

**TECHNICAL SPECIFICATIONS**



**Pipeline Relocation at Henson Road Project**

**Project #CP14018**

**ISSUED FOR BIDDING**

**September 9, 2025**

**DISTRICT OFFICE**

1415 Freeway Drive  
Mount Vernon, WA 98273  
(360) 424-7104 -- Telephone  
(360) 424-8764 -- Facsimile

**DISTRICT OFFICIALS**

Commission

Andrew Miller, President  
Corrin Hamburg, Vice-President  
Joe Linquist, Secretary

General Manager

George Sidhu, P.E.

Engineering Manager

Mark C. Handzlik, P.E.

Operations Manager



Mike Fox



**SECTION 00 01 05  
CERTIFICATIONS PAGE**

**PIPELINE RELOCATION AT HENSON ROAD PROJECT**

These specifications and design drawings for the **Pipeline Relocation at Henson Road Project** have been prepared under the direction of the following Registered Professional Engineers.

<p><b>Erik O. Andersen, P.E.</b></p> <p>Geosyntec Consultants, dba Aspect Consulting 907 Harris Street, Suite 301 Bellingham, WA 98225</p> <p>Sections: 310000, 311000, 312300, 312319, 312500, 320130, 330505, 330507.13, 330531.19.</p>	 <p>08/19/2025</p>
<p><b>Mark Handzlik, P.E.</b></p> <p>Skagit PUD 1415 Freeway Drive Mount Vernon, WA 98273</p> <p>Sections: Project Manual less Division 33</p>	 <p>09/02/2025</p>

**SECTION 00 01 10  
TABLE OF CONTENTS**

**PROCUREMENT AND CONTRACTING REQUIREMENTS GROUP**

**SECTION 00 11 13 - INVITATION TO BID**

Invitation to Bid	00 11 13 - 1
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**SECTION 00 21 13 - INSTRUCTIONS TO BIDDERS**

General	00 21 13 - 1
Location	00 21 13 - 1
Examination of Plans, Specifications, and Site	00 21 13 - 1
Bid Documents	00 21 13 - 2
Bids	00 21 13 - 2
Bid Deposit	00 21 13 - 2
Evaluation of Bids and Award of Contract	00 21 13 - 2
Responsibility Criteria	00 21 13 - 3
Mandatory Responsibility Criteria	00 21 13 - 3
Subcontractor Responsibility Criteria	00 21 13 - 4
Protests	00 21 13 - 4
Contract Time	00 21 13 - 4
Failure to Execute Contract and Furnish Bond	00 21 13 - 4
Corrections, Interpretations, and Addenda	00 21 13 - 4
Subcontractors & Suppliers	00 21 13 - 5
Bidder Qualifications	00 21 13 - 5
Permits	00 21 13 - 5
Federal Funding Requirements	00 21 13 - 5
Pre-Bid Meeting	00 21 13 - 9
Mandatory Bidder Responsibility Checklist	00 21 13 - 10
Subcontractor Responsibility Checklist	00 21 13 - 11
Certification of Compliance with Wage Payment Statues	00 21 13 - 12

**SECTION 00 40 00 - PROCUREMENT FORMS AND SUPPLEMENTS**

Bidder's Checklist	00 40 00 - 1
Bid to Commission	00 40 00 - 2
Bid Schedule	00 40 00 - 3
Bid Proposal Signature Sheet	00 40 00 - 5
Subcontractor List – RCW 39.30.060 Form	00 40 00 - 6
Statement of Bidder's Qualifications	00 40 00 - 8
Bid Bond	00 40 00 - 9

**SECTION 00 52 00 – AGREEMENT FORMS**

Agreement	00 52 00 – 1
Indemnification Agreement	00 52 00 – 3
Certificate of Owner's Attorney	00 52 00 – 4
Performance and Payment Bond	00 52 00 – 5

**SECTION 00 72 00 - GENERAL CONDITIONS**

General Conditions 00 72 00 - 1

**SECTION 00 73 00 – SUPPLEMENTARY CONDITIONS**

Table of Contents		00 73 00 - 2	
1	Order of Precedence	00 73 00 - 2	
2	Section 1-01.3	Definitions (APWA)	00 73 00 - 2
3	Section 1-03	Award and Execution of Contract	00 73 00 - 2
3.1	Section 1-03.4	Contract Bond	00 73 00 - 2
3.2	Section 1-03.8	Award and Execution of Contract	00 73 00 - 3
4	Section 1-05	Control of Work	00 73 00 - 3
4.1	Section 1-05.0	Control of Work – General	00 73 00 - 3
4.2	Section 1-05.4	Conformance With and Deviations From Plans and Stakes	00 73 00 - 3
4.3	Section 1-05.10	Guaranties (APWA)	00 73 00 - 3
5	Section 1-07	Legal Relations and Responsibilities	00 73 00 - 4
5.1	Section 1-07.1	Owner Safe Access	00 73 00 - 4
5.2	Section 1-07.6	Permits and Licenses	00 73 00 - 4
5.3	Section 1-07.9(1)	Prevailing Wages	00 73 00 - 4
5.4	Section 1-07.18	Public Liability and Property Insurance	00 73 00 - 4
5.5	Section 1-07.26	Personal Liability of Public Officers	00 73 00 - 4
6	Section 1-08	Prosecution and Progress	00 73 00 - 5
6.1	Section 1-08.5	Time for Completion (Contract Time) (APWA)	00 73 00 - 5
6.2	Section 1.08.9	Liquidated Damages	00 73 00 - 5
6.3	Section 1.08.10(2)	Termination for Public Convenience	00 73 00 - 5
7	Section 1-09	Measurement and Payment	00 73 00 - 5
7.1	Section 1-09.4	Equitable Adjustment	00 73 00 - 5
7.2	Section 1-09.6	Force Account	00 73 00 - 5
7.3	Section 1-09.11(3)	Time Limitations and Jurisdiction	00 73 00 - 5
7.4	Section 1-09.13(3)	Claims Resolution	00 73 00 - 5
7.5	Section 1-09.14	Claims Against Contractor’s Retainage and/or Public Contract Bond	00 73 00 – 6
8	Section 1-10	Temporary Traffic Control	00 73 00 - 6
8.1	Section 1-10.2(2)	Traffic Control Plans	00 73 00 - 6

**SPECIFICATIONS GROUP**

**DIVISION 01 - GENERAL REQUIREMENTS**

01 11 10	Summary of Work
01 22 00	Measurement and Payment
01 31 19	Project Meetings
01 32 00	Construction Progress Documentation
01 33 00	Submittal Procedures
01 35 29	Health, Safety, and Environmental Response Procedures
01 41 00	Regulatory Requirements
01 42 13	Abbreviations and Acronyms
01 42 19	Reference Standards
01 57 19	Temporary Environmental Controls
01 66 00	Product Storage and Handling Requirements

- 01 71 13 Mobilization
- 01 71 33.11 Protection of Adjacent Utilities
- 01 77 00 Closeout Procedures

**DIVISION 31 - EARTHWORK**

- 31 10 00 Site Clearing
- 31 23 00 Excavation and Fill
- 31 23 19 Dewatering
- 31 25 00 Erosion and Sedimentation Control

**DIVISION 32 - EXTERIOR IMPROVEMENTS**

- 32 01 30 Operation and Maintenance of Site Improvements

**DIVISION 33 - UTILITIES**

- 33 05 05 Buried Piping Installation
- 33 05 07.13 Utility Directional Drilling
- 33 05 31.19 Fusible Polyvinyl Chloride Pipe
- 33 14 13 Public Water Utility Distribution Piping
- 33 14 19 Valves and Hydrants for Water Utility Service
- 33 14 19.11 Butterfly Valves

**APPENDICES**

- Appendix A Permits
- Appendix B Geotechnical Engineering Report
- Appendix C Inadvertent Discovery Plan
- Appendix E Utility Easement AF202407120075

**SECTION 00 11 13**  
**INVITATION TO BID**

**INVITATION TO BID**

Notice is hereby given that Public Utility District No. 1 of Skagit County (Skagit PUD) will receive sealed Bids for the **Pipeline Relocation at Henson Road Project**. Each bid shall be placed in a sealed envelope and shall be mailed or delivered to Skagit PUD's office, Attn: Catherine Price, Contract Coordinator, 1415 Freeway Drive, Mount Vernon, Washington 98273, to arrive no later than 11:00 AM, October 7, 2025. All complete bids will be opened and read immediately following.

**Pipeline Relocation at Henson Road Project**

Installation of approximately 420 linear feet of 12-inch fused PVC C900 carrier water pipeline by horizontal direction drill under Martha Creek west of Henson Road, approximately 700 feet north of Anderson Road, City of Mount Vernon, State of Washington. Work also includes valves, fittings, traffic control, and pressure and purity testing of the pipe, along with incidentals and appurtenances, such as end seals, grouting, dewatering, and preparation for owner connection, in estimated quantities identified in the Bid Proposal.

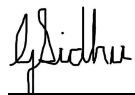
A Pre-Bid Meeting will be held at 11:00 AM on Tuesday, September 23, 2025, in the Aqua Room of Skagit PUD's Mount Vernon office complex at 1415 Freeway Drive, Mount Vernon, Washington.

An unofficial bid set can be viewed at Skagit PUD's office located at 1415 Freeway Drive, Mount Vernon, Washington 98273, or on PUD's website [www.SkagitPUD.org](http://www.SkagitPUD.org). Construction plans, specifications, addenda, and plan holders list for this project can be viewed or purchased on-line through Builders Exchange of Washington, Inc., at <http://www/bxwa.com>; 2607 Wetmore Avenue, Everett, WA 98201-2929, (425) 258-1303, Fax (425) 259-3832. Click on: "bxwa.com"; "Posted Projects"; "Public Works", "PUD #1 of Skagit County" and "Projects Bidding". (Note: Bidders are encouraged to "Register as a Bidder" in order to receive automatic e-mail notification of future addenda and to be placed on the "Bidders List". This service is provided free of charge to Prime Bidders, Subcontractors and Vendors bidding this project. Contact Builders Exchange of Washington at (425) 258-1303, should you require further assistance). Contract documents will be available on or after September 9, 2025.

This project is partially funded by a Local and Community Projects Grant through the Washington State Department of Commerce. Skagit PUD is an equal opportunity employer. Procurement and contracts are administered without discrimination based on race, color, sex, or national origin. Disadvantaged Business Enterprises have an equal opportunity to compete for and participate in the performance of all agreements, contracts, and subcontracts awarded by Skagit PUD or its contractors, and are encouraged to submit.

Point of Contact: Catherine Price, Contract Coordinator

PUBLIC UTILITY DISTRICT NO. 1 OF SKAGIT COUNTY



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George Sidhu, P.E., General Manager

**SECTION 00 21 13**  
**INSTRUCTIONS TO BIDDERS**

## **INSTRUCTIONS TO BIDDERS**

### **1.1 GENERAL**

The Pipeline Relocation at Henson Road Project consists of the following:

Installation of approximately 420 linear feet of 12-inch fused PVC C900 carrier water pipeline by horizontal direction drill under Martha Creek, west of Henson Road, approximately 700 feet north of Anderson Road, City of Mount Vernon, State of Washington. Work also includes valves, fittings, traffic control, and pressure and purity testing of the pipe, along with incidentals and appurtenances, such as end seals, grouting, dewatering, and preparation for owner connection, in estimated quantities identified in the Bid Proposal.

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### **2.1 LOCATION**

The location for the project is:

Henson Road, approximately 700 feet north of Anderson Road, City of Mount Vernon, within the County of Skagit, State of Washington as shown on the Contract Drawings.

### **2.2 WAGES**

Work under this contract is subject to Washington State Prevailing Wage Laws RCW 39.12

### **2.2 APPRENTICESHIP LABOR REQUIREMENT**

For projects of which the estimated cost is more than \$2 million, the Contractor is required to utilize apprenticeship labor in accordance with RCW 39.04.300-320.

### **3.1 EXAMINATION OF PLANS, SPECIFICATIONS, AND SITE**

Bidders shall satisfy themselves as to construction conditions by personal examination of the Plans, Specifications, other Bid Documents, and from attendance at applicable Pre-Bid Meetings. Bidders shall carefully correlate their observations with the requirements of the Contract Documents and shall otherwise satisfy themselves regarding the expense and difficulties associated with performing the Work and shall fully account for it in their bids. The submission of a bid shall constitute a representation of compliance by the Bidder with this requirement.

### **3.2 BID DOCUMENTS**

The Bid Documents for the Project include the following:

1. Project Manual including general and technical specifications and addenda issued through bidding
2. Washington State Department of Transportation Standard Specifications.
3. Contract Drawings.
4. Skagit PUD Design Standards and Details.
5. Permits.

### **4.1 BIDS**

The project will be awarded based on the lowest responsive responsible Bidder.

Bids shall be made on the forms included herewith and shall be addressed to the Public Utility District No. 1 of Skagit County, 1415 Freeway Drive, Mount Vernon, Washington 98273. Each Bid shall be placed in a sealed envelope and shall be mailed or delivered to the Public Utility District No. 1 of Skagit County, to arrive no later than 11:00 AM on October 7, 2025. All complete Bids will be opened and publicly read aloud immediately following. No Bid may be withdrawn after the time set for the Bid opening or before award and execution of the contract unless the Owner does not award the contract within sixty (60) calendar days after the opening of Bids.

### **5.1 BID DEPOSIT**

As a guarantee of good faith and as required by law, each Bid shall be accompanied by a Bid Deposit in the form of certified check, cashier's check, postal money order, or surety bond payable to the order of the "Public Utility District No. 1 of Skagit County" for an amount not less than 5 percent of the total amount of the Bid, including all potential additions and alternatives, but not including sales tax. The Bid Deposits of the three lowest Bidders will be retained until the Contract between the successful Bidder and the Owner have been entered into and a Performance and Payment Bond in an amount of one hundred percent (100%) of the contract price has been filed as required under these Contract Documents. The Bid Deposits of each other Bidder will be returned as soon as it is determined that they are not one of the three lowest Bidders.

### **6.1 EVALUATION OF BIDS AND AWARD OF CONTRACT**

The Owner will award the Bid to the lowest responsive, responsible Bidder based on the Total Bid Amount. In the case of a conflict between the combined Total Bid Amount of bid schedule as stated numerically and as stated in words, the words shall take precedence.

In the case of a conflict between the quantity, unit price and unit price extension for a given bid item, the Owner will adjust the unit price extensions based on the unit price. If the Bidder does not provide a unit price or a unit price extension for every bid item, the bid will be considered non-responsive.

The right is reserved by the Owner to waive any and all informality in the Bids, to reject any or all Bids, including non-responsive, unbalanced, or conditional bids, to reject any or all schedules, to re-advertise for new Bids, or to otherwise carry out the Work. The Owner reserves the right to reject any bid that is materially unbalanced to the Owner's potential detriment. The Owner further reserves the right to delete portions of the Work.

Bids which are incomplete, or which are conditioned in any way, or which contain erasures, alterations, or items not called for in the Bid Form, or which are not in conformity with the law or these Instructions, may be rejected as non-responsive.

## **6.2 RESPONSIBILITY CRITERIA**

Before the Owner awards the contract, state law is used to determine that responsible contractors and subcontractors perform the work. Bidder responsibility is determined by the Bidder successfully demonstrating its ability to satisfy the mandatory responsibility criteria and any project specific criteria established by the Owner.

To comply with the responsibility criteria for this bid, a Bidder must provide sufficient information as required. If the Bidder fails to provide the requested information within the time and manner specified in these bid documents, the Owner reserves the option to determine responsibility upon any available information related to any supplemental criteria and/or may find the Bidder not responsible. If the lowest Bidder is found not responsible, the Owner reserves the right to award to the next low Bidder without re-advertising or rebidding the project.

## **6.3 MANDATORY RESPONSIBILITY CRITERIA**

It is the intent of Owner to award a contract to the low responsible bidder. Before award, the bidder must meet the following Bidder responsibility criteria to be considered a responsible bidder. The Bidder may be required by the Owner to submit documentation demonstrating compliance with the criteria. The Bidder must:

1. Have a current certificate of registration as a contractor in compliance with chapter 18.27 RCW, which must have been in effect at the time of bid submittal.
2. Have a current Washington Unified Business Identifier (UBI) number.
3. If applicable
  - a) Have Industrial Insurance (workers' compensation) coverage for the bidder's employees working in Washington, as required in Title 51 RCW;
  - b) Have a Washington Employment Security Department number, as required in Title 50 RCW;
  - c) Have a Washington Department of Revenue state excise tax registration number, as required in Title 82 RCW.
4. Not be disqualified from bidding on any public works contract under RCW 39.06.010 or 39.12.065(3).

5. Until December 31, 2013, not violated more than one time the off-site, prefabricated, non-standard, project specific items reporting requirements of RCW 39.04.370.
6. For public works projects subject to the apprenticeship utilization requirements of RCW 3.0.04.320, not have been found out of compliance by the Washington state apprenticeship and training council for working apprentices out of ratio, without appropriate supervision, or outside their approved work processes as outlined in their standards of apprenticeship under chapter 49.04 RCW for the one-year period immediately preceding the first date of advertising for the project.
7. Prior to the award date, the Contractor shall produce evidence of having received by the Department of Labor & Industries training on prevailing wage and public works requirements or are exempt under RCW 39.04.350.
8. Contractors shall submit the attached Certificate of Compliance with Wage Payment Statutes prior to award per RCW 39.04.350.

#### **6.4 SUBCONTRACTOR RESPONSIBILITY CRITERIA**

Before award, the Bidder shall verify responsibility criteria for each first-tier subcontractor the Contractor hires and a subcontractor of any tier subcontractor that hires other subcontractors must verify responsibility criteria for each of its subcontractors. Verification shall occur at the time of subcontract execution and shall include that each subcontractor meets the responsibility criteria listed in Section 6.03 and possesses an electrical contractor license (if required by RCW Chapter 19.28) or an elevator contractor license (if required by RCW Chapter 70.87). These verification requirements, as well as the responsibility criteria, shall be included in each of the Contractor's subcontracts of any tier. The Contractor shall certify that this verification is complete prior to contract close-out.

#### **6.5 PROTESTS**

Any Bidders wanting to file a bid protest shall submit a formal protest consisting of a written letter signed by an authorized official of the company within 48 hours of the bid opening. The protest will be reviewed by the Owner and if warranted, a meeting will be held with the Owner, the low Bidder and the Bidder filing the protest within 4 Calendar days to review the protest. A decision on the protest will be made by the Owner within 7 Calendar days.

#### **6.6 CONTRACT TIME**

The Contract completion date is an essential part of the Contract, and it will be necessary for each Bidder to satisfy the Owner of its ability to complete the Work within the time allowed. Work shall be substantially complete in 45 calendar days.

#### **7.1 FAILURE TO EXECUTE CONTRACT AND FURNISH BOND**

In the event the successful Bidder fails to furnish a Payment and Performance Bond complying with this Invitation for Bids, and fails to sign the contract within ten (10) calendar days after notification by the Owner, an amount equal to 5 percent of the amount of the Bid shall be forfeited to the Owner as liquidated damages, and it is agreed that this said sum is a fair estimate of the amount of damages the Owner would sustain in the event that the Bidder failed to enter into the Contract or furnish the required Bond. Said liquidated damages shall be paid from the Bid Deposit submitted with the Bid. Other Bids will then be reconsidered for award by the Owner.

## **8.1 CORRECTIONS, INTERPRETATIONS, AND ADDENDA**

If Bidders find or observe any omissions, discrepancies, or need for interpretations of the Bid Documents, they shall bring such facts in writing to the attention of the Owner. Written addenda to clarify questions which arise will then be issued. Interpretations or explanations of the Contract Documents will be in the form of written addenda only. Oral statements by the Owner, Engineer, or other representative of the Owner whether made before or after award of the Contract shall in no way modify the Contract Documents.

Any requests for information or interpretation of the Bid Documents shall be made by phone or email to Catherine Price, Contract Coordinator (360) 848-4472 or Price@SkagitPUD.org. All such requests shall be received no later than three (3) days prior to bid opening.

## **10.1 SUBCONTRACTORS & SUPPLIERS**

In compliance with RCW 39.30.060 for all projects estimated to cost \$1 million or more, all Bidders must complete and submit the Subcontractors List form provided in the Bid Proposal Forms. The Subcontractors List form must be submitted with the Bid. The failure of a Bidder to submit the names of such subcontractors, or to name itself to perform such work, or the naming of two or more firms (subcontractors or Bidders) to perform the same work shall render the Bidder's bid non-responsive and, therefore, void.

## **11.1 BIDDER QUALIFICATIONS**

All Bidders shall submit with their bids evidence of sufficient qualifications and experience for the work as specified in Bid Proposal Forms. The Owner will utilize the information submitted for the purpose of determining the responsibility of the low Bidder for determining eligibility for award.

## **12.1 PERMITS**

The Owner has obtained or will obtain the permits and approvals required for the Work as listed below. The Contractor shall comply with the provisions of all permits, approvals, and easements. All other required permits or licenses (i.e., right of way permits) shall be the responsibility of the Contractor. Below is a list of the Owner-obtained permits and approvals, which are included for reference in Appendix A.

- Washington State Department of Fish and Wildlife (WDFW) Hydraulic Project Approval (HPA)
- City of Mount Vernon Critical Areas Permit
- City Mount Vernon Construction Right of Way Permit

Should the Contractor procure additional formal or informal access easements, rights of entry, Work or storage areas, or enter private property, he/she shall obtain and file all such private property agreements with the Owner prior to such access. The Contractor shall provide to the Owner property release forms for all Work or access on private property.

## **13.1 PRE-BID MEETING**

A Pre-Bid Meeting will be held at 11:00 AM on September 23, 2025, in the Aqua Room of Skagit PUD's Mount Vernon office complex.

**END OF SECTION**

### MANDATORY BIDDER RESPONSIBILITY CHECKLIST

The following checklist may be used by Owners in documenting that a Bidder meets the mandatory bidder responsibility criteria. It is suggested that Owners print a copy of documentation from the appropriate website to include with this checklist in the contract file.

<b>General Information</b>	
Project Name:	Project Number:
Bidder's Business Name:	Bid Submittal Deadline:
<b>Contractor Registration –</b> <a href="https://fortress.wa.gov/lni/bbip/">https://fortress.wa.gov/lni/bbip/</a>	
License Number:	Status: Active: Yes <input type="checkbox"/> No <input type="checkbox"/>
Effective Date (must be effective on or before Bid Submittal Deadline):	Expiration Date:
Is Bidder on Infraction List?	Yes <input type="checkbox"/> No <input type="checkbox"/>
<b>Current UBI Number –</b> <a href="http://dor.wa.gov/content/doingbusiness/registermybusiness/brd/">http://dor.wa.gov/content/doingbusiness/registermybusiness/brd/</a>	
UBI Number:	Account Closed: Open <input type="checkbox"/> Closed <input type="checkbox"/>
<b>Industrial Insurance Coverage –</b> <a href="https://fortress.wa.gov/lni/crpsi/MainMenu.aspx">https://fortress.wa.gov/lni/crpsi/MainMenu.aspx</a>	
Account Number:	Account Current: Yes <input type="checkbox"/> No <input type="checkbox"/>
<b>Employment Security Department Number –</b>	
Employment Security Department Number:	
<ul style="list-style-type: none"> <li>• Has Bidder provided account number on the Bid Form? Yes <input type="checkbox"/> No <input type="checkbox"/></li> <li>• And/or have you asked the Bidder for documentation from Employment Security Department on account number? Yes <input type="checkbox"/> No <input type="checkbox"/></li> </ul>	
<b>State Excise Tax Registration Number –</b> <a href="http://dor.wa.gov/content/doingbusiness/registermybusiness/brd/">http://dor.wa.gov/content/doingbusiness/registermybusiness/brd/</a>	
Tax Registration Number:	Account Closed: Open <input type="checkbox"/> Closed <input type="checkbox"/>
<b>Not Disqualified from Bidding –</b> <a href="http://www.lni.wa.gov/TradesLicensing/PrevWage/AwardingAgencies/DebarredContractors/default.asp">http://www.lni.wa.gov/TradesLicensing/PrevWage/AwardingAgencies/DebarredContractors/default.asp</a>	
Is the Bidder listed on the "Contractors Not Allowed to Bid" list of the Department of Labor and Industries? Yes <input type="checkbox"/> No <input type="checkbox"/>	
<b>Checked by:</b>	
Name of Employee:	Date:

### SUBCONTRACTOR RESPONSIBILITY CHECKLIST

The following checklist may be used by Contractors and Subcontractors in documenting that a subcontractor of any tier meets the subcontractor responsibility criteria. It is suggested that Contractors and Subcontractors print a copy of documentation from the appropriate website to include with this checklist in their contract file.

<b>General Information</b>	
Project Name:	Project Number:
Subcontractor's Business Name:	Subcontract Execution Date:
<b>Contractor Registration –</b> <a href="https://fortress.wa.gov/lni/bbip/">https://fortress.wa.gov/lni/bbip/</a>	
License Number:	Status: Active: Yes <input type="checkbox"/> No <input type="checkbox"/>
Effective Date (must be effective on or before Subcontract Bid Submittal Deadline):	Expiration Date:
<b>Current UBI Number –</b> <a href="http://dor.wa.gov/content/doingbusiness/registermybusiness/brd/">http://dor.wa.gov/content/doingbusiness/registermybusiness/brd/</a>	
UBI Number:	Account Closed: Open <input type="checkbox"/> Closed <input type="checkbox"/>
<b>Industrial Insurance Coverage –</b> <a href="https://fortress.wa.gov/lni/crpsi/MainMenu.aspx">https://fortress.wa.gov/lni/crpsi/MainMenu.aspx</a>	
Account Number:	Account Current: Yes <input type="checkbox"/> No <input type="checkbox"/>
<b>Employment Security Department Number –</b>	
Employment Security Department Number:	
<ul style="list-style-type: none"> <li>• Has Subcontractor provided account number on the Bid Form? Yes <input type="checkbox"/> No <input type="checkbox"/></li> <li>• And/or have you asked the Subcontractor for documentation from Employment Security Department on account number? Yes <input type="checkbox"/> No <input type="checkbox"/></li> </ul>	
<b>State Excise Tax Registration Number –</b> <a href="http://dor.wa.gov/content/doingbusiness/registermybusiness/brd/">http://dor.wa.gov/content/doingbusiness/registermybusiness/brd/</a>	
Tax Registration Number:	Account Closed: Open <input type="checkbox"/> Closed <input type="checkbox"/>
<b>Not Disqualified from Bidding –</b> <a href="http://www.lni.wa.gov/TradesLicensing/PrevWage/AwardingAgencies/DebarredContractors/default.asp">http://www.lni.wa.gov/TradesLicensing/PrevWage/AwardingAgencies/DebarredContractors/default.asp</a>	
Is the Subcontractor listed on the "Contractors Not Allowed to Bid" list of the Department of Labor and Industries? Yes <input type="checkbox"/> No <input type="checkbox"/>	
<b>Contractor Licenses –</b> <a href="https://fortress.wa.gov/lni/bbip/">https://fortress.wa.gov/lni/bbip/</a>	
<u>Electrical:</u> If required by Chapter 19.28 RCW, does the Subcontractor have an Electrical Contractor's License? Yes <input type="checkbox"/> No <input type="checkbox"/>	<u>Elevator:</u> If required by Chapter 70.87 RCW, does the Subcontractor have an Elevator Contractor's License? Yes <input type="checkbox"/> No <input type="checkbox"/>
<b>Checked by:</b>	
Name of Employee:	Date:

**CERTIFICATION OF COMPLIANCE WITH WAGE PAYMENT STATUTES**

The bidder hereby certifies that, within the three-year period immediately preceding the bid solicitation date of August 26, 2025, the bidder is not a “willful” violator, as defined in RCW 49.48.082, of any provision of chapters 49.46, 49.48, or 49.52 RCW, as determined by a final and binding citation and notice of assessment issued by the Department of Labor and Industries or through a civil judgment entered by a court of limited or general jurisdiction.

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

\_\_\_\_\_  
Bidder

\_\_\_\_\_  
Signature of Authorized Official\*

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

\_\_\_\_\_  
City

\_\_\_\_\_  
State

*Check One:*

Individual  Partnership  Joint Venture  Corporation

State of Incorporation, or if not a corporation, State where business entity was formed:

\_\_\_\_\_

If a co-partnership, give firm name under which business is transacted:

\_\_\_\_\_

*\* If a corporation, proposal must be executed in the corporate name by the president or vice-president (or any other corporate officer accompanied by evidence of authority to sign). If a co-partnership, proposal must be executed by a partner.*

**SECTION 00 40 00**  
**PROCUREMENT FORMS AND SUPPLEMENTS**

**BIDDER'S CHECKLIST**

This Checklist has been prepared and furnished to aid Bidders in including all necessary supporting information with their Bid. Bidder's submittals shall include, but not be limited to, the following:

No.	Bid Proposal Item	Checked
1.	Bid to Commission	<input type="checkbox"/>
2.	Bid Schedule	<input type="checkbox"/>
3.	Proposal Signature, Addenda Acknowledgment and Non-Collusion Declaration Sheet	<input type="checkbox"/>
4.	Subcontractor List	<input type="checkbox"/>
5.	Statement of Bidder's Qualifications	<input type="checkbox"/>
6.	Bid Bond	<input type="checkbox"/>

**BID TO COMMISSION**

TO: Board of Commissioners  
Public Utility District No. 1 of Skagit County, Washington

Commissioners:

The undersigned has examined the site, specifications, plans, laws, and ordinances covering the improvements contemplated. In accordance with the terms, provisions and requirements of the foregoing, the following lump sums and unit prices are tendered as an offer to perform the work and furnish the labor, tools, equipment, materials, appurtenances, incidentals, and guarantees, where required, complete in place, in good working order.

As a guarantee of good faith and as required by law, a Bid Deposit in the form of a certified check, cashier's check, postal money order or surety bond made payable to the order of Public Utility District No. 1 of Skagit County ("District") is attached hereto. The undersigned understands and hereby agrees that, should this offer be accepted and the undersigned failure or refuse to enter into a Contract, furnish the required Payment and Performance Bond and required liability insurance, the undersigned shall forfeit to Skagit PUD an amount equal to five percent (5%) of the amount Bid as liquidated damages, all as provided for in this Invitation for Bids.

The undersigned hereby proposes to undertake and complete the work embraced in this improvement, in accordance with the terms of the Specifications and Contract Documents, at the following lump sum and unit prices:

<b>BID SCHEDULE:</b>					
<b>PIPELINE REPLACEMENT AT HENSON ROAD PROJECT</b>					
<b>Item No.</b>	<b>Bid Schedule Description</b>	<b>Estimated Quantity</b>	<b>Unit</b>	<b>Unit Price</b>	<b>Total</b>
1.	Mobilization	1	LS	\$	\$
2.	Pre-Construction Submittals	1	LS	\$	\$
3.	Install and Maintain Temporary Erosion Control and Water Pollution Control Measures	1	LS	\$	\$
4.	Project Temporary Traffic Control	1	LS	\$	\$
5.	Furnish Portable Changeable Message Sign	20	Days	\$	\$
6.	Pothole Existing Utilities	1	LS	\$	\$
7.	Furnish and Install Adequate Site and Trench Safety Systems in Accordance with Chapter 49.17 RCW	1	LS	\$	\$
8.	Horizontal Directional Drill for 12-inch PVC Pipe	420	LF	\$	\$
9.	Furnish and Install 12-inch Fused PVC C900 PC 235 Pipe in HDD Borehole	420	LF	\$	\$
10.	Furnish and Install 12-inch 11¼° DI Ell	2	Each	\$	\$
11.	Furnish and Install 12-inch Butterfly Valve	2	Each	\$	\$
12.	Waterline Flushing, Pressure Testing, Disinfection and Bac-T testing	1	LS	\$	\$
13.	Connection Work for Tie-In at Station 0+40	1	LS	\$	\$
14.	Connection Work for Tie-In at Station 4+30	1	LS	\$	\$
15.	Pavement and Landscaping Restoration	1	LS	\$	\$
16.	Post-Construction As-built Drawings	1	LS	\$	\$
<b>Sub-Total Base Bid</b>				\$	
<b>Sales Tax (8.8%)</b>				\$	
<b>Total Bid Amount</b>				\$	

DOLLARS

Total Bid with Sales Tax (written in words)



**SUBCONTRACTORS LIST – RCW 39.30.060 FORM**

In compliance with RCW 39.30.060 for all projects estimated to cost \$1 million or more, all Bidders must complete and submit this Subcontractors List form with their Bid Proposal.

List of Subcontractors: The Bidder shall indicate on the Subcontractors List the names of the subcontractors with whom the Bidder, if awarded the contract, will subcontract for performance of the work of heating, ventilation and air conditioning, plumbing as described in Chapter 18.106 RCW, and electrical as described in Chapter 19.28 RCW.

List Bidder if Bidder Performing Work: If the Bidder will perform the work in any of the three areas required, the Bidder shall name itself for the work on the Subcontractors List.

Name Only One Form for Each Category of Work: The Bidder shall not list more than one firm (subcontractor or Bidder) for each category of work identified, unless subcontractors vary with bid alternates or additive, in which case the Bidder must indicate which firm will be used for which alternate or additive.

Substitution of Subcontractors: Substitution of any listed subcontractor may only be according to the procedure and parameters set forth in RCW 39.30.060.

Factors relating to Non-Responsiveness: Failure of the Bidder to submit the names of such subcontractors, or to name itself to perform such work, or the naming of two or more firms (subcontractor or Bidder) to perform the same work shall render the Bidder’s bid non-responsive and, therefore, void.

Applicable to Direct Subcontractors: The requirement of this section to name the Bidders’ proposed heating, ventilation and air conditioning, plumbing and electrical subcontractors applies only to proposed heating, ventilation and air conditioning, plumbing and electrical subcontractors who will contract directly with the Bidder.

Submission Requirements: The Subcontractors List must be submitted with the Bid Proposal.

Trade	<b>Bidder must check one box for each Trade. If subcontracting the work, Bidder must name the subcontractor.</b>
HVAC (Heating, Ventilation and Air Conditioning)	<input type="checkbox"/> N/A (this project does not include this work) <input type="checkbox"/> Bidder will self-perform this work <input type="checkbox"/> Name and address of subcontractor <hr/> <hr/>
Plumbing	<input type="checkbox"/> N/A (this project does not include this work) <input type="checkbox"/> Bidder will self-perform this work <input type="checkbox"/> Name and address of subcontractor <hr/> <hr/>
Electrical	<input type="checkbox"/> N/A (this project does not include this work) <input type="checkbox"/> Bidder will self-perform this work <input type="checkbox"/> Name and address of subcontractor <hr/> <hr/>

<p>Structural Steel Installation</p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> N/A (this project does not include this work)</li> <li><input type="checkbox"/> Bidder will self-perform this work</li> <li><input type="checkbox"/> Name and address of subcontractor</li> </ul> <hr/> <hr/>
<p>Rebar Installation</p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> N/A (this project does not include this work)</li> <li><input type="checkbox"/> Bidder will self-perform this work</li> <li><input type="checkbox"/> Name and address of subcontractor</li> </ul> <hr/> <hr/>

**STATEMENT OF BIDDER'S QUALIFICATIONS  
COMPARABLE CONTRACT HISTORY**

The following is a partial list of the last five jobs our organization completed which are similar in character to this project:

Year	Project Name	Pipe Diameter	Feet	Owner Rep.	Phone No.

Name of Company: \_\_\_\_\_

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

Telephone: \_\_\_\_\_

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Contractor's License Number

**BID BOND**

KNOW ALL MEN BY THESE PRESENTS, that we, \_\_\_\_\_

Of \_\_\_\_\_

Hereinafter called the Contractor (Principal), and \_\_\_\_\_

a corporation duly organized and existing under and by virtue of the laws of the State of \_\_\_\_\_

hereinafter called the Surety, and authorized to transact business within the State of Washington as Surety,

are held and firmly bound unto Public Utility District No. 1 of Skagit County, Washington (Obligee) in the

full and penal sum of five percent (5%) of the total bid amount appearing on the bid proposal of said

principal for the work hereinafter described, for the payment of which, well and truly be made to the Owner,

the Contractor and the Surety bind themselves and each of their heirs, executors, administrators, successors,

and assigns, jointly and severally, firmly by these presents.

THE CONDITIONS OF THE ABOVE OBLIGATION ARE SUCH THAT WHEREAS, the Principal herein is herewith submitting his or its bid proposal for **Pipeline Relocation at Henson Road Project**.

NOW THEREFORE, if the bid proposal submitted by the Principal is accepted, and the contract is awarded to said Principal, and if said Principal shall duly make and enter into and execute said contract and shall furnish the Performance and Payment Bond as required by the bidding and contract documents within a period of ten (10) days from and after said award, exclusive of the day of such award, then its obligation to pay the above-mentioned penal sum as liquidated damages shall be null and void, otherwise it shall remain and be in full force and effect.

Signed and sealed this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
Contractor

\_\_\_\_\_  
Surety

By \_\_\_\_\_

By \_\_\_\_\_

Attorney-In-Fact

Title \_\_\_\_\_

Corporate Seal

Corporate Seal

The Attorney-In-Fact who executes this bond on behalf of the Surety must attach a copy of his Power of Attorney as evidence of his authority.

**SECTION 00 52 00**  
**AGREEMENT FORMS**



**CONTRACT NO. XXXX**

THIS CONTRACT is made and entered into by and between the PUBLIC UTILITY DISTRICT NO. 1 OF SKAGIT COUNTY (Owner/Skagit PUD) and CONTRACTOR NAME (Contractor).

WITNESSETH:

WHEREAS, the Owner has caused the preparation of certain Contract Documents entitled **Pipeline Relocation at Henson Road Project**.

WHEREAS, the Owner has invited proposals, has received, and analyzed said proposals, and has duly given notice of Acceptance of Proposal to the Contractor herein set forth and as stated more in detail in the Contract Documents which are defined in Section II General Conditions, all of which Contract Documents are made a part hereof and which constitute the whole Contract between the Owner and the Contractor.

NOW, THEREFORE, it is hereby agreed that:

1. The Contractor shall furnish the work, pay all costs, and perform all requirements of this Contract in the manner specified in the Contract Documents,
2. The Proposal calls for unit prices and lump sums in the Bid Schedule(s) set forth in (1) above. The Owner shall pay to the Contractor a corrected Total Contract Amount computed from the unit prices and lump sums in said Bid Schedule(s) set forth in the Contractor's Proposal and the actual quantities of units furnished. Based upon the lump sum and unit prices in said Bid Schedule(s) set forth in the Contractor's Proposal and upon the quantities estimated from the Contract Drawings for bidding purposes, the estimated Total Contract Amount is (spell out dollar amount/100) Dollars (capitalize each word of the dollar amount) (\$ insert numeric dollar amount),
3. In Washington State the Owner is required to pay state or local sales or use taxes included in the Total Contract Amount and the Contractor is required to receive the said taxes for payment to the state, the amount payable to the Contractor by the Owner shall be the Total Contract Amount as above specified including the amount of the said taxes,
4. It is further agreed that the Contractor will start work within ten (10) calendar days after the date specified in the Owner's Notice to Proceed. Work shall be substantially completed within 45 calendar days,
5. In the event that the Contractor fails to substantially complete the Project by the date of substantial completion as specified above or as modified by Change Order, the Contractor shall be liable for liquidated damages of five hundred dollars (\$500.00) per calendar days thereafter until the Owner determines the Project to be substantially complete, and
6. The attached Indemnification Agreement is hereby made part of this Contract.

IN WITNESS WHEREOF, two identical counterparts of this Contract, each of which shall for all purposes be deemed an original hereof, have been duly executed by the parties hereto.

(CONTRACTOR name here)

PUBLIC UTILITY DISTRICT NO. 1  
OF SKAGIT COUNTY, WASHINGTON

By \_\_\_\_\_  
(Name, Title here)

By \_\_\_\_\_  
George Sidhu, P.E., General Manager

Date \_\_\_\_\_

Date \_\_\_\_\_

**INDEMNIFICATION AGREEMENT**

The Contractor agrees to defend, indemnify, and hold Skagit PUD harmless from any and all claims, demands, losses, and liabilities to or by third parties arising from, resulting from, or connected with work performed or to be performed under this Contract by the Contractor, its agents, employees, and subcontractors, even though such claims may prove to be false, groundless or fraudulent, to the fullest extent permitted by law and subject to the limitations provided below.

The Contractor's duty to indemnify Skagit PUD shall not apply to liability for damages arising out of bodily injury to persons or damage to property caused by or resulting from the sole negligence of Skagit PUD or Skagit PUD's agents or employees. The Contractor's duty to indemnify Skagit PUD for liability for damages arising out of bodily injury to persons or damage to property caused by or resulting from the concurrent negligence of Contractor, its agents, employees, or subcontractors and/or Skagit PUD or Skagit PUD's agents or employees, shall apply only to the extent of negligence of Contractor, its agents, employees, or subcontractors.

With respect to claims against Contractor by Skagit PUD pursuant to this Contract only, Contractor expressly waives any immunity that may be granted it under the Workers' Compensation, Industrial Insurance or like statutes and/or any administrative regulations issued pursuant thereto. This waiver does not include or extend to any claims by Contractor's employees directly against Contractor.

Further, Contractor's defense and indemnification obligations under this Contract shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable to or for any third party under Workers' Compensation, Industrial Insurance or like statutes and/or any administrative regulations issued pursuant thereto.

Contractor's duty to indemnify Skagit PUD for liabilities or losses, other than for bodily injury to persons or damage to property caused by or resulting from negligence, shall apply only to the extent of the fault of Contractor, its agents, employees, or subcontractors, except in situations where fault is not a requirement for liability, in which case indemnity will be provided to the extent the liability or loss was caused by Contractor or its agents, employees, or subcontractors.

Contractor's duty to defend, indemnify and hold Skagit PUD harmless shall include, as to all claims, demands, losses and liabilities to which it applies, Skagit PUD's actual attorneys' fees and costs incurred in connection with defending such claim(s) including, without limitation, consultant and expert witness fees and expenses and personnel-related costs in addition to costs otherwise recoverable by statute or court rule.

**THE UNDERSIGNED HEREBY CERTIFY THAT THIS AGREEMENT WAS MUTUALLY NEGOTIATED.**

(CONTRACTOR name here)

PUBLIC UTILITY DISTRICT NO. 1  
OF SKAGIT COUNTY, WASHINGTON

By: \_\_\_\_\_  
(Name, Title here)

By: \_\_\_\_\_  
George Sidhu, P.E., General Manager

Dated: \_\_\_\_\_

Dated: \_\_\_\_\_

The Contractor shall cause each of its subcontractors (and suppliers to the extent any perform any work on the Project site) to execute an Indemnification Contract substantially in the form of the foregoing by which each such entity or person assumes to Skagit PUD all obligations Contractor assumes to Skagit PUD as set forth above.

**CERTIFICATE OF OWNER’S ATTORNEY**

I, the undersigned, **Peter Gilbert**, the duly authorized and acting legal representative of Public Utility District No. 1 of Skagit County, do hereby certify as follows:

I have examined the attached contract(s) and the manner of execution thereof, and I am of the opinion that each of the aforesaid agreements are adequate and have been duly executed by the proper parties thereto acting through their duly authorized representatives; that said representatives have full power and authority to execute said agreements on behalf of the respective parties named thereon; and that the foregoing agreements constitute valid and legally binding obligations upon the parties executing the same in accordance with terms, conditions, and provisions thereof.

\_\_\_\_\_  
Peter Gilbert, Attorney

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

**PERFORMANCE AND PAYMENT BOND**

Bond No. \_\_\_\_\_  
Amount: \$ \_\_\_\_\_

KNOW ALL MEN BY THESE PRESENTS, that

Of \_\_\_\_\_  
Hereinafter called the Contractor (Principal), and \_\_\_\_\_

a corporation duly organized and existing under and by virtue of the laws of the State of \_\_\_\_\_ hereinafter called the Surety, and authorized to transact business within the State of Washington as Surety, are held and firmly bound unto Public Utility District No. 1 of Skagit County, Washington as Owner (Obligee), in the sum of \_\_\_\_\_ Dollars (\$ \_\_\_\_\_), lawful money of the United States of America, for the payment of which, well and truly be made to the Owner, the Contractor and the Surety bind themselves and each of their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents as follows:

THE CONDITIONS OF THE ABOVE OBLIGATION ARE SUCH THAT:

WHEREAS, the Contractor has executed and entered into a certain Contract hereto attached, with the Owner, dated \_\_\_\_\_, 20\_\_\_\_\_.

For: \_\_\_\_\_

IN WITNESS: NOW THEREFORE, if Contractor, its heirs, executors, administrators, successors, or assigns, shall in all things stand to and abide by, and well and truly keep and perform the covenants, conditions and agreements in the said Contract for the duration thereof, including the one-year warranty period, and shall also well and truly perform and fulfill all the undertakings, covenants, terms, conditions and agreements of any and all duly authorized modifications of said Contract that may hereafter be made, at the time and in the manner therein specified and shall pay all laborers, mechanics, subcontractors or lower tier subcontractors, and material persons, and all persons who shall supply such person or persons, or subcontractors or lower tier subcontractors, with provisions and supplies for the carrying on of such work, on his or their part, and shall indemnify and save harmless Owner, its officers and agents, then this obligation shall become null and void; otherwise, it shall be and remain in full force and effect.

And Surety, for value received, hereby further stipulates and agrees that no change, extension of time, alteration or addition to the terms of Contract or to the work to be performed thereunder or the plans or specifications accompanying the same shall in any way affect its obligation of this Bond, and it does hereby waive notice of any change, extension of time, alterations or additions to the terms of the Contract, the plans or the specifications.

Surety hereby agrees that modifications and changes may be made in the terms and provisions of the Contract without notice to Surety, and any such modifications or changes increasing the total amount to be paid the Contractor shall automatically increase the obligation of the Surety on this Bond in a like amount.

The Surety expressly acknowledges that it shall be liable, under this Bond, for any liquidated damages assessed against the Contractor in accordance with the provisions of the Contract.

Any claim(s) relating to or against this Bond shall be subject to and decided by arbitration in accordance with the provisions of the Revised Code of Washington Chapter 7.04.

Any dispute relating to the performance or enforcement of the provisions of this Bond shall be governed by Washington State Law. Jurisdiction and venue shall be Skagit County Courts. If non-binding arbitration or mediation is conducted involving the Owner, the Contractor, the Surety, or any other party concerning or in any way relating the work required or alleged to be required by the Contract, the Contractor and Surety expressly consent to a consolidated or joint arbitration if and as called for by the Owner. The prevailing party in each such litigation shall be entitled to recover its attorneys' fees, in addition to any other relief granted.

IN WITNESS WHEREOF, the Contractor and the Surety have caused this bond and two (2) counterparts thereof to be signed and sealed by their duly authorized officers.

Signed and sealed this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

ATTEST:

CORPORATE SEAL:

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

\_\_\_\_\_

Title \_\_\_\_\_

SURETY:

By \_\_\_\_\_

Print name: \_\_\_\_\_

Its Attorney-In-Fact

Address of local office and agent of Surety  
Company:

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

APPROVED AS TO FORM:

PUD attorney: \_\_\_\_\_, Owner \_\_\_\_\_, 20\_\_\_\_

**SECTION 00 72 00**  
**GENERAL CONDITIONS**

**GENERAL CONDITIONS**

NOTICE OF DISCLAIMER

TAKE NOTICE, that the General Conditions are the 2025 Edition of the Washington State Department of Transportation Standard Specifications for Road, Bridge and Municipal Construction.

TAKE NOTICE, that these General Conditions have been materially amended by certain additions, deletions or other modifications to meet the needs of the Public Utility District No.1 of Skagit County. These amendments are contained in the Supplementary General Conditions.

**END OF SECTION**

**SECTION 00 73 00**  
**SUPPLEMENTARY CONDITIONS**

## SUPPLEMENTARY GENERAL CONDITIONS

The following provisions of the Washington State 2025 Standard Specifications for Road, Bridge, and Municipal Construction (WSDOT) Division 1 General Requirements is hereby amended, changed, or supplemented and superseded as follows. All other provisions which are not amended, changed, or supplemented remain in full force.

1	Order of Precedence	
2	Section 1-01.3	Definitions
3	Section 1-03	Award and Execution of Contract
3.1	Section 1-03.4	Contract Bond
3.2	Section 1-03.8	Award and Execution of Contract
4	Section 1-05	Control of Work
4.1	Section 1.05.0	General
4.2	Section 1-05.4	Conformance with and Deviations from Plans and Stakes
4.3	Section 1-05.10	Guarantees
5	Section 1-07	Legal Relations and Responsibilities to the Public
5.1	Section 1-07.1(1)	Laws to be Observed
5.2	Section 1-07.6	Permits and Licenses
5.3	Section 1-07.18(1)	Public Liability and Property Damage Insurance
5.4	Section 1-07.26	Personal Liability of Public Officers
6	Section 1-08	Prosecution and Progress
6.1	Section 1-08.5	Time for Completion (Contract Time)
6.2	Section 1.08.9	Liquidated Damages
6.3	Section 1.08.10(2)	Termination for Public Convenience
7	Section 1-09	Measurement and Payment
7.1	Section 1-09.4	Equitable Adjustment
7.2	Section 1-09.6	Force Account
7.3	Section 1-09.11(3)	Time Limitations and Jurisdiction
7.4	Section 1-09.13(3)	Claims Resolution
7.5	Section 1-09.14	Claims Against Contractor's Retainage and/or Public Contract Bond
8	Section 1-10	Temporary Traffic Control
8.1	Section 1-10.2(2)	Traffic Control Plans

**1 ORDER OF PRECEDENCE. THE ORDER OF PRECEDENCE OF THE CONDITIONS OF THE CONTRACT ARE AS LISTED BELOW, FIRST IS THE HIGHEST AND LAST IS THE LOWEST:**

Addenda  
Bid Forms  
Technical Specifications  
Drawings  
Special Provisions  
Supplementary General Conditions  
Division 1 General Requirements (WSDOT) 2024 Edition

**2 SECTION 1-01.3 DEFINITIONS IS SUPPLEMENTED BY ADDING THE FOLLOWING DEFINITIONS:**

Whenever these words are used in the Contract Documents, they shall have the following meanings:

"COMMISSION": Redefined to mean the three elected Commissioners of Skagit PUD; substitute for "Commission" and "Washington State Transportation Commission" whenever cited.

"CONTRACTING AGENCY", "DISTRICT" or "OWNER": Public Utility District No. 1 of Skagit, Washington; substitute for "State," "Department," and "Department of Transportation" whenever cited.

"GENERAL MANAGER": The person appointed by the Commission per RCW 54.16.100 as the chief administrative officer of Skagit PUD; substitute for "Secretary" and "Secretary of Transportation" whenever cited.

"ENGINEER": Aspect Consulting (A Geosyntec Company).

"OWNER": Public Utility District No. 1 of Skagit County (Skagit PUD).

"STANDARD PLANS": Redefined to refer to the Standard Detail Sheets included with the Plans and Specifications as well as the WSDOT Standard Plans. The requirements of the Standard Detail Sheets shall be controlling in the case of any discrepancy between the Standard Details and the WSDOT Standard Plans.

**3 SECTION 1-03 AWARD AND EXECUTION OF CONTRACT IS SUPPLEMENTED BY ADDING THE FOLLOWING:**

**3.1 Add the following to Section 1-03.4, Contract Bond:**

Upon substantial completion of the Project, the Contractor shall provide a Utility Maintenance Bond for 25% of the Total Contract Amount on the form specified by Skagit PUD that warrants all equipment, materials, and labor it furnishes or performs under the Agreement against defects in design, materials, and workmanship for one (1) year after final acceptance as described in Section 1-05.10.

**3.2 Add the following new Section 1-03.8 Award and Execution of Contract:**

1-03.8 Award and Execution of Contract.

1-03.8(1) The Contract for the Project shall be awarded to the responsible Bidder submitting the lowest responsive Bid. The lowest responsive Bid shall be determined by the total amount of the Bid.

**4 SECTION 1-05 CONTROL OF WORK IS REVISED AS FOLLOWS:**

**4.1 Insert the following new Section 1-05.0 General:**

1-05.0 General

Where the Specifications, the Owner's instructions, laws, ordinances, or any government authority require any work to be specially tested, or inspected, the Contractor shall give the Owner timely notice that such test of completed work is ready for inspection. If the inspection is by another authority than the Owner, the Contractor shall give the Owner timely notice of the date fixed for such inspection. Required certificates of inspection by other authority than the Owner shall be secured by the Contractor.

**4.2 Revise Section 1-05.4, Conformance with And Deviation from Plans and Stakes, as follows:**

Delete the word "Engineer" and replace with "Contractor" throughout this section with reference to setting stakes, marks, lines, etc. for the layout and prosecution of the Work. All surveying and layout required for this Project shall be performed by the Contractor. The Engineer retains final authority for determination of conformity of the Work and shall be notified immediately of any errors found to cause deviations in the Work.

**4.3 Delete Section 1-05.10, Guarantees, and replace with the following:**

1-05.10 Guarantees

The Contractor shall furnish to the Contracting Agency any guarantee or warranty furnished as a normal trade practice in connection with the purchase of any equipment, materials, or items used in the construction of the project.

The Contractor shall be responsible for correcting all defects in workmanship and materials incurred within one year (365 days) after the date of final acceptance of the project. When corrections of defects are made, the Contractor shall be responsible for correcting all defects in workmanship and/or materials in the corrected Work for one year after acceptance of the correction by the Owner. The Contractor shall commence remedying such defects within seven (7) days of receipt of notice of discovery thereof from the Owner and shall complete such Work within a reasonable time. In emergencies, where damage may result from delay or where loss of service may result, such corrections may be made by the Owner, in which case the cost shall be borne by the Contractor. In the event the Contractor does not complete corrections within a reasonable time, the Work shall be otherwise accomplished and the cost of same shall be paid by the Contractor.

The Contractor shall be liable for any costs, losses, expenses, or damages, including consequential damages, suffered by the Owner resulting from defects in the Contractor's Work including but not limited to costs, labor, materials, equipment, and administration incurred by

Owner in making emergency repairs of such defective Work and associated costs of engineering, inspection, and supervision by the Owner or Engineer. The Contractor shall defend, indemnify and hold the Owner harmless from any and all claims which may be made against the Owner as a result of Contractor's defective Work.

**5 SECTION 1-07 LEGAL RELATIONS AND RESPONSIBILITIES TO THE PUBLIC IS SUPPLEMENTED BY ADDING THE FOLLOWING:**

**5.1 Add the following Section 1-07.1(1) Owner Safe Access:**

**1-07.1(1) Owner Safe Access.**

The Contractor shall provide safe access for the Owner and its inspectors to adequately inspect the quality of work and the conformance with Contract Documents. The Contractor shall provide adequate lighting, ventilation, ladders, and other protective facilities as may be necessary for the safe performance of inspections.

**5.2 Add the following to Section 1-07.6, Permits and Licenses:**

The Contractor shall comply with all requirements of all permits provided by the Owner for this project.

**5.3 Add the following to Section 1-07.9, Wages, 1-07.9(1), General:**

Current Washington State Department of Labor and Industries prevailing wage rates are available at:

<http://www.lni.wa.gov/tradeslicensing/prevwage/wagerates/>

Wage rates applicable for this project are those for Skagit County with an effective date of this Contract Bid Date.

**5.4 Revise Section 1-07.18, Public Liability and Property Damage Insurance as follows:**

All reference to the State or Department of Transportation shall be supplanted with Public Utility District No. 1 of Skagit County.

**5.5 Revise Section 1-07.26, Personal Liability of Public Officers, as follows:**

Neither the Owner nor any elected official, officer, or its employees shall be personally liable for any acts or failure to act in connection with the Contract, it being understood that in such manners, they are acting solely as agents of the Owner.

No right of action shall accrue upon or by reason of this Contract to or for the use or benefit of anyone other than the parties to this Contract. The parties to this Contract are the Contractor and the Owner.

**6 SECTION 1-08, PROSECUTION AND PROGRESS, IS REVISED AS FOLLOWS:****6.1 Supplement Section 1-08.5, Time for Completion (Contract Time), with the following:**

Contractor shall complete all work associated with the Bid Schedules within 30 working days after the issuance of the Notice to Proceed.

**6.2 Section 1-08.9, Liquidated Damages replaced numbered paragraphs 1 and 2 with the following:**

1. To pay liquidated damages for each working day beyond the number of days established for substantial completion, to authorize the Owner to deduct these liquidated damages from any money due or coming due to the Contractor.

**6.3 Revise Section 1-08.10(2), Termination for Public Convenience, as follows:**

Substitute "Resolution" for "Executive Order", substitute "Commission" for "President", and delete "or Governor".

**7 SECTION 1-09, MEASUREMENT AND PAYMENT, IS REVISED AS FOLLOWS:****7.1 Supplement Section 1-09.4, Equitable Adjustment, with the following:**

All bilateral agreements shall constitute a full accord and satisfaction and represent payment in full as to adjustments in both Contract price and time of completion for all costs, whether direct or indirect, arising out of, or incidental to, or otherwise attributable to, the changed work including any and all delays and impacts resulting from the change to the contract. Acceptance of payment by Contractor pursuant to such bilateral agreement shall constitute a waiver of any and all claims, known or unknown, arising out of, or incidental to, or otherwise attributable to the changed work.

**7.2 Revise Section 1-09.6, Force Account, as follows:**

Revise Item No. 1 as follows: Substitute "21 Percent" for "29 percent" for Contractor's allowance for overhead and profit.

**7.3 Revise Section 1-09.11(3), TIME LIMITATIONS AND JURISDICTION**

Revise as follows: Substitute Public Utility District No.1 of Skagit County for State of Washington (six times). Substitute Superior Court of Skagit County for Superior Court of Thurston County.

**7.4 Replace Sections 1-09.13(3), (3)A, (3)B and (4), Claims Resolution, with the following:****CLAIMS 1-09.13(3)**

The Contractor and Contracting agency mutually agree that claims submitted in accordance with Section 1-09.11 and not resolved by nonbinding ADR process, shall be resolved by litigation unless the Contracting agency elects to resolve the claim through binding arbitration.

**Venue.** The venue of any Dispute Resolution Proceedings between the parties to this Agreement shall be Mount Vernon, Washington unless otherwise mutually agreed in writing.

**Injunctive Proceedings.** Notwithstanding any other provisions of these Dispute Resolution Procedures, any Disputes otherwise subject to submission to these Dispute Resolution Procedures may instead be first submitted, by any party having a legal interest therein, to the jurisdiction of the Superior Court for Skagit County, State of Washington, if and only to the extent necessary to secure injunctive relief reasonably necessary under the circumstances.

**7.5 Add the following new Section 1-09.14 Claims Against Contractor’s Retainage and/or Public Contract Bond:**

1-09.14 Claims Against Contractor’s Retainage and/or Public Contract Bond

The Contractor shall be liable for all costs incurred by the Owner, including, but not limited to, legal fees, salary/wage costs of Owner’s employees and litigation costs (whether or not recoverable by statute or court rule) arising out of claims against the retainage or the Contractor’s Public Contract Bond. Owner may deduct any such costs from funds otherwise due the Contractor, including the retention, by unilateral Change Order.

**8 SECTION 1-10, TEMPORARY TRAFFIC CONTROL, IS REVISED AS FOLLOWS:**

**8.1 Revise Section 1-10.2(2), Traffic Control Plans, as follows:**

Delete the first sentence of Section 1-10.2(2) and replace with the following:

Skagit PUD is providing an approved traffic control plan for the project that the Contractor will implement to handle traffic safety during construction.

**END OF SECTION**

# D I V I S I O N 1

## GENERAL REQUIREMENTS

**SECTION 01 11 00**  
**SUMMARY OF WORK**

**PART 1 GENERAL**

**1.1 SUMMARY**

- A. The Work to be performed under this Contract is summarized in the Invitation to Bid and Agreement.
- B. The Work includes, but is not limited to, furnishing tools, equipment, materials, supplies, and manufactured articles, and furnishing all labor, transportation, and services, including fuel, power, water, and essential communications, and performing all work or other operations required for the fulfillment of the Contract in strict accordance with the Contract Documents. The Work shall be complete, and all work, materials, and services not expressly indicated or called for in the Contract Documents which may be necessary for the complete and proper construction of the Work in good faith shall be provided by the CONTRACTOR as though originally so indicated, at no increase in cost to the OWNER.
- C. Section Includes:
1. Site location.
  2. Contract method.
  3. Coordination with work performed by others.
  4. Contractor's use of the site.
- D. Site Location:
- Henson Road, approximately 700 feet north of Anderson Road, City of Mount Vernon, within the County of Skagit, State of Washington as shown on the Contract Drawings.
- E. Contract Method
1. The Work herein will be one (1) contract.
- F. Work by Others
1. The CONTRACTOR's attention is directed to the fact that work may be conducted on the Site by other contractors and the OWNER'S crews during the performance of the Work under this Contract. The CONTRACTOR shall conduct its operations to cause a minimum of interference with the work of such other contractors and shall cooperate fully with such contractors to allow continued safe access to their respective portions of the Site, as required to perform work under their respective contracts.
  2. Interference with Work on Utilities: The CONTRACTOR shall cooperate fully with all utility forces of the OWNER or forces of other public or private agencies engaged in the relocation, altering, or otherwise rearranging of any facilities which interfere with the progress of the Work, and shall schedule the Work to minimize interference with said relocation, altering, or other rearranging of facilities.
- G. Contractor Use of Site
1. The CONTRACTOR's use of the Site shall be limited to its construction operations and storage and layout of materials. All work shall be contained within Site and any easements or permissible land encumbrances negotiated by the CONTRACTOR.

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION - NOT USED**

**END OF SECTION**

**SECTION 01 22 00  
MEASUREMENT AND PAYMENT**

**PART 1 GENERAL**

**1.1 SUMMARY**

- A. The entire cost of the work and the material necessary to complete all items shown on the Contract Documents will be paid for on a Lump Sum or Unit Price basis, as further specified herein, and shall include all compensation to be received by the CONTRACTOR for furnishing all tools, equipment, supplies, and manufactured articles, and for all labor, operations, and incidentals appurtenant to the items of work being described, as necessary to complete the various items of the Work all in accordance with the requirements of the Contract Documents, including all appurtenances thereto, and including all costs of permits and cost of compliance with the regulations of public agencies having jurisdiction, including Safety and Health Requirements of the Occupational Safety and Health Administration of the U.S. Department of Labor (OSHA) and the State of Washington, Division of Industrial Safety and Health (WISHA). All costs therefore shall be included in the price named in the CONTRACTOR's Proposal for the work.
- B. Payment shall only be made in accordance with the CONTRACTOR's Proposal or as listed in executed change orders. References in the Contract Documents to the 2024 Standard Specifications (of the Washington State Department of Transportation) are for purposes of defining products or execution of the work, but payment provisions of the do not apply unless specifically incorporated by reference in these Contract Documents.

**1.2 BID ITEMS**

- A. Item 1 - Mobilization
  - 1. Progress payment for Mobilization shall be paid on a percentage of total contract value complete at the time of payment application submission as measured by the OWNER.
  - 2. Payment for Mobilization will be made in accordance with Section 1-09.7 of the Standard Specifications.
- B. Item 2- Pre-Construction Submittals
  - 1. No measurement of preconstruction submittals shall be made.
  - 2. Payment for preconstruction submittals will be made at 70% of the value after receipt of all plans and submission requirements and the remaining 30% will be paid after final acceptance of project. Plans include Stormwater Pollution Prevention Plan (SWPPP), Spill Prevention Control and Countermeasure (SPCC) Plan, Contractor Health and Safety Plan, Site-Specific Safety Plan, and Utility Direction Drilling Work Plan.
- C. Item 3 - Install and Maintain Temporary Erosion Control and Water Pollution Control Measures
  - 1. No measurement of Install and Maintain Temporary Erosion Control and Water Pollution Control Measures shall be made.
  - 2. Progress payments for Install and Maintain Temporary Erosion Control and Water Pollution Control Measures shall be paid on a percentage of total contract value complete.

## D. Item 4 – Project Temporary Traffic Control

1. No measurement of Project Temporary Traffic Control shall be made. The work will be considered as a single lump sum item, encompassing all temporary traffic control measures required for the project.
2. Payment for Project Temporary Traffic Control shall be by the lump sum price named in the Proposal, which price shall constitute full payment for all tools, equipment, labor, materials, and incidentals required to complete the work as specified in the Contract Documents. This includes, but is not limited to:
  - a. Provision of a Traffic Control Supervisor, including completion of Contractor’s Daily Report of Traffic Control – Summary and Traffic Control Logs.
  - b. Flaggers and spotters for traffic control.
  - c. Furnishing, installing, maintaining, and removing Class “A” and “B” Traffic Control Signs and Devices.
  - d. All other activities necessary to maintain safe and effective traffic control in accordance with the Contract Documents.

## E. Item 5 - Furnish Portable Changeable Message Sign

1. Measurement of Furnish Portable Changeable Message Sign(s) (PCMS) shall be by the number of days display as required, as determined by the Engineer, and in use. Measurement shall be to the nearest half-day. No measurement shall be made for mobilization of the sign(s) on site or within the project limits or when the sign(s) is/are not in use.
2. Progress payments for Furnish Portable Changeable Message Sign shall be based upon the unit Contract price per day completed at the time of payment application submission as measured by the OWNER.

## F. Item 6 - Pothole Existing Utilities

1. No measurement of Pothole Existing Utilities shall be made.
2. Progress payments for Pothole Existing Utilities shall be based upon the actual percentage of the potholing complete at the time of payment application submission as measured by the OWNER.

## G. Item 7 - Furnish and Install Adequate Site and Trench Safety Systems in Accordance with Chapter 49.17 RCW

1. No measurement of Furnish and Install Adequate Site and Trench Safety Systems in Accordance with Chapter 49.17 RCW shall be made.
2. Progress payments for Furnish and Install Adequate Site and Trench Safety Systems in Accordance with Chapter 49.17 RCW shall be based upon the actual percentage of the site and trench safety systems work complete at the time of payment application submission as measured by the OWNER.

## H. Item 8- Horizontal Directional Drill for Installation of 12-inch PVC Pipe

1. Measurement of Horizontal Directional Drill for Installation of 12-inch PVC Pipe shall be by the number of linear feet of borehole, including preparing the site and installing drilling fluids, as determined by horizontal measurement along the borehole centerline.

2. Progress payments for Horizontal Directional Drill for Installation of 12-inch PVC Pipe shall be based upon the unit price per linear foot completed at the time of payment application submission as measured by the OWNER.
- I. Item 9 - Furnish and Install 12-inch Fused PVC C900 PC 235 Pipe in HDD Borehole
    1. Measurement of Furnish and Install 12-inch Fused PVC C900 PC 235 Pipe in HDD Borehole shall be by the number of linear feet of pipe installed, as determined by horizontal measurement along the pipe centerline. This bid item includes pipe fusing.
    2. Progress payments for Furnish and Install 12-inch Fused PVC C900 PC 235 Pipe by Horizontal Directional Drill shall be based upon the unit price per linear foot installed at the time of payment application submission as measured by the OWNER.
  - J. Item 10 - Furnish and Install 12-inch 11¼ ° DI Ell
    1. Measurement of Furnish and Install 12-inch 11¼° DI Ell shall be by the number of each type of fitting installed and not included in other lump sum bid items.
    2. Payment for Furnish and Install 12-inch 11¼° DI Ell shall be by the unit price per each named in the Proposal, which price shall constitute full payment for all tools, equipment, labor, and materials required to complete this work as specified herein; including but not limited to joint connections, wax tape wrap, joint restraints, copper blue tracer wire, excavation of pavement and trench, structure protection and/or temporary relocation, removal and disposal of asphalt, disposal of excess soils, dewatering, bedding, backfilling, compaction, ditch and landscape restoration, survey and construction staking in accordance with requirements of the Contract Documents.
  - K. Item 11 - Furnish and Install 12-inch Butterfly Valve
    1. Measurement of Furnish and Install 12-inch Butterfly Valve shall be by the number of valves installed.
    2. Payment for Furnish and Install 12-inch Butterfly Valve shall be by the unit price per each named in the Proposal, which price shall constitute full compensation for all tools, equipment, labor, and materials required to complete this work as specified herein; including but not limited to providing and installing valves, valve boxes, covers, extension stems as needed, gaskets, bolt kits, thrust blocking, and copper blue tracer wire, joint connections and restraints, anti-corrosion wrap, excavation of pavement and trench, mailbox protection and/or temporary relocation, removal and disposal of asphalt, disposal of excess soils, dewatering, bedding, backfilling, compaction, ditch and landscape restoration, survey and construction staking in accordance with requirements of the Contract Documents.
  - L. Item 12 - Waterline Flushing, Pressure Testing, Disinfection and Bacteriological Testing
    1. No measurement of Waterline Flushing, Pressure Testing, Disinfection and Bacteria Testing shall be made.
    2. Payment for Waterline Flushing, Pressure Testing, Disinfection and Bacteriological Testing shall be based upon the actual percentage of Waterline Flushing, Pressure Testing, Disinfection and Bacteriological Testing completed at the time of payment application submission as measured by the OWNER.
  - M. Item 13 – Connection Work for Tie-in at Station “0+40”
    1. No measurement of Connection Work for Tie-in at Station “0+40” shall be made.

2. Payment for Connection Work for Tie-in at Station “0+40” shall be by the lump sum price named in the Proposal, which payment shall constitute full payment for all tools, equipment, labor, and materials required to complete this work as specified herein; including but not limited to excavation, shoring, backfill, thrust blocking, removal and disposal of asphalt, disposal of excess soils, road and shoulder restoration, dewatering for District crew to make final connection to existing pipe lines, ditch and landscape restoration, survey and construction staking in accordance with the requirements of the Contract Documents. No additional measurement will be made for additional contractor tie-ins to facilitate means and methods.
- N. Item 14 – Connection Work for Tie-in at Station “4+30”
1. No measurement of Connection Work for Tie-in at Station “4+30” shall be made.
  2. Payment for Connection Work for Tie-in at Station “4+30” shall be by the lump sum price named in the Proposal, which payment shall constitute full payment for all tools, equipment, labor, and materials required to complete this work as specified herein; including but not limited to excavation, shoring, backfill, thrust blocking, removal and disposal of asphalt, disposal of excess soils, road and shoulder restoration, dewatering for District crew to make final connection to existing pipe lines, ditch and landscape restoration, survey and construction staking in accordance with the requirements of the Contract Documents. No additional measurement will be made for additional contractor tie-ins to facilitate means and methods.
  3. Crushed Surfacing Top Course shall be paid as separate units of work.
- O. Item 15 - Pavement and Landscaping Restoration
1. No measurement of Pavement and Landscaping Restoration shall be made.
  2. Payment for Pavement and Landscaping Restoration shall be made as a lump sum after the completion of the Work.
- P. Item 16 – Post-Construction As-built Drawing
1. No measurement of Post-Construction As-built Drawings shall be made.
  2. Payment for Post-Construction As-built Drawings will be made after submittal approval.

