owner are not responsible for determining whether proper safety precautions, etc., are being utilized. Should the Contractor fail to furnish the necessary protective measures, the Owner may, but shall not be required to, bring to the Contractor's attention by written notice of such failure and the Contractor shall undertake such corrective measures as is proper.

6.05 All construction Work shall be performed in accordance with the provisions of the Industrial Safety Health Administrative Safety Standards of the State of Washington Department of Labor and Industry, and other applicable regulations. It shall be the Contractor's responsibility to meet all requirements of Chapter 296 of the State of Washington Administrative Rules.

6.06 The materials used for and the installation of all warning and traffic control devices shall conform to the Standard Specifications for Road, Bridge, and Municipal Construction - current edition, Washington State Department of Transportation, and the Manual of Uniform Traffic Control Devices for Streets and Highways, U.S. Department of Transportation, Federal Highway Administration, current edition.

6.07 Workers exposed to public vehicular traffic shall be provided with and shall wear warning vests or other suitable garments marked with, or made of, reflectorized or highly visible material. No worker shall be permitted underneath loads handled by lifting or digging equipment. Workers shall be required to stand away from any vehicle being loaded or unloaded to avoid being struck by any spillage or falling materials. Operators may remain in the cabs of vehicles being loaded or unloaded when the vehicles are equipped in accordance with the regulations to provide adequate protection for the operator during loading and unloading operations.

ARTICLE 7 - SHOP DRAWINGS

7.01 The Contractor shall submit Shop Drawings or manufacturer's data sheets in accordance with the Schedule of Shop Drawings and Sample submittals. It should be noted that the Engineer may require Shop Drawings for other items as may be deemed necessary. A minimum of three paper copies or an electronic file in PDF format of each item shall be submitted, unless approved otherwise by the Owner. Provide paper copies of submittals when requested by the Owner. Up to three additional paper copies of any submittal may be requested at the discretion of the Engineer at no additional cost to the Owner.

7.02 All submittals shall be submitted at a time sufficiently early to allow review of same by the Engineer/Owner and to accommodate the rate of construction progress required under this Contract.

7.03 When paper copies are submitted, the Owner will return two prints of each Shop Drawing to the Contractor, with comments noted thereon, within 15 calendar days following their receipt by the Owner. Electronic submittals will also be returned electronically within 15 calendar days. Compile the electronic (PDF) submittal file as a single, complete document. Name the electronic submittal file specifically according to its contents. Electronic files must be of sufficient quality that all information is legible. Generate PDF files from original documents so that the text included in the PDF file is both searchable and can be copied. If documents are scanned, Optical Character Resolution (OCR) routines are required.

7.04 The Contractor shall make any corrections required by the Owner and shall return the required number of corrected copies of Shop Drawings and resubmit new Samples for review. The Contractor shall direct specific attention in writing to revisions other than the corrections called for by the Owner on previous submittals. It is considered reasonable that the Contractor shall make a complete and acceptable submittal to the Engineer by the second submission of the Drawing. The Owner reserves the right to withhold monies due the Contractor to cover additional costs of the review beyond the second submission.

7.05 For each resubmittal necessary, an additional 15 calendar days shall be allowed for review. The Contractor shall include copies of all approved submittal information in the Contractor's Record Drawings. A copy of each Shop Drawing and Sample shall also be kept in good order by the Contractor at the job Site and shall be available to the Owner.

7.06 Submittals to be provided include, but limited to, technical/product data sheets for pipe, valves, fittings, fire hydrant, water meter piping, corporation stops, valve boxes, service saddles, appurtenances, aggregate fill, asphalt concrete mix, and portland concrete mix.

ARTICLE 8 - QUALITY CONTROL

8.01 The Contractor shall be responsible for providing their own construction monitoring and quality control program. The Contractor shall provide and maintain a quality control program that will ensure the quality of the Work and materials incorporated into the Project. The Contractor shall also perform all tests required by Laws and Regulations, ordinances, and orders of public authorities. The Contractor shall provide appropriate quality control personnel and testing facilities and certified testing personnel to perform the Work. A written quality control program shall be provided to the Engineer for their review prior to any Work being performed. The plan shall describe testing facilities, qualifications of quality control and testing personnel, testing frequency, and reporting schedule. Copies of all test results shall be provided to the Engineer for their review as soon as the test has been performed. This includes copies of daily worksheets. Materials, equipment, or Work which fails to meet the Contract requirements shall not be used in the Work.

8.02 The Owner and their representatives will at all times have access to the Work. In addition, authorized representatives and agents of any participating federal or state agency shall be permitted to review all Work, materials, invoices of materials, and other relevant data and records. The Contractor will provide proper facilities for such access and observation of the Work and also for any review or testing thereof. The Contractor shall notify testing personnel, including testing personnel provided by the Owner, at least 24 hours in advance of operations to allow for personnel assignments and test scheduling. All materials to be tested shall be provided by the Contractor at their expense. After tests are completed, the Contractor shall be responsible for repairing test areas to match original conditions. The Contractor shall pay for all additional reviews and retesting required because of defective Work or ill-timed notices.

8.03 When requested, the Contractor shall submit Samples of the material to be utilized on the Project to the Owner for their review. The Owner or their representative may take additional Samples and provide check tests on material being incorporated into the Work to verify compliance with the requirements of the Contract Documents. Materials or workmanship found to be outside of the specification limits shall be replaced with suitable material at no expense to the Owner.

8.04 Tests or reviews by the Owner or others shall not relieve the Contractor from their obligations to perform the Work in accordance with the requirements of the Contract Documents and does not make the Owner, or others, an insurer of the Contractor's Work.

8.05 Testing shall include, but not limited to, compaction of trench backfill and asphalt concrete restoration, pressure testing and bacteriological testing of the installed pipe. See City of White Salmon Developer Standards for the Construction and Acceptance of Water and Sewerage Facilities for other testing and quality control requirements.

8.06 If the Contractor fails to provide all or any part of the required quality control testing and corresponding reports for the Project after the Owner has requested the Contractor to do so in writing, the Owner may elect to have the quality control work performed by others and withhold the actual cost of quality work plus $100 for each test performed from payments owed the Contractor on the Project.

ARTICLE 9 - COOPERATION WITH OTHERS

9.01 The Contractor shall cooperate with the residents and business owners in the area to provide good access to private property whenever possible. Sidewalks shall be kept clear at all times of any construction materials. Barricades, traffic cones, blinkers, and signing shall be used to direct the public through the Work area safely.

ARTICLE 10 - CONSTRUCTION STAKING

10.01 No staking of the Work shall be provided.

ARTICLE 11 - EXISTING UTILITIES

11.01 The following utilities may be affected by the Contractor's Work:

A. Power
Klickitat Public Utilities District (PUD)
110 NE Estes Avenue, White Salmon, WA 98672
Mark Pritchard, Operations Manager
(509) 773-7629

B. Telephone
CenturyLink
Phone Repair (24 hours a day, 7 days a week): (800) 788-3600
David Sisson, Engineer
(360) 699-3696 (office); (360) 991-8916 (cellular)

C. Gas
Williams Pipeline
One Williams Center, Tulsa, OK 74172
(800) 945-5426
Rod Johnson
(360) 608-3422

D. Northwest Natural Gas
220 NW 2nd Avenue, Portland, OR 97209
Locate Compliance Center
(503) 220-2415
24 hours' notice required

E. Cable
Charter Communications
Support: (800) 892-4357

F. Water/Sewer/Sewer/City Streets
City of White Salmon (Owner), Public Works Department
220 NE Tohomish, White Salmon, WA 98672
Telephone No.: (509) 493-1133

11.02 Known utilities and structures expected to be adjacent to or encountered in the Work are shown on the Drawings to the extent known. Information on existing utilities may be provided by others and existing records may not be complete or accurate. It is expected there may be discrepancies and omissions in the location, size, and quantities of utilities and structures shown. Those shown are for convenience of the Contractor only, and no responsibility is assumed by either the Owner or Engineer for their accuracy. The Contractor shall work closely with the owner of any utilities or structures affected by the Work to avoid any damage.

11.03 The Contractor shall be responsible for the actual locating and protecting of existing utilities. The Contractor, prior to commencement of Work, shall contact existing Utility Companies such as water, sewer, power, telephone, gas, etc., to have the Utility Companies locate all utilities that will be affected by the Work to be performed. The Contractor shall give notification at least two business days but not more than 10 business days before commencing excavation in accordance with RCW 19.122. The "call before you dig" number is 811 or 1-800-424-5555. The Contractor shall perform all necessary coordination work with the Utility Companies in performing the Work and shall be fully responsible for any damage to existing utilities caused by the Contractor's operations. The Contractor shall make any advance exploration necessary to protect all existing utilities and to properly plan the installation of pipelines or other work to the design line and grade. No payment shall be made for this work for up to two hours of advanced backhoe excavation work necessary to locate each existing utility at each specific site. The Work shall include all labor, equipment, etc., necessary to perform the location work. These costs shall be understood to be included in the Contract Prices. Should the Contractor be unable to locate the existing utility after its location has been marked by the appropriate utility company and diligent effort made by the Contractor to locate the utility including up to two hours of backhoe excavation work for each utility at each location site, the Contractor may be entitled to additional compensation as outlined hereafter. When prior notice has been given to the Engineer and the Engineer gives approval, the Contractor shall be paid for all additional backhoe excavation work required to locate the utility on an hourly basis under the bid item "Additional Potholing" when listed in the Bid Schedule or through an approved Change Order. Any additional potholing work performed by the Contractor without prior written approval of the Engineer will not be paid for.

11.04 If a conflict develops between the design line and grade of a pipeline or Project improvement and an existing utility, the Engineer may adjust the pipeline grade or have the existing utility relocated. The existing utility may be relocated by the owner of the utility or its designated representative or by the Contractor upon the approval of the utility owner and the Engineer. The Contractor shall perform all relocation work required by the Engineer. If the Contractor performs the relocation work, a Change Order shall be negotiated prior to any actual work unless payment for the work is specified otherwise.

11.05 The owner of the utilities shall normally be responsible for taking the utility out of service, if necessary, for the performance of the Work (i.e., shutting valves, etc.). In the case of water valves, the owner of the water system may operate the valves or request the Contractor to do so. When the Contractor is requested to do so, the Contractor shall operate water valves as a normal part of the Work at no additional cost to the Owner. All water valves shall be operated as instructed by the owner of the valves. It can be expected that some valves may not fully operate properly, which may require that additional valves be operated. This situation shall be considered a normal requirement of the Work.

11.06 The Contractor shall receive prior approval from the appropriate authority or utility owner before any public or private utility service is interrupted.

A. The Contractor shall give a minimum of four hours' notice to all utility customers who will be affected by the Contractor's operations. No utility service shall be disconnected or interrupted for more than nine hours or as required by the utility owner, whichever is less, in any 24-hour period. When disruption of service will be longer than nine hours in any one day, the Contractor shall provide safe and appropriate temporary service. All temporary service shall be coordinated with the utility owner.

B. When regular utility service interruption is required during the course of the Work, the Contractor shall submit a written plan to the Owner and utility owner which details proposed Work plan notification procedures, and estimated extent of service interruption. The Contractor must obtain written approval of their plan from the utility owner prior to interrupting the utility service. As a minimum, notification shall include door hangers and public notification in the newspaper and radio, as appropriate. Personal contact shall be made where practical.

C. The Contractor shall make every effort possible to provide continuous utility service to all utility customers. When special conditions exist where an interruption of utility service would create an extra hardship on the utility customer or create a hazardous condition, the Contractor shall provide continuous service. Particular care and planning must be arranged to provide

continuous service of existing services or temporary services as approved by the utility owner and the Engineer.

D. If the Contractor inadvertently damages or interrupts an existing utility, the Contractor shall immediately notify the affected utility company, Owner, and utility users and make arrangements to provide temporary service to the parties affected.

E. The Contractor shall, as requested by the Engineer, either immediately arrange for the utility company to make the needed repairs or immediately make the repair to the damaged utility.

F. The Contractor shall pay the full cost of repair and damages when the utility was previously located and was within 4 feet on either side of the marked location as required by the Call Before You Dig notification system, or where negligence of the Contractor occurred.

G. The Contractor will be paid for the cost of repair and damages when existing utilities encountered during the performance of the Work were not previously located by the utility as required by the Call Before You Dig notification system, where existing utilities were farther than 4 feet away on either side of the marked location, and where damage to the utilities occurred due to no negligence of the Contractor.

H. If the Contractor fails to make immediate repairs and provide service as required, the Owner may have said Work performed by others and deduct the cost of said Work from payment to the Contractor.

11.07 The Contractor shall support and otherwise protect all pipes, conduits, cables, poles, and other existing services where they cross the trench or are otherwise undermined or affected by their Work. The Contractor shall restore the support of an undermined existing utility using select backfill in conformance with the Owner's Developer Standards.

ARTICLE 12 - ACCESS TO WATER DURING CONSTRUCTION

12.01 The Owner will provide water from its existing distribution system to flush the installed water lines at no cost. The Contractor will utilize a water meter, or other means approved by the Engineer, on the discharge side of the pipe used to flush the water to determine or estimate the quantity of water from the Owner's system that was used by the Contractor for flushing.

12.02 Water from the Owner is available for all other construction purposes from a hydrant meter obtained from the Owner. A copy of the Owner's "Operate Fire Hydrant Permit", with the cost of the hydrant use, deposit, and cost of water, is provided at the end of the Special Project Provisions. Water shall be available at locations designated by the

Owner. The Contractor will be responsible for complying with the permit requirements and reimburse the Owner for water used. The Contractor review with the Owner the proposed water filling procedures and equipment prior to the first acquisition of water to ensure proper air gaps and other cross-connection requirements are being implemented.

12.03 The Contractor shall pay for all costs associated with the acquisition, transport, and use of water for construction purposes.

ARTICLE 13 - PROGRESS OF THE WORK - CLEANUP

13.01 The Contractor shall arrange their work schedule such that all phases of Work, once started, shall be diligently pursued until completed. The intent is that the work area shall not be disturbed for undue periods of time. Work shall not be left uncompleted. If the Engineer determines that Work is not being diligently completed, the Engineer shall request the Contractor to complete said Work.

13.02 Cleaning up shall be a continuing process from the start of the Work to final acceptance of the Project. The Contractor shall, at all times, at their own expense and without further order, keep property on which Work is in progress free from accumulations of waste material or rubbish caused by employees or by the Work, and at all times during the construction period shall maintain structure sites, rights-of-way, easements, adjacent property, and the surfaces of streets and roads on which Work is being done in a safe condition for the Contractor's workers and the public.

A. Accumulations of waste materials that might constitute a fire hazard will not be permitted.

B. Spillage from the Contractor's hauling vehicles on traveled public or private roads shall be promptly cleaned up. The Contractor shall take appropriate action to control dust caused by their operations. This shall include, but not be limited to, watering of exposed areas, cleaning of roadways, etc. This is considered a normal part of the construction Project.

C. Upon completion of the Work, the Contractor shall, at their own expense, remove all temporary structures, rubbish, waste material, equipment, and supplies resulting from their operations. They shall leave such lands in a neat and orderly condition that is at least as good as the condition in which they found them prior to their operations.

D. Should the Contractor fail to provide said cleanup upon 24-hour written notice, the Owner shall have the right to perform such Work at the expense of the Contractor and withhold the cost from the Contractor's payments.

13.03 The Contractor shall replace or restore, equivalent to their original condition, all surfaces or existing facilities disturbed by their Work, whether within or outside of the Work areas. Restoration work will include, but is not limited to, roadways, utilities, structures, landscaping, etc.

ARTICLE 14 - EXISTING EQUIPMENT REMOVAL AND SALVAGE

14.01 Existing equipment or materials removed by the Contractor during the course of the Work, which the Owner requests to be salvaged, shall remain the property of the Owner. The equipment and materials shall be removed with care to prevent unnecessary damage and shall be neatly stored at a location directed by the Engineer.

ARTICLE 15 - RECORD DRAWINGS

15.01 The Contractor shall maintain on the Job Site an up-to-date, complete, and accurate set of Record Drawings. These Drawings shall include all Work performed by the Contractor and shall note any changes or deviations made from the details shown on the Construction Drawings. Such deviations would include, but not be limited to, dimensional changes, location, grade changes, elevation changes, material type, configuration, etc. All changes shall be neatly and accurately shown on the Record Drawings. The Owner will provide one full-size set of prints for use by the Contractor in preparing the Record Drawings.

15.02 The Contractor shall provide ties to all buried service line taps from an above-ground reference point such as a valve, manhole, etc. At least two swing tie references shall be provided for all service line stubouts that will not be connected to an active service. Swing tie measurements shall be from some permanent reference point (i.e., house corner, fire hydrant, power pole, etc.). All ties shall be provided in such a way that the buried service line can be accurately located after construction Work is complete. All buried improvements shall be described in detail including location, type, size, depth, brand name, model numbers, etc. Buried improvements shall include valves, fittings, repair clamps, connections to existing lines, etc. All offsets shall be appropriately noted on the Drawings.

15.03 The Contractor shall also note the locations, types, size, depth, etc., of any existing utilities encountered during the performance of the Work. The Record Drawings shall be available for inspection during the Project by the Owner and Engineer. The Contractor shall keep the Record Drawings current each day to avoid loss of critical or important information.

ARTICLE 16 - PREVAILING WAGE RATES AND HOURS OF LABOR

16.01 During the performance of Work under this Contract, the Contractor must abide by RCW 39.12 in regards to prevailing wages on public works projects and by RCW 49.28 with respect to hours of labor. The State of Washington prevailing wage rates applicable to this public works project, which is located in Klickitat County, may be found at the following website address of the Department of Labor and Industries: https://fortress.wa.gov/lni/wagelookup/prvWagelookup.aspx. Based on the Bid submittal deadline for this Project, the applicable effective date for prevailing wages for this Project is April 14, 2021. A copy of the applicable prevailing wage rates is also available for viewing during regular office hours at the Office of the Engineer, located at Anderson Perry & Associates, Inc., 214 E Birch Street, Walla Walla, Washington 99362, (509) 529-9260. Upon request, the Engineer will mail a hard copy of the applicable prevailing wages for this Project.

16.02. Contractor shall post the following information in a location readily visible to workers at the job site in conformance with RCW 39.12.020.

A. A copy of a statement of intent to pay prevailing wages approved by the industrial statistician of the State Department of Labor and Industries per RCW 39.12.040.

B. Address and telephone number of the industrial statistician of the State Department of Labor and Industries, where a complaint or inquiry concerning prevailing wages may be made.

16.03. Per RCW 39.12.040, Contractor shall compile and submit to the Owner with the first Application for Payment a "Statement of Intent to Pay Prevailing Wages", approved by the industrial statistician of the State Board of Industries, for his employees and that for each and every Subcontractor from the Contractor, or a Subcontractor. No payments to the Contractor until an approved Statement of Intent to Pay Prevailing Wages is submitted to the Owner. The Statement of Intent to Pay Prevailing Wages shall include the following.

A. Contractor's registration certification number.

B. Prevailing rate of wage for each classification of workers entitled to prevailing wages under RCW 39.12.020 and the estimated number of workers in each classification.

16.04. With the final Application for Payment, Contractor shall provide the following documentation, along with other documentation required by the Contract Documents.

A. A release obtained from the Washington State Department of Revenue.

B. Affidavits of Wages Paid forms (from the State Department of Labor and Industries) for the Contractor and all Subcontractors are on file with the Owner (RCW 39.12.040).

C. Release has been obtained from the Washington State Department of Labor and Industries for payment of unemployment compensation and the Washington State Employment Security Department for payment of industrial insurance and medical aid.

D. A certificate of Payment of Contributions Penalties and Interest on Public Works Contract is received from the Washington State Employment Security Department.

The Owner will not release final payment, including retainage, until the above documentation is received and all Claims, as provided by law, against the retainage have been resolved. In the event Claims are filed and provided the above conditions 1, 2, and 3 are met, the Contractor will be paid such retained percentage less an amount sufficient to pay any such Claims together with a sum determined by the Owner sufficient to pay the cost of foreclosing on Claims and to cover attorney's fees.

16.05. Contractor shall be responsible for requesting the "Intent to Pay Prevailing Wages" and "Affidavit of Wages Paid" forms from the State Department of Labor and Industries and for paying any approval fees required by the State Department of Labor and Industries.

16.06. Any disputes that arise as to what the prevailing wage rates of wages for work of a similar nature and such dispute cannot be adjusted by the parties in interest, including labor and management representatives, the matter shall be referred for arbitration to the Director of the State Department of Labor and Industries and his or her decision therein shall be final and conclusive and binding on all parties involved in the dispute.

CITY OF WHITE SALMON
OPERATE FIRE HYDRANT PERMIT

Date: _____ Applicant: _____

Representing: _____

Address: _____

Telephone: _____

Location of Hydrant: _____

Date/ Duration for Hydrant Use

Dates: _____ Expected Duration: _____

Size of Water Tank (Gallons): _____

Application must be completed and fees paid prior to meter installation.

Invoiced at the completion of the fire hydrant use for consumption.

Refundable Deposit Fee $200.00 + Connection Fee $20.00 + RP/Meter Rental $5.00 (a day)

Consumption (per 1,000 Gal): 1 – 5,000 Gal $1.11 / 5,001 – 15,000 Gal $2.80 / Anything over 15,001 Gal $3.75

Notification Required:

Authorized users of any City Fire Hydrant shall notify the City Public Works Department prior to activating any fire hydrant for discharge, and upon completing of use of any fire hydrant for filling water tank trucks, public or private. Any unauthorized use of a City Fire Hydrant will be subject to criminal water theft and denial of a hydrant valve use permit. City Public Works Dept: (509) 493-1133 ext. 500

Hydrant Number/Location: _____

Water Meter Reading

Start: _____ Finish: _____ Water Use: _____

Veh. equipped with approved Air Gap?
YES ☐ NO ☐

If no, DCVA need shall be used.

CCS _____

APPROVAL

Signature: _____

Date: _____

CITY OF WHITE SALMON DEVELOPER STANDARDS FOR THE CONSTRUCTION AND ACCEPTANCE OF WATER AND SEWERAGE FACILITIES

ADOPTED SEPTEMBER 5, 2018

WATER SYSTEM INSTALLATION NOTES

1. Prior to any construction activity, the Developer shall arrange and attend a pre-construction conference with the City. The Developer, Contractor and proposed on-site supervisors shall attend.
2. All work and materials shall be in accordance with the latest revision, including addenda and updates, of the City of White Salmon Construction Standard Specifications and Details. Contractor shall have the City of White Salmon Standards on the jobsite any time construction is in progress.
3. No City inspections will take place and the job will be shut down unless an approved and City signed copy of the plans is on the job site at all times construction is in progress.
4. All water system improvements shall be constructed in accordance with the approved plans. Any deviation from the plans will require approval from the owner, engineer, City and appropriate public agencies.
5. Notify the City 72 hours (3 working days) prior to beginning construction and for any restarts of work.
6. The City shall be notified three working days prior to the time the Developer would like to connect to existing mains or for installation of Tapping Tees. The connection shall be done in accordance with City requirements. Connections to take place Tuesdays through Thursdays only. Developer shall not operate any City valves; these will be operated by City personnel only.
7. For aid in utility location, call 811 a minimum of 48 hours (2 working days) prior to beginning construction. Existing utilities, whether shown on the plans or not, shall be located prior to construction, so as to avoid damage or disturbance, and the Developer shall assume all responsibility and costs associated therewith to protect, maintain and repair, where necessary.
8. Water line construction within the proposed development shall not commence until the street has been brought to sub-grade, meeting City approval.
9. Water main shall be field staked prior to construction, with 25 foot stakes on curves. Lot corners stakes shall also be in place prior to construction.
10. Pipe shall be C-900 PVC conforming to AWWA standards. Where system pressures exceed 150 psi pipe shall be Pressure Class 350 Ductile Iron pipe meeting AWWA standards. All fittings shall be AWWA, cement lined, ductile iron, and either mechanical joint (MJ) or flanged (FL), as indicated herein. All pipe to be purchased and installed as a part of the developer's water system shall be delivered to the job site with water tight wrapping or pipe plugs. Plugs and/or wrapping shall remain in place until the pipe is installed in the trench.

11. Unless otherwise specified, valves 12 inch and smaller shall be ductile iron, resilient seated gate valves meeting AWWA Standards. Acceptable valves are Kennedy, M&H, Mueller, Clow or approved equal. Valves larger than 12 inches shall be ductile iron butterfly valves. Acceptable valves are Pratt Groundhog, Dresser 450 or approved equal.
12. All bolts on water works fittings shall be coated with Armite Anti-Seize Compound No. 609, or approved equal, prior to installation. All water works fittings and bolted assemblies shall be completely covered with minimum 4 mil. visqueen plastic. The ends of the plastic shall be taped to secure them to the pipe.
13. Hydrants shall be Kennedy K81, M&H 929 or approved equal meeting AWWA Standards. Hydrants shall be furnished with threaded outlets meeting fire department/district standards. Both thrust blocking and either Mega Lug or Roma Grip restraints are required on each hydrant installation. Hydrant pumper ports shall have 4 ½" NST threads and be equipped with a 5 inch Storz Adapter. All hydrants shall be painted with two coats of Preservative Paints "Safety Yellow" or approved equal.
14. Provide thrust blocking and/or restrained joints at all fittings, bends and up-thrust fittings, in accordance with City Construction Standards and Specifications.
15. All new connections to the existing water system shall be in strict conformance with the appropriate subsections of the specifications of the City. No more than one connection shall be made between the new main(s) and the existing main(s) until the new piping has been flushed, disinfected, pressure tested and received satisfactory bacteriological test result.
16. Individual water services to the property line shall be 1" diameter minimum size and be installed with 36" minimum cover.
17. Residential fire sprinkler systems shall have a minimum 1 inch meter/service. Backflow prevention assemblies shall be installed on all residential fire sprinkler systems and located immediately behind the water meter/service on the property side.
18. Fire line services shall have a Double Check Detector Backflow Prevention Assembly installed in a utility vault at the ROW/Property line with a 6 inch PVC gravity drain to storm. Fire line service shall terminate, in the structure to be served, with the City's Riser Detail.
19. All commercial, multi-family, industrial and irrigation services shall include a DOH approved backflow prevention assembly located immediately behind and on the property side of the water meter/service. Alternate locations may be acceptable upon approval by the City. Structures requiring fire sprinkler systems shall have at least one backflow prevention assembly per each structure, protecting the potable water system from the fire system. The backflow prevention assembly shall be located in a flood proof vault or service box, depending on size, outside the structure in a location approved by the City.