**PART 2 PRODUCTS - NOT USED****PART 3 EXECUTION - NOT USED****END OF SECTION**

**SECTION 01 31 19**  
**PROJECT MEETINGS**

**PART 1 GENERAL**

**1.1 SUMMARY**

A. Section Includes:

1. The OWNER and CONTRACTOR will schedule periodic meetings to review Work progress, coordinate activities, and address Work issues.

B. Related Sections:

1. Section 01 33 00 – Submittal Procedures

**1.2 PROJECT MEETINGS**

A. Preconstruction Conference:

1. Prior to the commencement of Work, a Preconstruction Conference will be held at a mutually agreed time and place. This meeting shall be attended by the CONTRACTOR's Project Manager, its superintendent, and its Subcontractor representatives as the CONTRACTOR deems appropriate. Other attendees will be:
  - a. OWNER and OWNER representatives.
  - b. Regulatory Agency representatives as appropriate.
  - c. Others as requested by CONTRACTOR or OWNER.
2. The CONTRACTOR shall bring to the Preconstruction Conference submittals in accordance with Section 01 33 00 – Submittal Procedures.
3. The purpose of the conference is to designate responsible personnel and establish a working relationship. Matters requiring coordination will be discussed and procedures for handling such matters established. The complete agenda will be furnished to the CONTRACTOR prior to the meeting date. However, the CONTRACTOR should be prepared to discuss all the items listed below.
  - a. Status of CONTRACTOR's insurance and bonds.
  - b. CONTRACTOR's tentative schedules.
  - c. Transmittal, review, and distribution of CONTRACTOR's submittals.
  - d. Federal and State Prevailing Wage Requirements
  - e. Processing applications for payment.
  - f. Maintaining record documents.
  - g. Critical work sequencing.
  - h. Field decisions and Change Orders.
  - i. Use of Site, office and storage areas, security, housekeeping, and OWNER's needs.
  - j. Major equipment deliveries and priorities.
  - k. CONTRACTOR's assignments for safety and first aid.
  - l. CONTRACTOR's Daily Report Form.
  - m. Submittal Transmittal Form (Section 1 33 00).
  - n. Request for Information (RFI) Form, which is appended at the end of this section, or the CONTRACTOR's standard form as approved by the OWNER.

- o. Deviation Request Form, which is appended at the end of this section, or the CONTRACTOR's standard form as approved by the OWNER.
  - 4. The OWNER will preside at the preconstruction conference and will arrange for keeping and distributing the minutes to all persons in attendance.
  - 5. The CONTRACTOR and its Subcontractors should plan for the conference to take no less than 1 hour. The meeting will cover the items listed in paragraphs 2 and 3, and review of the Drawings and Specifications, with the OWNER.
- B. Progress Meetings:
  - 1. The CONTRACTOR shall schedule and hold regular on-site progress meetings at least biweekly and at other times as requested by OWNER or as required by progress of the Work. The CONTRACTOR and all active Subcontractors shall attend each meeting. CONTRACTOR may at its discretion request attendance by representatives of its suppliers, manufacturers, and other Subcontractors.
  - 2. The OWNER will preside at the progress meetings and will arrange for keeping and distributing the minutes. The purpose of the meetings is to review the progress of the WORK, maintain coordination of efforts, discuss changes in scheduling, and resolve other problems that may develop. During each meeting, the CONTRACTOR shall present any issues that may impact its progress with a view to resolving these issues expeditiously.

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION - NOT USED**

**END OF SECTION**



REQUEST FOR INFORMATION

RFI NO: \_\_\_\_\_

Owner: Public Utility District No. 1 of Skagit County

Contractor: \_\_\_\_\_

**Project: Pipeline Relocation at Henson Road**

**Project No. 14018**

(FOR CONTRACTOR'S USE)

DATE:

SUBJECT:

DESCRIPTION:

CONTRACTOR'S AUTHORIZED SIGNATURE:

(FOR ENGINEER'S USE)

DATE:

SUBJECT:

DESCRIPTION:

ENGINEER'S AUTHORIZED SIGNATURE:

**Distribution:**

- 1. Contractor
- 2. Owner
- 3. Project Manager
- 4. Construction Manager
- 5. Project Files



**DEVIATION REQUEST**

**FILE: NO:** \_\_\_\_\_

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

Contractor \_\_\_\_\_ Project No. **14018**

Project **Pipeline Relocation at Henson Road**

Date	_____		
Subject	_____		
Sheet No.	Specification	_____	
Any change in contract time or cost?			
_____			
Proposed:	Approved	<input type="checkbox"/>	Disapproved <input type="checkbox"/>
_____		_____	
Contractor's Signature		Engineer's Signature	

**SECTION 01 32 00**  
**CONSTRUCTION PROGRESS DOCUMENTATION**

**PART 1 GENERAL****1.1 SUMMARY**

## A. Section Includes:

1. This Section includes administrative and procedural requirements and constraints for scheduling, recording, and reporting progress.
2. Constraints on the construction schedule are imposed by permits, environmental regulation, the OWNER, and other agency requirements. The CONTRACTOR is expected to use this information in preparing construction schedules to ensure adequate planning and performance of the Work by the CONTRACTOR in compliance with permits and other regulatory constraints.

## B. Related Sections:

1. Section 01 33 00 – Submittal Procedures
2. Section 01 41 00 – Regulatory Requirements

**1.2 SUBMITTALS**

- A. Submittals for this section shall be in accordance with Section 01 33 00 of these Specifications.
- B. Construction schedule shall clearly show restricted portions of the Work with respect to time and hours of work.

**PART 2 PRODUCTS****2.1 NETWORK DIAGRAM**

- A. The network diagram shall be printed on sufficient-sized sheets with font size large enough to clearly show all activities and scheduling information. The network diagram shall have a title block including the print date, revision number, contract number, CONTRACTOR name, and Project title.

**PART 3 EXECUTION****3.1 SCHEDULING OF WORK**

- A. The scheduling of the Work under the Contract shall be performed by the CONTRACTOR in accordance with the requirements of this section. Where submittals are required hereunder, the CONTRACTOR shall submit four copies of each submittal item.
- B. Scheduling terms and practices shall conform to the standards established in “Construction Planning and Scheduling, Second Edition”, published by the Associated General Contractors of America. Except for weekly look-ahead schedules, all schedules shall meet these general requirements and provide the following information:
  1. Include all activities necessary to physically complete the Work.
  2. Show the planned order of activities in a logical sequence.
  3. Show durations of activities in working days.
  4. Show activity durations that are reasonable for the intended Work.

5. Show activity durations in sufficient detail to evaluate progress of individual activities daily.
6. Show the completion of all Work within the authorized contract time.

### 3.2 CONSTRUCTION PROGRESS SCHEDULES

- A. The CONTRACTOR shall submit project schedule at the Preconstruction Conference which shall serve as the CONTRACTOR's Plan of Operation for the period of the Contract Time and to identify when the CONTRACTOR intends to complete all Work within the Contract Time. The schedule document shall reflect the Construction and Schedule Constraints identified in this Section.
- B. The Progress Schedule may be a critical path method (CPM) schedule, Gantt chart, or another standard schedule format. Regardless of which format is used, the schedule shall identify the critical path. The Progress Schedule shall indicate the relationships and time frames in which the various components of the Work will be made substantially complete and placed into service in order to meet the project milestones. For the main Work, sufficient detail shall be included for the identification of subdivisions of major components into such activities as:
  1. Shop drawing submittals
  2. Pipe fabrication and delivery
  3. Permit and other scheduling constraints
  4. Installation of erosion/sedimentation control measures
  5. Traffic Control Plan signage procurement and installation
  6. Trench excavation and backfill
  7. Restoration and revegetation
  8. Pipeline testing and disinfection
  9. Other important activities for each major facility within the overall project scope.
- C. If requested by the OWNER, the OWNER and the CONTRACTOR shall meet to review and discuss the Project Schedule within 5 working days after they have been submitted to the OWNER. The OWNER's review and comment on the Project Schedule shall be limited to Contract conformance (with the construction and schedule constraints as stated in Section 3.04). The CONTRACTOR shall make corrections to the Project Schedule necessary to comply with the Contract requirements and shall adjust the Project Schedule to incorporate any missing information requested by the OWNER.
- D. Within 2 working days of receipt of comments, the CONTRACTOR shall have revised the original Progress Schedule submittal to address all review comments from the review meeting and resubmit revised Progress Schedule for the OWNER'S review. The OWNER, within 2 working days from the date that the CONTRACTOR submitted his revised schedule will either (1) accept the Project Schedule as submitted, or (2) advise the CONTRACTOR in writing to revise any part or parts of the Project Schedule which either do not meet the Contract requirements or are unsatisfactory for the OWNER to monitor the project's progress and status or evaluate monthly payment requests by the CONTRACTOR. The OWNER reserves the right to require that the CONTRACTOR adjust, add to, or clarify any portion of the Project Schedule which may later be insufficient for the monitoring of the Work or approval of partial payment requests. No additional compensation will be provided for such adjustments or clarifications.
- E. The acceptance of the CONTRACTOR'S schedule by the OWNER will be based solely upon the schedule's compliance with the Contract requirements. By way of the CONTRACTOR assigning

activity durations and proposing the sequence of the Work, the CONTRACTOR agrees to utilize sufficient and necessary management and other resources to perform the Work in accordance with the schedule. Upon submittal of a schedule update, the updated schedule shall be considered the "current" project schedule.

1. Submission of the CONTRACTOR's progress schedule to the OWNER shall not relieve the CONTRACTOR of total responsibility for scheduling, sequencing, and pursuing the Work to comply with the requirements of the Contract Documents, including adverse effects such as delays resulting from ill-timed activity scheduling.
- F. Following the acceptance of the CONTRACTOR's schedule, the CONTRACTOR shall monitor the progress of the Work and adjust the schedule at each meeting to reflect actual progress and any changes in planned future activities. Each schedule update submitted must be complete including all information requested in the original schedule submittal. Each update shall continue to show all activities including those already completed. These completed activities shall accurately reflect the "as built" information by indicating when the activity was actually started and completed.
1. Neither the submission nor the updating of the CONTRACTOR's original schedule submittal nor the submission, updating, change or revision of any other report, curve, schedule or narrative submitted to the OWNER by the CONTRACTOR under this Contract, nor the OWNER's review or acceptance of any such report, curve, schedule or narrative shall have the effect of amending or modifying, in any way, the Contract completion date or milestone dates or of modifying or limiting, in any way, the Contractor's obligations under this Contract. Only a signed, fully executed change order can modify these contractual obligations.
- G. The schedule update submittal will be reviewed with the CONTRACTOR during the construction progress meeting. The goal of these meetings is to enable the CONTRACTOR and the OWNER to initiate appropriate remedial action to minimize any known or foreseen delay in completion of the Work and to determine the amount of Work completed since the previous schedule update. The status of the Work will be determined by the percent completion of each activity shown on the schedule. These meetings are considered a critical component of the overall schedule update submittal and the CONTRACTOR shall have appropriate personnel attend. As a minimum, these meetings shall be attended by the contractor's Project Manager and General Superintendent.

### **3.3 CHANGE ORDERS**

- A. Upon approval of a change order, or upon receipt by the CONTRACTOR of authorization to proceed with additional Work, the change shall be reflected in the next submittal of the schedule by the CONTRACTOR.

### **3.4 PROJECT CONSTRAINTS**

- A. Schedule Constraints
1. Some permits may have specific restrictions on construction timing, work hours and type of construction activity allowed. The CONTRACTOR shall abide by all restrictions imposed by these permits.
  2. Refer to Permissible Construction Windows shown on the plan and profile drawings for schedule constraints.

3. The CONTRACTOR shall prepare a construction schedule, which incorporates the schedule information shown on the drawings and in **Table 1** at the end of this section. These constraints have been identified here for the convenience of the CONTRACTOR. However, all schedule constraints identified in permits, regulations, or elsewhere in the Specifications or Drawings shall be incorporated into the CONTRACTOR’s schedule, whether included in **Table 1** or not.

**B. Property Constraints**

1. The CONTRACTOR shall be available for periodic construction coordination meetings with landowners as the CONTRACTOR proceeds activities along the pipeline alignment. These meetings will ensure the proper coordination of protection for structures and utilities, temporary utility shutdowns (if necessary), traffic control, safety, minimizing impacts to business operations, etc.

**C. City of Mount Vernon Right-of-Way Constraints**

1. Working hours and Substantial Completion dates for the project shall be from **Table 1** at end of section.

<b>TABLE 1. CONSTRUCTION TIMING CONSTRAINTS SUMMARY</b>		
<b>Location/ Jurisdiction<sup>1</sup></b>	<b>Activity</b>	<b>Constraints<sup>2</sup></b>
Mount Vernon	Construction Hours	<ul style="list-style-type: none"> <li>• 7 am to 9 pm Monday through Friday</li> <li>• 8 am to 9 pm on Saturday and Sunday</li> </ul>
Notes: 1. Per locations noted on plan/profile drawings. 2. Unless otherwise noted, a time period is when construction can occur. If there is a conflict between permits/approvals, the more restrictive constraint will apply.		

**END OF SECTION**

**SECTION 01 33 00**  
**SUBMITTAL PROCEDURES**

**PART 1 GENERAL****1.1 SUMMARY**

## A. Section Includes:

1. Wherever submittals are required hereunder, all such submittals by the CONTRACTOR shall be submitted to the OWNER.

## B. Related Sections:

1. Section 01 31 19 – Project Meetings
2. Section 01 32 00 – Construction Progress Documentation
3. Section 01 77 00 – Closeout Procedures

**1.2 DEFINITIONS**

## A. Shop Drawings:

1. See General Conditions.
2. Product data and samples are Shop Drawing information.
3. Manufacturer Certification

## B. Miscellaneous Submittals:

1. Submittals other than Shop Drawings and O&M Manuals.
2. Representative types of miscellaneous submittal items include but are not limited to:
  - a. Construction Stormwater Pollution Prevention Plan (SWPPP)
  - b. Spill Prevention Control and Countermeasure Plan (SPCC)
  - c. Site Specific Health and Safety Plan
  - d. Instrumentation and control commissioning reports.
  - e. Warranties.
  - f. Construction photographs.

**1.3 PRECONSTRUCTION MEETING SUBMITTALS**

## A. At the Preconstruction Meeting referred to in Section 01 31 19, Project Meetings, which shall be held within ten (10) days of Notice to Proceed, the CONTRACTOR shall submit the following items to the OWNER for review:

1. A preliminary schedule of Shop Drawings, Samples, and proposed Substitute ("Or-Equal") requests.
2. A list of all submittals that will be prepared and a schedule for submission to the OWNER.
3. A list of all permits and licenses the CONTRACTOR is obtaining per the requirements of these Contract Documents indicating the agency required to grant the permit, the expected date of submittal for the permit, and required date for receipt of the permit.
4. A 30-day plan of operation in accordance with Section 01 32 00 – Construction Progress Documentation.

5. A Progress Schedule in accordance with Section 01 32 00 – Construction Progress Documentation, which identifies critical activities to meet the project milestones.
6. Erosion Control Plan for areas outside of the right-of-way and any alternative Traffic Control Plan.

#### 1.4 PREPARATION OF SUBMITTALS

##### A. General:

1. All submittals and all pages of all copies of a submittal shall be completely legible.
2. Submittals which, in the Engineer's sole opinion, are illegible will be returned without review.

##### B. Shop Drawings:

1. Wherever called for in the Contract Documents, or where required by the OWNER, the CONTRACTOR shall furnish to the OWNER for review, two copies, plus one reproducible copy, (When feasible an electronic copy may be substituted), of each shop drawing submittal. The term "Shop Drawings" as used herein shall be understood to include detailed design calculations, shop drawings, fabrication, and installation drawings, erection drawings, lists, graphs, catalog sheets, data sheets, and similar items. Whenever the CONTRACTOR is required to submit design calculations as part of a submittal, such calculations shall bear the signature and seal of an engineer registered in the appropriate branch in Washington State, unless otherwise directed.
2. All Shop Drawing submittals shall be accompanied by the OWNER's standard submittal transmittal form which is appended at the end of this section or the CONTRACTOR's standard transmittal form approved by the OWNER. Any submittal not accompanied by such a form, or where all applicable items on the form are not completed, will be returned for resubmittal.
3. Except as may otherwise be indicated herein, the OWNER will return prints of each submittal to the CONTRACTOR with its comments noted thereon, within 7 Calendar Days following their receipt by the OWNER. It is considered reasonable that the CONTRACTOR shall make a complete and acceptable submittal to the OWNER by the second submission of a submittal item. The OWNER reserves the right to withhold money due to the CONTRACTOR to cover additional costs of the submittal review beyond the second submittal. The OWNER'S maximum review period for each submittal, including all resubmittals, will be 14 Calendar Days per submittal.
4. The OWNER's review of CONTRACTOR shop drawings submittals shall not relieve the CONTRACTOR of the entire responsibility for the correctness of details and dimensions. The CONTRACTOR shall assume all responsibility and risk for any misfits due to any errors in CONTRACTOR submittals. The CONTRACTOR shall be responsible for the dimensions and the design of adequate connections and details.
5. Numbering letter of transmittal:
  - a. Assign submittal numbers beginning with "001" and increasing sequentially with each additional transmittal.
6. Describing transmittal contents:
  - a. Provide listing of each component or item in submittal capable of receiving an independent review action.

- b. Identify for each item:
  - 1) Manufacturer and Manufacturer's Drawing or data number.
  - 2) Contract Drawing Section or detail number if applicable.
  - 3) Specification Article/Paragraph number if applicable.
  - 4) Unique page numbers for each page of each separate item.
- c. When submitting "or-equal" items that are not the products of named manufacturers, include the words "or-equal" in the item description.
7. Resubmittals:
  - a. Number with original root number and a suffix letter starting with "A" on a (new) duplicate transmittal form.
  - b. Do not increase the scope of any prior transmittal.
  - c. Account for all components of prior transmittal.
    - 1) If items in prior transmittal received "A" or "B" Action code, list them and indicate "A" or "B" as appropriate.
      - a) Do not include submittal information for items listed with prior "A" or "B" Action in resubmittal.
    - 2) Indicate "Outstanding-To Be Resubmitted at a Later Date" for any prior "C" or "D" Action item not included in resubmittal.
      - a) Obtain Engineer's approval to exclude items.
8. Contractor shall not use red color for marks on transmittals.
  - a. Duplicate all marks on all copies transmitted, and ensure marks are photocopied reproducible.
  - b. Outline Contractor marks on reproducible transparencies with a rectangular box.
9. Transmittal contents:
  - a. Coordinate and identify Shop Drawing contents so that all items can be easily verified by the Engineer.
  - b. Identify equipment or material use, Drawing detail reference, weight, and other Project specific information.
  - c. Provide sufficient information together with technical cuts and technical data to allow an evaluation to be made to determine that the item submitted is in compliance with the Contract Documents.
  - d. Submit items such as equipment brochures, cuts of fixtures, product data sheets or catalog sheets on 8½ x 11-inch pages.
    - 1) Indicate exact item or model and all options proposed.
  - e. When a Shop Drawing submittal is called for in any Specification Section, include as appropriate, scaled details, sizes, dimensions, performance characteristics, capacities, test data, anchoring details, installation instructions, storage and handling instructions, color charts, layout Drawings, rough-in diagrams, wiring diagrams, controls, weights and other pertinent data in addition to information specifically stipulated in the Specification Section.
    - 1) Arrange data and performance information in format similar to that provided in Contract Documents.
    - 2) Provide, at minimum, the detail specified in the Contract Documents.
  - f. If proposed equipment or materials deviate from the Contract Drawings or Specifications in any way, clearly note the deviation and justify the said deviation in detail in a separate letter immediately following transmittal sheet.

## 1.5 ENGINEER'S REVIEW ACTION

### A. Shop Drawings and Samples:

1. Items within transmittals will be reviewed for overall design intent and will receive one of the following actions:
  - a. A - Furnish as Submitted
  - b. B - Furnish as Noted
  - c. C - Revise and Resubmit
  - d. D - Rejected
  - e. E - Engineer's Review Not Required
2. Submittals received will be initially reviewed to ascertain inclusion of Contractor's approval stamp.
  - a. Submittals not stamped by the Contractor or stamped with a stamp containing language other than that specified herein will not be reviewed for technical content and will be returned without any action.
3. In relying on the representation on the Contractor's review and approval stamp, Owner and Engineer reserve the right to review and process poorly organized and poorly described submittals as follows:
  - a. Submittals transmitted with a description identifying a single item and found to contain multiple independent items:
    - 1) Review and approval will be limited to the single item described on the transmittal letter.
    - 2) Other items identified in the submittal will:
      - a) Not be logged as received by the Engineer.
      - b) Be removed from the submittal package and returned without review and comment to the Contractor for coordination, description, and stamping.
      - c) Be submitted by the Contractor as a new series number, not as a re-submittal number.
  - b. Engineer, at Engineer's discretion, may revise the transmittal letter item list and descriptions, and conduct review.
    - 1) Unless Contractor notifies Engineer in writing that the Engineer's revision of the transmittal letter item list and descriptions was in error, Contractor's review and approval stamp will be deemed to have applied to the entire contents of the submittal package.
4. Submittals returned with Action "A" or "B" are considered ready for fabrication and installation.
  - a. An electronic copy of said submittal will be returned to the Contractor.
  - b. If for any reason a submittal that has an "A" or "B" Action is resubmitted, it must be accompanied by a letter defining the changes that have been made and the reason for the resubmittal.
  - c. Destroy or conspicuously mark "SUPERSEDED" all documents having previously received "A" or "B" Action that are superseded by a resubmittal.
5. Submittals with Action "A" or "B" combined with Action "C" (Revise and Resubmit) or "D" (Rejected) will be individually analyzed giving consideration as follows:
  - a. The portion of the submittal given "C" or "D" will not be distributed (unless previously agreed to otherwise at the Preconstruction Meeting).

- 1) One (1) copy or the one (1) transparency of the "C" or "D" Drawings will be marked up and returned to the Contractor.
- 2) Correct and resubmit items so marked.
- b. Items marked "A" or "B" will be fully distributed.
- c. If a portion of the items or system proposed are acceptable, however, the major part of the individual Drawings or documents are incomplete or require revision, the entire submittal may be given "C" or "D" Action.
  - 1) This is at the sole discretion of the Engineer.
  - 2) In this case, some Drawings may contain relatively few or no comments or the statement, "Resubmit to maintain a complete package."
  - 3) Distribution to the Owner and field will not be made (unless previously agreed to otherwise).
6. Failure to include any specific information specified under the submittal paragraphs of the Specifications will result in the submittal being returned to the Contractor with "C" or "D" Action.
7. Calculations required in individual Specification Sections will be received for information purposes only, as evidence calculations have been performed by individuals meeting specified qualifications and will be returned stamped "E. Engineer's Review Not Required" to acknowledge receipt.
8. All costs associated with the Engineer's review of any Shop Drawing resubmitted more than once shall be borne by the Contractor with said costs being deducted from the Contract Price.
9. Transmittals of submittals which the Engineer considers as "Not Required" submittal information, which is supplemental to but not essential to prior submitted information, or items of information in a transmittal which have been reviewed and received "A" or "B" Action in a prior submittal, will be returned with Action "E. Engineer's Review Not Required."
10. Samples may be retained for comparison purposes.
  - a. Remove samples when directed.
  - b. Include in bid all costs of furnishing and removing samples.
11. Approved samples submitted or constructed constitute criteria for judging completed work.
  - a. Finished work or items not equal to samples will be rejected.

## 1.6 SAMPLES

- A. Whenever Specifications samples are required, the CONTRACTOR shall submit not less than three samples of each item or material to the OWNER for acceptance at no additional cost to the OWNER.
- B. Samples, as required herein, shall be submitted for acceptance a minimum of 7 Calendar Days prior to ordering such material for delivery to the jobsite, and shall be submitted in an orderly sequence so that dependent materials or equipment can be assembled and reviewed without causing delays in the WORK.
- C. All samples shall be individually and indelibly labeled or tagged, indicating thereon all specified physical characteristics and the Manufacturer's name for identification and submitted to the OWNER for acceptance. Upon receiving acceptance of the OWNER, one set of the samples will be stamped and dated by the OWNER and returned to the CONTRACTOR, and one set of

samples will be retained by the OWNER, and one set of samples shall remain at the job site until completion of the WORK.

- D. Unless indicated otherwise, all colors and textures of specified items presented in sample submittals shall be from the manufacturer's standard colors and standard materials, products, or equipment lines. If the samples represent non-standard colors, materials, products, or equipment lines and their selection will require an increase in contract time or price, the CONTRACTOR will clearly indicate the same on the transmittal page of the submittal.

**1.7 CONTRACTOR'S SCHEDULE SUBMITTAL**

- A. See Section 01 32 00 for CONTRACTOR's schedule submittal requirements.

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION - NOT USED**

**END OF SECTION**



# Contractor's Submittal Transmittal Form

For all contractor submittals, including shop drawings, samples calculation, data, or other

Date	Transmittal No.
------	-----------------

**Project Name: Pipeline Relocation at Henson Road**

Owner: Skagit PUD No. 1	Contractor:
-------------------------	-------------

Attention: Wendy LaRocque	Attention:
---------------------------	------------

Address: 1415 Freeway Drive Mount Vernon, WA 98273	Address:
--	----------

<b>Action Legend:</b> A – Furnish as Submitted B – Furnish as Noted C – Revise and Resubmit D – Rejected E – Engineer’s Review Not Required	<b>This is:</b> Check one <input type="checkbox"/> an original submittal  <input type="checkbox"/> a 2nd submittal  <input type="checkbox"/> a ____ submittal
--	--

Item No.	Description	Spec Section or Drawing No.	Action Taken

District Reviewer: \_\_\_\_\_

Contractor to complete either (a) or (b), following:

(a) We have verified that the materials or equipment contained in this submittal meets all the requirements specified or shown (no exceptions)

(b) We have verified that the material or equipment contained in this submittal meets all the requirements specified or shown, except for the following deviations (List Deviations):

Contractor's Authorized Representative \_\_\_\_\_

**SECTION 01 35 29**  
**HEALTH, SAFETY, AND EMERGENCY RESPONSE PROCEDURES**

**PART 1 GENERAL****1.1 SUMMARY**

- A. This Section includes the administrative and procedural requirements for health, safety and emergency response procedures.

**1.2 RELATED SECTIONS**

- A. Section 01 33 00 – Submittal Procedures

**1.3 REQUIREMENTS**

- A. CONTRACTOR and all subcontractors shall:
1. Select all appropriate safety equipment required to do the job and furnish it to workers.
  2. Participate in coordination of all safety issues among all contractors on the job.
  3. Make your Accident Prevention Plan [APP] and Health and Safety Plan [HASP] available and accessible to your workers at the site.
  4. Communicate to all workers the work rules and abide by said rules. Implement a disciplinary plan for safety or work rule violations which is consistently enforced.
  5. Provide weekly documentation relating to your safety compliance, identification of hazards or safety violations, actions taken to correct those hazards and safety training undertaken.
  6. Provide safety training on a regular basis to all workers as required by WISHA and other regulations.
  7. Conduct safety inspections as required by Washington Industrial Safety and Health Act [WISHA] and report all identified hazards.

**1.4 SUBMITTALS**

- A. Provide the Table of Contents for the Accident Prevention Plan.
- B. A written site-specific Health and Safety Plan for the CONTRACTOR and each SUBCONTRACTOR which identifies anticipated job safety hazards within the scope of CONTRACTOR's and subcontractor's work for all phases of the CONTRACT, including the specific means used to address each hazard prior to starting the job. The APP and HASP must conform to the requirements of WISHA.
- C. Submittals shall be furnished prior to starting the job.

**1.5 WARRANTIES**

- A. CONTRACTOR warrants that before starting the job, it will develop and furnish the District with a copy of its written APP and site-specific HASP, which identifies anticipated job safety hazards within the scope of its contract and for all phases of its contract and which addresses the specific means it will use to address each hazard.
- B. CONTRACTOR warrants that its Health and Safety Plan conforms to the requirements of the Washington Industrial Safety and Health Act.
- C. CONTRACTOR warrants it will ensure that its employees follow all APP and HASP policies and work rules.

- D. CONTRACTOR warrants that it will communicate all work rules to its employees and that it has a disciplinary plan for safety or work rule violations which it consistently enforces and will continue to enforce throughout the length of this contract.
- E. CONTRACTOR warrants that it will select and furnish to its employees all appropriate safety equipment and participate fully in coordination of all safety issues among all CONTRACTORS and subcontractors on the job.
- F. CONTRACTOR warrants that it will make its APP and HASP available and accessible at the site to all its employees.
- G. CONTRACTOR agrees that it will have available in its job file weekly documentation relating to CONTRACTOR's safety compliance, identification of hazards or safety violations, actions taken to correct those hazards and safety training undertaken.
- H. CONTRACTOR warrants that it will provide safety training on a regular basis to all workers as required by WISHA and other regulations, will conduct safety inspections as required by WISHA and will report all identified hazards.
- I. CONTRACTOR warrants and agrees that it and each of its employees will comply with all rules and regulations relating to safety, including but not limited to WISHA regulations.
- J. CONTRACTOR agrees to undertake any abatement actions required as a result of the discovery of violations.
- K. CONTRACTOR warrants and agrees to require each subcontractor to have its own APP and site-specific HASP.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION**

**SECTION 01 41 00  
REGULATORY REQUIREMENTS**

**PART 1 GENERAL**

**1.1 SUMMARY**

- A. Section Includes:
  - 1. This section describes the Contract applicable permits and easements.
  - 2. As shown in the vicinity map on the Contract Plans, Work will occur within the County of Skagit, State of Washington.
- B. Related Sections:
  - 1. Section 01 32 00 – Construction Progress Documentation
  - 2. Section 01 77 00 – Closeout Procedures

**1.2 PERMITS**

- A. Keep fully informed of all local ordinances, as well as state and federal laws, which in any manner affect the Work specified herein. At all times comply with said ordinances, laws, and regulations, and protect and indemnify the OWNER and its officers and agents against any claim or liability arising from or based on the violation of such laws, ordinances, or regulations. Secure and pay for all permits, licenses, and inspection fees necessary for prosecution and completion of the Work unless otherwise specified.
- B. Permits:
  - 1. OWNER will provide and pay all fees for the permits shown in **Table 1**.
  - 2. Comply with all conditions attached to applicable federal, state, and local permits.

Agency/Jurisdiction	Permit Name	Permit #	Status	Issued Date
WDFW	HPA	HPA 2024-4-475+02	Approved	07/03/2025
City of Mount Vernon	Critical Areas ROW	PL24-0329	Approved	09/17/2024
		ENGR25-0208	Approved	07/31/2025

**1.3 OWNER OBTAINED EASEMENTS**

- A. The OWNER may have obtained easements for portions of the Work as required. These easement limits are shown on the Drawings.
- B. Easements provide for the use of private property for construction purposes or for access during construction to the extent indicated in the easements. It shall be the CONTRACTOR’s responsibility to:
  - 1. Determine the limitations in the easement obtained in every case and to abide by all requirements and provisions of the easement.
  - 2. Confine construction operations to within the easement limits or street right-of-way limits or make special arrangements with the property owner and appropriate public agency for the additional area required.

3. Pay for any property use outside the prescribed limits and easements provided for in the Contract Documents.
  4. Repair to an equal to or better condition any property damaged either inside or outside the limits of the easements.
  5. Remove, protect, and reinstall all fences, mailboxes, paving, utilities, or other items encountered on public or private property.
  6. If the CONTRACTOR makes “special arrangements” with property owner, then the CONTRACTOR shall inform the OWNER of these arrangements and provide written documents.
  7. CONTRACTOR may negotiate with the adjacent property owner if additional easements are required.
- C. CONTRACTOR shall comply with all applicable terms and conditions contained in such easements and additional easements that the CONTRACTOR may acquire.

#### **1.4 PERMITS AND EASEMENTS OBTAINED AFTER BID SUBMITTAL**

- A. If, after the bid submittal date, the OWNER obtains any permits or easements which require changes to the Work hereunder and thereby cause an increase or decrease in the cost of, or the time required for, the performance of the Work, submit information sufficient for the OWNER to determine the extent of the effects on the cost and/or schedule. If the OWNER agrees the cost and/or schedule will be affected by such changes, such effects will be handled in accordance with the General Conditions. The OWNER will provide CONTRACTOR with a copy of any such permits or easements. The CONTRACTOR shall comply with all applicable terms and conditions contained in such permits or easements.

#### **1.5 EASEMENTS AND AGREEMENTS TO BE OBTAINED BY THE CONTRACTOR**

- A. Obtain all other easements, permits and agreements required to perform the Work. Prepare and submit to the proper authority all information required for the issuance of such easements, permits, and agreements and pay all costs thereof, including agency inspections unless specifically provided otherwise in these Contract Documents. Submit a copy of each such easement, permit, and agreement to the OWNER.

#### **1.6 POSTING PERMITS**

- A. Post permits at the site of the Work if required.

#### **1.7 RESTORATION OF PROPERTY**

- A. Comply with all property restoration requirements contained in permits, easements, and agreements to complete the Work.
- B. Restoration of road shoulders within the right of way, driveways, and private property and landscaping outside the neat lines of Work damaged by the CONTRACTOR through the course of the Work or by accident shall be repaired to same at no cost to the OWNER.
- C. Whenever any Work is performed on property where an easement, permit, or agreement has been obtained by the CONTRACTOR, submit to the OWNER, before final payment under Section 01 77 00 – Closeout Procedures, a written release from the property owner or proper authority acting for the property owner, of each property affected, stating that the restoration of structures and surfaces has been completed to the satisfaction of the property owner and that the property owner

has no claims for damages on account of such restoration. Use the release form provided by the OWNER. If, in the opinion of the OWNER, the release is unreasonably withheld by the property owner, the OWNER may, in its sole discretion, accept the portion of the Work involved and cause final payment to be made.

**1.8 HOURS OF WORK**

- A. Comply with Section 01 32 00 - Construction Progress Documentation.

**1.9 LICENSES**

- A. The CONTRACTOR is responsible for obtaining all required licenses including all required Business License(s).

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION**



**OWNER RELEASE FORM**

To: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

We (I), the undersigned, hereby acknowledge that \_\_\_\_\_  
contractor, has satisfactorily restored the surface of the property owned by us (me) upon, or  
under which said contractor has performed Work pursuant to contract with the \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
(Owner)

\_\_\_\_\_  
(Owner)

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

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

**SECTION 01 42 13**  
**ABBREVIATIONS AND ACRONYMS**

**PART 1 GENERAL****1.1 SUMMARY**

- A. Wherever in these Specifications references are made to the standards, specifications, or other published data of the various international, national, regional, or local organizations, such organizations may be referred to by their acronym or abbreviation only. As a guide to the user of these Specifications, the following acronyms or abbreviations which may appear in these Specifications shall have the meanings indicated herein.

**1.2 ABBREVIATIONS**

AAMA	Architectural Aluminum Manufacturer's Association
AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
ANSI	American National Standards Institute, Inc.
API	American Petroleum Institute
APWA	American Public Works Association
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASQC	American Society for Quality Control
ASTM	American Society for Testing and Materials
AWS	American Welding Society
AWWA	American Water Works Association
BBC	Basic Building Code, Building Officials and Code Administrators International
BNSF	Burlington Northern Santa Fe Railroad
BPA	Bonneville Power Administration
CRSI	Concrete Reinforcing Steel Institute
EIA	Electronic Industries Association
ETL	Electrical Test Laboratories
EPA	Environmental Protection Agency
HPA	Hydraulic Project Approval
IAPMO	International Association of Plumbing and Mechanical Officials
ICBO	International Conference of Building Officials
IEEE	Institute of Electrical and Electronics Engineers
IES	Illuminating Engineering Society
ISA	Instrument Society of America
ISO	International Organization for Standardization
ITE	Institute of Traffic Engineers
MSS	Manufacturers Standardization Society
NAAMM	National Association of Architectural Metal Manufacturer's
NACE	National Association of Corrosion Engineers
NBS	National Bureau of Standards
NCCLS	National Committee for Clinical Laboratory Standards

NEC	National Electrical Code
NEMA	National Electrical Manufacturer's Association
NFPA	National Fire Protection Association
OSHA	Occupational Safety and Health Administration
PCA	Portland Cement Association
PPI	Plastic Pipe Institute
PUD	Public Utility District No. 1 of Skagit County
RWMA	Resistance Welder Manufacturer's Association
SAE	Society of Automotive Engineers
SAMA	Scientific Apparatus Makers Association
SMA	Screen Manufacturers Association
SPFA	Steel Plate Fabricators Association
SPR	Simplified Practice Recommendation
SSPC	Steel Structures Painting Council
SSPWC	Standard Specifications for Public Works Construction
UBC	Uniform Building Code
UL	Underwriters Laboratories, Inc.
UPRR	Union Pacific Railroad
WCRSI	Western Concrete Reinforcing Steel Institute
WDFW	Washington Department of Fish and Wildlife
WISHA	Washington Industrial Safety and Health Administration
WRI	Wire Reinforcement Institute, Inc.
WSDOT	Washington State Department of Transportation

Other acronyms or abbreviations may appear and shall be determined by the context in which they are used.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION**

**SECTION 01 42 19**  
**REFERENCE STANDARDS**

**PART 1 GENERAL**

**1.1 SUMMARY**

- A. **Titles of Sections and Paragraphs:** Captions accompanying specification sections and paragraphs are for convenience of reference only, and do not form a part of the Specifications.
- B. **Applicable Publications:** Whenever in these Specifications references are made to published specifications, codes, standards, or other requirements, it shall be understood that wherever no date is specified, only the latest specifications, standards, or requirements of the respective issuing agencies which have been published as of the date that the Work is advertised for bids, shall apply; except to the extent that said standards or requirements may be in conflict with applicable laws, ordinances, or governing codes. No requirements set forth herein or shown on the Drawings shall be waived because of any provision of, or omission from, said standards or requirements.
- C. **Specialists, Assignments:** In certain instances, specification text requires (or implies) that specific work is to be assigned to specialists or expert entities, who must be engaged for the performance of that work. Such assignments shall be recognized as special requirements over which the CONTRACTOR has no choice or option. These requirements shall not be interpreted so as to conflict with the enforcement of building codes and similar regulations governing the Work; also, they are not intended to interfere with local union jurisdiction settlements and similar conventions. Such assignments are intended to establish which party or entity involved in a specific unit of work is recognized as "expert" for the indicated construction processes or operations. Nevertheless, the final responsibility for fulfillment of the entire set of contract requirements remains with the CONTRACTOR.

**1.2 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS**

- A. Without limiting the generality of other requirements of the Specifications, all work specified herein shall conform to or exceed the requirements of applicable codes and the applicable requirements of the following documents.
- B. References herein to "Building Code" or "Uniform Building Code" shall mean Uniform Building Code of the International Conference of Building Officials (ICBO). Similarly, references to "Mechanical Code" or "Uniform Mechanical Code," "Plumbing Code" or "Uniform Plumbing Code," "Fire Code" or "Uniform Fire Code," shall mean Uniform Mechanical Code, Uniform Plumbing Code and Uniform Fire Code of the International Conference of the Building Officials (ICBO). "Electric Code" or "National Electric Code (NEC)" shall mean the National Electric Code of the National Fire Protection Association (NFPA). The latest edition of the codes as approved by the Municipal Code and used by the local agency as of the date that the Work is advertised for bids, as adopted by the agency having jurisdiction, shall apply to the Work herein, including all addenda, modifications, amendments, or other lawful changes thereto.
- C. In case of conflict between codes, reference standards, drawings and the other Contract Documents, the most stringent requirements shall govern. All conflicts shall be brought to the attention of the OWNER for clarification and directions prior to ordering or providing any materials or furnishing labor. The CONTRACTOR shall bid for the most stringent requirements.

- D. The CONTRACTOR shall construct the Work specified herein in accordance with the requirements of the Contract Documents and the referenced portions of those referenced codes, standards, and specifications listed herein.
- E. **Applicable Standard Specifications:** References in the Contract Documents to "Standard Specifications" shall mean the Standard Specifications for Road, Bridge, and Municipal Construction of the Washington State Department of Transportation and Washington State Chapter of American Public Works Association, 2024 edition, which applicable parts are incorporated herein and made a part of these Documents by specific reference thereto. If requirements contained in the Standard Specifications are modified by or conflict with supplemental information in these Contract Documents, the requirements of these Contract Documents shall prevail.
- F. References herein to "OSHA Regulations for Construction" shall mean **Title 29, Part 1926, Construction Safety and Health Regulations**, Code of Federal Regulations (OSHA), including all changes and amendments thereto.
- G. References herein to "OSHA Standards" shall mean **Title 29, Part 1910, Occupational Safety and Health Standards**, Code of Federal Regulations (OSHA), including all changes and amendments thereto.
- H. References herein to "WISHA Standards" shall mean **Chapter 296 - 24 WAC, General Safety and Health Standard**, State of Washington, Division of Industrial Safety and Health, (WISHA) including all changes and amendments thereto.
- I. References herein to "WISHA Standards for Construction" shall mean **Chapter 296 - 155 WAC, Safety Standards for Construction Work**, State of Washington, Division of Industrial Safety and Health, (WISHA) including all changes and amendments thereto.

### 1.3 REGULATIONS RELATED TO HAZARDOUS MATERIALS

- A. The CONTRACTOR is responsible for the fact that all work included in the Contract Documents, regardless if shown or not, shall comply with all EPA, OSHA, RCRA, NFPA, and any other Federal, State, and Local Regulations governing the storage and conveyance of hazardous materials, including petroleum products.

### PART 2 PRODUCTS (NOT USED)

### PART 3 EXECUTION (NOT USED)

### END OF SECTION

**SECTION 01 57 19**  
**TEMPORARY ENVIRONMENTAL CONTROLS**

**PART 1 GENERAL**

**1.1 SUMMARY**

- A. This section specifies Temporary Environmental Controls required to be maintained during construction in addition temporary erosion and sediment control.
- B. The CONTRACTOR shall prepare a Spill Prevention, Control and Countermeasures Plan (SPCC) in conformance with Section 1-07.15(1) of the Standard Specifications.

**1.2 RELATED SECTIONS**

- A. Section 01 33 00 – Submittal Procedures
- B. Section 31 25 00 – Erosion and Sedimentation Control

**1.3 SUBMITTALS**

- A. SPCC Plan in conformance with Section 1-07.15(1) of the Standard Specifications.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION**

**3.1 AIR POLLUTION CONTROL**

- A. The CONTRACTOR shall not discharge smoke, dust, and other contaminants into the atmosphere that violate the regulations of legally constituted authorities. Minimize dust nuisance by cleaning, sweeping, and sprinkling with water, or other means. The use of water, in amounts resulting in mud on public streets, is not acceptable as a substitute for sweeping or other methods.

**3.2 NOISE CONTROL**

- A. The CONTRACTOR shall perform all work in compliance with the local jurisdiction's Noise Ordinance, except where additional restrictions are applicable. The CONTRACTOR shall schedule noisy operations to minimize their duration.
- B. The CONTRACTOR shall use whatever means necessary to comply with the Noise Ordinance. The CONTRACTOR shall be responsible for all costs necessary to reduce noise levels to those specified in the Noise Ordinance or to obtain a variance from the specific levels.
- C. The CONTRACTOR shall provide the following noise abatement equipment or operate construction equipment in the following manner so as to avoid exceeding noise limitations:
- D. Each internal combustion engine, used for any purpose on the job or related to the job, shall be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated on the project without said muffler.
  - 1. Equipment that cannot meet the noise levels specified under the local Noise Ordinance shall be quieted by use of improved exhaust mufflers or other means.
  - 2. Noisy portable equipment, such as generators, compressors or pumps shall be located as far away from sensitive noise receptor areas as practicable. (Noise sensitive receptors include residences.)

3. Noise barriers shall be constructed around stationary construction equipment which has to be utilized at locations near sensitive noise receptors.
4. Idling equipment shall be shut off when not in active use.

### 3.3 SITE MAINTENANCE

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
- B. Remove waste materials, debris and rubbish from the site immediately upon such materials becoming unfit for use in the work. In the event this material is not removed, the OWNER reserves the right to have the material removed and the expense charged to the CONTRACTOR.
- C. Prevent dirt and dust from escaping trucks departing the site by covering dusty loads, washing truck tires before leaving the site, or other methods as applicable.
- D. The CONTRACTOR is responsible for controlling dust and mud within the project limits. All streets outside the project limits used by the CONTRACTOR during the execution of this Contract shall be kept clean. The CONTRACTOR shall use watering trucks equipped with high-velocity water jets and low-head sprinkling devices, power sweepers, and any other pieces of equipment necessary to render the streets free of all mud, debris, and foreign materials. Any damage caused by dust or mud accumulation on the streets and in the storm drain system shall be the sole responsibility of the CONTRACTOR.
- E. Watering trucks may be used on paved streets with an adequate storm drainage system. Watering trucks shall not be used on streets where, in the opinion of the OWNER, mud could be created, causing a nuisance. Where water flushing is not allowed, street sweepers (not power brooms) shall be used.
- F. Sweep or flush all surface roadways upon completion of each day's activities. Equipment required for this operation shall be on the job site or available at all times. Failure to have this equipment on the job site or available may necessitate a shutdown of the project.
- G. Clean all roadways, streets, and appurtenances, including sidewalks and paths which are open for public use, of all material or debris which has been dropped or otherwise deposited thereon, as a result of CONTRACTOR on- and off-site operations, at the conclusion of each working day, and at such other times as deemed necessary by the OWNER to ensure the safety of the traveling public and to prevent inconvenience to the public and owners of private property adjacent to the project.
- H. Any violation of the above requirements will be sufficient grounds for the OWNER to order the roadways, streets and appurtenances cleaned or sprinkled by others, and to deduct all costs of such cleaning or sprinkling from any money due, or to become due to the CONTRACTOR.

### 3.4 OIL SPILL PREVENTION AND CONTROL

- A. **Regulations:** The CONTRACTOR is advised that discharge of oil from equipment or facilities into state waters or onto adjacent land is not permitted under Washington State water quality regulations.
- B. **Responsibility:** The CONTRACTOR shall be responsible for prevention, containment, and cleanup of spilling of oil, fuel and other petroleum products used in the CONTRACTOR's operations. All such prevention, containment and cleanup costs shall be borne by the

CONTRACTOR. The CONTRACTOR shall, at a minimum, take the following measures regarding oil spill prevention, containment, and cleanup.

**C. Minimum Precautions:**

1. Fuel hoses, lubrication equipment, hydraulically operated equipment, oil drums, and other equipment and facilities shall be inspected regularly for drips, leaks, or signs of damage, and shall be maintained and stored properly to prevent spills. Proper security shall be maintained to discourage vandalism.
2. All land-based oil and products storage tanks shall be diked or located so as to prevent spills from escaping to the water. Diking and subsoils shall be lined with impervious material to prevent oil from seeping through the ground and dikes.
3. All visible floating oils shall be immediately contained with booms, dikes, or other appropriate means and removed from the water prior to discharge into state waters. All visible oils on land shall be immediately contained using dikes, straw bales, or other appropriate means and removed using sand, ground clay, sawdust, or other absorbent material, which shall then be properly disposed of by the CONTRACTOR.
4. In the event of any oil or product discharges into public waters, or onto land with a potential for entry into public waters, the CONTRACTOR shall immediately notify the following agencies at their listed 24-hour response numbers:
  - a. Washington DOE Northwest Regional Office, Telephone No. (425) 649-7000.
  - b. U.S. Coast Guard Telephone No. (206) 217-6232.
  - c. Maintain on the job site, in the vicinity of ongoing work, the following spill response and containment materials:
    - 1) Oil-absorbent booms: minimum four (4) each, five (5) feet long.
    - 2) Oil-absorbent pads or bulk material, adequate for coverage of 200 square feet of surface area, minimum.
    - 3) Straw bales.
    - 4) Dry all.
    - 5) Gloves.
    - 6) Plastic bags.

**END OF SECTION**

**SECTION 01 66 00**  
**PRODUCT STORAGE AND HANDLING REQUIREMENTS**

**PART 1 GENERAL****1.1 SUMMARY**

- A. This Section includes the requirements for storage and handling of products for the Project.

**1.2 RELATED SECTIONS**

- A. Section 01 71 13 - Mobilization

**1.3 DEFINITIONS**

- A. The word "Products", as used herein, is defined to include purchased items for incorporation into the Work, regardless of whether specifically purchased for the project or taken from CONTRACTOR's stock of previously purchased products. The word "Materials," is defined as products which must be substantially cut, shaped, worked, mixed, finished, refined, or otherwise fabricated, processed, installed, or applied to form units of work. The word "Equipment" is defined as products with operational parts, regardless of whether motorized or manually operated, and particularly including products with service connections (wiring, piping, and other like items). Definitions in this paragraph are not intended to negate the meaning of other terms used in the Contract Documents, including "specialties," "systems," "structure," "finishes," "accessories," "furnishings," special construction," and similar terms, which are self-explanatory and have recognized meanings in the construction industry.
- B. Neither "Products" nor "Materials" nor "Equipment" includes machinery and equipment used for preparation, fabrication, conveying and erection of the Work.

**1.4 QUALITY ASSURANCE**

- A. **Source Limitations:** To the greatest extent possible for each unit of work, the CONTRACTOR shall provide products, materials, and equipment of a singular generic kind from a single source.
- B. **Compatibility of Options:** Where more than one choice is available as options for CONTRACTOR's selection of a product, material, or equipment, the CONTRACTOR shall select an option which is compatible with other products, materials, or equipment. Compatibility is a basic general requirement of product, material, and equipment selections.

**PART 2 PRODUCTS (NOT USED)****PART 3 EXECUTION****3.1 GENERAL**

- A. Products shall be transported by methods to avoid damage and shall be delivered in undamaged condition in manufacturer's unopened containers and packaging.
- B. The CONTRACTOR shall deliver and store products in accordance with manufacturer's written recommendations and by methods and means which will prevent damage, deterioration, and loss including theft. Delivery schedules shall be controlled to minimize long-term storage of products at the site and overcrowding of construction spaces. In particular, the CONTRACTOR shall

ensure coordination to ensure minimum holding or storage times for flammable, hazardous, easily damaged, or sensitive materials to deterioration, theft, and other sources of loss.

- C. The CONTRACTOR shall provide equipment and personnel to handle products, materials, and equipment by methods to prevent soiling and damage.
- D. The CONTRACTOR shall provide additional protection during handling to prevent marring and otherwise damaging products, packaging, and surrounding surfaces.

### **3.2 PROTECTION**

- A. Products shall be stored in accordance with manufacturer's written instructions and with seals and labels intact and legible. Sensitive products shall be stored in accordance with manufacturer's recommendations.
- B. For exterior storage of fabricated products, products shall be placed on sloped supports above ground. Products subject to deterioration shall be covered with impervious sheet covering and ventilation shall be provided to avoid condensation.
- C. Loose granular materials shall be stored on solid flat surfaces in a well-drained area and shall be prevented from mixing with foreign matter.
- D. Storage shall be arranged to provide access for inspection. The CONTRACTOR shall periodically inspect to assure products are undamaged and are maintained under required conditions.

### **3.3 MAINTENANCE**

- A. The CONTRACTOR shall comply with manufacturer's product storage requirements and recommendations.
- B. The CONTRACTOR shall ensure that surfaces of products exposed to the elements are not adversely affected and that weathering of finishes does not occur.
- C. The CONTRACTOR shall maintain manufacturer-required environmental conditions continually.
- D. For mechanical and electrical equipment, the CONTRACTOR shall provide a copy of the manufacturer's service instructions with each item and the exterior of the package shall contain notice that instructions are included.
- E. Products shall be serviced on a regularly scheduled basis, and a log of services shall be maintained and submitted as a record document prior to acceptance by the OWNER in accordance with the Contract Documents.

**END OF SECTION**

**SECTION 01 71 13  
MOBILIZATION**

**PART 1 GENERAL**

**1.1 SUMMARY**

A. Section Includes:

1. CONTRACTOR shall be responsible for all labor, equipment, and materials for the preparation of the Site prior to beginning Work.
2. At the completion of the Work, the CONTRACTOR shall restore the Site.

B. Related Requirements

1. Section 01 33 00 - Submittal Procedures
2. Section 01 41 00 - Regulatory Requirements

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION**

**3.1 MOBILIZATION**

A. Mobilization shall include the obtaining of all permits; moving onto the site of all equipment; furnishing and erecting plants, temporary buildings, and other construction facilities; and implementing security requirements; all as required for the proper performance and completion of the Work.

B. Mobilization shall include, but not limited to, the following principal items:

1. Obtaining all required permits.
2. Provide required bonds and proof of insurance.
3. Moving on to the site of all CONTRACTOR's plant and equipment required for first month operations.
4. Submittals for ordering long lead time materials and major equipment within ten (10) days of Notice to Proceed.
5. Installing temporary construction fencing, power, wiring, and lighting facilities.
6. Developing construction water supply.
7. Providing all on-site communication facilities.
8. Providing on-site sanitary facilities and potable water facilities.
9. Arranging for and erection of CONTRACTOR's storage yard.
10. Having all OSHA required notices and establishment of safety programs.
11. Having the CONTRACTOR's superintendent at the job site full time.
12. Preparation and submitting of initial submittals

**3.2 DEMOBILIZATION**

A. Demobilization shall include removal of all tools, equipment, facilities, and unused material from the Site.

B. Restore all disturbed area within and outside the Site to their preconstruction condition.

**END OF SECTION**

**SECTION 01 71 33.11**  
**PROTECTION OF ADJACENT UTILITIES**

**PART 1 GENERAL****1.1 SUMMARY**

- A. The CONTRACTOR shall protect and keep in service water pipelines and services, stormwater drains, underground and aboveground power lines, telephone lines, cable TV lines, fiber optic lines, natural gas lines, oil pipelines and shall perform water main relocations in accordance with the Contract Documents.

**PART 2 PRODUCTS****2.1 UTILITY REPLACEMENT PIPING**

- A. Utility lines that are cut or otherwise damaged during installation of the new water pipeline shall be replaced with new pipe of the same type of material (e.g. reinforced concrete, ductile iron, copper, etc.) as that removed unless otherwise shown on the Drawings or as otherwise specified herein. New materials shall conform to the requirements of this Section.

**2.2 WATER PIPE**

- A. Pipe materials shall conform to Division 33 of these specifications and shall be compatible with existing pipe materials.

**PART 3 EXECUTION****3.1 GENERAL**

- A. The CONTRACTOR shall protect from damage and keep in service private and public utilities encountered during the work. Utilities shall include, but are not limited to, storm drain systems, water distribution systems, electrical distribution systems, telephone, fiberoptics and CATV systems, power lines and appurtenances, natural gas lines, oil pipelines, and similar facilities and systems.
- B. The CONTRACTOR shall, a minimum of 2 working days before an excavation, call the Utilities Underground Location Center at 811. In the case of the high-pressure gas pipelines and the oil pipelines that are noted in the drawings, provide a minimum of 10 days advance notice before excavation and crossing of the pipeline.
- C. The right is reserved to the OWNER and the owners of utilities, or their authorized agents, to enter upon the CONTRACTOR's work area for the purpose of making changes, connections, or repairs to their facilities. The CONTRACTOR shall cooperate with the forces engaged in this work and shall avoid any unnecessary delay or hindrance to work being performed by other forces.
- D. It shall be the CONTRACTOR's responsibility to make whatever notifications and applications may be necessary in coordinating utility and CONTRACTOR work. Directly inform individual owners or household residents at least 48 hours in advance of beginning the work to minimize or eliminate inconveniences to the public. Inform owners of work which blocks the use of the property in any way by construction or equipment or which interferes with water or sewer service.

- E. In the event any existing utility lines are cut or otherwise disrupted per requirements of the Work, or unintentionally cut or disrupted, the CONTRACTOR shall coordinate directly with the utility affected to restore service as quickly as possible without delay. CONTRACTOR shall bear all costs associated with removal and replacement of interfering utilities, which CONTRACTOR intentionally or unintentionally cuts, damages, or disrupts, that are not required to be cut and replaced as part of Work.

### **3.2 LOCATIONS OF UTILITIES**

- A. The locations shown on the Drawings for existing utilities are in accordance with available information obtained without uncovering, measuring or other verification. It is the CONTRACTOR's responsibility to call the Utilities Underground Location Center and make every effort to identify the location of existing utilities before digging. The CONTRACTOR shall make necessary arrangements for removal and replacement or repair of these utilities as necessary to facilitate pipeline construction, and the CONTRACTOR shall bear all related costs.
- B. It is the CONTRACTOR's responsibility to contact the utility owners 10 days in advance of excavation near the pipeline so a representative can be present.
- C. Attention is directed to the possible existence of other underground facilities, such as below-grade vaults, which are not shown on the Drawings. When the removal and/or relocation of these facilities is necessary to accommodate the Work, the OWNER will provide for this additional work by other forces, or this additional work shall be performed by the CONTRACTOR as extra work pursuant to a Change Order. Notify the OWNER if utilities not shown on the Drawings are encountered.
- D. It is anticipated that the CONTRACTOR may encounter water, sewer, and electric utilities (service lines running between street mains and private residences and businesses) during work operations. Records of these utility locations may be incomplete and therefore do not appear on the Drawings and will not be field located by the owning utilities. The locations of these services can usually be ascertained by relative meter location, residence location, or through discussion with various private property owners. It shall be the CONTRACTOR's responsibility to locate and protect these private services from damage.

### **3.3 UTILITY POLE AND GUY WIRE INTERFERENCE**

- A. Where work is close to power poles or if guys must be removed temporarily during construction, the CONTRACTOR shall coordinate with PSE to provide temporary supports, as necessary, to support electric power poles during construction. Replace permanent guys in original locations unless directed otherwise by PSE. All costs for temporary support and guy relocation will be paid for by the CONTRACTOR.

### **3.4 INTERFERING WATER SERVICES INTERRUPTIONS AND REPLACEMENT**

- A. Individual water services shall be maintained during construction. The CONTRACTOR shall coordinate with the OWNER to relocate and/or replace the interfering services.

**3.5 INSTALLATION OF REPLACEMENT UTILITY PIPELINES (IF NECESSARY, BECAUSE OF INADVERTENT DAMAGE BY CONTRACTOR OR IF AC WATER MAIN)**

- A. Install replacement storm drains, water lines, and sewer line connections, in accordance with Section 7-08.3 of the Standard Specifications, except that trench excavation, bedding, and backfill shall conform to this Section.
- B. Storm drain replacement shall conform to Section 7-04.3 of the Standard Specifications, except that infiltration / exfiltration testing will not be required.
- C. Waterline replacement shall conform to Section 7-11 of the Standard Specifications, including the requirements of hydrostatic testing and disinfection.
- D. The CONTRACTOR shall provide temporary pumps and piping as required to maintain storm and sanitary sewer flows past reaches of sewers temporarily interrupted by the water transmission main construction.

**3.6 TRENCH EXCAVATION, BEDDING, AND BACKFILL**

- A. Excavation, bedding and backfill shall conform to Section 31 23 00.
- B. Backfill materials at the location of the utility crossing shall be as specified for the adjacent trench condition identified on the Drawings for the new water transmission main.

**3.7 MINIMUM CLEARANCES**

- A. Where possible, minimum clearance between the new water transmission main and existing utilities shall be 12 inches. Where grades of existing gravity sewers or storm drains must be maintained, resulting in a clearance of less than 12 inches, notify the OWNER for directions.
- B. Where clearance between the new water transmission main and an existing utility is less than 12 inches a two-inch thick neoprene pad shall be placed between the pipes.

**3.8 DISSIMILAR PIPE ENDS**

- A. Where cut ends of existing sewer or storm drainpipes will not fit the standard factory integral fitting of the replacement pipe, CONTRACTOR shall join pipe with a factory-fabricated adapter coupling or a rubber sleeve type coupling (Fernco, Calder, or approved equal). Similarly, in the case of waterline replacement, CONTRACTOR shall use an appropriately sized transition coupling.

**END OF SECTION**

**SECTION 01 77 00**  
**CLOSEOUT PROCEDURES**

**PART 1 GENERAL****1.1 SUMMARY**

- A. Section Includes:
  - 1. This section covers closeout procedures for the Work.
- B. Related Sections:
  - 1. Section 01 33 00 – Submittal Procedures
  - 2. Section 32 01 30 – Operation and Maintenance of Site Improvements

**1.2 FINAL CLEANUP**

- A. The CONTRACTOR shall promptly remove from the vicinity of the completed Work, all rubbish, unused materials, concrete forms, construction equipment, and temporary structures and facilities used during construction. Final acceptance of the Work by the OWNER will be withheld until the CONTRACTOR has satisfactorily complied with the foregoing requirements for final cleanup of the Site.

**1.3 CLOSEOUT TIMETABLE**

- A. The CONTRACTOR shall establish dates for pipeline testing.

**1.4 FINAL SUBMITTALS**

- A. The CONTRACTOR, prior to requesting final payment, shall obtain and submit the following items to the OWNER:
  - 1. Written guarantees, where required.
  - 2. Operating manuals and instructions, as required
  - 3. New permanent cylinders and key blanks for all locks.
  - 4. Bonds for maintenance, etc., as required.
  - 5. Certificates of inspection and acceptance by local governing agencies having jurisdiction.
  - 6. Releases from all parties who are entitled to claims against the subject project, property, or improvement pursuant to the provisions of law, on the OWNER-furnished form appended at the end of this section, or on the CONTRACTOR's standard form as approved by the OWNER.
  - 7. Releases from property owners where the CONTRACTOR has secured an easement, permit, or agreement for use of the property.

**1.5 MAINTENANCE AND GUARANTEE**

- A. The CONTRACTOR shall comply with the maintenance and guarantee requirements contained in Section 4.4 of the Supplementary General Conditions.
- B. Replacement of earth fill or backfill, where it has settled below the required finish elevations, shall be considered as a part of such required repair work, and any repair or resurfacing constructed by the CONTRACTOR which becomes necessary by reason of such settlement shall likewise be considered as a part of such required repair work unless the CONTRACTOR shall

have obtained a statement in writing from the affected private owner or public agency releasing the OWNER from further responsibility in connection with such repair or resurfacing.

- C. The CONTRACTOR shall make all repairs and replacements promptly upon receipt of written order from the OWNER. If the CONTRACTOR fails to make such repairs or replacements promptly, the OWNER reserves the right to do the Work and the CONTRACTOR and his surety shall be liable to the OWNER for the cost thereof.

#### **1.6 BOND**

- A. The CONTRACTOR shall provide a bond to guarantee performance of the provisions contained in Paragraph "Maintenance and Guarantee" above, and Section 4.4 of the Supplementary General Conditions.

#### **PART 2 PRODUCTS (NOT USED)**

#### **PART 3 EXECUTION (NOT USED)**

**END OF SECTION**

D I V I S I O N 3 1

Earthwork

**SECTION 31 10 00  
SITE CLEARING**

**PART 1 GENERAL**

**1.1 THE REQUIREMENT**

- A. The Work of this section includes measures required during the CONTRACTOR's initial move onto the site to protect existing fences, business properties and associated improvements, streets, fire hydrants, landscaping, and utilities near the construction areas from damage and clearing, grubbing and stripping.

**1.2 SITE INSPECTION**

- A. Prior to moving onto the site, the CONTRACTOR shall inspect the Site conditions and review maps of the pipeline route, future culvert location (by others), wetland boundaries, and facilities delineating the right-of-way lines and easement boundaries.
- B. The OWNER will document existing alignment conditions with video and photo records. These will be available to the CONTRACTOR if requested.

**1.3 COORDINATION OF WORK**

- A. The scheduling and performance of this work is dependent on meeting the requirements of Section 31 25 00 - Erosion and Sediment Control. No ground disturbing activities shall be performed before approved erosion and sediment control measures are implemented for that area to the satisfaction of the OWNER.
- B. Comply with provisions on the Contract Drawings and in Section 01 41 00 – Regulatory Requirements, regarding restrictions on work and Section 01 57 19 – Temporary Environmental Controls.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION**

**3.1 SITE ACCESS**

- A. The CONTRACTOR shall develop any necessary access to the pipeline route; including access barriers to prohibit entry of unauthorized persons.
- B. Where existing utilities interfere with the Work, notify the utility owner and the OWNER before proceeding. Coordinate with the utility owner to prevent damage to utilities. CONTRACTOR is responsible for coordinating with utility owners, particularly Cascade Natural Gas, to determine when and where a utility owner representative is required to observe earth disturbing activities near the utility.

**3.2 CLEARING, GRUBBING, AND STRIPPING**

- A. Construction areas shall be cleared of grass and weeds to at least a depth of six inches and cleared of structures, pavement, sidewalks, concrete or masonry debris, trees, logs, upturned stumps, loose boulders, and any other objectionable material of any kind which would interfere with the performance or completion of the Work, create a hazard to safety, or impair the subsequent usefulness of the Work, or obstruct its operation. Pavements, curbs, and sidewalks

outside of the actual limits of construction shall be protected from damage during construction, as directed by the OWNER. Trees and other natural vegetation outside the actual limits of construction shall be protected from damage during construction, as directed by the OWNER.

- B. Within the limits of excavation, the areas below the natural ground surface shall be grubbed to a depth necessary to remove all stumps, roots, buried logs, and all other objectionable material. Septic tanks, drain fields, and connection lines and any other underground structures, debris or waste shall be removed if found on the Site unless marked for protection by the OWNER. All objectionable material from the clearing and grubbing process shall be removed from the Site and wasted in approved safe locations.
- C. In areas not covered with pavement or sidewalks, and outside of wetlands, the topsoil or surficial gravel cover shall be removed to a depth of 6 inches below the stripping limits across the full width of the clearing limits. The stripped materials shall be stockpiled for later incorporation as the final backfill material for the trench and other disturbed areas as shown on the Contract Drawings.
- D. Unless otherwise indicated, native trees larger than three inches in diameter at the base shall not be removed without the OWNER's approval. The removal of any trees, shrubs, fences, or other improvements outside of rights-of-way, if necessary for the CONTRACTOR's choice of means and methods, shall be arranged with the owner of the property, and shall be removed and replaced, at no additional cost to the OWNER or the owner of the property.
- E. Backfill all holes and depressions resulting from tree root and stump removals.
  - 1. Use native material
  - 2. Compact by track-walking until no further settlement is noted under equipment weight.
  - 3. Grade to conform to the surrounding ground contours.
- F. Level all soil piles left from stump removal by rough grading.

**END OF SECTION**

**SECTION 31 23 00  
EXCAVATION AND FILL**

**PART 1 GENERAL****1.1 SUMMARY**

- A. Excavation, trenching, backfilling, and compacting, trench safety, removal of pavement and concrete, and haul and disposal of trench material for all underground utilities.
- B. Related Sections:
  - 1. Skagit Public Utility District No. 1 General Conditions
  - 2. Division 1 - General Requirements
  - 3. Section 31 10 00 - Site Clearing
  - 4. Section 33 05 05 – Buried Piping Installation
- C. Backfill of all signs, mailboxes, trench excavations and behind walls is incidental to other work under the contract. Material shall be in conformance with the Contract Drawings and these specifications.

**1.2 SUBMITTALS**

- A. General: Submittals shall be furnished in accordance with Section 01 33 00 – Submittal Procedure.
- B. Materials:
  - 1. Submit all applicable pre- and post-construction backfill material submittals to be used for this Work.
  - 2. All backfill materials should be approved by the OWNER prior to use. Backfill material submittals should include test results from a qualified commercial testing laboratory for the tests defined below.
    - a. Grain size distribution testing in accordance with ASTM D6913
    - b. Modified proctor testing in accordance with ASTM D1557
- C. Pothole Existing Utility Locations:
  - 1. Pothole Data, including date of pothole, locations excavated, sketches and photos, depths to existing top of utility, observed diameter of the utility, and horizontal distances to the pipeline alignment shall be submitted to the OWNER as soon as possible in order to minimize delays.

**1.3 IMPORTED MATERIAL ACCEPTANCE**

- A. The CONTRACTOR is responsible for locating an acceptable source of imported material. Laboratory testing shall be at the CONTRACTOR's sole expense.
- B. No imported materials shall be delivered to the site until the proposed source and material submittals have been accepted by the OWNER.

**1.4 PROTECTION OF EXISTING UTILITIES AND STRUCTURES**

- A. Existing Utilities: Protect existing utilities in accordance with Section 1-07.17 of the Standard Specifications.

- B. Protect existing fences, business properties and associated improvements, streets, fire hydrants, and landscaping near the construction areas from damage unless otherwise noted in the Drawings.
- C. Damage to Existing Improvements: The CONTRACTOR shall be responsible for damage in accordance with Section 1-07.13 of the Standard Specifications.

## **1.5 SITE CONDITIONS**

- A. Avoid overloading edge of excavation to prevent slides or caving by setting surcharges a sufficient distance back the edge of excavation.
- B. Maintain and trim excavated materials in such manner to be as little inconvenience as possible to public and adjoining property owners.
- C. Provide full access to public and private premises, at street crossings, sidewalks and other points as designated by OWNER to prevent serious interruption of travel.
- D. Provide barriers between the public and open excavations in accordance with local, state, and federal requirements.
- E. Protect and maintain benchmarks, monuments, or other established points and reference points and if disturbed or destroyed, replace items to full satisfaction of OWNER and controlling agency.
- F. Verify location of existing underground utilities.