20. Where road grades are established, provide a minimum of 48 inches of cover over 12 inch or larger water mains, and provide a minimum of 42 inches of cover over 8 inch mains; or additional depth as required to miss other utilities.
21. Water mains constructed within easements or private roads shall be installed with polyethylene encasement (DI Pipe), restrained joints and with a 5'-0" minimum cover. During backfill operations, furnish and install 3 inch wide metallic marker tape over the water main with 3 feet of cover.
22. Minimum radius for 12 inch and smaller pipelines constructed on curves is 258 feet (4 degrees deflection per joint).
23. Compaction: All trench backfill and roadway embankment shall be compacted to 95% of modified proctor dry maximum density in accordance with ASTM D1557, except the top 6 inches in paved areas, which shall be 100%. CDF shall be required for any roadway crossings.
24. Construction inspection will be done by the City and/or their designated engineer. No new facilities will be accepted by the City if proper inspections have not been completed.
25. The water main construction phase will not be considered complete until the installation is acceptable to the City including a satisfactory hydrostatic pressure test, a satisfactory disinfection test, satisfactory flow of service lines and completion of all items on the inspector's punch list.
26. Water service is available only after transfer of ownership to the City and payment of all current applicable fees.

PART 1

PROVISIONS APPLICABLE TO WATER AND SEWER EXTENSIONS

A. GENERAL AND PRECONSTRUCTION

WS-1 DEFINITIONS

(a) "City" means the City of White Salmon and its employees.

(b) "City Engineer" means the engineering firm, and that firm's representatives, retained and assigned by the Council to act as the Engineer for the work to be performed under this Agreement.

(c) "Concerned Parties" means those persons, companies, or agencies designated by the City to attend the preconstruction conference.

(d) "Contractor" means the person, firms, Contractors or Sub Contractors employed by the Developer to do any part of the work, all of whom shall be considered agents of the Developer.

(e) "Council" means the City Council of the City of White Salmon.

(f) "Design" means design and the preparation of the Plans for the extension to the City's water distribution and/or sewer collection system.

(g) "Developer" means the owner(s) of property to be benefited by the proposed extension, or that person or organization in charge of developing the project, either on behalf of the owner(s) or pursuant to an agreement to purchase the property, and includes the Developer's agents.

(h) "Developer Engineer" means the engineering firm, and that firm's representatives, retained by the Developer to design and prepare the Plans for the work to be performed under this agreement in accordance with City specifications, and which shall be considered an agent of the Developer.

(i) "Otherwise Specified, or As Specified" means the directions contained in the Plans, Special Specifications, if any and otherwise as given by the City, incident to the performance of the work other than in these General Provisions.

(j) "Plans" means drawings, including reproductions thereof, of the work to be performed as an extension to the City's water distribution and/or sewer collection system, prepared or approved by the City, and approved by the Council.

(k) "Specifications" means the directions, provisions, standards, and requirements as approved by the Council for the performance of the work

and for the quantity and quality of materials.

(l) "Work" means the labor, materials, superintendence, equipment, transportation, supplies, and other facilities necessary or convenient to the completion of the proposed extension described in the application contained herein.

WS-2 PURPOSE

THE CITY OF WHITE SALMON, as a municipal corporation, has a responsibility to the public to ensure that water and sewer mains installed in public streets or easements are constructed in accordance with currently accepted standards for public work. The requirements imposed upon developers by these regulations are intended by the City as a contract with the Developer, incorporating minimum standards, which are prerequisite to acceptance of the work by the City as a part of its water and sewer systems. Privately constructed extensions shall not be permitted to connect thereto unless the work is performed and paid for in accordance with these regulations.

WS-3 AUTHORITY OF THE CITY

The City may approve, reject, or require changes in Plans prepared by the Developer's Engineer, including such changes in the Plans as the City may deem necessary during the course of work. The City shall inspect the work and may stop work whenever necessary to ensure compliance with the approved Plans and Specifications. The City shall have authority to reject nonconforming work and materials and to decide questions arising during performance of the work. The failure of the City to reject or disapprove any part of the work or materials shall not be deemed an acceptance of any such part of the work or materials. The City shall have the authority to approve or disapprove the contractor selected by the Developer to perform the work.

WS-4 GOVERNING LAW/FORUM

This Agreement shall be construed and enforced in accordance with, and the validity and performance hereof shall be governed by the laws of the State of Washington. Any suit to enforce the provisions of the Agreement shall be brought in Klickitat County, Washington.

WS-5 NO THIRD PERSON SHALL HAVE ANY RIGHTS HEREUNDER

This Agreement is made entirely for the benefit of the City and the Developer and successors in interest and no third person or party shall have any rights hereunder whether by agency or as a third-party beneficiary or otherwise.

WS-6 REIMBURSEMENT CHARGES

The Developer shall also pay all reimbursement charges, if any, levied against the property pursuant to the City's reimbursement policy.

WS-7 COSTS OF LITIGATION

If the City or the Developer commences any legal action relating to the provisions of this Agreement, the prevailing party shall be entitled, in addition to all other amounts to which it is otherwise entitled by this Agreement, to all costs of litigation, including but not limited to costs, witness, expert and reasonable attorney's fees, including all such costs and fees incurred in appeal.

If litigation arises out of this Agreement or related to this project to which the City is not a party, the Developer will reimburse the City for all costs and expenses, including attorney's or engineer's fees, incurred as a result of such litigation, including but not limited to time and materials at the regular rates established by City ordinance.

WS-8 LIABILITY INSURANCE

The Developer/Contractor's required insurance shall be of the types and coverage as stated below:

1. Automobile Liability insurance covering all owned, non-owned, hired and leased vehicles. Coverage shall be at least as broad as Insurance Services Office (ISO) form CA 00 01.

2. Commercial General Liability insurance shall be as least at broad as ISO occurrence form CG 00 01 and shall cover liability arising from premises, operations, independent contractors, products-completed operations, stop gap liability, personal injury and advertising injury, and liability assumed under an insured contract. The Commercial General Liability insurance shall be endorsed to provide a per project general aggregate limit using ISO form CG 25 03 0509 or an equivalent endorsement. There shall be no exclusion for liability arising from explosion, collapse or underground property damage. The Public Entity shall be named as an additional insured under the Contractor's Commercial General Liability insurance policy with respect to the work performed for the Public Entity using ISO Additional Insured endorsement CG 20 10 10 01 and Additional Insured-Completed Operations endorsement CG 20 37 10 01 or substitute endorsements providing at least as broad coverage in a form acceptable to the City prior to the Pre-Construction Meeting.

3. Workers' Compensation coverage as required by the Industrial Insurance laws of the State of Washington.

The minimum limits of coverage shall be as follows:

General Aggregate	$2,000,000.00
Products - Comp/OPS Aggregate	$2,000,000.00
Personal Injury	$2,000,000.00
Each Occurrence	$2,000,000.00
Automobile Liability	$2,000,000.00

Policies shall be kept in force until the project is accepted by the City. The City shall be given at least 30 days written notice of cancellation, non-renewal, material reduction, or modification of coverage.

The coverage provided by the insurance policies are to be primary to any insurance maintained by the City, except with respect to losses attributable to the sole negligence of the City. Any insurance that might cover this Agreement which is maintained by the City shall be in excess of the Developer's/Contractor's insurance and shall not contribute with it.

The insurance policy shall protect each insured in the same manner as though a separate policy had been issued to each. The inclusion of more than one insured shall not affect the rights of any insured with respect to any claim, suit or judgment made or brought by or for any other insured or by or for any employee of any other insured.

The general aggregate provisions of the insurance policy shall be amended to show that the general aggregate limit of the policies apply separately to this project.

The insurance policy shall not contain a deductible or self-insured retention in excess of $10,000 unless approved by the City.

Providing coverage in the stated amounts shall not be construed to relieve the Developer from liability in excess of such limits.

WS-9 INDEMNITY

The Developer shall indemnify, defend and hold the City and all its representatives harmless from and against all losses and claims, demands, payments, suits, actions, recoveries and judgments of every nature and description brought or recovered against the City by reason of the act or omission of the Developer, its agents or employees, in the performance of the work, and for any cost or expense incurred by the City in connection therewith, including overhead expense, legal expense, attorney's fees and costs attributable thereto; and if suit in respect to the foregoing is filed, the Developer shall appear and defend the same at its own cost and expense, and if judgment is rendered or settlement made requiring payment of damages by the City, the Developer shall pay the same. The Developer's obligation to indemnify the City shall not extend to the sole negligence of the City or to the extent of any concurrent negligence of the City.

Developer agrees to hold the City harmless from any liability or expense, including reasonable attorney's fees incurred by the City by reason of the Developer's (or the Developer's employees or contractors) breach of any covenant contained on any franchise or permit granted by state, city, county, or public or private utility to the City for the purpose of enabling the Developer to undertake construction within any right-of-way.

The Developer further agrees that if any official complains to the City that the Developer is violating such franchise or permit in any respect, or if the Developer damages any City facilities, the City Manager shall give the Developer such notice as is reasonable under the circumstances to comply with such franchise or permit or to make repairs or restoration. In such event that the City deems it necessary to make any repairs or restoration (emergency or otherwise), the City shall be reimbursed for the cost thereof by the Developer.

In any and all claims against the City or any of its agents or employees by any employees of the Developer, its Contractor, or any subcontractor, or anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, the indemnification obligation under this article shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Workmen's Compensation Acts, Disability Benefit Acts, or other employee benefit acts. THE WAIVER OF ANY LIMITATION OF THE INDEMNIFICATION OBLIGATION CONTAINED IN THIS PARAGRAPH HAS BEEN SPECIFICALLY NEGOTIATED BY THE PARTIES.

WS-10 SELECTION OF DEVELOPER'S ENGINEER

When the Developer submits this Agreement to the City for execution, the Developer shall notify the City in writing of the person or firm proposed to do the design. The Developer shall not employ any person or firm for any part of the design work that the City may object to as incompetent, unfit, or irresponsible. Nothing contained in this Agreement shall create any contractual rights between the City and any person or firm employed by the Developer to design and prepare the Plans.

WS-11 AUTHORITY OF DEVELOPER'S ENGINEER

The Developer's Engineer shall only have authority to design and prepare the Plans for the extension to the City's water distribution and/or sewer collection system. The Plans shall conform in all respects to the City's Standard Details and Specifications and they must be approved by the City prior to commencement of work. The City shall have the sole right to approve or reject the Plans or require changes to be made to them. Failure of the City to require changes in the Plans prior to Plan approval shall not be deemed a waiver of the City's right to require such changes in the Plans as the City may deem necessary during the course of work. Failure by the City to discover errors, omissions, or discrepancies in the Plans shall not relieve the Developer of this responsibility.

WS-12 OMISSIONS AND DISCREPANCIES

Minor items of work or materials omitted from Plans and Specifications prepared by the City, the City's Engineer, or the Developer's Engineer, but clearly inferable from the same and which are called for by accepted good practice, shall be provided and/or performed by the Developer as part of the construction. In case of doubt, the City shall be consulted and its decision shall be final.

WS-13 DEVELOPER TO BE INFORMED

The Developer shall be fully informed regarding the nature, quality and extent of the work to be performed, and if in doubt, shall secure specific instructions from the City.

The Developer shall employ on the project site during progress of the construction of the project, a competent supervisor who shall represent the Developer during their absence, and to whom instruction may be given as though to the Developer. The Supervisor shall become familiar with the Plans and Specifications and shall promptly report to the City any error, inconsistency or omission which may be discovered.

WS-14 PLANS AND SPECIFICATIONS ACCESSIBLE

The Developer shall have one copy of the Signed Plans and Specifications constantly accessible on the job.

WS-15 OWNERSHIP OF PLANS

The original mylars, three plan copies and an electronic file of all "as built" plans prepared by Developer's Engineer shall be delivered to the City as a condition of and prior to acceptance of the project, and shall become the property of the City. Neither Developer nor Developer's Engineer shall have any rights of ownership, copyright, trademark, or patent in the Plans.

WS-16 QUALITY OF MATERIALS AND WORKMANSHIP

Unless otherwise specified, all materials shall be new, and workmanship and materials shall be of the highest quality commonly used. The Developer shall, if required, furnish satisfactory evidence as to the kind and quality of materials.

WS-17 EXISTING UTILITIES OR OBSTRUCTIONS

A. Preparation of Plans.

The City shall make available to the Developer information it may have regarding existing utilities and obstructions. Such information will be provided to the Developer for whatever value it may have, without any guaranty of its accuracy or that it is complete. Incompleteness or errors in this information shall not be basis for a claim against the City nor shall it relieve the Developer or responsibility for repairing any damage its activities may cause to such utilities.

B. Notification of Utilities.

In every case, the Developer shall contact all utilities and determine what existing utilities and obstructions may exist. The Developer shall reimburse the City for damage to the property of the City or damage to property of others caused by the Developer for which the City is liable and for other expenses, including attorney's fees and court costs incurred by the City because of such damage. Whenever the Developer fails to repair or restore existing improvements damaged by its operation within 48 hours of notice, the City may perform the work or contract with others to perform the work and all costs incurred shall be paid by the Developer; provided that whenever the City determines an emergency exists, it may notify the Developer who shall commence repair or restoration work immediately, or the City may undertake the work itself or through another contractor at the Developer's expense.

C. Asbestos Cement Pipe.

The Developer shall be aware that portions of the existing water mains within the City are asbestos cement pipe. The Developer shall conduct all work related to existing asbestos cement pipe in strict accordance with current WISHA safety regulations and provisions contained within the latest edition of "Recommended Standard Asbestos-Cement Pipe Work Practice Procedures and Training Requirements" adopted and published by the Pacific Northwest Section of the American Water Works Association. All costs related to work in compliance with established rules and regulations shall be the responsibility of the Developer.

WS-18 MATERIALS AND EQUIPMENT LIST

The Developer shall file a material and equipment list with the City no later than 14 calendar days prior to the start of construction, including the quantity, manufacturer, and model number, if applicable, of material and equipment to be installed as part of the work. This list shall be prepared even though the Developer utilizes materials and equipment named in the Specifications. The City shall have the right to reject materials and equipment, which in the City's opinion do not conform to City specifications and the approved Plans. Failure of the City to reject materials and equipment at the time the list

is filed shall not be deemed a waiver of the City's right to reject such materials or equipment at a later time.

WS-19 DETERMINATION OF "AS EQUAL"

The City shall be sole judge whether supplies or material qualify "as equal" substitutions under the Plans and Specifications.

WS-20 SPECIFICATIONS INCORPORATED BY REFERENCE

Where federal, AWWA, ASTM, APWA, Klickitat County, WSDOT, or any other standard specifications are referenced or included by reference herein the latest issue and/or amendment thereto published at the date of approval of the Agreement by the City shall be incorporated in the contract. Should a conflict exist between the approved design drawings and any standard specifications or details referenced herein, the City shall determine which shall prevail.

WS-21 COMPLIANCE WITH PUBLIC AUTHORITY

The work shall be performed in accordance with regulations of each public authority, including federal, state, county, public health departments, and municipalities, which may have jurisdiction over the manner and quality of performance of the work. The Developer shall be responsible for investigating and ascertaining the requirements of each public authority. The Developer shall reimburse the City for all costs incurred by the City for permits, inspection fees and other charges imposed by public authority because of the work.

The public shall not be inconvenienced unnecessarily in its use of the public streets.

The Developer shall enforce discipline and good order among its employees and shall not employ on the work any unfit person or anyone not skilled in the work assigned to them. Employees or agents of the Developer who may impair the quality of the construction shall be removed from the work upon the written request of the City, without cost to the City.

All construction in public streets or rights-of-way shall be performed in accordance with the standards and requirements of the governmental agency having jurisdiction, and in accordance with requirements of the franchise or permit therefore. The Developer shall be responsible to ascertain these requirements and for assuring that its Contractor adheres thereto.

The Developer shall be responsible for assuring compliance with the requirements of all permits, franchises, and licenses.

WS-22 ROYALTIES AND PATENTS

The Developer shall pay all royalties and license fees and defend all suits or claims for infringement of any patent rights and shall save the City harmless on account thereof, except the City shall be responsible for all such loss if a particular process or the product of a particular manufacturer is specified by the City, unless the Developer or its Contractor has information that the process or article is an infringement of a patent and fails to promptly notify the City thereof in writing.

WS-23 LAWS TO BE OBSERVED

The Developer shall comply with all federal, state, and local laws, ordinances and regulations that affect the work, which is the subject of this Agreement.

WS-24 CITY ORDINANCES AND FINES

The Developer's attention is specifically directed to WSMC Chapter 13 (unlawful connection) and/or any ordinance repealing and/or replacing said ordinance. The foregoing Ordinance imposes a fine for violating its terms and conditions. Specification of this Ordinance is not intended to be inclusive or limiting, and the Developer hereby agrees to comply with all City Ordinances and to ensure compliance with City Ordinances by the Developer's agents. The Developer agrees to pay any fine imposed pursuant to City Ordinance as a condition of and prior to connection to the City's system.

WS-25 OTHER WORK

The City has the right to let other contracts for other work which may affect the work hereunder. Other persons performing such other work shall be afforded reasonable opportunity by the Developer herein for introduction and storage of their materials and execution of their work. The work hereunder and such other work shall be properly coordinated and connected.

WS-26 CONTRACTORS

Only Contractors licensed and bonded with the State of Washington and approved by the City shall be hired to install water and/or sewer extensions. Contractors must have prior experience in the installation of water and sewer extensions. A copy of the license shall be provided to the City. Nothing contained in this Agreement shall create any contractual rights between the City and any person or firm employed to do the work.

WS-27 EASEMENTS

All easements required shall be obtained by the Developer in a form satisfactory to the City without cost to the City and shall provide for a permanent easement and temporary

construction easement as shown on the Plans. All easements shall be of the following types, unless specifically modified by the City:

1) Offsite Easement:

   This easement is required for water and/or sewer facilities installed on private property offsite of the proposed development.

2) Onsite Easement (Private Road)

   This easement is required for water and/or sewer facilities installed in a private road within the proposed development and shall include the full easement length and width provided for the private road together with an additional 10 feet parallel and adjoining each side of the private road.

3) Onsite Easement

   This easement is required for water and/or sewer facilities installed on private property located within the proposed development and outside of private or public roads.

4) Parallel and Adjoining Easement

   This easement is required parallel and adjoining to all public roads within or bordering the proposed development.

Parallel and Adjoining Easements shall be a minimum of ten feet in width and all other easements shall be a minimum of fifteen feet in width. The width of the onsite and/or offsite easements may be required to be increased by the City, at their discretion for reasons such as, but not limited to, water and/or sewer facilities installed at depths greater than 10 feet or in areas where access is difficult due to topographic constraints.

All easements shall be clearly identified on the plans and labeled as easements granted to the City of White Salmon.

All easements shall be clearly written in a manner that the easement can be plotted from the description. The Developer shall provide the City with supporting data to verify the location of all easements including 8-1/2" x 11" drawings of the property and easement with bearings and distances utilized in the easement description. When requested, the Developer shall provide the City satisfactory title insurance, insuring without exception the City's interest in all easements conveyed to the City. Permanent easements shall be conveyed to the City free of any permanent structures or other structures which interfere with City maintenance and operations. The Developer further covenants and agrees not to construct or install such structures on or near the easement. Executed copies of offsite easements shall be delivered to the City prior to construction. All other easements shall be delivered to the City prior to the acceptance of the work addressed in this Agreement.

WS-28 PRE-CONSTRUCTION CONFERENCE

No work shall begin on the extension(s) until the Developer has held a preconstruction conference with all concerned parties at City Hall. The Developer shall arrange for the conference and the attendance of concerned parties only when all necessary permits have been issued by public authority and are in the City's possession.

B. CONSTRUCTION

WS-29 PROTECTION OF WORK AND PROPERTY

The Developer shall exercise due care to protect property and the work addressed by this Agreement. The Developer shall be solely responsible for any loss or damage to property or the work herein occurring prior to the completion of and acceptance of the work by the City.

WS-30 PUBLIC HAZARD OR INCONVENIENCE

If the performance of the work should result in hazard or substantial inconvenience to the public, the City may correct the same, if in the opinion of the City the same should be necessary, and the Developer shall, on request, reimburse the City for expense incurred. The Developer shall also reimburse the City for the expense incurred in complying with any order of public authority lawfully made with respect to the work during the performance of the work or within the two-year guarantee period after acceptance of the same.

WS-31 SAFETY

The Developer shall be solely and completely responsible for conditions of the job site, including safety of all persons and property during the performance of the work, and for compliance with all federal, state, and local safety laws and regulations. This requirement will apply continuously and not be limited to normal working hours.

The right of the City or the City's Engineer to conduct construction review of the Developer's performance or inspection of the work or the site is not intended to include review of the adequacy of the Developer's safety measures in, on, or near the construction site.

WS-32 SANITATION

Necessary sanitation convenience for the use of workmen on the job, properly secluded from public observation, shall be provided and maintained during the performance of the work as required by the appropriate agency.

WS-33 CROSS-CONNECTION CONTROL

The Developer shall comply with all state, local and City rules and regulations prohibiting cross-connections. The Developer shall install and maintain state approved backflow prevention devices as required by the City in its absolute discretion as a condition of receiving final acceptance of the extension improvements and utility service from the City. Prior to acceptance of the Project, the Developer shall provide the City with a certified field test of all permanent backflow prevention devices.

WS-34 INSPECTION AND TESTS

All work shall be subject to inspection by the City. The City shall at all times have access to the work whenever it is in preparation or progress, and the Developer shall provide proper facilities for such access and inspection. The Developer shall make reasonable tests of the work at the Developer's expense upon the City's request. Whenever work must be specially tested or inspected for compliance with public regulations, or with the Plans and Specifications, the Developer shall give the City reasonable notice of the readiness of the work for such test or inspection. The City shall make inspections within 24 hours of notification by the Developer. Work shall not be covered up without consent of the City, and if it should be covered without such consent, it shall be uncovered for inspection at the Developer's expense. Such inspections and tests shall not relieve the Developer of any of its responsibilities under this Agreement.

The presence or absence of a City inspector on any job will be at the sole discretion of the City, and such presence or absence of a City inspection shall not relieve the Developer of its responsibility to obtain the construction results specified in the Agreement.

The City and the City's Engineer do not purport to be a safety experts, and are not so engaged in that capacity whenever performing inspections and tests pursuant to this provision. The authority of the City to perform inspection and tests shall not relieve the Developer of its responsibility for safety.

WS-35 OVERTIME AND HOLIDAY WORK

There will be no overtime work for City personnel. If it is necessary for City personnel to work overtime caused by the Developer, the time will be charged to the Developer at the City's established rate. If it is necessary for work to be done on a weekend or holiday,

the Developer will be charged a 4 hour minimum call-out. If approved by the City, 72 hours notice shall be required.

WS-36 TRAFFIC MAINTENANCE AND PROTECTION

All work shall be performed with due regard for the safety and convenience of the public and so that interference with automotive and pedestrian traffic is minimized. Flagging personnel, barricades, signs, and traffic control shall be furnished as required by the appropriate agency.

WS-37 ACCESS

Bridging shall be provided across private driveways and roadways during the period when trenches are open to avoid interference with normal traffic flow.

WS-38 REFERENCE POINTS AND INSTRUCTIONS

The Developer shall provide all property corners and street centerline stakes, and shall provide reasonable and necessary opportunities and facilities for setting points and making measurements including construction staking. The Developer shall not proceed until provisions have been made to establish such points as may be necessary for the work. The work shall be performed in strict conformity with such points and instructions. The Developer shall carefully preserve all bench marks, reference points and stakes, and, in case of destruction, shall be responsible for any resulting expense such as the cost of restaking and shall be responsible for any errors that may be caused by their absence or disturbance.

WS-39 ALIGNMENT OF PIPES AND APPURTENANCES

The Developer shall furnish sufficient horizontal control, including lot stakes and construction stakes, for locating and staking the lines and appurtenances. Correctness of such horizontal control is the sole responsibility of the Developer and any modification of horizontal location of any facility shall be at the Developer's expense.

WS-40 CONFINEMENT OF DEVELOPER'S OPERATIONS

The Developer shall confine construction activities within the property of the Developer and the limits of easements and construction permits outside of the Developer's property. All work on easements and permit areas outside the Developer's property shall be performed in strict compliance with the provisions of the easement or permit with which provisions the Developer shall familiarize itself. Any damage to property or persons from any encroachment beyond these limits shall be the responsibility of the Developer.

WS-41 RESTORATION OF IMPROVEMENTS

Culverts, driveways, roadways, pipelines, or other existing improvements located within easements and public rights-of-way which are removed or disturbed in the course of the work shall be restored to their original condition at the expense of the Developer. In cutting through established lawns, the sod shall be removed before trenching and replaced after backfilling to the satisfaction of the property owner. Private improvements and landscaped areas shall be restored to their former condition at the expense of the Developer. A signed release from the affected property owner will be required. As a minimum requirement, all restoration shall be conformed to the condition of the area prior to construction.

In areas where restoration of existing improvements is necessary and to provide records of existing improvements, the Developer shall provide photographs before and after construction as required in a format acceptable to the City.

WS-42 EROSION CONTROL

Erosion and sediment control throughout the project including abutting and downstream properties shall be the responsibility of the Developer. The Developer shall determine the appropriate temporary erosion and sedimentation control necessary for the construction time of the year and shall furnish and install the necessary controls as the first order of work. Such erosion control shall be fully maintained during the course of construction, modifying the control when necessary. Temporary erosion and sedimentation control shall consist of and be installed in accordance with the Department of Ecology's Storm Management for the Puget Sound Basin Technical Manual for water quality. Upon failure of the Developer to provide immediately such erosion control, the City shall be at liberty, without further notice to the Developer to install and remove the necessary erosion control. The Developer shall reimburse the City for any costs incurred on account thereof.