## **PART 2 PRODUCTS**

### **2.1 SUITABLE FILL AND BACKFILL MATERIAL REQUIREMENTS**

- A. Fill, backfill, and embankment materials shall be clean, fine earth, rock, or sand, free from grass, roots, brush, trash, organic matter, debris, and other deleterious material.
- B. Fill and backfill materials to be placed within 6 inches of any structure or pipe shall be free of rocks or unbroken masses of earth materials having a maximum dimension larger than 1-inch.
- C. Suitable Materials: Materials not defined as unsuitable in Article 1.2 below are defined as suitable materials and may be used in fills, backfilling, and embankment construction subject to the indicated limitations. In addition, when acceptable to the OWNER, some of the material listed as unsuitable may be used when thoroughly mixed with suitable material to form a stable composite provided it is capable of being compacted to the specified relative compaction in Section 3.10 of this Specification.
- D. Topsoil: Topsoil shall be Topsoil Type B according to WSDOT Standard Specifications Section 9-14.2(2). Topsoil required to conduct surface restoration in the vicinity of the Pressure Reducing Valve and where pipelines run through and along vegetated areas, shall be harvested from the immediate area where the improvements are installed.
- E. Crushed Surfacing Top Course: Materials shall conform to Section 9-03.9(3) of the Standard Specifications.
- F. Trench Backfill:

1. Pipe Zone Backfill: Pipe zone backfill shall consist of Gravel Backfill for Pipe Zone Bedding meeting Section 9-03.12(3) of the Standard Specifications.
  2. Trench Backfill: Trench backfill material above the pipe zone shall consist of Gravel Borrow, Section 9-03.14(1) of the Standard Specifications with 100% passing the 3” sieve. Onsite soils may be used as trench backfill material above the pipe zone if it meets the gradation requirements of Bank Run Gravel for Trench Backfill, Section 9-03.14(1) of the Standard Specifications with 100% passing the 3” sieve, based on testing performed at the Contractor’s expense.
- G. Engineer Ordered Trench Stabilization Material: Material shall consist of Quarry Spalls meeting Section 9-13.1(5) of the Standard Specifications.

## **2.2 UNSUITABLE MATERIAL**

- A. Unsuitable material consists of soils (onsite or imported) that are not suitable as fill because they are saturated and/or cannot be compacted sufficiently to achieve the densities specified in Section 3.10 of this Specification for the intended use according to the requirements of the Specifications.
- B. Materials that contain hazardous or designated waste materials including petroleum hydrocarbons, pesticides, heavy metals, and any material which may be classified as hazardous or toxic according to applicable regulations.

## **2.3 USE OF BACKFILL MATERIAL TYPES**

- A. Where these Specifications conflict with the requirements of any local agency having jurisdiction or with the requirements of a pipe material manufacturer, the OWNER shall be immediately notified. In case of conflict between types of pipe embedment backfills, the CONTRACTOR shall use the agency-specified backfill material if that material provides a greater degree of structural support to the pipe, as determined by the OWNER. In case of conflict between types of trenches or final backfill types, the CONTRACTOR shall use the agency-specified backfill material if that material provides the greater in-place density after compaction.

## **2.4 FILTER FABRIC**

- A. Geotextile used for Trench Stabilization shall conform to Section 9-33.2, Table 3, of the Standard Specifications for “Soil Stabilization” fabric.

# **PART 3 EXECUTION**

## **3.1 EXCAVATION – GENERAL**

- A. General: Except when specifically provided to the contrary, excavation shall include the removal of all materials of whatever nature encountered, including all obstructions of any nature that would interfere with the proper execution and completion of the WORK. The removal of said materials shall conform to the lines and grades indicated or ordered. Unless otherwise indicated, the entire launch/receive pit areas shall be stripped of all vegetation and debris, topsoil shall be stockpiled for reuse as Topsoil Type B, and remaining material shall be removed from the site prior to performing any excavation. The CONTRACTOR shall furnish, place, and maintain all supports and shoring that may be required for the sides of the excavations. Excavations shall be sloped or otherwise supported in a safe manner in accordance

with applicable State safety requirements and the requirements of OSHA Safety and Health Standards for Construction (29CFR1926).

B. Removal and Exclusion of Water:

1. The CONTRACTOR shall remove and exclude water, including stormwater, groundwater, irrigation water, and wastewater, from all excavations unless specifically stated herein. Dewatering shall conform to Section 31 23 19 – Dewatering. Water shall be removed and excluded until backfilling is complete and all field soils testing has been completed.

### 3.2 PIPELINE AND UTILITY TRENCH EXCAVATION

A. Pothole Existing Utility Location:

1. The CONTRACTOR shall excavate and expose existing utilities indicated on the Contract Drawings that may conflict with the Work. Excavation shall be performed in advance of pipeline laying in order to allow time for resolution of utility conflicts by the OWNER.
2. CONTRACTOR is responsible for coordinating with utility owners, particularly Cascade Natural Gas, to determine when and where a utility owner representative is required to observe earth disturbing activities near the utility.
3. Damage to utilities from excavation activities shall be repaired by the CONTRACTOR at no additional cost to the OWNER or ENGINEER.

B. Furnish and Install Adequate Site and Trench Safety Systems in Accordance with RCW 49.17:

1. Install and maintain shoring, sheeting, bracing, and sloping necessary to support the sides of the excavation and to prevent any movement that may damage adjacent facilities, delay the work, endanger life and health, or pose a threat to the environment. Conform to the requirements of WISHA and other applicable governmental regulations and agencies.
2. All cribbing, sheeting, and shoring shall be designed by a licensed professional engineer in the State of Washington and meet the requirements of W.A.C. 296-155 (Safety Standards for Construction Work, Part N, Excavation, Trenching, and Shoring).
3. The CONTRACTOR shall familiarize themselves with, and comply with, all other applicable codes, ordinances, and statutes, and bear sole responsibility for the penalties imposed for noncompliance.
4. The CONTRACTOR shall be solely responsible for making and maintaining all excavations in a safe manner.
5. Use any combination of shoring and overbreak, tunneling, boring, sliding trench shield, or other method allowed by the applicable local, state, and federal safety codes.
6. Carefully reconsolidate the bedding and side support behind a trench shield prior to placing backfill.
7. Leave in place those portions of cribbing and sheeting extending below the crown elevation of the pipe unless the bedding and side support can be reconsolidated to the satisfaction of the OWNER.
8. Where removal of sheeting would result in damage to adjacent utilities or other property, the OWNER may order all or a portion of sheeting to be cut off and left in place.
9. Do not use horizontal strutting below the barrel of a pipe.
10. Do not use the pipe as support for trench bracing.
11. Damages resulting from improper shoring and failure to shore shall be the sole responsibility of the CONTRACTOR.

## C. Contaminated Soil and/or Water:

1. There are no known locations of soil contamination at the project site. However, contaminated material may exist within the work area.
2. Activities involving contaminated materials, should they be encountered, shall be in accordance with:
  - a. Washington State Department of Health Regulations.
  - b. Federal Resources Conservation and Recovery Act (RCRA), 42 USC, Sections 6901 through 6987.
  - c. Federal Hazardous and Solid Waste Amendments (HSWA), PL 98-616.
  - d. Other codes and regulations related to the scope of work.
3. If contaminated materials are encountered during construction, the CONTRACTOR shall stop work immediately in this area and shall sufficiently secure the work area such that contaminated materials or potentially contaminated materials are not exposed to public. This shall be accomplished through temporary backfilling, trench plating, covering the exposed areas with plastic sheeting, or other means. The CONTRACTOR shall immediately notify the OWNER of his findings, shall secure the area, and then shall continue work in another area away from the area in question. The CONTRACTOR shall not continue work in the potentially contaminated area until directed by the OWNER. Stopping work in a potentially contaminated area, and moving to another work area, shall be considered part of the work and no additional payment will be made. Payment for work within contaminated areas will be paid in accordance with that specified later in this section.
4. If contaminated materials are encountered, and if directed by the OWNER, the CONTRACTOR shall prepare a site-specific Health and Safety Plan (HSP), subject to review by the OWNER, which details how the CONTRACTOR intends to protect workers while working in the presence of contaminated soils and groundwater.

## D. Open Trench:

1. All trenches shall be fully backfilled at the end of each day or, in lieu thereof, shall be covered by heavy steel plates adequately braced and capable of supporting vehicular traffic in those locations where it is impractical to backfill at the end of each day.
2. The above requirements for backfilling or use of steel plate will be waived in cases where the trench is located further than 100 feet from any traveled roadway or occupied structure. In such cases, however, barricades and warning lights meeting safety requirements shall be provided and maintained.

E. Over-Excavation: When ordered by the OWNER, trenches shall be over-excavated beyond the depth and/or width shown. Such over-excavation shall be to the dimensions ordered. The trench shall then be backfilled to the grade of the bottom of the pipe bedding. Over-excavation less than 6 inches below the limits on the Drawings shall be done at no increase in cost to the OWNER. When the over-excavation ordered by the OWNER is 6 inches or greater below the limits shown, or wider, additional payment will be made to the CONTRACTOR. Said additional payment will be made under the unit price bid item for over-excavation and trench stabilization material.

F. Where pipelines are to be installed in embankments, fills, or structure backfills, the fill shall be constructed to a level at least one foot above the top of the pipe before the trench is excavated.

- G. If a moveable trench shield is used during excavation operations, the trench width shall be wider than the shield so that the shield is free to be lifted and then moved horizontally without binding against the trench sidewalls. If the trench walls cave in or slough, the trench shall be excavated as an open excavation with sloped sidewalls or with trench shoring, as indicated and as required by the pipe structural design.

### **3.3 TRENCH STABILIZATION**

- A. When, in the opinion of the OWNER, the existing material in the bottom of the trench is unsuitable for supporting the pipe, excavate below the bottom of the pipe, as shown on the Drawings or as directed by the OWNER.
- B. Install Geotextile across full width of trench and up the trench sides to a height adequate to form a 2-foot- minimum lap of fabric over the installed trench stabilization material.
- C. Backfill the trench to subgrade of pipe base with trench stabilization material specified herein. Place the trench stabilization material over the full width of the trench to the required grade. Compact material to provide a firm, non-yielding surface as approved by the OWNER. Providing a minimum 2-foot lap at seams.
- D. At the CONTRACTOR's option, trench stabilization may be constructed to aid dewatering, at no additional cost to the OWNER.

### **3.4 OVER-EXCAVATION NOT ORDERED OR INDICATED**

- A. Any over-excavation carried below the grade ordered or indicated, shall be backfilled to the required grade with the indicated material and compacted. Such work shall be performed by the CONTRACTOR at no additional cost to the OWNER.

### **3.5 PRESERVATION AND RESTORATION OF ADJACENT LANDSCAPE AND SHOULDER**

- A. Where excavation occurs in landscaped or lawn areas the CONTRACTOR shall repair areas damaged through the course of the Work to substantially similar condition on completion of the Work.
- B. CONTRACTOR shall restore City Roads and shoulders to substantially the same condition as prior to the Work, with Crushed Surfacing Top Course meeting City and Washington's specifications, at the CONTRACTOR's expense.

### **3.6 EXCAVATION IN VICINITY OF WETLAND**

- A. All excavation activities for the pipeline shall be conducted at a 10-foot minimum horizontal distance from the mapped wetland. The CONTRACTOR shall install applicable temporary erosion and sedimentation control measures conforming to Section 31 25 00 – Erosion and Sedimentation Control for the duration of construction.

### **3.7 EXCAVATION IN VICINITY OF TREES**

- A. Except where trees are indicated to be removed, trees shall be protected from injury during construction operations. Conform to applicable portions of Section 31 10 00 – Site Clearing regarding tree preservation. No tree roots over 2 inches in diameter shall be cut without express permission of the OWNER. Trees shall be supported during excavation by any means previously reviewed by the OWNER.

### **3.8 BACKFILL - GENERAL**

- A. Backfill shall not be dropped directly upon any structure or pipe. Backfill shall not be placed around or upon any structure until the concrete has attained sufficient strength to withstand the loads imposed.
- B. Backfill shall be placed after all water is removed from the excavation, and the trench sidewalls and bottom have been dried to a moisture content suitable for compaction.
- C. If a moveable trench shield is used during excavation, pipe installation, and backfill operations, the shield shall be moved by lifting the shield free of the trench bottom or backfill and then moving the shield horizontally. The CONTRACTOR shall not drag trench shields along the trench causing damage or displacement to the trench sidewalls, the pipe, or the bedding and backfill.
- D. Immediately prior to placement of imported backfill materials, the bottoms and sidewalls of trenches and structure excavations shall have all loose sloughing, or caving soil and rock materials removed. Trench sidewalls shall consist of excavated surfaces that are in a relatively undisturbed condition before placement of backfill materials.

### **3.9 PLACING AND SPREADING OF BACKFILL MATERIALS**

- A. Backfill materials shall be placed and spread evenly in layers. When compaction is achieved using mechanical equipment, the layers shall be evenly spread so that when compacted, each layer shall not exceed 6 inches in thickness.
- B. During spreading, each layer shall be thoroughly mixed as necessary to promote uniformity of material in each layer. Pipe zone backfill materials shall be spread around the pipe so that when compacted the pipe zone backfill will provide uniform bearing and side support.
- C. Where the backfill material moisture content is below the specified moisture content, water shall be added before or during spreading until the proper moisture content is achieved.
- D. Where the backfill material moisture content is too high to permit the specified degree of compaction the material shall be dried until the moisture content is satisfactory.

### **3.10 COMPACTION OF BACKFILL MATERIALS**

- A. Pipe Zone Backfill:
  - 1. When laying the pipe, not less than six inches of specified bedding shall be provided below the bottom of the pipe.
  - 2. An additional six inches of bedding shall be carefully screeded by means of a template shaped to the outside radius of the pipe to provide firm bearing for the full length of each pipe section except at bell holes. A string and/or laser beam must be used to guide the template.
  - 3. The pipe shall be carefully cradled on both sides of the pipe, then simultaneously and thoroughly tamped under and around the pipe to secure a uniform bedding for the lower one-half of the pipe. Great care shall be exercised not to damage protective coatings.
  - 4. After the pipe in the trench has been assembled, the CONTRACTOR shall backfill all bell holes in the same manner as specified for cradling pipe.
  - 5. Backfill up to a minimum 6 inches above the top of pipe shall be specified pipe zone material, which is tamped as specified herein.

- 6. Backfilling shall be continued when necessary to prevent movement and/or flotation of the pipe.
  - 7. Conform to Standard Detail for “Typical Trench Section” on the Drawings.
- B. Equipment weighing more than 10,000 pounds shall not be used closer to walls than a horizontal distance equal to the depth of the fill at that time. Hand operated power compaction equipment shall be used where use of heavier equipment is impractical or restricted due to weight limitations.
- C. Compaction Requirements: The following compaction test requirements shall be in accordance with ASTM D1557 - Test Method for Laboratory Compaction Characteristics of Soils Using Modified Effort (56,000 ft - lbf/ft<sup>3</sup>) (2,700 kN-m/m<sup>3</sup>) for fine-grained materials (sand and select trench backfill) materials; and in accordance with ASTM D4253 - Standard Test Method for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table, and D4254 - Standard Test Method for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density, for coarse materials (4-inch-minus gravel and coarse drain rock). Where agency or utility company requirements govern, the highest compaction standards shall apply.

Location or Use of Fill	Relative Compaction	Moisture Content
Pipe Zone backfill	90	Within ±2% of optimum
Trench backfill, beneath paved or gravel areas, and beneath structures	95	Within ±2% of optimum
Trench backfill, not beneath paved or gravel areas or structures	80	Within ±2% of optimum
Over excavation Backfill	95	Within ±2% of optimum
Engineer-Ordered Trench Stabilization Material	Tamped to a firm and unyielding condition with excavator bucket.	
Topsoil	Lightly rolled, suitable for seeding	

**3.11 DISPOSAL OF EXCESS EXCAVATED MATERIALS**

- A. Excess excavated materials not required or not suitable for backfill or fill material shall be removed from the site. Material may not be placed on the right-of-way other than specifically shown on the Contract Drawings. Make all arrangements hauling and disposal of the excavated material and conform to the requirements of the local agency having jurisdiction.

**3.12 TOPSOIL REPLACEMENT**

- A. Upon completion of trench backfill, embankment fills and finished grading, previously stockpiled topsoil shall be placed and spread evenly over the disturbed areas. CONTRACTOR shall not operate vehicles and equipment resulting in compaction of topsoil after placement. All topsoil shall be retained and used on site where regrading occurs. Additional topsoil may need to be imported to provide the required topsoil depth.

**3.13 FIELD QUALITY CONTROL**

- A. Testing:
  - 1. Perform in-place moisture-density tests as directed by the OWNER.
  - 2. Perform tests through recognized testing laboratory approved by OWNER.
  - 3. Costs of "Passing" tests paid by OWNER.

4. Perform additional tests as directed until compaction meets or exceeds requirements.
5. Cost associated with "Failing" tests shall be paid by CONTRACTOR.
6. Assure OWNER has immediate access for testing of all soils related work.
7. Ensure excavations are safe for testing personnel.

**END OF SECTION**

**SECTION 31 23 19**  
**DEWATERING**

**PART 1 GENERAL**

**1.1 SUMMARY**

- A. The CONTRACTOR shall provide all labor, materials, and equipment necessary to dewater trenches, excavations, or areas of ponding water resulting from construction in accordance with the requirements of the Contract Documents.
- B. The CONTRACTOR shall make a judgment of the level of effort required based on the review of the project Geotechnical Engineering Report and independent investigations and include costs of dewatering all other areas not specifically listed.
- C. The CONTRACTOR shall secure all other necessary permits to complete the requirements of this Section of the Specifications.
- D. Subsurface conditions at the site are addressed in the Geotechnical Engineering Report. This report provides information about explorations and tests of subsurface conditions at or contiguous to the Site. The subsurface investigations made were for the sole purpose of furnishing data necessary for planning and design of the Work. The OWNER's Consultants warrant that the data represents, with reasonable accuracy, the conditions and materials found in the specific borings at the time they were made. The OWNER and the OWNER's Consultants do not warrant the condition, materials, or proportions of materials between such borings.
- E. The OWNER makes no representation or warranty, expressed or implied, that the Bidders' interpretations from the data are correct, that moisture conditions and indicated water tables will not vary substantially from those found at the time that the borings were made, and that the ground at the location of the borings has not been physically disturbed or altered after the tests were made. The availability of this subsurface information is solely for the convenience of the Bidder and shall not relieve the Bidder or CONTRACTOR from any risks, or from any duty to make a separate examination and investigation, or any other responsibility under the terms and conditions of the Contract.
- F. The CONTRACTOR shall regularly monitor the quality of the water being pumped and discharged. If the water is determined to be unsuitable for disposal to receiving waters based on code and permit requirements, the CONTRACTOR shall provide appropriate treatment of the water to achieve minimum water quality levels to allow release.

**1.1 SUBMITTALS**

- A. Dewatering plans shall be included in the SWPPP required in Section 31 25 00 – Erosion and Sedimentation Control.

**1.2 GENERAL REQUIREMENTS**

- A. Where groundwater is encountered during construction, the CONTRACTOR shall immediately take measures to control the rate of flow into the work area, and quality of water discharged from the work area. The OWNER shall judge the adequacy of the CONTRACTOR's dewatering effort, determine whether construction can continue without violating terms of any permit, and direct a course of action.

- B. Depending on the site, sediment-laden water from the excavation shall be settled in temporary storage facilities, such as ponds or Baker Tanks, and only clean water meeting permit requirements shall be discharged to sewer.
- C. If the settling process does not adequately remove sediment such that water can be discharged, the CONTRACTOR shall employ mechanical or chemical treatment to meet water quality discharge requirements prior to release.
- D. To reduce sediment in water pumped directly from excavations, if possible, a depression in the down-gradient portion of the excavation shall be over-excavated to collect water before removal.

### **1.3 QUALITY CONTROL**

- A. It shall be the sole responsibility of the CONTRACTOR to control the rate and effect of the dewatering in such a manner as to avoid all objectionable settlement and subsidence.
- B. All dewatering operations shall be adequate to assure the integrity of the finished project and shall be the responsibility of the CONTRACTOR.
- C. The responsibility for conducting the dewatering operation in a manner which will protect adjacent structures and facilities rests solely with the CONTRACTOR. The cost of repairing any damage to adjacent structures and restoration of facilities shall be the responsibility of the CONTRACTOR.
- D. In the event that dewatering is determined to be affecting an adjacent facility or structure, including pavements, the CONTRACTOR shall cease dewatering until satisfactory methods can be developed so as not to endanger the integrity of the existing facility or structure. If an existing facility or structure is damaged in any way or if the owner of such facility or structure claims damage of any type, the CONTRACTOR shall be solely responsible for correcting the problem to the satisfaction of the owner of that facility or structure.

## **PART 2 PRODUCTS**

### **2.1 EQUIPMENT AND MATERIALS**

- A. Dewatering, where required, may include the use of sump pumps, temporary pipelines for water disposal, rock or gravel placement, and other means. Standby pumping equipment shall be maintained on Site.
- B. If the water produced as a result of dewatering operations is not suitable for direct discharge to receiving waters, the water shall be treated. The CONTRACTOR is responsible for the selection of proper equipment, chemicals, and process to successfully treat the water for discharge.

### **2.2 CONTINGENCY EQUIPMENT AND MATERIALS**

- A. The CONTRACTOR shall have onsite, at all times, sufficient pumping equipment to dewater any open sections of trench, in good working condition, with spare pumps and other equipment for emergencies including, but not limited to, power outages. The CONTRACTOR shall have onsite, at all times, competent workers for the operation and repair of the pumping equipment.

## **PART 3 EXECUTION**

### **3.1 GENERAL REQUIREMENTS**

- A. The CONTRACTOR shall provide all equipment necessary for dewatering. It shall have on hand, at all times, sufficient pumping equipment and machinery in good working condition and shall have available, at all times, competent workers for the operation of the pumping equipment. Adequate standby equipment shall be kept available at all times to insure efficient dewatering and maintenance of dewatering operation during power failure.
- B. Dewatering for structures and pipelines shall commence when groundwater is first encountered and shall be continuous until such times as water can be allowed to rise in accordance with the provisions of this Section or other requirements.
- C. At all times, Site grading shall promote drainage. Surface runoff shall be diverted from excavations. Water entering the excavation from surface runoff shall be collected in shallow ditches around the perimeter of the excavation, drained to sumps, and be pumped or drained by gravity from the excavation to maintain a bottom free from standing water.
- D. Dewatering shall at all times be conducted in such a manner as to preserve the undisturbed subgrade soils at proposed bottom of excavation. Use of sumps for dewatering is acceptable if undisturbed subgrade soils are maintained.
- E. The quality and quantity of discharge water from the groundwater control and dewatering system shall be in conformance with all Federal, State, and local laws and regulations.
- F. If foundation soils are disturbed or loosened by the upward seepage of water or an uncontrolled flow of water, the affected areas shall be excavated and replaced with material meeting the Standard Specification 9-03.12(3) or other material approved by the OWNER at no additional cost to the OWNER.
- G. In general, the CONTRACTOR shall maintain the water level below the bottom of excavation in all work areas where groundwater occurs during excavation construction, backfilling, and up to acceptance.
- H. Flotation shall be prevented by the CONTRACTOR by maintaining a positive and continuous removal of water. The CONTRACTOR shall be fully responsible and liable for all damages which may result from failure to adequately keep excavations dewatered.

### **3.2 SUMPS**

- A. Open or cased sumps may be used provided they meet the requirements of Section 3.1.
- B. Sumps shall be designed and constructed to prevent the removal of native or other soils.

### **3.3 SYSTEM MODIFICATIONS**

- A. If the system does not meet the above requirements as determined by the OWNER, the CONTRACTOR shall modify sumps or wells, add sumps or wells, or install additional alternative systems as needed. If during the course of construction, the system or a part thereof becomes inoperable, it shall be repaired or replaced at no additional cost to the OWNER.

### 3.4 SYSTEM PROTECTION

- A. Necessary precautions shall be taken, including, but not limited to, marking wells and pipes, protecting pipes at vehicular crossings, and routing vehicular traffic away from dewatering facilities to protect the groundwater control system from damage and ensure continued operation.

### 3.5 DISPOSAL OF WATER

- A. Pumped water shall be disposed of in such a manner so as not to cause damage to public or private property or adversely impact downstream receiving waters or facilities. Quality of discharge water will comply with all State and local regulations and with requirements of all applicable permits.
- B. Quality of discharge water shall comply with permit requirements specified in Section 01 41 00 - Regulatory Requirements.
- C. The removal of natural, in-place soils during dewatering operations shall be prevented. In order to remove sand and fine sized soil particles before disposal into any drainage system, water shall be filtered or coagulated using an approved method or allowed to settle in a sediment trap designed to meet the requirements of the Washington Department of Ecology Stormwater Management Manual for Western Washington. If filtration or coagulation methods are used, they shall be conducted to achieve a minimum of 90 percent reduction in total suspended solids. The OWNER may require submission of test results to a frequency of one per day to demonstrate adequate reduction in total suspended solids. No water shall be released directly to private property without written permission from the owner. Water shall not be released into wetland boundaries. Water released into any ditch, swale or water course shall be at such a rate so as to avoid any downstream flooding or channel erosion. The system shall be set up such that after initial development, the quantity and size of soil particles will decrease until no visible soil particles are present in water being pumped at any time after 24 hours from initial pumping.
- D. Pumped water shall not be disposed of in a manner which causes contamination of wells in the vicinity.

### 3.6 TERMINATING DEWATERING

- A. The pumping equipment shall be operated prior to complete shutdown in a manner that will allow the groundwater level to rise gradually to its static level. The release of groundwater to its static level shall be performed in such a manner as to maintain the undisturbed state of the natural foundation soils, prevent disturbance of compacted backfill and prevent flotation or movement of structures, pipelines, and sewers.
- B. After the groundwater control system is deactivated, all wells, sumps and drains shall be removed, and the ground shall be restored to a condition better than or equal to the condition prior to installation of the groundwater control system.
- C. The construction, permitting, and abandonment of all wells used in dewatering systems shall comply with Washington State Department of Ecology requirements (Chapter 173-160 WAC and Chapter 18.104 RCW).

**END OF SECTION**

**SECTION 31 25 00**  
**EROSION AND SEDIMENTATION CONTROL**

**PART 1 GENERAL****1.1 SUMMARY**

- A. This section covers the work necessary for Install and Maintain Temporary Erosion Control and Water Pollution Control Measures at all CONTRACTOR work and staging areas.
- B. The CONTRACTOR is to be responsible for the preparation and implementation of the Stormwater Pollution Prevention Plan (SWPPP), all temporary erosion and sediment controls, plans, sampling, and reporting, and closeout.

**1.2 RELATED SECTIONS**

- A. Division 1 – General Requirements
- B. Section 31 10 00 – Site Clearing
- C. Section 31 23 00 - Excavation and Fill
- D. Section 31 23 19 - Dewatering
- E. Washington State Department of Ecology – Stormwater Management Manual for Western Washington (SMMWW), 2024

**1.3 SUBMITTAL REQUIREMENTS AND PROCEDURES**

- A. General: Submittals shall be furnished in accordance with Section 01 33 00 – Submittal Procedure.
- B. No work may begin before the Erosion Sediment Control Plan (ESC Plan) and SWPPP are submitted and reviewed by the OWNER.
- C. ESC Plan:
  - 1. The CONTRACTOR shall describe how it intends to construct, inspect, operate, and maintain temporary erosion sediment control BMP measures shown on the Contract Drawings or CONTRACTOR facilities such as stockpile areas or waste disposal sites.
  - 2. The CONTRACTOR shall describe how it intends to restore the Site to match pre-construction conditions, including topsoil, hydroseed, plantings, paving, and/or gravel cover, as required in Section 32 01 30 – Operation and Maintenance of Site Improvements.
  - 3. The CONTRACTOR may schedule the installation or implementation of BMPs in phases, providing no construction activity, including truck traffic, occurs in a segment with incomplete BMPs in place.
  - 4. The SWPPP shall be coordinated with, and in no way contradict, the progress schedule required in Section 01 32 00 – Construction Progress Documents.
- D. The CONTRACTOR shall revise and bring the SWPPP up to date whenever the OWNER makes a written request for revisions and whenever the CONTRACTOR proposes to change the sequence of work. All revisions shall be coordinated with the current approved progress schedule.
- E. The CONTRACTOR’s proposed SWPPP shall include:

1. Scheduling and timing of temporary erosion sediment control BMP installations.
2. Manufacturer's data and detailed plans for the products specified in this section.
3. Plans for diverting, collecting, pumping, and piping surface stormwater runoff, groundwater generated from excavation dewatering, process water and seepage from source to the treatment/disposal facilities. The plan shall include the provisions for operating and maintaining the system during periods of inactivity. The plan shall include:
  - a. Layout and details of the system.
  - b. Maximum anticipated excavation depths, including anticipated excavation depths below the groundwater table.
  - c. Excavation methods, including excavation support system type, if used.
  - d. Flow calculations for stormwater, seepage, and dewatering pump discharge. Sketch of location and sizing calculations for dewatering systems.
  - e. Information on pumps, including flow/head, power (gas, diesel, electric), and placement.
4. A plan for the locations and outlets of dewatering systems.
5. Plans for all work not shown on the Drawings, including:
  - a. Additional earthwork proposed by CONTRACTOR.
  - b. Temporary access or haul roads.
  - c. CONTRACTOR-provided waste disposal areas.
  - d. Staging, CONTRACTOR's field office, and parking sites.
  - e. Storage of pipe and other trench materials along the right-of-way.
  - f. Stockpile and material processing areas.
6. Plans and schedules for operating, inspecting, and maintaining erosion and sediment control measures and equipment.
7. The name and 24-hour-a-day phone number and alternate contacts for responsible CONTRACTOR personnel.
8. The CONTRACTOR shall describe how it intends to restore the Site to match pre-construction conditions, including topsoil, hydroseed, plantings, paving, and/or gravel cover, as required in Section 32 01 30 – Operation and Maintenance of Site Improvements, for all Site areas including, but not limited to:
  - a. Work areas.
  - b. Office and parking areas.
  - c. Waste areas.
  - d. Temporary access roads.
9. Designated an individual that will have primary responsibility for the installation and maintenance of the temporary erosion sediment control measures, as well as a designated group of work personnel who will report to the designated lead.
10. A description of training that will be provided to all construction personnel to establish the importance of and the mechanics of the temporary erosion control measures on the project, including the individual expectations for following the SWPPP.

F. Shop Drawings, Samples, and Product Data:

1. Samples of all fabrics.
2. Manufacturer's data on all products.
3. Stone filter material gradation, if used.
4. Riprap gradation, if used.

5. Rock gradation for check dams, if used.

#### 1.4 GENERAL REQUIREMENTS

- A. All erosion and sediment control procedures shall conform to the current version of the Washington State Department of Ecology Stormwater Management Manual for Western Washington.
- B. The CONTRACTOR shall designate a person responsible as the Certified Erosion and Sediment Control Lead (CESCL). The CESCL shall hold a current certification with Washington State Department of Ecology or associated training programs as CESCL. The CESCL will have overall responsibility for implementation of the CONTRACTOR'S SWPPP plan and implementation of onsite erosion control measures.
- C. The CONTRACTOR shall take all precautions to prevent the silting of streams or water impoundments during construction and to control water pollution during the life of the Contract through the use of sediment traps, silt fences, mulching, covering stored piles of soil and backfill, and other erosion control devices or methods. Also, wherever feasible, natural vegetation should be retained and protected.
- D. CONTRACTOR shall place silt fence between all drilling operations and any drainage, wetland, waterway or other area designated for such protection by the Contract Documents, state, federal and local regulations. Additional environmental protection necessary to contain any hydraulic or drilling fluid spills shall be put in place, including berms, liners, turbidity curtains and other measures. The CONTRACTOR shall adhere to all applicable environmental regulations. Fuel or oil may not be stored in bulk containers within two hundred feet (200') of any water-body or wetland.
- E. CONTRACTOR shall prepare a Construction Stormwater Pollution Prevention Plan required to complete the project. The SWPPP will follow the guidelines set in the Ecology Stormwater Management Manual for Western Washington.
- F. CONTRACTOR shall represent, in the drawings, required temporary erosion sediment control BMP measures the CONTRACTOR intends to use in the implementation of the SWPPP. The SWPPP should extend to such facilities including, but not limited to, staging areas, parking areas, truck washing areas, and waste storage and disposal areas.
- G. Perform no ground-disturbing activities on the project, unless specifically authorized in writing by the OWNER, until the temporary erosion control BMP's, required in the SWPPP, are completely in place and functional.
- H. CONTRACTOR shall have back-up equipment readily available in case emergency situations arise. This includes pumps, hoses, backhoes, and bulldozers. In addition, CONTRACTOR shall have a stockpile of extra temporary erosion and sediment control BMP materials such as filter fence, gravel, and crushed rock for emergency situations.
- I. Clean water may be discharged into existing waterways or storm drains if the discharge points are sufficiently protected or into vegetated areas within the construction area if the ground infiltration characteristics are adequate to handle the discharge over the period of pumping, as approved by the CESCL.

- J. Depending on the site, sediment-laden water from trenches shall be dispersed over vegetated areas outside of sensitive area buffers or the sediment shall be settled in temporary storage facilities, and only clean water discharged to drainage channels.

## **1.5 OPERATION AND MAINTENANCE OF BMP FACILITIES AND PRACTICES**

### **A. Requirements:**

1. The CONTRACTOR shall be directly responsible for the operation and maintenance of all BMP facilities, equipment, and treatment.
2. Provide the OWNER with the name and emergency phone number of one person who can be contacted on a 24-hour-a-day, 7-day-a-week basis. This person shall have the authority to implement maintenance of erosion sediment control measures.
3. The CONTRACTOR shall respond with adequate personnel, equipment, and material immediately when notified of an emergency situation.
4. Adhere to approved schedules for inspection and maintenance.

### **B. Noncompliance:**

1. After notification by the OWNER, in writing, of noncompliance with the requirements of this section, the OWNER may have the work required to restore compliance performed immediately by OWNER's forces or by such other means as the OWNER may deem necessary.
2. For the purpose of this section, "compliance" shall be agreed to include all items of work shown in the plans, specifications, the approved SWPPP, and any additional items of work directed by the OWNER to meet the requirements of representatives of other agencies charged with enforcement of these requirements.
3. Direct and indirect costs incurred by the OWNER attributable to correcting noncompliance with this section shall be paid by the CONTRACTOR. Payment will be deducted by the OWNER from monies due, or to become due, the CONTRACTOR. Such direct or indirect cost shall include, but not be limited to, compensation for additional professional services required, all fines or penalties levied against the OWNER for damages relating to this section, corrections, repair and replacement of damaged work, and compensation for OWNER overhead cost related to these activities.
4. The rights exercised under the provisions of this section shall not diminish the OWNER's ability to pursue any other avenue for additional remedy of damages with respect to the CONTRACTOR's failure to perform the work as required.

## **PART 2 PRODUCTS**

### **2.1 SILT FABRIC FENCE**

- A. Filter Fabric Type 1: Woven polypropylene, monofilament yarn. The fabric shall be inert to biological degradation and shall be resistant to alkalis and acids found in soils. The base plastic shall contain stabilizers and inhibitors to make the fabric resistant to ultraviolet radiation. Filter Fabric Type 1 shall also meet the following physical properties:

Description	Test	Result
Minimum thickness	ASTM D1777	13 mils
Minimum weight	ASTM D3776	6.5 oz/sy
Grab tensile strength	ASTM D4632	415 lbs x 250 lbs
Mullen burst strength	ASTM D3786	510 psi
Equivalent opening size	ASTM D4751	70-100 U.S. Std Sieve
Permeability (cm/sec)	ASTM D4991	0.015
Permittivity (1/sec)	ASTM D4991	0.2
Water Flow Rate (gpm/sf)	ASTM D4991	20

1. Filter Fabric Type 1 shall be Mirafi 700X Synthetic Industries Erosion 1, or approved equal.
- B. Posts shall be either 2-inch by 4-inch standard grade lumber or steel fence posts. The posts shall be spaced no further apart than 6 feet. Closer spacing may be required if the fabric begins to sag and allow leakage over the top.
- C. Washed gravel for backfilling the trench shall have a minimum diameter of 3/4 inch and a maximum diameter of 1-1/2 inches.

**2.2 MULCHING**

- A. Straw shall be used as the mulching material. The straw shall conform to the requirements in the Stormwater Manual.

**2.3 PLASTIC COVERING**

- A. Plastic covering shall meet the requirements of the ASTM D4397 and have a minimum thickness of 6 mils.

**2.4 PIPE SLOPE DRAIN**

- A. Flexible corrugated high-density polyethylene (HDPE) pipe shall be used for the pipe slope drains.
- B. A flared entrance section made of HDPE shall be used at the upstream end of each pipe slope drain. The entrance shall transition to a corrugated HDPE pipe with diameter equal to the diameter of the diversion pipe as shown on the Drawings.
- C. Pipe sections shall be joined using HDPE external split couplers with neoprene gaskets. The external split couplers shall be tightened with plastic locking cable ties or wire ties.

**2.5 CHECK DAMS**

- A. Material for rock check dams shall be 4-inch minus rock spalls.
- B. Material for sandbag check dams shall be approved by the OWNER.
- C. Triangular silt dikes may be used as approved by the OWNER.

**2.6 RIPRAP PROTECTION**

- A. Riprap material used as energy dissipating rock for the outlets of the stormwater diversion pipes shall be quarry spalls conforming to Washington State Department of Transportation (WSDOT) Standard Specification Section 9-13 and meeting the following requirements for grading:

Sieve Size	Percent Passing
8-inch	100
6-inch	40 - 60
2-inch	0 - 10

**2.7 WIRE FABRIC FOR SILT FENCE**

- A. 2-inch x 4-inch mesh, 14 gage, or approved equal.
- B. Hot-dip galvanized, ASTM A392, Class 2.
- C. Height: As shown on Drawings.

**2.8 STONE FILTER OVERFLOW WEIR FOR SEDIMENT TRAP**

- A. As shown on the Drawings.

**2.9 HOLD DOWNS FOR PLASTIC SHEETING**

- A. As approved by the OWNER.
- B. Hold downs consist of sandbags secured with 1/4-inch polypropylene rope at 10 feet on center maximum each way.
- C. Anchor rope with 2-inch x 4-inch stake fir, standard or better.

**2.10 STABILIZED CONSTRUCTION ENTRANCES**

- A. Quarry spalls shall meet the requirements of Section 9-13.1 of the WSDOT Standard Specifications.

**2.11 STORM DRAIN INLETS**

- A. As shown on the Contract Drawings.

**2.12 STRAW WATTLES**

- A. As shown on the Contract Drawings.

**PART 3 EXECUTION**

**3.1 GENERAL**

- A. All construction procedures shall conform to the approved erosion and sediment control plans and the requirements of the respective jurisdictions and as shown on the Contract Drawings.
- B. All excavated materials shall be stockpiled at the CONTRACTOR staging area or at a site designated by the CONTRACTOR and approved by the OWNER.
- C. During the period of October 1 to April 30, any stockpiled material that is left unworked for more than 24 hours shall be protected with plastic covering. In addition, any stockpiled material near sensitive areas left unworked for 12 hours during the period May 1 to September 30 shall be protected with plastic.

- D. Stockpiled material shall be covered during rainstorms.
- E. During the period of October 1 to April 30, plastic covering shall be placed on bare soil slopes.
- F. Where spoil is placed on the downhill side of the trench, it shall be back-sloped to drain toward the trench.
- G. CONTRACTOR shall not side cast, push, sluice or cause foreign, waste, or excavated material to enter surface waters. Materials shall be carefully excavated and moved to an approved spoil or waste area. Provide and maintain erosion and sediment control measures.
- H. Sediment shall be trapped onsite using straw wattles, filter fabric fences, sedimentation ponds, sediment traps, and other appropriate methods.
- I. All erosion and sediment control measures and facilities provided shall be maintained in proper condition so that they will individually and collectively perform the functions for which they were provided. To ensure the efficiency and proper maintenance of the measures and facilities, inspections shall be made daily to detect any impairment of the structural stability, adequate capacity or other requisites of the measures and facilities which might impair their effectiveness, and the CONTRACTOR shall take immediate steps to correct any such impairment found to exist.
- J. All erosion and sediment control devices shall be removed immediately after the disturbed areas are brought to their final, completed condition. Removal of erosion sediment control devices shall be approved by the OWNER and/or the jurisdiction.
- K. Runoff, stormwater and wastewater flows shall be controlled and treated during construction to minimize water quality impacts. Runoff from undisturbed areas shall be diverted from areas of construction activity by utilizing existing road drainage ditches and drainage ways as much as possible. Where this is not possible, and as practical, diversion dikes and swales shall be constructed so runoff from undisturbed areas will not be contaminated by construction activity. Construction and grading materials shall not be stored within 50 feet of the Ordinary High-Water Level of streams, dry or flowing; and shall not be deposited or stored in or alongside wetlands, wetland buffers, streams, rivers, lakes, or watercourses where the materials can be eroded by high water or storm runoff. The OWNER shall approve all stockpile locations.
- L. Water from runoff, dewatering, and process wastewater shall be treated and disposed of by dispersing it across vegetated (grassy) areas. Process water shall not be dispersed into delineated wetland area. The method of disposing of water shall be approved by the OWNER. Water with pollutants will require other disposal methods in accordance with local, State, and Federal law.
- M. Stormwater runoff from disturbed areas within the limits of construction and from CONTRACTOR staging and laydown areas shall be collected and treated before releasing. The extent of erosion and sediment control measures required will depend on the extent of the CONTRACTOR's earthwork and ground cover disturbance and resulting erosion potential. The CONTRACTOR is responsible for meeting specified water quality criteria for all stormwater runoff discharge from construction areas.
- N. The CONTRACTOR shall comply with the water quality criteria stated in the permits if sediment-laden flow from the disturbed area enters any streams.

### 3.2 SILT FENCE

- A. The silt fabric shall be one piece or continuously sewn to make one piece for the full height of the fence including the portion buried in the toe trench. Care shall be taken not to puncture the fabric during installation. Any damaged area shall be repaired or replaced. All joints shall have a 1.5-foot minimum overlap and shall be made in a manner that will not allow soil materials to pass through the joint. Posts shall be embedded a minimum of 1.5 feet. Minimize disturbance of native soils and vegetation when installing filter fabric fences. Side casting soils on the downhill side will not be allowed. Filter fabric material must be toed in as shown on the Drawings for fences to function. Bury filter fabric using washed gravel as shown on the Drawings. Monitor the condition of the filter fabric fences, remove accumulated sediments and keep the filter fabric fence in good condition. Completely remove all fabric and posts at completion of construction.
- B. Wire Fabric:
  - 1. Install wire fabric for attachment of filter fabric for sediment fence.
  - 2. Secure wire fabric to posts with aluminum alloy wire, minimum 10 gage. Secure at top, middle, and bottom.
  - 3. Bury 4-inch minimum of wire fabric in trench upslope and adjacent to the wood post for the full length.
  - 4. Set posts at 6 feet maximum per Drawings.
  - 5. Wire fabric to extend not more than 24 inches above the ground surface unless otherwise noted on Drawings.

### 3.3 GROUND COVER

- A. Do not clear any areas until construction is ready to begin. Disturb only the minimum area necessary to accomplish the work. The summer construction season is defined as May 1 to September 30. If construction extends beyond the summer construction season, permanent seeding erosion control measures shall be installed in areas unworked for more than 15 consecutive days. In addition, all disturbed areas shall be covered with plastic sheeting when work has stopped for more than 24 hours. If seasonal cover and erosion control practices have already been placed, plastic sheeting is required during the winter season until plant growth is firmly established. If construction has stopped for more than 15 consecutive days during the summer season, temporary cover measures shall be applied to the affected cleared areas. All temporary measures (Summer and Winter) must be inspected and repaired daily.
- B. Protect all disturbed areas, including cleared, cut, fill, or other areas of reduced plant cover or exposed soil caused by work in this contract from erosion until permanent erosion control measures are established. Protection shall include plastic sheeting, organic or inorganic erosion control matting, riprap, temporary seeding, or straw mulch.
- C. Temporary seeding shall be done in accordance with the provisions of WSDOT Standard Specifications Sections 8-02 and 9-14. Erosion control matting shall be applied according to the manufacturer's printed instructions. Temporary erosion control measures shall be removed prior to installing permanent seeding erosion control only if the temporary facilities interfere with proper installation of permanent seeding (e.g., plastic on slopes to be seeded).

- D. All work areas that are disturbed shall receive temporary or permanent cover measures. The table and text below lists required cover measures by slope and season.

Season	Slope 3:1 or Flatter
Temporary, May 1 to September 30 (Dry Season)	3,000 lb/acre straw mulch if unworked for more than 15 consecutive days; temporary hydroseed mix if future earthwork delayed more than 30 days.
Temporary, October 1 to April 30 (Wet Season)	Plastic on all slopes and stockpiles, with more than 10 feet of vertical relief, if unworked for more than 24 hours. Permanent measures (except hydroseeding, which must be performed in the next growing season) if unworked for more than 15 consecutive days.
Permanent Measures (After Construction)	Hydroseed. Erosion control matting required at critical steeper areas as indicated on the Drawings.

- 1. Slopes steeper than 3:1 and with more than 10 feet of vertical relief, require erosion control matting, as shown on the Drawings, in addition to the measures in the above table.
- E. Areas receiving temporary treatments other than seeding shall be hydroseeded at the beginning of the following seeding season.
- F. Temporary stockpile slopes shall not exceed 2:1. Stockpiles shall be covered with plastic sheeting.
- G. Plastic covering shall be installed and maintained tightly in place by using sandbags or tires on ropes with a maximum 10-foot grid spacing in all directions. All seams shall be overlapped 12 inches and taped or weighted down for the full length. Plastic covering sheets shall be toed in a minimum of 2 feet at the top of slopes in order to prevent surface water flow beneath the sheets.
- H. Areas requiring mulching will be determined by the OWNER based on weather and site conditions. Mulching techniques and rates shall conform to the 1992 Puget Sound Stormwater Manual and the Washington State Department of Ecology Stormwater Management Manual for the Puget Sound Basin.

**3.4 FLOW ROUTING**

- A. To the extent practical, install filter fabric and construct swales, berms, and ditches as required to route surface water from offsite around the areas disturbed by construction. In locations where the offsite flow must cross the disturbed areas, install temporary culvert pipe as required to convey the water across the disturbed areas.

**3.5 OTHER EROSION CONTROL MEASURES**

- A. Construction of other erosion control measures, in addition to those detailed in these specifications, shall be in accordance with the current Washington State Department of Ecology Stormwater Manual for Western Washington.

### 3.6 MAINTENANCE DURING CONSTRUCTION

- A. Inspect all erosion control facilities daily or more frequently, if necessary, to ensure that they are in good condition and operating properly. Repair or replace damaged or missing items immediately.
- B. Clean, repair, and replace filter fabric fences, straw wattles, stormwater diversion pipe sections, check dams, and rip rap pads as necessary to maintain their effectiveness and proper operation.
- C. Maintain seeded surfaces throughout construction including watering and mowing.
- D. Maintain an inspection report file.
- E. Remove and properly dispose of trapped sediment, debris, trash, and all other material from measures designed to retain sediment.
- F. After excavation and/or grading, slope protection where required or as instructed by the OWNER.
- G. Construct and replace existing storm drains and inlets as soon as possible or as directed by the OWNER.
- H. Provide necessary ditches, swales and dikes to direct all water towards and into sediment ponds or traps.
- I. Excavate sediment out of basins, catch basins, check dams, and traps when capacity has been reduced by 50 percent or when more than 1 foot of sediment has accumulated.
  - 1. Remove sediment from behind sediment fence to prevent overtopping.
  - 2. Prevent sediments from being flushed to the downstream system during cleaning.
  - 3. Check dams shall be replaced before the pore spaces are filled with sediment.

### 3.7 HEAVY RAIN EVENTS

- A. During periods of heavy rainstorms, as determined by the OWNER, construction work on the pipeline shall be discontinued. The CONTRACTOR's equipment and personnel shall be available to construct and maintain the erosion control facilities.
- B. A "Heavy Rain Event" is defined as a rainstorm that, in the opinion of the OWNER, is of sufficient duration and intensity that excavation activities must be stopped, and the personnel and equipment from the excavation work are needed to maintain the erosion control facilities.

### 3.8 SITE RESTORATION

- A. As soon as practical after completion of a portion of the work, or when a work or waste area is no longer required, commence site restoration and install permanent erosion control measures. Temporary erosion and sedimentation control methods shall be kept in effect until the permanent erosion control is established, and the OWNER approves removal of designated temporary facilities. The time between clearing, grubbing and final ground restoration shall be no more than 4 months in duration.
- B. All disturbed areas shall be properly cleared of temporary structures, rubbish, and waste materials upon completion of the Project.

- C. All designated temporary water diversion and treatment areas or devices shall be removed, and the areas restored to a permanent protected condition and drainage configuration after completion of work.
- D. Work, staging, laydown, office, and other disturbed areas shall be returned to their original condition. Contaminated material and captured sediment shall be removed from the site and disposed of in an approved location.

**END OF SECTION**

# D I V I S I O N 3 2

Bases, Ballasts, and Paving

**SECTION 32 01 30**  
**OPERATION AND MAINTENANCE OF SITE IMPROVEMENTS**

**PART 1 GENERAL****1.1 SUMMARY**

- A. This section covers the work necessary for restoration of disturbed roadside landscaping, pavement, gravel, and unimproved areas to existing or better condition (as determined by the OWNER).
- B. Roadside restoration includes all preparation work and import and installation of all required materials to match pre-construction conditions, including topsoil, hydroseed, plantings, and/or gravel cover, as required.
- C. Material placement shall be as designated on the Plans and as described in these or referenced specifications.
- D. Supply and placement of backfill for of all excavations, valves, and testing is considered incidental work.

**1.2 RELATED SECTIONS**

- A. Public Utility District General Notes
- B. Division 1
- C. Section 31 23 00 – Excavation and Fill
- D. Section 31 25 00 – Erosion and Sedimentation Control
- E. Division 33 – Utilities
- F. Washington State Department of Transportation (WSDOT) Standard Specifications, 2024.

**PART 2 PRODUCTS****2.1 MATERIAL REQUIREMENTS**

- A. See Section 31 23 00 for additional information regarding backfill aggregate requirements.

**PART 3 EXECUTION****3.1 SUBGRADE PREPARATION**

- A. The subgrade shall be prepared in accordance with Section 31 23 00 – Excavation and Fill. For gravel areas, the surface of the subgrade after compaction shall be hard, uniform, smooth and true to grade and cross-section. Subgrade for base material shall not vary more than 0.04-foot from the indicated grade and cross section.

**3.2 SURFACE RESTORATION – INSTALLATION OF CRUSHED SURFACING MATERIAL**

- A. Install compacted crushed surfacing material as shown on the Contract Drawings and in accordance with City of Mount Vernon Standard detail 3-3 for Roadway and Trench Restoration and Section 31 23 00 – Excavation and Fill and Section 4-04 of the Standard WSDOT Specifications.

**3.3 SURFACE RESTORATION – INSTALLATION OF ASPHALT CONCRETE PAVEMENT**

- A. Install pavement as shown on the Contract Drawings and in accordance with City of Mount Vernon Standard detail 3-3 for Roadway and Trench Restoration.
- B. Pavement, curbs, and sidewalk requiring removal shall be sawcut along neat lines.
- C. Install materials immediately following trench backfill operations in accordance with Section 5-04.3(5)E of the Standard WSDOT Specifications, and the following:
  - 1. Base Course: Install in accordance with Section 4-04 of the Standard WSDOT Specifications.
  - 2. Asphalt Concrete: Install in accordance with Section 5-04 of the Standard WSDOT Specifications.
- D. The completed surface shall meet the tolerances of Section 5-04.3(13) of the Standard WSDOT Specifications. Corrective measures for out-of-compliance work will be taken as specified therein at no expense to the OWNER.
- E. Replacement paving shall match the lines and grades of the adjacent paving. In areas where curb and gutter is to be removed, CONTRACTOR shall contact the OWNER in advance, who will survey the top of curb grades in order to replace this section of roadway to the pre-project lines and grades.

**3.4 PRESERVATION AND RESTORATION OF ADJACENT LANDSCAPE AND SHOULDER**

- A. The entry and exit pits, and extensions thereof, shall be backfilled such that the adjacent ground surface does not settle thus compromising adjacent infrastructure. Backfill shall be in accordance with WSDOT Standard Specifications Section 2-09.3(1)E or as otherwise directed by OWNER.
- B. Where excavation occurs in landscaped or lawn areas the CONTRACTOR shall repair areas damaged through the course of the work to substantially similar condition on completion of the work.
- C. CONTRACTOR shall repair road shoulders to substantially the same condition as prior to the work with Crushed Surfacing Top Course meeting Skagit County, Washington's specifications, at the CONTRACTOR'S expense.
- D. Permanent hydroseeding shall be performed in accordance with Best Management Practice (BMP) C120 of the SMMWW.

**END OF SECTION**

D I V I S I O N 3 3

Utilities

**SECTION 33 05 05**  
**BURIED PIPE INSTALLATION**

**PART 1 GENERAL**

**1.1 SUMMARY**

- A. The CONTRACTOR shall supply and install the piping systems, complete and operable, as indicated in the Contract Drawings, in accordance with the Contract Documents.
- B. The CONTRACTOR shall provide fabrication and layout drawings for all piping systems. It is the CONTRACTOR's responsibility to construct the piping system according to the fabrication drawings for a complete and functional system.
- C. The mechanical or Plan and Profile drawings define the general layout, configuration, routing, method of support, pipe size, and pipe type. These drawings are not pipe construction or fabrication drawings. It is the CONTRACTOR's responsibility to develop the details necessary to construct the mechanical piping systems to accommodate the specific equipment provided, and to provide and install all spools, spacers, adapters, and connectors for a complete and functional system.
- D. The provisions of this Section shall apply to all pipe Work in Division 33.

**1.2 CONTRACTOR SUBMITTALS**

- A. General: Submittals shall be furnished in accordance with Section 01 33 00 – Submittal Procedures.
- B. Samples: All expenses incurred in making samples for certification of tests shall be borne by the CONTRACTOR at no increase in cost to the OWNER.
- C. Certifications
  - 1. All necessary certificates, test reports, and affidavits of compliance shall be obtained by the CONTRACTOR.
  - 2. **Fabricator Statement:** A statement from the pipe fabricator certifying that all pipes will be fabricated subject to a recognized Quality Control Program. An outline of the program shall be submitted to the OWNER for review prior to the fabrication of any pipe.
- D. Bolting Torque for Gaskets: Provide bolting torques from gasket supplier for proper seating of flange gaskets for each size and pressure rating required.
- E. Product Technical Data Including
  - 1. Copies of manufacturer's written directions regarding material handling, delivery, storage, and installation.
  - 2. Separate schedule sheet for each piping system scheduled in this Section showing compliance of all system components. Attach technical product data on gaskets, pipe fittings, and other components.
- F. Test reports:
  - 1. Copies of pressure test results on all piping systems.
  - 2. Notification of time and date of piping pressure tests.

## PART 2 PRODUCTS

### 2.1 GENERAL

- A. **Extent of Work:** All pipes, fittings, and appurtenances shall be provided in accordance with the requirements of the applicable Sections of Division 33 and as indicated.
- B. **Pipe Supports:** All pipes shall be adequately supported, as indicated in the drawings.
- C. **Pressure Rating:** The watermain shall be designed for the maximum expected pressure as defined in Section 33 05 31.19 – Fused Polyvinyl Chloride Pipe.
- D. **Inspection:** All pipe may be subject to inspection at the place of manufacture. During the manufacture of the pipe, the OWNER shall be given access to all areas where manufacturing is in progress and shall be permitted to make all inspections necessary to confirm compliance with requirements.
- E. **Tests:** Except where otherwise indicated, all materials used in the manufacture of the pipe shall be tested in accordance with the applicable specifications and standards. Welds shall be tested as indicated. The CONTRACTOR shall perform all tests at no additional cost to the OWNER.

### 2.2 BUTT FUSION

- A. Butt fusion of PVC pipes shall be performed in accordance with Sections 33 05 31.19.

### 2.3 PIPE FLANGES

- A. **Flanges:** Metallic (including stainless steel), convoluted or flat-plate, back-up rings and bolt materials shall follow the guidelines of Plastic Pipe Institute Technical Note # 38, and shall have the bolt holes and bolt circles conforming to one of these standards: ASME B-16.5 Class 150, ASME B-16.47 Series A Class 150, ASME B-16.1 Class 125, or AWWA C207 Class 150 Series B, D, or E. The back-up ring shall provide a long-term pressure rating equal to or greater than the pressure-class of the pipe with which the flange adapter assembly will be used, and such pressure rating shall be marked on the back-up ring. The back-up ring, bolts, and nuts shall be protected from corrosion by a system such as paint, coal-tar epoxy, galvanization, polyether or polyester fusion bonded epoxy coatings, anodes, or cathodic protection, as specified.
- B. **Blind Flanges:** Blind flanges shall be in accordance with ANSI/AWWA C207, or with the standards for miscellaneous small pipes. All blind flanges for pipe sizes 12 inches and over shall be provided with lifting eyes in the form of welded eye bolts.
- C. **Flange Coating:** All machined faces of metal blind flanges and pipe flanges shall be coated with a temporary rust-inhibitive coating to protect the metal until the installation is completed.
- D. **Flange Bolts:** Studs and bolts shall extend through the nuts a minimum of 1/4-inch. All-thread studs shall be used on all valve flange connections, where space restrictions preclude the use of regular bolts.
- E. **Insulating Flanges:** Insulated flanges shall have bolt holes 1/4-inch diameter greater than the bolt diameter.
- F. **Flange Gaskets:** Gaskets for flanged joints shall be full-faced, 1/8-inch thick compressed sheets of aramid fiber base, with nitrile binder and non-stick coating, suitable for temperatures to 700 degrees F, a pH of one to eleven, and pressures to 1000 psig. Blind flanges shall have

gaskets covering the entire inside face of the blind flange and shall be cemented to the blind flange. Ring gaskets shall not be permitted, unless otherwise indicated. Provide bolting torques from gasket supplier for proper seating of flange gaskets for each size and pressure rating required.

- G. Flange gasket manufacturers, or approved equal:
1. John Crane, Style 2160.
  2. Garlock, Style 3000.

## 2.4 THREADED INSULATING CONNECTIONS

- A. **General:** Threaded insulating bushings, unions, or couplings, as appropriate, shall be used for joining threaded pipes of dissimilar metals and for piping systems where corrosion control and cathodic protection are involved.
- B. **Materials:** Threaded insulating connections shall be of nylon, Teflon, polycarbonate, polyethylene, or other non-conductive materials, and shall have ratings and properties to suit the service and loading conditions.

## 2.5 MECHANICAL-TYPE COUPLINGS (GROOVED OR BANDED PIPE)

- A. **General:** Cast mechanical-type couplings shall be provided where indicated. The couplings shall conform to the requirements of ANSI/AWWA C606 - Grooved and Shouldered Joints. Bolts and nuts shall conform to the requirements of Section 33 05 31.19, Paragraph 2.2.F.4. All gaskets for mechanical-type couplings shall be compatible with the piping service and fluid utilized, in accordance with the coupling Manufacturer's recommendations. The wall thickness of all grooved piping shall conform with the coupling manufacturer's recommendations to suit the highest expected pressure. All mechanical-type couplings on buried piping shall be bonded. The CONTRACTOR shall have the coupling Manufacturer's service representative verify the correct choice and application of all couplings and gaskets, and the workmanship, to assure a correct installation.

## 2.6 SLEEVE-TYPE COUPLINGS

- A. **Construction:** Sleeve-type couplings shall be provided where indicated, in accordance with ANSI/AWWA C219 - Standard for Bolted Sleeve-Type Couplings for Plain-End Pipe, and shall be of steel with steel bolts, without pipe stop, and be of sizes to fit the pipe and fittings indicated. Sleeve couplings shall be rated for 200 psi working pressure and 285 psi transient pressure. Couplings shall be hydraulically tested per AWWA C219. The middle ring shall be not less than 1/4-inch in thickness and shall be either 5 or 7 inches long for sizes up to and including 30 inches and 10 inches long for sizes greater than 30 inches, for standard steel couplings, and 16 inches long for long-sleeve couplings. The followers shall be single-piece contoured mill sections welded and cold-expanded as required for the middle rings and of sufficient strength to accommodate the number of bolts necessary to obtain adequate gasket pressures without excessive rolling. The shape of the follower shall be of such design as to provide positive confinement of the gasket. Bolts and nuts shall conform to the requirements of 33 05 31.19, Paragraph 2.2.F.4. Buried sleeve-type couplings shall be epoxy-coated at the factory as indicated.
- B. **Pipe Preparation:** The ends of the pipe where indicated shall be prepared for flexible steel couplings. Plain ends for use with couplings shall be smooth and round for a distance of 12

inches from the ends of the pipe, with an outside diameter not more than 1/64-inch smaller than the nominal outside diameter of the pipe. The middle ring shall be tested by cold-expanding a minimum of one percent beyond the yield point, to proof-test the weld to the strength of the parent metal. The weld of the middle ring shall be subjected to air test for porosity.

- C. **Gaskets:** Gaskets for sleeve-type couplings shall be rubber-compound material that will not deteriorate from age or exposure to air under normal storage or use conditions.
1. The rubber in the gasket shall meet the following specifications:
    - a. Color: Jet Black.
    - b. Surface: Non-blooming.
    - c. Durometer Hardness:  $74 \pm 5$ .
    - d. Tensile Strength: 1,000 psi minimum.
    - e. Elongation: 175 percent minimum.
  2. The gaskets shall be immune to attack by impurities normally found in water or wastewater. All gaskets shall meet the requirements of ASTM D 2000 - Classification System for Rubber Products in Automotive Applications, AA709Z, meeting Suffix B13 Grade 3, except as noted above. All gaskets shall be compatible with the piping service and fluid utilized.
- D. **Insulating Couplings:** Where insulating couplings are required, both ends of the coupling shall have a wedge-shaped gasket which assembles over a rubber sleeve of an insulating compound in order to obtain insulation of all coupling metal parts from the pipe.
- E. **Restrained Joints:** All sleeve-type couplings on pressure lines shall be harnessed unless thrust restraint is provided by other means. Harnesses shall be in accordance with the appropriate reference standard, or as indicated.
- F. Manufacturers, or approved equal:
1. Dresser, Style 38.
  2. Ford Meter Box Co., Inc., Style FC1 or FC3.
  3. Smith-Blair, Style 411.

## 2.7 FLANGED COUPLING ADAPTERS

- A. **Flange Couplings Adaptors:** Shall conform to requirements for sleeve type couplings as applicable, shall meet ANSI/AWWA C219 and shall be hydrostatically tested.
- B. **Body:** Shall be made of either ductile iron per ASTM A536 or steel per ASTM A53 or ASTM A512 to match the adjoining pipe material. Bolt circle, bolt size and spacing shall conform to the drilling pattern of an ANSI/ASME B16.5 Class 150 drilling. Body shall be rated for 200 psi working pressure and 285 psi transient pressure.
- C. **Follower:** Follower shall be ductile iron per ASTM A536 for sizes 3-12 inches. For sizes 14-inch and greater, follower shall be heavy rolled steel per AISI C1018.
- D. **Gasket:** Grade 30 – standard – specially compounded rubber of all new materials with ingredients to produce superior storage characteristics, permanence and resistance to set after installation. Recommended for water, salt solutions, mild acids and bases.
- E. **Bolts and Nuts:** Type 304 stainless steel.

- F. **Painting:** Finish shall be enamel with an epoxy coating.
- G. Manufacturers, or approved equal:
  - 1. Smith-Blair, Inc.
  - 2. Baker.

## 2.8 EXPANSION JOINTS

- A. Expansion joints shall be Guardian “200” FEP-Lined Expansion Joints by Garlock or approved equal.

## 2.9 PIPE THREADS

- A. All pipe threads shall be in accordance with ANSI/ASME B1.20.1 - Pipe Threads, General Purpose (inch), made up with Teflon tape, unless otherwise indicated.

## PART 3 EXECUTION

### 3.1 MATERIAL DELIVERY, STORAGE, AND PROTECTION

- A. All piping materials, fittings, valves, and accessories shall be delivered in a clean and undamaged condition and stored off the ground for protection against oxidation caused by ground contact. All defective or damaged materials shall be replaced with new materials.

### 3.2 GENERAL

- A. All pipes, fittings, and appurtenances shall be installed in accordance with the requirements of the applicable Sections of Division 33.
- B. **Lined Piping Systems:** The lining manufacturer shall take full responsibility for the complete, final product and its application. All pipe ends and joints of lined pipes shall be epoxy-coated to assure continuous protection.
- C. **Cleanup:** After completion of the work, all remaining pipe cuttings, joining and wrapping materials, and other scattered debris, shall be removed from the site. The entire piping system shall be handed over in a clean and functional condition.
- D. **Testing and Disinfection:** Pipelines shall be tested and disinfected in accordance with WSDOT Standard Specifications.

### 3.3 BURIED PIPING

- A. Bury piping with a minimum 3-foot cover without air traps, unless otherwise indicated on the Contract Drawings.
- B. Laying Piping:
  - 1. Lay piping in finished trenches free from water or debris.
  - 2. Place piping with top or bottom markings with markings in proper position.
  - 3. Lay piping on an unyielding foundation with uniform bearing under the full length of barrels.
  - 4. At the end of each day's construction, plug open ends of piping temporarily to prevent entrance of debris or animals.
- C. Trenchless Installation:

1. Install trenchless pipe sections in accordance with Section 33 05 07.13 – Utility Directional Drilling.

**END OF SECTION**

**SECTION 33 05 07.13**  
**UTILITY DIRECTIONAL DRILLING**

**PART 1 GENERAL****1.1 SUMMARY**

- A. Furnish all labor, materials, tools, and equipment required to install a new water main using the directional drilling method to the sizes and limits as shown on the Contract Drawings, and as specified by these technical specifications herein. Work includes, but is not limited to, proper installation, testing, restoration of underground utilities and environmental protection and restoration.
- B. The horizontal directional drilling (HDD) method involves first drilling a pilot hole as shown in the approved Drawings and then enlarging the pilot hole no larger than 1.5 times the outer diameter of the pull-in pipe, pipe joint or coupling, then pulling back the pipe through the enlarged hole.
- C. The CONTRACTOR is responsible for all the Work, whether self-performed or performed by a SUBCONTRACTOR. References herein to the CONTRACTOR apply to the CONTRACTOR or subcontractor performing the HDD Work.

**1.2 RELATED SECTIONS**

- A. Division 1
- B. Division 31
  - 1. Section 31 10 00 Site Clearing
  - 2. Section 31 23 19 Dewatering
  - 3. Section 31 25 00 Erosion and Sedimentation Control
- C. Division 32
  - 1. Section 32 15 40 Crushed Stone Surfacing
- D. Division 33
  - 1. Section 33 05 05 Buried Piping Installation
  - 2. Section 33 05 31.19 Fusible Polyvinyl Chloride Pipe

**1.3 SUBMITTALS**

- A. Preconstruction:
  - 1. CONTRACTOR's Experience Record: Furnish document(s) supporting the directional drilling CONTRACTOR's and operator's qualifications and experience as required in this Section.
  - 2. Materials: Submit all applicable pipe submittals as per applicable technical specifications of the pipe to be used for this project.
  - 3. Additional borings: The CONTRACTOR shall be responsible for obtaining and including in the bid price the cost of any additional borings along the pipe alignment which may be necessary to evaluate the designed horizontal directionally drilled crossing.
  - 4. Utility Direction Drilling Work Plan: Prior to beginning work, submit a comprehensive, realistic Work Plan based on actual working conditions for this particular project. The Work

Plan should document the thoughtful planning required to successfully complete the project, and shall include, but not be limited to:

- a. List of personnel and their qualifications and experience (including backup personnel in the event that an individual is unavailable)
- b. List of subcontractors and their qualifications and experience
- c. Schedule of work activity, anticipated drill rates
- d. Method of monitoring and controlling line, grade and downhole pressure
- e. Contingency plans for possible issues that may arise over the course of the Work, including but not limited to: subsurface obstructions, deviations from alignment and grade, equipment breakdown.
- f. Mitigation procedures in the event of a drilling fluid fracture, inadvertent returns, or returns loss
- g. Location and type of temporary excavation shoring (if used)
- h. Description of all equipment to be used
- i. Specifications on directional drilling equipment to be used, including but not be limited to drilling rig, mud system, mud motors (if applicable), down-hole tools, drilling guidance system, and rig safety systems.
- j. Include calibration records for guidance equipment
- k. Complete list of all drilling fluid additives and mixtures, along with their respective Material Safety Data Sheets.
- l. Estimated drilling fluid pressures and anticipated mud pump volumes to be maintained in each reaming pass
- m. Hydraulic fracture analysis, with a plot of estimated measured hydraulic pressure, and recommended maximum operating hydraulic pressure, along the bore path. The estimated hydraulic pressure analysis shall consider the actual drilling fluid and drilling equipment to be utilized by CONTRACTOR.
- n. The recommended maximum operating hydraulic pressure calculation may utilize soil shear strength parameters provided in Appendix B of the geotechnical engineering report (Aspect 2024).
- o. Deviations from the Contract documents which may include but are not limited to: Entry and exit pit locations, layout of pipe, details and spacing of pipe rollers, layout of any proposed construction staging areas.
- p. The Bore Plan may address the location of the drill rig setups and the lengths of the bore based on soil conditions, equipment used, topography, etc.

B. Construction:

1. The CONTRACTOR shall record the horizontal drill bit location after advancement of each successive drill pipe or every 10 feet, whichever is more frequent, and plot on a scaled drawing of 1" = 4' vertical and 1" = 20" horizontal. The recorded readings and plan and profile information shall be available at all times.
2. The CONTRACTOR shall provide the OWNER with daily reports of all drilling activities conducted during the day, including pilot hole progress, location and depth. The CONTRACTOR shall record the guidance system data during the actual crossing operation.
3. Upon completion of the pilot hole phase of the operation, submit a complete set of "as-built" records to the OWNER. Include in these records copies of the pilot bore path plan and profile record drawing, as well as directional survey reports as recorded during the drilling

operation. The OWNER shall review and provide written approval of the as-built records. Allow at least 24 hours during regular work hours for review. If the OWNER takes exception to the pilot bore path, the CONTRACTOR must re-drill the pilot bore and re-submit as-built records. An exception may include, but is not limited to, the bore path being within the minimum required horizontal or vertical offsets from the future WSDOT culvert or existing WSDOT ROW boundary.