WS-43 TRENCH SAFETY SYSTEMS

The Developer shall provide safety systems for trench excavation that meet the requirements of the Washington Industrial Safety and Health Act, Chapter 49.17 RCW, and any regulations published thereunder, for all trench excavation that will exceed a depth of 4 feet.

WS-44 EXCAVATION AND BACKFILL

These Specifications refer particularly to trench excavation. However, the applicable provisions shall also apply to all excavation and backfill for manholes, structures and other appurtenances.

All excavation performed shall be considered unclassified. Excavation shall consist of the removal of any and all material encountered, including, but not limited to cutting and

removal of existing surfacing, tree stumps, trees, logs, abandoned rail ties, piling, riprap, rock, etc.

The root systems of all trees which are outside of the easements or the right-of-way shall not be cut or disturbed, but shall be tunneled or otherwise protected by the Developer to ensure that no damage is done.

Where trenching is performed through paved and concrete areas, the hard surface shall be precut with saws or mechanical cutters in neat, straight lines before removal. The pavement and concrete so removed shall be loaded and hauled to waste.

During excavation, installing of pipelines and structures, and the placing of backfill, excavations shall be kept free of water. The Developer shall furnish all equipment necessary to dewater the excavation and shall dispose of the water as required by the regulatory agencies and in such a manner as not to cause a nuisance or menace to the public. The dewatering system shall be installed and operated by the Developer so that the ground water level outside the excavation is not reduced to the extent that the adjacent structures or property are endangered or damaged. The release of ground water to its static level shall be performed in such a manner as to maintain the undisturbed state of the natural foundation soil, prevent disturbance of backfill, and prevent movement of structures and pipelines.

Where the undisturbed condition of natural soils is inadequate for support of the planned construction, excavation shall be extended below the structure or pipeline grades to permit the placing of foundation gravel.

The water main shall be bedded to a point 6 inches over the crown of the pipe by hand shoveling the material into place and working it under and around the pipe and compacting it with foot tamping or other suitable means to provide proper support to the pipe in its backfilled condition. Excavated material which is unsuitable for bedding the pipe shall be hauled to waste and the pipe bedded with gravel backfill for pipe bedding as indicated in the Specifications for Gravel Materials.

The gravity sewer shall be bedded to a point 12 inches over the crown of the pipe by hand shoveling the material into place and working it under and around the pipe and compacting it with foot tamping or other suitable means to provide proper support to the pipe in its backfilled condition. The pipe shall be bedded with gravel backfill for pipe bedding (or pea gravel) as indicated in the Specifications for Gravel Materials.

From the points described above to finished grade, all backfill materials shall be compacted to a minimum of 95 percent of the Modified Proctor dry maximum density per ASTM D1557. The Developer shall provide the City with laboratory test results indicating compaction of the trenches meet this requirement.

Compaction Test Table

Material Trenches	Gradation/Classification See Note 1	Minimum Sampling Soils evaluation before and during construction by Developer's soils geologist. Testing as recommended.
	In-Place Density See Note 2 & 3	Minimum of one every 200 feet of trench, a minimum of one per day or as approved by the Engineer in areas of existing or proposed streets and one every 200 feet of trench in easements.
	Moisture-Density Relationships	Required for varying soil conditions as determined by soils geologist.

Note 1: All acceptance tests shall be conducted from in-place samples.

Note 2: Additional tests may be required when variations occur due to the Contractors operations, weather conditions, site conditions, etc.

Note 3: For trenches 12 feet and under, complete a minimum of one test at approximately 50 percent of trench depth and an additional test at or near the surface.

For **trenches 12-feet to 16-feet deep**, complete one test at approximately 4 feet above the pipe, one test at or near the surface and one test approximately halfway in between.

For **trenches greater that 16-feet deep**, complete tests at approximately 4-foot intervals above the pipe to the surface (four tests required) or as directed by the Engineer.

If compaction within any area of the project is questionable as determined by the City and prior to paving, additional excavation and testing in accordance with the above table as directed by the City shall be completed.

The Developer shall prepare and restore all test sites with his own equipment, labor, and materials. All costs incidental to the preparation and restoration of all test sites shall be at the Developer's cost.

The Developer shall remedy, at his expense, any defects that appear in the backfill prior to final acceptance of the work.

Within existing streets and rights-of-way, all trench backfill material shall be gravel base as indicated in the Specifications for Gravel Base or controlled density fill (CDF) as required by the City or permits.

Partial backfill to protect the pipe will be permitted immediately after the pipe has been properly installed. Complete backfilling of trenches will not be permitted until the section of work in question has been inspected by the City.

Cleanup operations shall progress directly behind backfilling to accommodate the return to normal use of the trench area. Cleanup shall include cleaning streets over which waste haul has been carried and spilled.

The City reserves the right to restrict the Contractor in the amount of trench open during the working day. Should the Contractor, in the City's opinion, fail to diligently pursue the backfill and cleanup, this limit shall be 200 LF and shall be strictly enforced.

The Developer shall remedy, at no cost to the City, any defects that appear in the backfill prior to final acceptance of the work and also prior to termination of the performance bond. Such repair work required because of defective backfill shall also include replacement of any damaged surface improvements.

When trench dams are required, they shall be installed across the entire trench section keyed a minimum of 12-inches into undisturbed soil and to the full depth of all granular backfill materials. Trench dams shall be utilized in all areas of steep slopes, stream, and wetlands crossings and as determined by the City and other local governmental authorities. A drain may be required at the discretion of the City.

WS-45 GRAVEL MATERIALS

The types of gravel material which are to be used in trenches or other excavations are divided into the following classifications:

A. Foundation Gravel

This material shall be 1/2- to 2-inch gravel or broken stone. No more than 20 percent by weight shall pass the 1/2-inch sieve and not more than 2 percent shall pass the U.S. No. 200 sieve. The material shall be free of clay and organic material, but the material need not be washed. The material shall not have a wear percentage exceeding 35 percent after 500 revolutions by the use of the Los Angeles Machine. Foundation gravel shall be used

only where foundations are unstable and suitable excavated material immediately adjacent to the excavation is not available to stabilize such foundations.

B. Gravel Backfill for Pipe Bedding

Gravel backfill for pipe bedding shall consist of crushed, processed, or naturally occurring granular material. The material shall be free of clay and organic material. Not less than 95 percent shall pass the 1/2-inch sieve and not less than 95 percent shall be retained on the No. 4 sieve. Grading shall be to the limiting dimensions, but the material need not be washed. Saturated material will not be acceptable.

Gravel backfill for pipe bedding shall be placed under and around pipes as shown on the Standard Details when existing excavated material does not meet the above specification.

C. Crushed Surfacing, Base Course

This material shall conform to the Specifications for Crushed Surfacing, base course, Section 9-03.9(3) of the Standard Specification for Roads, Bridge, and Municipal Construction of the State of Washington.

D. Gravel Base

This material shall conform to the Specification for Gravel Base, Section 9-03.19 of the Standard Specifications for Roads, Bridge and Municipal Construction of the State of Washington, except that 25 percent of the material shall be retained on the 1/4-inch sieve. The material is to be used for backfill of trenches, around manholes and structures, within all existing streets and rights-of-way and elsewhere where excavated material is unsuitable for backfill.

E. Quarry Spalls - Drainage Ditches

This material shall conform to the Specifications for Quarry Spalls, Section 9-13.6 of the Standard Specification for Roads, Bridge, and Municipal Construction of the State of Washington, modified for 100 percent to pass the 6-inch screen.

Quarry spalls shall be placed in ditches and on slopes to be protected. After placement, the quarry spalls shall be compacted by tracked equipment making a minimum of three passes

WS-46 CONTROLLED DENSITY FILL

Controlled Density Fill (CDF) shall be a mixture of Portland cement, fly ash, aggregates, water and admixtures proportioned to provide a non-segregating, self-consolidating, free-flowing and excavatable material which will result in a hardened, dense, non-settling fill.

CDF shall be batched and mixed in accordance with Section 6-02.3 Standard Specifications for Road, Bridge, & Municipal Construction of the State of Washington. Materials are as follows:

1.	Portland Cement	AASHTO M85 or WSDOT/9-01
2.	Fly Ash	Class F
3.	Aggregates	WSDOT/9-03.1(2)B
4.	Water	WSDOT/9-25
5.	Admixtures	WSDOT/9-23.6

CDF shall be used in the following proportions for 1 cubic yard. Batch weights may vary depending on specific weights of aggregates.

Max. Gallons Of Mixing Water per Cubic Yard	50
Lbs. of Cement per Cubic Yard	50
Lbs. of Fly Ash per Cubic Yard	300
Lbs. of Dry Aggregate per Cubic Yard (Class 1 or 2 Sand per WSDOT 9-03.1(2)B	3,200
Compressive Strength	100 psi maximum at 28 days

CDF shall be batched to provide a flowable, non-segregating mix, with a slump between 6 and 8 inches.

CDF shall be discharged from the mixer by any reasonable means into the area to be filled. The CDF shall be brought up uniformly to the elevation shown on the Plans. CDF shall not be placed on frozen ground.

CDF patching, mixing, and placing may be started if weather conditions are favorable, when the temperature is at 34 degrees F and rising. At the time of placement, CDF must have a temperature of at least 40 degrees F. Mixing and placing shall stop when the temperature is 38 degrees F or less and falling. Each filling stage shall be as continuous an operation as is practicable.

For flowable CDF, compaction is not necessary for placement. The Developer may, as an option, adjust the water content only to obtain a 0 to 1 inch maximum slump mixture which if used shall be compacted in lifts not to exceed 12 inches. Compaction shall be accomplished by use of a hand vibratory plate or hoe-pack.

The Developer shall have a steel plate cover placed and anchored over the trench until the City determines the mixture is sufficiently cured, so that a permanent patch can be placed.

WS-47 STATE HIGHWAY AND STREAM CROSSINGS

All state highway, rail road, stream or other crossings as determined by the City where boring is required to complete the crossing shall be encased with steel casing. Steel casing shall be of sufficient diameter (minimum of 24 inches), size, and strength to enclose the pipe and to withstand maximum loading. Sizing and wall thickness of casing is subject to approval by the City. The carrier pipe shall be ductile iron, Class 52, restrained joint pipe unless otherwise approved by the City. Casing spacers shall be installed at each 10 feet of the pipeline. The spacers shall be Uni-Flange Series UFRCS 1300 or approved equal, sized to prevent uplift in the pipe. Sand backfill between the casing and the pipe shall be required. In order to prevent the sand from being washed from the casing, the ends of the casing shall be bricked and cemented or otherwise sealed after installation, backfill and testing of the pipe are complete.

WS-48 RESTORATION OF SURFACE IMPROVEMENTS

The restoration of various types of surface improvements shall be as described below.

The Developer shall be responsible to maintain all roadway and walkway areas until the permanent repair is accomplished. The Developer shall repair or replace all areas damaged or disturbed during construction.

A. Temporary Surface Repair

The Developer shall place a temporary surface repair immediately after backfill in all streets and driveways. The material shall be MC-2 asphaltic concrete commonly referred to as “cold mix.” The backfill shall be thoroughly compacted and brought to a smooth grade prior to placing the material.

B. Asphalt Concrete Pavement Repair

The width of all pavement cuts shall be approved by the City before removal of pavement. All pavement cuts shall be continuous and shall be made with a machine specially equipped for this purpose. No skip cutting will be allowed.

Materials shall conform with Section 9.03 of the Standard Specifications for Road, Bridge & Municipal Construction of the State of Washington. Asphalt treated base shall be used as shown on the Standard Detail. All asphalt treated base shall conform and be placed in accordance with the requirements of Section 4-06, Standard Specifications for Road, Bridge and Municipal Construction of the State of Washington. The penetration of the asphalt used shall be between 85 and 100, viscosity grade AR4000.

Asphalt used for pavement repair shall be asphalt concrete pavement Class “B” and shall conform and be placed in accordance with the requirements of Section 5-04, Standard Specifications for Road, Bridge and Municipal Construction of the State of Washington.

The penetration of the asphalt used shall be between 85 and 100, viscosity grade, AR4000.

All edges and joints of asphalt concrete pavement repair shall be sealed with asphalt cement. The asphaltic paint binder, or tack coat, shall conform in all respects to Section 5-04, Standard Specifications for Road, Bridge, and Municipal Construction of the State of Washington. After pavement is in place, all joints shall be sealed.

Existing monument cases, valve boxes, catch basins, manholes, cleanouts, or any other items shall be adjusted to grade at the top of the finished surface of the roadway or easement.

C. Crushed Rock Surfacing

Shoulders, gravel driveways, roadways and alleys shall be resurfaced with crushed surfacing, top course. Crushed surfacing shall be manufactured in accordance with the provisions of Section 9-03.9(3) of the Standard Specifications for Road, Bridge, and Municipal Construction of the State of Washington, and installed to a minimum thickness of 2 inches.

Special care shall be taken to ensure that the surface has been brought to a uniform grade prior to placement of the material. Immediately prior to placement of the gravel, the drainage ditch, shoulders and/or driveways shall be graded to the original smooth contours existing prior to the construction in the area. Spreading shall be done as soon as each load is placed. The Developer shall be required, as far as practical, to haul material over the surfacing as it is placed.

D. Cement Concrete Curb

Cement concrete curbs shall be installed in accordance with Section 8-04.3(1) of the Standard specifications for Road, Bridge, and Municipal Construction of the State of Washington.

Existing curbs and gutters that are damaged or removed in performing the Project within the trench sections or as designated by the City shall be replaced in kind with the same shape and dimensions.

E. Extruded Cement Concrete Curb

Extruded cement concrete curbs shall be installed as shown on the Plans and in accordance with Section 8-04.3(1)A of the Standard specifications for Road, Bridge and Municipal Construction of the State of Washington.

F. Cement Concrete Sidewalks

Cement concrete sidewalks shall be installed as shown on the Plans and Section 8-14 of the Standard Specifications for Road, Bridge, and Municipal Construction of the State of Washington.

G. Landscaped, Improved, and Unimproved Areas

Certain improvements and landscaping exist in and along the public rights-of-way including the adjacent private properties. Wherever such property is damaged, destroyed, or the use thereof is interfered with due to the operation of the Developer, it shall be immediately restored to its former condition by the Developer. Notice should be given to the property owner along the route of construction by the Developer advising them of the methods to be used to preserve and restore the improvements.

The construction areas not improved with surfacing or landscaping shall be restored to original grade and shape, smooth with no debris remaining in or adjacent to the site.

The area shall be hydro-seeded in accordance with Section 8-01 of the Standard Specifications for Road, Bridge, and Municipal Construction of the State of Washington.

WS-49 CLEANUP

The construction site shall be kept clear during the progress of the work. Before the work shall be considered complete, the Developer shall clean out ditches that may have been filled during the work, replace damaged surfacing, remove surplus materials and trash and dispose of brush, repair all damages, and otherwise leave the job in a neat, orderly, and workmanlike condition. Dust control shall be provided during the progress of the work and during cleanup.

The Developer shall keep existing roads and streets adjacent to or within the limits of the project open to and maintained in a good and safe condition for traffic at all times. The Developer shall remove, on a daily basis, any deposits or debris which may have accumulated on the roadway surface as a result of construction operations. Removal shall be performed on a more frequent basis should the City determine that such removal is necessary. Any damage resulting from the Developer's operation shall be repaired at no expense to the City.

WS-50 USE OF COMPLETED PORTIONS

The City shall have the right to take possession of and use any completed or partially completed portions of the work although the time may not have expired for completing the entire work, and this shall not be deemed acceptance of any of the work.

WS-51 FINAL INSPECTION

All material and completed work are subject to final inspection by the City, which shall have the right to subject any portion thereof to such tests as in the opinion of the City shall be necessary to determine whether the work complies with the Plans and Specifications.

WS-52 “AS-BUILT” DRAWINGS

The City will maintain “as-built” information about the project as it is constructed. This information will be made available to and utilized by the Developer’s Engineer for preparation of “as-built” drawings. The “as-built” drawings shall be prepared at the Developer’s expense.

C. POST CONSTRUCTION

WS-53 OWNERSHIP OF PLANS

The original Mylars, three copies and an electronic file of all “as-built” Plans prepared by the Developer’s Engineer shall be delivered to the City as a condition of and prior to acceptance of the Project, and shall become the property of the City. Neither the Developer nor the Developer’s Engineer shall have any rights of ownership, copyright, trademark or patent in respect to the Plans.

WS-54 LIENS

Prior to acceptance of the work, the Developer shall deliver to the City either a complete release of all liens that arise out of the performance of the work or evidence acceptable to the City that there are no liens filed against the work. If any lien arises or remains unsatisfied after acceptance of the work, the Developer shall reimburse the City for any costs incurred on account thereof.

WS-55 RECORDING

The City will not approve the Plat for recording until the entire underground portion of the water and/or sewer facilities have been installed, tested and in the case of sewers, televised; and a copy of the final plat to be recorded is delivered to the City for review of adequacy of easements. A copy of the final recorded plat and all necessary recorded easements shall be delivered to the City before service connections to the extension will be allowed.

WS-56 COMPLETION BOND

If the Developer completes the underground portion of the water and/or sewer system and desires water and/or sewer service prior to the final paving of streets within the development, or prior to final acceptance of such extension(s), and if approved by the City, then an additional cash completion bond shall be deposited with the City in an amount to be determined by the City to cover the cost of work yet to be completed in conjunction with the final paving, grading and transfer of ownership. An assignment of funds will be unacceptable.

WS-57 BILL OF SALE

Upon completion of the work and approval of the District, the Developer shall, as a condition of acceptance by the District, convey the work to the District by Bill of Sale, in accordance with the form attached as an appendix hereto.

END PART 1

PART 2

WATER MAINS

W-1 WATER MAIN PIPE

Water mains to be installed shall be ductile iron pipe for all sizes, unless specifically noted otherwise. The ductile iron pipe shall conform to AWWA C151 Standards, except the minimum nominal thickness shall be as follows:

4" - 0.29" (Class 52 for bell and spigot, Class 53 for threaded spools)
6" - 0.31" (Class 52)
8" - 0.33" (Class 52)
12" - 0.37" (Class 52)
16" - 0.40" (Class 52)

Grade of iron shall be 60-42-10. The pipe shall be cement-lined to a minimum thickness of 1/16 inch meeting NSF standards for potable water and the exterior shall be coated with an asphaltic coating.

Each length shall be plainly marked with the manufacturer's identification, year cast, thickness, class of pipe and weight. The pipe shall be furnished with mechanical joint or push-on joint, conforming to AWWA C111 Standards, except where otherwise noted as calling for flanged joints.

Polyethylene encased or "bagged" pipe, where shown on the Plans shall be minimum of 8 mil thick, tube bagged, in accordance with AWWA C105.

Restrained joint pipe, where shown on the Plans, shall be push-on joint pipe with "Field Lok" gaskets or TR FLEX as furnished by US Pipe, or approved equal.

The pipe manufacturer shall certify in writing that the inspection and all tests of the specified standards for both pipe and gaskets being supplied for this project have been made and that the results thereof comply with the requirements of the Standard.

Joints shall be "made-up" in accordance with the manufacturer's recommendations. Standard joint material, including rubber ring gaskets shall be furnished with the pipe. Materials shall be suitable for the specified pipe sizes and pressures. The pipe joint utilized shall be the patented "Tyton" joint.

Except where necessary, in making connections with other lines and unless authorized by the City, pipes shall be laid with bells facing in the direction of laying and for lines on an appreciable slope, the bells shall face upwards.

All pipe shall be delivered to the job site with water tight wrapping or pipe plugs. All pipe shall be carefully checked on delivery as well as before placing in the trench. Pipe shall be carefully bedded, joined and protected. It shall be laid to the line and grade established and at all times the interior kept free from dirt, gravel, and all other foreign matter. The open ends shall be wrapped or plugged and secured at any time pipe laying is not in progress.

Water mains shall be laid on a uniform grade and the Developer shall anticipate those places where additional depth is required to avoid certain utilities, and adjust the pipeline profile accordingly to maintain uniform grade.

Prior to making permanent connections to the existing system, the new water main including service lines shall have passed a pressure test, been adequately flushed, and finally passed the required bacteriological test.

All types of pipe shall be handled in a manner that will prevent damage to the pipe, pipe lining or coating. Pipe and fittings shall be loaded and unloaded using hoists and slings in a manner to avoid shock or damage, and under no circumstances shall they be dropped, skidded, or rolled against other pipe. Damaged pipe will be rejected, and the contractor shall immediately place all damaged pipe apart from the undamaged and shall remove the damaged pipe from the site within 24 hours.

Methods of handling shall be corrected by the Developer if the City determines that these methods are damaging to the pipe.

All pipe to be purchased and installed as a part of the Developers water system shall be delivered to the job site with water tight wrapping or pipe plugs. Furthermore, to comply with AWWA Standards, these pipe plugs or wrappings shall remain in place until the pipe is installed in the trench at which time one end plug would be removed for joining pipe ends.

If there is any pipe not meeting this requirement, the City shall reject it, or under special circumstances may allow that it be swabbed out with chlorine solution and capped before accepted by the City.

Dirt or other foreign material shall be prevented from entering the pipe or pipe joint during handling or laying operations, and any pipe or fitting that has been installed with dirt or foreign material in it shall be removed, cleaned, and relayed. A clean whiskbroom shall be used for this purpose and for brushing to remove foreign matter prior to joining of pipe ends. At times when pipe laying is not in progress, the open ends of the pipe shall be closed by a watertight plug or by other means approved by the City to ensure cleanliness inside the pipe.

Pipe shall be stacked in such a manner as to prevent damage to the pipe, to prevent dirt and debris from entering the pipe, and to prevent any movement of the pipe. The bottom

tiers of the stack shall be kept off the ground on timbers, rails or other similar supports. Pipe on succeeding tiers shall be alternated by bell and plain end. Timbers 4-inches by 4-inches in size shall be placed between tiers and chocks shall be placed at each end to prevent movement. For safety each size of pipe shall be stacked separately.

W-2 WATER MAIN FITTINGS

All fittings shall be short-bodied, ductile iron complying with applicable AWWA C110 or C153 Standards. All fittings shall be cement-lined and either mechanical joint or flanged, as indicated on the Plans.

Fittings in sections shown on the Plans requiring restrained joints shall be mechanical joint fittings with a mechanical joint restraint device. The mechanical joint restraint device shall have a working pressure of at least 250 psi with a minimum safety factor of 2:1 and shall be EBAA Iron, Inc. MEGALUG, Romac Industries, Inc., Grip Ring Pipe Restrainer or approved equal. Stargrip Series 3000 mechanical joint restraint devices are not accepted or approved as equal.

Fittings shall be adequately “blocked” with poured-in-place concrete, within wooden forms shaped to establish a firm minimum bearing area, against an undisturbed earth wall as shown on the Standard Details. 4" x 4" minimum size Timber blocking may be permitted as temporary blocking, when utilized as forms outside the poured-in-place concrete when fittings are to be pressurized prior to the 24 hour minimum “set” time. The concrete thrust blocks must be in place at least 24 hours before beginning the pressure test, to allow the concrete to “set”. The strength of the concrete shall be 2,000 psi minimum.

All valves and all fittings requiring a concrete block shall first be covered with 4-mil Visqueen plastic sheets, before concrete is poured. The concrete shall not cover joints, bolt heads or nuts.

All bolts shall be coated with Armite Anti-Seize Compound No. 609, or equal, prior to installation.

Before cutting existing pipes, the Developer shall measure the pipe outside diameter to determine if pipe was manufactured to a diameter which is different than presently specified in /AWWA Standards, and if required, the Developer shall furnish alternate or additional fittings more compatible with the pipe outside diameter.

All connections to ductile or cast iron pipe shall be with ductile iron mechanical joint sleeves, or approved equal, except as shown on the Plans for mechanical joint tees, valves, etc.

All connections to pipe other than cast or ductile iron shall be with Romac, Smith-Blair, Dresser or Ford flexible couplings. The couplings shall have long middle rings and shall have a fusion-bonded epoxy coating. Coupling gaskets shall be Grade 60. The bolts and nuts shall be high strength, low alloy steel or electrogalvanized mild steel.

All joints in the pipe, fittings, valves, flexible couplings, and sleeves, shall be fully seated with small clearances allowed for pipe expansion. Where flexible couplings and sleeves are called for, the space between pipe ends shall not exceed one-quarter (1/4) inch.

When the space between pipe ends is excessive, a short section of pipe shall be inserted as a spacer ring to limit such pipe movement within the coupling or sleeve, to obtain the one-quarter (1/4) inch limitation stipulated herein.

W-3 VALVES

All valves 12 inch and smaller shall be resilient seated ductile iron gate valves except where shown on the Plans. All valves 16 inch and larger shall be ductile iron butterfly valves.

The valve manufacturer shall certify in writing that the inspection and all tests of the specified standards for the valves being supplied for this project have been made and that the results thereof comply with the requirements of the Standard.

A. Resilient-Seated Gate Valves

The gate valves shall be resilient seated ductile iron body valves with non-rising stems (NRS) opening counterclockwise and equipped with a 2-inch square operating nut. Valves shall meet the full requirements of the AWWA C509 or C515 Standards. The valves shall have double “O” ring stem seals which shall withstand the test pressure without leakage. Valves shall be rated at 250 pounds per square inch (psi), minimum working pressure and furnished with either flanged and/or mechanical joints as shown on the Plans. All surfaces, interior and exterior, shall be epoxy-coated, acceptable for potable water.

Valves shall be Mueller, M&H, Clow, American Flow Control Series 2500, U.S. Pipe or approved equal.

B. Butterfly Valves

The butterfly valves shall be either mechanical joint or flanged ductile iron body valves equipped with a 2-inch square operating nut and shall be of the tight closing, rubber seat type. Valves shall meet the full requirements of AWWA C504-87 Standards, Class 150-B except the valve shall be able to withstand 200 psi differential pressure without leakage.

Butterfly valves shall be Henry Pratt Company “Groundhog,” “Dresser 450,” or approved equal.