After approval of the pilot bore path, the CONTRACTOR may begin the reaming process.

C. Post Construction:

1. The CONTRACTOR shall furnish “as-built” plans and profile drawings based on the recordings and certify guidance data.

#### 1.4 ADMINISTRATIVE REQUIREMENTS

A. Coordination

1. Coordinate all phases of work, including tie-ins, with OWNER and OWNER’S crews to prevent schedule delays or conflicts as a result of CONTRACTOR’S work.

B. Preconstruction Meetings

1. Attend a preconstruction meeting prior to initiating mobilization.
2. OWNER will be responsible for coordinating and providing a location for the preconstruction meeting.

C. Sequencing

1. Coordinate work with OWNER such that tie-in with the open trench installed water line can be completed directly after acceptance of the HDD installed pipe, and prior to backfilling of HDD entry/exit pits.
2. Coordinate work with OWNER so as to not limit access, delay or otherwise impede the work of the OWNER’s crews.

D. Scheduling

1. Schedule all work to occur in succession such that downtime related to CONTRACTOR’S operations is minimized.
2. Individual HDD operations (i.e. pilot hole, reaming, swabbing, pullback, post-installation grouting) shall occur in sequence with no delays between operations.
3. Pullback shall commence within no more than one day of completing a final swab pass that verifies that the reamed hole is in an acceptable condition to receive the pipe and not result in failure of the installation of the pipe.

#### 1.5 QUALITY ASSURANCE

A. Qualification Requirements:

1. All directional drilling operations shall be performed by a qualified directional drilling company and personnel who all have at least two (2) years of experience involving work of a similar nature. The company must have installed a minimum of 10,000 linear feet of pipe (6-inch diameter or greater) using directional drilling operations in the last three years.
2. Schedule all work through the OWNER. Notify the OWNER a minimum of ten (10) working days in advance of the start of work.

3. Perform all work in the presence of the OWNER, or the OWNER's representative.
  4. All applicable permits and applications must be in place prior to start of work.
- B. Site Review: Contours, topography and profiles of the ground as may be shown on the Contract Drawings are believed to be reasonably correct but are not guaranteed to be absolutely so and are presented only as an approximation. It is the CONTRACTOR's responsibility to verify all elevations required to successfully complete the Horizontal Directional Drill operation.
- C. A one-year warranty for the pipe must be included from the CONTRACTOR and must cover the cost of the replacement pipe and freight to the project Site, should the pipe have any defects in material or workmanship. Unless otherwise specified, the warranty period will begin at the point of substantial completion of the Work.
- D. In addition to the standard pipe warranty, the CONTRACTOR must provide in writing a warranty for a period of one year (following substantial completion of the Work) for all fusion joints, including formation, installation, and pressure testing, if applicable.

## **PART 2 PRODUCTS**

### **2.1 GENERAL**

- A. All equipment must be in good, safe condition with sufficient supplies, materials, and spare parts on hand to maintain the system in good working condition for the duration of this Project.

### **2.2 PIPE AND TRACER WIRE**

- A. Tracer wire shall comply with Section 33 05 31.19 – Fusible Polyvinyl Chloride Pipe.
- B. The carrier pipe shall comply with Section 33 05 31.19 - Fusible Polyvinyl Chloride Pipe.

### **2.3 DRILLING AND TRACKING EQUIPMENT**

- A. The CONTRACTOR shall select necessary equipment and methods to horizontally directional drill, prepare hole to install pipe and appurtenant connections, clean and recycle drilling fluid, and grout the space between the installed pipe and the reamed hole, and any voids created during the directional drilling process after installation. The grout shall extend up to 10 linear feet from each end of the installed pipe. The hydraulic system must be self-contained and have sufficient pressure and volume capacity to power the drilling operations. The drill rig shall have operational gauge to monitor and record pullback and torque pressure during pullback operations.
- B. The CONTRACTOR shall provide ancillary equipment including, but not be limited to, the drilling fluid recycling system, drill rig power unit and driller's control cabin set up within the provided workspace in such a manner that the workspace remains safe for workers in the workspace.
- C. The CONTRACTOR shall supply equipment and personnel to accurately track the horizontal and vertical alignment of the pilot bore during the drilling operation. Appropriate equipment includes, but is not limited to, using downhole survey instruments and surface location equipment (i.e. ParaTrack 2, TruTracker, or equal, or as approved by the OWNER). The tracking system must be capable of tracking at all depths up to fifty feet and in any soil condition, including hard rock. It should enable the driller to guide the drill head by providing immediate information on the tool face, azimuth (horizontal direction), and inclination (vertical direction). The tracking system has to be accurate and calibrated to manufacturer's specifications of the vertical depth of the borehole at sensing position at depths up to fifty feet and accurate to 2-feet horizontally. The

CONTRACTOR shall be aware of any geo-magnetic anomalies and consider such influences in the operation of the guidance system.

## **2.4 DRILLING FLUID (MUD) SYSTEM**

- A. The CONTRACTOR shall use new, water-based, environmentally safe drilling fluids. The CONTRACTOR may consider using environmentally safe drilling fluid additives, which shall be submitted to the OWNER for approval prior to use. The CONTRACTOR shall certify in writing to the OWNER that any chemicals added to the drilling fluid are environmentally safe and not harmful or corrosive to the utilities being installed. The CONTRACTOR shall identify the source of water for mixing the drilling fluid. Approvals and permits are required for obtaining water from such sources as streams, rivers, ponds, or fire hydrants. Any water source used other than potable water requires a pH test and should have a pH or treated pH of between 8.5-10.
- B. The CONTRACTOR shall supply a self-contained, closed, drilling fluid mixing system of sufficient size to thoroughly mix and deliver drilling fluid through the bored hole. The drilling fluid mixture and installation pressure shall be designed by the CONTRACTOR to conduct drilling operations in a manner such that a stable bore hole is maintained and discharge of the drilling fluid into unintended areas is prevented. The CONTRACTOR shall provide and maintain instrumentation that will accurately measure drilling fluid discharge rate and pressure. The OWNER or OWNER's representative shall have access to these instruments and their readings at all times.
- C. The CONTRACTOR shall provide metal fluid storage tanks on both sides of the crossing sufficient to contain all drilling fluids resulting from the drilling operations. The drilling fluid removal system shall include a self-contained vacuum truck which has sufficient vacuum and tank capacity to remove excess drilling fluid mixture and cuttings from the Project site as required or as directed by the OWNER. Additional drilling fluid containment equipment shall include, but not be limited to, trash pumps, suction hoses, discharge hoses, and absorbent pads.

## **2.5 OTHER EQUIPMENT**

- A. Pipe Rollers and Crane(s): During pipe insertion (pullback) the pipe shall be fully supported to prevent marring of the exterior of the pipe.
- B. Restrictions: Do not use other devices or utility placement systems for providing horizontal thrust other than those previously defined in the preceding sections unless approved by the OWNER prior to commencement of the work. The proposed device or system will be evaluated by the OWNER without undue delay and maintain line and grade within the tolerances prescribed by the particular conditions of the project.

## **PART 3 EXECUTION**

### **3.1 GENERAL**

- A. Notify the OWNER a minimum of ten (10) working days in advance of starting the Work. All necessary permits and approvals must be in place prior to commencement of the Work. Do not begin the directional drilling until the OWNER or OWNER's representative is present at the Site and agrees that proper preparations for the operation have been made. The OWNER's approval for beginning the installation does not in any way relieve the CONTRACTOR of the ultimate

responsibility for the satisfactory completion of the work as authorized under the Contract Documents.

- B. All materials, equipment, and facilities used on the private property and rights-of-way may be inspected by the OWNER or OWNER's representatives and removed if considered unsatisfactory.

### **3.2 PERSONNEL REQUIREMENTS**

- A. All personnel must be fully trained in their respective duties as part of the directional drilling crew and in safety.
- B. The CONTRACTOR shall supply references of previous projects using this type of installation process that this directional drilling crew has been involved.
- C. The CONTRACTOR shall ensure that a competent and experienced supervisor is present at all times during the actual drilling operations. A responsible representative who is thoroughly familiar with the equipment and type of work to be performed must be in direct charge and control of the operation at all times. Furnish a sufficient number of competent workers on the job at all times to ensure the directional drilling is performed safely and in a timely and satisfactory manner.
- D. The CONTRACTOR shall employ trained and competent personnel to operate each piece of equipment.
- E. The CONTRACTOR shall remove any personnel who are unqualified, incompetent, or otherwise not suitable for the performance of this project from the job site and replace with suitable personnel.

### **3.3 DIRECTIONAL DRILLING OPERATION**

- A. Provide all material, equipment, and facilities required for directional drilling. Maintain proper alignment and elevation of the borehole throughout the directional drilling operation. The method used to complete the directional drill must conform to the requirements of all applicable permits.
- B. Protect adjacent wetlands, creeks, surface waters, and property from release of drilling fluids, spills, turbid discharge, or waste.
- C. Contain all drilling fluids and loose cuttings in pits or holding tanks for recycling or disposal, no fluids should be allowed to enter any unapproved areas or natural waterways. Dispose of all the drilling mud and cuttings after job completion at an approved dumpsite. Hazardous fluids and accidental release are to be addressed in the Spill Prevention Control and Countermeasure Plan.
- D. Drill the pilot hole on the bore path with no deviations greater than 12 inches over the length of the bore unless previously agreed to by the OWNER. In the event that the pilot bore does deviate from the bore path more than 5% of depth over the length of the bore, the pilot bore must be pulled back and re-drilled from the location along the bore path before the deviation. In the event of a drilling fluid fracture, inadvertent returns, or returns loss during pilot hole drilling operations, pause drilling operations and implement mitigation procedures as determined by the CONTRACTOR, then resume drilling operations. If fluid fracture, inadvertent returns, or returns loss continue, notify the OWNER.
- E. The pilot bore must be located such that the installed pipe will maintain a minimum vertical clearance of 5 feet below the base of the proposed WSDOT culvert excavation, and a minimum horizontal clearance of 15 feet north of the proposed WSDOT culvert location. The pilot hole

should not extend outside of the path boundaries shown on the Contract Drawings. The proposed WSDOT features are shown on the Contract Drawings. The proposed vertical and horizontal clearances between the bored pipe and any existing/proposed conflicting pipes, conduits, obstructions, or the proposed WSDOT culvert must not be less than the guidance system's accuracy tolerance.

- F. The CONTRACTOR shall pump drilling fluid through the open bore hole such that the drilling fluid maintains a stable bore hole and transports drill cuttings to the surface through annulus of the borehole. The CONTRACTOR shall determine the volume of bentonite mud required for each phase based on soil conditions, largest diameter of the pipe system component, capacity of the bentonite mud pump, and the speed of pullback as recommended by the bentonite drilling fluid manufacturer. The CONTRACTOR shall contain the drilling fluid at the exit or entry side of the directional bore in pits or holding tanks. The slurry may be recycled at this time for reuse in the hole opening operation or contained/disposed of in accordance with state/federal regulations and permit conditions.
- G. The annular space between the pipe and the bore hole must be filled with an OWNER-approved material (bentonite or equal) to support and stabilize the pipe. If pressure grouting is used, caution should be exercised to ensure that excess grout pressure does not distort or collapse the pipe.
- H. Upon OWNER approval of the pilot bore path, the CONTRACTOR may begin the hole opening or enlarging phase. Increase the bore hole diameter to accommodate the pullback operation of the required size of the pipe. The type of hole opener or back reamer to be utilized in this phase shall be determined by the CONTRACTOR based on the types of subsurface soil conditions that have been encountered during the pilot hole drilling operation. Select the proper reamer type with the final hole opening being a maximum of 1.5 times the largest outside diameter pipe system component to be installed in the bore hole. Multiple reaming passes shall be used at the discretion of the CONTRACTOR and shall conform to this specification.
- I. Calculate pullback loads and maximum net pressure acting on the pipe during installation. Ensure that the calculated pullback load does not exceed the safe pull strength by the product manufacturer.
- J. Install a tracer wire on polyvinyl chloride pipe in accordance with Section 33 05 31.19 – Fusible Polyvinyl Chloride Pipe.

### **3.4 HANDLING PIPE**

- A. Take care during transportation of the pipe such that it will not be cut, kinked or otherwise damaged.
- B. The CONTRACTOR shall use ropes, fabrics or rubber protected slings, straps, or other suitable materials when handling pipes. The CONTRACTOR may not use chains, cables, or hooks inserted into the pipe ends, unless otherwise approved by the OWNER. The CONTRACTOR shall take care not to drop pipe or fittings into rocky or unprepared ground.
- C. Handle assembled pipe in such a manner that the pipe is not damaged by dragging it over sharp and cutting objects and that the tracer wire is not damaged. Position slings for handling at pipe joints. Remove sections of the pipes with cuts and gouges or excessive deformation and replace.

### 3.5 PULLBACK

- A. The CONTRACTOR shall calculate pullback loads and maximum net pressure acting on the pipe during installation and present them to the OWNER for review. The pipe must be installed in a manner that will ensure that external loads from pullback or external or internal pressures will not subsequently cause a decrease of more than five percent in the vertical cross-section dimension. A factor of safety of 2.5 (minimum) should be applied to the pipe material's rated tensile yield strength to determine the allowable pipe pullback strength. When changes in horizontal or vertical direction are necessary, these must be accomplished gradually such that the minimum bend radii specified by the product manufacturer are maintained.
- B. The CONTRACTOR shall commence pullback immediately after the final reamer pass has been completed, if possible. If it is not possible to commence pullback immediately after the final reamer pass has been completed, pullback shall commence within 12 hours of completion of the final reamer pass, unless otherwise approved by the OWNER. If pullback does not start within 12 hours and the OWNER or CONTRACTOR has reason to suspect that the reamed hole is not ready to accept the pipe, the CONTRACTOR shall conduct additional reamer passes to attempting pullback at no cost to the OWNER. Once the CONTRACTOR has begun pullback operations, installation shall not cease until pullback operations are completed.
- C. The CONTRACTOR shall provide buoyancy modifications as required when conditions necessitate. A water source for buoyancy modification shall be provided by the CONTRACTOR. The CONTRACTOR shall be responsible for all costs (labor, equipment, and material) associated with hauling, filling, and dewatering the pipe.
- D. The CONTRACTOR shall employ pipe rollers, cranes, or other equipment necessary to lift the pipes to reach the proper entry angle and safely support the pipe. All rollers shall be in good mechanical and physical condition. At no time shall pullback equipment cause damage to the pipe. Situations that cause pipe damage shall be corrected immediately. The CONTRACTOR shall repair pipe damage before pulling operations resume, at no cost to the OWNER.
- E. If pullback is not successful, the CONTRACTOR shall repeat efforts to drill the bore hole. If the pipe becomes lodged in the bore hole during pullback and cannot be recovered, the CONTRACTOR shall seal the pipe and existing drilled hole, at the approval of the OWNER. The CONTRACTOR shall bear all costs of re-drilling, furnishing and hauling replacement pipe, fusion welding, and pressure testing to replace any pipe that is not retrieved from an unsuccessful pullback.

### 3.6 TESTING

- A. Post Installation Survey:

The CONTRACTOR shall facilitate a post-install survey of as-built drawings showing the HDD beginning and end locations as well as the pipe's actual location horizontally and vertically at a minimum of 10-foot intervals along the alignment, and all utility facilities found during the installation conducted by a third party hired by the OWNER. The CONTRACTOR facilitation of the post-install survey shall include:

- a. Installation of a tag line consisting of Mule tape WP 1250 or similar in HDD pulled pipe,
- b. The expectation of 2 working days of stand-by time for the survey, and
- c. The HDD pulled pipe shall extend beyond the pit/mud collection area to ground level, allowing access to both open ends, which shall be free of water and have free access for post-installation survey by others.

B. Testing of pipe shall comply with the Contract Documents and Drawings.

**END OF SECTION**

**SECTION 33 05 31.19**  
**FUSIBLE POLYVINYL CHLORIDE PIPE**

**PART 1 GENERAL**

**1.1 SUMMARY**

- A. This section specifies fusible polyvinyl chloride [PVC] pipe, including standards for dimensionality, testing, quality, acceptable fusion practice, safe handling, and storage.
- B. CONTRACTOR shall furnish all supervision, labor, equipment, materials and supplies to perform the work necessary to install fusible PVC pipe in accordance with the project Drawings, Specifications, Contract Documents, and this specification.

**1.2 SUBMITTAL REQUIREMENTS**

- A. General: Submittals shall be furnished in accordance with Section 01 33 00 – Submittal Procedure.
- B. Pre-Construction Submittals: The following product data is required from the pipe supplier and/or fusion provider:
  - 1. Pipe Size
  - 2. Dimensionality
  - 3. Pressure Class per applicable standard
  - 4. Color
  - 5. Recommended Minimum Bending Radius
  - 6. Recommended Maximum Safe Pull Force
  - 7. Fusion technician qualification indicating conformance with this specification
- C. Post-Construction Submittal: The following as-recorded data is required from the CONTRACTOR and/or fusion provider to the OWNER or pipe supplier upon request:
  - 1. Approved data logger device reports
  - 2. Fusion joint documentation containing the following information:
    - a. Pipe Size and Thickness
    - b. Machine Size
    - c. Fusion Technician Identification
    - d. Job Identification
    - e. Fusion Joint Number
    - f. Fusion, Heating, and Drag Pressure Settings
    - g. Heat Plate Temperature
    - h. Time Stamp
    - i. Heating and Cool Down Time of Fusion
    - j. Ambient Temperature

**1.3 QUALITY ASSURANCE**

- A. General
  - 1. This section contains references to the following documents. They are a part of this section as specified and modified. Where a referenced document contains references to other standards, those other standards are included as references under this section as if

referenced directly. In the event of a conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.

2. Unless otherwise specified, references to documents shall mean the documents in effect at the time of design, bid, or construction, whichever is earliest. If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued.
3. Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, regardless of whether the document has been superseded by a version with a later date, discontinued or replaced.

**B. References**

1. ANSI/AWWA C900-16 Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 In. Through 60 In. (100mm Through 1,500 mm)
2. American Society for Testing Materials International (ASTM) Standards
3. WSDOT Standard Specifications for Road, Bridge and Municipal Construction, 2024

**C. Fusion Technician Requirements**

1. The Fusion Technician shall be fully qualified by the pipe supplier to install fusible polyvinyl chloride pipe of the type(s) and size(s) being used.

**D. Warranty**

1. The pipe shall be warranted for one year per the pipe supplier’s standard terms.
2. In addition to the standard pipe warranty, the fusion services shall be warranted for one year per the fusion service provider’s standard terms.

**PART 2 PRODUCTS**

**2.1 OWNER-SUPPLIED PRODUCTS**

- A. None

**2.2 PIPE DESCRIPTION**

- A. Pipe supplier shall furnish fusible polyvinyl chloride pipe conforming to all standards and procedures and meeting all testing and material properties as described in this specification.
- B. Pipe shall conform to ANSI/AWWA C900-16 Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 In. Through 60 In. (100mm Through 1,500 mm)
- C. Pipe shall conform to the following dimensionality and general characteristics table:

Nominal Diameter	Dimension Ratio	Pressure Class	Min. Wall Thickness	Internal Diameter
12-inch	DR 18	235 psi	0.733 inches	11.65 inches

**D. Fusible PVC Pipe**

1. Fusible PVC pipe shall conform to AWWA C900, ASTM D2241 or ASTM D1785 for standard dimensions, as applicable. Testing shall be in accordance with the referenced AWWA standards for all pipe types.

2. Pipe shall be manufactured with 100% virgin resin. Pipe shall also have 0% recycled plastics content, and shall not consist of any rework compound, even that obtained from the manufacturer's own production using the same formulation.
3. Fusible PVC pipe shall be extruded with plain ends. The ends shall be square to the pipe and free of any bevel or chamfer. There shall be no bell or gasket of any kind incorporated into the pipe.
4. Fusible PVC pipe shall be manufactured in a standard 40' nominal length, unless otherwise approved by the OWNER.
5. Pipe shall be marked as follows:
  - a. Nominal pipe size
  - b. PVC
  - c. Dimension Ratio (DR), Standard Dimension Ratio (SDR), or Schedule
  - d. AWWA pressure class, or standard pressure rating for non-AWWA pipe, as applicable
  - e. AWWA standard designation number, or pipe type for non-AWWA pipe, as applicable
  - f. Extrusion production-record code
  - g. Trademark or trade name
  - h. Cell Classification and/or PVC material code may also be included
6. Pipe shall be homogeneous throughout and be free of visible cracks, holes, foreign material, blisters, or other visible deleterious faults.

E. Fusion Joints

1. Unless otherwise specified, fusible polyvinyl chloride pipe lengths shall be assembled in the field with butt-fused joints. The CONTRACTOR shall follow the pipe supplier's written guidelines for this procedure. All fusion joints shall be completed as described in this specification.

F. Connection and Fittings for Pressure Applications

1. Connections shall be defined in conjunction with the coupling of project piping, as well as the tie-ins to other piping systems.
2. Ductile Iron Mechanical and Flanged Fittings
  - a. Acceptable fittings for use with fusible polyvinyl chloride pipe shall include standard ductile iron fittings conforming to AWWA/ANSI C110/A21.10, or AWWA/ANSI C153/A21.53 and AWWA/ANSI C111/A21.11.
  - b. Connections to fusible polyvinyl chloride pipe may be made using a restrained or non-restrained retainer gland product for PVC pipe, as well as for MJ or flanged fittings.
  - c. Bends, tees and other ductile iron fittings shall be restrained with the use of thrust blocking or other means as indicated in the construction documents.
  - d. Ductile iron fittings and glands must be installed per the manufacturer's guidelines.
  - e. If required, linings for Ductile Iron fittings shall meet the following requirements for the following service environments:
    - 1) Liquid Epoxy shall be 100% solids liquid epoxy, Tnemec Epoxyline Series FC22.
    - 2) Polyurethane shall be DuraShield 210-61 or 310-61.
  - f. If required, coatings for Ductile Iron fittings shall meet the following requirements for buried and/or immersion service duty:
    - 1) Polyurethane shall be DuraShield 210 or 310.
    - 2) Liquid Epoxy shall be 100% solids liquid epoxy, Tnemec Epoxyline Series FC22.

- 3) Coal tar epoxy shall be Sherwin Williams Targuard.
3. Sleeve-Type Couplings
    - a. Sleeve-type mechanical couplings shall be manufactured for use with PVC pressure pipe and may be restrained or unrestrained as indicated in the construction documents.
    - b. Sleeve-type couplings shall be rated at the same or greater pressure carrying capacity as the pipe itself.
  4. Connection Hardware
    - a. Bolts and nuts for buried service shall be made of non-corrosive, high-strength, low-alloy steel having the characteristics specified in ANSI/AWWA C111/A21.11, regardless of any other protective coating.
    - b. Bolts, Washers, and Other Hardware shall be in accordance with WSDOT Standard Specifications Section 9-06.22.
    - c. Bolt and nut material shall be free-cutting steel.
    - d. Nuts shall be capable of developing the full strength of the bolts. Threads shall be Coarse Thread Series conforming to the requirements of the American Standard for Screw Threads. All bolts and cap screws shall have hexagon heads and nuts shall be Heavy Hexagon Series.
    - e. Bolts and nuts shall be installed with washers fabricated of material matching the base material of bolts, except that hardened washers for high strength bolts shall conform to the requirements of the AISC Specification. Lock washers fabricated of material matching the bolts shall be installed with washers where indicated.
    - f. The length of each bolt shall be such that after the joint is made up, the bolt extends through the entire nut, but in no case more than 1/2-inch beyond the nut.

## 2.3 TRACER WIRE

1. Polyvinyl chloride pipelines shall be provided with No. 10 AWG solid core insulated copper wire laid along the top of the pipe and held in place with ties or hitches of the same kind of wire spaced not more than 13-feet apart.

## PART 3 EXECUTION

### 3.1 DELIVERY AND OFF-LOADING

- A. All pipe shall be bundled or packaged in such a manner as to provide adequate protection of the ends during transportation to the site. Any pipe damaged in shipment shall be replaced as directed by the OWNER or ENGINEER.
- B. Each pipe shipment should be inspected prior to unloading to see if the load has shifted or otherwise been damaged. Notify OWNER or ENGINEER immediately if more than immaterial damage is found. Each pipe shipment should be checked for quantity and proper pipe size, color, and type.
- C. Pipe should be loaded, off-loaded, and otherwise handled in accordance with AWWA M23, and all of the pipe supplier's guidelines shall be followed.
- D. Off-loading devices such as chains, wire rope, chokers, or other pipe handling implements that may scratch, nick, cut, or gouge the pipe are strictly prohibited.
- E. During removal and handling, be sure that the pipe does not strike anything. Significant impact could cause damage, particularly during cold weather.

- F. If appropriate unloading equipment is not available, the pipe may be unloaded by removing individual pieces. Care should be taken to ensure that the pipe is not dropped or damaged. Pipe should be carefully lowered, not dropped, from trucks.

### 3.2 HANDLING AND STORAGE

- A. Any length of pipe showing a crack, or which has received a blow that may have caused an incident fracture, even though no such fracture can be seen, shall be marked as rejected and removed at once from the work. Damaged areas, or possible areas of damage may be removed by cutting out and removing the suspected incident fracture area. Limits of the acceptable length of pipe shall be determined by the OWNER.
- B. Any scratch or gouge greater than 10% of the wall thickness will be considered significant and can be rejected unless determined acceptable by the OWNER.
- C. Pipe lengths should be stored and placed on level ground. Pipe should be stored at the job site in the unit packaging provided by the manufacturer. Caution should be exercised to avoid compression, damage, or deformation to the ends of the pipe. The interior of the pipe, as well as all end surfaces, should be kept free from dirt and foreign matter.
- D. Pipe shall be handled and supported with the use of woven fiber pipe slings or approved equal. Care shall be exercised when handling the pipe to not cut, gouge, scratch or otherwise abrade the piping in any way.
- E. If the pipe is to be stored for periods of 1 year or longer, the pipe should be shaded or otherwise shielded from direct sunlight. Covering of the pipe which allows for temperature build-up is strictly prohibited. The pipe should be covered with an opaque material while permitting adequate air circulation above and around the pipe as required to prevent excess heat accumulation.
- F. Pipe shall be stored and stacked per the pipe supplier's guidelines.

### 3.3 GENERAL FUSION PROCESS

- A. Fusible polyvinyl chloride pipe will be handled in a safe and non-destructive manner before, during, and after the fusion process and in accordance with this specification and pipe supplier's guidelines.
- B. Fusible polyvinyl chloride pipe will be fused by qualified fusion technicians, as documented by the pipe supplier.
- C. Each fusion joint shall be recorded and logged by an electronic monitoring device (data logger) connected to the fusion machine.
- D. Only appropriately sized and outfitted fusion machines that have been approved by the pipe supplier shall be used for the fusion process. Fusion machines must incorporate the following elements:
  - 1. HEAT PLATE - Heat plates shall be in good condition with no deep gouges or scratches. Plates shall be clean and free of any debris or contamination. Heater controls shall function properly; cord and plug shall be in good condition. The appropriately sized heat plate shall be capable of maintaining a uniform and consistent heat profile and temperature for the size of pipe being fused, per the pipe supplier's guidelines.

2. CARRIAGE – Carriage shall travel smoothly with no binding at less than 50 psi. Jaws shall be in good condition with proper inserts for the pipe size being fused. Insert pins shall be installed with no interference to carriage travel.
  3. GENERAL MACHINE - Overview of machine body shall yield no obvious defects, missing parts, or potential safety issues during fusion.
  4. DATA LOGGING DEVICE – An approved data logging device with the current version of the pipe supplier’s recommended and compatible software shall be used. Data logging device operations and maintenance manual shall be with the unit at all times. If fusing for extended periods of time, an independent 110V power source shall be available to extend battery life.
- E. Other equipment specifically required for the fusion process shall include the following:
1. Pipe rollers shall be used to support of pipe to either side of the machine.
  2. A weather protection canopy that allows full machine motion of the heat plate, fusion assembly and carriage shall be provided for fusion in inclement, extreme temperatures, and /or windy weather, per the pipe supplier’s recommendations.
  3. An infrared (IR) pyrometer for checking pipe and heat plate temperatures.
  4. Fusion machine operations and maintenance manual shall be kept with the fusion machine at all times.
  5. Facing blades specifically designed for cutting fusible polyvinyl chloride pipe shall be used.

### 3.4 JOINT RECORDING

- A. Each fusion joint shall be recorded and logged by an electronic monitoring device (data logger) connected to the fusion machine. The fusion data logging and joint report shall be generated by software developed specifically for the butt-fusion of fusible polyvinyl chloride pipe. The software shall register and/or record the parameters required by the pipe supplier and these specifications. Data not logged by the data logger shall be logged manually and be included in the Fusion Technician’s joint report.
- B. The following As-Recorded data is required from the CONTRACTOR and/or fusion subcontractor provided to the OWNER or supplier upon request:
1. Approved data logger device reports
  2. Fusion joint documentation containing the following information:
  3. Pipe size and thickness
  4. Machine size
  5. Fusion Technician Identification
  6. Job identification
  7. Fusion joint number
  8. Fusion, heating and drag pressure settings
  9. Heat plate temperature
  10. Time stamp
  11. Heating and cool down time of fusion
  12. Ambient temperature

### **3.5 GENERAL INSTALLATION**

- A. Installation guidelines from the pipe supplier shall be followed for all installations.
- B. The fusible polyvinyl chloride pipe will be installed in a manner so as not to exceed the recommended bending radius.
- C. Where fusible polyvinyl chloride pipe is installed by pulling in tension, the recommended Safe Pulling Force established by the pipe supplier shall not be exceeded.

### **3.6 TESTING AND DISINFECTION**

- A. Hydrostatic testing, leakage testing, and disinfection for fusible PVC pipe shall be performed in accordance with the Contract Drawings.

### **3.7 PIPE SYSTEM CONNECTIONS**

- A. Unless otherwise approved, new piping systems shall be completely assembled and successfully tested prior to making connections into existing pipe systems.
- B. Approximate locations for existing piping systems are shown in the construction documents.
- C. The OWNER's crew will make the final connection to the existing piping system.
- D. Prior to making connections into existing piping systems, the CONTRACTOR shall:
  - 1. Field verify location, size, piping material, and piping system of the existing pipe.
  - 2. Obtain all required fittings, which may include saddles, sleeve type couplings, flanges, tees, or others as shown in the construction documents.
  - 3. Have installed all temporary pumps and/or pipes in accordance with established connection plans.

**END OF SECTION**

**SECTION 33 14 13**  
**PUBLIC WATER UTILITY DISTRIBUTION PIPING**

**PART 1 GENERAL****1.1 SUMMARY**

- A. Section Includes:
  - 1. Ductile iron fittings.
  - 2. Polyethylene Encasement for ductile iron pipe fittings.
- B. Related Sections
  - 1. Skagit PUD No. 1 General Conditions.
  - 2. Division 1 - General Requirements.
  - 3. Section 31 23 00 - Excavation and Fill
  - 4. Division 33

**1.2 SUBMITTALS**

- A. General: Submittals shall be furnished in accordance with Section 01 33 00 – Submittal Procedure.
- B. Manufacturer Certification: Certification materials supplied meet criteria as specified.
- C. Bell-and-spigot ends with rubber gaskets: The CONTRACTOR shall require the pipe manufacturer to submit details complete with significant dimensions and tolerances and also to submit performance data indicating that the proposed joint has performed satisfactorily under similar conditions. In the absence of a history of field performance, the results of a test program shall be submitted.

**1.3 REFERENCED STANDARDS**

- A. American National Standards Institute (ANSI):
  - 1. B1.1, Unified Inch Screw Threads (UN and UNR Thread Form).
  - 2. B16.1, Cast-Iron Pipe Flanges and Flanged Fittings, Class 25, 125, 250, and 800.
  - 3. B16.21, Nonmetallic Flat Gaskets for Pipe Flanges.
- B. ASTM International (ASTM):
  - 1. A183, Carbon Steel Track Bolts.
  - 2. A193, Standard Specification for Alloy-Steel and Stainless-Steel Bolting Materials for High-Temperature Service.
  - 3. A194, Standard Specification for Carbon and Alloy Steel Nuts for Bolts for High-Pressure and High-Temperature Service.
  - 4. A307, Standard Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength.
  - 5. B695, Standard Specification for Coatings of Zinc Mechanically Deposited on Iron and Steel.
  - 6. C150, Specification for Portland Cement.
  - 7. D1330, Rubber Sheet Gaskets.

C. American Water Works Association (AWWA):

1. C104, Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water.
2. C105, Polyethylene Encasement for Gray and Ductile Cast-Iron Piping for Water and Other Liquids.
3. C110, Ductile Iron and Gray Iron Fittings, 3-inch through 48-inch for Water and Other Liquids.
4. C111, Gasket Joints for Cast Iron and Ductile Iron Pressure Pipe and Fittings.
5. C115, Flanged Ductile Iron Pipe with Threaded Flanges.
6. C150, Thickness Design of Ductile Iron Pipe.
7. C151, Ductile Iron Pipe, Centrifugally Cast-In-Metal Molds or Sand-Lined Molds, for Water or Other Liquids.
8. C153, Ductile-Iron Compact Fittings, 3 in. through 16 in. for Water and Other Liquids.
9. C600, Installation of Ductile Iron Water Main and Their Appearances.
10. C606, Grooved and Shouldered Joints.

## **PART 2 PRODUCTS**

### **2.1 GENERAL**

- A. Fittings shall be of the diameter and class shown, shall be furnished complete with rubber gaskets.

### **2.2 WAX TAPE WRAP**

- A. Denso petrolatum tape system, or equal, meeting AWWA C217 and NACE RP0375 standards. Install per manufacture's recommendations.

### **2.3 SPECIALS AND FITTINGS**

- A. Fittings for ductile iron pipe shall conform to the requirements of ANSI/AWWA C153/A21.53 or ANSI/AWWA C110/A21.10 for diameters 3-inch through 48-inch and shall have a minimum test pressure rating of 225 psi and working pressure rating of 150 psi.
- B. Fittings shall be furnished inclusive of mortar-lined and seal coated in accordance with ANSI/AWWA C104/A21.4.
- C. The fittings shall be of the diameter and class shown.
- D. Joint Design: Ductile iron pipe and fittings shall be furnished with mechanical joints, push-on joints, flanged joints, and restrained joints as required.
1. Mechanical and push-on joints shall conform to ANSI/AWWA C111/A21.11.
  2. Flanged joints shall conform to ANSI/AWWA C110/A21.10-12, flange drilling in accordance with ANSI B16.1, Class 125.
  3. Restrained joints shall utilize a positive restraint method, such as Grip Ring by Ford or approved equal. Restrained joints using friction restraint such as set screws, anchor lugs, exposed bolts in the thrust restraint assembly are unacceptable.
- E. For bell-and-spigot ends with rubber gaskets, the clearance between the bells and spigots shall be such that when combined with the gasket groove configuration and the gasket itself, will provide watertight joints under all operating conditions when properly installed.

## **2.4 CEMENT-MORTAR LINING**

- A. Cement-Mortar Lining for Shop Application: Except as otherwise provided herein, interior surfaces of all ductile iron fittings shall be cleaned and lined in the shop with cement-mortar lining applied centrifugally in conformity with ANSI/AWWA C104/21.4. During the lining operation and thereafter, the fittings shall be maintained in a round condition by suitable bracing or strutting. Every precaution shall be taken to prevent damage to the lining. If the lining is damaged or found faulty at delivery site, the damaged or unsatisfactory portions shall be replaced with lining conforming to these Specifications.

## **2.5 EXTERIOR COATING**

- A. Exterior Coating of Fittings: The exterior coating shall be an asphaltic coating approximately 1 mil thick.
- B. The exterior of all ductile iron fittings shall be wrapped with wax tape wrap.

## **PART 3 EXECUTION**

### **3.1 INSTALLATION OF PIPE FITTINGS**

- A. Handling and Storage: All pipe fittings shall be carefully handled and protected against damage, impact shocks, and free fall. All handling equipment shall be acceptable to the OWNER. Fittings shall be protected against injury whenever stored at the trench site or elsewhere. No fitting shall be installed where the lining or coating show defects that may be harmful as determined by the OWNER. Such damaged lining or coating shall be repaired, or a new undamaged fitting shall be furnished and installed.
- B. All fittings damaged prior to Substantial Completion shall be repaired or replaced by the CONTRACTOR.
- C. The CONTRACTOR shall inspect each fitting prior to installation to ensure that there are no damaged portions.
- D. Before placement each fitting shall be thoroughly cleaned of any foreign substance, which may have collected thereon and shall be kept clean at all times thereafter. For this purpose, the openings of all pipes and fittings in the trench shall be closed during any interruption to the WORK.
- E. The openings of all pipe and specials shall be protected with suitable bulkheads to prevent unauthorized access by persons, animals, water or any undesirable substance. At all times, means shall be provided to prevent the pipe from floating.

**END OF SECTION**

**SECTION 33 14 19**  
**VALVES AND HYDRANTS FOR WATER UTILITY SERVICE**

**PART 1 GENERAL****1.1 SUMMARY**

- A. Section Includes:
  - 1. Valving, actuators, and valving appurtenances.
- B. Related Sections:
  - 1. Skagit Public Utility District No. 1 General Conditions.
  - 2. Division 1 - General Requirements.
  - 3. Section 33 05 05 - Buried Piping Installation
- C. Unit Responsibility: For the piping systems that are required to be provided by the CONTRACTOR, a single manufacturer shall be made responsible for coordination of design, assembly, testing, and furnishing of each valve; however, the CONTRACTOR shall be responsible to the OWNER for compliance with the requirements of each valve section. Unless indicated otherwise, the responsible manufacturer shall be the manufacturer of the valve.
- D. Single Manufacturer: Where two or more valves of the same type or size are required, the valves shall be furnished by the same manufacturer.

**1.2 REFERENCED STANDARDS**

- A. American National Standards Institute (ANSI):
  - 1. B1.20.1, Pipe Threads, General Purpose.
  - 2. B16.1, Cast Iron Pipe Flanges and Flanged Fittings.
  - 3. B16.18, Cast Copper Alloy Solder Joint Pressure Fittings.
  - 4. B16.34, Valves-Flanged, Threaded and Welding End.
- B. ASTM International (ASTM):
  - 1. D256, Standard Test Methods for Determining the Izod Pendulum Impact Resistance of Plastics.
  - 2. D638, Standard Test Method for Tensile Properties of Plastics.
  - 3. D648, Standard Test Method for Deflection Temperature of Plastics Under Flexural Load.
  - 4. D695, Standard Test Method for Compressive Properties of Rigid Plastics.
  - 5. D2240, Standard Test Method for Rubber Property-Durometer Hardness.
- C. American Water Works Association (AWWA):
  - 1. C111, Rubber-Gasket Joints for Ductile Iron and Gray Iron Pressure Pipe and Fittings.
  - 2. C207, Steel Pipe Flanges for Waterworks Service - Sizes 4 IN through 144 IN.
  - 3. C500, Gate Valves for Water and Sewerage Systems.
  - 4. C504, Rubber-Seated Butterfly Valves.
  - 5. C507, Ball Valves, 6 IN through 48 IN (150 MM through 1200 MM).
  - 6. C509, Resilient-Seated Gate Valves 3 through 12 NPS, for Water and Sewage Systems.
  - 7. C540, Power-Actuating Devices for Valves and Sluice Gates.
  - 8. C550, Protective Epoxy Interior Coatings for Valves and Hydrants.

9. C606, Grooved and Shouldered Joints.
- D. Manufacturers Standardization Society of the Valve and Fittings Industry, Inc. (MSS).
- E. National Electrical Manufacturers Association (NEMA):
  1. 250, Enclosures for Electrical Equipment (1000 Volt Maximum).
  2. MG 1, Motors and Generators.

### **1.3 ABBREVIATIONS**

- A. CWP: Cold water working pressure.
- B. WWP: Water working pressure.

### **1.4 CONTRACTOR SUBMITTALS**

- A. General: Submittals shall be furnished in accordance with Section 01 33 00 – Submittal Procedure.
- B. Shop Drawings: Shop Drawings for the valves that are within the CONTRACTOR's scope of supply and responsibility shall contain the following information:
  1. Valve name, size, valve flow coefficient (Cv factor), pressure rating, identification number (if any), and specification section number.
  2. Complete information on valve actuator, including size, manufacturer, model number, limit switches, and mounting.
  3. Cavitation limits for all control valves.
  4. Assembly drawings showing part nomenclature, materials, dimensions, weights, special linings, and relationships of valve handles, handwheels, position indicators, limit switches, integral control systems, needle valves, and control systems.
  5. Complete wiring diagrams and control system schematics.
  6. Valve Labeling: A schedule of values to be labeled, indicating in each case the valve location and the proposed working for the label.
  7. Acknowledgement that products submitted meet requirements of standard referenced.
- C. Spare Parts List: A Spare Parts List shall contain the required information for each valve assembly, where indicated.
- D. Factory Test Data: Where indicated, signed, dated, and certified factory test data for each valve requiring certification shall be submitted before shipment of the valve. The data shall also include certification of quality and test results for factory-applied coatings.
- E. Certification: Prior to shipment, the CONTRACTOR shall submit for all valves over 12 inches in size, certified, notarized copies of the hydrostatic factory tests, showing compliance with the applicable standards of AWWA, ANSI, and ASTM.

## **PART 2 PRODUCTS**

### **2.1 ACCEPTABLE MANUFACTURERS**

- A. Refer to individual valve Specification Sections.

## 2.2 MATERIALS

- A. General: All materials shall be suitable for the intended application. Materials not specified shall be high-grade standard commercial quality, free from all defects and imperfections that might affect the serviceability of the product for the purpose for which it is intended. Unless otherwise specified, valve and actuator bodies shall conform to the following requirements:
1. Ductile Iron: ASTM A536 – Specifications for Ductile Iron Castings, or to ASTM A395 – Specifications for Ferric Ductile Iron Pressure-Retaining Castings for Use at Elevated Temperatures.
  2. Steel: ASTM A216 – Specification for Steel Castings, Carbon Suitable for Fusion Welding for High-Temperature Service, or to ASTM A515 – Specification for Pressure Welding for Pressure Vessel Plates, Carbon Steel, for Intermediate- and Higher-Temperature Service.
  3. Bronze: ASTM B62 – Specification for Composition Bronze or Ounce Metal Castings, and valve stems not subject to dezincification shall conform to ASTM B584 – Specification for Copper Alloy Sand Castings for General Applications.
  4. Stainless Steel: Stainless steel valve and operator bodies and trim shall conform to ASTM A351 – Specification for Steel Castings, Austenitic, for High-Temperature Service, Grade CF8M, or shall be Type 316 stainless steel.

## 2.3 VALVE CONSTRUCTION

- A. Unless otherwise noted valves shall be rated for 250 PSI working pressure.
- B. Bodies: Valve bodies shall be cast, forged, or welded of the materials indicated, with smooth interior passages. Wall thicknesses shall be uniform in agreement with the applicable standards for each type of valve, without casting defects, pinholes, or other defects that could weaken the body. All welds on welded bodies shall be done by certified welders and shall be ground smooth. Valve ends shall be as indicated and be rated for the maximum temperature and pressure to which the valve will be subjected.
- C. Bonnets: Valve bonnets shall be clamped, screwed, or flanged to the body and shall be of the same material, temperature, and pressure rating as the body. The bonnets shall have provision for the stem seal with the necessary glands, packing nuts, or yokes.
- D. Stems: Valve stems shall be of the materials indicated, or , if not indicated, of the best commercial material for the specific service, with adjustable stem packing, O-rings, Chevron V-type packing, or other suitable seal. Where subject to dezincification, bronze valve stems shall conform to ASTM B62, containing not more than 5 percent of zinc or more than 2 percent of aluminum, with a minimum tensile strength of 60,000 psi, a minimum yield strength of 40,000 psi, and an elongation of at least 10 percent in 2 inches. Where dezincification is not a problem, bronze conforming to ASTM B584 may be used.
- E. Internal Parts: Internal parts and valve trim shall be as indicated for each individual valve. Where not indicated, valve trim shall be of Type 316 stainless steel or other best suited material.
- F. All bolts used in buried flanges shall be ASTM A307 Grade B unfinished with nuts to ASTM A563 Grade A and washers to ASTM F8444 or ASTM A325 Type 3 (corten steel) unfinished, with nuts to ASTM A563C3 or A563DH3 and washers to ASTM F436-1. All bolts, nuts and washers used in exposed or above ground locations shall be ASTM/A307 Grade B unfinished or hot-dip galvanized.

## 2.4 VALVE ACCESSORIES

- A. All valves shall be furnished complete with the accessories required to provide a function system.

## 2.5 SPARE PARTS

- A. Where indicated, the CONTRACTOR shall furnish the required spare parts suitably packaged and labeled with the valve name, location, and identification number. The CONTRACTOR shall also furnish the name, address, and telephone number of the nearest distributor for the spare parts of each valve. All spare parts are intended for use by the OWNER, only, after expiration of the guarantee period.

## 2.6 VALVE ACTUATORS

### A. Valve Actuators - General:

1. Unless otherwise indicated, valves shall be furnished with manual actuators.
2. Provide actuators as shown on Drawings or specified.
3. Counterclockwise opening as viewed from the top.
4. Direction of opening and the word OPEN to be cast in handwheel or valve bonnet.
5. Size actuator to produce required torque with a maximum pull of 80 LB at the maximum pressure rating of the valve provided and withstand without damage a pull of 200 LB on handwheel or chainwheel or 300 foot-pounds torque on the operating nut.
6. Unless otherwise specified, actuators for valves to be buried, or installed in vaults or manholes shall be sealed to withstand at least 20 FT of submergence.
7. Extension Stem:
  - a. Install where shown or specified.
  - b. Solid steel with actuator key and nut, diameter not less than stem of valve actuator shaft.
  - c. Pin all stem connections.
  - d. Center in valve box or grating opening band with guide bushing.

### B. Buried Valve Actuators:

1. Provide screw or slide type adjustable cast iron valve box, 5 IN minimum diameter, 3/16 IN minimum thickness, and identifying cast iron cover.
2. Box base to enclose buried valve gear box or bonnet.
3. Provide 2 IN standard actuator nuts complying with Section 3.16 of AWWA C500.
4. Provide at least two tee-handle keys for actuator nuts, with 5 FT extension between key and handle.
5. Extension Stem:
  - a. Provide for buried valves greater than 4 FT below finish grade.
  - b. Extend to within 6 IN of finish grade.
6. Provide concrete pad encasement of valve box as shown for all buried valves unless shown otherwise.

### C. Exposed Valve Manual Actuators:

1. Provide for all exposed valves not having electric or cylinder actuators.
2. Provide handwheels for gate and globe valves.
  - a. Size handwheels for valves in accordance with AWWA C500.

3. Provide lever actuators for plug valves, butterfly valves and ball valves 3 IN DIA and smaller.
  - a. Lever actuators for butterfly valves shall have a minimum of 5 intermediate lock positions between full open and full close.
  - b. Provide at least two levers for each type and size of valve furnished.
4. Gear actuators required for butterfly valves, and ball valves 4 IN DIA and larger.
5. Gear actuators to be totally enclosed, permanently lubricated and with sealed bearings.
6. Provide chain actuators for valves 6 FT or higher from finish floor to valve centerline.
  - a. Cadmium-plated chain looped to within 3 FT of finish floor.
  - b. Equip chain wheels with chain guides to permit rapid operation with reasonable side pull without "gagging" the wheel.
7. Provide cast iron floor stands where shown on Drawings. Stands to be furnished by valve manufacturer with actuator.
  - a. Stand or actuator to include thrust bearings for valve operation and weight of accessories.

## 2.7 FABRICATION

- A. End Connections:
  1. Provide the type of end connections for valves as required in the Piping Schedules presented in 33 05 07.13 or as shown on the Drawings.
  2. Comply with the following standards:
    - a. Threaded: ANSI B1.20.1.
    - b. Flanged: ANSI B16.1 Class 125 unless otherwise noted or AWWA C207.
    - c. Bell and spigot or mechanical (gland) type: AWWA C111.
    - d. Soldered: ANSI B16.18.
    - e. Grooved: Rigid joints per Table 5 of AWWA C606.
- B. Refer to individual valve sections for specifications of each type of valve on Project.
- C. Nuts, Bolts, and Washers:
  1. Wetted or internal to be bronze or stainless steel. Exposed to zinc or cadmium plated.
- D. On Insulated Piping: Provide valves with extended stems to permit proper insulation application without interference from handle.
- E. Protective Coating and Lining:
  1. In accordance with AWWA C550 unless otherwise specified.
  2. Either two-part liquid material or heat-activated (fusion) material except only heat-activated material if specified as "fusion" or "fusion-bonded" epoxy.
  3. Minimum 7-mil dry film thickness except where limited by valve operating tolerances.
  4. The valve manufacturer shall certify in writing that the required coating has been applied and tested in the manufacturing plant prior to shipment, in accordance with these Specifications. Alternatively, if required coatings are applied outside of manufacturing plant, the manufacturer shall warrant the valve to the same standard provided for factory coated valves.
  5. Flange faces of valves shall not be epoxy coated.
  6. Lining shall be NSF approved.

- F. Valve Testing: As a minimum, unless otherwise indicated, each valve body 4 inches and larger shall be tested hydrostatically to 1.5 times its rated 100 degrees F design water-working pressure. In addition, each valve 4 inches and larger shall undergo a functional test to demonstrate satisfactory operation throughout its operating cycle, and a closure test at rated 100 degrees F water-working pressure for a period of 5 minutes to demonstrate tight shut-off. Stem seal leakage shall not be a cause for rejection. All valves 3 inches and smaller shall undergo the manufacturer's standard test.
- G. Valve Marking: All valve bodies shall be permanently marked in accordance with MSS SP25 – Standard Marking Systems for Valves, Fittings, Flanges, and Unions.
- H. Underground Valves: Provide underground metallic valves with flanged, mechanical, or other type of joint required for the type of pipe to which the valve is to be connected. Plastic pipe shall be heat welded when buried and shall be flanged within any underground vaults and metering or valve boxes. Flanges attached to all plastic valves 2-inches in diameter and larger, shall meet the outside diameter and bolt hole dimensional requirements of ANSI/ASME B16.5.

### **PART 3 EXECUTION**

#### **3.1 INSTALLATION**

- A. Install products in accordance with manufacturer's instructions.
- B. Setting Buried Valves:
  - 1. Locate valves installed in pipe trenches where buried pipe indicated on Drawings.
  - 2. Set valves and valve boxes plumb.
  - 3. Place valve boxes directly over valves with top of box being brought to surface of finished grade.
  - 4. Install in closed position.
  - 5. Place valve on firm footing in trench to prevent settling and excessive strain on connection to pipe.
  - 6. After installation, backfill up to top of box for a minimum distance of 4 FT on each side of box.
- C. Support exposed valves and piping adjacent to valves independently to eliminate pipe loads being transferred to valve and valve loads being transferred to the piping.
- D. For grooved coupling valves, install rigid type couplings {or provide separate support to prevent rotation of valve from installed position}.
- E. For threaded valves, provide union on one side within 2 FT of valve to allow valve removal.
- F. Install valves accessible for operation, inspection, and maintenance.
- G. Valve Accessories: Where combinations of valves, sensors, switches, and controls are indicated, the CONTRACTOR shall properly assemble and install such items so that all systems are compatible and operating properly. The relationship between interrelated items shall be clearly noted on shop drawing submittals.
- H. The exterior of all valve bodies shall be wrapped with wax tape wrap.

**END OF SECTION**

**SECTION 33 14 19.11  
BUTTERFLY VALVES**

**PART 1 GENERAL**

**1.1 SUMMARY**

- A. Section Includes:
  - 1. Butterfly valves.
  
- B. Related Sections include but are not necessarily limited to:
  - 1. Skagit PUD No. 1 General Conditions.
  - 2. Division 1 - General Requirements.
  - 3. Section 33 14 13 – Public Water Utility Distribution Piping
  - 4. Section 33 14 19 - Valves and Hydrants for Water Utility Service

**1.2 QUALITY ASSURANCE**

- A. Referenced Standards:
  - 1. American National Standards Institute (ANSI):
    - a. B16.1, Pipe Flanges and Flanged Fittings.
    - b. B16.5, Pipe Flanges and Flanged Fittings.
  - 2. ASTM International (ASTM):
    - a. A48, Standard Specifications for Gray Iron Castings.
    - b. A126, Gray Iron Castings for Valves, Flanges and Pipe Fittings.
    - c. A276, Standard Specification for Stainless Steel Bars and Shapes.
    - d. A395, Standard Specification for Ferritic Ductile Iron Pressure-Retaining Castings for use at Elevated Temperatures.
    - e. A436, Austenitic, Gray Iron Castings.
    - f. A536, Standard Specification for Ductile Iron Castings.
  - 3. American Water Works Association (AWWA):
    - a. C504, Rubber Seated Butterfly Valves.
  - 4. Manufacturers Standardization Society of the Valve and Fittings Industry (MSS):
    - a. SP-67, Butterfly Valves.

**1.3 SUBMITTALS**

- A. Manufacturers Certification.
  
- B. Shop Drawings:
  - 1. See Section 01 33 00 for requirements for the mechanics and administration of the submittal process.
  - 2. Include certified drawings and material specifications in accordance with AWWA C504, Sections 1.4 and 1.5.
    - a. Include description of the method of attachment of the edge to the valve disc.
  - 3. Product Data: Include manufacturer's published recommendations for seating and unseating torque coefficient, dynamic torque, and bearing friction for calculation of maximum operating torque.
  - 4. Test Reports: Records of test performed in accordance with AWWA C504 requirements from valve manufacturer.
  - 5. Certifications: Affidavit of compliance specified in AWWA C504, Section 1.7.

6. Valve port diameter.
  7. Certification that valves have been subjected to performance, leakage, and hydrostatic testing in accordance with AWWA and other applicable criteria.
- C. Operation and Maintenance Manuals:
1. See Section 01 33 00 for requirements for:
    - a. The mechanics and administration of the submittal process.
    - b. The content of Operation and Maintenance Manuals.

## **PART 2 PRODUCTS**

### **2.1 ACCEPTABLE MANUFACTURERS**

- A. Subject to compliance with the Contract Documents, the following manufacturers are acceptable:
1. DeZurik.
  2. Clow.
  3. Dresser.
  4. Mueller.
  5. Pratt.

### **2.2 RUBBER SEATED BUTTERFLY VALVES (AWWA C504)**

- A. Butterfly valves shall be manufactured in accordance with the latest revision of AWWA C504 Class 250B (working pressures up to 250 psi) Valves shall be certified to NSF Standard 61 and be manufactured to meet the following:
1. Suitable for throttling operations and infrequent operations after periods of inactivity.
  2. All seats shall be of a synthetic rubber compound. Seats shall be retained in the valve body by mechanical means without retaining rings, segments, screws, or hardware of any kind in the flow stream. Seats shall be a full 360 degrees without interruption.
  3. Bubble-tight with rated pressure applied from either side.
  4. No travel stops for the disc or interior of the body.
  5. Self-adjusting V-type or O-ring shaft seals.
  6. Isolate metal-to-metal thrust bearing surfaces from flowstream.
  7. Working Pressure: Rated for 250 psi cold water at 16 fps flow velocity, nonshock, watertight shutoff.
  8. Body Type: Short body flange.
  9. Body flanged end, flange drilling in accordance with ANSI B16.1, Class 125.
- B. Materials:
1. Valve bodies:
    - a. ASTM A126, Class B or ASTM A536 Grade 65-45-12 ductile iron.
  2. Valve shafts:
    - a. Stainless steel, ASTM A564, Type 632, Condition H-1100.
  3. Valve discs:
    - a. Potable and nonpotable water:
      - 1) ASTM A536, Grade 65-45-12 ductile iron.
      - 2) ASTM A436, Type 1 alloy cast iron.
      - 3) Bronze in accordance with AWWA C504.
      - 4) Bronze in accordance with AWWA C504.
  4. Valve seats:

- a. Potable and nonpotable water below 150 DegF:
    - 1) Natural rubber.
  5. Mating surfaces:
    - a. Type 316, stainless steel.
  6. Brass and bronze valve components and accessories that have surfaces in contact with water shall be alloys containing less than 16 percent zinc and 2 percent aluminum.
  7. Approved alloys are of the following ASTM designations:
    - a. B61, B62, B98 (Alloy UNS No. C65100, C65500, or C66100), B139 (Alloy UNS No. C51000), B584 (Alloy UNS No. C90300 or C94700), B164, B194, and B127.
    - b. Stainless steel Alloy 18-8 may be substituted for bronze.
- C. General:
1. Valve to include necessary accessories such as operator, actuator, hand wheel, chain wheel, extension stem, floor stand, worm and gear operator, operating nut, chain, and wrench for a complete operation. Valve position indication shall be provided at the valves installed in chambers.
  2. Valve to be suitable for intended service. Renewable parts not to be of a lower quality than specified.
  3. Valve same size as adjoining pipe unless otherwise shown.
  4. Valve ends to suit adjacent piping.
  5. Size operator to operate valve for the full range of pressures and velocities.
  6. Valve to open by turning counterclockwise.
  7. Factory mount operator, actuator, and accessories on all valves.
- D. Manual Operator:
1. General:
    - a. Operator force not to exceed 40 pounds under any operating condition, including initial breakaway. Gear reduction operator required when force exceeds 40 pounds.
    - b. Operator self-locking type or equipped with self-locking device.
    - c. Position indicator on quarter-turn valves.
    - d. Worm and gear operators one-piece design worm-gears of gear bronze material. Worm hardened alloy steel with thread ground and polished. Traveling nut type operators threaded steel reach rods with internally threaded bronze or ductile iron nut. Valves 30-inch and larger shall be equipped with worm gear actuators lubricated and sealed to prevent entry of dirt or water into the housing.
    - e. Valves shall have extension stems, bonnets, and valve or floor boxes as shown on the Drawings.
    - f. Valve position indicators shall be provided at the valve operator for valves installed in vaults.
  2. Exposed Operator:
    - a. Galvanized and painted hand wheels with 2-inch AWWA operating nuts as shown on Drawings.
    - b. Valve handles to take a padlock and wheels a chain and padlock.
  3. Buried Operator:
    - a. Buried service operators on valves larger than 2-1/2 inches shall have a 2-inch AWWA operating nut. Enclose moving parts of valve and operator in housing to prevent contact with the soil.
    - b. Design buried service operators for quarter-turn valves to withstand 450 foot-pounds of input torque at the FULLY OPEN or FULLY CLOSED positions, grease packed and gasketed to withstand a submersion in water to 10 psi.

- E. Coatings shall be per Section 33 14 13.

### **PART 3 EXECUTION**

#### **3.1 INSTALLATION**

- A. All exposed butterfly valves shall be installed with a means of removing the complete valve assembly without dismantling the valve or operator. The installation shall be in accordance with Section 33 14 13.
- B. Flanged valve boltholes shall straddle vertical centerline of pipe. Clean flanged faces, insert gasket and bolts, and tighten nuts progressively and uniformly.
- C. Valve Orientation: Orient butterfly valve shaft so that unbalanced flows or eddies are equally divided to each half of the disc, i.e., shaft is in the plane of rotation of the eddy.
- D. Extension Stem for Operator: Where shown on the Drawings, furnish an operating extension stem with 2-inch operating nut to bring the operating nut to a point 12 inches below the surface of the ground and/or box cover.
- E. Stem: Steel extension stem length shall locate operating nut in valve box where shown on the Drawings.
- F. The exterior of all valve bodies shall be wrapped with a 8 mil polyethylene wrap.

#### **3.2 TESTS AND INSPECTION**

- A. Valve may be either tested while testing pipelines, or as a separate step.
- B. Test that valves open and close smoothly with operating pressure on one side and atmospheric pressure on the other, in both directions for two-way valve and applications.
- C. Count and record number of turns to open and close valve; account for any discrepancies with manufacturer's data.

**END OF SECTION**

# A p p e n d i x A

Permits



Washington Department of  
FISH & WILDLIFE

# HYDRAULIC PROJECT APPROVAL

Washington Department of  
Fish and Wildlife  
PO Box 43234  
Olympia, WA 98504-3234  
(360) 902-2200

Modification Date: 7/3/2025

Project End Date: 12/31/2026

Permit Type: HPA - Standard

Permit Number: 2024-4-475+02

Application ID: 0044506

PERMITTEE	AUTHORIZED AGENT
Mark Handzlik 1415 Freeway Drive Mount Vernon, Washington 98273	Wendy LaRocque 1415 Freeway Dr Mount Vernon, Washington 98273-2429

**Project Name:** Pipeline Relocation at Henson Road

**Project Description:** Construct an approximately 235 LF, 12-inch waterline relocation under a Martha Washington Creek, west of Henson Road, Mount Vernon. The existing waterline will be cut and capped and removed with the WSDOT project in the spring.

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## PROVISIONS

### AUTHORIZED WORK TIMES:

1. **TIMING LIMITATION:** You may begin the project immediately and you must complete the project by December 31, 2026.

### PROJECT APPROVALS:

2. **APPROVED PLANS:** You must accomplish the work per plans and specifications submitted with the application and approved by the Washington Department of Fish and Wildlife, entitled "240082 Henson HDD", uploaded July 19, 2024 and "Wetland HPA Figure -OHWM", uploaded July 22, 2024, except as modified by this Hydraulic Project Approval (HPA). You must have a copy of these plans and this HPA available on site during all phases of the project construction.

### NOTIFICATION REQUIREMENTS:

3. **NOTIFICATION:** You, your agent, or contractor must contact the Washington Department of Fish and Wildlife by e-mail at [HPAapplications@dfw.wa.gov](mailto:HPAapplications@dfw.wa.gov); mail to Post Office Box 43234, Olympia, Washington 98504-3234; or fax to (360) 902-2946 at least three business days before starting work. The notification must include the permittee's name, project location, starting date, and the Hydraulic Project Approval permit number.
4. **FISH KILL/ WATER QUALITY PROBLEM NOTIFICATION:** If a fish kill occurs or fish are observed in distress at the job site, immediately stop all activities causing harm. Immediately notify the Washington Department of Fish and Wildlife of the problem. If the likely cause of the fish kill or fish distress is related to water quality, also notify the Washington Military Department Emergency Management Division at 1-800-258-5990. Activities related to the fish kill or fish distress must not



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resume until the Washington Department of Fish and Wildlife gives approval. The Washington Department of Fish and Wildlife may require additional measures to mitigate impacts.

## INVASIVE SPECIES CONTROL:

5. **INVASIVE SPECIES CONTROL:** Follow Method 1 for low risk locations (i.e. clean/drain/dry). Thoroughly remove visible dirt and debris from all equipment and gear (including drive mechanisms, wheels, tires, tracks, buckets, and undercarriage) before arriving and leaving the job site to prevent the transport and introduction of invasive species. For contaminated or high risk sites please refer to the Method 2 Decontamination protocol. Properly dispose of any water and chemicals used to clean gear and equipment. You can find this and additional information in the Washington Department of Fish and Wildlife's "Invasive Species Management Protocols", available online at <https://wdfw.wa.gov/species-habitats/invasive/prevention>.

## STAGING, JOB SITE ACCESS, AND EQUIPMENT:

6. Establish staging areas (used for equipment storage, vehicle storage, fueling, servicing, and hazardous material storage) in a location and manner that will prevent contaminants such as petroleum products, hydraulic fluid, fresh concrete, sediments, sediment-laden water, chemicals, or any other toxic or harmful materials from entering waters of the state.
7. Use environmentally acceptable lubricants composed of biodegradable base oils such as vegetable oils, synthetic esters, and polyalkylene glycols in equipment operated in or near the water.
8. Clearly mark boundaries to establish the limit of work associated with site access and construction.
9. Check equipment daily for leaks and complete any required repairs in an upland location before using the equipment in or near the water.

## SEDIMENT, EROSION, AND POLLUTION CONTAINMENT:

10. Protect all disturbed areas from erosion. Maintain erosion and sediment control until all work and cleanup of the job site is complete.

## HABITAT FEATURES:

11. This Hydraulic Project Approval does not authorize the removal of riparian zone vegetation.

## PROJECT LOCATION:

12. Avoid areas of groundwater upwelling or locations within one hundred feet upstream of documented fish spawning areas.
13. Avoid crossing at meander bends, braided streams, alluvial fans, active flood plains, or any other area that is inherently unstable and may lead to eroding and scouring the stream bed.
14. Directional drilling work: a. Design the drill path to an appropriate depth below the watercourse to minimize the risk of frac-out and to a depth to prevent exposure of the line from natural scouring of the stream bed; and b. Locate the drill entry and exit points 150 feet away from the banks of the watercourse to minimize impact on these areas. c. Do not disturb the streambed. If the streambed collapses and flow enters the drilling area, work activities must cease and the Habitat Biologist listed below must be contacted immediately.

## PROJECT DESIGN:

15. Align the conduit as perpendicular as possible to the watercourse.



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- 16. Install the conduit well below scour depth of the watercourse to prevent natural scouring of the stream bed from exposing the pipeline or cable.

**OTHER PROVISIONS:**

- 17. Conduct all fueling activities a minimum of 100 feet away from any stream channel or place equipment in a secondary containment unit (i.e. pumps) to prevent the spillage of petrochemicals. A petroleum spill kit is required to be present at the construction site for the duration of the project.

**DEMOBILIZATION AND CLEANUP:**

- 18. Upon completion of the project, remove all materials or equipment from the site and dispose of all excess spoils and waste materials in an upland area above the limits of anticipated floodwater.

## PROJECT LOCATION(S)

#1

Location		
48.401852 -122.331589 Henson Road Mount Vernon, WA		
Latitude	Longitude	County
48.4027200000000000	-122.3313300000000000	Skagit
WRIA	Waterbody	Tributary to
3		

## APPLIES TO ALL HYDRAULIC PROJECT APPROVALS

This Hydraulic Project Approval (HPA) pertains only to those requirements of the Washington State Hydraulic Code, specifically Chapter 77.55 RCW. Additional authorization from other public agencies may be necessary for this project. The person(s) to whom this HPA is issued is responsible for applying for and obtaining any additional authorization from other public agencies (local, state, and/or federal) that may be necessary for this project.

This Hydraulic Project Approval (HPA) shall be available on the job site at all times and all its provisions followed by the person(s) to whom this HPA is issued and operator(s) performing the work.

This Hydraulic Project Approval does not authorize trespass.



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The person(s) to whom this Hydraulic Project Approval (HPA) is issued and operator(s) performing the work may be held liable for any loss or damage to fish life or fish habitat that results from failure to comply with the provisions of this HPA.

Failure to comply with the provisions of this Hydraulic Project Approval could result in a civil action against you, including, but not limited to, a stop work order or notice to comply, and/or a gross misdemeanor criminal charge, possibly punishable by a fine and/or imprisonment.

All Hydraulic Project Approvals (HPA) issued under RCW 77.55.021 are subject to additional restrictions, conditions, or revocation if the Washington Department of Fish and Wildlife determines that changed conditions require such action. The person(s) to whom this HPA is issued has the right to appeal those decisions. Procedures for filing appeals are listed below.

**MINOR MODIFICATIONS TO THIS HYDRAULIC PROJECT APPROVAL (HPA):** You may request approval of minor modifications to the required work timing or the plans and specifications approved in this HPA unless this is a General HPA. If this is a General HPA you must use the Major Modification process described below. Any approved minor modification will require the issuance of a letter documenting the approval. A minor modification to the required work timing means any change to the work start or end dates of the current work season to enable project or work phase completion. Minor modifications will be approved only if spawning or incubating fish are not present within the vicinity of the project. You may request subsequent minor modifications to the required work timing. A minor modification of the plans and specifications means any changes in the materials, characteristics, or construction of your project that do not alter the project's impact to fish life or habitat and do not require a change in the provisions of the HPA to mitigate the impacts of the modification. If you originally applied for your HPA through the online Aquatic Protection Permitting System (APPS), you may request a minor modification through APPS. A link to APPS is at <https://hpa.wdfw.wa.gov/s>. If you did not use APPS you must submit a written request for a minor modification to an existing HPA. Written requests must include the name of the permittee, the name of the authorized agent if applicable, the APP ID or HPA number, the date issued, the permitting biologist, the requested changes to the HPA, the reason for the requested change, the date of the request, and the requestor's signature. Send your written request by email to [HPAapplications@dfw.wa.gov](mailto:HPAapplications@dfw.wa.gov), or by mail to Washington Department of Fish and Wildlife, PO Box 43234, Olympia, Washington 98504-3234. You should allow up to 45 days for the Department to process your request.

**MAJOR MODIFICATIONS TO THIS HYDRUALIC PROJECT APPROVAL (HPA):** You may request approval of major modifications to any aspect of your HPA. Any approved change other than a minor modification to your HPA will require the issuance of a new HPA. If you originally applied for your HPA through the online Aquatic Protection Permitting System (APPS), you may request a major modification through APPS. A link to APPS is at <https://hpa.wdfw.wa.gov/s>. If you did not use APPS you must submit a written request for a major modification to an existing HPA. Written requests must include the name of the permittee, the name of the authorized agent if applicable, the APP ID or HPA number, the date issued, the permitting biologist, the requested changes to the HPA, the reason for the requested change, the date of



# HYDRAULIC PROJECT APPROVAL

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the request, and the requestor's signature. Send your written request by email to [HPAapplications@dfw.wa.gov](mailto:HPAapplications@dfw.wa.gov) or by mail to Washington Department of Fish and Wildlife, PO Box 43234, Olympia, Washington 98504-3234. You should allow up to 45 days for the Department to process your request.

## **APPEALS INFORMATION**

If you wish to appeal the issuance, denial, conditioning, or modification of a Hydraulic Project Approval (HPA), the Washington Department of Fish and Wildlife (WDFW) recommends that you first contact the WDFW employee who issued, denied, or conditioned the HPA to discuss your concerns. Such a discussion may resolve your concerns without the need for further appeal action. If you proceed with an appeal, you may request an informal or formal appeal. WDFW encourages you to take advantage of the informal appeal process before initiating a formal appeal. The informal appeal process includes a review by WDFW management of the HPA or denial and often resolves issues faster and with less legal complexity than the formal appeal process. If the informal appeal process does not resolve your concerns, you may advance your appeal to the formal process.

- A. **INFORMAL APPEALS:** WAC 220-660-460 is the rule describing how to request an informal appeal of WDFW actions taken under Chapter 77.55 RCW. Please refer to that rule for complete informal appeal procedures. The following information summarizes that rule:

A person who is aggrieved by the issuance, denial, conditioning, or modification of an HPA may request an informal appeal of that action. You must send your request to WDFW by mail to the HPA Appeals Coordinator, Department of Fish and Wildlife, Habitat Program, PO Box 43234, Olympia, Washington 98504-3234; e-mail to [HPAapplications@dfw.wa.gov](mailto:HPAapplications@dfw.wa.gov); fax to (360) 902-2946; or hand-delivery to the WDFW Habitat Program, Natural Resources Building, 1111 Washington St SE, Olympia, Washington 98501. WDFW must receive your request within 30 days from the date you receive notice of the decision. If you agree, and you applied for the HPA, resolution of the appeal may be facilitated through an informal conference with the WDFW employee responsible for the decision and a supervisor. If a resolution is not reached through the informal conference, or you are not the person who applied for the HPA, the HPA Appeals Coordinator or designee may conduct an informal hearing or review and recommend a decision to the Habitat Program Director or designee. If you are not satisfied with the results of the informal appeal, you may file a request for a formal appeal.

- B. **FORMAL APPEALS:** WAC 220-660-470 is the rule describing how to request a formal appeal of WDFW actions taken under Chapter 77.55 RCW. Please refer to that rule for complete formal appeal procedures. The following information summarizes that rule:

A person who is aggrieved by the issuance, denial, conditioning, or modification of an HPA may request a formal appeal of that action. You must send your request for a formal appeal to the clerk of the Pollution Control Hearings Boards and serve a copy on WDFW within 30 days from the date you receive notice of the decision. You may serve WDFW by mail to the HPA Appeals Coordinator, Department of Fish and Wildlife, Habitat Program, PO Box 43234, Olympia, Washington 98504-3234; e-mail to



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HPAapplications@dfw.wa.gov; fax to (360) 902-2946; or hand-delivery to the Habitat Program, Natural Resources Building, 1111 Washington St SE, Olympia, Washington 98501. The time period for requesting a formal appeal is suspended during consideration of a timely informal appeal. If there has been an informal appeal, you may request a formal appeal within 30 days from the date you receive the Habitat Program Director's or designee's written decision in response to the informal appeal.

- C. FAILURE TO APPEAL WITHIN THE REQUIRED TIME PERIODS: If there is no timely request for an appeal, the WDFW action shall be final and unappealable.

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Jessica Pyle  
Regional Habitat Biologist  
(360) 298-3905  
jessica.pyle@dfw.wa.gov

A handwritten signature in black ink that reads "Jessica Pyle".

For Director  
DFW

## NOTICE OF DECISION & STAFF REPORT CRITICAL AREA PERMIT

### A. BACKGROUND INFORMATION:

**APPLICANT:** Wendy LaRocque **FILE NUMBER:** PLAN24-0329

**ADDRESS:** Henson Road (Not Addressed) **PARCEL NUMBER:** P133080

**PROJECT DESCRIPTION:** The proposal is for the relocation of approximately 300 linear feet section of existing 12-inch water line on Parcel P133080 and public right-of-way. The area where work will occur contains a Category III wetland and associated 75-foot buffer, as well as a Type F stream (known as Martha Washington Creek) and associated 150-foot buffer. This work precedes a future project to be completed by the Washington State Department of Transportation (WSDOT) to replace the existing culvert that conveys Martha Washington Creek.

The waterline will be bored under Martha Washington Creek and a portion of the wetland using horizontal direction drilling (HDD) trenchless method. The waterline will be tied into the existing line with approximately 20-foot trenched sections – these sections are outside of the critical areas on the site but within associated buffers. The existing 12-inch ductile iron waterline will be cut and capped on both sides of Martha Washington Creek; the section within WSDOT’s future project limits will be removed.

**APPLICABLE MVMC:** Chapter 15.40 MVMC, Critical Areas  
Chapter 14.05 MVMC, Procedures  
Chapter 15.06, Environmental Policies

**EXHIBITS:**

- A. Application, Site Plan, and Construction Drawings
- B. Wetland and Fish and Wildlife Habitat Assessment Report completed by Soundview Consultants
- C. SEPA Determination of Non-Significance (issued by Skagit PUD)
- D. Review of the Skagit PUD – Henson Road Waterline Replacement Project Memorandum by L.C. Lee & Associates, Inc. dated September 14, 2024
- E. Engineering Permit ENGR24-0230
- F. Hydraulic Project Approval Permit 2024-4-475+01

### B. APPLICATION PROCESS

1. Pursuant to MVMC 15.40.020(B), prior to any alteration of a property containing or adjacent to a critical area and associated buffer, the applicant must obtain a development permit.
2. A right-of-way permit (ENGR24-0230) has been issued for the work proposed in the Henson Road right-of-way. A right-of-way use permit is exempt from notification requirements, pursuant to MVMC 14.05.040(C)(1)(e). Environmental review under SEPA was completed by the Skagit PUD, who assumed lead agency status. No other development permits are required for the proposal.

3. Pursuant to MVMC 15.40.020(B), the proposal is being reviewed as a Type I administrative decision without notice.
4. MVMC Table 14.05.210(F) describes what constitutes a complete application for critical area review.
5. The critical area permits were submitted on August 5, 2024 and determined to be complete on August 19, 2024.

**Conclusion: The application is being processed in accordance with the procedural requirements for Type I applications established in Chapter 14.05 of the MVMC.**

## **C. ENVIRONMENTAL REVIEW**

1. The Skagit PUD acted as lead agency and analyzed the environmental impact of the proposed activity as required by the State Environmental Policy Act (SEPA) Chapter 43.21 RCW.
2. Skagit PUD issued a Determination of Non-Significance (DNS) on April 9, 2024, using the PUD's notice, public comment and appeal procedures.

**Conclusion: The application meets the SEPA standards of Chapter 197-11 WAC.**

## **D. CRITICAL AREAS**

1. According to the City's Resource Maps, Martha Washington Creek runs through the Henson Road right-of-way and in Parcel P133080, and there is a potential wetland area associated with the creek.
2. The applicant retained Soundview Consultants to complete a critical area report for the site (Exhibit B). After site investigation, the report concluded that a Category III and a Type F stream was located in the area of proposed work.
3. Pursuant to MVMC Table 15.40.080(B), a standard buffer of 150-feet, and a building setback of 15-feet is required for a Type F stream.
4. Pursuant to MVMC Table 15.40.090(A), a standard buffer of 75-feet is required for a Category III wetland.
5. The City sent the critical area report and construction drawings for peer review by the city's consultant, by L.C. Lee & Associates, Inc, who concurred with the findings from Soundview Consultants and recommended that the impact avoidance and minimization measures are appropriate and, if executed correctly will be adequate to protect existing aquatic resources.
6. Pursuant to MVMC 15.40.040(B), development within critical areas and any associated buffers shall be avoided, and alterations prohibited unless permitted in accordance with the requirements of MVMC Chapter 15.40.
7. Pursuant to MVMC 15.40.040(C), critical areas may be altered by authorized permitted or exempt activities authorized in MVMC [15.40.020](#).
8. MVMC 15.40.020 establish the following exempt activities that are applicable to the proposal:
  - a. Activities within the Improved Right-of-Way (MVMC 15.40.020(D)(4)(h)). A portion of the proposed work occurs within the right-of-way for Henson Road, including: i) trenching associated with connecting the new 12-inch pipe to the existing pipe (on both ends); ii) cutting, capping, and removal of a section of existing 12-inch pipe; iii) removal of an existing, abandoned portion of 6-inch pipe; iv) directional boring associated with installation of portion of the replacement water line; and v) other work associated with the deactivation of a section of pipe. As conditioned, the work is consistent with this exempt activity (see Exhibit A).

- b. Modification to existing structure (MVMC 15.40.020(D)(4)(g)). While this section more specifically addresses above ground structures<sup>1</sup>, the proposal is similar in nature in that it involves replacement of an existing below-ground pipe. In this case, a portion of the replacement water line is proposed to be installed via directional bore through Parcel P133080; this proposed approach will minimize impacts associated with the installation coincident with critical areas and their associated buffer (see findings from City’s consulting biologist contained in Exhibit D). As conditioned, the work is consistent with this exempt activity.
9. MVMC 15.40.040 specifies general performance standards for critical areas. Specifically, subsections (L) through (Q) require temporary and long-term protection measures, including establishment of a Native Growth Protection Area, marking during construction, fencing and signage, and monitoring of mitigation areas, if required.

**Conclusion: As conditioned, the application will meet the critical area alteration provisions contained in MVMC 15.40.020 and the temporary and long-term protection measures contained in MVMC 15.40.040.**

## **E. DECISION & CONDITIONS:**

This Critical Area Permit has been **APPROVED** for the property described in Section A (above) subject to compliance with the provisions of the Mount Vernon Municipal Code and the below-listed conditions of approval:

1. Work shall be completed per plans and specifications submitted with the application (Exhibit A), except as modified by this Critical Area Permit or other authorized permits noted below. This permit does not authorize the future culvert replacement work to be completed by WSDOT.
2. This application is subject to the applicable requirements contained in the Mount Vernon Municipal Code and Engineering Standards. It is the responsibility of the applicant to ensure compliance with the various provisions contained in these standards and codes.
3. The project shall comply with the conditions of approval established for ENGR24-0230 (Exhibit E).
4. The applicant shall be responsible for complying with any other state or federal statutes or regulations applicable to this project and obtaining necessary permits, which may include but is not limited to Hydraulic Project Approval, Section 401 Water Quality Certifications (WQC), Coastal Zone Management (CZM) Federal Consistency, or authorization from the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act.
5. The applicant shall comply with the conditions of approved established for Hydraulic Project Approval Permit 2024-4-475+01 (Exhibit F).
6. Any person engaged in ground disturbing activity who encounters or discovers historical and/or archeological materials in or on the ground shall:
  - a. Immediately cease any activity which may cause further disturbance;
  - b. Make a reasonable effort to protect the area from further disturbance; and,
  - c. Report the presence and location of the material to the proper authorities in the most expeditious manner possible.

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<sup>1</sup> Pursuant to MVMC 17.06.190, “Structure” means a combination of materials constructed and erected permanently on the ground or attached to something having a permanent location on the ground. Not included are mobile homes, recreational vehicles (e.g., motor homes, travel trailers, fifth wheel trailers, popup trailer, or truck camper), residential fences, retaining walls less than three feet in height, rockeries and similar improvements of a minor character.

7. Prior to start of any construction activity, the applicant shall install temporary erosion and sedimentation control measures. The measures shall be inspected and accepted by the Development Services Department prior to start of work.
8. Prior to final inspection, the following standards shall apply:
  - a. Remove all materials or equipment from the site and dispose of all excess spoils and debris to an approved facility.
  - b. Any soils disturbed shall be covered and re-vegetated with a mixture of seeds or other vegetation adapted to the site and not containing noxious or invasive species.

*Stacy Clauson*

**Stacy Clauson, Senior Planner  
Development Services Department**

**Date: 9/17/2024**

## **F. EXPIRATION/APPEALS/NOTES TO APPLICANT:**

This Critical Area permit is being process as a Type I permit type. MVMC 14.05.050(B) explains that Type I permits are administrative applications where a final decision is made by the Development Services Director (or their designee) without public notice or a public hearing. However, the Director's decision may be appealed in an open record appeal hearing to the Hearing Examiner; and the Hearing Examiner's decision may be appealed in a closed record appeal to the City Council.

MVMC 14.05.170(C) states that appeals from administrative decision shall be filed within 14 days of the date of the Administrative Decision. The date of this Decision is noted next to the signature of this Decision above. In addition, MVMC 14.05.170(A)(1) states that such an appeal must contain the information outlined in MVMC 14.05.160(C)(3) and must be accompanied by the required appeal fee.

Consistent with MVMC 14.05.140 this approval shall expire within two years of the date this document was signed by the approval authority, as indicated above, should no further action be taken by the applicant.

Further information may be obtained by contacting the Department Services Department at: 910 Cleveland Ave, Mount Vernon, WA 98273, (360) 336-6214.



# MASTER LAND USE APPLICATION FORM



## 1 PROPERTY WHERE WORK IS OCCURRING

ADDRESS:	Henson Road
PARCEL NUMBER(S):	P133080

## 2 PROPERTY OWNER INFORMATION

NAME:	Skagit PUD via easement c/o Wendy LaRocque			
ADDRESS:	1415 Freeway Drive HOUSE # AND STREET	Mount Vernon CITY	WA STATE	98273 ZIP
TELEPHONE:	360-399-5274	CELL:	EMAIL: larocque@skagitpud.org	

## 3 CONTACT PERSON

SELECT THE ONE PERSON THE CITY WILL CONTACT FOR ANYTHING RELATED TO THIS PERMIT?  Applicant  Property Owner  Contractor  Other (list below)

NAME:				
ADDRESS:	HOUSE # AND STREET	CITY	STATE	ZIP
TELEPHONE:		CELL:	EMAIL:	

## 4 PERMITS & APPROVALS BEING SUBMITTED

TYPE OF PROJECT (CHECK ALL THAT APPLY):

- |  |   |
|--|---|
| <input type="checkbox"/> Accessory Dwelling Unit (ADU)                   | <input type="checkbox"/> Preliminary Plat (> 9 lots/tracts)                       |
| <input type="checkbox"/> Boundary Line Adjustment                        | <input type="checkbox"/> Preliminary Short Plat (< 9 lots/tracts)                 |
| <input type="checkbox"/> Comprehensive Plan Amendment                    | <input type="checkbox"/> Preliminary Binding Site Plan                            |
| <input type="checkbox"/> Conditional Use Permit (Administrative)         | <input type="checkbox"/> Rezone   |
| <input type="checkbox"/> Conditional Use Permit (Hearing Examiner)       | <input type="checkbox"/> Shoreline Exemption                                      |
| <input checked="" type="checkbox"/> Critical Area Permit                 | <input type="checkbox"/> Shoreline Substantial Development Permit                 |
| <input type="checkbox"/> Design Review (Administrative)                  | <input type="checkbox"/> Shoreline Conditional Use                                |
| <input type="checkbox"/> Design Review (Hearing Examiner)                | <input type="checkbox"/> Shoreline Variance                                       |
| <input type="checkbox"/> Design Review (Modification per MVMC 17.70.080) | <input type="checkbox"/> Special Use Permit                                       |
| <input type="checkbox"/> Environmental Review (SEPA)                     | <input type="checkbox"/> Street Vacation per MVMC Chapter 12.40                   |
| <input type="checkbox"/> Major Modification                              | <input type="checkbox"/> Variance (Hearing Examiner)                              |
| <input type="checkbox"/> Master Plan for Public Zoned Properties         | <input type="checkbox"/> Variance (Administrative)                                |
| <input type="checkbox"/> Model Home permit                               | <input checked="" type="checkbox"/> Other, list here: Floodplain Development, ROW |
| <input type="checkbox"/> Non-Conforming Use - Special Permission         |   |

**5 SITE AND PROJECT INFORMATION**

EXISTING ZONING DESIGNATION:	Commercial/Limited Industrial (C-L)
EXISTING COMPREHENSIVE PLAN DESIGNATION:	Commercial/Limited Industrial (C-L)
SITE AREA (IN SQUARE FEET AND ACRES):	<.25 acres

PROJECT DESCRIPTION:

(ATTACH ADDITIONAL SHEETS FOR THE PROJECT DESCRIPTION, IF NECESSARY)

This project includes the relocation of approximately 300 LF of 12-inch fused PVC C900 water pipeline in easement and ROW. The existing 8-inch ductile iron waterline on Henson Road will be cut and capped on both sides proposed WSDOT culvert. This work precedes a mandated culvert replacement project to be constructed by WSDOT next spring.

A. IS WORK WITHIN THE CITY'S RIGHT-OF-WAY PROPOSED? IF YES, YOU WILL BE REQUIRED TO SUBMIT A RIGHT-OF-WAY APPLICATION.	<input checked="" type="checkbox"/>	YES	<input type="checkbox"/>	NO
B. IS THE PROPERTY LOCATED IN A FLOOD ZONE?	<input checked="" type="checkbox"/>	YES	<input type="checkbox"/>	NO
C. ARE THERE SLOPES IN EXCESS OF 15% ON OR ABUTTING THE SITE? IF YES, A GEOTECHNICAL REPORT WILL LIKELY NEED TO BE SUBMITTED.	<input type="checkbox"/>	YES	<input checked="" type="checkbox"/>	NO
D. ARE THERE CRITICAL AREAS OR BUFFERS ON OR ABUTTING THE PROJECT SITE? IF YES, CRITICAL AREA REPORTS WILL LIKELY NEED TO BE SUBMITTED.	<input checked="" type="checkbox"/>	YES	<input type="checkbox"/>	NO
E. WILL MORE THAN 2-ACRES BE CLEARED AND/OR MORE THAN 5,000 BOARD FEET OF TIMBER BE HARVESTED? IF YES, YOU WILL BE REQUIRED TO SUBMIT A LAND CLEARING PERMIT.	<input type="checkbox"/>	YES	<input checked="" type="checkbox"/>	NO
F. IS THIS PROJECT SUBJECT TO THE SEPA PROCESS? IF YES, YOU WILL BE REQUIRED TO SUBMIT A SEPA CHECKLIST.	<input checked="" type="checkbox"/>	YES	<input type="checkbox"/>	NO
G. IS THE PROJECT SUBJECT TO DESIGN REVIEW? IF YES, YOU WILL NEED TO PROVIDE PLANS AND OTHER MATERIALS TO COMPLY WITH DESIGN REVIEW.	<input type="checkbox"/>	YES	<input checked="" type="checkbox"/>	NO

**⑥ READ, INITIAL AND SIGN WHERE INDICATED**

Read and initial each of the following statements prior to signing this application:

- WCL* I understand that land use and/or planning permits do not authorize earth disturbing activities, the removal of vegetation, or the construction of buildings. I understand that additional permits will be required after my land use and/or planning permitting process is completed. I understand that no earth disturbing activities (including the removal of vegetation) may take place until after my land use and/or planning process is complete, and only after I have received additional permits such as Fill & Grade, Building Utility, or Right-of-Way permit(s).
- WCL* I understand that if critical areas (wetlands, streams, steep slopes, et cetera) are found on or near my property I am not authorized to impact these areas in any way and will be required to leave an undisturbed buffer area around the critical area. I also understand that depending upon the size and scope of my project that I may be required to enhance a critical area buffer.
- WCL* I understand that depending upon the size and scope of my project, I may be required to provide maintenance and/or performance bonds for items such as landscaping, critical areas, public roads and/or public utilities that I construct or install.
- WCL* I understand that I am solely responsible for providing complete and accurate information to the City. I understand that if my application is missing information or if inaccurate materials are submitted, my permits will be delayed. I understand that depending on how inaccurate and how incomplete my application is or becomes, the Development Services Department could require an entirely new application be submitted. I understand that when and if conditions change from that which my application originally represented, I am responsible for letting the City staff person assigned to my project know.
- WCL* I understand that I am applying for permits from the City of Mount Vernon only; and that additional permits from other Federal and State agencies could be required. I understand that the City of Mount Vernon cannot advise me of permits that are required from other agencies, and that I must contact these agencies to make sure I comply with their requirements. These agencies include (but are in no way limited to): Corps of Engineers, Department of Natural Resources, Department of Ecology, and Northwest Clean Air Agency.
- WCL* I understand that I may be required to properly and timely post a pink land use sign on my property during land use and/or planning permitting process. I understand that I am responsible for making sure that this sign continues to be posted on my property until my land use and/or planning process is completed; and I understand that I am responsible for removing and disposing of this sign once my land use process is completed.
- WCL* I understand that I will be responsible for paying consultants that the City may deem necessary to review certain aspects of my application. I understand that these consultant reviews could include special inspections, traffic concurrency, critical area, landscaping, et cetera.

By affixing my signature hereto, I certify that I am the owner, or am acting as the Owner's authorized agent, and that the application and documents contained with this submittal are complete and accurate to the best of my knowledge and abilities. If your title report lists a company, partnership or other owners you must submit evidence that you are authorized to sign on behalf of the entity or others that are listed.

If you are an authorized representative you must download, complete and submit an **AGENT AUTHORIZATION FORM**.

Please attach additional signature sheets if there is more than one owner.

**UNDER PENALTY OF PERJURY I SWEAR THAT ALL INFORMATION PROVIDED IS TRUE AND CORRECT.**

*Wendy LaRocque*  
 \_\_\_\_\_  
 Signature

06/03/2024  
 \_\_\_\_\_  
 Date

Wendy LaRocque  
 \_\_\_\_\_  
 Printed Name

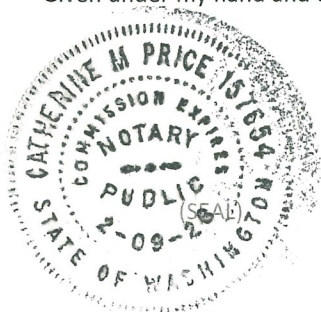
STATE OF WASHINGTON

COUNTY OF SKAGIT

} ss.

I certify that I know or have satisfactory evidence that Wendy LaRocque is the person who appeared before me, and said person acknowledged that she signed this instrument, on oath stated that she was authorized to execute the instrument and acknowledged it as the Program Manager - Env. to be the free and voluntary act and deed of said Skagit Pub, for the uses and purposes therein mentioned.

Given under my hand and official seal this 3rd day of June, 2024



Catherine M. Price  
Notary Public Catherine M. Price  
Residing at Mount Vernon  
My appointment expires 02/09/2028

Notary Public



# AGENT AUTHORIZATION FORM FOR MASTER LAND USE APPLICATIONS

Use this form to authorize someone other than the property owner to apply for permits for the subject property. This form only needs to be completed when an owner wants someone else to represent them through the permitting process.

**PROJECT NAME:** Pipeline Relocation at Henson Road

**PROJECT ADDRESS:** \_\_\_\_\_

**PROJECT PARCEL NUMBER(S):** P133080

**CITY, STATE, ZIP:** Mount Vernon, WA 98273

### AUTHORIZATION STATEMENT

I/we, as the owners of the property identified above, authorize the below listed individual(s) to act as our agent to submit applications, receive correspondence regarding the above-listed application, sign or otherwise receive notices on my/our behalf, and other related activities commonly taken as permit(s) are processed.

### DESIGNATED AGENT(S):

**Agent #1 Name:** Skagit PUD c/o Wendy LaRocque

**Agent #1 Address:** 1415 Freeway Drive

**Agent #1 City, State, Zip:** Mount Vernon, WA 98273


**Agent #2 Name:** \_\_\_\_\_

**Agent #2 Address:** \_\_\_\_\_

**Agent #2 City, State, Zip:** \_\_\_\_\_

The correct signature and notary pages need to be filled out next. Attached are three different types of signature blocks with associated notary acknowledgements. Please read below and fill out the correct signature/notary acknowledgement:

- For Individual(s) – not a corporation or a limited liability company - complete pages 2 and 3 only
- For Corporation(s) – complete pages 4 and 5 only
- For Limited Liability Companies: complete pages 6 and 7 only

1 of 3  ORIGINAL

Fill this page out only if the project property is owned by one or more individuals - do not use this page if the owner is a corporation or limited liability company

**PROPERTY OWNER SIGNATURE(S) WHEN A CORPORATION OR LIMITED LIABILITY COMPANY IS NOT THE OWNER\*\***

Signature: *B. Walter* Signature: \_\_\_\_\_  
*Chairman 17*  
 Printed Name: Brian Walter Printed Name: \_\_\_\_\_  
 Date: 8-7-24 Date: \_\_\_\_\_

\*\*Each property owner must have their signature notarized

**NOTARY ACKNOWLEDGEMENT(S) FOR AN INDIVIDUAL**

STATE OF WASHINGTON }  
 COUNTY OF SKAGIT } ss.

I certify that I know or have satisfactory evidence that \_\_\_\_\_ [Name of Person]  
 is the person who appeared before me, and said person acknowledged that (he/she) signed this  
 instrument and acknowledged it to be (his/her) free and voluntary act for the uses and purposes  
 mentioned in the instrument.

Given under my hand and official seal this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_

\_\_\_\_\_  
 Notary Public  
 Residing at \_\_\_\_\_  
 My appointment expires \_\_\_\_\_

STATE OF WASHINGTON  
COUNTY OF SKAGIT

I certify that I know or have satisfactory evidence that BRIAN WALTNER is the person who appeared before me, and said person acknowledged that he signed this instrument, on oath stated that he was authorized to execute the instrument and acknowledged it as the CHAIRMAN of SKAGIT COUNTY DRAINAGE AND IRRIGATION IMPROVEMENT DISTRICT No. 17 to be the free and voluntary act of such party for the uses and purposes mentioned in the instrument.

Date: August 7, 2024



(Signature) \_\_\_\_\_  
Notary Public in and for the State of Washington



(Printed Name) Peter C. Ojala \_\_\_\_\_  
My appointment expires: February 23, 2026



1415 Freeway Drive  
Mount Vernon, WA 98273-2429

tel: (360) 424-7104

www.SkagitPUD.org

Exhibit A



July 30, 2024

Re: Response to incomplete submittal – Pipeline Relocation at Henson Road

Dear Development service Department:

Please find the following response to the notice of incomplete submittal.

1. Agent Authorization Form – Skagit County drainage and Irrigation Improvement District No.17 granted Skagit PUD an easement on July 10, 2024 (AF#202407120075) in lieu of an agent authorization form. I've uploaded a copy.
2. Critical Areas Report – The proposed pipeline relocation would be considered exempt under the Critical Area Regulations contained in MVMC 15.40. The proposed project falls under operation, maintenance, or repair of existing structures, infrastructure improvements, utilities, public or private roads, or drainage systems (MVMC 15.40.020(f)). The relocation of approximately 300 LF of a section of waterline does not further alter or increase the impact to, or encroach further within, the critical area or buffer. This section of waterline will be installed via horizontal direction drilling as to not impact the critical area. The small bore pits will be located outside of the critical area as delineated by Soundview Consultants (Wetland and Fish and Wildlife Habitat Assessment Report for Henson Road, May 3, 2024).
1. Fill and Grade Permit – I believe this was included in error. This project will be constructed via directional drill with two small bore holes (entry and exit, ~20'x100' feet each). The only other dirt work will be the exposing the connection points of the pipe. I believe the fill and grade permit was supposed to be associated with the Pipeline Relocation at Cedardale Road project, which will be installed via traditional trenching.

I notified the local Tribes via the GEO 21-02 process (February 12, 2024) and the SEPA process (April 8, 2024) and received no comments. I received a letter of concurrence with a Determination of no cultural resource impacts with the stipulation for an inadvertent find plan from DAHP on February 12, 2024. The contractor will have our DAHP approved IDP onsite.

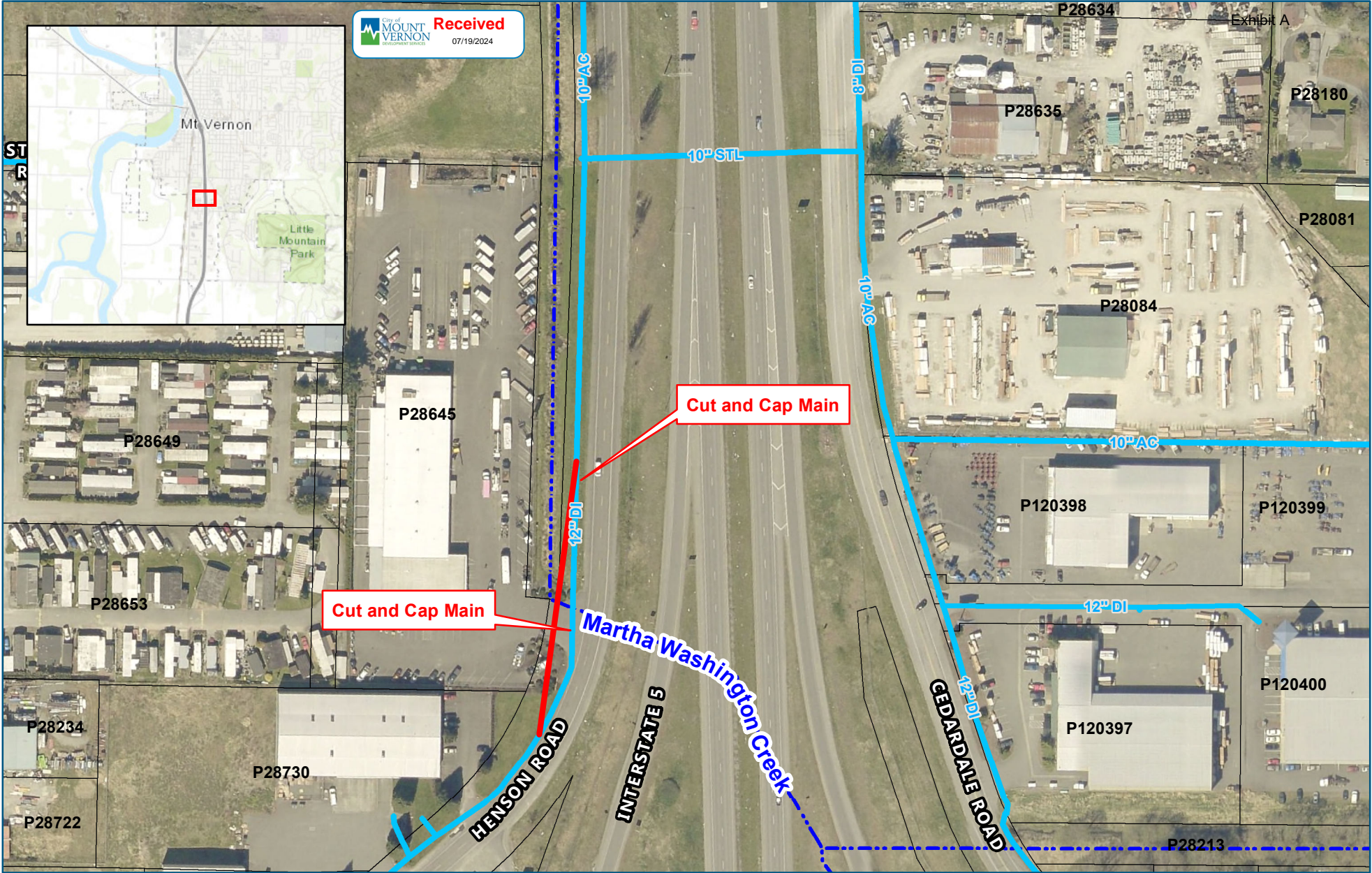
I've uploaded the most recent version of the plans. If you have any questions or concerns, please contact me at (360) 399-5274 or [larocque@skagitpud.org](mailto:larocque@skagitpud.org).

Sincerely,






Wendy LaRocque  
Project Manager – Environmental Compliance

Document Path: M:\Project\Maps\Corr\Mapping&Analysis\Requests\PipelineRelocation\HensonRd\PipelineRelocation\HensonRd.mxd

City of MOUNT VERNON  
Received  
07/19/2024



### Pipeline Relocation on Henson Rd at Martha Washington Creek

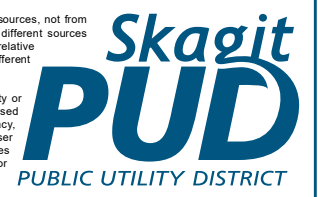
-  Proposed Relocated Water Main
-  Existing Water Main
-  DNR Waterbodies
-  DNR Water Courses
-  Skagit County Parcels

0 50 100 200 Feet

NAD 1983 StatePlane Washington North FIPS 4601 Feet  
Author: wilson  
2/8/2024

This map was created from available public records and existing map sources, not from field surveys. While great care was taken in this process, maps from different sources rarely agree as to the precise location of geographic features. The relative positioning of map features to one another results from combining different map sources without field verification.

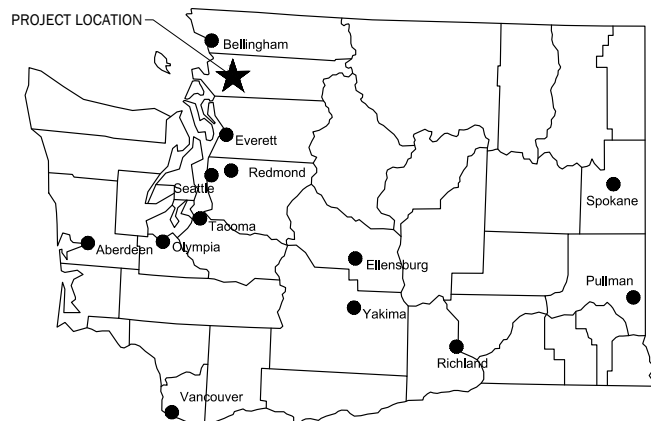
The PUD #1 of Skagit County disclaims any warranty of merchantability or warranty of fitness of this map for any particular purpose, either expressed or implied. No representation or warranty is made concerning the accuracy, currency, completeness or quality of data depicted on this map. Any user of this map assumes all responsibility for use thereof, and further agrees to hold the PUD #1 of Skagit County harmless from any damage, loss, or liability arising from the use of this map.



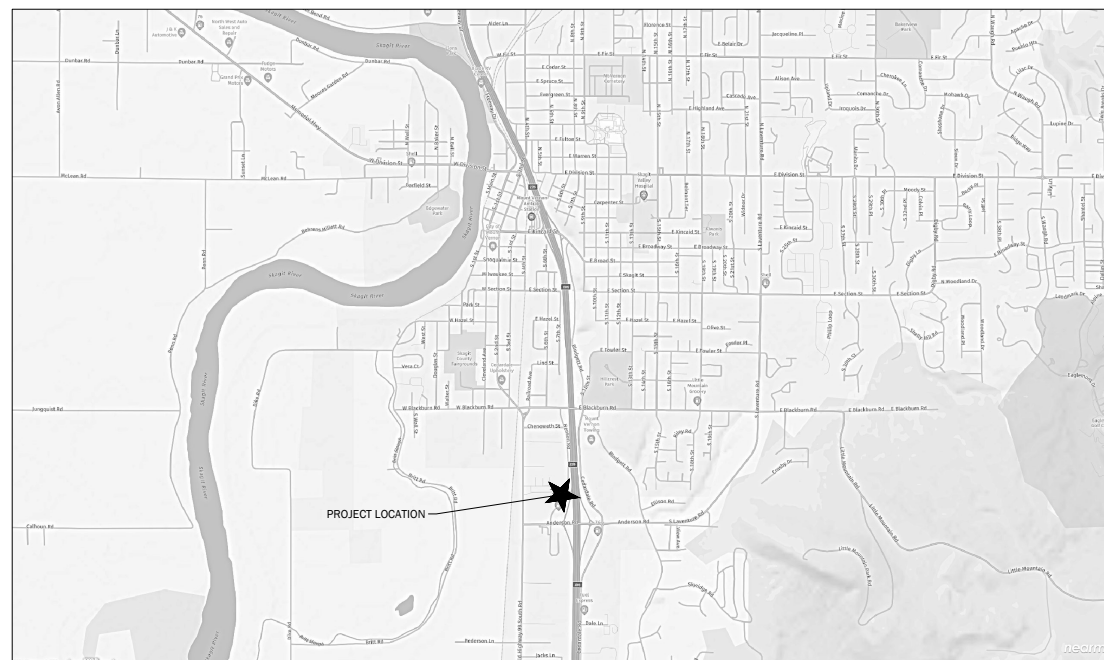


# PIPELINE RELOCATION AT HENSON ROAD

## SKAGIT COUNTY, WASHINGTON



LOCATION MAP  
NTS



VICINITY MAP  
Scale: 1" = 2000'

SKAGIT COUNTY, WASHINGTON  
CP14018  
ISSUED FOR BIDDING  
AUGUST 6, 2024

### DISTRICT NO. 1 OF SKAGIT COUNTY

#### DISTRICT OFFICIALS

JOE LINDQUIST                      PRESIDENT  
ANDREW MILLER                 VICE PRESIDENT  
CORRIN HAMBURG                SECRETARY

GEORGE SIDHU, P.E.             GENERAL MANAGER  
MARK C. HANDZLIK, P.E.        ENGINEERING MANAGER  
MICHAEL FOX                      OPERATIONS MANAGER

DRAWING INDEX		
SHEET	DESCRIPTION	SHEET NO.
G-1	COVER SHEET AND GENERAL INFORMATION	1 OF 5
G-2	GENERAL NOTES AND ABBREVIATIONS	2 OF 5
C-1	SITE PREPARATION, TESC AND HORIZONTAL CONTROL PLAN	3 OF 5
C-2	TRENCHLESS PLAN AND PROFILE	4 OF 5
C-3	DETAILS	5 OF 5

REVISION	DATE	DESCRIPTION

Skagit  
**PUD**  
PUBLIC UTILITY DISTRICT

DESIGNED BY: JRG  
DRAWN BY: CAV  
REVISION BY: ...

**Aspect**  
CONSULTING

PROJECT NUMBER: AS24-0082  
REVISION: 7/25/2024

**COVER SHEET**  
SKAGIT COUNTY PUD  
PIPELINE RELOCATION AT HENSON ROAD  
SKAGIT COUNTY, WASHINGTON

SHEET  
REFERENCE  
NUMBER:  
**G-1**  
SHEET 1 OF 5



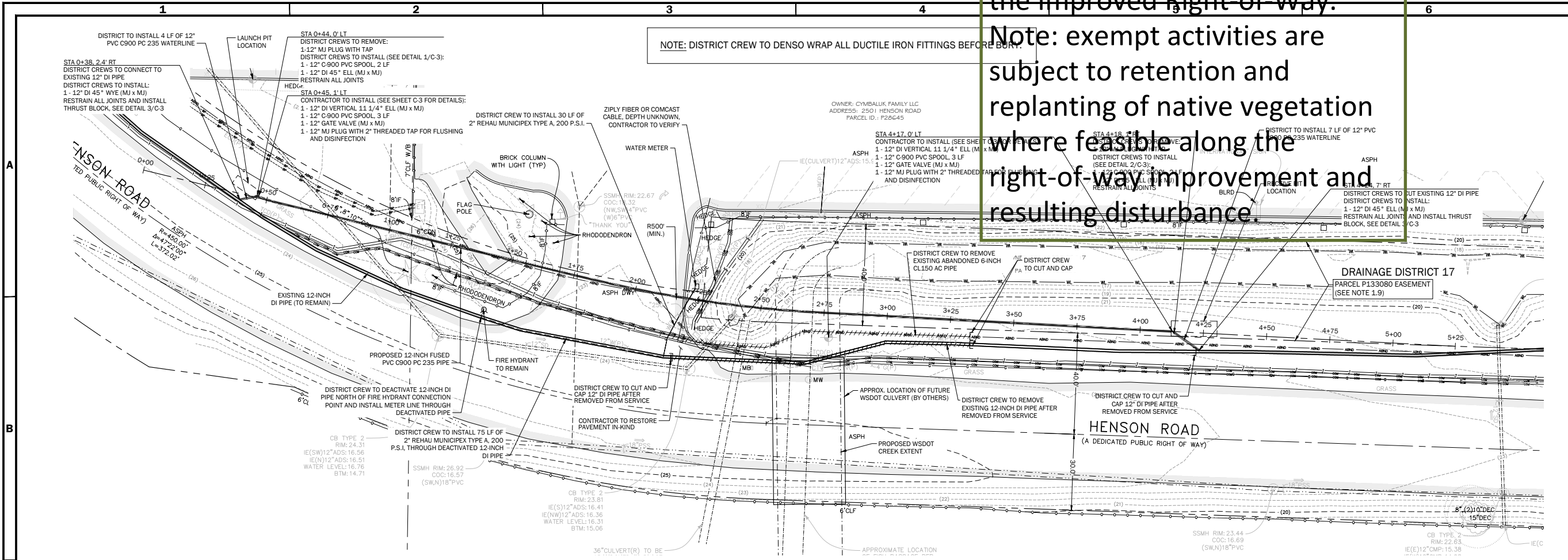




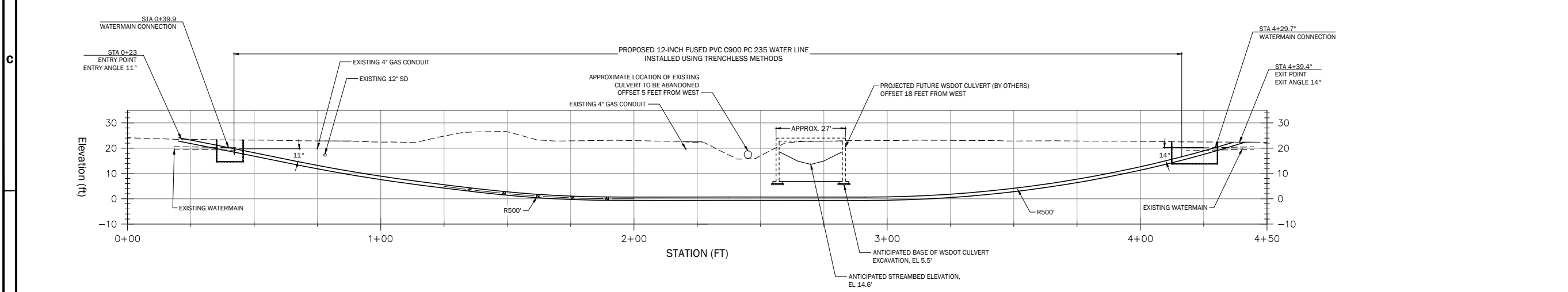
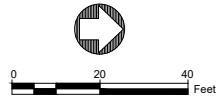
is improved as Activities within the Improved Right of Way.

Note: exempt activities are subject to retention and replanting of native vegetation where feasible along the right-of-way improvement and resulting disturbance.

NOTE: DISTRICT CREW TO DENSO WRAP ALL DUCTILE IRON FITTINGS BEFORE BURIAL.



**1 TRENCHLESS PLAN**  
SCALE: 1" = 20'



**2 TRENCHLESS PROFILE**  
SCALE: 1" = 20'

NOTE:  
1. CONTRACTOR SHALL COORDINATE WITH CASCADE NATURAL GAS PRIOR TO ANY EXCAVATION NEAR THE GAS LINE. A CASCADE NATURAL GAS REPRESENTATIVE SHALL BE ON SITE DURING THE LAUNCH PIT EXCAVATION AND ANY OTHER EXCAVATION AS REQUIRED BY CASCADE NATURAL GAS.

C:\Users\jrg\OneDrive\Documents\Projects\2024\7/25/2024\10124\10124.dwg (1) - 10/25/2024 10:02:04 AM

DATE	7/25/2024	REVISION	
PROJECT NUMBER	AS240082	DESIGNED BY	JRG
DRAWN BY	CMV	CHECKED BY	
DATE		REVISION	

**Skagit PUD**  
PUBLIC UTILITY DISTRICT

**Aspect CONSULTING**

**TRENCHLESS PLAN AND PROFILE**  
SKAGIT COUNTY PUD  
PIPELINE RELOCATION AT HENSON ROAD  
SKAGIT COUNTY, WASHINGTON

SHEET REFERENCE NUMBER:  
**C-2**

SHEET 4 OF 5



# WETLAND AND FISH AND WILDLIFE HABITAT ASSESSMENT REPORT

---

## HENSON ROAD



MAY 2024



**Soundview  
Consultants**

Environmental Assessment  
Planning + Land Use Solutions

# WETLAND AND FISH AND WILDLIFE HABITAT ASSESSMENT REPORT

---

## HENSON ROAD

MAY 3, 2024

### PROJECT LOCATION

ADJACENT NW OF 2501 HENSON ROAD  
MOUNT VERNON, WASHINGTON 98274

### PREPARED FOR

SKAGIT PUD  
1415 FREEWAY DRIVE  
MOUNT VERNON, WASHINGTON 98273  
(360) 399-5274

### PREPARED BY

SOUNDVIEW CONSULTANTS LLC  
2907 HARBORVIEW DRIVE  
GIG HARBOR, WASHINGTON 98335  
(253) 514-8952



**Soundview  
Consultants**

Environmental Assessment  
Planning + Land Use Solutions

## Executive Summary

Soundview Consultants LLC (SVC) is assisting Skagit PUD (Applicant) with a wetland and fish and wildlife habitat assessment for the relocation of a waterline on a .35-acre property located adjacent northwest to 2501 Henson Road in the City of Mount Vernon, Washington. The subject property consists of one tax parcel situated in the Southwest ¼ of Section 29, Township 34 North, Range 04 East, W.M. (Skagit County Parcel Number P133080).

SVC investigated the subject property and publicly accessible area within 300 feet for the presence of potentially regulated wetlands, streams, and other waterbodies and fish and wildlife habitat conservation areas on April 15, 2024. Using current methodology, the site assessment identified one wetland (Wetland A) and one stream (stream Z) on the subject property. Wetland A is classified as Category III wetland and is subject to standard 75-foot buffer per MVMC 15.40.090.A.F Table 15.040.090(A) Stream Z is classified as a Type F (fish-habitat) water and is subject to a standard 150-foot buffer per MVMC 15.040.080.D.3 Table 15.40.080(B). No other potentially regulated wetlands, waterbodies, or other fish and wildlife habitat areas were identified on or within 300 feet of the proposed project.

This report has been prepared for verification of the wetland and stream boundaries and classifications by the City of Mount Vernon. If future waterline relocation activities cannot avoid impacts to the identified critical areas and associated buffers, a Conceptual Mitigation Plan and associated permits will be prepared and submitted under separate cover.

The summary table below summarizes the identified critical areas and the potential regulatory status by different agencies.

Wetland/Stream Name	Size Onsite	Category <sup>1</sup>	Regulated Under MVMC Chapter 15.40	Regulated Under RCW 90.48	Regulated Under Section 404 of the Clean Water Act
<b>Wetland A</b>	~14,410 square feet	III	<b>Yes</b>	<b>Yes</b>	<b>Likely</b>
<b>Stream Z</b>	~1,145 linear feet	F	<b>Yes</b>	<b>Yes</b>	<b>Likely</b>

1. Current Washington State Department of Ecology (WSDOE) rating system (Hruby, 2014) per MVMC 15.40.090.C.

## Table of Contents

Chapter 1. Introduction .....	1
Chapter 2. Project Location .....	2
2.1 Project Location .....	2
Chapter 3. Methods .....	3
Chapter 4. Existing Conditions .....	4
4.1 Landscape Setting .....	4
4.2 Soils .....	5
4.3 Critical Area Inventories .....	5
4.4 Precipitation .....	5
Chapter 5. Results .....	7
5.1 Upland Vegetation .....	7
5.2 Wetlands .....	7
5.2 Stream Z .....	8
5.3 Fish and Wildlife Habitat Conservation Area Assessment .....	9
Chapter 6. Regulatory Considerations .....	11
6.1 Local Critical Area Requirements .....	11
6.2 State and Federal Considerations .....	11
Chapter 7. Closure .....	13
Chapter 8. References .....	14

## Figures

Figure 1. Vicinity Map .....	2
Figure 2. Aerial View of the Subject Property .....	4

## Tables

Table 1. Precipitation Summary <sup>1</sup> .....	6
Table 2. Wetland Summary .....	7
Table 3. Wetland A Summary .....	8

## Appendices

Appendix A – Existing Conditions Exhibit
Appendix B – Background Information
Appendix C – Site Photographs
Appendix D –Data Forms
Appendix E – Wetland Rating Forms
Appendix F – Wetland Rating Figures
Appendix G – Qualifications

## Chapter 1. Introduction

---

Soundview Consultants LLC (SVC) is assisting Skagit PUD (Applicant) with a wetland and fish and wildlife habitat assessment for the relocation of a waterline on a .35-acre property located adjacent northwest to 2501 Henson Road in the City of Mount Vernon, Washington. The subject property consists of one tax parcel situated in the Southwest ¼ of Section 29, Township 34 North, Range 04 East, W.M. (Skagit County Parcel Number P133080).

The purpose of this wetland and fish and wildlife habitat assessment report is to identify the presence of potentially-regulated wetlands, waterbodies, fish and wildlife habitat, and/or priority species on or near the subject property. .

This report provides conclusions and recommendations regarding:

- Site description and area of assessment;
- Background research and identification of potentially-regulated critical areas within the vicinity of the proposed project;
- Identification and assessment of potentially-regulated wetlands and other hydrologic features;
- Identification and assessment of potentially-regulated fish and wildlife habitat;
- Existing site map detailing identified critical areas and associated buffers, and
- Supplemental information necessary for regulatory review.

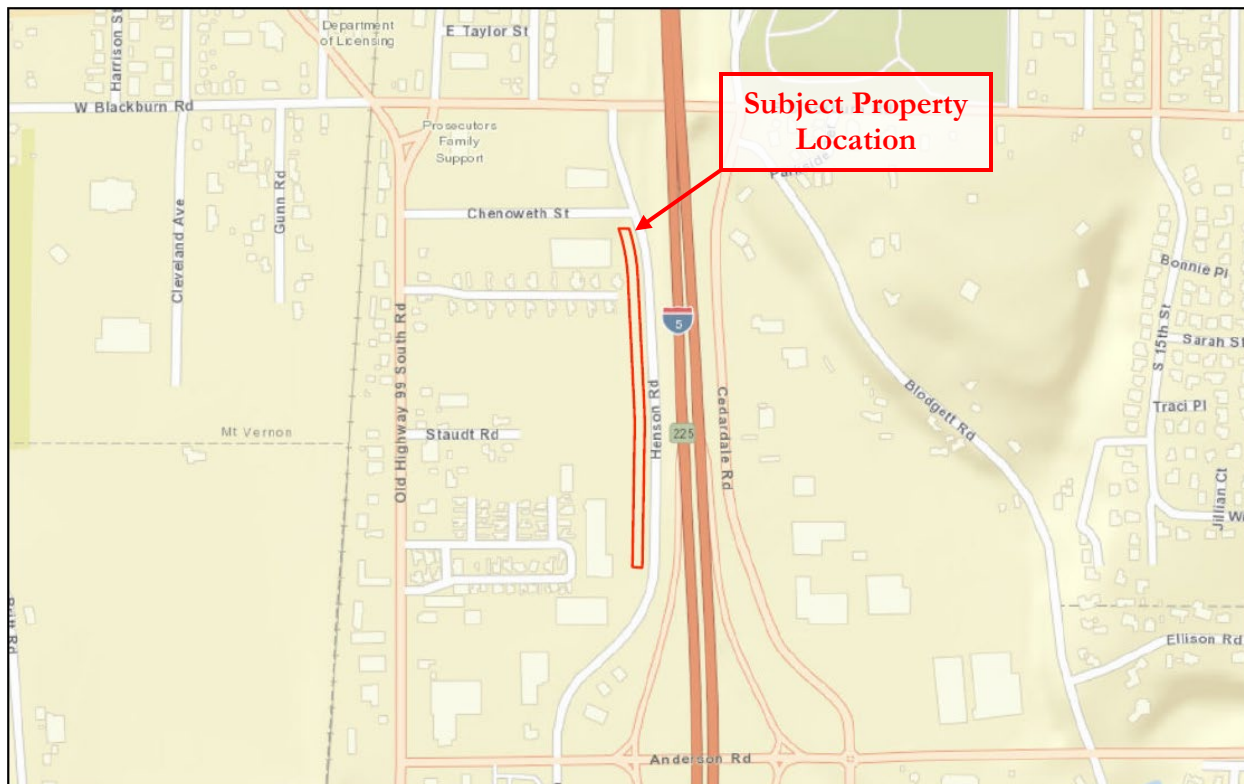
## Chapter 2. Project Location

### 2.1 Project Location

The 0.35-acre subject property is located adjacent to the northwest of 2501 Henson Road in the City of Mount Vernon, Washington (Figure 1). The subject property consists of one tac parcel situated in the Southwest ¼ of Section 29, Township 34 North, Range 04 East, W.M. (Skagit County Tax Parcel Number (P133080).

To access the subject property from Interstate-5 North in the Mount Vernon area, take exit 225 for Anderson Road and turn left onto Anderson Road. Continue for 0.2 mile and turn right onto Henson Road. After 0.2 mile, the subject property will be located on the left.

**Figure 1. Vicinity Map.**



## Chapter 3. Methods

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A formal site investigation was performed by qualified SVC staff on April 15, 2024. The investigation consisted of a wetland and stream delineation and walk-through survey for waterbodies and other fish and wildlife habitat conservation areas on the subject property and on publicly accessible areas within 300 feet of the subject property. All determinations were made using observable vegetation, hydrology, and soils in conjunction with data from the U.S. Geological Survey (USGS) topographic maps, National Resource Conservation Service (NRCS) soil survey, U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI), Washington Department of Fish and Wildlife (WDFW) and Northwest Indian Fisheries Commission (NWIFC) Statewide Integrated Fish Distribution (SWIFD) and WDFW Priority Habitat and Species (PHS) mapping tools, Skagit County iMap, and various orthophotographic resources.

Wetlands, streams, and select fish and wildlife habitats and species are regulated features per Mount Vernon Municipal Code (MVMC) Chapter 15.40 (Critical Areas), and subject to restricted uses/activities under the same title.

Wetland boundaries were determined using the routine approach described in the U.S. Army Corps of Engineers (USACE) *Wetlands Delineation Manual* (Environmental Laboratory, 1987) and modified according to the guidelines established in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (Version 2.0) (USACE, 2010) and *Field Indicators of Hydric Soils in the United States* (NRCS, 2018). Qualified wetland scientists marked the boundary of the onsite wetlands with orange surveyor's flagging labeled alpha-numerically and tied to 3-foot vegetation along the wetland boundary. Pink surveyor's flagging was labeled alpha-numerically and tied to 3-foot lath or vegetation at formal sampling locations to mark the points where detailed data was collected (DP-1 to DP-2). Additional tests pits were excavated at regular intervals inside and outside of the wetland boundary to further confirm the delineation.

Wetlands were classified using both the hydrogeomorphic (Brinson, 1993) and Cowardin (Cowardin, 1979; Federal Geographic Data Committee, 2013) classification systems. Following classification and assessment, all wetlands were rated and categorized using the *Washington State Wetland Rating System for Western Washington* (Hruby and Yahnke, 2023) and guidelines established under MVMC 15.40.090.C.

Ordinary high water (OHW) mark determinations were made using Washington State Department of Ecology's (WSDOE's) methodology, as detailed in *Determining the Ordinary High Water Mark for Shoreline Management Act Compliance in Washington State* (Anderson et al., 2016), and the definitions established in the Revised Code of Washington (RCW) 90.58.030(2)(b) and Washington Administrative Code (WAC) 173-22-030(11). To mark the banks of potentially regulated waters, blue surveyor's flagging was alpha-numerically labeled and tied to vegetation or lath. Streams and surface water features were classified using the DNR water typing system as outlined in WAC 222-16-031 and the guidelines established in MVMC 15.40.080.D.3.

The fish and wildlife habitat assessment was conducted during the same site visits by qualified fish and wildlife biologists. The experienced biologists made visual observations using stationary and walking survey methods for both aquatic and upland habitats noting any special habitat features or signs of fish and wildlife activity. Special attention was given to assessing the presence of fish and wildlife habitat conservation areas outlined under MVMC 15.40.080.B.

## Chapter 4. Existing Conditions

### 4.1 Landscape Setting

The subject property consists of a is located in a commercial/industrial setting and consists of a utility corridor that is undeveloped with the exception of a below ground water main. The subject property abuts commercial/industrial developments to the north, Henson Road to the east, commercial development to the south, and a mix of commercial/industrial developments and undeveloped land to the west. Topography onsite is generally flat with an excavated channel through the center. Elevations onsite range from approximately 15 feet to 20 feet above mean sea level (amsl). A USGS contours map is provided in Appendix B1. The subject property is located within the Lower Skagit-Samish watershed (Water Resource Inventory Area 3).

**Figure 2. Aerial View of the Subject Property**



## 4.2 Soils

The NRCS Soil Survey Map (Appendix B2) identifies one soil series present on the subject property: Urban land-Mt. Vernon-Field Complex (152) (Appendix B2). Below is a detailed description of the soil profiles.

### Urban Land-Mt. Vernon-Field Complex (152)

According to the NRCS Soil Survey of Skagit County (Klungland and McArthur, 1989), Urban Land-Mt. Vernon-Field Complex is a moderately permeable soil with a high water capacity on floodplain and natural levees. The soil unit is comprised of approximately 40 percent Urban Land, 30 percent Mt. Vernon very fine sandy loam, and 20 percent Field silt loam. In a typical profile, the surface layer consists of a dark brown very fine sandy loam to a depth of 10 inches. The upper 19 inches of underlying material is dark yellowish brown and grayish brown, stratified very fine sandy loam, fine sandy loam, loamy fine sand, and fine sand. The lower part to a depth of 60 inches is or more is grayish brown and olive gray stratified silt loam, very fine sandy loam, fine sandy loam, loamy fine sand, and fine sand. In some areas, the surface layer is sandy loam or silt loam, and in some areas the surface is not dark colored. Urban Land-Mt. Vernon-Field complex is listed as non-hydric on the NRCS hydric soils list (NRCS, n.d.).

## 4.3 Critical Area Inventories

The DNR stream typing map (Appendix B3) identifies on Type F (fish-habitat) stream extending north to south/southeast on/adjacent to the eastern boundary of the subject property. The USFWS NWI map (Appendix B4) identifies a riverine feature coinciding with the mapped stream. The WDFW PHS map (Appendix B5) and WDFW and NWIFC SWIFD map (Appendix B6) identify potential occurrences of coho salmon and cutthroat trout within the mapped stream. WDFW and the NWIFC also identify potential occurrence of Chinook, chum, and pink salmon and steelhead trout within the mapped stream. Both the USFWS NWI map and the WDFW PHS map identify a potential freshwater emergent wetland extending north to south along the western boundary of the subject property. Additional potential freshwater emergent and freshwater forest/scrub shrub wetlands area identified offsite to the northeast, east, and southeast within 300 feet of the subject property. The WDFW PHS map also identifies potential occurrences of gray wolf (*Canis lupus*) in the same township as the subject property, although not necessarily onsite. The Skagit County 100-Year Floodplain Map (Appendix B7) identifies the northern half of the subject property within the 100-year floodplain.

No other potentially regulated wetlands, streams, fish and wildlife habitat conservation areas, or other priority habitats or species are identified on or within 300 feet of the subject property.

## 4.4 Precipitation

Precipitation data was obtained from the National Oceanic and Atmospheric Administration (NOAA) station at the Bellingham International Airport to obtain percent of normal precipitation during and preceding the investigations. A summary of data collected is provided in Table 1 below.

**Table 1. Precipitation Summary<sup>1</sup>**

Date	Day of	Day Before	1 Week Prior	2 Weeks Prior	Last 30 Days (Observed/Normal)	Year to Date (Observed/Normal) <sup>2</sup>	Percent of Normal <sup>3</sup>
4/15/2024	0.01	0.00	0.30	0.57	2.12/3.30	26.38/25.60	64/103

**Notes:**

1. Precipitation levels provided in inches. Data obtained from NOAA (<http://w2.weather.gov/climate/xmacis.php?wfo=sew>) for Bellingham International Airport weather station.
2. Year-to-date precipitation is for the 2023/2024 water year from October 1, 2023 to the site visit date.
3. Percent of normal is shown for the last 30 days and 2023/2024 water year to date data.

Precipitation levels during the April 2024 site investigation were below the statistical normal range (70 to 130 percent of normal) for the prior 30 days (62 percent of normal) and within the statistical normal range for the 2023/2024 water year (103 percent of normal). This precipitation data suggests that hydrologic conditions at the time of the site investigation were slightly dry, but relatively normal overall at the time of the site investigation. Such conditions were considered in making professional wetland determinations.

## Chapter 5. Results

The site investigation in April 2024 identified and delineated one potentially-regulated wetland (Wetland A) and one potentially regulated stream (Stream Z) on the subject property. The location of the identified critical areas is depicted in the Existing Conditions Exhibit provided in Appendix A. Photographs of the identified critical areas are provided in Appendix C. No other potentially-regulated wetlands, waterbodies, fish and wildlife habitat, or priority species were identified within 300 feet of the subject property during the site investigations.

### 5.1 Upland Vegetation

The subject property consists of a utility corridor that is undeveloped with the exception of an underground water main. Upland vegetation consists predominantly of an herbaceous plant community dominated by Kentucky bluegrass (*Poa pratensis*). Lesser amounts of clover (*Trifolium spp.*) and creeping buttercup (*Ranunculus repens*) were also observed.

### 5.2 Wetlands

One potentially-regulated wetland (Wetland A) was identified and delineated on the subject property. The identified wetland contained indicators of hydric soils, wetland hydrology, and a predominance of hydrophytic vegetation according to current wetland delineation methodology. Data forms are provided in Appendix D, a wetland rating form is provided in Appendix E, and wetland rating figures are provided in Appendix F. Table 2 summarizes Wetland A.

**Table 2. Wetland Summary**


Wetland	Predominant Wetland Classification / Rating			Wetland Size Onsite (Sq Feet)
	Cowardin <sup>1</sup>	HGM	City of Mount Vernon <sup>2</sup>	
A	PSS/EMH	Riverine	III	~14,410

1. Cowardin et al. (1979); Federal Geographic Data Committee (2013); class based on vegetation: PSS = Riverine Scrub-Shrub, PEM = Palustrine Emergent; Modifiers for Water Regime: H = Permanently Flooded.
2. Current WSDOE rating system per MVMC 15.40.090.C.1

#### Wetland A

Wetland A is located within the banks of Stream Z and is approximately 14,410 square feet (0.33 acre in size), encumbering a majority of the subject property. Hydrology for Wetland A by a seasonally high groundwater table, direct precipitation, surface runoff from adjacent uplands, and stream flooding. Hydrology from Wetland A is conveyed through a culvert south beyond the subject property via Stream Z. Wetland vegetation is dominated by Pacific Willow (*Salix lasiandra*), hardhack (*Spiraea douglasii*), cattails (*Typha spp.*), and non-native invasive reed canarygrass (*Phalaris arundinacea*). Hydric soil indicators A1 (Histosol) and A4 (Hydrogen Sulfide Odor) were observed. The wetland boundary was delineated based on topography and a transition to a hydrophytic plant community and primary hydrology indicators. The adjacent buffer areas are degraded by adjacent development and the encroachment of non-native invasive species. Wetland A is a Palustrine Scrub-Shrub/Emergent, Permanently Flooded (PSS/EMH) riverine wetland. Table 3 provides a detailed summary of Wetland A.

**Table 3. Wetland A Summary**

<b>WETLAND A</b>															
	<table border="1"> <tr> <td><b>Local Jurisdiction</b></td> <td>City of Mount Vernon</td> </tr> <tr> <td><b>City of Mount Vernon Rating</b></td> <td>III</td> </tr> <tr> <td><b>Wetland Size (Onsite)</b></td> <td>~14,410 square feet</td> </tr> <tr> <td><b>Cowardin Classification</b></td> <td>PSS/EMH</td> </tr> <tr> <td><b>HGM Classification</b></td> <td>Riverine</td> </tr> <tr> <td><b>Wetland Data Sheet(s)</b></td> <td>DP-1</td> </tr> <tr> <td><b>Upland Data Sheet(s)</b></td> <td>DP-2</td> </tr> </table>	<b>Local Jurisdiction</b>	City of Mount Vernon	<b>City of Mount Vernon Rating</b>	III	<b>Wetland Size (Onsite)</b>	~14,410 square feet	<b>Cowardin Classification</b>	PSS/EMH	<b>HGM Classification</b>	Riverine	<b>Wetland Data Sheet(s)</b>	DP-1	<b>Upland Data Sheet(s)</b>	DP-2
	<b>Local Jurisdiction</b>	City of Mount Vernon													
	<b>City of Mount Vernon Rating</b>	III													
	<b>Wetland Size (Onsite)</b>	~14,410 square feet													
	<b>Cowardin Classification</b>	PSS/EMH													
	<b>HGM Classification</b>	Riverine													
	<b>Wetland Data Sheet(s)</b>	DP-1													
<b>Upland Data Sheet(s)</b>	DP-2														
<b>Wetland Functions Summary</b>															
<p><b>Water Quality</b> (Scores 7 out of 9 points)</p>	<ul style="list-style-type: none"> <li>Moderate site potential to trap sediment and pollutants due to the presence of shrubs in &gt;1/3 of the wetland.</li> <li>High landscape potential to receive sediment and pollutants due the wetlands location within a UGA and adjacent commercial/industrial land uses.</li> <li>Moderate societal value for water quality functions as the wetland drains to a stream with a 303(d) listing.</li> </ul>														
<p><b>Hydrologic</b> (Scores 6 out of 9 points)</p>	<ul style="list-style-type: none"> <li>Moderate site potential to reduce flooding and erosion due to the ratio of the width of Wetland A to Stream Z (1) and the presence of shrubs in &gt;1/3 of the wetland area.</li> <li>Moderate landscape potential due to the presence of an incorporated area in the upgradient watershed and a lack of dams upstream of Stream Z.</li> <li>Moderate societal value for hydrologic functions due to flooding problems in a sub-basin further downgradient</li> </ul>														
<p><b>Habitat</b> (Scores 4 out of 9 points)</p>	<ul style="list-style-type: none"> <li>Low site potential to provide diverse and complex wetland habitat due to a low species richness and habitat interspersions, and a lack of special habitat features.</li> <li>Low landscape potential to support habitat use due to the surrounding high-intensity land uses.</li> <li>Moderate societal value for habitat functions due to the presence of instream and riparian PHS Habitats.</li> </ul>														

## 5.2 Stream Z

One stream (Stream Z) was identified on the subject property. The banks of Stream Z coincide with the boundary of Wetland A. Stream Z originated from a culvert along Henson Road south of Chenoweth Street and flows south onsite for approximately 1,145 feet before being conveyed south offsite through a culvert underneath the access road of the west-adjacent Motor Trucks Inc. development. Stream Z is greater than 2 feet wide on average throughout its length and featured mucky substrate lined with Pacific willow, hardhack, cattails, and non-native invasive reed canarygrass. Vegetation on the adjacent banks appears to be regularly maintained/mowed and was largely dominated by Kentucky bluegrass with lesser amounts of clover and creeping buttercup.

The DNR stream typing map identifies Stream Z as a Type F (fish-habitat) water. The WDFW PHS map and WDFW and NWIFC SWIFD map identify potential occurrences of coho salmon and cutthroat trout in Stream Z, and WDFW and the NWIFC also identify potential occurrences of Chinook, chum, and pink salmon and steelhead trout. As Stream Z is greater than 2 feet wide on average, it meets the criteria of a Type F water per WAC 222-16-031.

### 5.3 Fish and Wildlife Habitat Conservation Area Assessment

Per MVMC 15.40.080.B, fish and wildlife conservation areas consist of: 1) Streams; 2) Lakes 20 Acres and Greater in Surface Area; 3) Lakes Less than 20 Acres in Surface Area; 4) Class I Fish and Wildlife Conservation Areas which include habitat areas other than streams such as habitats and species recognized by federal and state agencies as listed, areas targeted for preservation by the state and/or local governments to provide habitat benefits, and areas that contain habitats and species of local importance; 5) Class II Fish and Wildlife Conservation Areas which include areas other than streams such as state-listed candidate and monitored species documented in maps or databases and habitats that have been identified through maps, databases, reports, or studies that include attributes such as comparatively high wildlife density, high wildlife species richness, significant wildlife breeding habitat, seasonal ranges or movement corridors of limited availability and/or high vulnerability; and 6) Habitats and Species of Local Importance.

According to the USFWS IPaC mapping database, North American wolverine (*Gulo gulo luscus*), marbled murrelet (*Brachyramphus marmoratus*), yellow-billed cuckoo (*Coccyzus americanus*), and bull trout (*Salvelinus confluentus*) have the potential to occur within 300 feet of the subject property. Additionally, the WDFW PHS map identifies gray wolf (*Canis lupus*) within the township but not necessarily onsite, and the WDFW PHS map and WDFW and NWIFC SWIFD map identify potential occurrences of several salmonids, including ESA-listed Chinook salmon and steelhead trout, within Stream Z.

North American wolverines (*Gulo gulo luscus*) commonly occur in boreal forests and tundra ecosystems and in Washington they occupy alpine and subalpine forests within the North Cascades National Park and the wilderness areas of the Okanogan-Wenatchee National Forest where heavy snowpack persists well into the spring months (WDFW, n.d.). Population estimates vary between 20 to 35 individuals residing in Washington state. Wolverines will travel hundreds of miles when hunting and will consume a wide variety of foods including insects, berries, marmots, ground squirrels, snowshoe hares and other small mammals but they are predominantly scavengers of carrion of large animals. The subject property is located in a degraded landscape surrounded by commercial/industrial developments and in close proximity to Interstate-5. No suitable habitat for North American wolverine is present on or within 300 feet of the subject property.

Marbled murrelet that occurs in the state of Washington are year-round residents on coastal waters and primarily feed in waters within 500 feet of the shore out to 1.2 miles from shore at depths of less than one hundred feet. Potential suitable habitat typically consists of tree stands 5 or more acres in size composed of 60% or more conifer cover with minimum 15-inch diameter at breast height (DBH) with nesting platform trees. Nesting platform trees include “platform branches” that are a relatively flat surface at least four inches wide, at least 33 feet high in a coniferous tree, with cover from the live crown of the same tree or an adjacent tree (WSDOT, 2014). The subject property is located in a degraded landscape that lacks forest habitat and is located approximately 7 miles from marine waters. As such, no suitable habitat for Marbled murrelet is present on or within 300 feet of the subject property.

Yellow-billed cuckoo habitat consists of low to mid-level riparian forests dominated by cottonwoods and willows. Suitable habitat is approximately 100 to 198 acres and wider than 200 meters; marginal habitat is approximately 20 to 100 acres and 100 to 200 meters wide; and unsuitable habitat is smaller than approximately 37 acres and less than 100 meters wide (Wiles & Kalasz, 2017). While riparian habitat areas are present on the subject property, the subject property is less than an acre in size and lacks mid-level riparian forest habitat. Furthermore, the subject property is located in a degraded landscape surrounded by commercial/industrial development in proximity to Interstate-5. As such, no suitable habitat for yellow-billed cuckoo is present on or within 300 feet of the subject property.