All valves shall be set with the operating stems vertical. The axis of the valve box shall be common with the projected axis of the valve operating stem. The tops of the adjustable valve boxes shall be set to the existing or established grade, whichever is applicable.

All valves with operating nuts located more than 3 feet-6 inches below finished grade shall be equipped with extension stems to bring the operating nut from 2 feet-0 inches to 1 foot-0 inches from finished grade.

The extension stem of the length required to meet field conditions shall be a manufactured unit with a 1-inch-diameter mild steel rod. At the top of the extension stem there shall be a 2-inch standard operating nut complete with a centering flange.

Valve boxes shall be equal to the “Rich 940-B” Model. The flared end of the valve box shall be set at the bottom elevation of the 2-inch operating nut to allow space for rocks to be moved laterally from the operation nut. The “ears” on the valve box top shall be aligned parallel in the direction of the branch the valve opens and closes.

The valve box shall be placed over the valve or valve operator in such a manner that the valve box does not transmit shock or stress loads to the valve. The casting shall not rest directly upon the body of the valve or upon the water main.

Any extension of the valve box shall utilize additional flared end valve box bottom sections or cast iron hub soil pipe. Other materials are not acceptable.

In areas where the valve box is not in concrete or asphalt a 24-inch by 24-inch by 4-inch cement concrete block shall be installed around the valve box at finished grade. The valve box shall be flush with the top and centered.

A fiberglass valve marker post shall be furnished and installed where directed. Valve marker posts shall be blue in color, 3.75 inches wide (flat), 60-inches long and furnished with a 3-inch by 3-inch high density white reflector (250 candle power) and a flexible anchor barb. Valve markers shall be Carsonite Utility Marker CUM 375.

Markers shall be placed at the edge of the right-of-way opposite the valve and set so as to leave 36 inches of the post exposed above grade. The size of the valve and the distance in feet and inches to the valve shall be noted with decals, typically designed for use on fiberglass boats, placed on the face of the post, using letters approximately 2-inches high. Each post shall include the following decal: “Caution Water Valve, Before Digging, Call 1-800-424-5555, Utility Underground Location Center.”

W-4 TAPPING TEES AND TAPPING VALVES

The tapping sleeves shall be rated for a working pressure of 250 psi minimum and furnished complete with joint accessories. Tapping sleeves shall be constructed in two sections for ease of installation and shall be assembled around the main without interrupting service.

Fabricated steel style sleeves shall be fusion bonded coated, acceptable for potable water, and shall be manufactured by JCM, Romac or approved equal. Size on size connections shall utilize stainless steel full circle tapping tee or DI MJ cut-in tee.

Tapping valves shall be resilient-seated ductile iron body gate valves provided with a standard mechanical joint outlet for use with ductile iron pipe and shall have oversized seat rings to permit entry of the tapping machine cutters. In all other respects, the tapping valves shall conform to the resilient seat gate valves herein specified with regards to operation and materials.

The tapping sleeve and valve shall be pressure tested to 200 psi (water) prior to tapping the main.

The installation of the tapping sleeves & valves and the tapping of the main shall be performed by a contractor that specializes in “Hot Taps” and is approved by the City.

W-5 AIR RELIEF VALVES

Air and vacuum relief assemblies shall be installed at high points on the water system as shown on the Plans or designated in the field by the City. The air relief assemblies shall be a combination air and vacuum valve, Crispin #UL-10, Valmatic 201-C or APCO 143C complete as shown on the Standard Detail.

W-6 BLOWOFF ASSEMBLIES

The blowoff assemblies shall be furnished and installed as shown on the Standard Detail.

Temporary blowoffs utilized by the Contractor for flushing the water main shall be of sufficient size to obtain 2.5 feet per second velocity in the main.

W-7 FIRE HYDRANTS

The fire hydrants shall be the break-away compression type, meeting AWWA C502-85 Standards, in which the valve will remain closed if the barrel is broken. The hydrants shall have a barrel diameter of not less than 8-1/2 inches, and the main valve opening shall be not less than 5-1/4 inches in diameter. The fire hydrants shall be equipped with two, 2-1/2-inch National Standard Thread (NST) hose nozzles and one, 4-1/2-inch NST pumper port. A permanent anodized Storz hydrant adapter and anodized Storz blind flange shall be installed on the 4-1/2-inch pumper port. Hydrants within the City of White Salmon fire service area and Fire District #3 shall be equipped with 5-inch Storz adapters. Branch connection shall be for 6-inch pipe, as noted on the Standard Details, and shall be mechanical joint.

Fire hydrants shall be Mueller Centurian (A-423), Clow Medallion, M&H Dresser “Reliant” (929) or Kennedy K81.

The Contractor shall furnish fire hydrants with the correct bury depth (trench depth), in accordance with the specified pipe depth and special conditions of the Project. The fire

hydrants shall be installed to provide the mounting height above finished grade as shown on the Standard Detail. The hydrant shall be installed plumb on the vertical axis.

A 36-inch by 36-inch by 8-inch cement concrete block shall be installed with a broomed surface and finished edge at the finished grade line and shall be located 2 inches below the bury line of the hydrant. One quarter inch expansion strips shall be placed between hydrant barrel and concrete. Forms shall be removed from the block prior to acceptance by the City.

The hydrants shall be wire brushed, primed with one coat of Preservative All Metal Guard II and painted with two coats of Preservative Lux-Light Caterpillar Yellow.

Between the time that the hydrant is installed and the completed facility is placed in operation, the hydrant shall at all times, be wrapped in burlap, bagged, or covered in some other suitable manner as approved by the City, to clearly indicate that the hydrant is not in service.

The resilient seated ductile iron body gate valve shall have a flange by mechanical joint body, and be bolted to the main line tee.

The connecting pipe between the fire hydrant and gate valve shall be 6-inch ductile iron restraint joint pipe and shall not exceed 50 feet in length. The fire hydrant and gate valve shall be restrained with a mechanical joint restraint device as indicated in Water Main Fittings. In addition to this, the hydrant and tee shall be fully blocked with concrete.

Hydrant guard posts, where shown on the Plans or required by the City, shall be 9-inch-diameter by 6-foot-long reinforced precast concrete units and the portion above ground painted similar to requirements for the fire hydrant.

The Developer shall install a raised blue reflector on the final lift of asphalt in line with the fire hydrant in accordance with City and/or fire district requirements.

W-8 SERVICE CONNECTIONS

Individual services to each structure and/or property shall be installed and connected to the new water mains.

Upon completion of the installation of the water main (before testing and disinfection) services shall be installed by connecting to the water main and extending the service line to the property line as shown on the Standard Details. Service lines for residential property shall be Type “K” 1-inch (minimum size) copper service lines meeting the ASTM Specifications B-88-47. Larger service lines shall be of the type and style as designated in the Standard Details and shown on the Plans.

Commercial and multi-family projects that require larger than 1-inch meters shall provide 1-1/2-inch or 2-inch meter service installations per City standards as shown on the Standard Details. Two inch and smaller meters are supplied by the City. Three inch and larger meters fall into a different design criteria and will be specifically designated as needed and supplied by the Developer.

Corporation stops and the single meter shut-off valves shall be “Mueller” or “Ford” of the type and style noted on the Standard Details or approved equal. Included as a part of the service connection shall be the furnishing and installation of the meter box complete with a cast iron traffic lid, set flush with the proposed finished grade of the lot in the designated location near the property line, all as shown on the Standard Details. The angle type of shut-off valve shall be set inside the meter box in a proper position for installation of a future meter by the City. Upon completion of each service line as indicated herein, the Developer shall flush the service line to remove the debris that may interfere with the future meter installation, and further verify that the service line has full pressure and flow to the meter box. Meter boxes shall be marked with a painted 2 x 4 stake as shown on the Standard Details.

Service lines between the main and the property line shall be placed at a trench depth sufficient to maintain a 3-foot cover over the top of the service line for its full length, taking into consideration the final finished grade of the proposed street and the final finished grade of any storm ditches.

W-9 LARGE METER AND TESTS

If extensions require water meters 3 inches or larger, then such entire meter installations, including but not limited to, valves, piping, vaults, drain lines and meters shall be installed by the Developer conforming to City standards. The Developer shall pay the meter test fee established by the City and shall sign a City meter application form and pay all fees and charges due at that time.

W-10 FIRE LINE SERVICES

If extensions require a fire line service, then such entire installation, including but not limited to, valves, piping, vaults, drain lines and meters shall be installed by the Developer conforming to City standards. The service shall have a Double Check Detector Backflow Prevention Assembly installed in a utility vault at the ROW/Property line with a 6” PVC gravity drain to storm. Fire line service shall terminate in the structure to be served as shown on the City’s Riser Detail.

W-11 HYDROSTATIC PRESSURE TEST

The water mains shall be hydrostatically tested before being placed in service. Water for testing must be obtained by the Developer by arrangement with the City. A positive displacement type pump shall be furnished by the Developer for the testing. Feed for the

pump shall be from a disinfected clean container, wherein the actual amount of “makeup” water can be measured.

Upon completion of sections of the pipe installation, the water main shall be pressure tested in segments of 1,000 lineal feet or less. The test pressure shall be either 200 pounds per square inch, or twice the system pressure, using the greater value, and shall maintain the test for a period of not less than 2 hours.

Pressure testing against existing valves shall not be permitted unless authorized by the City.

The Developer shall provide temporary plugs, caps and blocking as required to pressure test and disinfect the new water main prior to making connections to the existing system.

Concrete thrust blocking for fittings shall be in place and the concrete “set” sufficiently to withstand the test pressure before starting the test.

All pressure tests shall be made with the hydrant auxiliary gate valves open and pressure against the hydrant valve. After this basic pipe line test has been completed, each valve shall be tested including the hydrant auxiliary valve by closing each in turn and relieving the pressure beyond. This test of the valves will be acceptable if there is no immediate loss of pressure on the gauge when the pressure comes against the valve being checked. The Developer shall verify and assure that the pressure differential across the valve does not exceed the rated working pressure of the valve.

Prior to calling for the City to witness the pressure test, the Developer shall first perform a satisfactory pressure test. The allowable leakage rate per thousand feet of each size pipeline is as follows:

Allowable Leakage

Pipe Size	Gallon per hour per 1,000 Ft. @ 200 psi
6"	0.64
8"	0.85
10"	1.06
12"	1.28
16"	1.70

Any leakage caused by defective workmanship or materials shall be repaired, and the line shall again be tested to full compliance.

All visible leaks in pipelines or fittings shall be repaired even if the test results fall within the allowable leakage.

W-12 DISINFECTION OF WATER MAINS

Water mains and appurtenances shall be disinfected in accordance with AWWA C651 before being placed in service. Water for disinfection must be obtained by the Developer by arrangement with the City.

The method of placing calcium hypochlorite granules in the water main as it is being installed is acceptable if the pipe and appurtenances are kept clean and dry during construction.

The calcium hypochlorite granules contain approximately 65 percent available chlorine by weight. The minimum amount of calcium hypochlorite granules placed at the beginning and in each 500 feet of pipe is as follows:

Pipe Size	Calcium Hypochlorite Granules
6"	1.0 oz.
8"	2.0 oz.
12"	4.0 oz.
16" and larger	8.0 oz.

When the line is completed and ready to disinfect, water shall be allowed to flow in slowly, until it appears at the far end of the line so as not to displace the disinfecting agent. The system shall then be allowed to stand for at least 24 hours. The line shall then be flushed through the fire hydrants until a test shows the CL2 residual no longer exceeds distribution system residual.

In all instances, the Developer shall utilize a state approved double check valve type backflow prevention device to protect the potable water supply while filling, flushing and disinfecting the particular water main.

In the process of chlorinating newly laid water pipe, all valves, fire hydrants and other appurtenances shall be operated while the pipeline is filled with the chlorinating agent.

The Developer is herein advised that prior to making any restoration or permanent connections to the existing water mains the Developer shall first demonstrate to the City that the new water main has adequately passed a pressure test, been adequately flushed, and finally passed the required bacteriological test.

In all disinfection processes, the Developer shall take particular care in flushing and wasting the chlorinated water from the mains to assure that the flushed and chlorinated water does no physical or environmental damage to property, streams, storm sewers or any waterways. Flushing water must be disposed of in accordance with Washington State Department of Ecology Standards. Flushing water shall require dechlorination or disposal to sewer system to prevent damage to the affected environment, particularly aquatic and fish life of receiving streams.

Before placing the lines in service, a satisfactory bacteriological report or approval shall be received from a State approved laboratory on samples collected from representative points in the new system. The City shall collect all samples for the bacteriological tests. However, the Developer shall notify the City requesting collection of samples 2 working days in advance, and schedule on days wherein samples can be conveniently processed by a State Department of health approved laboratory. If any of the pipeline materials are replaced thereafter, then that section shall again be disinfected, pressure tested and tested for bacteriological count.

If disinfection of mains by the above methods prove unsatisfactory and the lab report indicates any type of bacteria count, then the Developer shall re-chlorinate using other methods in accordance with AWWA C691 and approved by the City.

W-13 CONNECTIONS TO EXISTING SYSTEMS

All cut-in connections to the existing system shall be made after a successful pressure test of the new main has been witnessed by the City and after a purity test has been satisfactorily evidenced.

Size on size connections shall utilize stainless steel full circle tapping tee or DI cut-in tee. All materials contacting existing mains shall be chlorinated prior to use.

Where it is necessary to shut-off the existing (or new) mains to make a connection, the Developer shall notify the City 72 hours or 3 working days in advance of such shut-off, and the City will notify customers of the shut-off, provide temporary services to critical customers and shut-off the mains. Connections shall be performed between the hours of 9:00 a.m. and 4:30 p.m. only. No cut-in connections or connections of new piping to the existing piping shall be scheduled for Fridays or Mondays. Once the water has been shut-off, the Developer shall diligently pursue the connection to completion, so that the time required for the shut-off may be held to a minimum. The City will notify customers in the area of the scheduled shut-off.

The required connections shall not be started until all of the materials, equipment and labor necessary to properly complete the work are assembled on the site. All connections shall be completed the same day they are started. The Developer shall time its operations so that water will not be shutoff overnight or over weekends or holidays.

The location, type and size of existing facilities have been determined from available records and are approximate. It is anticipated that connections to these existing facilities may be made, in general, as shown on the Plans, except where adjustments are required for vertical and horizontal alignment.

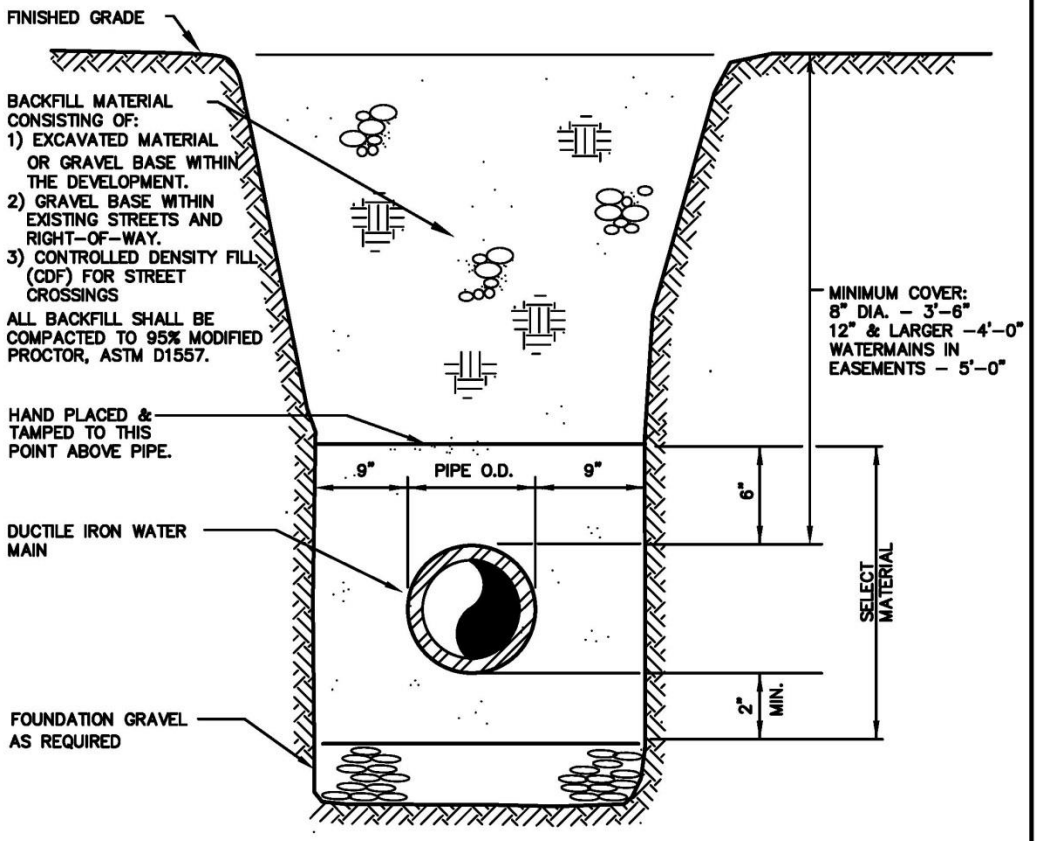
It shall be the responsibility of the Developer to determine the exact horizontal and vertical location of connections, ascertain the type and size of existing facilities and determine potential conflicts prior to starting work on any connection. Alternatives shall be provided as required to complete the connection detail.

Connections to existing facilities shall be made with the use of fittings, valves, flexible couplings, solid sleeves, shackling and other miscellaneous fittings, including thrust blocks as shown on the Plans and with additional pipe or fittings as approved by the City.

Where connections are made to existing facilities and it is impractical to use the methods described herein to disinfect the section between the existing water main and the point of installation of the new water main (valve or temporarily plugged line) the Developer shall clean and swab the pipe, fittings and valves with a minimum 5 percent chlorinated solution immediately before making said connection and thereby disinfect the necessary connection.

All pipe and fittings used for the connection shall be clean and disinfected. The Developer shall take extra precautions to ensure the tightness of the connections, nuts and bolts. The existing water main shall be placed back into service by the City and the connection observed for leakage by the City prior to backfilling the pipe.

END PART 2



NOTES:

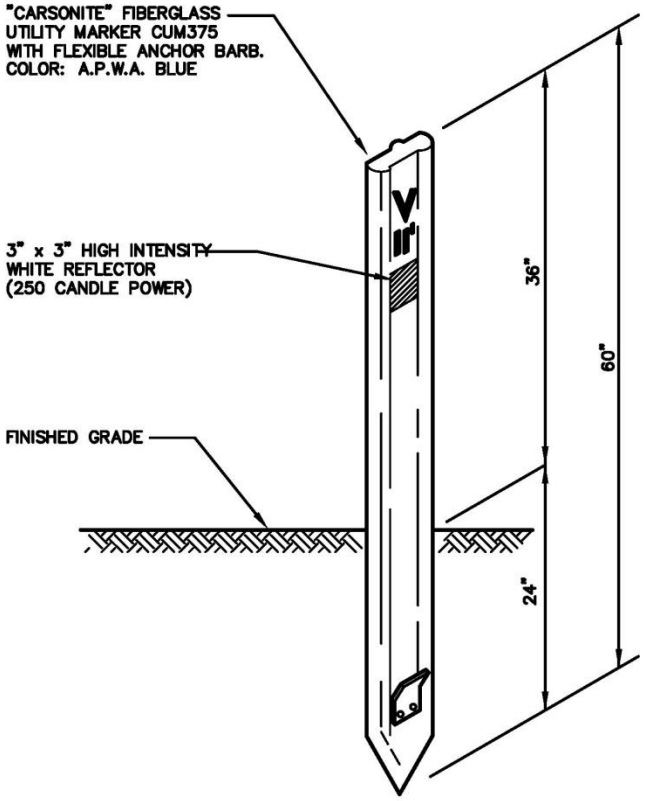
1. THE DEVELOPER SHALL PROVIDE THE CITY WITH LABORATORY TEST RESULTS INDICATING COMPACTION OF THE TRENCH MEET THE REQUIREMENT OF 95% MODIFIED PROCTOR, ASTM D1557.
2. DURING BACKFILL OPERATIONS, FURNISH AND INSTALL 3" WIDE METALLIC MARKER TAPE WITH 3 FT. OF COVER OVER WATER MAIN.

WATER MAIN TYPICAL TRENCH SECTION

CITY OF WHITE SALMON
STANDARD DETAILS

7/18

W-D1



NOTES:

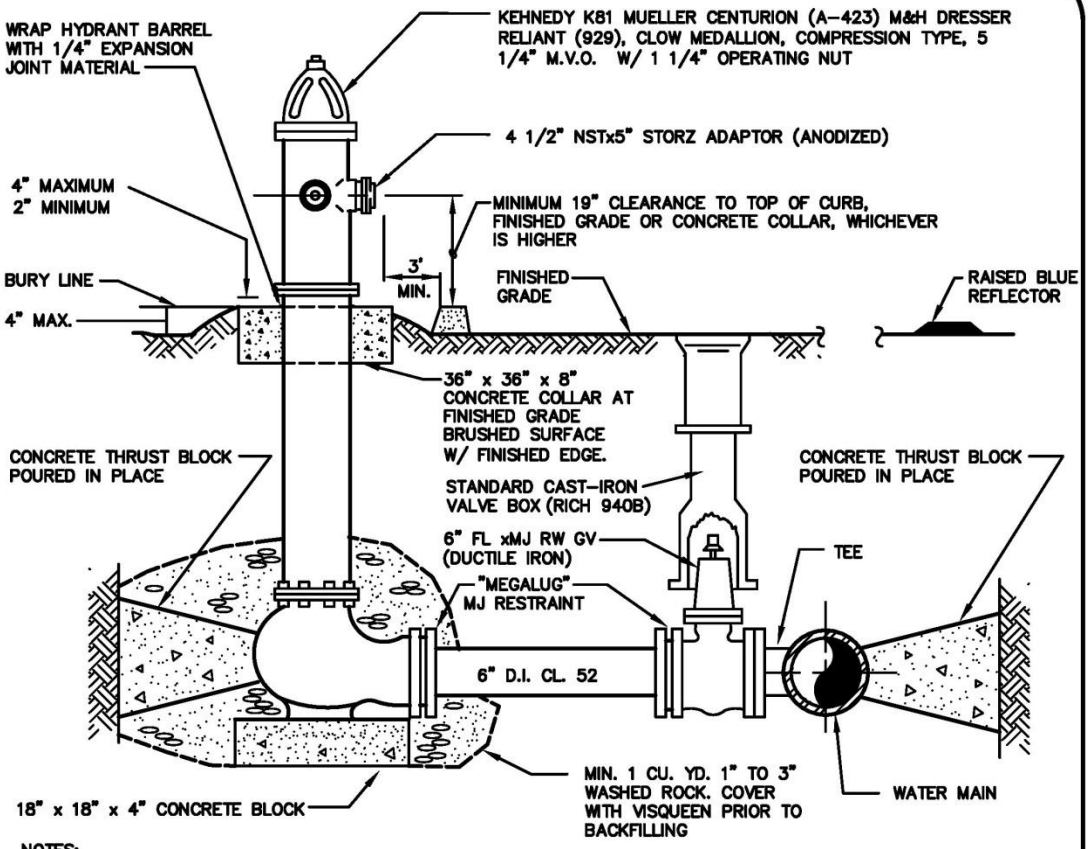
1. THE LETTER "V" AND THE DISTANCE IN FEET TO THE VALVE SHALL BE ON THE POST WITH 2" HIGH DECALS DESIGNED FOR USE ON FIBERGLASS BOATS.
2. EACH POST SHALL INCLUDE THE FOLLOWING DECAL: "CAUTION WATER VALVE, BEFORE DIGGING, CALL 1-800-424-5555, UTILITY UNDERGROUND LOCATION CENTER."

VALVE MARKER

CITY OF WHITE SALMON
STANDARD DETAILS

7/18

W-D2



NOTES:

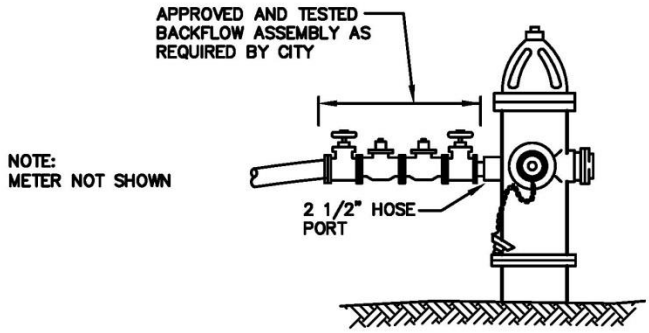
1. AFTER INSTALLATION, HYDRANT SHALL BE WIRE BRUSHED, PRIMED WITH BENJAMIN MOORE "PREP ALL UNIVERSAL METAL PRIMER" AND FIELD COATED WITH 2 COATS OF BENJAMIN MOORE "RUST SCAT SAFETY RED" PAINT.
2. WHEN HYDRANT SPOOL EXCEEDS 18', USE FULL CIRCLE MJ REPAIR SLEEVE WITH 'MEGALUGS' OR FIELD LOK GASKETS. MAXIMUM LENGTH IS 50'.
3. HYDRANTS SHALL BE BREAK-AWAY TYPE IN WHICH VALVE WILL REMAIN CLOSED IF BARREL IS BROKEN.
4. PROVIDE MINIMUM 3'-0" CLEARANCE AND LEVEL AREA AROUND HYDRANT.
5. GUARD POSTS MAY BE REQUIRED BY THE CITY. SEE GUARD POST DETAIL FOR ADDITIONAL REQUIREMENTS.
6. DISTANCE IN FEET TO THE VALVE BOX SHALL BE PLACED AT THE BARREL, BELOW THE PUMPER PORT, WITH 2" HIGH DECALS DESIGNED FOR USE ON FIBERGLASS BOATS.
7. RAISED BLUE REFLECTOR IN ACCORDANCE WITH THE FIRE DISTRICTS REQUIREMENTS
8. 3' MINIMUM CLEARANCE FROM BACK OF CURB OR BACK OF SIDEWALK TO ANY PART OF HYDRANT.

FIRE HYDRANT ASSEMBLY

CITY OF WHITE SALMON
STANDARD DETAILS

7/18

W-D3



HYDRANT USE PROCEDURES

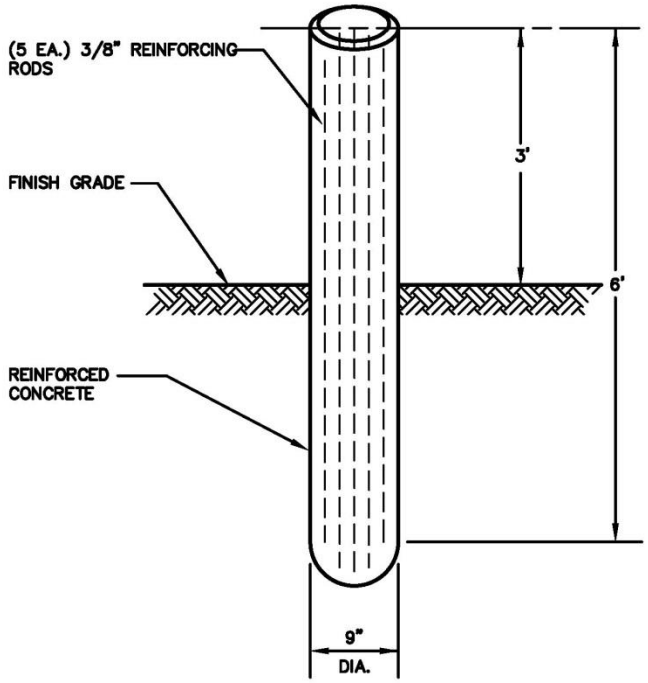
1. ACQUIRE HYDRANT METER FROM THE CITY OF WHITE SALMON.
2. THERE SHALL BE AN ACCEPTABLE WASHINGTON STATE APPROVED BACKFLOW ASSEMBLY FURNISHED AND INSTALLED BY CONTRACTOR. A HYDRANT METER SHALL BE OBTAINED FROM CITY. (NOT SHOWN ABOVE)
3. OPENING & CLOSING OF HYDRANT VALVE SHALL BE WITH AN ACCEPTABLE HYDRANT WRENCH.
4. THERE SHALL BE AN AUXILIARY VALVE ATTACHED TO THE 2 1/2" HOSE PORT OF THE HYDRANT.
5. THE HYDRANT VALVE SHALL BE FULLY OPENED AND THE WATER USE CONTROLLED EXCLUSIVELY BY THE AUXILIARY VALVE.
6. THE AUXILARY VALVE SHALL BE OPERATED IN A SLOW MANNER TO PREVENT UNDUE EXCESSIVE PRESSURE ON THE WATER SYSTEM.
7. ANY VIOLATION OF ANY OF THE ABOVE SHALL BE SUBJECT TO A FINE.

HYDRANT USE

CITY OF WHITE SALMON
STANDARD DETAILS

7/18

W–D4



NOTES

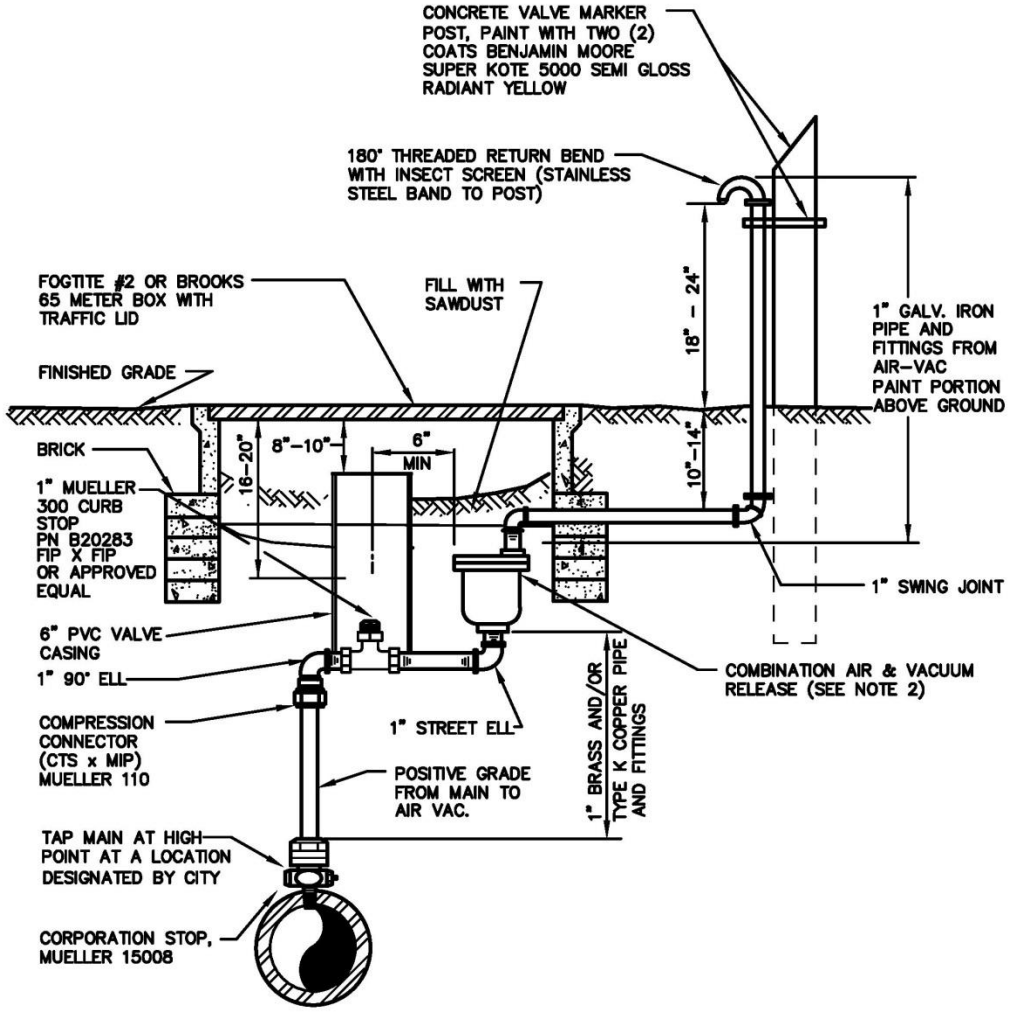
1. GUARD POSTS SHALL CONSIST OF REINFORCED 9" DIA. PRECAST UNIT.
2. THE NUMBER AND CONFIGURATION OF THE GAURD POSTS MAY BE 2, 3, OR 4 AND SHALL BE DETERMINED BY THE CITY BASED ON FIELD CONDITIONS.
3. GUARD POSTS SHALL BE PAINTED WITH TWO (2) COATS OF PAINT TO MATCH HYDRANT

GUARD POST

CITY OF WHITE SALMON
STANDARD DETAILS

7/18

W-D5



NOTES:

1. AIR–RELIEF ASSEMBLY LOCATION SHALL BE AT ALL HIGH POINTS OF THE SYSTEM.

2. APPROVED COMBINATION AIR & VACCUM RELEASE ASSY'S:
   a. CRISPEN UL–10
   b. VALMATIC 201–C
   c. APCO–143C

1'' AIR RELEASE ASSEMBLY

CITY OF WHITE SALMON
STANDARD DETAILS

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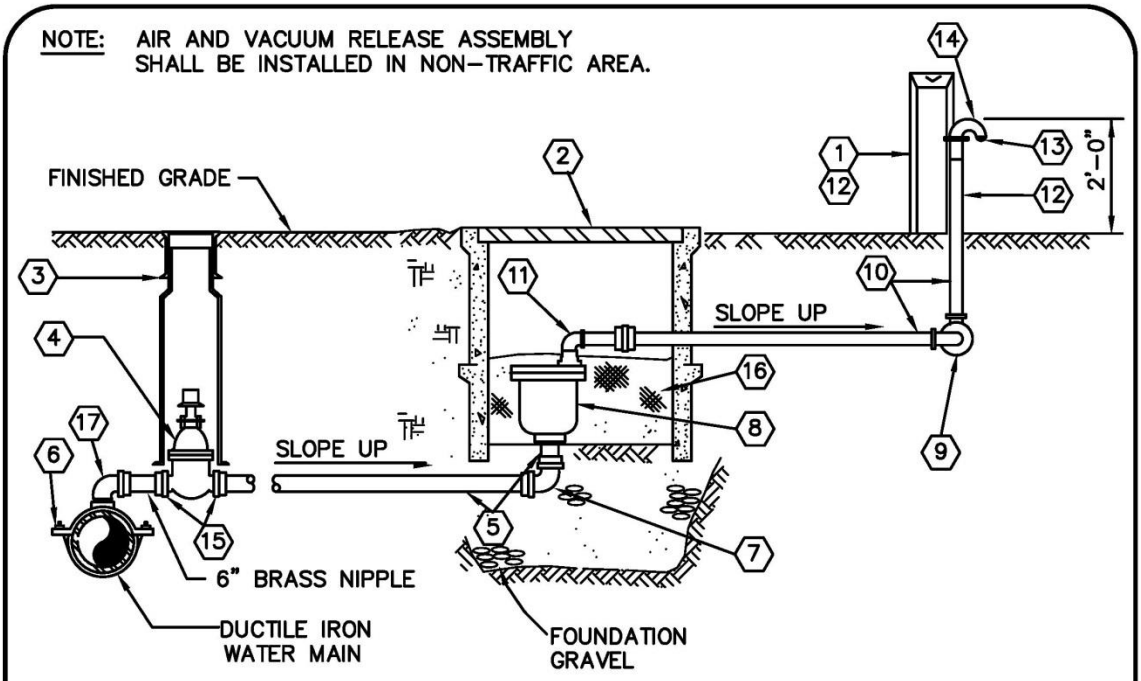
W–D6

NOTE: AIR AND VACUUM RELEASE ASSEMBLY SHALL BE INSTALLED IN NON-TRAFFIC AREA.



1. CONCRETE VALVE MARKER POST
2. CONC. METER BOX, FOGTITE # 2 OR BROOKS 65
3. CAST IRON VALVE BOX
4. 2" AWWA RESILIENT SEAT GATE VALVE THD X THD, WITH OPERATING NUT
5. 2" TYPE "K" COPPER TUBING OR BRASS
6. DOUBLE STRAP STAINLESS STEEL SERVICE CLAMP
7. 90° BEND MUELLER No. H-15526 COMPRESSION X COMPRESSION
8. 2" COMBINATION AIR & VACUUM RELEASE ASSEMBLY; A. APCO MODEL 144. B. CRISPIN MODEL CRAL 2. C. VALMATIC
9. 2, 2"X90° ELL, GALV. SWING JOINT
10. 2" GALV. IRON PIPE (FIELD LOCATE NEXT TO EXISTING PROPERTY LINE).
11. 2"X90° ELL (GALV.)
12. PAINT PORTION ABOVE GROUND WITH TWO COATS OF BENJAMIN MOORE SUPER KOTE 5000 SEMI GLOSS RADIANT YELLOW
13. 2" BEEHIVE STRAINER
14. 2" OPEN PATTERN RETURN BEND
15. STRAIGHT COUPLING, MUELLER No. H-15428 COMPRESSION TO M.I.P.
16. SAWDUST OR VERMICULITE
17. 90° BEND MUELLER No. H-10096 FEMALE X M.I.P.

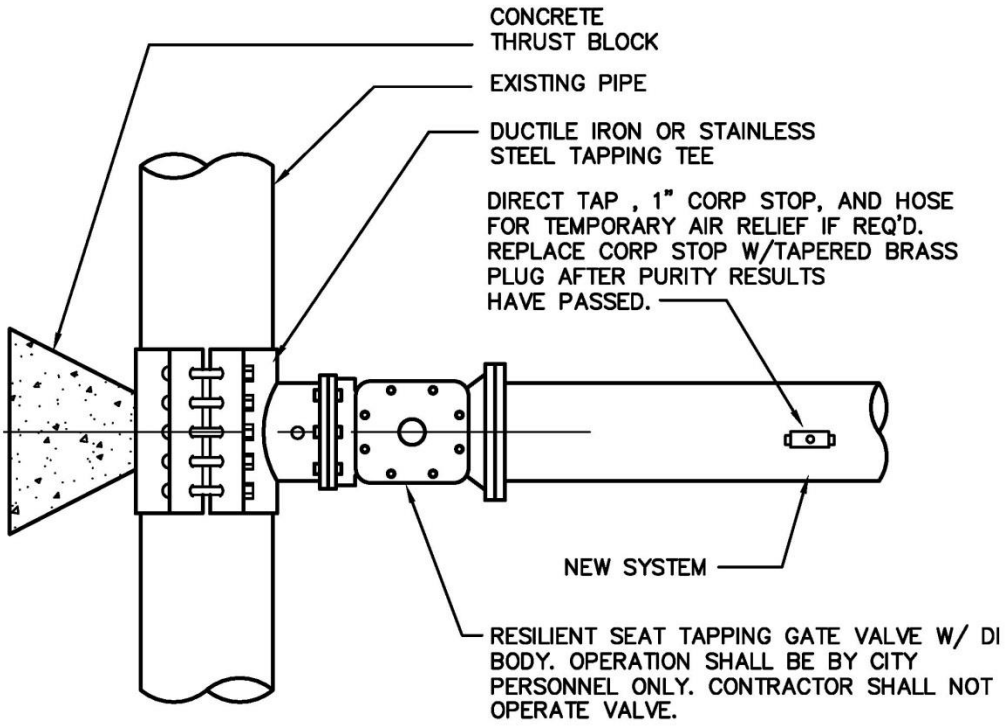
NOTES:

1. ALL PIPING BETWEEN DOUBLE STRAP SADDLE AND INLET SIDE OF COMBINATION AIR AND VACUUM ASSEMBLY SHALL BE COPPER OR BRASS
2. TAP WATER MAIN AT HIGH POINT, LOCATION TO BE DETERMINED BY THE CITY

2" AIR RELEASE ASSEMBLY

CITY OF WHITE SALMON
STANDARD DETAILS

7/18 W-D7



NOTES:

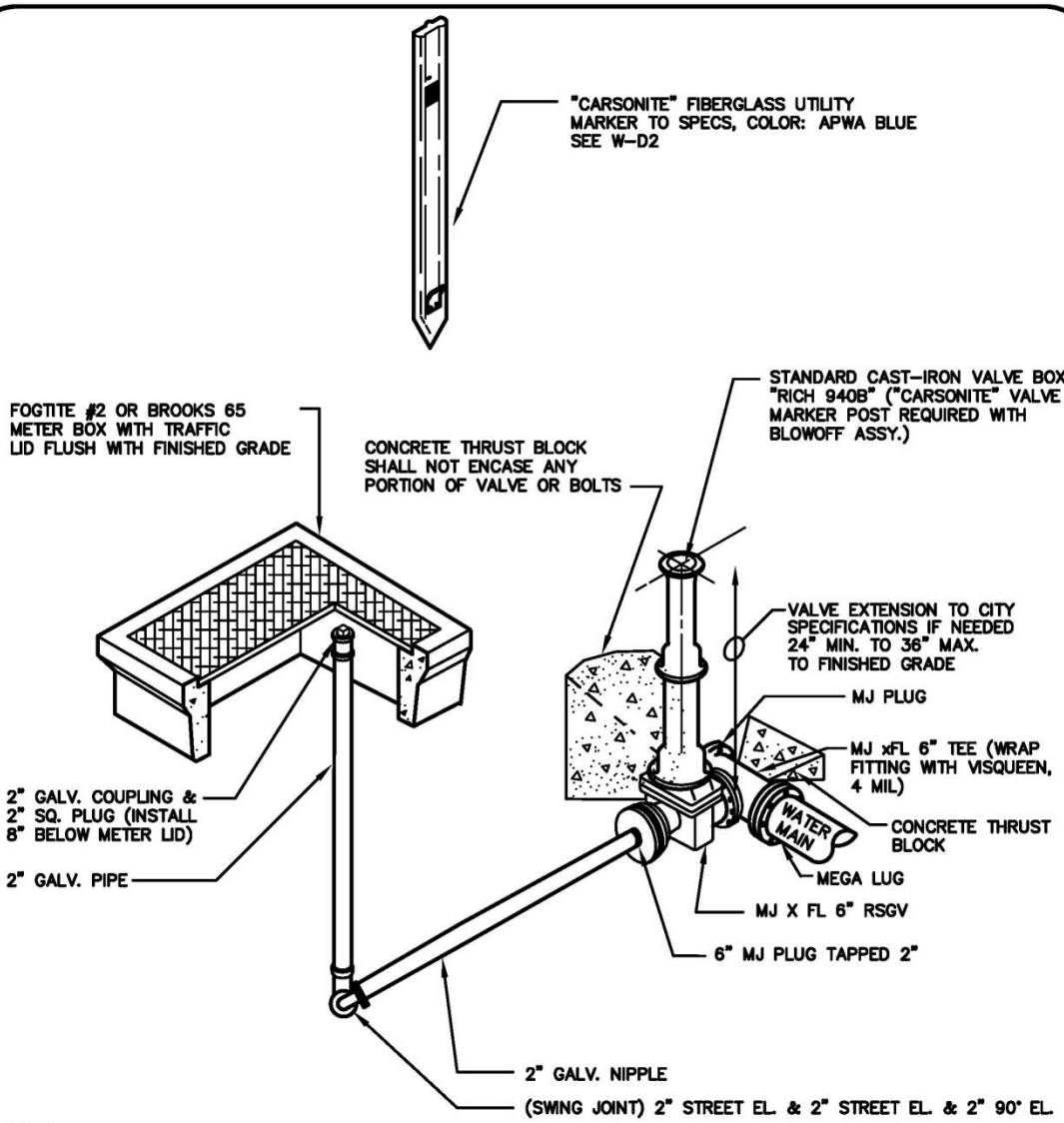
1. SIZE-ON-SIZE TAPPING TEES SHALL BE STAINLESS STEEL FULL CIRCLE MECHANICAL SLEEVE.
2. DUCTILE IRON TAPPING TEES SHALL BE ALLOWED IF TAP IS AT LEAST 2" SMALLER IN DIAMETER THAN THE EXISTING WATER MAIN.
3. TAPPING TEES SHALL BE PRESSURE TESTED TO 200 PSI
4. CONNECTIONS NOT ALLOWED ON FRIDAYS, HOLIDAYS, OR WEEKENDS

WET TAP CONNECTION

CITY OF WHITE SALMON
STANDARD DETAILS

7/18

W-D8



NOTE:

WHERE LAST STICK OF PIPE IS LESS THAN 18' INSTALL FIELD LOC GASKET AT LAST JOINT.

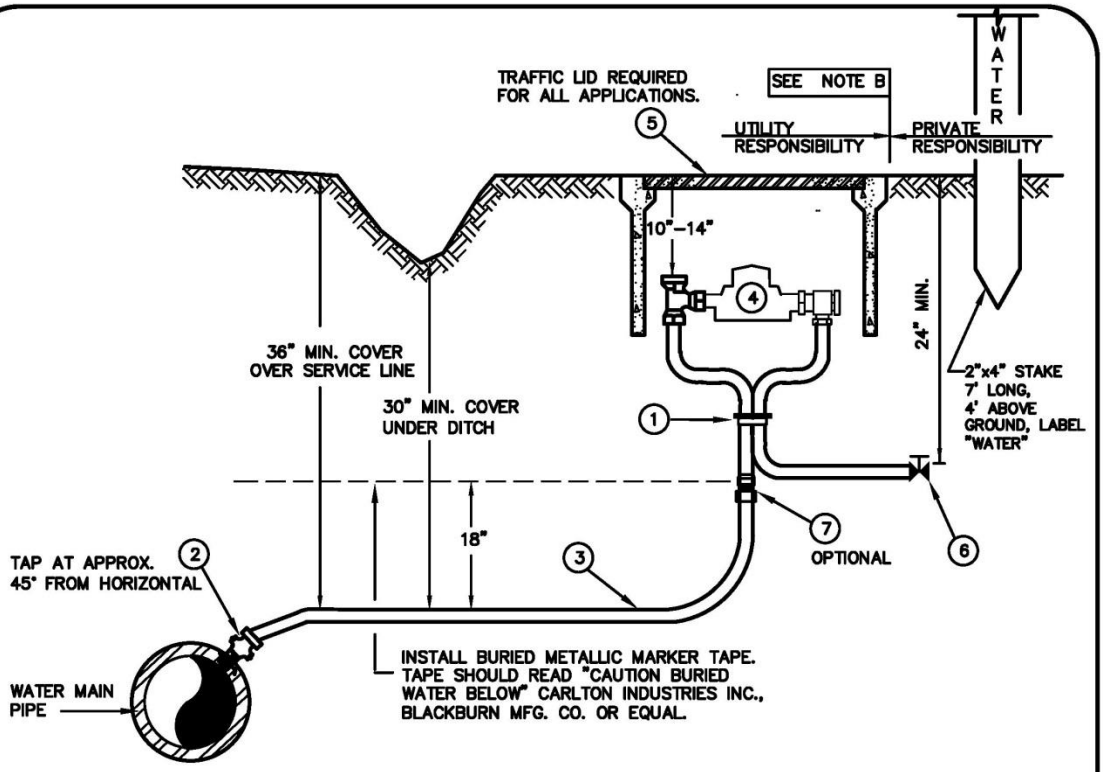
2'' BLOWOFF ASSEMBLY

CITY OF WHITE SALMON

STANDARD DETAILS

7/18

W-D9



NO.	ITEM	MATERIAL	SIZE	APPROVED MODELS	
1	METER SETTER	COPPER	1"	FORD: VBH 94–15 W–11–44AVH WITH VERTICAL INLET MUELLER: B–24104–2	
2	CORPORATION STOP	FOR COPPER SERVICE	1"	FORD: FB–1000–4–Q	MUELLER: B–25008
3	DIAMETER OF PIPE SHALL MATCH METER SIZE	COPPER	1"	FEDERAL SPEC. WW–T–799. TYPE K ASTM SPEC. B88, TYPE K AWWA SPEC. 7S–CR, TYPE K	
4	METER (FURNISHED BY CITY)				
5	METER BOX			SIGMA RAVEN RMB1324–SW WITH TRAFFIC LID OR APPROVED EQUAL	
6	1" FIP BRASS GATE VALVE		1"		
7	COPPER X IP ADAPTOR		1"	FORD: C–8433–Q	MUELLER: H–14227

NOTES:

A. SPLICES – NOT ALLOWED UNLESS APPROVED BY THE CITY. USE MUELLER 110 OR FORD QUICK JOINT.

B. OWNERS ARE RESPONSIBLE FOR INSTALLING PRESSURE REDUCER ON THEIR SYSTEM TO PROTECT THEIR FACILITIES FROM HIGH PRESSURE.

C. SURFACE RESTORATION IN ACCORDANCE WITH JURISDICTIONAL AUTHORITY.

D. 4" OF BEDDING REQUIRED ON ALL COPPER. SAND ONLY.

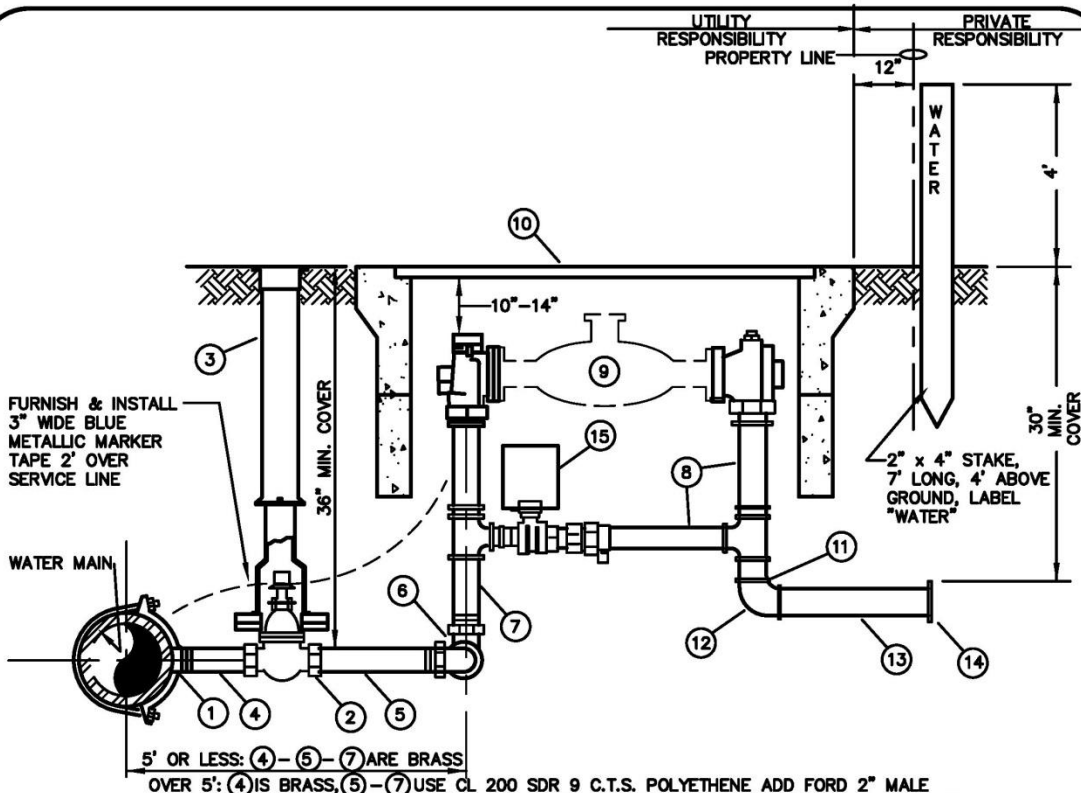
7/18

W–D10

1" WATER SERVICE INSTALLATION

CITY OF WHITE SALMON

STANDARD DETAILS



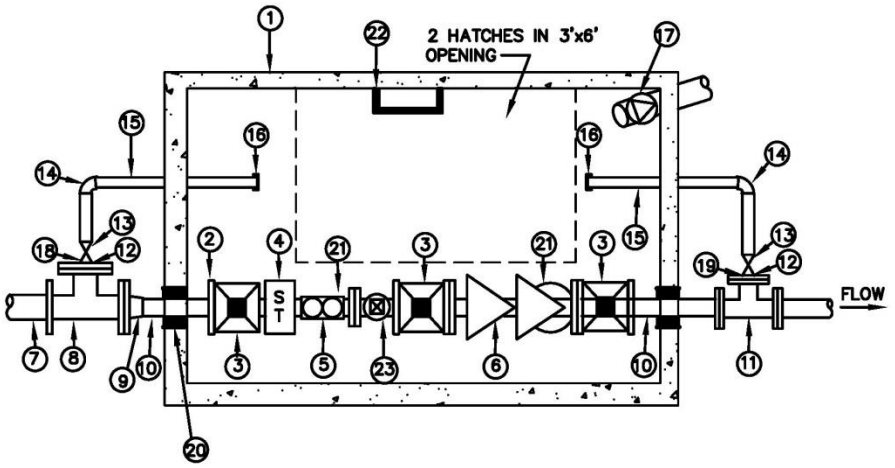
NO.	ITEM
1	ROMAC STYLE 202S STAINLESS STEEL DOUBLE STRAP TYPE SADDLE
2	2" RESILIENT WEDGE GATE VALVE WITH 2" OPERATING NUT
3	STANDARD CAST-IRON VALVE BOX (RICH NO. 940)
4	BRASS NIPPLE (3" MIN., 6" MAX.)
5	NIPPLE (SEE NOTE ABOVE)
6	BRASS SWING JOINT (SEE NOTE ABOVE)
7	NIPPLE (SEE NOTE ABOVE)
8	METER SETTER, 2" FORD VBH66-12B WITH METER SPACER (LENGTH DETERMINED BY CITY PRIOR TO INSTALLATION)
9	METER (FURNISHED BY CITY) 17 1/4" LONG
10	METER BOX, NO.2 FOG TITE OR BROOKS NO. 65, WITH STEEL TRAFFIC COVER (FURNISH 2 BOXES).
11	2" BRASS NIPPLE
12	2" BRASS 90° EL
13	2" x 12" BRASS NIPPLE
14	2" CAP
15	6" PVC PIPE OVER BY-PASS VALVE.