Bull trout have the most specific habitat requirements of salmonids. They require cold water temperatures, clean stream substrates for spawning and rearing, complex habitats including streams with riffles and deep pools, undercut banks and large logs, and they also rely on river, lake, and ocean habitats that connect to headwater streams for annual spawning and feeding migrations (Shellberg, 2002). In Washington, bull trout are typically found in major tributaries from the Cascades that flow into the Puget Sound as well as major tributaries for the Olympic Mountains that flow into the Hood Canal, Straight of Juan de Fuca, and the Pacific Ocean (USFWS, 2015). One stream (Stream Z) was identified onsite. Stream Z is a degraded, ditched channel inundated with reed canarygrass and flows through a similarly degraded landscape. Furthermore, downstream, Stream Z discharges to Maddox Creek which has 303(d) listings for temperature and bacteria. As such, no suitable habitat for bull trout is present on or within 300 feet of the subject property.

Gray wolves are highly adaptable and can live in a variety of habitats if sufficient prey is available. In the northwestern states, gray wolves are most common in relatively flat forested areas, rolling hills, or open spaces such as valleys and basins, where prey are easier to chase and catch. Wolf populations tend to fare best in areas away from humans and their activities. These tend to be remote, relatively unpopulated areas with extensive public lands, few roads, and few or no livestock (Wiles et al., 2011). The subject property is located in a degraded landscape surrounded by commercial/industrial development in close proximity to Interstate-5. As such, no suitable habitat for gray wolf is present on or within 300 feet of the subject property.

As mentioned in the sections above, the subject property is largely encumbered by the presence of Stream Z and Wetland A, but is otherwise located in a degraded landscape surrounded by commercial/industrial developments in proximity to Interstate 5. Additionally, Stream Z flows downgradient into Maddox Creek, which has 303(d) listings for temperature and bacteria. Stream Z is identified as having potential occurrences of Chinook salmon and Steelhead trout. Given the degraded conditions of Stream Z, the surrounding landscape, and downgradient waters, it is unlikely for Chinook salmon or steelhead trout to be present in Stream Z.

## Chapter 6. Regulatory Considerations

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The site investigation in April 2024 identified and delineated one potentially-regulated wetland (Wetland A) and one potentially regulated stream (Stream Z) on the subject property. No other potentially-regulated wetlands, waterbodies, fish and wildlife habitat, or priority species were identified within 300 feet of the subject property during the site investigations.

### 6.1 Local Critical Area Requirements

#### 6.1.1 Critical Area Buffer Standards

MVMC 15.40.090.C.1 has adopted the current wetland rating system for western Washington (Hruby and Yahnke, 2023). Category IV provide low levels of functions scoring 15 points or fewer using the wetland rating system. Category III wetlands provide moderate levels of functions, scoring between 16 to 19 points.

MVMC 15.40.090.F.1 assigns buffer widths based on the wetland category. Wetland A is classified as a Category III wetland, and is subject to standard 75-foot buffer per MVMC 15.40.090.F.1 Table 15.40.090(A). Stream Z is classified as a Type F stream and is subject to a standard 150-foot buffer as well as a 150-foot building setback beyond the buffer per MVMC 15.40.080.D.3 Table 15.40.080(B).

### 6.2 State and Federal Considerations

On January 18, 2023, USACE and EPA published a revised definition of “Waters of the United States” (USACE and EPA, 2023a). The revised rule became effective on March 20, 2023. On May 25, 2023, the U.S. Supreme Court issued a decision affecting the definition of Waters of the United States, or “WOTUS”, in *Sackett Et Ux. V Environmental Protection Agency Et Al.* On August 29, 2023, the US EPA and USACE issued a final rule to amend the final “Revised Definition of ‘Waters of the United States’” rule. The amendment conforms the definition of “Waters of the United States” to the U.S. Supreme Court’s decision in the Sackett Et Ux. V Environmental Protection Agency Et Al case. The revised and amended definition of “Waters of the United States” is as follows:

*(a) Waters of the United States means:*

- (1) Waters which are: (i) Currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; (ii) The territorial seas; or (iii) Interstate waters;*
- (2) Impoundments of waters otherwise defined as waters of the United States under this definition, other than impoundments of waters identified under paragraph (a)(5) of this section;*
- (3) Tributaries of waters identified in paragraph (a)(1) or (2) of this section that are relatively permanent, standing or continuously flowing bodies of water;*
- (4) Wetlands adjacent to the following waters: (i) Waters identified in paragraph (a)(1) of this section; or (ii) Relatively permanent, standing or continuously flowing bodies of water identified in paragraph (a)(2) or (a)(3) of this section and with a continuous surface connection to those waters;*

*(5) Intrastate lakes and ponds not identified in paragraphs (a)(1) through (4) of this section that are relatively permanent, standing or continuously flowing bodies of water with a continuous surface connection to the waters identified in paragraph (a)(1) or (a)(3) of this section;*

*(b) The following are not “waters of the United States” even where they otherwise meet the terms of paragraphs (a)(2) through (5) of this section:*

*(1) Waste treatment systems, including treatment ponds or lagoons, designed to meet the requirements of the Clean Water Act;*

*(2) Prior converted cropland designated by the Secretary of Agriculture. The exclusion would cease upon a change of use, which means that the area is no longer available for the production of agricultural commodities. Notwithstanding the determination of an area's status as prior converted cropland by any other Federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA;*

*(3) Ditches (including roadside ditches) excavated wholly in and draining only dry land and that do not carry a relatively permanent flow of water;*

*(4) Artificially irrigated areas that would revert to dry land if the irrigation ceased;*

*(5) Artificial lakes or ponds created by excavating or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing;*

*(6) Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating or diking dry land to retain water for primarily aesthetic reasons;*

*(7) Waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States; and*

*(8) Swales and erosional features (e.g., gullies, small washes) characterized by low volume, infrequent, or short duration flow.*

The 2023 revised and amended definition of Waters of the United States defines “adjacent” as “having a continuous surface connection.”

Stream Z is a tributary to Maddox Creek, which flows into South Fork Skagit River, a tributary to Skagit Bay. As such, Stream Z meets the criteria to be regulated by the USACE as a Water of the United States (WOTUS) under Section 404 of the Clean Water Act (CWA). Wetland A is located within the banks of Stream Z and as such meets the criteria of an adjacent wetland and is also likely regulated by the USACE as a WOTUS.

Both Stream Z and Wetland A are also likely regulated as surface waters of the state by WSDOE under the Revised Code of Washington (RCW) 90.48.

## Chapter 7. Closure

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The findings and conclusions documented in this assessment report have been prepared for specific application to the Henson Road property. These findings and conclusions have been developed in a manner consistent with that level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in the area. The conclusions and recommendations presented in this assessment report are professional opinions based on an interpretation of information currently available to us and are made within the operation scope, budget, and schedule of this project. No warranty, expressed or implied, is made. In addition, changes in government codes, regulations, or laws may occur. Due to such changes, our observations and conclusions applicable to this assessment may need to be revised wholly or in part in the future.

Wetland and OHW boundaries identified by SVC are based on conditions present at the time of the site visit and considered preliminary until validated by the jurisdictional agencies. Validation of the wetland and OHW boundaries and jurisdictional status of such features by the regulatory agencies provides a certification, usually written, that the wetland and OHW determinations and boundaries verified are the units that will be regulated by the agencies until a specific date or until the regulations are modified. Only the regulatory agencies can provide this certification.

As wetlands and waterbodies are dynamic communities affected by both natural and human activities, changes in boundaries may be expected; therefore, delineations cannot remain valid for an indefinite period of time. Regulatory agencies typically recognize the validity of wetland delineation for a period of 5 years after completion of an assessment report. Development activities on a site five years after the completion of this assessment report may require reassessment of the wetland boundaries. In addition, changes in government codes, regulations, or laws may occur. Due to such changes, our observations and conclusions applicable to this site may need to be revised wholly or in part.

## Chapter 8. References

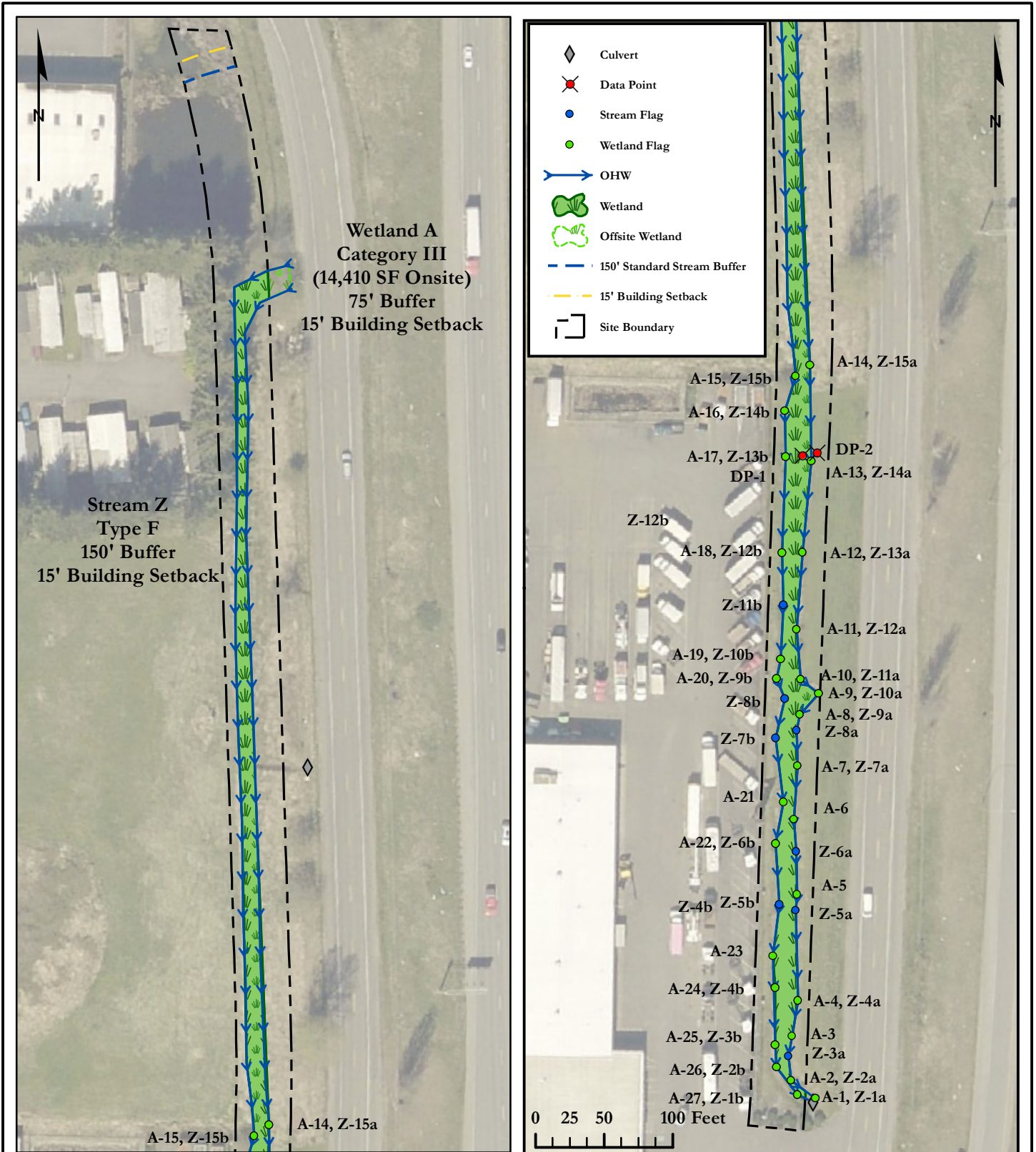
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## Appendix A – Existing Conditions Exhibit

---



  
**Soundview Consultants LLC**  
 Environmental Assessment • Planning • Land Use Solutions  
 2907 Harborview Dr., Suite D, Gig Harbor, WA 98335  
 Phone: (253) 514-8952 Fax: (253) 514-8954  
[www.soundviewconsultants.com](http://www.soundviewconsultants.com)

**HENSON ROAD**  
 ADJACENT NW OF 2501 HENSON ROAD  
 MT VERNON, WA  
 SKAGIT COUNTY PARCEL NUMBER:  
 P133080

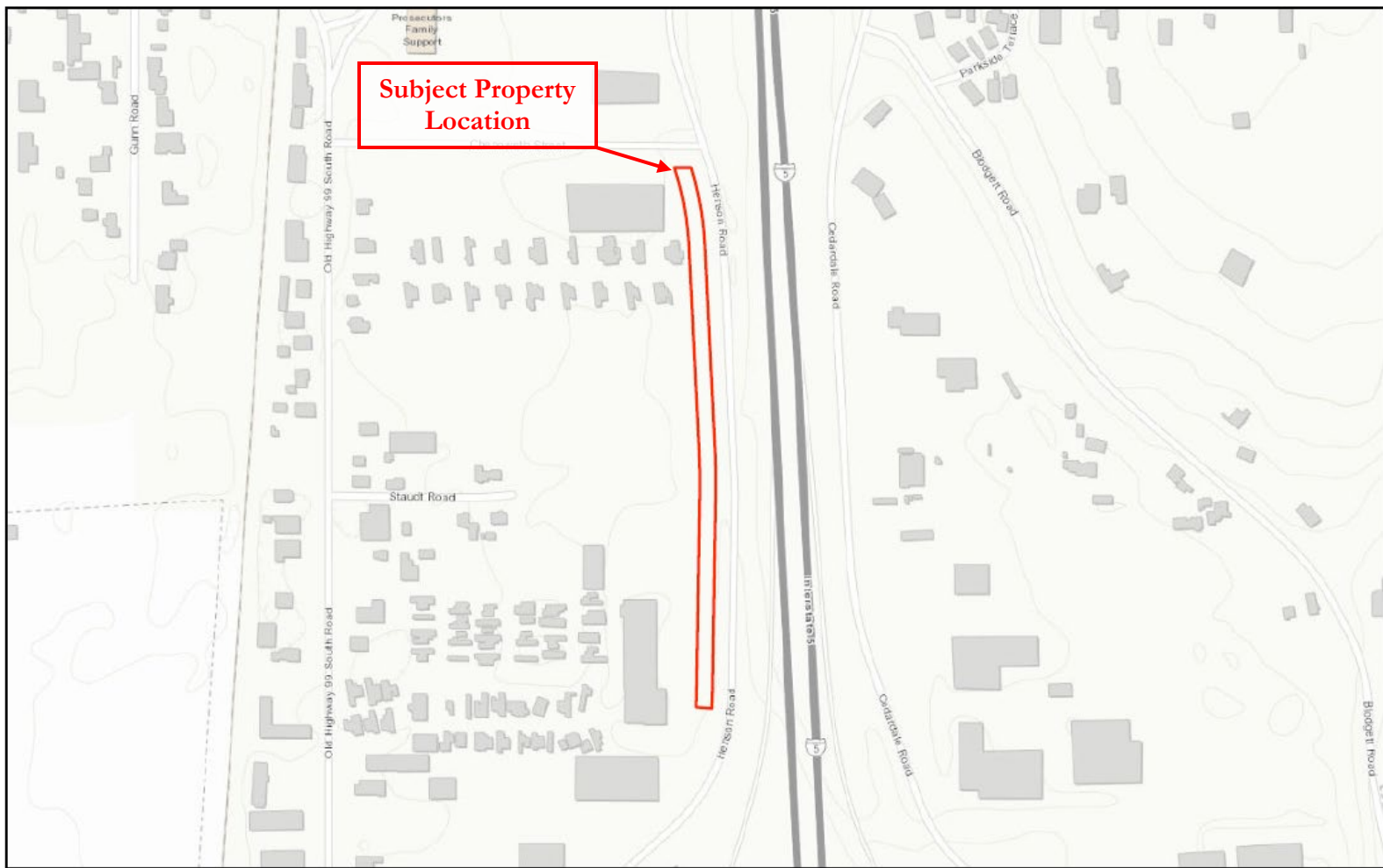
DATE: 4/17/2024
JOB: 2743.0001
BY: DDS
SCALE: 1" = 100'
FIGURE NO. 1

## Appendix A – Background Information

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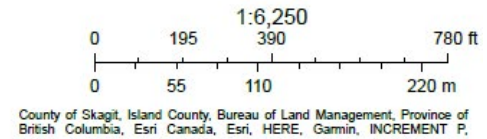
This Appendix includes a USGS Contours Map (B1); NRCS Soil Survey Map (B2); DNR Stream Typing Map (B3); USFWS NWI Map (B4); WDFW PHS Map (B5); WDFW and NWIFC SWIFD Map (B6); and Skagit County FEMA 100-Year Floodplain Map (B7).

### Appendix B1. USGS Contours Map



3/31/2024, 10:36:52 PM

 Subject Property




County of Skagit, Island County, Bureau of Land Management, Province of British Columbia, Esri Canada, Esri, HERE, Garmin, INCREMENT P.

Washington Geological Survey | WDFW | These data were collected by WDFW staff with contributions from the North Olympic Salmon Coalition and the Friends of the San Juans. | Source: USDA NRCS, Esri | U.S. Fish and Wildlife Service, National Standards and Soundview Consultants

### Appendix B2. NRCS Soil Survey Map

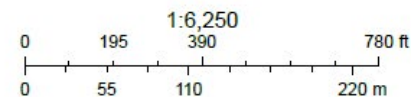


3/31/2024, 9:31:53 PM

 Subject Property

152: Urban land-Mt. Vernon-Field complex

 USA Soils Map Units

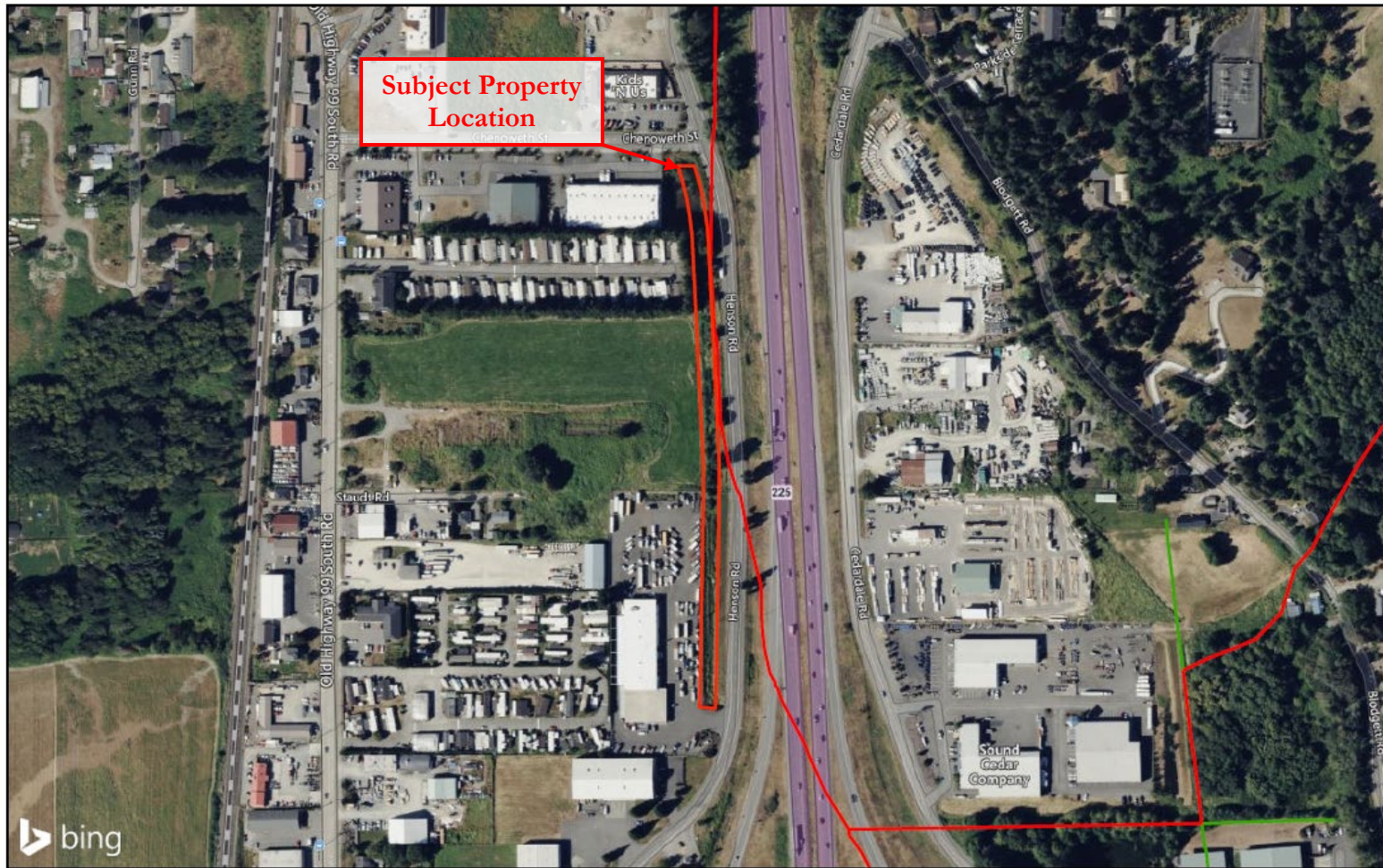


Source: USDA NRCS, Esri, © 2024 Microsoft Corporation © 2024 Maxar ©CNES (2024) Distribution Airbus DS © 2024 TomTom

Soundview Consultants

© 2024 Microsoft Corporation, © 2024 Maxar, ©CNES (2024) Distribution Airbus DS, © 2024 TomTom | Washington Geological Survey | WDFW | These data were collected by WDFW staff with contributions from the North Olympic Salmon Coalition and the Friends of

### Appendix B3. DNR Stream Typing Map




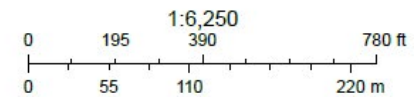
3/31/2024, 9:28:58 PM

 Subject Property

 Type N, Np, Ns

DNR - Stream Typing - Watercourses (DNR)

 Type F

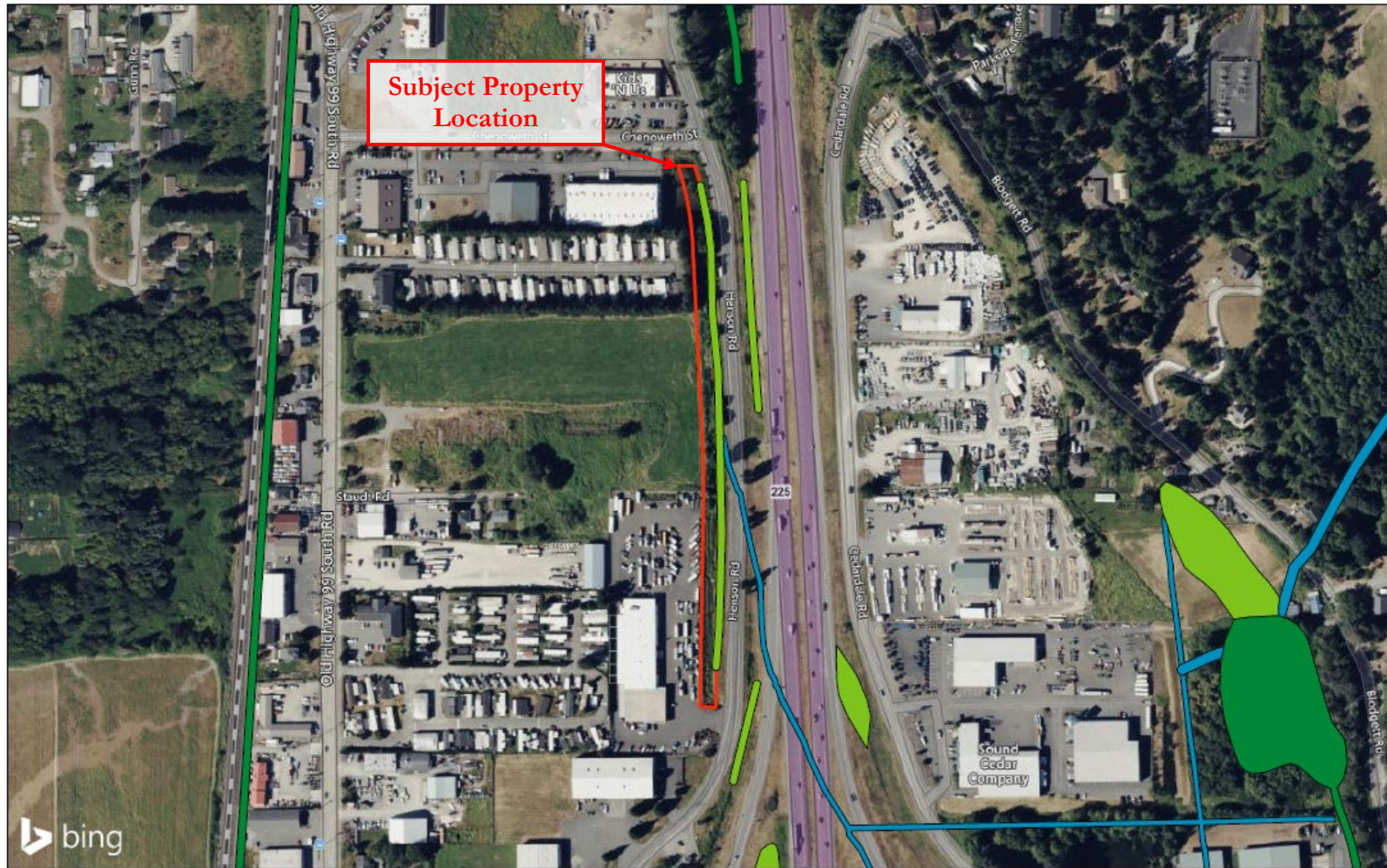


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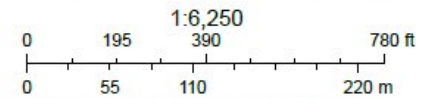
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### Appendix B4 – USFWS NWI Map



3/31/2024, 9:27:32 PM

- National Wetland Inventory (NWI) - Wetlands
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Riverine
- Subject Property

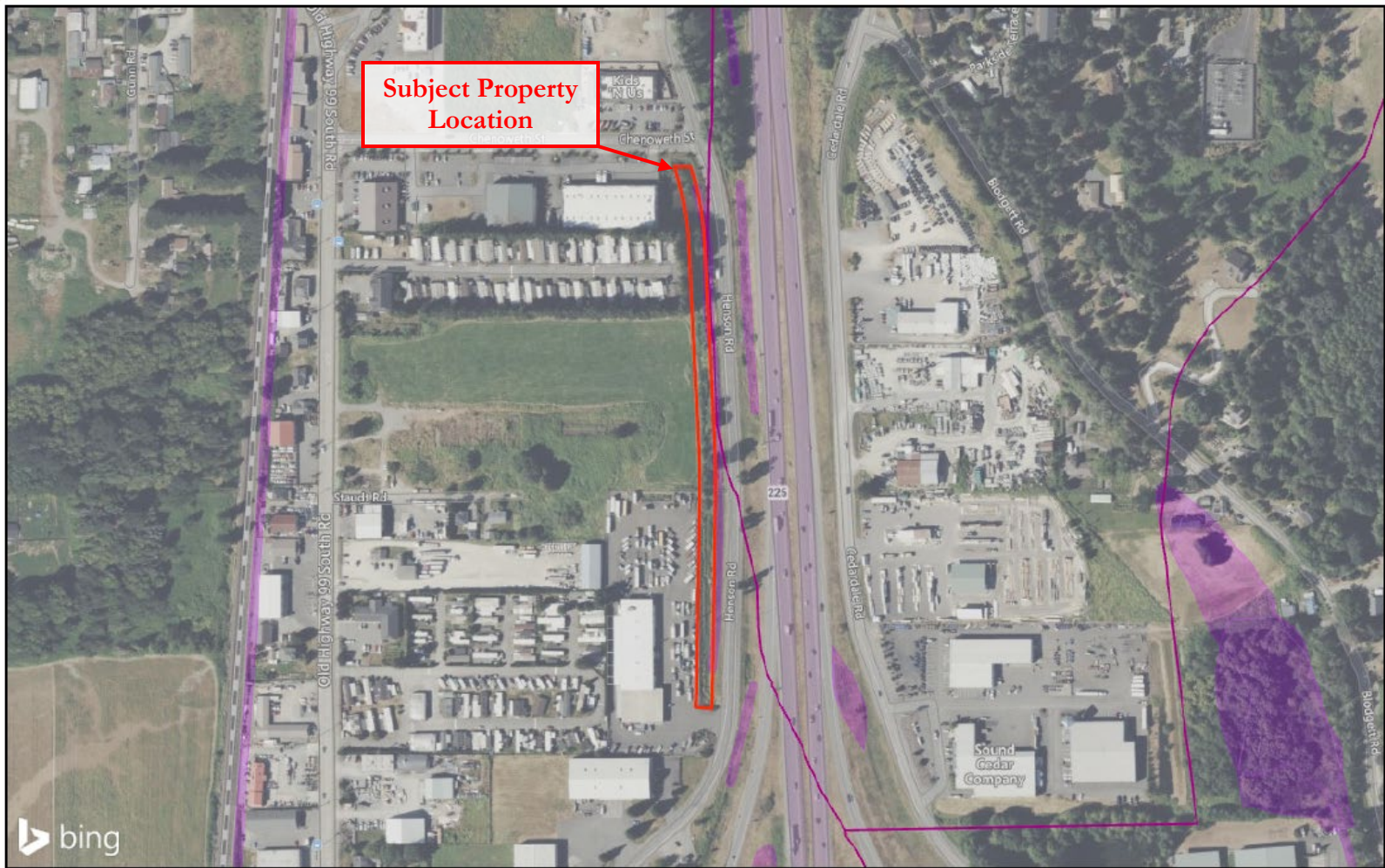


© 2024 Microsoft Corporation © 2024 Maxar ©CNES (2024) Distribution Airbus DS © 2024 TomTom

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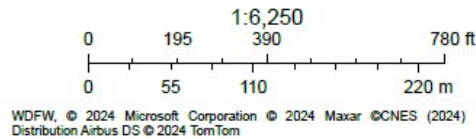
Soundview Consultants

### Appendix B5 – WDFW PHS Map



3/31/2024, 9:38:21 PM

- PHS Public Lines
- Masked
- TOWNSHIP
- PHS Public Polygon Outlines
- PHS Public Polygons
- Subject Property
- AS MAPPED
- AS MAPPED



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## Priority Habitats and Species on the Web

### PHS Species/Habitats Overview:

Occurrence Name	Federal Status	State Status	Sensitive Location
Resident Coastal Cutthroat	N/A	N/A	No
Coho	N/A	N/A	No
Coho	Candidate	N/A	No
Freshwater Emergent Wetland	N/A	N/A	No
Freshwater Forested/Shrub Wetland	N/A	N/A	No
Gray wolf	Endangered	Endangered	Yes

### PHS Species/Habitats Details:

Resident Coastal Cutthroat	
Scientific Name	<i>Oncorhynchus clarki</i>
Priority Area	Occurrence/Migration
Accuracy	NA
Notes	LLID: 1223298484149, Fish Name: Cutthroat Trout, Run Time: Unknown or not Applicable, Life History: Unknown
Source Record	42241
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	<a href="http://wdfw.wa.gov/wlm/diversty/soc/soc.htm">http://wdfw.wa.gov/wlm/diversty/soc/soc.htm</a>
Geometry Type	Lines

<b>Coho</b>	
Scientific Name	<i>Oncorhynchus kisutch</i>
Priority Area	Occurrence/Migration
Accuracy	NA
Notes	LLID: 1223298484149, Fish Name: Coho Salmon, Run Time: Unknown or not Applicable, Life History: Anadromous
Source Record	42244
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	<a href="http://wdfw.wa.gov/wlm/diversty/soc/soc.htm">http://wdfw.wa.gov/wlm/diversty/soc/soc.htm</a>
Geometry Type	Lines
<b>Coho</b>	
Scientific Name	<i>Oncorhynchus kisutch</i>
Priority Area	Occurrence/Migration
Accuracy	NA
Notes	LLID: 1223298484149, Fish Name: Coho Salmon, Run Time: Unknown or not Applicable, Life History: Anadromous
Source Record	42244
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	<a href="http://wdfw.wa.gov/wlm/diversty/soc/soc.htm">http://wdfw.wa.gov/wlm/diversty/soc/soc.htm</a>
Geometry Type	Lines

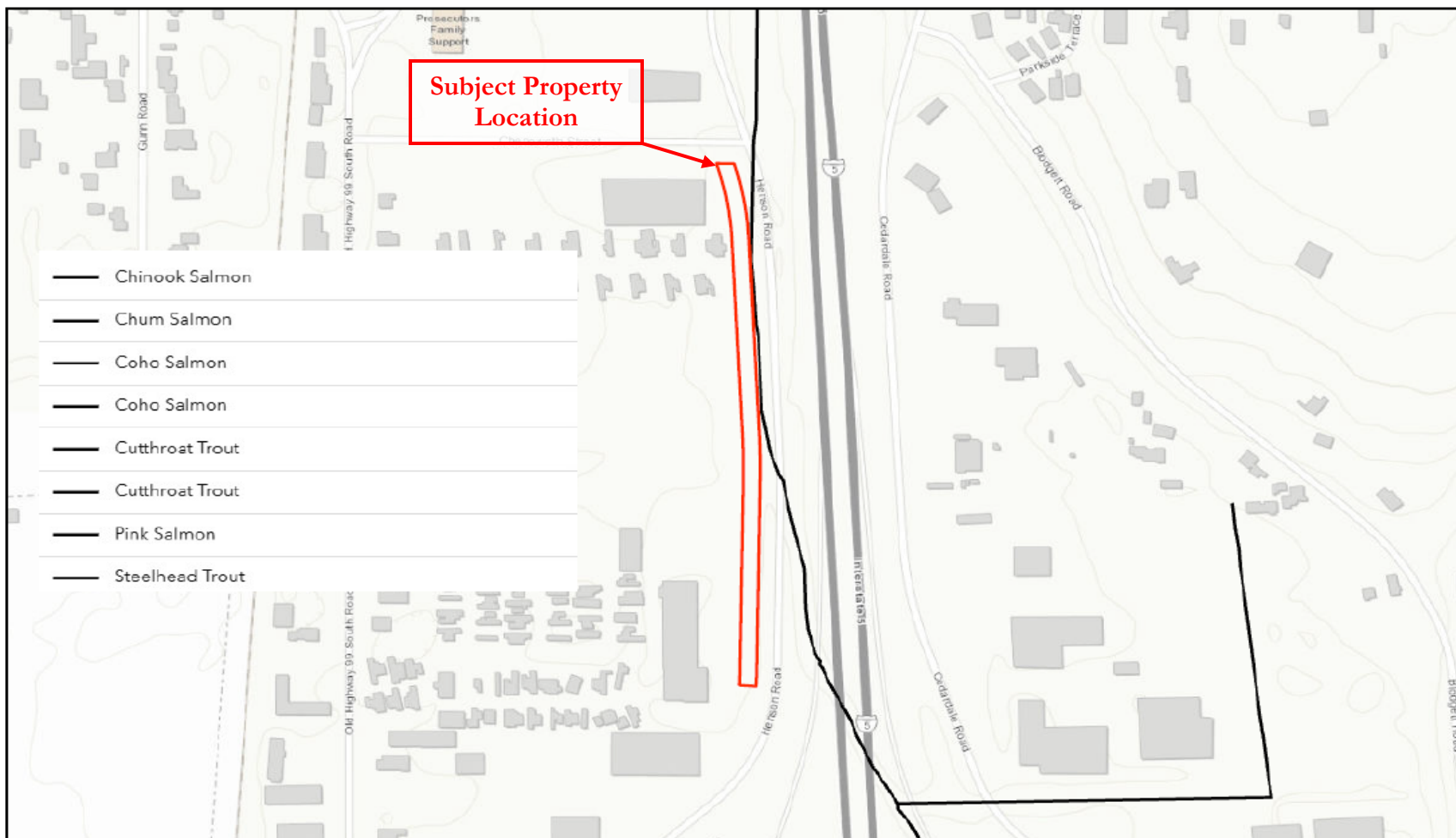
Freshwater Emergent Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Emergent Wetland - NWI Code: PEM1C
Source Dataset	NW/Wetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	<a href="http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html">http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html</a>
Geometry Type	Polygons

Freshwater Forested/Shrub Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PSSCx
Source Dataset	NW/Wetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	<a href="http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html">http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html</a>
Geometry Type	Polygons

Gray wolf	
Scientific Name	<i>Canis lupus</i>
Notes	This polygon mask represents one or more records of the above species or habitat occurrence. Contact PHS Data Release at <a href="mailto:phsproducts@dfw.wa.gov">phsproducts@dfw.wa.gov</a> for obtaining information about masked sensitive species and habitats.
Federal Status	Endangered
State Status	Endangered
PHS Listing Status	PHS Listed Occurrence
Sensitive	Y
SGCN	Y
Display Resolution	TOWNSHIP

DISCLAIMER. This report includes information that the Washington Department of Fish and Wildlife (WDFW) maintains in a central computer database. It is not an attempt to provide you with an official agency response as to the impacts of your project on fish and wildlife. This information only documents the location of fish and wildlife resources to the best of our knowledge. It is not a complete inventory and it is important to note that fish and wildlife resources may occur in areas not currently known to WDFW biologists, or in areas for which comprehensive surveys have not been conducted. Site specific surveys are frequently necessary to rule out the presence of priority resources. Locations of fish and wildlife resources are subject to variation caused by disturbance, changes in season and weather, and other factors. WDFW does not recommend using reports more than six months old.

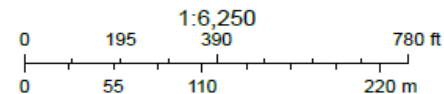
### Appendix B6 – WDFW and NWIFC-SWIFD Map



3/31/2024, 10:10:05 PM

Subject Property

All SalmonScape Species



County of Skagit, Island County, Bureau of Land Management, Province of British Columbia, Esri Canada, Esri, HERE, Garmin, INCREMENT P,

Soundview Consultants

Washington Geological Survey | WDFW | These data were collected by WDFW staff with contributions from the North Olympic Salmon Coalition and the Friends of the San Juans. | Source: USDA NRCS, Esri | U.S. Fish and Wildlife Service, National Standards and

### Appendix B7 – Skagit County FEMA 100-Year Floodplain Map

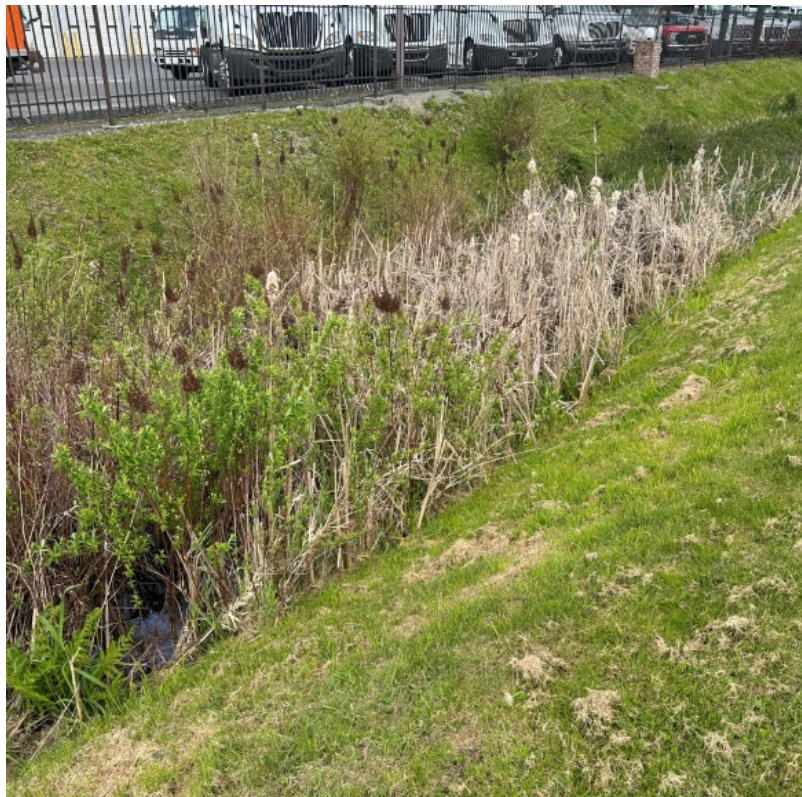


## Appendix B – Site Photographs

General Upland Conditions Onsite



Wetland A/Stream Z



## Appendix C –Data Forms

---

**WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region**

Project/Site: 2743.0001 / Henson Road City/County: Mt. Vernon / Skagit Sampling Date: 4/15/2024  
 Applicant/Owner: Skagit PUD State: WA Sampling Point: DP-1  
 Investigator(s): Elisabeth Gonzalez Section, Township, Range: 29, 34 N, 04 E  
 Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 2  
 Subregion (LRR): A2 Lat: 48.402859 Long: -122.33159939 Datum: WGS 84  
 Soil Map Unit Name: Urban land-Mt. Vernon-Field Complex NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: <p style="text-align: center;"><b>All three wetland criteria met. Data collected in Wetland A</b></p>	

**VEGETATION – Use scientific names of plants.**

	Absolute % Cover	Dominant Species?	Indicator Status															
<b>Tree Stratum</b> (Plot size: <u>30 ft</u> )																		
1. <u>Salix lasiandra</u>	<u>40</u>	Yes	FACW	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)  Total Number of Dominant Species Across All Strata: <u>4</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)														
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
_____	<u>40</u>	= Total Cover																
<b>Sapling/Shrub Stratum</b> (Plot size: <u>30 ft</u> )																		
1. <u>Spiraea douglasii</u>	<u>15</u>	Yes	FACW	<b>Prevalence Index worksheet:</b> <table style="width:100%; border-collapse: collapse;"> <tr> <td style="text-align: right;">Total % Cover of:</td> <td style="text-align: center;">Multiply by:</td> </tr> <tr> <td>OBL species <u>15</u></td> <td style="text-align: center;">x 1 = <u>15</u></td> </tr> <tr> <td>FACW species <u>85</u></td> <td style="text-align: center;">x 2 = <u>170</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td style="text-align: center;">x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td style="text-align: center;">x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td style="text-align: center;">x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>100</u> (A)</td> <td style="text-align: center;"><u>185</u> (B)</td> </tr> </table> Prevalence Index = B/A = <u>1.85</u>	Total % Cover of:	Multiply by:	OBL species <u>15</u>	x 1 = <u>15</u>	FACW species <u>85</u>	x 2 = <u>170</u>	FAC species <u>0</u>	x 3 = <u>0</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>100</u> (A)	<u>185</u> (B)
Total % Cover of:	Multiply by:																	
OBL species <u>15</u>	x 1 = <u>15</u>																	
FACW species <u>85</u>	x 2 = <u>170</u>																	
FAC species <u>0</u>	x 3 = <u>0</u>																	
FACU species <u>0</u>	x 4 = <u>0</u>																	
UPL species <u>0</u>	x 5 = <u>0</u>																	
Column Totals: <u>100</u> (A)	<u>185</u> (B)																	
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	<u>15</u>	= Total Cover																
<b>Herb Stratum</b> (Plot size: <u>10 ft</u> )																		
1. <u>Phalaris arundinacea</u>	<u>30</u>	Yes	FACW	<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.														
2. <u>Typha spp.**</u>	<u>15</u>	Yes	OBL															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____															
8. _____	_____	_____	_____															
9. _____	_____	_____	_____															
10. _____	_____	_____	_____															
11. _____	<u>45</u>	= Total Cover																
<b>Woody Vine Stratum</b> (Plot size: <u>30 ft</u> )																		
1. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>														
2. _____	_____	_____	_____															
% Bare Ground in Herb Stratum <u>55</u>				<u>0</u> = Total Cover														

Remarks:  
 Hydrophytic vegetation criteria met through the Rapid Test for Hydrophytic Vegetation.  
 \*\*Typha spp. assigned OBL indicator status for scoring purposes.



**WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region**

Project/Site: 2743.0001 / Henson Road City/County: Mt. Vernon / Skagit Sampling Date: 4/15/2024  
 Applicant/Owner: Skagit PUD State: WA Sampling Point: DP-2  
 Investigator(s): Elisabeth Gonzalez Section, Township, Range: 29, 34 N, 04 E  
 Landform (hillslope, terrace, etc.): Top of Slope Local relief (concave, convex, none): None Slope (%): 1  
 Subregion (LRR): A2 Lat: 48.402865 Long: -122.33155501 Datum: WGS 84  
 Soil Map Unit Name: Urban land-Mt. Vernon-Field Complex NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: <u>Not all three wetland criteria met; no hydric soil or wetland hydrology indicators observed. Data collected upland of Wetland A.</u>	

**VEGETATION – Use scientific names of plants.**

<u>Tree Stratum</u> (Plot size: <u>30 ft</u> )	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>0</u> = Total Cover				
Sapling/Shrub Stratum	(Plot size: <u>30 ft</u> )			
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>0</u> = Total Cover				
Herb Stratum	(Plot size: <u>10 ft</u> )			
1. <u>Poa pratensis</u>	<u>93</u>	<u>Yes</u>	<u>FAC</u>	
2. <u>Trifolium spp.**</u>	<u>15</u>	<u>No</u>	<u>FAC</u>	
3. <u>Ranunculus repens</u>	<u>2</u>	<u>No</u>	<u>FAC</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>110</u> = Total Cover				
Woody Vine Stratum	(Plot size: <u>30 ft</u> )			
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum <u>-10</u>				

**Dominance Test worksheet:**  
 Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)  
 Total Number of Dominant Species Across All Strata: 1 (B)  
 Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

**Prevalence Index worksheet:**  
 Total % Cover of: \_\_\_\_\_ Multiply by:  
 OBL species \_\_\_\_\_ x 1 = \_\_\_\_\_  
 FACW species \_\_\_\_\_ x 2 = \_\_\_\_\_  
 FAC species \_\_\_\_\_ x 3 = \_\_\_\_\_  
 FACU species \_\_\_\_\_ x 4 = \_\_\_\_\_  
 UPL species \_\_\_\_\_ x 5 = \_\_\_\_\_  
 Column Totals: \_\_\_\_\_ (A) \_\_\_\_\_ (B)  
 Prevalence Index = B/A = \_\_\_\_\_

**Hydrophytic Vegetation Indicators:**  
 Rapid Test for Hydrophytic Vegetation  
 Dominance Test is >50%  
 Prevalence Index is ≤3.0<sup>1</sup>  
 Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  
 Wetland Non-Vascular Plants<sup>1</sup>  
 Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)  
<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes  No

Remarks: Hydrophytic vegetation criteria met through the Dominance Test due to the dominance of FAC species. \*\*Trifolium spp. assigned FAC indicator status for scoring purposes.



## Appendix E – Wetland Rating Forms

---

Wetland name or number A

# RATING SUMMARY – Western Washington

Name of wetland (or ID #): A Date of site visit: 4/15/24  
 Rated by Elisabeth Gonzalez Trained by Ecology?  Yes  No Date of training \_\_\_\_\_  
 HGM Class used for rating Riverine Wetland has multiple HGM classes?  Y  N

**NOTE: Form is not complete without the figures requested (figures can be combined).**  
 Source of base aerial photo/map ESRI ArcGIS

**OVERALL WETLAND CATEGORY** III (based on functions  or special characteristics )

## 1. Category of wetland based on FUNCTIONS

- Category I** – Total score = 23 - 27
- Category II** – Total score = 20 - 22
- Category III** – Total score = 16 - 19
- Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
<i>Circle the appropriate ratings</i>				
Site Potential	M	M	L	
Landscape Potential	H	M	L	
Value	M	M	M	<b>TOTAL</b>
<b>Score Based on Ratings</b>	<b>7</b>	<b>6</b>	<b>4</b>	<b>17</b>

**Score for each function based on three ratings (order of ratings is not important)**

9 = H,H,H  
 8 = H,H,M  
 7 = H,H,L  
 7 = H,M,M  
 6 = H,M,L  
 6 = M,M,M  
 5 = H,L,L  
 5 = M,M,L  
 4 = M,L,L  
 3 = L,L,L

## 2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	<b>I    II</b>
Wetland of High Conservation Value	<b>I</b>
Bog	<b>I</b>
Mature Forest	<b>I</b>
Old Growth Forest	<b>I</b>
Coastal Lagoon	<b>I    II</b>
Interdunal	<b>I   II   III   IV</b>
None of the above	N/A

Wetland name or number A

## Maps and figures required to answer questions correctly for Western Washington

### Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet ( <i>can be added to map of hydroperiods</i> )	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

### Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream ( <i>can be added to another figure</i> )	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

### Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

### Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of <b>dense</b> trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of <b>dense, rigid</b> trees, shrubs, and herbaceous plants ( <i>can be added to figure above</i> )	S 4.1	
Boundary of 150 ft buffer ( <i>can be added to another figure</i> )	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

Wetland name or number A

## HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

- NO – go to 2                                       YES – the wetland class is **Tidal Fringe** – go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

- NO – **Saltwater Tidal Fringe (Estuarine)**                                       YES – **Freshwater Tidal Fringe**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

- NO – go to 3                                       YES – The wetland class is **Flats**  
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?

- The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;  
 At least 30% of the open water area is deeper than 6.6 ft (2 m).

- NO – go to 4                                       YES – The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?

- The wetland is on a slope (*slope can be very gradual*),  
 The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,  
 The water leaves the wetland **without being impounded**.

- NO – go to 5                                       YES – The wetland class is **Slope**

**NOTE:** Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?

- The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,  
 The overbank flooding occurs at least once every 2 years.

Wetland name or number A NO – go to 6 **YES** – The wetland class is **Riverine****NOTE:** The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

 NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

A

 NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. **GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT** (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

**NOTE:** Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have **more than 2 HGM classes** within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number A**RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS****Water Quality Functions - Indicators that the site functions to improve water quality**

R 1.0. Does the site have the potential to improve water quality?		
R 1.1. Area of surface depressions within the Riverine wetland that can trap sediments during a flooding event:		
Depressions cover $> \frac{3}{4}$ area of wetland	points = 8	0
Depressions cover $> \frac{1}{2}$ area of wetland	points = 4	
Depressions present but cover $< \frac{1}{2}$ area of wetland	points = 2	
No depressions present	points = 0	
R 1.2. Structure of plants in the wetland (areas with $>90\%$ cover at person height, <b>not</b> Cowardin classes)		
Trees or shrubs $> \frac{2}{3}$ area of the wetland	points = 8	6
Trees or shrubs $> \frac{1}{3}$ area of the wetland	points = 6	
Herbaceous plants ( $> 6$ in high) $> \frac{2}{3}$ area of the wetland	points = 6	
Herbaceous plants ( $> 6$ in high) $> \frac{1}{3}$ area of the wetland	points = 3	
Trees, shrubs, and ungrazed herbaceous $< \frac{1}{3}$ area of the wetland	points = 0	
Total for R 1	Add the points in the boxes above	6

**Rating of Site Potential** If score is: 12-16 = H X 6-11 = M 0-5 = L*Record the rating on the first page*

R 2.0. Does the landscape have the potential to support the water quality function of the site?		
R 2.1. Is the wetland within an incorporated city or within its UGA?	Yes = 2 No = 0	2
R 2.2. Does the contributing basin to the wetland include a UGA or incorporated area?	Yes = 1 No = 0	1
R 2.3. Does at least 10% of the contributing basin contain tilled fields, pastures, or forests that have been clearcut within the last 5 years?	Yes = 1 No = 0	0
R 2.4. Is $> 10\%$ of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0	1
R 2.5. Are there other sources of pollutants coming into the wetland that are not listed in questions R 2.1-R 2.4 Other sources _____	Yes = 1 No = 0	0
Total for R 2	Add the points in the boxes above	4

**Rating of Landscape Potential** If score is: X 3-6 = H 1 or 2 = M 0 = L*Record the rating on the first page*

R 3.0. Is the water quality improvement provided by the site valuable to society?		
R 3.1. Is the wetland along a stream or river that is on the 303(d) list or on a tributary that drains to one within 1 mi?	Yes = 1 No = 0	1
R 3.2. Is the wetland along a stream or river that has TMDL limits for nutrients, toxics, or pathogens?	Yes = 1 No = 0	0
R 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? ( <i>answer YES if there is a TMDL for the drainage in which the unit is found</i> )	Yes = 2 No = 0	0
Total for R 3	Add the points in the boxes above	1

**Rating of Value** If score is: 2-4 = H X 1 = M 0 = L*Record the rating on the first page*

Wetland name or number A

**RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS**

**Hydrologic Functions - Indicators that site functions to reduce flooding and stream erosion**

R 4.0. Does the site have the potential to reduce flooding and erosion?		
R 4.1. Characteristics of the overbank storage the wetland provides: <i>Estimate the average width of the wetland perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (average width of wetland)/(average width of stream between banks).</i> If the ratio is more than 20 If the ratio is 10-20 If the ratio is 5-<10 If the ratio is 1-<5 If the ratio is < 1	points = 9 points = 6 points = 4 points = 2 points = 1	2
R 4.2. Characteristics of plants that slow down water velocities during floods: <i>Treat large woody debris as forest or shrub. Choose the points appropriate for the best description (polygons need to have &gt;90% cover at person height. These are NOT Cowardin classes).</i> Forest or shrub for > <sup>1</sup> / <sub>3</sub> area OR emergent plants > <sup>2</sup> / <sub>3</sub> area Forest or shrub for > <sup>1</sup> / <sub>10</sub> area OR emergent plants > <sup>1</sup> / <sub>3</sub> area Plants do not meet above criteria	points = 7 points = 4 points = 0	4
Total for R 4	Add the points in the boxes above	6

**Rating of Site Potential** If score is: 12-16 = H  6-11 = M  0-5 = L Record the rating on the first page

R 5.0. Does the landscape have the potential to support the hydrologic functions of the site?		
R 5.1. Is the stream or river adjacent to the wetland downcut?	Yes = 0 No = 1	0
R 5.2. Does the up-gradient watershed include a UGA or incorporated area?	Yes = 1 No = 0	1
R 5.3. Is the up-gradient stream or river controlled by dams?	Yes = 0 No = 1	1
Total for R 5	Add the points in the boxes above	2

**Rating of Landscape Potential** If score is:  3 = H  1 or 2 = M  0 = L Record the rating on the first page

R 6.0. Are the hydrologic functions provided by the site valuable to society?		
R 6.1. Distance to the nearest areas downstream that have flooding problems? <i>Choose the description that best fits the site.</i> The sub-basin immediately down-gradient of the wetland has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) Surface flooding problems are in a sub-basin farther down-gradient No flooding problems anywhere downstream	points = 2 points = 1 points = 0	1
R 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for R 6	Add the points in the boxes above	1

**Rating of Value** If score is:  2-4 = H  1 = M  0 = L Record the rating on the first page

Wetland name or number A

**These questions apply to wetlands of all HGM classes.**

**HABITAT FUNCTIONS** - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class. Check the Cowardin plant classes in the wetland. Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

- Aquatic bed 4 structures or more: points = 4
  - Emergent 3 structures: points = 2
  - Scrub-shrub (areas where shrubs have > 30% cover) 2 structures: points = 1
  - Forested (areas where trees have > 30% cover) 1 structure: points = 0
- If the unit has a Forested class, check if:*
- The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

1

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

- Permanently flooded or inundated 4 or more types present: points = 3
- Seasonally flooded or inundated 3 types present: points = 2
- Occasionally flooded or inundated 2 types present: points = 1
- Saturated only 1 type present: points = 0
- Permanently flowing stream or river in, or adjacent to, the wetland
- Seasonally flowing stream in, or adjacent to, the wetland
- Lake Fringe wetland** **2 points**
- Freshwater tidal wetland** **2 points**

1

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft<sup>2</sup>.

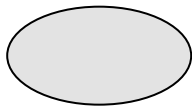
*Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*

- If you counted: > 19 species points = 2
- 5 - 19 species points = 1
- < 5 species points = 0

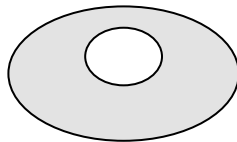
1

H 1.4. Interspersion of habitats

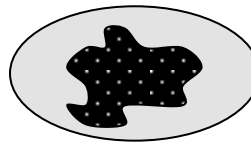
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*



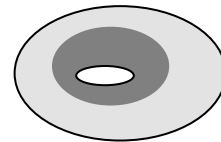
None = 0 points



Low = 1 point

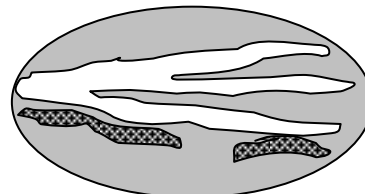
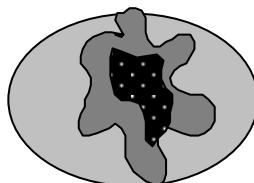
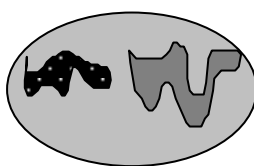


Moderate = 2 points



1

All three diagrams in this row are **HIGH** = 3points



Wetland name or number A

<p>H 1.5. Special habitat features:                  Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i>  <input type="checkbox"/> Large, downed, woody debris within the wetland (&gt; 4 in diameter and 6 ft long).  <input type="checkbox"/> Standing snags (dbh &gt; 4 in) within the wetland  <input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2 m) <b>and/or</b> overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)  <input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (&gt; 30 degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>)  <input type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>)  <input type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>)</p>		0
Total for H 1	Add the points in the boxes above	4

**Rating of Site Potential** If score is: 15-18 = H 7-14 = M  0-6 = L *Record the rating on the first page*

<p>H 2.0. Does the landscape have the potential to support the habitat functions of the site?</p>		
<p>H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>).                  Calculate: <input type="text" value="0.00"/> % undisturbed habitat + [(% moderate and low intensity land uses) <input type="text" value="1.17"/> /2] = <u>0.585</u> %                  If total accessible habitat is:                  &gt; 1/3 (33.3%) of 1 km Polygon <span style="float: right;">points = 3</span>                  20-33% of 1 km Polygon <span style="float: right;">points = 2</span>                  10-19% of 1 km Polygon <span style="float: right;">points = 1</span>                  &lt; 10% of 1 km Polygon <span style="float: right;">points = 0</span></p>		0
<p>H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.                  Calculate: <input type="text" value="7.56"/> % undisturbed habitat + [(% moderate and low intensity land uses) <input type="text" value="13.48"/> /2] = <u>14.3</u> %                  Undisturbed habitat &gt; 50% of Polygon <span style="float: right;">points = 3</span>                  Undisturbed habitat 10-50% and in 1-3 patches <span style="float: right;">points = 2</span>                  Undisturbed habitat 10-50% and &gt; 3 patches <span style="float: right;">points = 1</span>                  Undisturbed habitat &lt; 10% of 1 km Polygon <span style="float: right;">points = 0</span></p>		1
<p>H 2.3. Land use intensity in 1 km Polygon: If                  &gt; 50% of 1 km Polygon is high intensity land use <span style="float: right;">points = (- 2)</span>                  ≤ 50% of 1 km Polygon is high intensity <span style="float: right;">points = 0</span></p>		-2
Total for H 2	Add the points in the boxes above	-1

**Rating of Landscape Potential** If score is: 4-6 = H 1-3 = M  < 1 = L *Record the rating on the first page*

<p>H 3.0. Is the habitat provided by the site valuable to society?</p>		
<p>H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? <i>Choose only the highest score that applies to the wetland being rated.</i>                  Site meets ANY of the following criteria: <span style="float: right;">points = 2</span>  <input type="checkbox"/> It has 3 or more priority habitats within 100 m (see next page)  <input type="checkbox"/> It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)  <input type="checkbox"/> It is mapped as a location for an individual WDFW priority species  <input type="checkbox"/> It is a Wetland of High Conservation Value as determined by the Department of Natural Resources  <input type="checkbox"/> It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan  <input checked="" type="checkbox"/> Site has 1 or 2 priority habitats (listed on next page) within 100 m <span style="float: right;">points = 1</span>                  Site does not meet any of the criteria above <span style="float: right;">points = 0</span></p>		1

**Rating of Value** If score is: 2 = H  1 = M 0 = L *Record the rating on the first page*

Wetland name or number   A  

## WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. <http://wdfw.wa.gov/publications/00165/wdfw00165.pdf> or access the list from here: <http://wdfw.wa.gov/conservation/phs/list/>)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: **NOTE:** *This question is independent of the land use between the wetland unit and the priority habitat.*

- **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
- **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha ) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ✗ **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ✗ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

**Note:** All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number A

**CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS**

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
<p><b>SC 1.0. Estuarine wetlands</b></p> <p>Does the wetland meet the following criteria for Estuarine wetlands?</p> <p><input type="checkbox"/> The dominant water regime is tidal,  <input type="checkbox"/> Vegetated, and  <input type="checkbox"/> With a salinity greater than 0.5 ppt</p> <p style="text-align: right;"><input type="checkbox"/> Yes –Go to <b>SC 1.1</b>   <input checked="" type="checkbox"/> No= <b>Not an estuarine wetland</b></p>	
<p>SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151?</p> <p style="text-align: right;"><input type="checkbox"/> Yes = <b>Category I</b>   <input type="checkbox"/> No - Go to <b>SC 1.2</b></p>	
<p>SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions?</p> <p><input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are <i>Spartina</i>, see page 25)</p> <p><input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland.</p> <p><input type="checkbox"/> The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.</p> <p style="text-align: right;"><input type="checkbox"/> Yes = <b>Category I</b>   <input type="checkbox"/> No = <b>Category II</b></p>	
<p><b>SC 2.0. Wetlands of High Conservation Value (WHCV)</b></p> <p>SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value?</p> <p style="text-align: right;"><input type="checkbox"/> Yes – Go to <b>SC 2.2</b>   <input checked="" type="checkbox"/> No – Go to <b>SC 2.3</b></p> <p>SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?</p> <p style="text-align: right;"><input type="checkbox"/> Yes = <b>Category I</b>   <input checked="" type="checkbox"/> No = <b>Not a WHCV</b></p> <p>SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland?  <a href="http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf">http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf</a></p> <p style="text-align: right;"><input type="checkbox"/> Yes – <b>Contact WNHP/WDNR and go to SC 2.4</b>   <input checked="" type="checkbox"/> No = <b>Not a WHCV</b></p> <p>SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website?</p> <p style="text-align: right;"><input type="checkbox"/> Yes = <b>Category I</b>   <input checked="" type="checkbox"/> No = <b>Not a WHCV</b></p>	
<p><b>SC 3.0. Bogs</b></p> <p>Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i></p> <p>SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile?</p> <p style="text-align: right;"><input type="checkbox"/> Yes – Go to <b>SC 3.3</b>   <input checked="" type="checkbox"/> No – Go to <b>SC 3.2</b></p> <p>SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond?</p> <p style="text-align: right;"><input type="checkbox"/> Yes – Go to <b>SC 3.3</b>   <input checked="" type="checkbox"/> No = <b>Is not a bog</b></p> <p>SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4?</p> <p style="text-align: right;"><input type="checkbox"/> Yes = <b>Is a Category I bog</b>   <input type="checkbox"/> No – Go to <b>SC 3.4</b></p> <p><b>NOTE:</b> If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog.</p> <p>SC 3.4. Is an area with peats or mucks forested (&gt; 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy?</p> <p style="text-align: right;"><input type="checkbox"/> Yes = <b>Is a Category I bog</b>   <input type="checkbox"/> No = <b>Is not a bog</b></p>	

Wetland name or number A

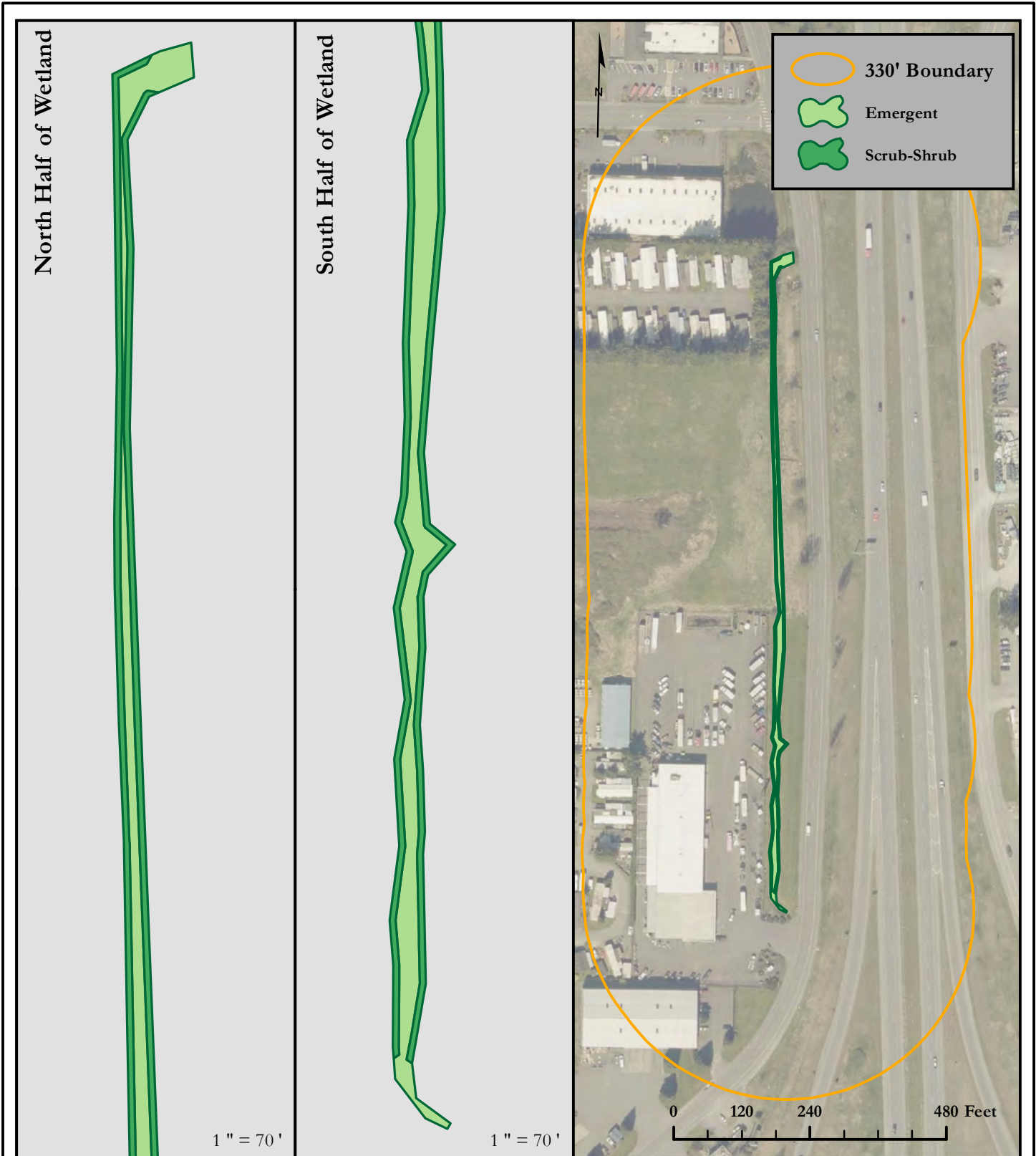
<p><b>SC 4.0. Forested Wetlands</b></p> <p>Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <b><i>If you answer YES you will still need to rate the wetland based on its functions.</i></b></p> <ul style="list-style-type: none"> <li>— <b>Old-growth forests</b> (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.</li> <li>— <b>Mature forests</b> (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).</li> </ul> <p style="text-align: right;"><input type="checkbox"/> Yes = <b>Category I</b>   <input checked="" type="checkbox"/> No = <b>Not a forested wetland for this section</b></p>	
<p><b>SC 5.0. Wetlands in Coastal Lagoons</b></p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <ul style="list-style-type: none"> <li>— The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks</li> <li>— The lagoon in which the wetland is located contains ponded water that is saline or brackish (&gt; 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>)</li> </ul> <p style="text-align: right;"><input type="checkbox"/> Yes – Go to <b>SC 5.1</b>   <input checked="" type="checkbox"/> No = <b>Not a wetland in a coastal lagoon</b></p> <p>SC 5.1. Does the wetland meet all of the following three conditions?</p> <ul style="list-style-type: none"> <li>— The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).</li> <li>— At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland.</li> <li>— The wetland is larger than 1/10 ac (4350 ft<sup>2</sup>)</li> </ul> <p style="text-align: right;"><input type="checkbox"/> Yes = <b>Category I</b>   <input type="checkbox"/> No = <b>Category II</b></p>	
<p><b>SC 6.0. Interdunal Wetlands</b></p> <p>Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <b><i>If you answer yes you will still need to rate the wetland based on its habitat functions.</i></b></p> <p>In practical terms that means the following geographic areas:</p> <ul style="list-style-type: none"> <li>— Long Beach Peninsula: Lands west of SR 103</li> <li>— Grayland-Westport: Lands west of SR 105</li> <li>— Ocean Shores-Copalis: Lands west of SR 115 and SR 109</li> </ul> <p style="text-align: right;"><input type="checkbox"/> Yes – Go to <b>SC 6.1</b>   <input checked="" type="checkbox"/> No = <b>not an interdunal wetland for rating</b></p> <p>SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? <span style="float: right;"><input type="checkbox"/> Yes = <b>Category I</b>   <input type="checkbox"/> No – Go to <b>SC 6.2</b></span></p> <p>SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? <span style="float: right;"><input type="checkbox"/> Yes = <b>Category II</b>   <input type="checkbox"/> No – Go to <b>SC 6.3</b></span></p> <p>SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? <span style="float: right;"><input type="checkbox"/> Yes = <b>Category III</b>   <input type="checkbox"/> No = <b>Category IV</b></span></p>	
<p><b>Category of wetland based on Special Characteristics</b></p> <p>If you answered No for all types, enter "Not Applicable" on Summary Form</p>	

Wetland name or number A

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## Appendix F – Wetland Rating Figures