2" WATER SERVICE INSTALLATION

CITY OF WHITE SALMON
STANDARD DETAILS

7/18

W-D11



NO.	DESCRIPTION
1	UTILITY VAULT 4484–LA OR APPROVED EQUAL
2	UNIFLANGE ADAPTER
3	3" RWGV
4	3" STRAINER
5	MASTER METER 3" OCTAVE METER W/RADIO READ REGISTER
6	STATE HEALTH DEPT. APPROVED 3" DOUBLE CHECK VALVE ASSEMBLY
7	4" DIP
8	4" TEE (MJ X FL) W/MEGA LUGS
9	4" X 3" REDUCER (4" PE X 3" MJ) W/MEGA LUG
10	3" DIP
11	3" TEE (MJ X FL) W/MEGA LUGS
12	2" BRASS CLOSE NIPPLE
13	2" RWGV W/STANDARD VALVE BOX AND COVER
14	2" BRASS ELBOW
15	2" THREADED BRASS PIPE
16	2" BRASS CAP
17	6" PVC DRAIN TO DAYLIGHT OR CB. MINIMUM SLOPE 1%. SCREENS AT BOTH ENDS W/BACKWATER VALVE IN VAULT
18	4" BLIND FLANGE TAPPED 2"
19	3"' BLIND FLANGE TAPPED 2"
20	NON SHRINK WATER TIGHT GROUT, INLETS AND OUTLETS
21	PLACE PIPE SUPPORTS STANDON S–92 OR EQUAL UNDER ASSEMBLY IN TWO PLACES
22	GALV STEEL LADDER, LOCATE AS DIRECTED BY CITY, SECURE TO VAULT
23	3" TEE (FL), 3" BLIND FLANGE TAPPED 2" (FIP), 2" CLOSENIPPLE BRASS, 2" BALL VALVE, 2" MIPx 2 1/2" NST HOSE NOZZLE, 2 1/2" NST CAP

* LARGER SERVICES REQUIRE 3" FITTINGS AND PIPE BE REPLACED WITH LARGER/LIKE SIZE.

** 4" DIAMETER AND SMALLER DIP SHALL BE CLASS 53 IF USED IN A THREADED APPLICATION.

3" AND LARGER WATER SERVICE AND INSTALATION

CITY OF WHITE SALMON
STANDARD DETAILS

7/18

W–D12

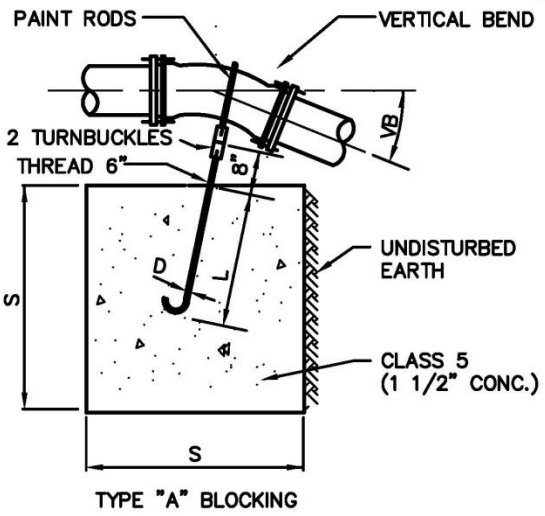
TYPE "A" BLOCKING
FOR 11 1/4°–22 1/2°–30° VERTICAL BENDS

PIPE SIZE NOMINAL DIAMETER– INCHES	TEST PRESSURE PSI	VB VERTICAL BEND DEGREES	No. OF CU. FT. OF CONC. BLOCKING	S SIDE OF CUBE LIN. FT.	D DIAM. OF RODS (2) INCHES	L DEPTH OF RODS IN CONCRETE LIN. FT.
4"	300	11 1/4	8	2	5/8"	1.5
		22 1/2	11	2.2		2.0
		30	17	2.6		
6"	300	11 1/4	11	2.2	5/8"	2.0
		22 1/2	25	2.9		
		30	41	3.5		
8"	300	11 1/4	16	2.5	5/8"	2.0
		22 1/2	47	3.6		
		30	70	4.1	3/4"	2.5
12"	250	11 1/4	32	3.2	5/8"	2.0
		22 1/2	88	4.5	7/8"	3.0
		30	132	5.1		
16"	225	11 1/4	70	4.1	7/8"	3.0
		22 1/2	184	5.7	1 1/8"	4.0
		30	275	6.5	1 1/4"	
20"	200	11 1/4	91	4.5	7/8"	3.0
		22 1/2	225	6.1	1 1/4"	4.0
		30	330	6.9	1 3/8"	4.5
24"	200	11 1/4	128	5.0	1"	3.5
		22 1/2	320	6.8	1 3/8"	4.5
		30	480	7.9	1 7/8"	5.5

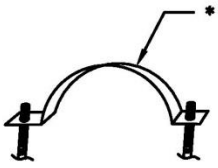
TYPE "B" BLOCKING
FOR – 45° VERTICAL BENDS

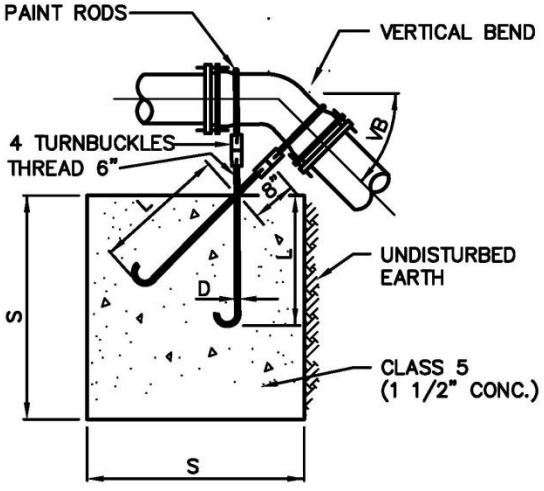
		VB		S	D	L
4"	300	45	30	3.1	5/8"	2.0
6"			68	4.1		
8"			123	5.0		
12"	250		232	6.1	3/4"	2.5
16"	225		478	7.8	1 1/8"	4.0
20"	200		560	8.2	1 1/4"	
24"			820	9.4	1 3/8"	4.5

* PIPE CLAMP, WASHERS AND NUTS MAY BE SUBSTITUTED FOR TURN BUCKLES. ALL OTHER SPECIFICATIONS THE SAME.



TYPE "A" BLOCKING





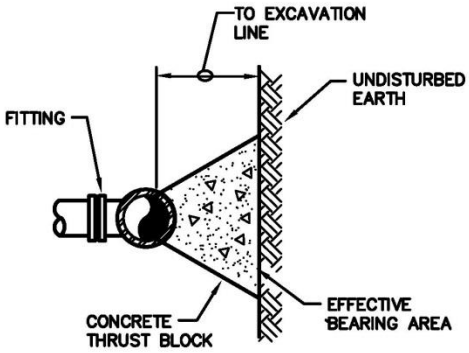
TYPE "B" BLOCKING

VERTICAL ANCHOR BLOCK

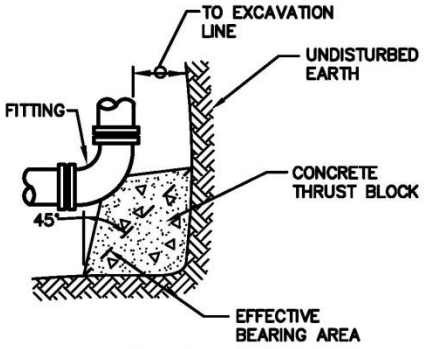
CITY OF WHITE SALMON
STANDARD DETAILS

7/18

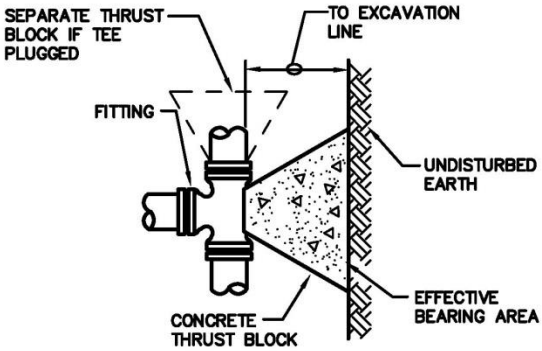
W–D13



TYPICAL SECTION



90°EL PLAN



TEE PLAN

EFFECTIVE BEARING AREA REQUIRED

PIPE SIZE	90°EL	45° EL	22 1/2° EL	11 1/4° EL	TEE
8"	7 SQ. FT.	4 SQ. FT.	2 SQ. FT.	2 SQ. FT.	5 SQ. FT.
12"	16 SQ. FT.	9 SQ. FT.	4 SQ. FT.	3 SQ. FT.	11 SQ. FT.
16"	28 SQ. FT.	15 SQ. FT.	8 SQ. FT.	5 SQ. FT.	20 SQ. FT.

TYPICAL FOR SANDY SOIL WITH 2,000 P.S.F. BEARING STRENGTH & 200 P.S.I. PRESSURE. IF PRESSURE IS GREATER OR SOIL BEARING IS LESS, THE THRUST BLOCK SIZE SHALL BE INCREASED.

NOTES:

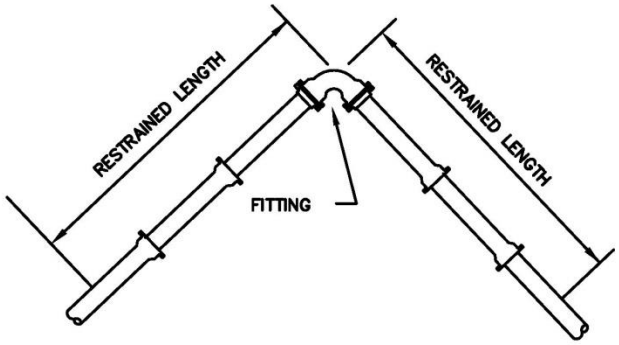
1. BLOCKING SHALL BE TO SOLID BEARING SURFACE.
2. ALL FITTINGS SHALL BE COVERED WITH 4 MIL VISQUEEN BEFORE CONCRETE IS POURED. BOLTS SHALL NOT BE COVERED W/CONCRETE.
3. CONCRETE BLOCKING SHALL BE 2000 PSI MINIMUM CONCRETE POURED IN PLACE. ALL BLOCKS ON TEES SHALL BE SEPARATED FOR DIRECTION OF THRUST.
4. THIS TABLE REPRESENTS THE "MINIMUM" CONSTRUCTION STANDARDS. THE DEVELOPER'S ENGINEER SHALL BE RESPONSIBLE FOR DETERMINING THE APPROPRIATE SIZE OF ALL THRUST BLOCKS BASED ON EXISTING AND LOCAL CONDITIONS.

THRUST BLOCKING

CITY OF WHITE SALMON
STANDARD DETAILS

7/18

W–D14



PIPE SIZE	90° BEND	45° BEND	22 1/2° BEND	11 1/4° BEND	TEE OR DEAD END CAP
	RESTRAINED LENGTH IN FEET				
4"	32	14	7	3	26
6"	44	19	9	5	32
8"	58	24	12	6	43
10"	70	29	14	7	54
12"	82	34	16	8	66
16"	106	44	21	11	88
18"	116	48	23	12	100

NOTES:

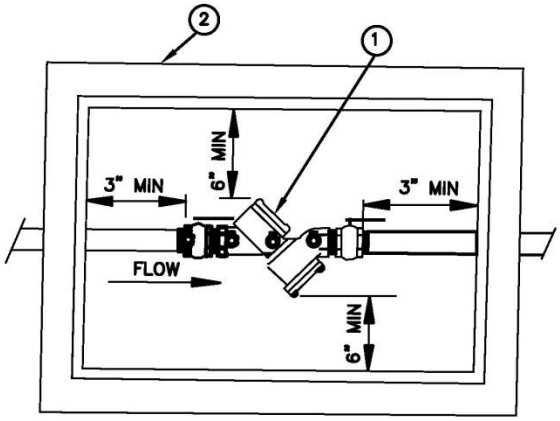
① RESTRAINED LENGTHS SHOWN ARE MINIMUM AND FOR LINEAL FEET REQUIRED ON EACH SIDE OF FITTING INDICATED.

② FOOTAGES ARE BASED ON 200 PSI PRESSURE AND 42 INCHES COVER. IF PRESSURE IS GREATER OR COVER IS LESS, THE RESTRAINED LENGTH SHALL BE INCREASED.

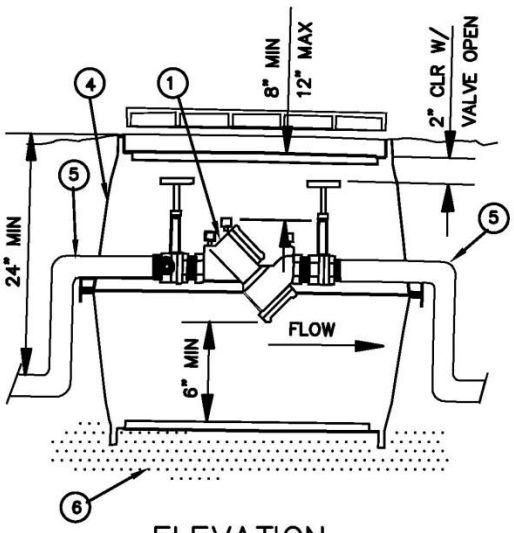
③ THIS TABLE REPRESENTS THE "MINIMUM" CONSTRUCTION STANDARDS. THE DEVELOPER'S ENGINEER SHALL BE RESPONSIBLE FOR DETERMINING THE APPROPRIATE LENGTH OF ALL RESTRAINED JOINT BASED ON EXISTING AND LOCAL CONDITIONS.

THRUST RESTRAINT FOR DUCTILE IRON PIPE

CITY OF WHITE SALMON
STANDARD DETAILS



PLAN



ELEVATION

LEGEND

(1) STATE APPROVED DOUBLE CHECK VALVE ASSEMBLY

(2) IN NON-TRAFFIC AREAS USE:
PRECAST CONCRETE VAULT (UTILITY VAULT CO 233-LA, OR APPROVED EQUAL) OR METER BOX (FOGTITE #2 OR BROOKS #65)
IN TRAFFIC AREAS:
A TRAFFIC LOADED BOX MUST BE USED AND LOCATION APPROVED BY THE CITY PRIOR TO INSTALLATION.

(3) ALL ASSEMBLIES SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH WASHINGTON STATE DEPARTMENT OF HEALTH REQUIREMENTS.

(4) THERE MUST BE A 4" MIN LAYER OF FREE DRAINING GRAVEL AT THE BOTTOM OF BOX.

(5) ANGLES MAY BE IN OR OUT OF BOX SO LONG AS SUFFICIENT ROOM IS ALLOWED AT EACH END FOR VALVE OPERATOR AND DCVA REPAIR OR MAINTENANCE.

(6) PROVIDE FREE DRAINING SOIL.

NOTES

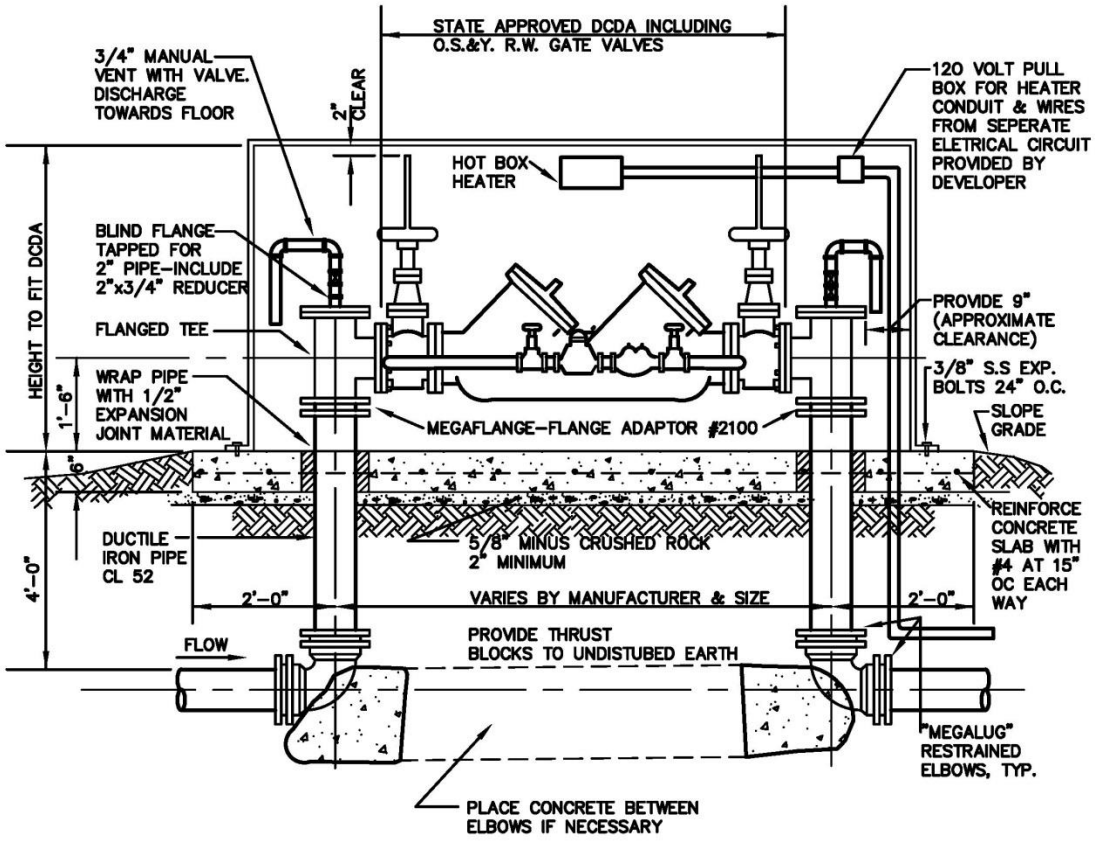
1. ALL TEST COCKS MUST HAVE BRASS CAPS.
2. TEST COCKS MUST FACE UP OR SIDEWAYS WHICH EVER IS MORE ACCESSIBLE

DOUBLE CHECK VALVE ASSEMBLY FOR 2" & SMALLER SERVICE

CITY OF WHITE SALMON
STANDARD DETAILS

7/18

W-D16



NOTES:

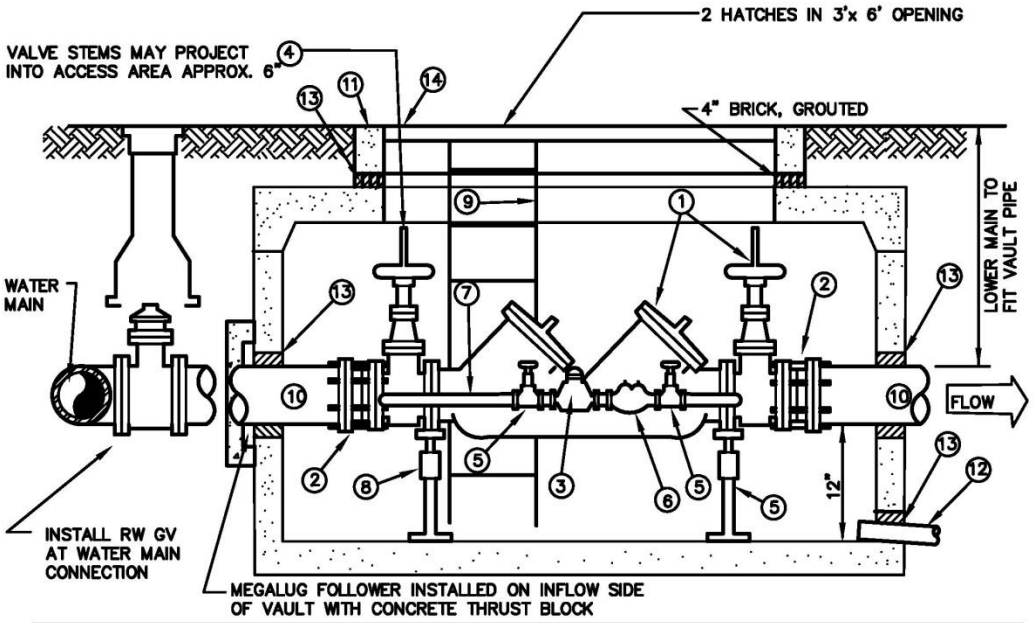
1. INSTALLATION OF HOT BOX SUBJECT TO APPROVAL OF CITY AS AN ALTERNATE TO VAULTS.
2. ALUMINUM "HOT BOX" MODELS 4 THROUGH 10 FOR RESPECTIVE SIZE DCDA SHALL BE MODIFIED TO FIT ABOVE HEIGHT REQUIREMENTS. VALVE STEM SHALL NOT BE ALLOWED TO EXTEND OUTSIDE OF BOX.
3. HEATERS SHALL BE 2,000 WATT FOR 6" AND 8" SIZE: 3,000 WATT FOR 10" OR LARGER.
4. PROVIDE SPECIAL LOCK FOR 2 PADLOCKS.
5. CONCRETE TO BE 2500 PSI MIX WITH AIR ENTRAINMENT.

DOUBLE CHECK DETECTOR HOT BOX ENCLOSURE

CITY OF WHITE SALMON
STANDARD DETAILS

7/18

W-D17



NO.	DESCRIPTION
1	STATE APPROVED DOUBLE CHECK DETECTOR ASSEMBLY (DCDA) BACKFLOW PREVENTION ASSEMBLY WITH O.S.&Y. R.W. GATE VALVE
2	ROMAC STYLE 'FCA 501' FLANGED COUPLING ADAPTER
3	5/8" x 3/4" MASTER METER W/ALLEGRO RADIO READ REGISTER: 6 WHEEL READING IN GALLONS.
4	LOCATE CENTER OF VALVE 15" FROM CENTER OF VAULT TO ALLOW STEMS TO EXTEND INTO ACCESS OPENING WHEN APPLICABLE
5	3/4" SHUTOFF VALVE; BRASS GATE VALVE
6	STATE APPROVED 3/4" DOUBLE CHECK VALVE ASSEMBLY (DCVA)
7	BRASS OR TYPE K COPPER, DETECTOR CHECK PIPING (BY PASS LINE)
8	2 EA. GALVANIZED ADJUSTABLE STANCHIONS (LOCATE AT ENDS OF DOUBLE CHECK ASSEMBLY)
9	GALVANIZED STEEL LADDER, LOCATE AS DIRECTED BY CITY, SECURE TO VAULT.
10	PIPE SPOOL, CL. 52 D.I., PLAIN END
11	"UTILITY VAULT" OR APPROVED EQUAL WITH 4" BRICK AND ADJUSTABLE COVER; 2 ACCESS HATCHES: EXCEPT 3 HATCHES FOR 10" DCDA. LW PRODUCTS OR EQUAL, H-20 LOADING 4" DCDA, USE 575 LA + 57 AT (4'-2" x 6'-6" x 4'-0" INSIDE) 6" DCDA, 4484 LA + 57 AT (4'-4" x 8'-4" x 6'-2" INSIDE) 6" DCDA, 5106 LA + 57 AT (5'-0" x 10'-6" x 4'-4" INSIDE) 8" DCDA, 5106 LA + 57 AT (5'-0" x 10'-6" x 6'-2" OR 4'-4" INSIDE) 10" DCDA, 5106 LA + 5106 AT (3 HATCH) (5'-0" x 10'-6" x 6'-2" OR 4'-4")
12	6" PVC DRAIN, DISCHARGE TO DAYLIGHT OR TO CATCH BASIN. MINIMUM SLOPE 1% UNLESS OTHERWISE APPROVED. ADD SCREENS AT BOTH ENDS.
13	WATERTIGHT GROUT, INLET AND OUTLET PIPE, DRAIN PIPE AND BRICK ACCESS OPENING
14	SIGN READING "DANGER-PERMIT REQUIRED-CONFINED SPACE, DO NOT ENTER"

NOTE:

AFTER PRESSURE TEST AND PURITY SAMPLES ARE RECIEVED, A CERTIFIED BACKFLOW ASSEMBLY TESTER SHALL SUPPLY CITY WITH A WRITTEN TEST REPORT ON EACH BACKFLOW ASSEMBLY.

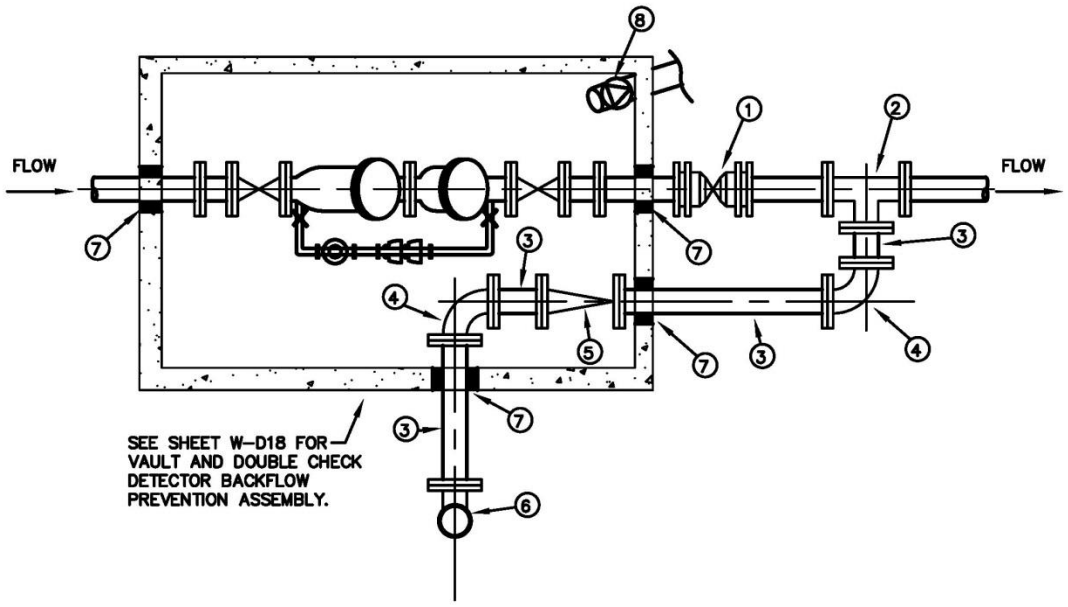
DOUBLE CHECK DETECTOR BACKFLOW PREVENTION ASSY.

CITY OF WHITE SALMON

STANDARD DETAILS

7/18

W-D18

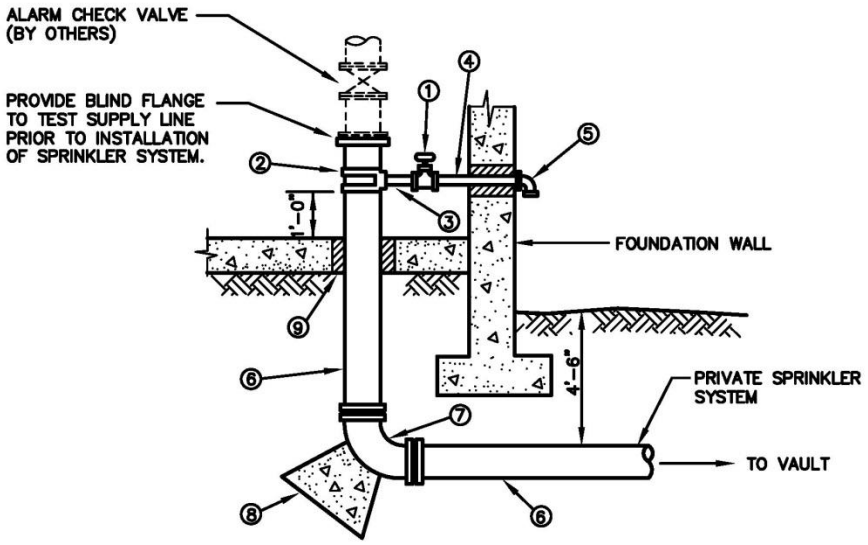


NO.	DESCRIPTION
1	POST INDICATOR VALVE, MJ WITH MEGALUGS
2	MAIN LINE SIZE X 4" TEE, MJ WITH MEGALUGS
3	4" DUCTILE IRON PIPE, CLASS 52*
4	4" x 90° BENDS, MJ WITH MEGALUGS
5	4" FLAPPER CHECK VALVE WITH BALL CHECK DRAIN VALVE, MJ WITH MEGALUGS
6	FIRE DEPARTMENT CONNECTION 5" STORZ ADAPTER. CONNECTION TO COMPLY WITH FIRE DEPARTMENT REQUIREMENTS. ALL ABOVE GROUND PIPING TO BE PAINTED SAME COLOR RED AS P.I.V.
7	WATERTIGHT GROUT
8	6" PVC DRAIN TO DAYLIGHT OR CB, MINIMUM SLOPE 1%. SCREEN AT BOTH ENDS W/BACKWATER VALVE IN VAULT

* 4" DIAMETER AND SMALLER DUCTILE IRON PIPE SHALL BE CLASS 53 IF USED IN A THREADED APPLICATION.

FIRE LINE CONNECTION

CITY OF WHITE SALMON
STANDARD DETAILS



No.	DESCRIPTION
1	2" RWGV OR BRONZE BALL VALVE
2	ROMAC STYLE 202S STAINLESS STEEL DOUBLE STRAP SADDLE (OR APPROVED EQUAL)
3	2" BRASS NIPPLE
4	2" GALVANIZED NIPPLE
5	2" GALVANIZED 90° EL
6	D.I. CL. 52 SUPPLY MAIN (SIZE AS DETERMINED BY FIRE FLOW REQUIREMENTS).
7	90° BEND (MJ x MJ) WITH MEGALUG
8	CONCRETE THRUST BLOCK (SIZE TO BE APPROVED BY CITY)
9	1/2" EXPANSION JOINT

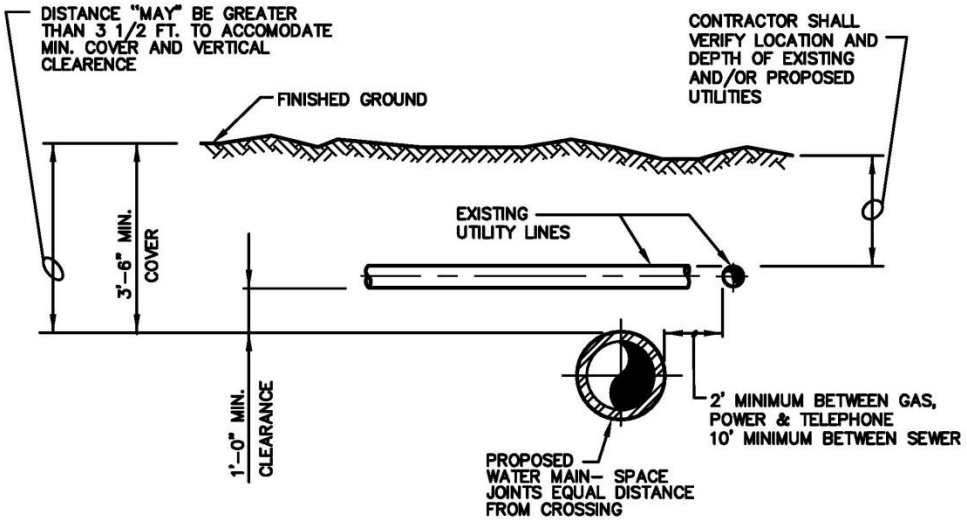
NOTE

AFTER SYSTEM IS PRESSURE TESTED, PURITY SAMPLES SHALL BE TAKEN AT ALL RISERS IN SYSTEM.

4" DIAMETER AND SMALLER DUCTILE IRON PIPE SHALL BE CLASS 53 IF USED IN A THREADED APPLICATION.

FIRE LINE RISER DETAIL

CITY OF WHITE SALMON
STANDARD DETAILS



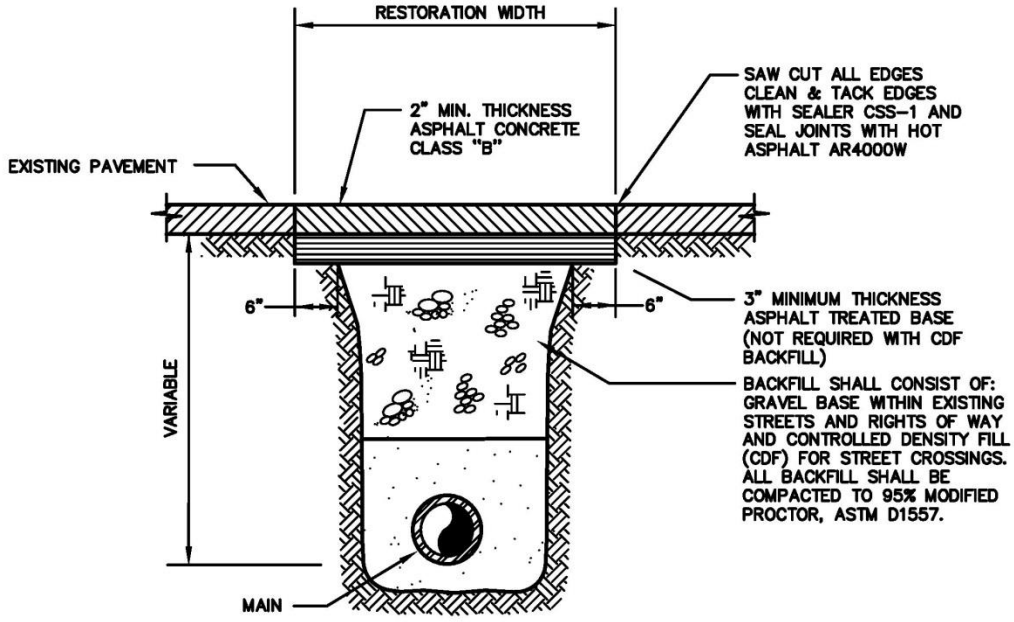
NOTES:
MINIMUM COVER SHOWN IS FOR 8" DIMATER PIPE.
SEE W-D1 FOR MINIMUM COVER FOR ALL PIPES.

TYPICAL UTILITY CROSSING

CITY OF WHITE SALMON
STANDARD DETAILS

7/18

W-D21



NOTES:

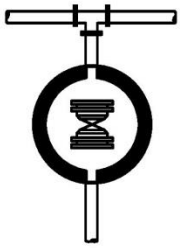
1. ALL ASPHALT STREETS AND DRIVEWAYS SHALL BE TEMPORARILY REPAIRED WITH COLD MIX, EXCEPT CROSSINGS WITH CDF SHALL BE COVERED WITH STEEL PLATES UNTIL THE CDF HAS CURRED TO ALLOW FOR PLACEMENT OF THE ASPHALT.
2. PATCH SHALL BE MACHINE ROLLED FLUSH WITH EXISTING PAVEMENT AND SHALL BE PLACED PER SEC. 5-04 OF THE WA. STATE D.O.T. SPECIFICATIONS.

ASPHALT PAVEMENT REPAIR

CITY OF WHITE SALMON
STANDARD DETAILS

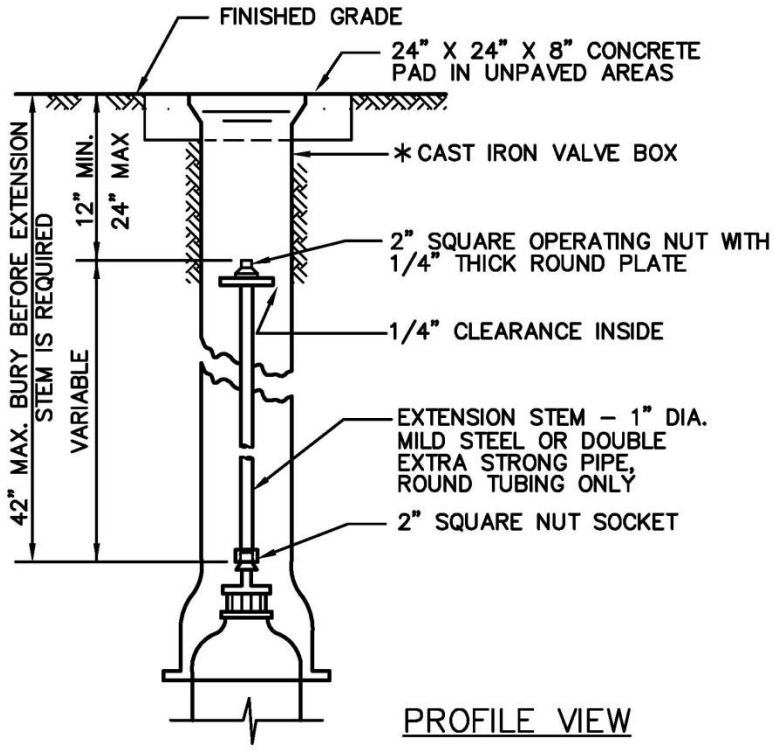
7/18

W-D22



ALIGN "EARS" ON VALVE BOX TOP WITH DIRECTION OF PIPE BRANCH THE VALVE OPENS AND CLOSES.

PLAN VIEW



PROFILE VIEW

*CAST IRON VALVE BOX EXTENSION SHALL UTILIZE 5" CAST IRON "SOIL PIPE". BELL END TO BE PLACED OVER TOP OF VALVE BOX BOTTOM.

VALVE STEM EXTENSION

CITY OF WHITE SALMON
STANDARD DETAILS

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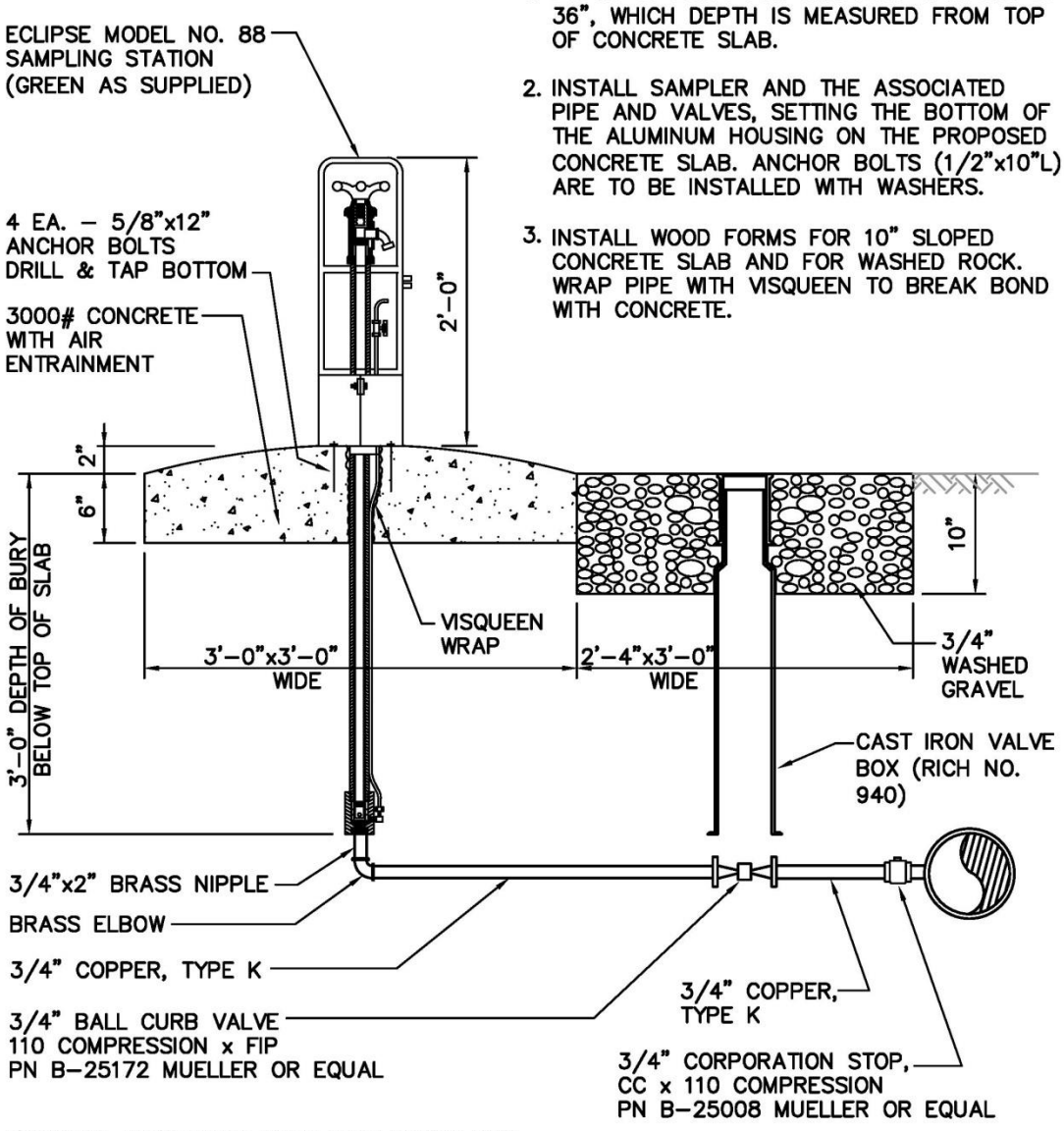
NOTES:

1. DEPTH OF BURY FOR ORDERING SAMPLER IS 36", WHICH DEPTH IS MEASURED FROM TOP OF CONCRETE SLAB.
2. INSTALL SAMPLER AND THE ASSOCIATED PIPE AND VALVES, SETTING THE BOTTOM OF THE ALUMINUM HOUSING ON THE PROPOSED CONCRETE SLAB. ANCHOR BOLTS (1/2"x10"L) ARE TO BE INSTALLED WITH WASHERS.
3. INSTALL WOOD FORMS FOR 10" SLOPED CONCRETE SLAB AND FOR WASHED ROCK. WRAP PIPE WITH VISQUEEN TO BREAK BOND WITH CONCRETE.



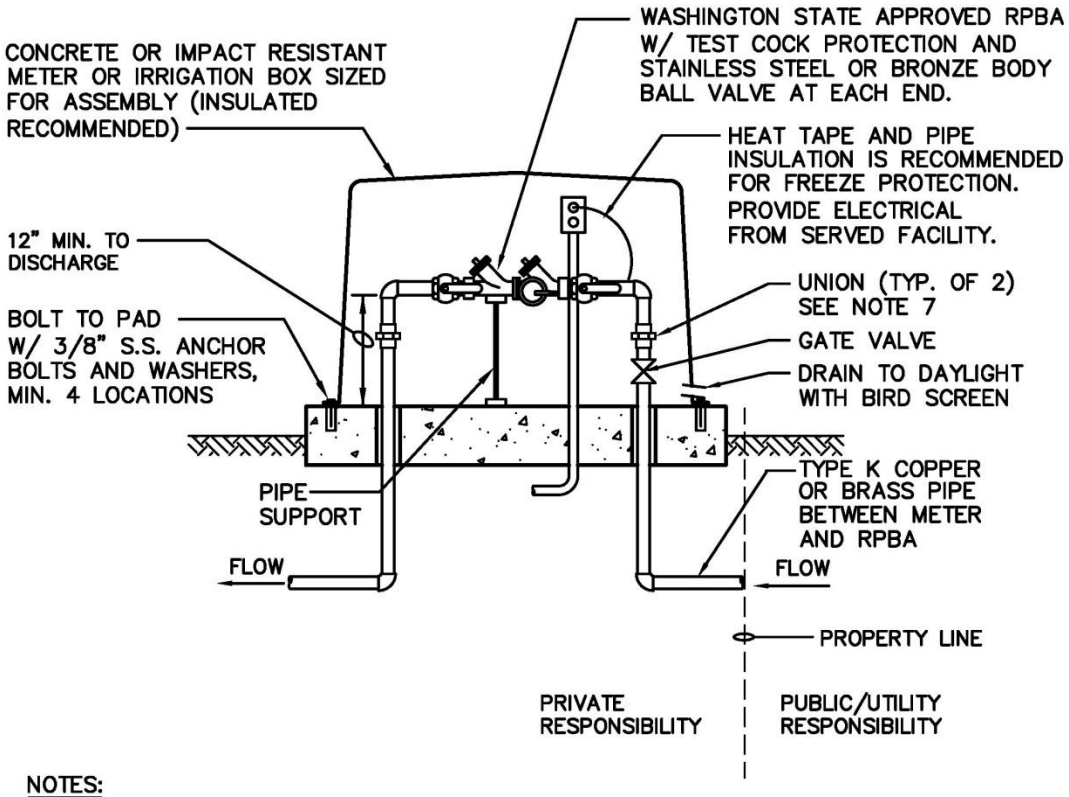
*WHERE APPLICABLE CAST IRON VALVE BOX MAY BE ENCLOSED BY CONCRETE PAD. REQUIRES 3/4"x12" BRASS NIPPLE, IPxIP.

WATER SAMPLING STATION
WATER DISTRIBUTION SYSTEM

CITY OF WHITE SALMON
STANDARD DETAILS

7/18

W–D24



NOTES:

1. BACKFLOW ASSEMBLY SHALL BE SELECTED FROM WASHINGTON STATE DEPARTMENT OF HEALTH CURRENT APPROVED LIST.
2. CONCRETE TO BE 2500 PSI MIX WITH AIR ENTRAINMENT.
3. COMPLETE ALL WORK IN ACCORDANCE WITH STATE, CITY AND MANUFACTURER STANDARDS.
4. SYSTEM SHALL NOT BE PUT INTO SERVICE UNTIL RPBA IS APPROVED BY THE CITY AND TESTED/CERTIFIED BY A WASHINGTON STATE LICENSED TESTER.
5. RPBA IS CONSIDERED PART OF THE PRIVATE SYSTEM AND SHALL BE MAINTAINED BY THE PROPERTY OWNER WITH ANNUAL CERTIFICATION REQUIRED.
6. PRESSURE TEST AND DISINFECT PER A.W.W.A. STANDARDS.
7. DIELECTRIC UNIONS SHALL BE USED TO SEPARATE DISSIMILAR MATERIALS.
8. RPBA BOX SHALL BE LOCATED IMMEDIATELY DOWNSTREAM OF WATER SERVICE BOX PRIOR TO ANY BRANCH CONNECTIONS WITH NO MORE THAN 2' BETWEEN BOXES.

REDUCED PRESSURE BACKFLOW ASSEMBLY – 3/4" TO 2"

CITY OF WHITE SALMON
STANDARD DETAILS

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TECHNICAL SPECIFICATIONS - MEASUREMENT AND PAYMENT

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MEASUREMENT AND PAYMENT

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MEASUREMENT AND PAYMENT

TECHNICAL SPECIFICATIONS

MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.1 Measurement of Quantities

The method of measurement and computations to be used in determination of quantities of materials furnished and of Work performed under the Contract will be those methods generally recognized as conforming to good engineering practices. The Work completed under this Contract will be measured in accordance with the Contract Documents using U.S. Customary Units of Measurement.

1.2 Scope of Payment

A. General

The basis for measurement and payment for all Work performed under this Contract shall be as listed in the "Bid Schedule." Unless the Work to be performed is specifically called out to be measured and paid for in the Bid Schedule, payment for such Work shall be included in other applicable items of the Bid Schedule. There shall be no separate measurement and payment for any such Work not specifically listed in the Bid Schedule.

B. Lump Sum Items

1. Scope

Items listed in the Bid Schedule as lump sum shall be on a lump sum, all required basis. No direct measurement will be made for lump sum bid items. The term "Lump Sum," when used as an item of payment, will mean full compensation for the Work described in the Contract Documents. When a complete structure or structural unit (in effect, "lump sum" Work) is specified as the unit of measurement, the unit will be construed to include all necessary components, fittings, accessories, etc.

2. Schedule of Values

A schedule of values shall be provided for all lump sum values (except mobilization/demobilization) with prices greater than or equal to $5,000, or as requested by the Engineer. This schedule of values for each lump sum item will form the basis for partial payments of these lump sum items. The schedule of values will be acceptable to the Engineer as to the form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work.

C. Unit Price Items

Bid items calling for unit prices show estimated quantities of Work to be performed. These quantities, although shown with as much accuracy as possible, are approximate only and are for bidding purposes only. The Owner reserves the right to increase or decrease the amount of these quantities as may be deemed necessary. Payment to the Contractor shall be made on the quantity of Work actually performed by the Contractor.

D. Scope of Payment and Prices

Payment shall be made at the Contract unit bid or lump sum prices listed in the Bid Schedule. The prices listed therein shall be payment in full for all labor, tools, equipment, materials, superintendence, and incidentals necessary to perform and complete the work, including profit, overhead costs, permit and license fees, royalties, and applicable taxes and fees, etc., which are required to construct respective bid items according to the Contract Documents, including all Work and materials incidental thereto.

E. Payment for Partially Completed Work

Payment for unit bid items and lump sum bid items only partially completed at the end of monthly pay periods shall be based on a percentage of Work completed as determined by the Engineer, unless otherwise specified.

F. Payment for Materials on Hand

Partial payments for materials on hand is not proposed as there is only two partial payments planned (one for the Work and the other for release of retainage after receiving approval from State Agencies).

G. Application for Payment

Application for Payment, with respect to completed Work, shall be made in accordance with this section and applicable portions of the Agreement, Special Project Provisions, and the Owner's Developer Standards.

H. Tools

There will no direct payment for any tools called for in the Specifications or Drawings. Payment for these tools shall be included in other bid items.

I. Trench Excavation and Backfill

Unless specifically listed in the Bid Schedule, there will be no measurement or payment made for general trench excavation, backfill of trenches, including bedding and select

backfill. All costs shall be included in other appropriate bid items listed in the Bid Schedule.

J. Grade Adjustments

Grade adjustments to accommodate existing utilities shall be considered a normal part of the Work and no additional payment will be made for this work when the general location of existing utilities are shown on the Drawings.

K. Repair of Unmarked Utility

Payment for Work performed by the Contractor shall be paid for under the following bid items when listed in the Bid Schedule: "Repair of Unmarked Storm Drain Line" and "Repair of Unmarked Sewer Service Line." When specific repair work is not listed in the Bid Schedule, required repair work will be paid for by an approved Change Order. There shall be no payment for damaged water lines or sewer lines that have been marked by the Owner prior to excavation and are within the four feet specified.

1.3 Payment Items

A. Numbering

The numbering of the payment items listed below may not be the same as the numbering for bid items in the Bid Schedule.

B. Method of Payment – Base Bid

1. Mobilization/Demobilization

a. Measurement for payment for mobilization/demobilization shall be on a lump sum all required basis. There shall be no measurement of payment for this Work.

b. Payment shall be made at the lump sum price stated in the Base Bid for "Mobilization/Demobilization" and shall include bond and insurance costs; supervision; planning; training; coordination; construction staking, project documentation including record drawings, temporary fencing; barricades; signs, lights, and cones; flag persons and such materials, devices, and work for the project safety requirements; traffic control; environmental controls; replacement of any signs or mailboxes; and public convenience that are required by the Conditions of the Contract and may be required during the execution and completion of the Work.

c. Payment shall be based on the following percentage of the Contract (Bid) price of mobilization/demobilization to the original Contract amount.

1) If the Contract price for mobilization/demobilization is 15 percent or less of the original Contract price for the Base Bid, then 75 percent of the Contract price for "Mobilization/Demobilization" will be made on the first payment request, and the remaining 25 percent of the Base Bid Contract price will be paid as part of the final payment request.

2) If the Contract price for "Mobilization/Demobilization" exceeds 15 percent of the original Contract price of the Base Bid, then the amount in excess of 15 percent will be paid as part of the final payment request.

2. Trench Excavation Safety System

a. Measurement for payment for trench excavation safety system shall be on a lump sum basis for all trenches over 4 feet in depth. The type of safety system to be used for the Work is the Contractor's decision and shall not affect payment. There will be no measurement of the work for payment purposes.

b. Payment shall be made on a lump sum price stated in the Base Bid for "Trench Excavation Safety System" and shall include all supervision, planning, equipment, materials, labor, and certifications required for adequate trench safety systems for execution of the Work. Payment shall be made on a partial payment request in proportion to the percentage of water pipe completed to date.

3. Potholing - All Known Connections and Utility Crossings

a. Measurement for payment of potholing - all known connections and utility crossings shall be on a lump sum all required basis. There shall be no measurement of the work for payment purposes.

b. Payment shall be made on a lump sum basis stated in the Base Bid for "Potholing - All Known Connections and Utility Crossings" and shall include equipment, labor, and materials required to uncover and confirm the existing utilities at connection points and known utility crossings.

4. Potholing - Additional

   a. Measurement for payment of potholing - additional to locate unmarked or unknown existing utilities shall be measured on an hourly basis in conformance to the Special Project Provisions. Payment will be made only when prior notice and approval has been given by the Engineer. Any additional potholing work performed by the Contractor without prior written approval of the Engineer will not be paid for.

   b. Payment shall be made at the unit price stated in the Base Bid for "Potholing – Additional" and shall include all equipment, materials, and labor for performing exploratory excavation of existing pipe and other utilities to verify their location and depth.

5. Water Line Demolition and Abandonment

   a. Measurement for payment of water line demolition and abandonment shall be on a lump sum, all required basis. There shall be no measurement of work for payment purposes.

   b. Payment shall be made at the lump sum price stated in the Base Bid for "Water Line Demolition and Abandonment" and shall include all removal and disposal of existing water lines and service lines, appurtenances, backfill, removal and disposal of excavated material, salvaging of existing water meters, valves, fittings and appurtenances, installation of end caps and plugs required for new improvements and abandonment of existing water lines, service lines, valves, and other appurtenances as shown on the Drawings, specified, or as required to complete the Work.

6. Rock Excavation

   a. Measurement for payment for rock excavation in trenches shall be on a cubic yard basis. The pay limits shall be the cubic yardage of solid rock actually excavated within the normal width of the trench and which is actually required for the proper pipe installation. Over-excavated areas will not be included in pay quantities. The pay width shall be limited to 24 inches or 1 foot greater than the outside diameter of the pipe, whichever is greater. The pay depth shall be limited to the actual depth of solid rock excavated to a maximum depth of 4 inches below the pipe bottom. The Engineer shall be notified prior to placing pipe and backfill so that pay quantities may be determined.

b. Payment shall be made at the unit price stated in the Base Bid for "Rock Excavation" and shall include all equipment, materials, and labor for performing rock excavation for installation of piping, structures, and other appurtenances as specified and shown on the Drawings.

7. Repair of Unmarked Storm Drain Line

   a. Measurement and payment for repair of an unmarked storm drain line damaged by the Contractor during construction shall be made on a per each basis.

   b. Payment shall be made at the unit price stated in the Base Bid for "Repair of Unmarked Storm Drain Line" and shall include all materials, labor, equipment, and incidentals required to repair the unmarked storm drain line.

8. Repair of Unmarked Sewer Service Line

   a. Measurement for payment of repair of an unmarked sewer service line damaged by the Contractor during construction shall be made on a per each basis.

   b. Payment shall be made at the unit price stated in the Base Bid for "Repair of Unmarked Sewer Service Line" and shall include all materials, labor, equipment, and incidentals required to repair the unmarked sewer service line.

9. Asphalt Surface Removal and Restoration

   a. Measurement for payment of asphalt surface removal and restoration shall be made on a square yard basis. Area in square yards shall be computed as the length along centerline of pipe times the allowable pay width of surface restoration. Areas which may overlap, either lengthwise or widthwise, will be included only once. Double payment for overlap areas will not be made. The pay width of each type of restoration will be limited to the actual width restored or the pay limit listed in the following table, whichever is less, unless otherwise specifically shown on the Drawings or approved in writing by the Owner.

Trench Depth* Feet	Pay Width Each Side of Centerline (feet)
0-4	2
4-6	3 1/2
6-8	5 1/2
8-10	7 1/2
10-12	9 1/2
12-14	11 1/2
14-16	13 1/2
16-18	15 1/2

* Trench depth is the depth from the ground surface to the invert of the pipe.

b. Any asphalt removal and restoration necessary due to the Contractor's operation, but outside the specified pay widths, shall be done at the Contractor's own expense and at no cost to the Owner. The pay widths listed above shall in no way limit the width of the trench as required for safety. The above widths only define pay limits.

c. Payment for "Asphalt Surface Removal and Restoration" will be made at the unit bid price as stated in the Base Bid and shall include all demolition, saw cutting (initial and final), removal and disposal of existing pavement, furnishing and compacting crushed aggregate base, furnishing and compacting temporary and permanent asphalt concrete, and asphalt concrete joint sealing, and compaction testing as shown on the Drawings and specified.

10. __-In. Water Main

a. Measurement for payment for __-inch water main shall be on a linear foot basis for the various sizes listed in the Base Bid. Lengths of pipe shall be determined by measuring along the centerline of the pipe as installed from one end to the other. The length of the pipe does not include any installed valves along the water main alignment. There is no specified pay depth for water line. The depth shall be as shown on the Drawings and as required in the field for proper installation. No field measurement will be made for depth.

b. Payment shall be made at the unit price stated in the Base Bid for "__-In. Water Main" and shall include the pipe, all fittings, joint and fitting restraints, excavation, backfill (including import aggregate ground surface on NW Garfield Avenue), location wire (on non-metal pipe), compaction, flushing, disinfection, testing, and all other equipment, materials, and labor to complete the Work as specified, and detailed in the Drawings.

11. 1-In. Water Service Line

    a. Measurement for payment of 1-inch water service line shall be on a linear foot basis for the various sizes and methods of installation as listed in the Base Bid. The pay limits for 1-inch water service line shall be from the water main service connection to the inlet side of the meter setter. There is no specified pay depth for water service lines. The depth shall be as specified and as required in the field for proper installation. No field measurements will be made for depth.

    b. Payment shall be made at the unit price stated in the Base Bid for "1-In. Water Service Line" and shall include pipe, fittings, couplings, location wire, trench excavation and dewatering, boring and boring equipment, backfill, compaction, compaction testing, flushing, pipe testing, disinfection, and all other equipment, materials, and labor to complete the Work. Unsuccessful borings will not be paid and are the responsibility of the Contractor.

12. Water Service Line, Main Connection

    a. Measurement for payment of water service line, main connection shall be made on a per each basis.

    b. Payment shall be made on a unit price basis stated in the Base Bid for "Water Service Line, Main Connection" and shall include trench excavation and dewatering, corporation stop, bushings, fittings, backfill, compaction, compaction testing, making the connection, capping existing service lines to be abandoned, flushing, pipe testing, disinfection, and all other equipment, materials, and labor to complete the Work.

13. Water Service Line, Meter Connection

    a. Measurement for payment of water service line, meter connection shall be on the service side at the existing or relocated water meter setter (less than 3 inches) shall be made on a per each basis.

    b. Payment shall be made on a unit price basis stated in the Base Bid for "Water Service Line, Meter Connection" and shall include trench excavation and dewatering, curb stop, bushings, fittings, backfill, compaction, compaction testing, making the connection, capping existing service lines to be abandoned, flushing, pipe testing, disinfection, any permits, and all other equipment, materials, and labor to complete the Work.

14. New Water Meter

    a. Measurement for payment of new water meter shall be measured on a per each basis at locations shown on the Drawings or as approved by the Owner.

    b. Payment shall be made at the unit price stated in the Base Bid for "New Water Meter" and shall include meter box and lid, meter setter, fittings, removal, salvaging and/or disposal of existing meter boxes and fittings, flushing, pipe testing, disinfection, any permits, and all other materials, and installation as required to complete the Work. The water meter shall be provided and installed by the Owner.

15. Garfield Connection

    a. The Garfield connection consists the pipe, wye, valves, transition couplings needed to connect the new 8-inch water main to the existing 8-inch water main alignment on Garfield Avenue as shown in Detail 1/C-501.

    b. Measurement for payment of the Garfield connection shall be on a lump sum all required basis. There shall be no measurement of payment for this Work. All fittings and other items will be paid for under this payment item for the Work shall include pipe and fittings starting from and including the 45-degree bend to the 8-inch diameter wye and all connections, shown in Detail 1/C-501. The work shall also include removal of the new 8-inch gate valve, pipe, and transition coupling used to connect to the existing 8-inch water main and installation of a blind flange on the north side of the 8-inch wye after the new water main is ready to be placed in service. The valve and transition coupling shall be delivered to the Owner.

    c. Payment shall be made at the unit price stated in the Base Bid for "Garfield Connection" and shall include the wye, valves, fittings, transition couplings, new pipe to the transition couplings, appurtenances, and other materials, trench excavation and dewatering, backfill (including import aggregate to the ground surface), compaction, compaction testing, making the connection, thrust restraint and blocks, flushing, pipe testing, disinfection, pipe, valve, and fittings removal, and all other work required for a complete installation.

16. Washington/Michigan Connection

    a. The Washington/Michigan connection consists the pipe, tee, valves, transition couplings needed to connect the new 8-inch water main to the existing 8-inch water main alignment on Washington Street, the existing 6-inch diameter water main alignment from Michigan Avenue, and existing 3-inch diameter water main on Washington Street as shown in Detail 7/C-501.

    b. Measurement for payment of the Washington/Michigan connection shall be on a lump sum all required basis. There shall be no measurement of payment for this Work. All fittings and other items will be paid for under this payment item for the Work starting from and including the 90-degree bend at Station 5+04 to all of the connection points.

    c. Payment shall be made at the unit price stated in the Base Bid for "Washington/Michigan Connection" and shall include the tee, valves, fittings, transition couplings, new pipe to the transition couplings, appurtenances, and other materials, trench excavation and dewatering, backfill, compaction, compaction testing, making the connection, thrust restraint and blocks, flushing, pipe testing, disinfection, pipe, valve, and fittings removal, and all other work required for a complete installation.

    d. If Alternate 1 is selected, a change order shall be executed after Contract Award to change the 8-inch flanged cross shown at Station 5+20 to an 8-inch flanged tee and to eliminate the pipe, valves, and fittings needed for connecting to the existing 3-inch diameter water main as shown in Detail 6/C-501.

17. Non-Potable Crossing, CDF

    a. Measurement for payment for non-potable crossing, CDF shall be on a per each basis. The pay limit is shown on the Drawings. The Contractor shall not be entitled to compensation for non-potable crossing with CDF unless the Owner has authorized this work prior to placement of CDF around the water main. No field measurement will be made for width or depth CDF placed.

    b. Payment shall be made at the unit price stated in the Base Bid for "Non-Potable Crossing, CDF" and shall include CDF, forms, excavation, backfill and all other equipment, materials, and labor to complete the Work.

18. __-In. Gate Valve

    a. Measurement for payment for __-inch gate valve shall be measured on a per each basis.

    b. Payment shall be made at the unit price stated in the Base Bid for "__-In. Gate Valve" and shall include the valve, all connections, appurtenances, location wire, concrete collar, joint restraints, valve boxes, miscellaneous piping, excavation, backfill, compaction, flushing, disinfection, testing, and all other equipment, materials, and labor to complete the Work as specified and detailed in the Drawings.

C. Method of Payment – Alternate 1

1. Mobilization/Demobilization

    a. Measurement for payment for mobilization/demobilization shall be on a lump sum all required basis. There shall be no measurement of payment for this Work.

    b. Payment shall be made at the lump sum price stated in the Alternate 1 for "Mobilization/Demobilization" and shall include bond and insurance costs; supervision; planning; training; coordination; construction staking, project documentation including record drawings, temporary fencing; barricades; signs, lights, and cones; flag persons and such materials, devices, and work for the project safety requirements; traffic control; environmental controls; replacement of any signs or mailboxes; and public convenience that are required by the Conditions of the Contract and may be required during the execution and completion of the Work.

    c. Payment shall be based on the following percentage of the Contract (Bid) price of mobilization/demobilization to the original Contract amount.

        1) If the Contract price for mobilization/demobilization is 15 percent or less of the original Contract price for the Base Bid, then 75 percent of the Contract price for "Mobilization/Demobilization" will be made on the first payment request, and the remaining 25 percent of the Base Bid Contract price will be paid as part of the final payment request.

        2) If the Contract price for "Mobilization/Demobilization" exceeds 15 percent of the original Contract price of the Base Bid, then the amount in excess of 15 percent will be paid as part of the final payment request.

2. Trench Excavation Safety System

   a. Measurement for payment for trench excavation safety system shall be on a lump sum basis for all trenches over 4 feet in depth. The type of safety system to be used for the Work is the Contractor's decision and shall not affect payment. There will be no measurement of the work for payment purposes.

   b. Payment shall be made on a lump sum price stated in the Alternate 1 for "Trench Excavation Safety System" and shall include all supervision, planning, equipment, materials, labor, and certifications required for adequate trench safety systems for execution of the Work. Payment shall be made on a partial payment request in proportion to the percentage of water pipe completed to date.

3. Potholing - All Known Connections and Utility Crossings

   a. Measurement for payment of potholing - all known connections and utility crossings shall be on a lump sum all required basis. There shall be no measurement of the work for payment purposes.

   b. Payment shall be made on a lump sum basis stated in the Alternate 1 for "Potholing - All Known Connections and Utility Crossings" and shall include equipment, labor, and materials required to uncover and confirm the existing utilities at connection points and known utility crossings.

4. Potholing - Additional

   a. Measurement for payment of potholing - additional to locate unmarked or unknown existing utilities shall be measured on an hourly basis in conformance to the Special Project Provisions. Payment will be made only when prior notice and approval has been given by the Engineer. Any additional potholing work performed by the Contractor without prior written approval of the Engineer will not be paid for.

   b. Payment shall be made at the unit price stated in the Alternate 1 for "Potholing – Additional" and shall include all equipment, materials, and labor for performing exploratory excavation of existing pipe and other utilities to verify their location and depth.

5. Water Line Demolition and Abandonment

   a. Measurement for payment of water line demolition and abandonment shall be on a lump sum, all required basis. There shall be no measurement of work for payment purposes.

   b. Payment shall be made at the lump sum price stated in the Alternate 1 for "Water Line Demolition and Abandonment" and shall include all removal and disposal of existing water lines and service lines, appurtenances, backfill, removal and disposal of excavated material, salvaging of existing water meters, valves, fittings and appurtenances, installation of end caps and plugs required for new improvements and abandonment of existing water lines, service lines, valves, and other appurtenances as shown on the Drawings, specified, or as required to complete the Work.

6. Rock Excavation

   a. Measurement for payment for rock excavation in trenches shall be on a cubic yard basis. The pay limits shall be the cubic yardage of solid rock actually excavated within the normal width of the trench and which is actually required for the proper pipe installation. Over-excavated areas will not be included in pay quantities. The pay width shall be limited to 24 inches or 1 foot greater than the outside diameter of the pipe, whichever is greater. The pay depth shall be limited to the actual depth of solid rock excavated to a maximum depth of 4 inches below the pipe bottom. The Engineer shall be notified prior to placing pipe and backfill so that pay quantities may be determined.

   b. Payment shall be made at the unit price stated in Alternate 1 for "Rock Excavation" and shall include all equipment, materials, and labor for performing rock excavation for installation of piping, structures, and other appurtenances as specified and shown on the Drawings.

7. Repair of Unmarked Sewer Main

   a. Measurement and payment for repair of an unmarked sewer main shall be made on a per each basis damaged by the Contractor during construction shall be made on a per each basis.

   b. Payment shall be made at the unit price stated in the Alternate 1 for "Repair of Unmarked Sewer Main" and shall include all materials, labor, equipment, and incidentals required to repair the unmarked storm drain line.

8. Repair of Unmarked Sewer Service Lateral

   a. Measurement for payment of repair of an unmarked sewer service line damaged by the Contractor during construction shall be made on a per each basis.

   b. Payment shall be made at the unit price stated in Alternate 1 for "Repair of Unmarked Sewer Service Line" and shall include all materials, labor, equipment, and incidentals required to repair the unmarked sewer service line.

9. Asphalt Surface Removal and Restoration

   d. Measurement for payment of this bid item shall be made on a square yard basis. Area in square yards shall be computed as the length along centerline of pipe times the allowable pay width of surface restoration. Areas which may overlap, either lengthwise or widthwise, will be included only once. Double payment for overlap areas will not be made. The pay width of each type of restoration will be limited to the actual width restored or the pay limit listed in the following table, whichever is less, unless otherwise specifically shown on the Drawings or approved in writing by the Owner.

Trench Depth* Feet	**Pay Width Each Side of Centerline (feet)**
0-4	2
4-6	3 1/2
6-8	5 1/2
8-10	7 1/2
10-12	9 1/2
12-14	11 1/2
14-16	13 1/2
16-18	15 1/2

* Trench depth is the depth from the ground surface to the invert of the pipe.

   e. Any asphalt removal and restoration necessary due to the Contractor's operation, but outside the specified pay widths, shall be done at the Contractor's own expense and at no cost to the Owner. The pay widths listed above shall in no way limit the width of the trench as required for safety. The above widths only define pay limits.

   f. Payment for "Asphalt Surface Removal and Restoration" will be made at the unit bid price as stated in the Alternate 1 and shall include all demolition, saw-cutting (initial and final), removal and disposal of existing pavement, furnishing and compacting crushed aggregate base, furnishing and compacting temporary and permanent asphalt concrete, and asphalt

concrete joint sealing, and compaction testing as shown on the Drawings and specified.

10. Concrete Sidewalk Removal and Restoration

    a. Measurement for payment of concrete sidewalk removal and restoration shall be measured on a square yard basis for the finished surface area. Measurement will include all sidewalk transitions to match existing sidewalks and all handicapped ramps. The quantity shall be computed by multiplying the measured centerline length times the sidewalk width.

    b. Payment shall be made at the unit price stated in the Alternate 1 for "Concrete Sidewalk Removal and Restoration" and shall include demolition, saw cutting, removal and disposal of concrete sidewalk, furnishing and compaction of aggregate base, expansion joints, and furnishing and placement of concrete sidewalk as specified.

    c. Removal and restoration for concrete driveways will also be measured and paid under this Bid Item.

11. Concrete Curb Removal and Restoration

    a. Measurement for payment of concrete curb removal and restoration will be measured on a linear foot basis for the length of curb satisfactorily replaced. Length shall be measured along the curb to the nearest foot. This measurement will include any drop section for driveway approaches, alleys, handicapped ramps, etc.

    b. Payment shall be made at the unit price stated in Alternate 1 for "Concrete Curb Removal and Restoration" and shall include all demolition, saw cutting, removal and disposal of existing curb, furnishing and compaction of aggregate base, weep holes, expansion joints, driveway cuts, and furnishing and placement of concrete curb as specified, regardless of curb style.

12. __-In. Water Main

    a. Measurement for payment for __-inch water main shall be on a linear foot basis for the various sizes listed in the Base Bid. Lengths of pipe shall be determined by measuring along the centerline of the pipe as installed from one end to the other. The length of the pipe does not include any installed valves along the water main alignment. There is no specified pay depth for water line. The depth shall be as shown on the Drawings and as required in the field for proper installation. No field measurement will be made for depth.

b. Payment shall be made at the unit price stated in Alternate 1 for "__-In. Water Main" and shall include the pipe, all fittings, joint and fitting restraints, excavation, backfill, location wire (on non-metal pipe), compaction, flushing, disinfection, testing, and all other equipment, materials, and labor to complete the Work as specified, and detailed in the Drawings.

13. 1-In. Water Service Line

a. Measurement for payment of 1-inch water service line shall be on a linear foot basis for the various sizes and methods of installation as listed in the Base Bid. The pay limits for 1-inch water service lines shall be from the water main service connection to the inlet side of the meter setter. There is no specified pay depth for water service lines. The depth shall be as specified and as required in the field for proper installation. No field measurements will be made for depth.

b. Payment shall be made at the unit price stated in the Alternate 1 for "1-In. Water Service Line" and shall include pipe, fittings, couplings, location wire, trench excavation and dewatering, boring and boring equipment, backfill, compaction, compaction testing, flushing, pipe testing, disinfection, and all other equipment, materials and labor to complete the Work. Unsuccessful borings will not be paid and are the responsibility of the Contractor.

14. Water Service Line, Main Connection

a. Measurement for payment of water service line, main connection shall be made on a per each basis.

b. Payment shall be made on a unit price basis stated in Alternate 1 for "Water Service Line, Main Connection" and shall include trench excavation and dewatering, corporation stop, bushings, fittings, backfill, compaction, compaction testing, making the connection, capping existing service lines to be abandoned, flushing, pipe testing, disinfection, and all other equipment, materials, and labor to complete the Work.

15. Water Service Line, Meter Connection

a. Measurement for payment of water service line, meter connection shall be on the service side at the existing or relocated water meter setter (less than 3 inches) shall be made on a per each basis.

b. Payment shall be made on a unit price basis stated in Alternate 1 for "Water Service Line, Meter Connection" and shall include trench

excavation and dewatering, curb stop, bushings, fittings, backfill, compaction, compaction testing, making the connection, capping existing service lines to be abandoned, flushing, pipe testing, disinfection, any permits, and all other equipment, materials, and labor to complete the Work.

16. New Water Meter

    a. Measurement for payment of new water meter shall be measured on a per each basis at locations shown on the Drawings or as approved by the Owner.

    b. Payment shall be made at the unit price stated in Alternate 1 for "New Water Meter" and shall include meter box and lid, meter setter, fittings, removal, salvaging and/or disposal of existing meter boxes and fittings, flushing, pipe testing, disinfection, any permits, and all other materials, and installation as required to complete the Work. The water meter shall be provided and installed by the Owner.

17. Non-Potable Crossing, CDF

    a. Measurement for payment for non-potable crossing, CDF shall be on a per each basis. The pay limit is shown on the Drawings. The Contractor shall not be entitled to compensation for non-potable crossing with CDF unless the Owner has authorized this work prior to placement of CDF around the water main. No field measurement will be made for width or depth CDF placed.

    b. Payment shall be made at the unit price stated in the Alternate 1 for "Non-Potable Crossing, CDF" and shall include CDF, forms, excavation, backfill and all other equipment, materials, and labor to complete the Work.

18. __-In. Gate Valve

    a. Measurement for payment for __-inch gate valve shall be measured on a per each basis.

    b. Payment shall be made at the unit price stated in the Alternate 1 for "__-In. Gate Valve" and shall include the valve, all connections, appurtenances, location wire, concrete collar, joint restraints, valve boxes, miscellaneous piping, excavation, backfill, compaction, flushing, disinfection, testing, and all other equipment, materials, and labor to complete the Work as specified and detailed in the Drawings.

19. Fire Hydrant and Auxiliary Valve

    a. Measurement for payment of fire hydrant and auxiliary valve shall be made on a per each basis.

    b. Payment shall be made at the unit price stated in the Alternate 1 for "Fire Hydrant and Auxiliary Valve" and shall include the fire hydrant, auxiliary valve and valve box, Storz adapter, thrust blocking, joint restraints, excavation, backfill, connections, concrete collar, blocking, and related work for a complete installation as shown on the Drawings and in Detail W-D3. The pipe between the main line and hydrant is included in the water line bid item and is not a part of this item.

20. Blowoff Assembly

    a. Measurement for payment of the new blowoff assembly shall be on a lump sum all required basis. There shall be no measurement of the work for payment purposes.

    b. Payment shall be made at the unit price stated in Alternate 1 for "Blowoff Assembly" and shall include the 2-inch pipe and fittings, meter box, excavation, backfill, compaction, surface restoration, flushing, testing, and all other equipment, materials, and labor to complete the Work as specified, and shown in Detail W-D9.

1.4 Bid Quantities

It shall be clearly understood that actual quantities shown in the Bid Schedule are estimates only and may vary significantly from those shown in the Bid. The quantities shown are only to establish unit prices. The Owner shall have the option of decreasing or increasing the depth of the well and increasing or decreasing the depth of the hole to be cased. Modified Work, if required, will be performed by Change Order utilizing unit prices outlined in the Bid. Should additional work be authorized, additional contract time may be appropriate and shall be requested by the Contractor.

PART 2 - MATERIALS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

DRAWINGS

Bound Separately