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**Soundview Consultants LLC**  
 Environmental Assessment • Planning • Land Use Solutions  
 2907 Harborview Dr., Suite D, Gig Harbor, WA 98335  
 Phone: (253) 514-8952 Fax: (253) 514-8954  
[www.soundviewconsultants.com](http://www.soundviewconsultants.com)

**HENSON ROAD**  
 ADJACENT NW OF 2501 HENSON ROAD  
 MT VERNON, WA  
 SKAGIT COUNTY PARCEL NUMBER:  
 P133080

DATE: 4/17/2024
JOB: 2743.0001
BY: DDS
SCALE: 1" = 242'
FIGURE NO. 1 of 6




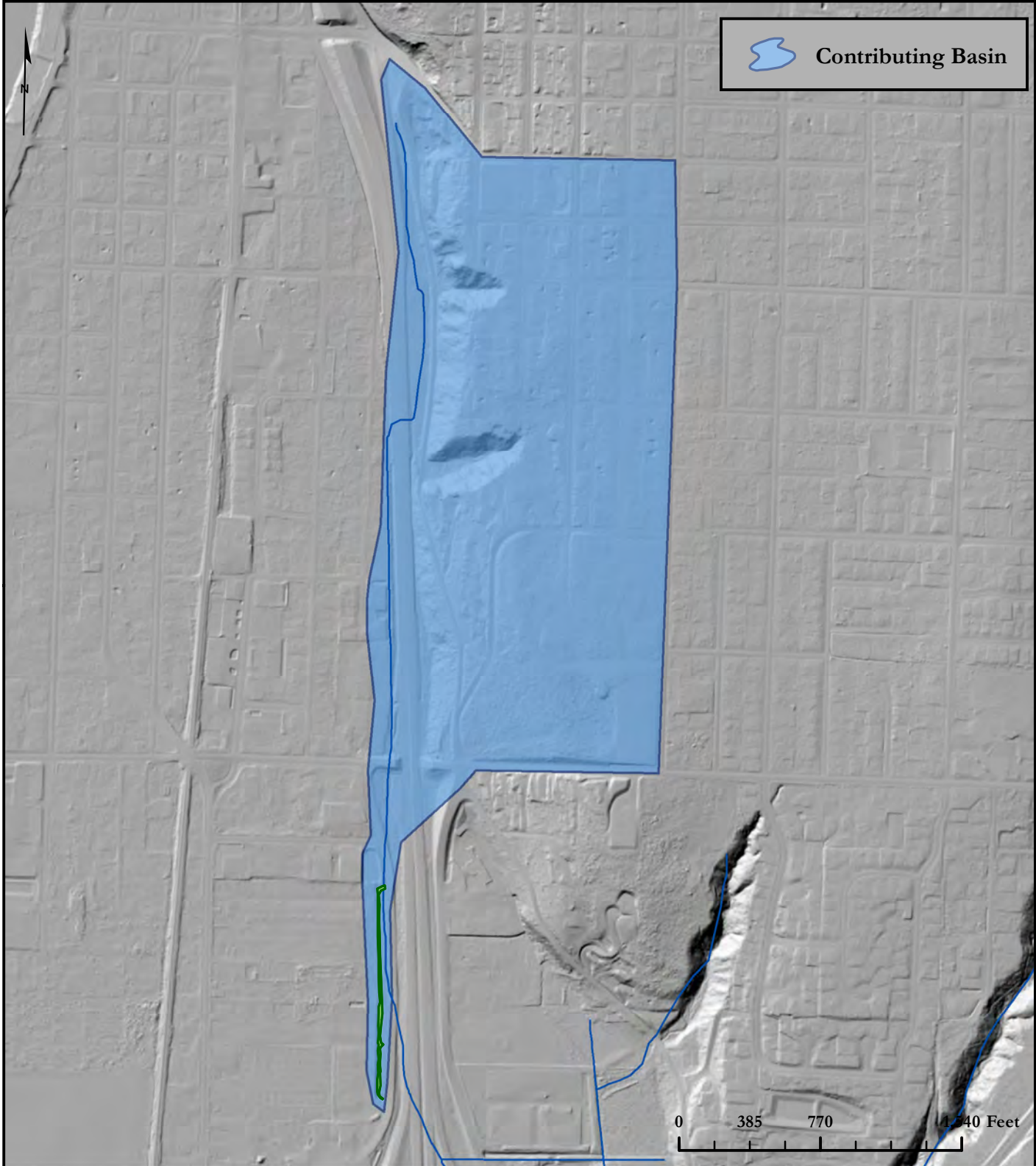
  
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SKAGIT COUNTY PARCEL NUMBER:  
P133080

DATE: 4/17/2024
JOB: 2743.0001
BY: DDS
SCALE: 1" = 200'
FIGURE NO. 2 of 6

CONTRIBUTING BASIN MAP Exhibit B

 Contributing Basin



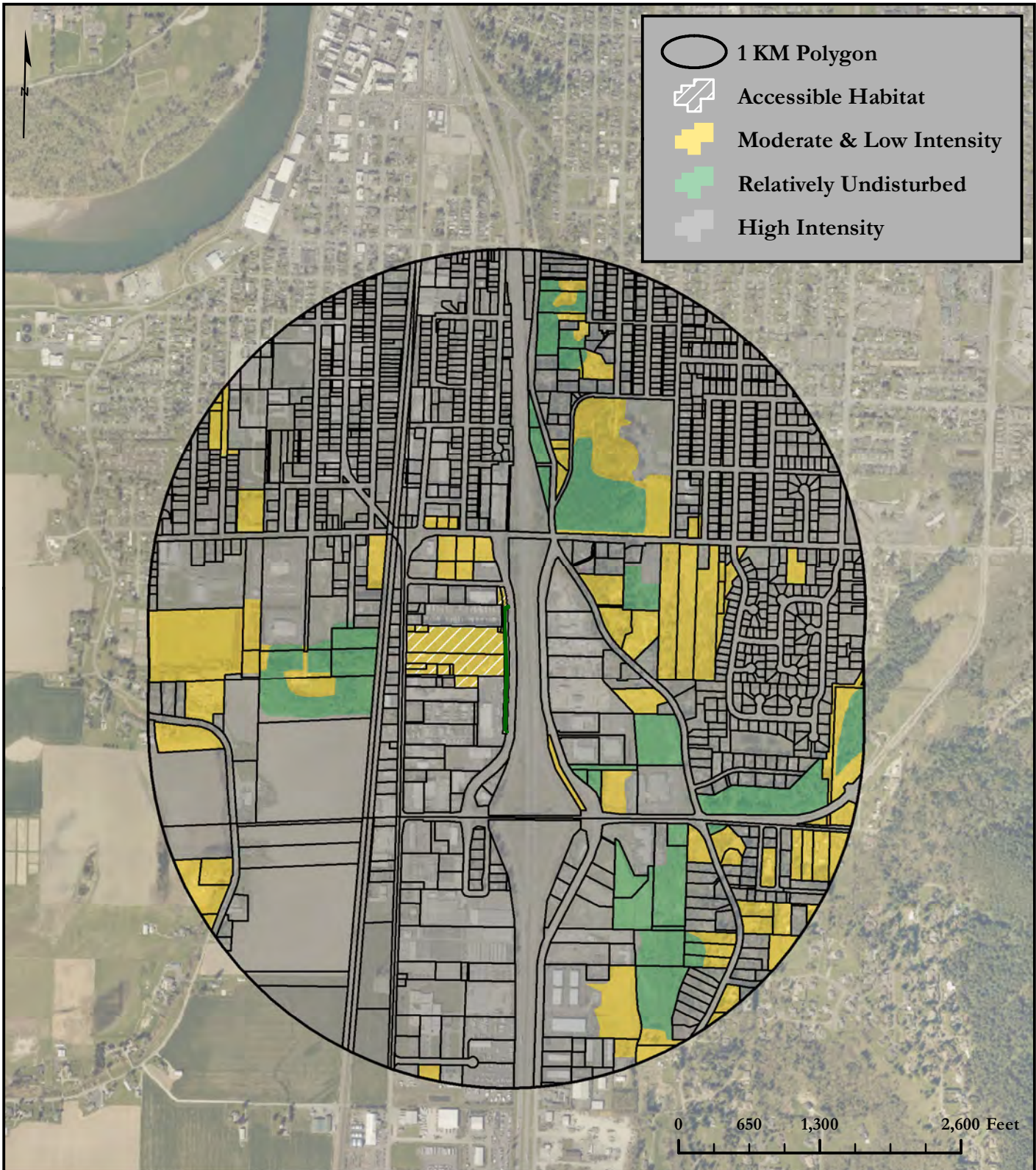
0 385 770 1,540 Feet



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P133080

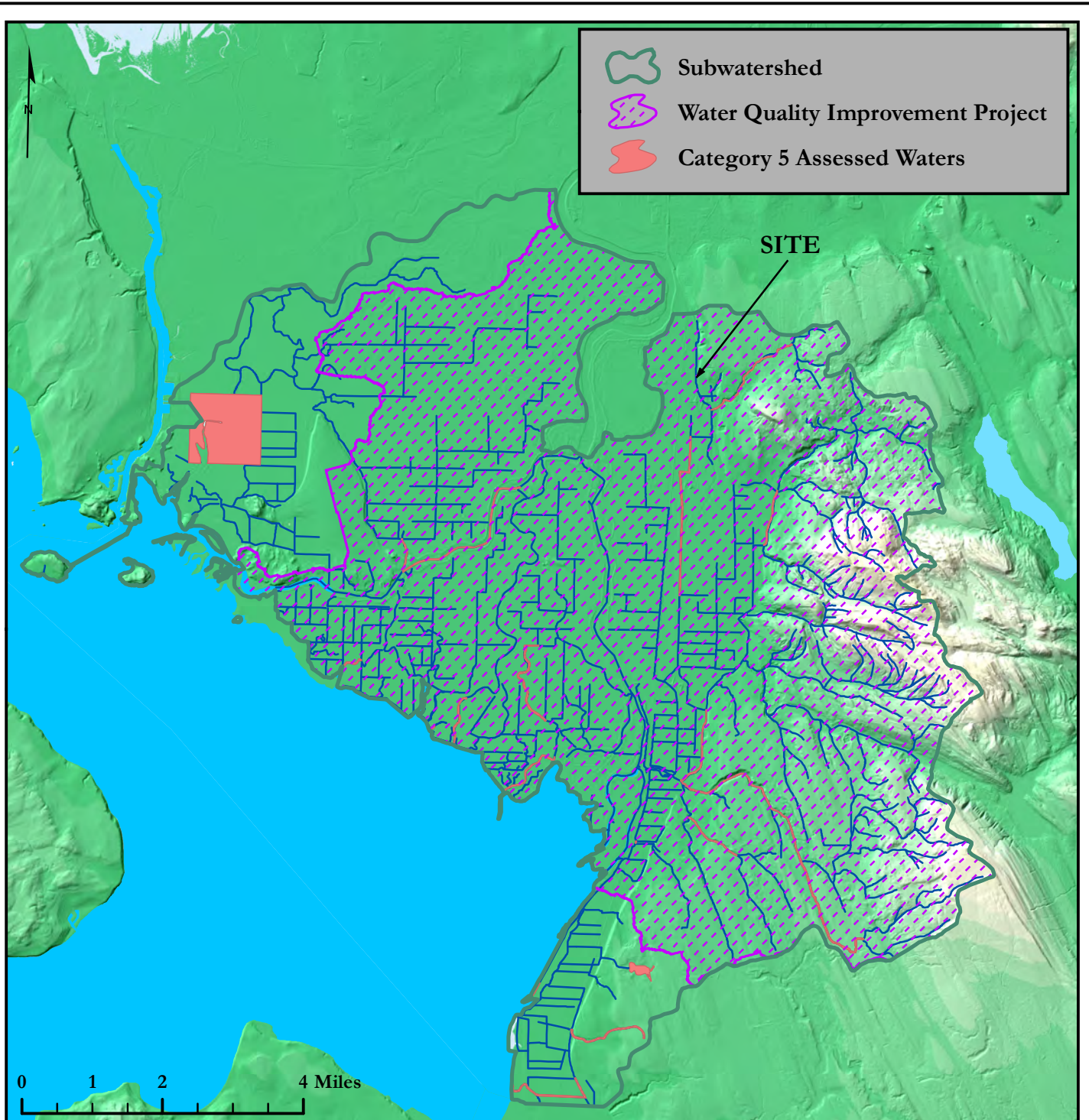
DATE: 4/17/2024
JOB: 2743.0001
BY: DDS
SCALE: 1" = 770'
FIGURE NO. 3 of 6




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 MT VERNON, WA  
 SKAGIT COUNTY PARCEL NUMBER:  
 P133080

DATE: 4/17/2024
JOB: 2743.0001
BY: DDS
SCALE: 1" = 1,300'
FIGURE NO. 4 of 6



Name	Pollutants	TMDL ID	WRIA	Year Approved
Lower Skagit River Tributaries Temperature TMDL	Temperature	90	3	2008
Lower Skagit Basin Bacteria TMDL	Bacteria	32	3	2000



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**HENSON ROAD**  
 ADJACENT NW OF 2501 HENSON ROAD  
 MT VERNON, WA  
 SKAGIT COUNTY PARCEL NUMBER:  
 P133080

DATE: 4/17/2024  
 JOB: 2743.0001  
 BY: DDS  
 SCALE: 1" = 2 mi  
 FIGURE NO. 5 of 6

# CONTRIBUTING BASIN & HABITAT DATA Exhibit B

## CONTRIBUTING DATA:

D.4.0		
D.4.3		
	Area of Contributing Basin (SF)	5,754,543
	Area of Wetland A (SF)	14,746
	<b>Percent of Wetland A within Contributing Basin</b>	<b>0.256%</b>
D.5.0		
D.5.3		
	<b>Is the Percent of Intensive Human Land Use within Contributing Basin &gt;25%</b>	<b>YES</b>

## HABITAT DATA:

H.2.0		
H.2.1	Wetland A	
	Abutting Undisturbed Habitat	0.00%
	Abutting Moderate & Low Intensity Land Uses	1.17%
	<b>Accessible Habitat</b>	<b>0.58%</b>
H.2.2		
	Undisturbed Habitat	7.56%
	Moderate & Low Intensity Land Uses	13.48%
	<b>Undisturbed Habitat in 1 KM Polygon</b>	<b>14.30%</b>
H.2.3		
	<b>High Intensity Land Use in 1 KM Polygon</b>	<b>78.96%</b>



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### HENSON ROAD

ADJACENT NW OF 2501 HENSON ROAD  
 MT VERNON, WA

SKAGIT COUNTY PARCEL NUMBER:  
 P133080

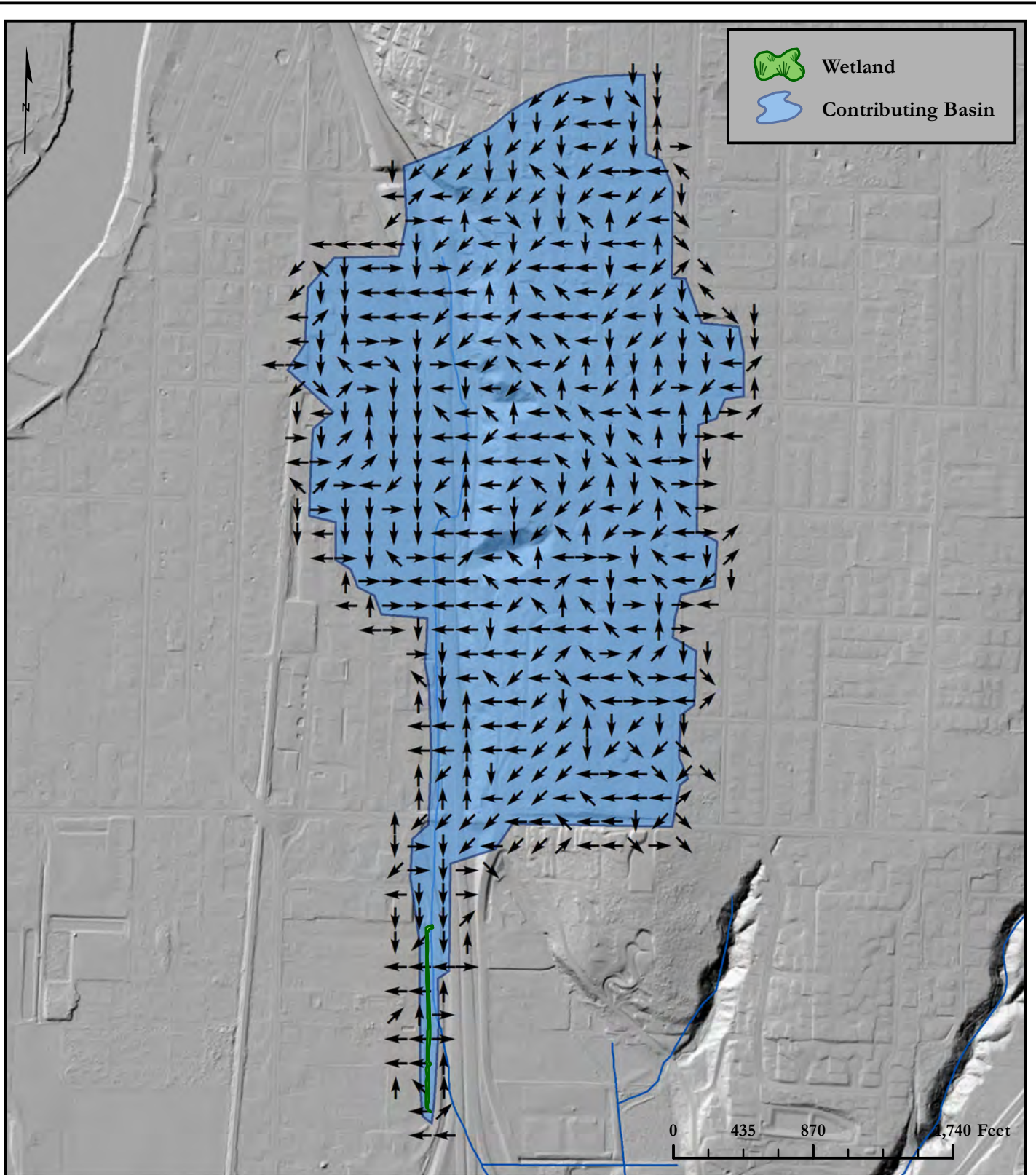
DATE: 4/17/2024

JOB: 2743.0001

BY: DDS

SCALE: NONE

FIGURE NO. **6** of 6




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**HENSON ROAD**  
 ADJACENT NW OF 2501 HENSON ROAD  
 MT VERNON, WA  
 SKAGIT COUNTY PARCEL NUMBER:  
 P133080

DATE: 5/5/2024
JOB: 2743.0001
BY: DDS
SCALE: 1" = 870'
FIGURE NO. 1

## Appendix G – Qualifications

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All field inspections, jurisdictional wetland boundary delineations, habitat assessments, and supporting documentation, including this *Wetland and Fish and Wildlife Habitat Assessment Report* prepared for the *Henson Road* project were prepared by, or under the direction of, Jon Pickett of SVC. In addition, the site investigation was completed by Elisabeth Gonzalez, report preparation was completed by John Clark, and final quality assurance was completed by Morgan Kentch.

**Jon Pickett** is a Principal with 15 years of professional experience. Jon has a background in environmental and shoreline compliance and permitting, wetland and stream ecology, fish and wildlife biology, mitigation compliance and design, and environmental planning and land use due diligence. Jon oversees a wide range of large-scale industrial, commercial, and multi-family residential projects throughout Western Washington, providing environmental permitting and regulatory compliance assistance for land use entitlement projects from feasibility through mitigation compliance. Jon performs wetland, stream, and shoreline delineations and fish & wildlife habitat assessments; conducts code and regulation analysis and review; prepares reports and permit applications and documents; provides environmental compliance recommendation; and provides restoration and mitigation design.

*Education:* Bachelor of Science degree in Natural Resource Sciences from Washington State University and Bachelor of Science and Minor in Forestry from Washington State University. *Professional Trainings:* 40-hour wetland delineation training (Western Mountains, Valleys, & Coast and Arid West Regional Supplements); and trainings from Washington State Department of Ecology (WSDOE) Using the Revised Washington State Wetland Rating System (2014) in Western Washington How to Determine the Ordinary High-Water Mark (Freshwater and Marine), Using Field Indicators for Hydric Soils, and the Using the Credit-Debit Method for Estimating Mitigation Needs. *Qualified Author and Scientist Lists:* Whatcom County Qualified Wetland Specialist and Wildlife Biologist and is a Pierce County Qualified Wetland Specialist.

**John Clark** is a Project Manager and Senior Scientist with 10 years of professional experience. John has a professional background in environmental and shoreline compliance and permitting, wetland and stream ecology, fish and wildlife biology, mitigation compliance and design, and environmental planning and land use due diligence. John oversees a wide range of large-scale industrial, commercial, and multi-family residential projects throughout Western Washington, providing environmental permitting and regulatory compliance assistance for land use entitlement projects from feasibility through mitigation compliance. John performs wetland, stream, and shoreline delineations and fish & wildlife habitat assessments; conducts code and regulation analysis and review; prepares reports and permit applications and documents; provides environmental compliance recommendation; and provides restoration and mitigation design.

*Education:* Bachelor of Science degree in Environmental Conservation, Advanced GIS and Wetland Delineation Certification from Skagit Valley College.

**Elisabeth Gonzalez** is an Environmental Project Manager and Scientist with 3 years of professional experience. Elisabeth has a background in project management, shoreline permitting, forest and marine ecology, and wetland delineations. Elisabeth brings experience in managing bulkhead repair and replacement projects, single-family residence planning and wetland delineations, and extensive permitting projects for marina renovations. Previously, she has managed multiple shoreline projects

in assisting clients with permitting processes while implementing regulations within engineering designs. She completed her training in wetland delineations with the Wetland Training Institute in October of 2021 and has since been involved in wetland delineations all across western Washington. Elisabeth has also completed two internships with the US Forest Service and Maui Ocean Center, where she performed a variety of research-based field work and worked as a research assistant with Saving the Blue collecting data on shark species and environmental impacts on the ocean.

*Education:* Bachelor of Science in Environmental Science with a concentration in Forest and Marine Ecology and Oceanography from the University of Colorado, Boulder.

**Morgan Kentch** is an Environmental Scientist with 5 years of professional experience. She has a background in marine and freshwater ecology, wildlife and natural resource assessments, and monitoring wetland and riparian habitat restoration sites in the Pacific Northwest. She currently assists with performing wetland, stream, and shoreline delineations and fish and wildlife habitat assessments, conducting environmental code analysis, and preparing and/or providing final quality assurance/control for various types of scientific reports and permits for agency submittal. Her noteworthy experiences include analyzing datasets for wetland hydrology monitoring, collecting eDNA samples from streams for analysis, providing document quality assurance on critical area reports, mitigation plans, and permitting documents prior to submittal, and assisting with Endangered Species Act documentation for federal permit submittals.

*Education:* Bachelor of Science degree in Biology with Marine Emphasis from Western Washington University, Bellingham.

*Professional Training:* 40-hour wetland delineation training (Western Mountains, Valleys, and Coast and Arid West Regional Supplements), Using the 2014 Wetland Rating System, How to Determine the Ordinary High Water Mark, and Using the 2021 Interagency Wetland Mitigation Guidance.

*Qualified Author and Scientists Lists:* Pierce County Wetland Specialist



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**NOTICE**  
SEPA DETERMINATION OF NON-SIGNIFICANCE

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**Project Name:** Pipeline Relocation at Henson Road (Project)

**Description of Proposal:** This project includes the construction (relocation) of approximately 300 linear feet of 12-inch PVC water pipeline in the public right of way and private easements to the west of Henson Road. The waterline will be bored under Martha Washington Creek using horizontal direction drilling (HDD) trenchless method. The waterline will be tied into the existing with approximately 20-foot trenched sections. The existing 12-inch ductile iron waterline will be cut and capped on both sides of Martha Washington Creek; the section within WSDOT's project limits will be removed. The project is proposed to be constructed in fall of 2024.

**Proponent and Lead Agency:** Skagit PUD

**Location of Proposal:** The project is located along Henson, north of Anderson Road in City of Mount Vernon Right of Way, and in private easements west of Henson Road in Mount Vernon, Skagit County, within the SW Quarter of Section 32 Township 34, Range 04 East, Willamette Meridian.

**Threshold Determination:** Skagit PUD, acting as lead agency for this proposal, has determined the project does not have a probable significant adverse impact on the environment. An environmental impact statement (EIS) is not required under RCW 43.21C.030(2)(c). This determination was made after review of a completed environmental checklist and other information on file with the lead agency. This information is available to the public upon request. This determination is issued pursuant to WAC 197-11-340(2). The lead agency will not act on this proposal for 14 calendar days from the date issued.

**Comments:** Comments regarding this Determination of Non-significance must be submitted to the Lead Agency in writing by April 23, 2024. Send comments to the attention of Wendy LaRocque, Project Manager - Environmental Compliance, at the address listed below.

**SEPA Responsible Official:** Mark Handzlik, P.E., Engineering Manager

**Staff Contact Person:** Wendy LaRocque, Project Manager – Environmental Compliance  
1415 Freeway Drive  
Mount Vernon, WA 98273-1436  
(360) 399-5274 / larocque@skagitpud.org

**Date of Issuance:** April 9, 2024

**Signature:**   
Mark Handzlik, P.E., Engineering Manager

**Dates of Publication:** Transmitted to the Skagit Valley Herald for publication as a legal announcement on April 9, 2024.

**STATE ENVIRONMENTAL POLICY ACT (SEPA)  
ENVIRONMENTAL CHECKLIST**

**A. BACKGROUND**

**1. Name of proposed project, if applicable:**

Pipeline Relocation at Henson Road (Project)

**2. Name of applicant:**

Public Utility District No. 1 of Skagit County (Skagit PUD)

**3. Address and phone number of applicant and contact person:**

Skagit PUD  
Wendy LaRocque, Project Manager – Environmental Compliance  
1415 Freeway Drive  
Mount Vernon, WA 98273-1436  
Phone: (360) 399-5274  
Email: larocque@skagitpud.org

**4. Date checklist prepared:**

March 26, 2024

**5. Agency requesting checklist:**

Skagit PUD

**6. Proposed timing or schedule (including phasing, if applicable):**

The waterline relocation is proposed to be constructed in fall of 2024, prior to WSDOT's culvert project.

**7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.**

No future activity is planned related to this proposal.

**8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.**

None known at this time.

**9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain,**

WSDOT is obtaining permits for the culvert replacement project which will happen separately after the water pipeline has been relocated.

**10. List any government approvals or permits that will be needed for your proposal, if known.**

The following permits/approvals may be required for the Project:

City of Mount Vernon

- Right of Way Permit
- Critical Areas Review
- Floodplain Development Permit

WDFW

- Hydraulic Project Approval (HPA)

DAHP

- Governor's Executive Order 21-02

**11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page.**

As a result of the 2018 US Supreme Court decision affirming the Washington State decision that some culverts are contributing to the decline in salmon runs in violation of certain treaties, many culvert replacement projects are being constructed in Skagit County. Skagit PUD has a waterline that must be relocated in order for WSDOT to construct a culvert replacement project.

This project includes the construction (relocation) of approximately 300 linear feet of 12-inch PVC water pipeline in the public right of way and private easements to the west of Henson Road. The waterline will be bored under Martha Washington Creek using horizontal direction drilling (HDD) trenchless method. The waterline will be tied into the existing with approximately 20-foot trenched sections. The existing connection will be connected to the new waterline as the existing 12-inch ductile iron waterline will be cut and capped on both sides of Martha Washington Creek; the section within WSDOT's project limits will be removed.

**12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal will occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available.**

The project is located west of Henson Road at the crossing of Martha Washington Creek, in the City of Mount Vernon, in Skagit County, within Section 12 Township 35 North, Range 04, Willamette Meridian.

See Appendix A -Project Overview Map

**B. ENVIRONMENTAL ELEMENTS****1. Earth**

a. General description of the site (circle one):  Flat, rolling, hilly, steep slopes, mountainous, other...

The Project area is relatively flat.

**b. What is the steepest slope on the site (approximate percent slope)?**

Slopes on the site are minimal (0-3%).

**c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils.**

- Field silt loam, protected
- Urban land-Mt. Vernon-Field Complex

See Appendix B – Soils Report

**d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.**

There are no known surface indications or history of unstable soils in the immediate vicinity.

**e. Describe the purpose, type, total area, and approximate quantities and total affected area of any filling, excavation, and grading proposed. Indicate source of fill.**

Bore pit will be of negligible size as we will use steerable HDD trenchless technology conducted from the surface. The waterline will be tied into the existing with approximately 20-foot trenched sections (approximately 12 cubic yards). Imported material will meet project-specific compaction requirements and will be obtained from a local, approved, commercial source.

**f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.**

Temporary erosion could occur during construction due to installation and removal of sediment control structures, soil stockpiles, truck traffic, final grading, and other construction activities. Soils temporarily exposed during construction could be eroded by stormwater.

Best Management Practices will be installed and maintained to control erosion both during and after construction. Temporary Erosion and Sediment Control (TESC) Plan will be followed meeting Skagit County requirements.

No long-term erosion impacts will occur as a result of the completed Project.

**g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?**

The impervious surface coverage will not change as a result of the project

**h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:**

Best Management Practices (BMPs) appropriate for the activity and season will be identified, implemented, monitored, and adjusted as needed to maintain their effectiveness throughout the construction period.

Specific measures to prevent, reduce, or control erosion may include but are not limited to:

- Limiting land-disturbing activities to the minimum area needed to construct the Project.
- Employing temporary (e.g. straw mulch, plastic sheeting) and permanent (e.g. hydroseeding, pavement restoration) cover measures to protect disturbed areas.
- Stabilizing unsurfaced construction site entrances, roads, and parking areas used by construction traffic with rock pads to minimize erosion and tracking of sediment off-site.
- Taking preventive measures, such as watering and covering exposed soils, during summer months to minimize the wind transport of soils.

Once permanent erosion control is in place (e.g. revegetating or repaving), no other erosion control measures will be required for the completed Project.

## 2. Air

### **a. What types of emissions to the air will result from the proposal during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known.**

Short-term, temporary air quality impacts during construction could include exhaust emissions comprised of particulate matter, small amounts of carbon monoxide, and oxides of nitrogen from construction equipment. Additional sources of particulates could include “fugitive” dust from earth moving and trenching activities or uncovered stockpiles. Localized increases in exhaust emissions could also occur from construction equipment and vehicles traveling to and from the Project site. Construction related effects to air quality represent temporary, short term impacts negligible to regional air quality.

Air emissions will not occur as a result of the completed Project.

### **b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.**

No. There are no off-site sources of emissions or odor that will affect the Project.

### **c. Proposed measures to reduce or control emissions or other impacts to air, if any:**

The Northwest Clean Air Agency (NWCAA) governs activities affecting air quality in Island, Skagit, and Whatcom Counties and has jurisdiction over the Project area. Project construction and operation activities will be in compliance with NWCAA regulations.

Fugitive dust impacts associated with construction of the proposed Project are not anticipated to be significant. Construction crews will comply with regulatory requirements and implement appropriate dust control measures, as necessary. Measures to minimize fugitive dust emissions from construction of the Project may include but are not limited to:

- Spraying exposed soil and storage areas with water during dry periods.
- Covering exposed earthen stockpiles and loads of excavated material being transported from the site.
- Sweeping and/or washing dirt/mud from vehicles before the vehicles leave the construction area.

- Removing particulate matter deposited on paved, public roads and sidewalks to reduce mud and dust; sweeping and washing streets frequently to reduce emissions.

Vehicular emissions associated with construction are anticipated to be short-term in nature. Measures to minimize vehicular emissions may include but are not limited to:

- Equipping construction equipment with appropriate emission controls.
- Maintaining all construction machinery engines in good mechanical condition to minimize exhaust emissions.
- Minimizing vehicle and equipment idling.
- Using flaggers at roadways to reduce queuing time.

No mitigation measures are proposed for operation of the Project because impacts to air quality will not occur as a result of the finished Project.

### 3. Water

#### a. Surface:

**1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.**

Martha Washington Creek runs through the project site with potential associated wetlands. Martha Washington Creek is considered fish bearing.

See Appendix B – Water Resources

**2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.**

The water pipeline will be bored under Martha Washington Creek which conveys in a ditch section owned by Skagit County Drainage District No. 17. Skagit PUD will be cutting and capping the existing waterline along Henson Road on either side of the location of WSDOT's project

**3) Estimate the amount of fill and dredge material that will be placed in or removed from surface water or wetlands and indicate the area of the site that will be affected. Indicate the source of fill material.**

No fill and dredge material will be placed in or removed from surface water.

**4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.**

Surface water withdrawals or diversions will not occur as part of the Project.

**5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.**

Yes, the proposal lies within the 100-year shallow flood zone (AO) where average inundation depth is two (2) feet.

See Appendix E – Flood Map.

**6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.**

During construction, the completed waterline will be disinfected with chlorine and water per American Water Works Association standards. Disinfectant water will be discharged to a sanitary sewer system or neutralized prior to discharge to a storm sewer system or road drainage system. Discharges of waste materials to surface waters will not occur as part of the finished Project.

**b. Ground:**

**1) Will ground water be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to ground water? Give general description, purpose, and approximate quantities if known.**

Ground water will not be withdrawn or discharged as part of this Project.

**2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (domestic sewage, industrial or agricultural waste, chemicals, etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.**

Waste material will not be discharged into the ground from septic tanks or other sources as part of the Project.

**c. Water runoff (including stormwater):**

**1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.**

Stormwater from rainfall or snow melt that runs off impervious surfaces, such as roads and developed facilities, in the Project vicinity will be the primary source of water runoff. During construction, runoff will be handled via standard construction stormwater techniques such as silt fence, construction fencing, wattles and temporary surfacing (visqueen, mulch). A Temporary Erosion and Sediment Control (TESC) Plan will be implemented during construction.

**2) Could waste materials enter ground or surface waters? If so, generally describe.**

During construction the use of trucks, heavy equipment, or stored supplies could result in accidental discharge of fuel, lubricants, automotive fluids, or other chemicals to the road drainage system. BMPs for construction housekeeping, spill prevention, and cleanup will be used to prevent and remediate accidental chemical releases.

**3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe.**

Surface contours in the Project area will be restored to preconstruction conditions. The completed

Project will not change existing stormwater runoff patterns or quantities.

**d. Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern impacts, if any:**

Measures to reduce and control surface, ground, and runoff water impacts during construction may include:

- Directing runoff away from unstabilized soils, use of straw mulch, and installing silt fences or check dams to catch sediment).
- Developing a Spill Prevention Control and Countermeasures Plan (SPCC) to manage toxic materials associated with construction activities (including the protocols for dealing with equipment leaks, disposal of oily wastes, cleanup of any spills, and proper storage of petroleum products/chemicals).

**4. Plants**

**a. Check or circle types of vegetation found on the site:**

- deciduous tree: **alder, maple, aspen, other**
- evergreen tree: **fir, cedar, pine, other**
- Shrubs
- grass
- pasture
- crop or grain
- wet soil plants: **cattail, buttercup, bullrush, skunk cabbage, other**
- water plants: **water lily, eelgrass, milfoil, other**
- other types of vegetation

**b. What kind and amount of vegetation will be removed or altered?**

Based on preliminary engineering, the amount of vegetation estimated to be removed or altered for the portion of the Project in developed right of way will be minimal as the majority of construction is anticipated to occur within maintained portions of private property or public right of way.

**c. List threatened or endangered species known to be on or near the site.**

No threatened or endangered species and known to Skagit PUD to be on or near the site.

**d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:**

No specific landscaping or vegetation enhancement measures are proposed.

**e. List all noxious weeds and invasive species known to be near the site.**

Skagit PUD is unaware of the presence of noxious weeds and invasive species on or near the Project site.

## 5. Animals

**a. Circle any birds and animals which have been observed on or near the site or are known to be on or near the site. Examples include:**

**birds:** hawk, heron, eagle, songbirds, **other:** American crows, American robins

**mammals:** deer, bear, elk, beaver, **other:** raccoon, possum

**fish:** bass, salmon, trout, herring, shellfish, **other:**

**b. List any threatened or endangered species known to be on or near the site.**

A review of the Washington State Department of Fish and Wildlife Priority Habitats and Species (PHS) Database (WDFW, 2024) indicates the following species are within the project vicinity:

- Resident Coastal Cutthroat
- Coho
- Gray wolf (Endangered)

See Appendix D – PHS Report

**c. Is the site part of a migration route? If so, explain.**

Yes. The Project is located within the Pacific Flyway, an avian migratory corridor consisting of the western coastal areas of South, Central, and North America. Local concentrations of waterfowl are known to use the area while migrating.

**d. Proposed measures to preserve or enhance wildlife, if any:**

The portion of the Project that crossing Martha Washington Creek will be done via a bore as to not impact fish in the creek. A Critical Areas Assessment will be completed and any impacts to wetlands will be avoided or mitigated.

**e. List any invasive animal species known to be on or near the site.**

Skagit PUD is unaware of invasive animal species on or near the Project site.

## 6. Energy and natural resources

**a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.**

The Project will not require energy to operate.

**b. Will your project affect the potential use of solar energy by adjacent properties? If so, generally describe.**

No, the Project will not affect the potential use of solar energy by adjacent properties.

**c. What kinds of energy conservation features are included in the plans of this proposal? List**

**other proposed measures to reduce or control energy impacts, if any:**

No energy conservation measures are proposed.

**7. Environmental health**

**a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe.**

**1) Describe any known or possible contamination at the site from present or past uses.**

There is no known contamination at the site.

**2) Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity.**

There are no known hazardous chemicals or conditions that will affect project development.

**3) Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project.**

During construction, some risk of fuel spills or leaks from heavy equipment exists as a result of either equipment failure or worker error; however, the risk will not be greater than the risk normally associated with construction activities of this type. Materials of a hazardous nature that are typically present during construction and may spill or leak include gasoline and diesel fuels, hydraulic fluid, oils, lubricants, solvents, paints, and other chemical products. Normal precautions will be taken when storing equipment, hazardous fuels, and other materials used in construction of the Project. In addition, proper stormwater management and spill prevention measures will be implemented to prevent entry of waste materials into ground or surface waters.

Once the project is installed, it is not anticipated that environmental health hazards will occur as a result of project operation.

**4) Describe special emergency services that might be required.**

No special emergency services for environmental health hazards will be required as part of the proposed Project.

**5) Proposed measures to reduce or control environmental health hazards, if any:**

The following measures and conditions will be met to reduce and control environmental health hazards during construction:

- To protect against hazardous substance spills from routine equipment operation and maintenance activities, construction crews will be required to know proper hazardous material storage, handling, and emergency procedures including spill notification and response requirements.
- Contaminated soils or groundwater, if encountered during construction, will be removed

- and disposed of according to the appropriate regulatory requirements.
- Chlorinated water will be neutralized prior to discharge or will be discharged to a sanitary sewer system.

No measures are proposed to reduce or control environmental health hazards after the Project has been completed because environmental health hazards are not anticipated to occur as a result of the completed Project.

## b. Noise

### 1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

The Project will be unaffected by noise in the Project vicinity.

### 2) What types and levels of noise will be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise will come from the site.

During construction, noise levels in the vicinity of the Project area will temporarily increase due to the operation of heavy construction equipment. Given the relatively low existing noise levels around the Project area, noise generated by construction equipment could be noticeable at nearby residences. The table below shows noise levels produced by various types of commonly used construction equipment that may be employed for the Project. Properly maintained equipment will produce noise levels near the middle of the indicated ranges. The types of construction equipment used for the proposed Project will typically generate noise levels of 80 to 90 decibels (dBA) at a distance of 50 feet while the equipment is operating. Construction related activities will generally be restricted to daytime hours, from approximately 7 a.m. to 5 p.m.

Type of Equipment	Noise Level in dBA at 50 Feet
Front loader	72 – 84
Jack hammer	81 – 98
Backhoe	72 – 93
Grader	80 – 93
Concrete and dump trucks	83 – 90
Air compressor	74 – 87
Pneumatic tools	81 – 98
Roller (compactor)	73 – 75
Saws	73 – 82

Source: (US SEPA, 1971)

The completed Project will not generate new noise impacts.

### 3) Proposed measures to reduce or control noise impacts, if any:

The following measures and conditions will be met to reduce and control noise impacts during construction:

- To reduce temporary noise impacts, construction crews will be required to comply with regulations relating to construction noise, including WAC 173-60 which sets “maximum permissible environmental noise levels”.
- All equipment used will have sound control devices no less effective than those provided on the original equipment.
- No equipment will have un-muffled exhaust.
- Equipment will be operated during approved hours as required by local noise ordinances.

No measures are proposed to reduce or control noise impacts after Project completion because new noise impacts will not occur as a result of the completed Project.

## **8. Land and shoreline use**

### **a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe.**

The Project site includes the existing City of Mount Vernon right of way and the ditch that conveys Martha Washington Creek. Adjacent properties include commercial businesses. The proposed project will not affect current land uses on adjacent properties.

### **b. Has the project site been used as working farmlands or working forest? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses as a result of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use?**

No. The proposed Project will not result in conversion of land to other uses.

### **1) Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how:**

Localized transportation impacts that could occur during construction include disruption of two-way traffic flow along Henson Road.

### **c. Describe any structures on the site.**

The Project area includes developed and undeveloped right away and private property with no structures.

### **d. Will any structures be demolished? If so, what?**

No structures will be demolished.

**e. What is the current zoning classification of the site?**

The Project site itself is developed right of way and private property zoned Commercial/Limited Industrial (C-L).

Parcels adjacent to the project are zoned as follows:

- Commercial/Limited Industrial (C-L)

**f. What is the current comprehensive plan designation of the site?**

Parcels adjacent to the project are designated as follows:

- Commercial/Limited Industrial (C-L)

**g. If applicable, what is the current shoreline master program designation of the site?**

There is no shoreline master program designation of this site.

**h. Has any part of the site been classified as a critical area by the city or county? If so, specify.**

Martha Washington Creek runs through the project site is considered a critical area by the City of Mount Vernon with potential associated wetlands.

**i. Approximately how many people will reside or work in the completed project?**

None.

**j. Approximately how many people will the completed project displace?**

None. The Project will not result in the displacement of people.

**k. Proposed measures to avoid or reduce displacement impacts, if any:**

No measures are proposed because displacement impacts will not occur as a result of the Project.

**l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:**

Construction of this Project will be consistent with Skagit County's adopted comprehensive plans and implementing regulations, the Skagit County Coordinated Water System Plan – Regional Supplement (Skagit County, 2000), and the Skagit PUD's Water System Plan (Skagit PUD, 2020). In addition, the Project will be designed and permitted in accordance with local land use development regulations.

**m. Proposed measures to ensure the proposal is compatible with nearby agricultural and forest lands of long-term commercial significance, if any:**

There are none of these uses adjacent to the project.

## 9. Housing

**a. Approximately how many units will be provided, if any? Indicate whether high, middle, or low-income housing.**

None. Housing will not be provided by the Project.

**b. Approximately how many units, if any, will be eliminated? Indicate whether high, middle, or low-income housing.**

None. Housing units will not be eliminated as a result of the Project.

**c. Proposed measures to reduce or control housing impacts, if any:**

No measures are proposed because impacts to housing will not occur as a result of the Project.

## 10. Aesthetics

**a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?**

No structures are proposed.

**b. What views in the immediate vicinity will be altered or obstructed?**

Construction activities will temporarily alter views in the Project area due to the presence of construction equipment, materials, signs, and staging locations. Depending upon a viewer's location relative to the Project, construction activities will be visible from residences and the surrounding streetscape within and adjacent to the Project site. Following construction, views in the Project vicinity will return to a state similar to existing conditions.

**c. Proposed measures to reduce or control aesthetic impacts, if any:**

No measures are proposed.

## 11. Light and glare

**a. What type of light or glare will the proposal produce? What time of day will it mainly occur?**

Construction of the Project is planned during daylight hours and will not require lighting. After construction, the completed Project will not produce any visible light or glare.

**b. Could light or glare from the finished project be a safety hazard or interfere with views?**

No.

**c. What existing off-site sources of light or glare may affect your proposal?**

No off-site sources of light or glare will affect construction or operation of the Project.

**d. Proposed measures to reduce or control light and glare impacts, if any:**

No measures are proposed.

## **12. Recreation**

### **a. What designated and informal recreational opportunities are in the immediate vicinity?**

None.

### **b. Will the proposed project displace any existing recreational uses? If so, describe.**

The proposed Project will not displace known existing recreational uses. Detour routes and road closures will temporarily displace cyclists and pedestrians; however, traffic will be detoured along near-by roads with similar scenic qualities.

### **c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:**

No measures are proposed.

## **13. Historic and cultural preservation**

### **a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers located on or near the site? If so, specifically describe.**

None are known per the Department of Archaeology and Historic Preservation (DAHP) WISAARD online mapping tool. DAHP issued a “Determination of No cultural resource impacts with the stipulation for an inadvertent find plan” on February 12, 2024.

### **b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources.**

None are known.

### **c. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc.**

Skagit PUD will ensure an adequate Tribal consultation process per Governor’s Executive Order 21-02 and will be responsible for holding all records related to the tribal consultation process.

### **d. Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required.**

Construction of the Project will be in accordance with the Skagit PUD DAHP approved Inadvertent Discovery Plan. A monitor will be present during the trench work associated with connecting the new (relocated) bored pipe section to the existing pipeline.

In the event that human remains and/or cultural or archaeological resources are encountered during the course of construction, all work will immediately halt until the significance of the resource could be evaluated by a qualified archaeologist. Skagit PUD will promptly notify the affected tribes and DAHP to determine an appropriate course of action.

#### 14. Transportation

**a. Identify public streets and highways serving the site or affected geographic area and describe proposed access to the existing street system. Show on site plans, if any.**

The site is adjacent to Henson Road, north of Anderson Road in Mount Vernon, WA.

Appendix A – Project Overview Map shows the network of roads surrounding the Project area.

**b. Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop?**

The site is not served by public transit (Skagit Transit, 2024).

**c. How many additional parking spaces will the completed project or non-project proposal have? How many will the project or proposal eliminate?**

None. The Project will neither create nor eliminate parking spaces.

**d. Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private).**

No. The Project will not require new roads, streets, or improvements to these features. Cutting of the existing roadway may be required to install the pipe within the road right-of-way. The affected road prism and asphalt will be returned to preconstruction conditions in accordance with local road standards.

**e. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.**

No. The Project will not require the use of water, rail or air transportation or occur in the immediate vicinity of these types of transportation.

**f. How many vehicular trips per day will be generated by the completed project? If known, indicate when peak volumes will occur and what percentage of the volume will be trucks (such as commercial and non-passenger vehicles). What data or transportation models were used to make these estimates?**

None. The completed Project will not generate vehicular trips.

**g. Will the proposal interfere with, affect or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe.**

Localized transportation impacts that could occur during construction include disruption of two-way traffic flow along Henson Road.

**h. Proposed measures to reduce or control transportation impacts, if any:**

Localized transportation impacts that could occur during construction include disruption of two-way traffic flow and reduction in posted speed limits. Mitigation measures to control construction related transportation impacts may include but are not limited to:

- Providing flaggers to direct local traffic around and through the construction area so that traffic moves smoothly.
- Scheduling segmented road closures and providing detour routes along the project to minimize the impacts of prolonged traffic delays associated with flagging activities.
- Conducting all traffic control in accordance with WSDOT's requirements, policies, and ordinances.
- Identifying intersections and roadways of concern where Project impacts could occur and addressing the identified issues in a traffic control plan.
- Employing signs, steel plates, barricades, warning lights, and/or traffic cones at all openings, obstructions, detours, or other hazards on the roadway, as necessary, to ensure the safety of pedestrians, bicyclists, and vehicles.

No mitigation measures are proposed for operation of the Project because impacts to transportation will not occur as a result of the finished Project.

**15. Public services**

**a. Will the project result in an increased need for public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe.**

No. The Project will not result in an increased need for public services.

**b. Proposed measures to reduce or control direct impacts on public services, if any.**

Public services such as law enforcement, emergency services, fire response, and school bus services could be delayed due to congestion resulting from construction activities. Mitigation measures to control construction related transportation impacts on public services may include:

- Notifying school districts, law enforcement, and fire/emergency service providers of construction dates in advance and providing Project schedule updates throughout the construction period.
- Providing segmented road closures and detour routes along the project route to minimize the impacts of prolonged traffic delays associated with flagging activities.
- Conducting all traffic control in accordance with Skagit County requirements, policies, and ordinances.
- Posting construction schedules on local roads, and/or providing notification to area residents, where appropriate.
- Identifying intersections/roadways of concern and addressing Project impacts in a traffic control plan.

No mitigation measures are proposed for operation of the Project because impacts to public services will not occur as a result of the finished Project.

**16. Utilities**

a. Circle utilities currently available at the site:  electricity,  natural gas,  water, refuse service,  telephone, sanitary sewer, septic system, other:

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

The Project is a waterline installation. Individual property owners in the vicinity will have the potential to connect to the waterline.

**C. SIGNATURE**

**The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.**

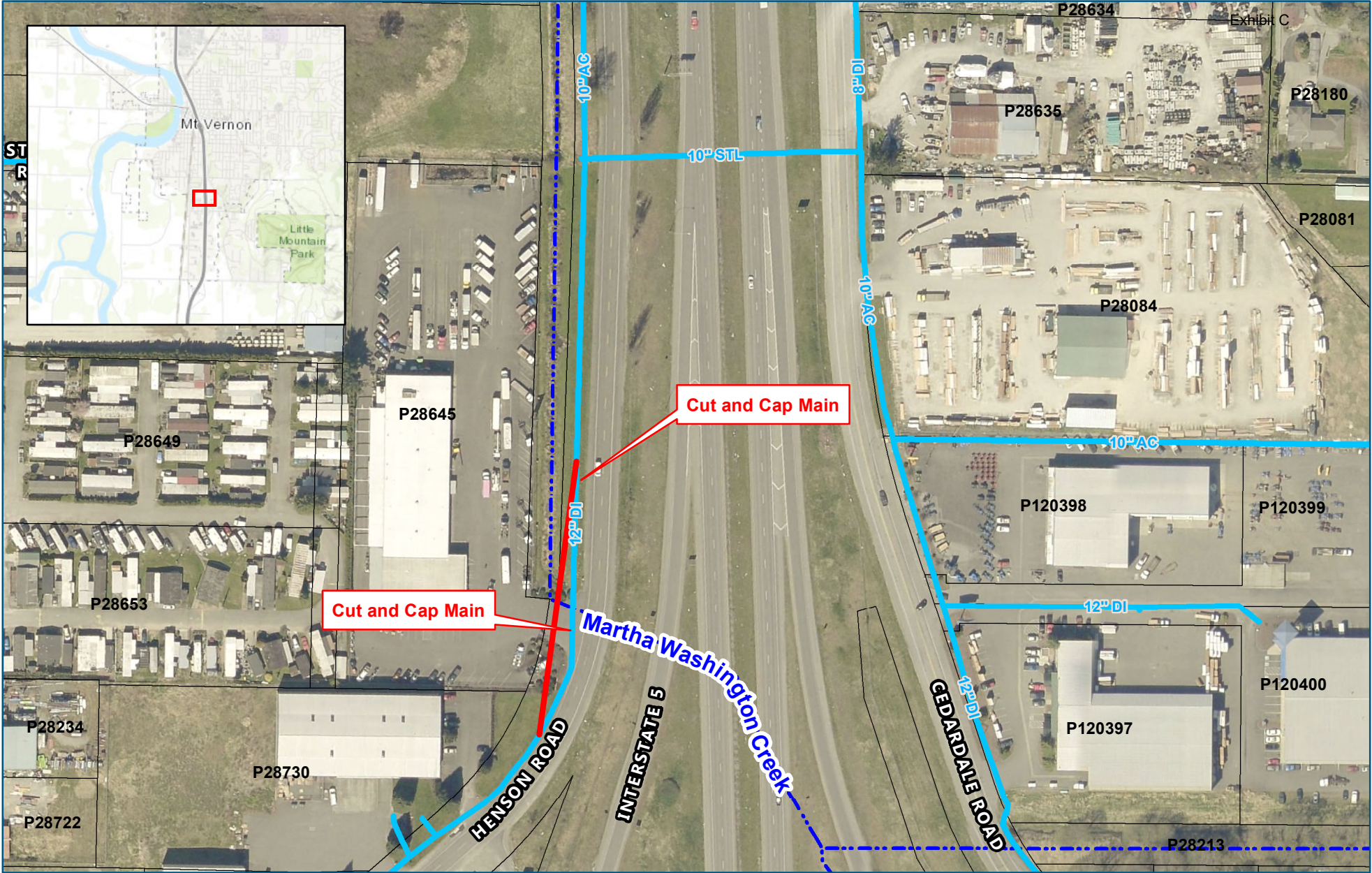
Signature: Wendy LaRocque  
Wendy LaRocque, Project Manager - Environmental Compliance

Date Submitted: 3/26/24

## ADDITIONAL REFERENCES

- DAHP (Washington State Department of Archaeology and Historic Preservation). 2024. Washington Information System for Architectural and Archaeological Records Data (WISAARD). Accessed March 26, 2024. <<https://wisaard.dahp.wa.gov/Map>>
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- WDFW (Washington Department of Fish and Wildlife). 2024. Priority Habitats and Species (PHS) on the Web. Accessed March 26, 2024. <<http://wdfw.wa.gov/mapping/phs/>>
- WDFW (Washington Department of Fish and Wildlife). 2023. SalmonScape computer mapping system. Accessed March 26, 2024. <<http://wdfw.wa.gov/mapping/salmonscape/>>

**APPENDIX A – PROJECT OVERVIEW MAP**



### Pipeline Relocation on Henson Rd at Martha Washington Creek

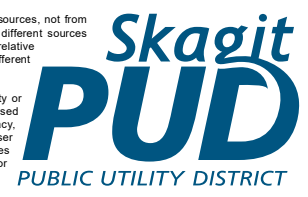
- Proposed Relocated Water Main
- Existing Water Main
- DNR Waterbodies
- DNR Water Courses
- Skagit County Parcels

0 50 100 200 Feet

NAD 1983 StatePlane Washington North FIPS 4601 Feet  
 Author: wilson  
 2/8/2024

This map was created from available public records and existing map sources, not from field surveys. While great care was taken in this process, maps from different sources rarely agree as to the precise location of geographic features. The relative positioning of map features to one another results from combining different map sources without field verification.

The PUD #1 of Skagit County disclaims any warranty of merchantability or warranty of fitness of this map for any particular purpose, either expressed or implied. No representation or warranty is made concerning the accuracy, currency, completeness or quality of data depicted on this map. Any user of this map assumes all responsibility for use thereof, and further agrees to hold the PUD #1 of Skagit County harmless from any damage, loss, or liability arising from the use of this map.

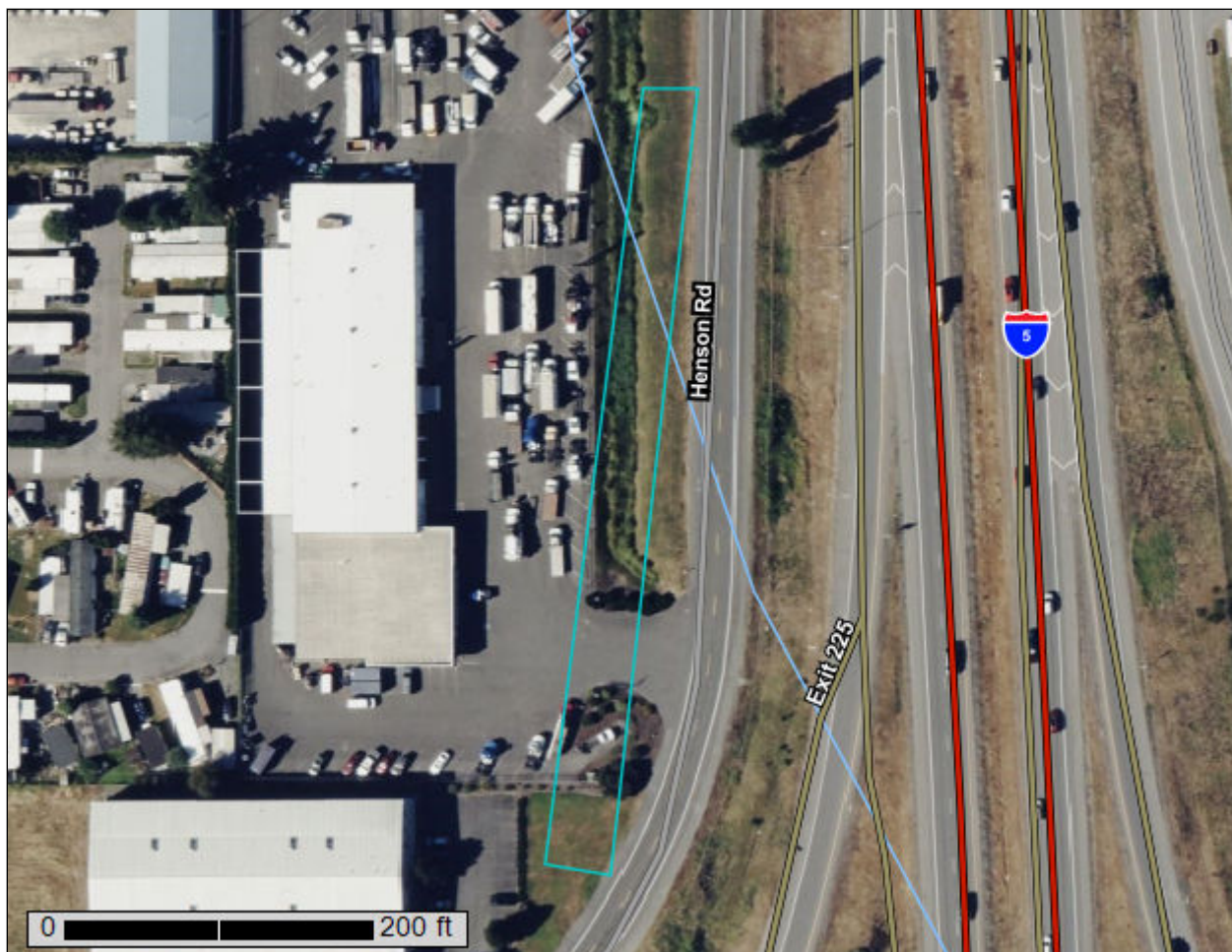


## **APPENDIX B – SOIL REPORT**

**USDA** United States  
Department of  
Agriculture  
**NRCS**  
Natural  
Resources  
Conservation  
Service

A product of the National  
Cooperative Soil Survey,  
a joint effort of the United  
States Department of  
Agriculture and other  
Federal agencies, State  
agencies including the  
Agricultural Experiment  
Stations, and local  
participants

# Custom Soil Resource Report for Skagit County Area, Washington



# Preface

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Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist ([http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2\\_053951](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951)).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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# Contents

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<b>Preface</b> .....	2
<b>How Soil Surveys Are Made</b> .....	5
<b>Soil Map</b> .....	8
Soil Map.....	9
Legend.....	10
Map Unit Legend.....	11
Map Unit Descriptions.....	11
Skagit County Area, Washington.....	13
57—Field silt loam, protected.....	13
152—Urban land-Mt. Vernon-Field complex.....	14
<b>References</b> .....	17

# How Soil Surveys Are Made

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Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

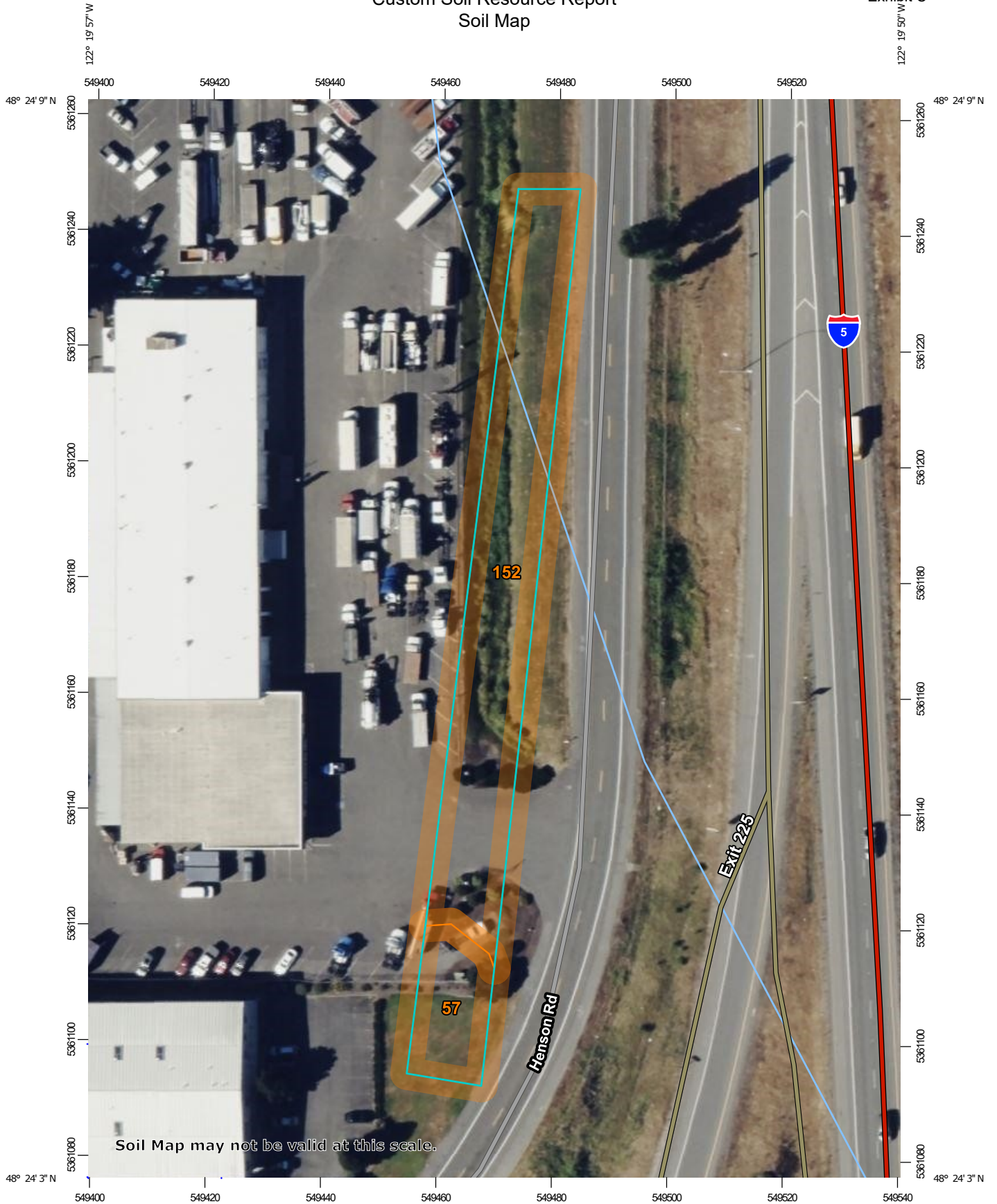
## Soil Map

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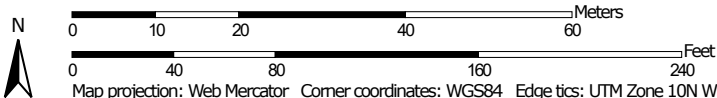
The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report  
Soil Map

Exhibit C




Map Scale: 1:907 if printed on A portrait (8.5" x 11") sheet.




Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84


### MAP LEGEND

**Area of Interest (AOI)**

 Area of Interest (AOI)




















**Soils**







 Soil Map Unit Polygons

 Soil Map Unit Lines


 Soil Map Unit Points

**Special Point Features**






-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features


**Water Features**

 Streams and Canals

**Transportation**

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

**Background**

 Aerial Photography

### MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
 Web Soil Survey URL:  
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Skagit County Area, Washington  
 Survey Area Data: Version 23, Aug 29, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 14, 2022—Sep 1, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
57	Field silt loam, protected	0.1	17.5%
152	Urban land-Mt. Vernon-Field complex	0.4	82.5%
<b>Totals for Area of Interest</b>		<b>0.5</b>	<b>100.0%</b>

## Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

## Skagit County Area, Washington

### 57—Field silt loam, protected

#### Map Unit Setting

*National map unit symbol:* 2hwb

*Elevation:* 10 to 50 feet

*Mean annual precipitation:* 32 inches

*Mean annual air temperature:* 50 degrees F

*Frost-free period:* 160 to 210 days

*Farmland classification:* Prime farmland if protected from flooding or not frequently flooded during the growing season

#### Map Unit Composition

*Field and similar soils:* 90 percent

*Minor components:* 10 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Field

##### Setting

*Landform:* Flood plains

*Parent material:* Alluvium and volcanic ash

##### Typical profile

*H1 - 0 to 13 inches:* silt loam

*H2 - 13 to 21 inches:* silt loam

*H3 - 21 to 40 inches:* stratified sand to loamy fine sand

*H4 - 40 to 60 inches:* stratified sand to very fine sandy loam

##### Properties and qualities

*Slope:* 0 to 3 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Moderately well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.57 to 1.98 in/hr)

*Depth to water table:* About 36 to 48 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* High (about 10.2 inches)

##### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 2w

*Hydrologic Soil Group:* B

*Ecological site:* F002XA005WA - Puget Lowlands Moist Forest

*Forage suitability group:* Seasonally Wet Soils (G002XN202WA)

*Other vegetative classification:* Seasonally Wet Soils (G002XN202WA)

*Hydric soil rating:* No

#### Minor Components

##### Skagit, undrained

*Percent of map unit:* 5 percent

*Landform:* Flood plains

*Other vegetative classification:* Wet Soils (G002XN102WA)

*Hydric soil rating:* Yes

**Sumas, undrained**

*Percent of map unit:* 5 percent

*Landform:* Flood plains

*Other vegetative classification:* Wet Soils (G002XN102WA)

*Hydric soil rating:* Yes

**152—Urban land-Mt. Vernon-Field complex**

**Map Unit Setting**

*National map unit symbol:* 2htf

*Elevation:* 10 to 50 feet

*Mean annual precipitation:* 32 to 40 inches

*Mean annual air temperature:* 50 degrees F

*Frost-free period:* 160 to 210 days

*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Urban land:* 40 percent

*Mt. vernon and similar soils:* 30 percent

*Field and similar soils:* 20 percent

*Minor components:* 10 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Urban Land**

**Typical profile**

*H1 - 0 to 6 inches:* variable

**Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 8s

*Hydric soil rating:* No

**Description of Mt. Vernon**

**Setting**

*Landform:* Flood plains, natural levees

*Parent material:* Alluvium and volcanic ash

**Typical profile**

*H1 - 0 to 10 inches:* ashy very fine sandy loam

*H2 - 10 to 29 inches:* stratified ashy sand to very fine sandy loam

*H3 - 29 to 60 inches:* stratified fine sand to silt loam

**Properties and qualities**

*Slope:* 0 to 3 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Moderately well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.57 to 1.98 in/hr)

*Depth to water table:* About 24 to 48 inches  
*Frequency of flooding:* Occasional  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* High (about 10.2 inches)

**Interpretive groups**

*Land capability classification (irrigated):* 3w  
*Land capability classification (nonirrigated):* 3w  
*Hydrologic Soil Group:* C  
*Ecological site:* F002XA005WA - Puget Lowlands Moist Forest  
*Forage suitability group:* Soils with Few Limitations (G002XN502WA)  
*Other vegetative classification:* Soils with Few Limitations (G002XN502WA)  
*Hydric soil rating:* No

**Description of Field**

**Setting**

*Landform:* Natural levees, flood plains  
*Parent material:* Alluvium and volcanic ash

**Typical profile**

*H1 - 0 to 13 inches:* silt loam  
*H2 - 13 to 21 inches:* silt loam  
*H3 - 21 to 40 inches:* stratified sand to loamy fine sand  
*H4 - 40 to 60 inches:* stratified sand to very fine sandy loam

**Properties and qualities**

*Slope:* 0 to 3 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Moderately well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
 (0.57 to 1.98 in/hr)  
*Depth to water table:* About 24 to 60 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* High (about 10.2 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 3w  
*Hydrologic Soil Group:* B  
*Ecological site:* F002XA005WA - Puget Lowlands Moist Forest  
*Forage suitability group:* Seasonally Wet Soils (G002XN202WA)  
*Other vegetative classification:* Seasonally Wet Soils (G002XN202WA)  
*Hydric soil rating:* No

**Minor Components**

**Mt. vernon**

*Percent of map unit:* 10 percent  
*Hydric soil rating:* No



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





























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## **APPENDIX C - WATER RESOURCES MAPS**

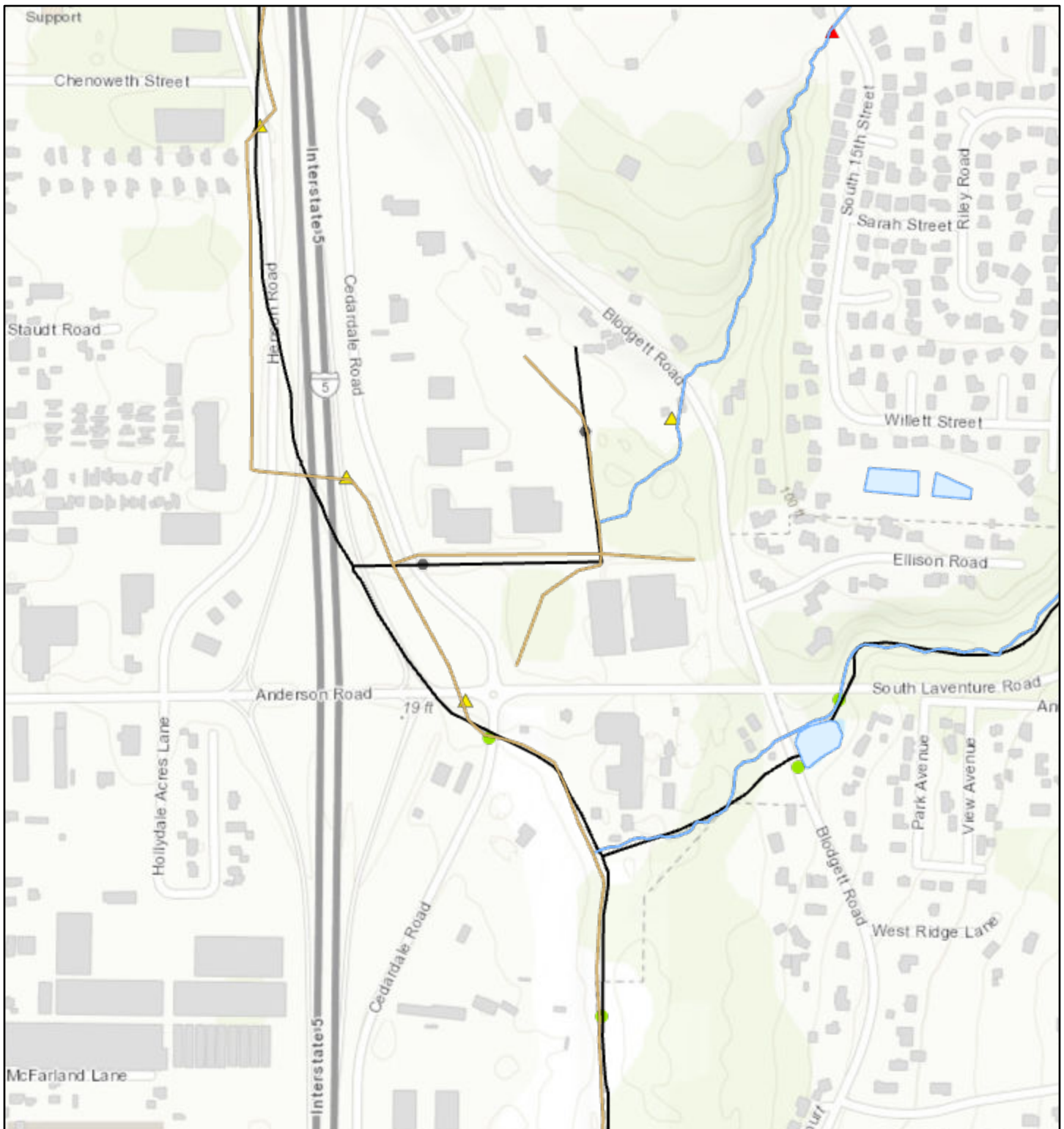


# Legend

- |   |  |   |
|---|--|---|
|  Water Type Breaks (FP)      |  Unpaved Road/Surface Unknown |  Subject to Inundation |
|  Map Registration Tics       |  40 ft. Contours              |  Glacier / Snowfield   |
|  Type S                      |  Trail                        |  Wet Area              |
|  Type F                      |  Railroad                     |  Open Saltwater        |
|  Type N, Np, Ns              |  Railroad Grade               |  Artificial Feature    |
|  U, unknown                  |  County Tax Parcels           |  County Boundaries     |
|  X, non-typed per WAC 222-16 |  Public Land Survey Sections  |  WAUs                  |
|  WTMF - PDFs (FP)            |  Public Land Survey Townships |  Type A Wetland        |
|  Abandoned                   |  Other Impoundments           |  Type B Wetland        |
|  Orphaned                    |  Open Freshwater              |  Forested Wetland      |
|  Paved Road                  |  |  Other Wetland         |
|   |  |  WRIA Boundaries       |

# Pipeline Relocation at Henson Road

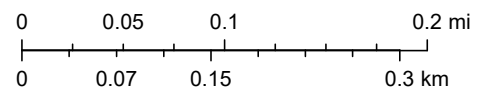
Exhibit C



March 26, 2024

1:9,028

- All SalmonScape Species
- Unknown
- ▲ Total Fish Passage Blockage
- ▲ Partial Fish Passage Blockage
- Not a barrier











Restoration Division of the DFW Habitat Program, County of Skagit, Bureau of Land Management, Province of British Columbia, Esri Canada, Esri, HERE, Garmin, INCREMENT P, Intermap, USGS, METI/NASA, EPA, USDA, USGS/NHD, Dale Gombert (WDFW), WDFW



U.S. Fish and Wildlife Service, National Standards and Support Team,  
wetlands\_team@fws.gov

March 26, 2024

**Wetlands**

- |  |   |  |
|--|---|--|
|  Estuarine and Marine Deepwater |  Freshwater Emergent Wetland       |  Lake     |
|  Estuarine and Marine Wetland   |  Freshwater Forested/Shrub Wetland |  Other    |
|  |  Freshwater Pond                   |  Riverine |

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

**APPENDIX D – PHS REPORT**



**Report Date: 03/26/2024**

**PHS Species/Habitats Overview:**

Occurrence Name	Federal Status	State Status	Sensitive Location
Resident Coastal Cutthroat	N/A	N/A	No
Coho	N/A	N/A	No
Coho	Candidate	N/A	No
Freshwater Emergent Wetland	N/A	N/A	No
Gray wolf	Endangered	Endangered	Yes

## PHS Species/Habitats Details:

Exhibit C

Resident Coastal Cutthroat	
Scientific Name	<i>Oncorhynchus clarki</i>
Priority Area	Occurrence/Migration
Accuracy	NA
Notes	LLID: 1223298484149, Fish Name: Cutthroat Trout, Run Time: Unknown or not Applicable, Life History: Unknown
Source Record	42241
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	<a href="http://wdfw.wa.gov/wlm/diversty/soc/soc.htm">http://wdfw.wa.gov/wlm/diversty/soc/soc.htm</a>
Geometry Type	Lines

Coho	
Scientific Name	<i>Oncorhynchus kisutch</i>
Priority Area	Occurrence/Migration
Accuracy	NA
Notes	LLID: 1223298484149, Fish Name: Coho Salmon, Run Time: Unknown or not Applicable, Life History: Anadromous
Source Record	42244
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	<a href="http://wdfw.wa.gov/wlm/diversty/soc/soc.htm">http://wdfw.wa.gov/wlm/diversty/soc/soc.htm</a>
Geometry Type	Lines

Coho	
Scientific Name	<i>Oncorhynchus kisutch</i> Exhibit C
Priority Area	Occurrence
Accuracy	NA
Notes	LLID: 1223298484149, Stock Name: Skagit Coho, Run: Unspecified, Status: Healthy
Source Record	3040
Source Dataset	SASI
Source Name	Not Given
Source Entity	WDFW Fish Program
Federal Status	Candidate
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	<a href="http://wdfw.wa.gov/wlm/diversty/soc/soc.htm">http://wdfw.wa.gov/wlm/diversty/soc/soc.htm</a>
Geometry Type	Lines

Freshwater Emergent Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Emergent Wetland - NWI Code: PEM1C
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	<a href="http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html">http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html</a>
Geometry Type	Polygons

Gray wolf	
Scientific Name	<i>Canis lupus</i> Exhibit C
Notes	This polygon mask represents one or more records of the above species or habitat occurrence. Contact PHS Data Release at <a href="mailto:phsproducts@dfw.wa.gov">phsproducts@dfw.wa.gov</a> for obtaining information about masked sensitive species and habitats.
Federal Status	Endangered
State Status	Endangered
PHS Listing Status	PHS Listed Occurrence
Sensitive	Y
SGCN	Y
Display Resolution	TOWNSHIP

DISCLAIMER. This report includes information that the Washington Department of Fish and Wildlife (WDFW) maintains in a central computer database. It is not an attempt to provide you with an official agency response as to the impacts of your project on fish and wildlife. This information only documents the location of fish and wildlife resources to the best of our knowledge. It is not a complete inventory and it is important to note that fish and wildlife resources may occur in areas not currently known to WDFW biologists, or in areas for which comprehensive surveys have not been conducted. Site specific surveys are frequently necessary to rule out the presence of priority resources. Locations of fish and wildlife resources are subject to variation caused by disturbance, changes in season and weather, and other factors. WDFW does not recommend using reports more than six months old.

**APPENDIX F – FLOOD MAP**



**KEY TO MAP** Exhibit C

500-Year Flood Boundary  
 100-Year Flood Boundary  
 Zone Designations

100-Year Flood Boundary  
 500-Year Flood Boundary

Base Flood Elevation Line With Elevation in Feet\*\*

Base Flood Elevation in Feet Where Uniform Within Zone\*\*

Elevation Reference Mark

Zone D Boundary

River Mile

\*\*Referenced to the National Geodetic Vertical Datum

**EXPLANATION OF ZONE DESIGNATIONS**

ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elevation hazard factors not determined.
A0	Areas of 100-year shallow flooding which are between one (1) and three (3) feet; average of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding which are between one (1) and three (3) feet; elevations are shown, but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood; base flood elevation hazard factors determined.
A99	Areas of 100-year flood to be protected by protection system under construction; elevations and flood hazard factors not determined.
B	Areas between limits of the 100-year flood year flood; or certain areas subject to 100-year flood with average depths less than one (1) foot; the contributing drainage area is less than one (1) mile; or areas protected by levees from the (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flooding.
V	Areas of 100-year coastal flood with velocity action; base flood elevations and flood hazard factors not determined.
V1-V30	Areas of 100-year coastal flood with velocity action; base flood elevations and flood hazard factors not determined.

**NOTES TO USER**

Certain areas not in the special flood hazard areas (zone A) may be protected by flood control structures.

This map is for flood insurance purposes only; it does not show all areas subject to flooding in the community. All planimetric features outside special flood hazard areas are shown for reference only.

For adjoining map panels, see separately printed index panels.

Coastal base flood elevations apply only landward of the shoreline shown on this map.

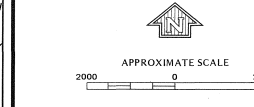
INITIAL IDENTIFICATION:  
 OCTOBER 25, 1974

FLOOD HAZARD BOUNDARY MAP REVISION:  
 SEPTEMBER 13, 1977  
 APRIL 1, 1980

FLOOD INSURANCE RATE MAP EFFECTIVE:  
 JANUARY 3, 1985

Refer to the FLOOD INSURANCE RATE MAP EFFECTIVE shown on this map to determine when actual rate structures in the zones where elevations or depths have changed.

To determine if flood insurance is available in this community, contact your insurance agent, or call the National Flood Program, at (800) 638-6620.



**ELEVATION REFERENCE MARKS**

REFERENCE MARK	ELEVATION (FT, NGVD)	DESCRIPTION OF LOCATION
RM20	12.23	Standard disk set in rock 7 feet approximately above high water on point of Bald Island near river, located 2.0 miles downstream from Phils Boat House. Established by U.S. Army Corps of Engineers.
RM21	4.45	Chiseled square on the downstream corner of the foundation block for the machine shed and the downstream riverward corner of the shed, located about 500 feet downstream from Phils Boat House. Established by U.S. Army Corps of Engineers.
RM22	12.42	Chiseled cross 3 feet above ground on the downstream riverward corner of the first pier landward from the top of the river bank on left side, located at the Chilberg Road Bridge crossing North Fork Skagit River, on the left bank end. Established by U.S. Army Corps of Engineers.
RM23	7.103	U.S. Geological Survey brass cap flush with the ground, located 8 feet riverward edge of State Highway 530 and Milltown Road, 40 feet downstream of confluence junction of Milltown Road and State Highway 530, 1.5 feet downstream of 3-inch by 6-inch yellow 3 foot high witness post. Established by U.S. Army Corps of Engineers.
RM24	29.39	Chiseled square downstream riverward corner of a 4-foot by 4-foot concrete light pole pad on left bank, first before bridge, located at Fir Island Road bridge crossing South Fork Skagit River, on right bank of concrete steel bridge. Established by U.S. Army Corps of Engineers.

**NATIONAL FLOOD INSURANCE PROGRAM**

**FIRM FLOOD INSURANCE RATE MAP**

**SKAGIT COUNTY, WASHINGTON (UNINCORPORATED AREAS)**

**PANEL 425 OF 550 (SEE MAP INDEX FOR PANELS NOT SHOWN)**

**COMMUNITY-PANEL 530151**

**EFFECTIVE DATE**



*L.C. Lee & Associates, Inc.*  
*421 North Forest Street*  
*Bellingham, Washington 98225*  
*Tel: 206.979.5633*  
*Email: [lyndon@lcleeinc.com]*

*Technical Memorandum*  
*September 14, 2024*

---

**To:** Stacy Clauson  
Senior Planner  
City of Mount Vernon

**From:** Lyndon C. Lee, Ph.D., SPWS  
L.C. Lee & Associates, Inc.

**CC:** LCLA/cf

**Ref:** Review of the Skagit PUD – Henson Road Waterline Replacement Project

---

This Technical Memorandum has been developed to review and critique the plans and design for the Skagit PUD – Henson Road Waterline Replacement Project. In preparing this memorandum, I have reviewed the PUD's Critical Areas Report prepared by Soundview Consultants on May 3, 2024, Construction Plans, the Master Land Use Application Form, PUD Site Plans, and field conditions on September 13, 2024.

A summary of my observations and recommendations follows:

1. The Soundview Consultants Critical Areas Report adequately characterizes conditions on and in the vicinity of the project site.
2. Impact avoidance and minimization measures outlined in the Construction Plans, especially the vertical and horizontal locations and design for directional drilling to accomplish the pipeline replacement are fit to site conditions. If they are executed correctly, they will be more than adequate to protect existing aquatic resources and Critical Areas associated with Martha Washington Creek and its buffer.
3. Launch and receive pit locations and dimensions appear to be well situated to avoid or at least minimize impacts to Martha Washington Creek and its buffer. Any impacts will be temporary and within the buffer, not the creek.
4. I have reviewed the vertical profile of the proposed directional drilling and it is my opinion that there should be no creek de-watering concerns associated with the project.

Thank you for the opportunity to review this project. If you have needs for any follow-up or more detail, please do not hesitate to contact me.



# RIGHT-OF-WAY CONSTRUCTION PERMIT

<b>ISSUE DATE:</b> 08/06/2024	<b>PERMIT #:</b> ENGR24-0230	
<b>ABUTTING SITE ADDRESS:</b> no address	<b>ABUTTING PARCEL #:</b>	P133080
<b>PERMIT EXPIRATION:</b> 08/06/2025	<b>SITE ADDRESS:</b>	UNKNOWN
<b>OWNER:</b> DRAINAGE DIST #17 C/O WALTNER HERB, 17302 BRITT ROAD MOUNT VERNON, WA 98273	<b>CONTRACTOR:</b> SKAGIT PUBLIC UTILITY DISTRICT NO. 1 1415 Freeway Dr MOUNT VERNON, WA 98273 360-848-4440 <b>CONTRACTOR LICENSE #:</b> N/A	

**THIS PERMIT AUTHORIZES THE BELOW DESCRIBED WORK:**  
 Waterline relocation prior to WSDOT culvert replacement project - Pipeline Relocation at Henson Road Geo-Bores

- CONDITIONS AND COMMENTS APPLICABLE TO THIS PERMIT:**
1. All elements of the traffic control plan (TCP) provided are required to meet MUTCD standards relevant to the plans submitted. Any deviations from the submitted plan are the sole responsibility of the applicant. If, after the permit has been issued, it is found that the TCP has deficient elements or is not compliant with MUTCD standards, it is the applicant’s sole responsibility to adjust the TCP for compliance with MUTCD guidelines.
  2. Erosion and Sediment control BMP's shall be in place and inspected prior to commencing any construction activity.
  3. If ADA components are disturbed as a part of construction, then any associated ADA components shall be replaced entirely.
  4. **Critical Area permit is required to be obtained before beginning the associated construction work.**

This permit is issued by the Development Review Engineer and shall expire and become null and void if the work authorized by this permit is not commenced within one (1) year from the date of permit issuance. All work is required to comply with the City’s municipal code and Engineering Standards, the WA State Department of Transportation Standard Specifications for Roads, Bridges and Municipal Construction.

By signing this permit I certify all work within the right-of-way will be completed by a licensed contractor. I understand that Labor & Industries provides information regarding contractor registration laws (RCW 18.27.110).

- By signing this permit I acknowledge I have been made aware that:
1. All inspections must be requested over the Permit Portal.
  2. I am responsible for having all utilities located prior to construction activities commencing.
  3. Compliance with all applicable laws is the responsibility of the contractor and property owner completing the work authorized with this permit.
  4. The City is not responsible for, and does not authorize work required to comply with Federal, State, County or other local laws, permits or mandates that the City does not have jurisdiction over.
  5. All contractors and utilities must notify the City inspector prior to beginning any work. If the work requires any lane or street closures, the City inspector must be notified at least 72 hours prior to the scheduled work, so that proper public notice can be issued.

- Any person engaged in ground disturbing activity who encounters or discovers historical and/or archeological materials in or on the ground shall:
1. Immediately cease any activity which may cause further disturbance;
  2. Make a reasonable effort to protect the area from further disturbance; and,
  3. Report the presence and location of the material to the proper authorities in the most expeditious manner possible.

I declare under penalty of perjury under the laws of the State of Washington that all of the statements and answers contained in the materials provided to the City allowing this permit to be issued, is in all respects true, correct, and complete to the best of my knowledge and belief. By affixing my signature below, I certify that I am the owner, or am acting as the Owner’s authorized agent and I will ensure all provisions of laws and ordinances governing the type of work this permit includes will be complied with whether specified herein or not, including calls for inspections.

When signed and dated below, this is your permit. Permission is hereby given to do the above-described work, according to the conditions hereon and according to the approved plans and specifications pertaining thereto, subject to compliance with the ordinances of the City of Mount Vernon.

**BY SIGNING BELOW I HEREBY ACKNOWLEDGE THAT I HAVE READ THIS DOCUMENT, UNDERSTAND ITS CONTENTS AND AGREE TO BE BOUND BY ITS TERMS.**



\_\_\_\_\_  
Signature of Owner

\_\_\_\_\_  
Date

\_\_\_\_\_  
Development Review Engineer Signature

08/06/2024  
Date



**RIGHT OF WAY PERMIT - CONSTRUCTION PROJECTS INSPECTION RECORD**

ISSUE DATE: 08/06/2024	PERMIT TYPE: Right of Way Permit - Construction Projects	PERMIT #: ENGR24-0230
------------------------	--	-----------------------

**THIS PERMIT AUTHORIZES THE BELOW DESCRIBED WORK:**  
 Waterline relocation prior to WSDOT culvert replacement project - Pipeline Relocation at Henson Road Geo-Bores

**INSPECTIONS REQUIRED FOR THIS PERMIT**

INSPECTION	STAFF	DATE	COMMENTS
1. JOB START			
2. TRAFFIC CONTROL			
3. EROSION CONTROL			
4. WATER LINE			
5. FINAL INSPECTION - ENGINEERING			



# HYDRAULIC PROJECT APPROVAL

Exhibit F  
Washington Department of  
Fish & Wildlife  
PO Box 43234  
Olympia, WA 98504-3234  
(360) 902-2200

Issued Date: September 04, 2024  
Project End Date: March 31, 2025

Permit Number: 2024-4-475+01  
FPA/Public Notice Number: N/A  
Application ID: 35210

PERMITTEE	AUTHORIZED AGENT OR CONTRACTOR
Skagit PUD ATTENTION: Mark Handzlik 1415 Freeway Drive Mount Vernon, WA 98273	Skagit PUD ATTENTION: Wendy LaRocque 1415 Freeway Dr Mount Vernon, WA 98273-2429

**Project Name:** Pipeline Relocation at Henson Road

**Project Description:** Construct an approximately 235 LF, 12-inch waterline relocation under a Martha Washington Creek, west of Henson Road, Mount Vernon. The existing waterline will be cut and capped and removed with the WSDOT project in the spring.

## PROVISIONS

- 1. TIMING LIMITATION:** You may begin the project immediately and you must complete the project by March 31, 2025.
- 2. APPROVED PLANS:** You must accomplish the work per plans and specifications submitted with the application and approved by the Washington Department of Fish and Wildlife, entitled "240082 Henson HDD", uploaded July 19, 2024 and "Wetland HPA Figure -OHWM", uploaded July 22, 2024, except as modified by this Hydraulic Project Approval (HPA). You must have a copy of these plans and this HPA available on site during all phases of the project construction.
- 3. INVASIVE SPECIES CONTROL:** Follow Method 1 for low risk locations (i.e. clean/drain/dry). Thoroughly remove visible dirt and debris from all equipment and gear (including drive mechanisms, wheels, tires, tracks, buckets, and undercarriage) before arriving and leaving the job site to prevent the transport and introduction of invasive species. For contaminated or high risk sites please refer to the Method 2 Decontamination protocol. Properly dispose of any water and chemicals used to clean gear and equipment. You can find this and additional information in the Washington Department of Fish and Wildlife's "Invasive Species Management Protocols", available online at <https://wdfw.wa.gov/species-habitats/invasive/prevention>.
- 4. NOTIFICATION:** You, your agent, or contractor must contact the Washington Department of Fish and Wildlife by e-mail at [HPAapplications@dfw.wa.gov](mailto:HPAapplications@dfw.wa.gov); mail to Post Office Box 43234, Olympia, Washington 98504-3234; or fax to (360) 902-2946 at least three business days before starting work. The notification must include the permittee's name, project location, starting date, and the Hydraulic Project Approval permit number.
- 5. FISH KILL/ WATER QUALITY PROBLEM NOTIFICATION:** If a fish kill occurs or fish are observed in distress at the job site, immediately stop all activities causing harm. Immediately notify the Washington Department of Fish and Wildlife of the problem. If the likely cause of the fish kill or fish distress is related to water quality, also notify the Washington Military Department Emergency Management Division at 1-800-258-5990. Activities related to the fish kill or fish distress must not resume until the Washington Department of Fish and Wildlife gives approval. The Washington Department of Fish and Wildlife may require additional measures to mitigate impacts.

### STAGING, JOB SITE ACCESS, AND EQUIPMENT

- 6. Establish staging areas** (used for equipment storage, vehicle storage, fueling, servicing, and hazardous material storage) in a location and manner that will prevent contaminants such as petroleum products, hydraulic fluid, fresh concrete, sediments, sediment-laden water, chemicals, or any other toxic or harmful materials from entering waters of the state.



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 Application ID: 35210

7. Clearly mark boundaries to establish the limit of work associated with site access and construction.
8. This Hydraulic Project Approval does not authorize the removal of riparian zone vegetation.
9. Check equipment daily for leaks and complete any required repairs in an upland location before using the equipment in or near the water.
10. Use environmentally acceptable lubricants composed of biodegradable base oils such as vegetable oils, synthetic esters, and polyalkylene glycols in equipment operated in or near the water.
11. Conduct all fueling activities a minimum of 100 feet away from any stream channel or place equipment in a secondary containment unit (i.e. pumps) to prevent the spillage of petro-chemicals. A petroleum spill kit is required to be present at the construction site for the duration of the project.
12. Protect all disturbed areas from erosion. Maintain erosion and sediment control until all work and cleanup of the job site is complete.

### UTILITY CROSSING

13. Align the conduit as perpendicular as possible to the watercourse.
14. Avoid crossing at meander bends, braided streams, alluvial fans, active flood plains, or any other area that is inherently unstable and may lead to eroding and scouring the stream bed.
15. Install the conduit well below scour depth of the watercourse to prevent natural scouring of the stream bed from exposing the pipeline or cable.
16. Avoid areas of groundwater upwelling or locations within one hundred feet upstream of documented fish spawning areas.
17. Directional drilling work:
  - a. Design the drill path to an appropriate depth below the watercourse to minimize the risk of frac-out and to a depth to prevent exposure of the line from natural scouring of the stream bed; and
  - b. Locate the drill entry and exit points 150 feet away from the banks of the watercourse to minimize impact on these areas.
  - c. Do not disturb the streambed. If the streambed collapses and flow enters the drilling area, work activities must cease and the Habitat Biologist listed below must be contacted immediately.

### DEMOBILIZATION AND CLEANUP

18. Upon completion of the project, remove all materials or equipment from the site and dispose of all excess spoils and waste materials in an upland area above the limits of anticipated floodwater.

LOCATION #1:		Henson Road, Mount Vernon, WA				
WORK START:		September 4, 2024		WORK END:		March 31, 2025
<u>WRIA</u>		<u>Waterbody:</u>			<u>Tributary to:</u>	
03 - Skagit Lower - Samish		Other			Other	
<u>1/4 SEC:</u>	<u>Section:</u>	<u>Township:</u>	<u>Range:</u>	<u>Latitude:</u>	<u>Longitude:</u>	<u>County:</u>
SW 1/4	29	34 N	04 E	48.401852	-122.331589	Skagit
<u>Location #1 Driving Directions</u>						

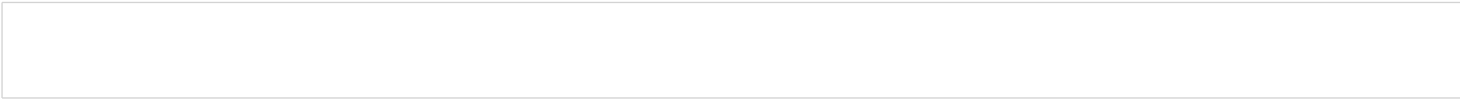


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Permit Number: 2024-4-475+01  
FPA/Public Notice Number: N/A  
Application ID: 35210



## APPLY TO ALL HYDRAULIC PROJECT APPROVALS

This Hydraulic Project Approval pertains only to those requirements of the Washington State Hydraulic Code, specifically Chapter 77.55 RCW. Additional authorization from other public agencies may be necessary for this project. The person(s) to whom this Hydraulic Project Approval is issued is responsible for applying for and obtaining any additional authorization from other public agencies (local, state and/or federal) that may be necessary for this project.

This Hydraulic Project Approval shall be available on the job site at all times and all its provisions followed by the person (s) to whom this Hydraulic Project Approval is issued and operator(s) performing the work.

This Hydraulic Project Approval does not authorize trespass.

The person(s) to whom this Hydraulic Project Approval is issued and operator(s) performing the work may be held liable for any loss or damage to fish life or fish habitat that results from failure to comply with the provisions of this Hydraulic Project Approval.

Failure to comply with the provisions of this Hydraulic Project Approval could result in civil action against you, including, but not limited to, a stop work order or notice to comply, and/or a gross misdemeanor criminal charge, possibly punishable by fine and/or imprisonment.

All Hydraulic Project Approvals issued under RCW 77.55.021 are subject to additional restrictions, conditions, or revocation if the Department of Fish and Wildlife determines that changed conditions require such action. The person(s) to whom this Hydraulic Project Approval is issued has the right to appeal those decisions. Procedures for filing appeals are listed below.

**MINOR MODIFICATIONS TO THIS HPA:** You may request approval of minor modifications to the required work timing or to the plans and specifications approved in this HPA unless this is a General HPA. If this is a General HPA you must use the Major Modification process described below. Any approved minor modification will require issuance of a letter documenting the approval. A minor modification to the required work timing means any change to the work start or end dates of the current work season to enable project or work phase completion. Minor modifications will be approved only if spawning or incubating fish are not present within the vicinity of the project. You may request subsequent minor modifications to the required work timing. A minor modification of the plans and specifications means any changes in the materials, characteristics or construction of your project that does not alter the project's impact to fish life or habitat and does not require a change in the provisions of the HPA to mitigate the impacts of the modification. If you originally applied for your HPA through the online Aquatic Protection Permitting System (APPS), you may request a minor modification through APPS. A link to APPS is at <http://wdfw.wa.gov/licensing/hpa/>. If you did not use APPS you must submit a written request that clearly indicates you are seeking a minor modification to an existing HPA. Written requests must include the name of the applicant, the name of the authorized agent if one is acting for the applicant, the APP ID number of the HPA, the date issued, the permitting biologist, the requested changes to the HPA, the reason for the requested change, the date of the request, and the requestor's signature. Send by mail to: Washington Department of Fish and Wildlife, PO Box 43234, Olympia, Washington 98504-3234, or by email to [HPAapplications@dfw.wa.gov](mailto:HPAapplications@dfw.wa.gov). You should allow up to 45 days for the department to process your request.



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Olympia, WA 98504-3234  
(360) 902-2200

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Project End Date: March 31, 2025

Permit Number: 2024-4-475+01  
FPA/Public Notice Number: N/A  
Application ID: 35210

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**MAJOR MODIFICATIONS TO THIS HPA:** You may request approval of major modifications to any aspect of your HPA. Any approved change other than a minor modification to your HPA will require issuance of a new HPA. If you originally applied for your HPA through the online Aquatic Protection Permitting System (APPS), you may request a major modification through APPS. A link to APPS is at <http://wdfw.wa.gov/licensing/hpa/>. If you did not use APPS you must submit a written request that clearly indicates you are requesting a major modification to an existing HPA. Written requests must include the name of the applicant, the name of the authorized agent if one is acting for the applicant, the APP ID number of the HPA, the date issued, the permitting biologist, the requested changes to the HPA, the reason for the requested change, the date of the request, and the requestor's signature. Send your written request by mail to: Washington Department of Fish and Wildlife, PO Box 43234, Olympia, Washington 98504-3234. You may email your request for a major modification to [HPAapplications@dfw.wa.gov](mailto:HPAapplications@dfw.wa.gov). You should allow up to 45 days for the department to process your request.

## APPEALS INFORMATION

If you wish to appeal the issuance, denial, conditioning, or modification of a Hydraulic Project Approval (HPA), Washington Department of Fish and Wildlife (WDFW) recommends that you first contact the department employee who issued or denied the HPA to discuss your concerns. Such a discussion may resolve your concerns without the need for further appeal action. If you proceed with an appeal, you may request an informal or formal appeal. WDFW encourages you to take advantage of the informal appeal process before initiating a formal appeal. The informal appeal process includes a review by department management of the HPA or denial and often resolves issues faster and with less legal complexity than the formal appeal process. If the informal appeal process does not resolve your concerns, you may advance your appeal to the formal process. You may contact the HPA Appeals Coordinator at (360) 902-2534 for more information.

**A. INFORMAL APPEALS:** WAC 220-660-460 is the rule describing how to request an informal appeal of WDFW actions taken under Chapter 77.55 RCW. Please refer to that rule for complete informal appeal procedures. The following information summarizes that rule.

A person who is aggrieved by the issuance, denial, conditioning, or modification of an HPA may request an informal appeal of that action. You must send your request to WDFW by mail to the HPA Appeals Coordinator, Department of Fish and Wildlife, Habitat Program, PO Box 43234, Olympia, Washington 98504-3234; e-mail to [HPAapplications@dfw.wa.gov](mailto:HPAapplications@dfw.wa.gov); fax to (360) 902-2946; or hand-delivery to the Natural Resources Building, 1111 Washington St SE, Habitat Program, Fifth floor. WDFW must receive your request within 30 days from the date you receive notice of the decision. If you agree, and you applied for the HPA, resolution of the appeal may be facilitated through an informal conference with the WDFW employee responsible for the decision and a supervisor. If a resolution is not reached through the informal conference, or you are not the person who applied for the HPA, the HPA Appeals Coordinator or designee may conduct an informal hearing or review and recommend a decision to the Director or designee. If you are not satisfied with the results of the informal appeal, you may file a request for a formal appeal.

**B. FORMAL APPEALS:** WAC 220-660-470 is the rule describing how to request a formal appeal of WDFW actions taken under Chapter 77.55 RCW. Please refer to that rule for complete formal appeal procedures. The following information summarizes that rule.



# HYDRAULIC PROJECT APPROVAL

Exhibit F  
Washington Department of  
Fish & Wildlife  
PO Box 43234  
Olympia, WA 98504-3234  
(360) 902-2200

Issued Date: September 04, 2024  
Project End Date: March 31, 2025

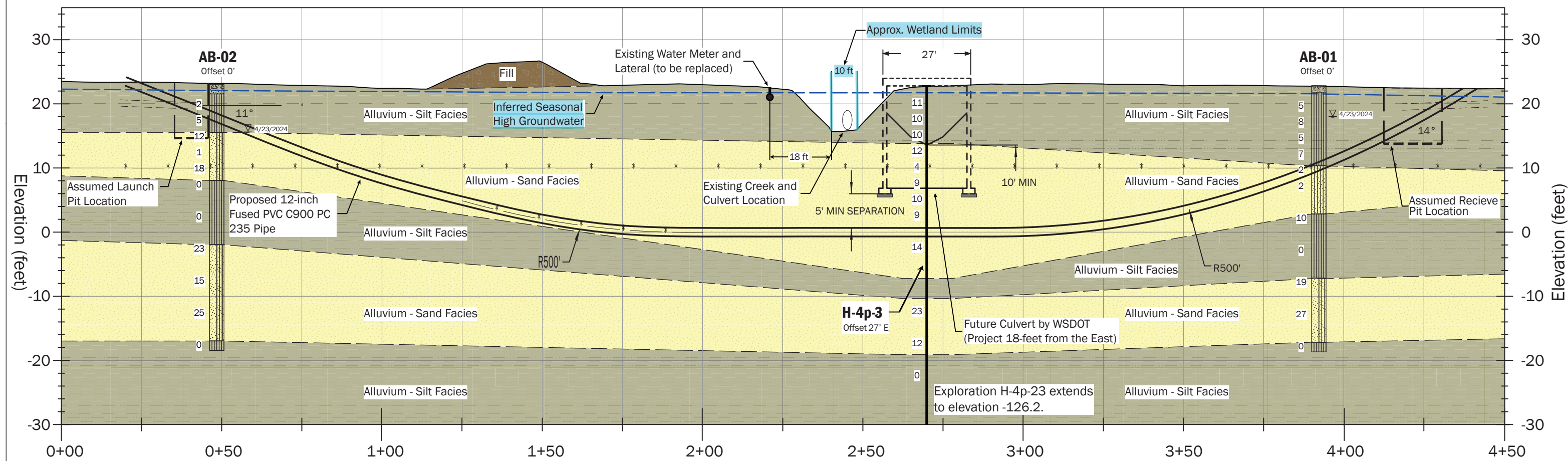
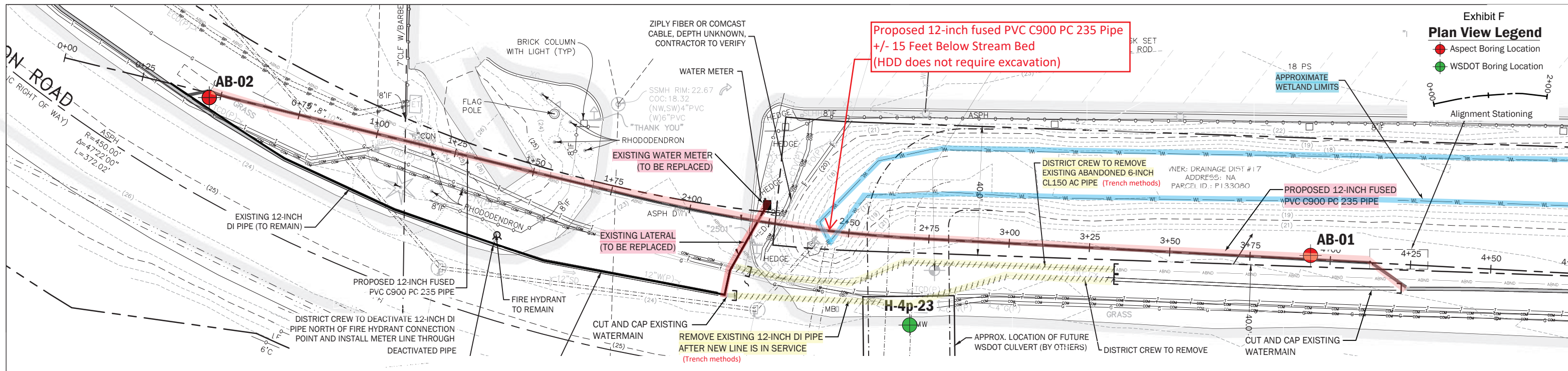
Permit Number: 2024-4-475+01  
FPA/Public Notice Number: N/A  
Application ID: 35210

A person who is aggrieved by the issuance, denial, conditioning, or modification of an HPA may request a formal appeal of that action. You must send your request for a formal appeal to the clerk of the Pollution Control Hearings Boards and serve a copy on WDFW within 30 days from the date you receive notice of the decision. You may serve WDFW by mail to the HPA Appeals Coordinator, Department of Fish and Wildlife, Habitat Program, PO Box 43234, Olympia, Washington 98504-3234; e-mail to [HPAapplications@dfw.wa.gov](mailto:HPAapplications@dfw.wa.gov); fax to (360) 902-2946; or hand-delivery to the Natural Resources Building, 1111 Washington St SE, Habitat Program, Fifth floor. The time period for requesting a formal appeal is suspended during consideration of a timely informal appeal. If there has been an informal appeal, you may request a formal appeal within 30 days from the date you receive the Director's or designee's written decision in response to the informal appeal.

C. FAILURE TO APPEAL WITHIN THE REQUIRED TIME PERIODS: If there is no timely request for an appeal, the WDFW action shall be final and unappealable.

Habitat Biologist            Jessica.Pyle@dfw.wa.gov  
Jessica Pyle                 360-298-3905

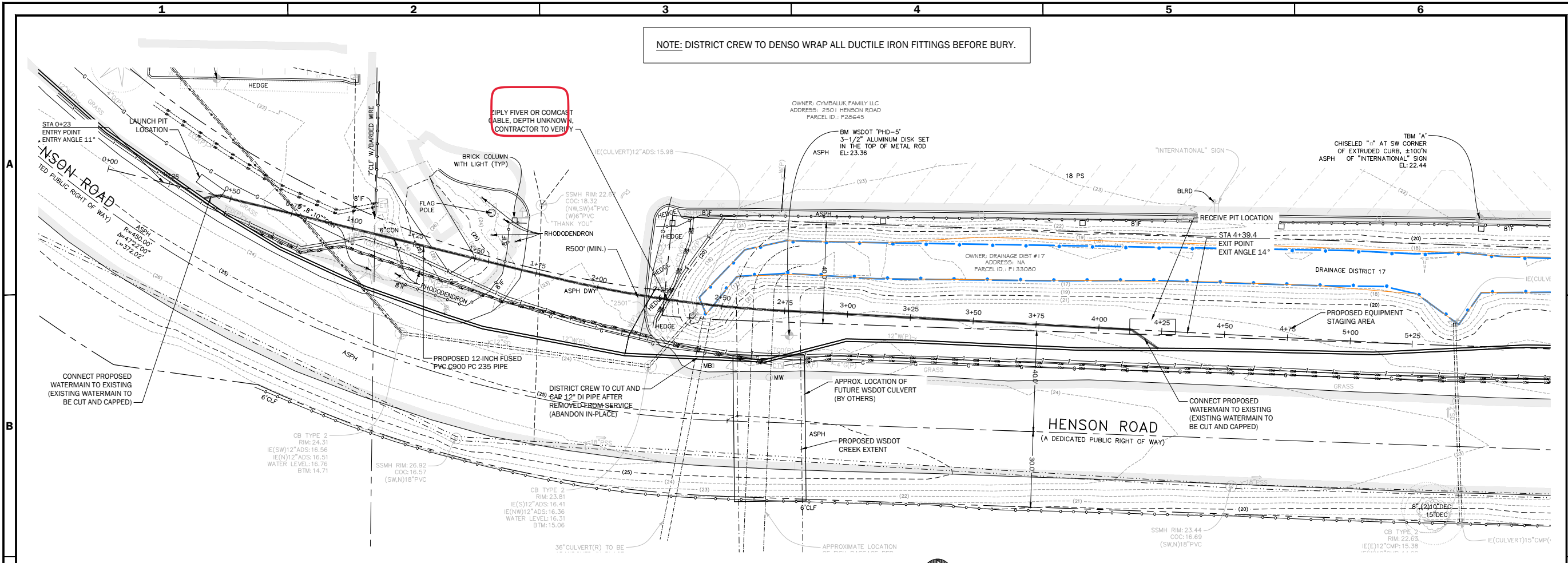
for Director  
WDFW



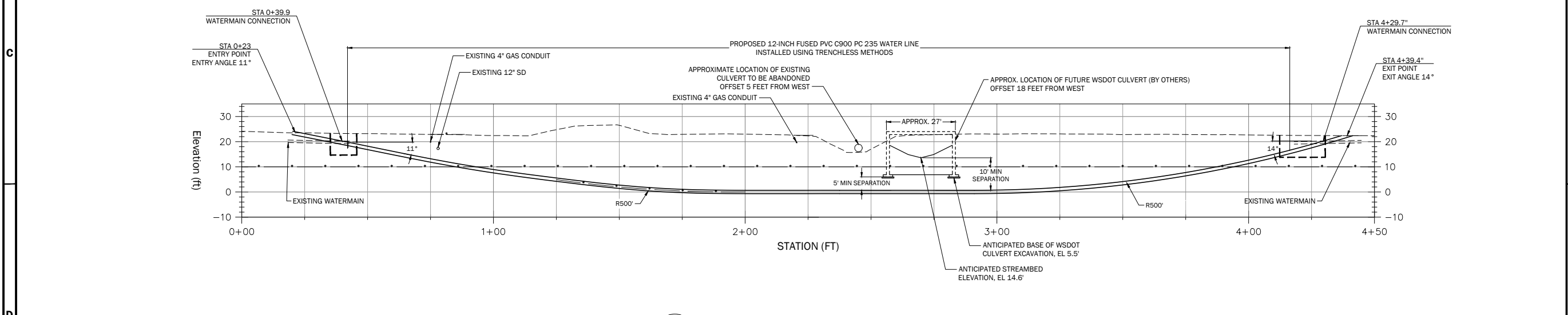
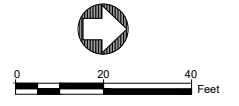
<p><b>Profile Legend</b></p> <p><i>Lithology Graphics</i></p> <ul style="list-style-type: none"> <li>Fill</li> <li>Alluvium - Silt Facies (ML, SM)</li> <li>Alluvium - Sand Facies (SM, SP-SM, SP)</li> </ul>	<p><i>Contacts</i></p> <ul style="list-style-type: none"> <li>Contact - Known</li> <li>Contact - Inferred</li> <li>Contact - Queried</li> <li>Inferred Seasonal High Groundwater</li> </ul>	<p><i>Aspect Explorations</i></p> <p>B-01 (Offset 31 SE)</p> <ul style="list-style-type: none"> <li>Borehole ID Offset and direction</li> <li>SPT Blow Count N Value</li> <li>Groundwater at time of drilling</li> <li>Material Type (see Lithology Graphics)</li> <li>Inferred Geologic Contact</li> </ul>	<p><i>Explorations by Others</i></p> <p>B-01 (Offset 31 SE)</p> <ul style="list-style-type: none"> <li>Borehole ID Offset and direction</li> <li>SPT Blow Count N Value</li> </ul>	<p style="text-align: center;">               0 30 60              Feet              Horizontal Scale 1" = 30'              Vertical Scale 1" = 15'              Vertical Exaggeration 2x         </p>	<p>DISCLAIMER: The subsurface conditions presented in this geologic cross section are conceptual. Variations may exist between the soil and groundwater conditions depicted on this figure and those actually underlying the site. Refer to the contents of this report and boring logs for further context.</p> <p>Notes:</p> <ul style="list-style-type: none"> <li>Cross section surface and plan view generated from base CAD files provided by Bush, Roed &amp; Hitchings, Inc. dated 3/29/2024.</li> <li>Cross section profile is taken along project station alignment.</li> <li>Site features are approximate.</li> </ul>	<p style="text-align: center;"><b>Geologic Cross Section</b></p> <p style="text-align: center;">Geotechnical Engineering Report Skagit County PUD Pipeline Relocation at Henson Road Skagit County, Washington</p> <p style="text-align: center;"><b>DRAFT</b></p> <table border="1" style="width: 100%;"> <tr> <td style="width: 33%;">                 Aspect CONSULTING                  JUNE-2023                  PROJECT NO. AS240082             </td> <td style="width: 33%;">                 BY: JBM                  REVISED BY:             </td> <td style="width: 33%;">                 FIGURE NO.  <b>3</b> </td> </tr> </table>	Aspect CONSULTING JUNE-2023 PROJECT NO. AS240082	BY: JBM REVISED BY:	FIGURE NO. <b>3</b>
Aspect CONSULTING JUNE-2023 PROJECT NO. AS240082	BY: JBM REVISED BY:	FIGURE NO. <b>3</b>							



NOTE: DISTRICT CREW TO DENSO WRAP ALL DUCTILE IRON FITTINGS BEFORE BURY.



**TRENCHLESS PLAN**  
SCALE: 1" = 20'



**TRENCHLESS PROFILE**  
SCALE: 1" = 20'

Horizontal Scale: 1" = 20'  
Vertical Scale: 1" = 20'  
Vertical Exaggeration 1x

NOTE:  
THE 5 FEET OF VERTICAL SEPARATION SHOWN BETWEEN THE PROPOSED WATER MAIN AND THE ANTICIPATED BASE OF WSDOT CULVERT ELEVATION IS BASED ON CURRENT WSDOT PLANS DATED 9/22/23 WITH A BOX CULVERT BASE ELEVATION OF EL. 0.5 FEET.

NO.	DESCRIPTION	DATE	APPR.

Skagit PUD  
 PUBLIC UTILITY DISTRICT

Aspect CONSULTING

**TRENCHLESS PLAN AND PROFILE**  
 SKAGIT COUNTY PUD  
 PIPELINE RELOCATION AT HENSON ROAD  
 SKAGIT COUNTY, WASHINGTON

SHEET  
 REFERENCE  
 NUMBER:  
**C-2**  
 SHEET 4 OF 8

C:\p\p\0\1049\1049.dwg (4/23/2024 10:48:48 AM) User: jrg

## RIGHT-OF-WAY CONSTRUCTION PERMIT

**ISSUE DATE:** 07/31/2025

**PERMIT #:** ENGR25-0208

**ABUTTING SITE ADDRESS:** 2501 Henson Road, Drainage...

**ABUTTING PARCEL #:** P28645, P133080

**PERMIT EXPIRATION:** 07/31/2026

**SITE ADDRESS:** 2501 Henson Road, Drainage Ditch

**PERMIT APPLICANT:**

LaRocque, Wendy  
1415 Freeway Drive  
Mount Vernon, WA 98273  
360-399-5274

**PERMIT CONTRACTOR:**

SKAGIT PUBLIC UTILITY DISTRICT NO. 1  
1415 Freeway Dr  
MOUNT VERNON, WA 98273  
360-848-4440

**CONTRACTOR LICENSE #:** N/A

**THIS PERMIT AUTHORIZES THE BELOW DESCRIBED WORK:**

Installation of approximately 420 linear feet of 12-inch fused PVC C900 carrier water pipeline by horizontal direction drill under Martha Creek west of Henson Road, approximately 700 feet north of Anderson Road to facilitate future WSDOT culvert project.

**CONDITIONS AND COMMENTS APPLICABLE TO THIS PERMIT:**

1. Contractor is required to give City at least 24 hours advance notice before construction begins for traffic noticing purposes. Contact DS-Engineering@mountvernonwa.gov or 360.336.6214
2. All elements of the traffic control plan (TCP) provided are required to meet MUTCD standards relevant to the plans submitted. If, after the permit has been issued, it is found that the TCP has deficient elements or is not compliant with MUTCD standards, it is the applicant and contractors sole responsibility to adjust the TCP for compliance with MUTCD guidelines.
3. Erosion and Sediment control BMP's shall be in place and inspected prior to commencing any construction activity.
4. If ADA components are disturbed as a part of construction, then any associated ADA components shall be replaced entirely.

This permit is issued by the Development Review Engineer and shall expire and become null and void if the work authorized by this permit is not commenced within one (1) year from the date of permit issuance. All work is required to comply with the City's municipal code, Engineering Standards, and the Washington State Department of Transportation Standard Specifications for Roads, Bridges and Municipal Construction.

All work within the right-of-way is required to be completed by a licensed contractor.

By signing this permit I acknowledge I have been made aware that:

- All inspections must be requested over the Permit Portal.
- The Applicant and Contractor are responsible for having all utilities located prior to construction activities commencing.
- Compliance with all applicable laws is the responsibility of the Applicant and Contractor completing the work authorized with this permit.
- The City is not responsible for, and does not authorize work required to comply with Federal, State, County or other local laws, permits or mandates that the City does not have jurisdiction over.
- The Applicant or the Contractor must notify the City inspector prior to beginning any work. If the work requires any lane or street closures, the City inspector must be notified at least 72 hours prior to the scheduled work, so that proper public notice can be issued.

Any person engaged in ground disturbing activity who encounters or discovers historical and/or archeological materials in or on the ground shall:

- Immediately cease any activity which may cause further disturbance;
- Make a reasonable effort to protect the area from further disturbance; and,
- Report the presence and location of the material to the proper authorities in the most expeditious manner possible.

When submitting this permit the Applicant has declared, under penalty of perjury under the laws of the State of Washington, that all of the materials, statements and information contained in the materials submitted to the City allowing this permit to be issued, is in all respects true, correct, and complete to the best of the Applicant's knowledge and belief. In addition, the Applicant is certifying they are the owner, or are acting as the Owner's authorized agent and will ensure all provisions of laws and ordinances governing the type of work this permit will be complied with whether specified herein or not, including calls for inspections.

When signed and dated below by the City's Development Review Engineer, this is your permit and permission is given to do the work described above under the heading "This Permit Authorizes the Below Descibed Work", according to the conditions hereo...

**BY COMMENCING THE WORK DESCRIBED IN THIS PERMIT THE APPLICANT HAS ACKNOWLEDGED THEY HAVE READ THIS PERMIT DOCUMENT, UNDERSTAND ITS CONTENTS AND AGREE TO BE BOUND BY ITS TERMS, CONDITIONS, AND INSPECTION REQUIREMENTS.**



07/31/2025

Development Review Engineer  
Signature

Date Issued



**DEVELOPMENT SERVICES**

910 Cleveland Avenue  
Mount Vernon, WA 98273  
(360) 336-6214 -- Office

**RIGHT-OF-WAY - CONSTRUCTION PROJECTS INSPECTION RECORD**

<b>ISSUE DATE:</b> 07/31/2025	<b>PERMIT TYPE:</b> Right-of-Way - Construction Projects	<b>PERMIT #:</b> ENGR25-0208
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**THIS PERMIT AUTHORIZES THE BELOW DESCRIBED WORK:**  
Installation of approximately 420 linear feet of 12-inch fused PVC C900 carrier water pipeline by horizontal direction drill under Martha Creek west of Henson Road, approximately 700 feet north of Anderson Road to facilitate future WSDOT culvert project.

**INSPECTIONS REQUIRED FOR THIS PERMIT**

<b>INSPECTION</b>	<b>STAFF</b>	<b>DATE</b>	<b>COMMENTS</b>
1. JOB START			
2. TRAFFIC CONTROL			
3. EROSION CONTROL			
4. FINAL INSPECTION - ENGINEERING			



DRAFT

STANDARD TESC NOTES

- 1. PRIOR TO COMMENCING CONSTRUCTION, ALL CRITICAL AREAS, INCLUDING WETLAND BUFFERS, STREAM BUFFER, LANDFILL AREAS, AND CONDITIONS AS DETERMINED BY THE CITY INSPECTOR SHALL BE CONTINUOUSLY DEMARCATED IN THE FIELD USING FLAGGING TAPE OR FENCING. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH CITY OF MOUNT VERNON STANDARDS AND SPECIFICATIONS.
2. EROSION CONTROL METHODS AND MATERIALS SHALL MEET REQUIREMENTS OF THE APWA/WASHINGTON STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION (CURRENT EDITION) AND REQUIREMENTS SET FORTH IN VOLUME II OF THE "STORMWATER MANAGEMENT MANUAL FOR THE PUGET SOUND BASIN (THE TECHNICAL MANUAL)", BY THE WASHINGTON STATE DEPARTMENT OF ECOLOGY, EDITION CURRENTLY ADOPTED BY THE CITY OF MOUNT VERNON. THE CONTRACTOR SHALL FOLLOW RECOMMENDATIONS MADE BY SUPPLIERS AND MANUFACTURERS OF MATERIALS AND EQUIPMENT USED.
3. THE ESC FACILITIES SHOWN ON THIS PLAN MUST BE INSTALLED AND IN OPERATION IN ADVANCE OF ALL CLEARING AND GRADING ACTIVITIES IN SUCH A MANNER AS TO ENSURE THAT SEDIMENT-LADEN WATER DOES NOT ENTER THE DRAINAGE SYSTEM OR VIOLATE APPLICABLE WATER STANDARDS. WHEREVER POSSIBLE, MAINTAIN NATURAL VEGETATION FOR SILT CONTROL.
4. THE ESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE ESC FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED STORM EVENTS. ADDITIONALLY, MORE ESC FACILITIES MAY BE REQUIRED TO ENSURE COMPLETE SILTATION CONTROL. DURING THE COURSE OF CONSTRUCTION, IT SHALL BE THE OBLIGATION AND RESPONSIBILITY OF THE CONTRACTOR TO ADDRESS ANY NEW CONDITIONS THAT MAY BE CREATED BY CONSTRUCTION ACTIVITIES AND TO PROVIDE ADDITIONAL FACILITIES OVER AND ABOVE THE MINIMUM REQUIREMENTS AS MAY BE NEEDED.
5. ANY PERMANENT RETENTION/DETENTION FACILITY USED AS A TEMPORARY SETTLING BASIN SHALL BE MODIFIED WITH THE NECESSARY EROSION CONTROL MEASURES AND SHALL PROVIDE ADEQUATE STORAGE CAPACITY.
6. A COPY OF THE APPROVED EROSION CONTROL PLANS MUST BE KEPT ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS.
7. OFF-SITE STREETS MUST BE KEPT CLEAN AT ALL TIMES. IF DIRT IS DEPOSITED ON THE PUBLIC STREET SYSTEM, THE STREET SHALL BE IMMEDIATELY CLEANED WITH POWER SWEEPER OR OTHER APPROVED EQUIPMENT. ALL ADJACENT OFF-SITE PROPERTIES AND DRAINAGE FACILITIES SHALL BE PROTECTED FROM DAMAGE. ALL VEHICLES SHALL LEAVE THE SITE BY WAY OF THE CONSTRUCTION ENTRANCE AND SHALL BE CLEANED OF ALL DIRT THAT WOULD BE DEPOSITED ON THE PUBLIC STREETS.
8. ALL PROPERTIES ADJACENT TO THE PROJECT SITE SHALL BE PROTECTED FROM SEDIMENT DEPOSITION AND RUNOFF. DO NOT FLUSH SEDIMENT OR CONCRETE BY-PRODUCTS OR CLEAN TRUCKS NEAR OR INTO THE STORM DRAINAGE OR SEWER SYSTEMS.
9. THE IMPLEMENTATION OF THESE ESC PLANS AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.
10. ANY AREAS OF EXPOSED SOILS, INCLUDING ROADWAY EMBANKMENTS, THAT WILL NOT BE DISTURBED FOR TWO DAYS DURING THE WET SEASON OR SEVEN DAYS DURING THE DRY SEASON SHALL BE IMMEDIATELY STABILIZED WITH THE APPROVED ESC METHODS.
11. ANY AREA NEEDING ESC MEASURES NOT REQUIRING IMMEDIATE ATTENTION SHALL BE ADDRESSED WITHIN FIFTEEN (15) CALENDAR DAYS.
12. THE ESC FACILITIES ON ACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE A MONTH AND WITHIN FORTY-EIGHT (48) HOURS FOLLOWING A STORM EVENT.
13. AT NO TIME SHALL MORE THAN ONE (1) FOOT OF SEDIMENT BE ALLOWED TO ACCUMULATE WITHIN A CATCH BASIN. ALL CATCH BASINS AND CONVEYANCE LINES SHALL BE CLEANED PRIOR TO PAVING. THE CLEANING OPERATION SHALL NOT FLUSH SEDIMENT -LADEN WATER INTO THE DOWNSTREAM SYSTEM.
14. STABILIZED CONSTRUCTION ENTRANCES AND ROADS SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES, SUCH AS WASH PADS, MAY BE REQUIRED TO ENSURE THAT ALL OFF-SITE PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.
15. PRIOR TO THE BEGINNING OF THE WET SEASON THE CONTRACTOR SHALL DETERMINE BMP MEASURES. ALL DISTURBED AREAS SHALL BE INSPECTED BY THE CONTRACTOR TO IDENTIFY WHICH AREAS SHALL BE STABILIZED IN PREPARATION FOR THE WINTER RAINS. DISTURBED AREAS SHALL BE STABILIZED WITHIN ONE WEEK OF THE BEGINNING OF THE WET SEASON.

GENERAL NOTES

- 1. THE CONTRACTOR SHALL PROTECT BUILDINGS, FENCES, APPURTENANCES, ABOVE GROUND UTILITIES, AND OTHER PROPERTY ADJACENT TO ALL CONSTRUCTION AREAS. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR REPAIRING ALL DAMAGE CAUSED BY CONSTRUCTION ACTIVITIES.
2. ONSITE EROSION CONTROL MEASURES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND BE IN PLACE PRIOR TO GROUND DISTURBANCE. ANY PROBLEMS OCCURRING BEFORE FINAL ACCEPTANCE BY THE DISTRICT SHALL BE CORRECTED BY THE CONTRACTOR. UPON FINAL ACCEPTANCE BY THE DISTRICT, OR AS OTHERWISE DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL REMOVE ALL TEMPORARY EROSION CONTROL MEASURES AS DIRECTED BY THE ENGINEER.
3. ANY REVISIONS TO PLANS MUST BE APPROVED BY THE ENGINEER AND THE DISTRICT PRIOR TO ANY IMPLEMENTATION IN THE FIELD.
4. A COPY OF THE APPROVED PLANS MUST BE ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS.
5. MATERIALS SAMPLING AND TESTING SHALL BE AT A FREQUENCY AND MAGNITUDE AS SPECIFIED IN THE STANDARD SPECIFICATIONS OR DETERMINED BY THE ENGINEER OR DISTRICT. A PRIVATE AND INDEPENDENT TESTING LABORATORY SHALL PERFORM TESTING AND SAMPLING. CERTIFIED TEST REPORTS SHALL BE FURNISHED FOR ALL TESTS PERFORMED BY PRIVATE TESTING LABORATORIES.

GENERAL TRENCHLESS WATER MAIN CONSTRUCTION NOTES

- 1. ALL PERMIT DOCUMENTS ASSUME THAT THIS TRENCHLESS CROSSING WILL BE INSTALLED USING DIRECTIONAL DRILLING METHODS. THE CONTRACTOR IS FULLY RESPONSIBLE FOR OBTAINING NEW PERMITS IF A DIFFERENT METHOD IS PROPOSED.
2. THE CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING DIMENSIONS AND LOCATIONS OF LAUNCH/RECEIVING PITS.
3. PROFILE STATIONING REFERENCES CONTROL ALIGNMENT. PROFILE ELEVATIONS SHOWN ARE DIRECTLY ABOVE PROPOSED WATERMAIN ALIGNMENT.
4. THE CONTRACTOR SHALL CONTAIN WORK TO WITHIN RIGHT OF WAY OR THE TEMPORARY CONSTRUCTION EASEMENT LIMITS AS ILLUSTRATED ON THE PLANS.
5. CONTRACTOR SHALL RECORD HORIZONTAL DRILL BIT LOCATION AFTER ADVANCEMENT OF EACH SUCCESSIVE DRILL PIPE OR EVERY TEN FEET, WHICHEVER IS MORE FREQUENT, AND PLOT ON A SCALED DRAWING OF 1" = 4' VERTICAL AND 1" = 20' HORIZONTAL. MAKE ALL RECORDED READINGS AND PLAN AND PROFILE INFORMATION AVAILABLE AT ALL TIMES.
6. CONTRACTOR SHALL PROVIDE OWNER AND ENGINEER WITH DAILY UPDATES OF PILOT HOLE PROGRESS, LOCATION, AND DEPTH.
7. CONTRACTOR SHALL SUBMIT THE FINAL PILOT BORE PATH TO THE OWNER AND ENGINEER DIRECTLY AFTER PILOT BORE PATH COMPLETION. AFTER APPROVAL OF THE PILOT BORE PATH, THE CONTRACTOR MAY BEGIN THE HOLE OPENING OR ENLARGING PHASE.
8. THE CONTRACTOR SHALL MAINTAIN A DAILY PROJECT LOG OF DRILLING OPERATIONS AND A GUIDANCE SYSTEM LOG WITH A COPY AVAILABLE TO THE OWNER AT THE COMPLETION OF THE PROJECT.
9. THE CONTRACTOR SHALL RECORD THE GUIDANCE SYSTEM DATA DURING THE ACTUAL CROSSING OPERATION. FURNISH "AS-BUILT" PLAN AND PROFILE DRAWINGS BASED ON THESE RECORDINGS SHOWING THE ACTUAL LOCATION HORIZONTALLY AND VERTICALLY OF THE INSTALLATION AT A MINIMUM OF 10-FOOT INTERVALS, AND ALL UTILITY FACILITIES FOUND DURING THE INSTALLATION. CERTIFY THE GUIDANCE DATA.

SITE RESTORATION NOTES

- 1. REPAIR ALL DAMAGE TO WSDOT AND PRIVATE PROPERTY TO THE SATISFACTION OF THE AFFECTED HOMEOWNER AT NO ADDITIONAL COST TO THE DISTRICT.
2. REPAIR ALL LANDSCAPING AND GRAVEL AREAS TO EXISTING OR BETTER CONDITION.

DISTRICT STANDARD GENERAL NOTES (MINIMUM REQUIREMENTS)

- 1. UNLESS STATED OTHERWISE, ALL WORK IS TO BE PERFORMED IN ACCORDANCE WITH THE MOST CURRENT WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION AND THE DISTRICT REQUIREMENTS AS OUTLINED IN THE DISTRICT'S WATER POLICY MANUAL.
2. THE CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION CONFERENCE WITH THE DISTRICT ENGINEERING DEPARTMENT, (360) 424-7104, A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION.
3. ALL PERMITS NECESSARY FOR THE INSTALLATION OF THE PROPOSED WATER SYSTEM IMPROVEMENTS WILL BE THE RESPONSIBILITY OF THE DEVELOPER, ENGINEER, OR CONTRACTOR TO ACQUIRE. A COPY OF THE PERMITS WILL BE SUBMITTED TO THE DISTRICT, PRIOR TO CONSTRUCTION. ALL RIGHTS SHALL BE GRANTED TO, OR TRANSFERRED TO THE DISTRICT.
4. DISTRICT REFERENCE DOCUMENTS, SUCH AS STANDARD DETAILS, WATER POLICY MANUAL, DRAWING STANDARDS, ETC., CAN BE FOUND ON THE DISTRICT WEBSITE AT WWW.SKAGIT PUD.ORG.
5. ALL TIE-INS, SHUTDOWN, FLUSHING, AND HEALTH SAMPLES SHALL BE COORDINATED WITH THE DISTRICT. THE CONTRACTOR SHALL NOT OPERATE ANY VALVES.
6. A LIST OF ALL MATERIALS, INDICATING THE MANUFACTURER, MODEL, AND SIZE, FOR THE WATER SYSTEM IMPROVEMENTS WILL BE APPROVED BY THE DISTRICT PRIOR TO CONSTRUCTION. CONTACT DISTRICT FOR SUBMITTAL REQUIREMENTS.
7. PVC PIPE SHALL CONFORM TO AWWA C900, ASTM D2241 or ASTM D1785 FOR STANDARD DIMENSIONS, AS APPLICABLE.
8. ALL BOLTS USED IN BURIED FLANGES SHALL BE ASTM A307 GRADE B UNFINISHED WITH NUTS TO ASTM A563 GRADE A AND WASHERS TO ASTM F8444, OR ASTM A325 TYPE 3 (CORTEN STEEL) UNFINISHED, WITH NUTS TO ASTM A563C3 OR A563DH3 AND WASHERS TO ASTM F436-1. ALL BOLTS, NUTS AND WASHERS USED IN EXPOSED OR ABOVE GROUND LOCATIONS SHALL BE ASTM A307 GRADE B UNFINISHED OR HOT-DIP GALVANIZED.
9. ALL GATE VALVES TO BE RESILIENT SEATED GATE VALVES, AWWA C515 OR C509 (DUCTILE IRON BODY ONLY) WITH STAINLESS STEEL NUTS, BOLTS AND TRIM.
10. ALL BUTTERFLY VALVES TO BE RUBBER SEATED BUTTERFLY VALVES, AWWA C504 WITH STAINLESS STEEL NUTS, BOLTS AND TRIM.
11. RESTRAINED JOINTS MAY BE USED IN PLACE OF CONCRETE BLOCKING AS DIRECTED BY THE PROJECT'S DESIGN ENGINEER AND ACCEPTED BY THE DISTRICT.
12. ALL FIRE HYDRANTS SHALL CONFORM TO AWWA C502 WITH STORZ ADAPTORS. ACCEPTABLE FIRE HYDRANTS INCLUDE CLOW MEDALLION, MUELLER CENTURION OR SUPER CENTURION, AMERICAN DARLING B62B AND AMERICAN AVK NOSTALGIC.
13. A #10 SOLID COPPER WIRE WITH BLUE INSULATION IS TO BE INSTALLED WITH/AND ATTACHED TO ALL NEW WATER PIPELINES AND SERVICE PIPELINES. REFER TO DISTRICT DETAILS FOR INSTALLATION REQUIREMENTS.
14. UNLESS OTHERWISE SPECIFIED, ALL WATER PIPELINE INSTALLATIONS REQUIRE A 36-INCH MINIMUM COVER AND 48-INCH TYPICAL TRENCH DEPTH TO EXISTING OR FUTURE FINISH GRADE AND A MINIMUM OF 1-FOOT VERTICAL AND 5-FOOT HORIZONTAL CLEARANCE BETWEEN WATER PIPELINE AND ALL OTHER UTILITIES UNLESS OTHERWISE SPECIFIED.
15. WHEN INSTALLING WATER PIPELINE ACROSS EXISTING OR PROPOSED SANITARY SEWER, A FULL LENGTH OF PIPE SHALL BE INSTALLED WITH MID-SPAN OF THE WATER PIPE OVER THE SEWER. A MINIMUM 10-FOOT HORIZONTAL SEPARATION AND 18-INCH VERTICAL SEPARATION BETWEEN WATER PIPELINES AND SANITARY SEWER PIPELINES IS REQUIRED, UNLESS AN ALTERNATIVE PROPOSAL FROM THE DESIGN ENGINEER IS SUBMITTED TO AND APPROVED BY THE DISTRICT.
16. BEDDING MATERIAL FOR THE DUCTILE IRON PIPE SHALL BE SELECT, NATIVE, GRANULAR MATERIAL FREE FROM WOOD, WASTE, ORGANIC MATERIAL OR OTHER EXTRANEIOUS OR OBJECTIONABLE MATERIALS AND SHALL BE A MAXIMUM SIZE OF 1 1/2-INCHES OR APPROVED PIPE BEDDING PER WSDOT SPECIFICATION 7-09.3(9) AND 9-03.12(3). PEA GRAVEL AND BUCKSHOT ARE NOT ACCEPTABLE.
17. BACKFILL TRENCHES IN PAVEMENT AREAS WITH PIT-RUN GRAVEL COMPACTED TO AT LEAST 95 PERCENT MINIMUM DENSITY PER WSDOT SPECIFICATION 7-09.3(11). THE CONTRACTOR SHALL MAKE ALL PAVEMENT REPAIRS AND PERFORM ALL RESTORATION.
18. PRESSURE TESTING AND DISINFECTION SHALL BE IN ACCORDANCE WITH SKAGIT PUD WATERLINE TESTING AND DISINFECTION PROCEDURES.
19. ALL SALVAGED USABLE DISTRICT OWNED MATERIALS ARE TO BE DELIVERED TO THE DISTRICT OFFICE AT 1415 FREEWAY DRIVE, MOUNT VERNON, OR AS DIRECTED BY THE DISTRICT.
20. THE UTILITY LOCATIONS MARKED ON THIS MAP ARE APPROXIMATE. THE CONTRACTOR IS TO VERIFY ACTUAL LOCATION AND DEPTH PRIOR TO CONSTRUCTION. CALL THE UNDERGROUND UTILITY LOCATE CENTER AT 800- 424-5555.
21. ALL PRIVATE FIRE SPRINKLERS OR PRIVATE FIRE HYDRANT PIPELINES ARE REQUIRED TO BE INSTALLED WITH A WASHINGTON STATE DEPARTMENT OF HEALTH (WSDOH) APPROVED DOUBLE CHECK DETECTOR ASSEMBLY(IES) OR REDUCED PRESSURE DETECTOR ASSEMBLY(IES), LOCATED IMMEDIATELY AFTER THE FIRE SERVICE CONNECTION. A BADGER RECORD ALL METER WITH A REMOTE TOUCH-READ PAD WILL BE SUPPLIED AND INSTALLED BY THE DISTRICT WITHIN 6-INCHES OF THE VAULT LID'S HINGE AND BRASS PLUGS IN THE TEST PORTS. METER SUPPLY AND INSTALLATION WILL BE INCLUDED WITH THE CHARGES IN THE WORK ORDER.
22. A LEAD FREE, WASHINGTON STATE APPROVED, REDUCED PRESSURE BACKFLOW PREVENTION ASSEMBLY SHALL BE INSTALLED AT TEMPORARY CONNECTIONS BETWEEN THE EXISTING DISTRICT PIPELINES AND NEW WATER PIPELINES FOR FILLING, FLUSHING AND PRESSURE TESTING OF THE IMPROVEMENTS. UPON TEMPORARY CONNECTION, AND PRIOR TO FILLING, THE ASSEMBLY SHALL HAVE BEEN SUCCESSFULLY TESTED BY A BACKFLOW ASSEMBLY TESTER (BAT) AND THE TEST REPORT IS TO BE PROVIDED TO THE DISTRICT.
23. BEFORE FINAL CONNECTION TO THE EXISTING DISTRICT SYSTEM, ALL NEW WATER PIPELINES AND REPAIRED PORTIONS OF/OR EXTENSION TO EXISTING PIPELINES SHALL BE ADEQUATELY DISINFECTED AND A SATISFACTORY BACTERIOLOGICAL REPORT OBTAINED.

SURVEY INFORMATION

SURVEY COMPLETED BY: BUSH, ROED & HITCHINGS, INC. SURVEY DATED 3/29/2024.

HORIZONTAL DATUM: NAD 83/2011 (EPOCH 2010.00)

HORIZONTAL BENCHMARKS:

DESCRIPTION: FOUND 1 1/2" PUNCHED BRASS DISK, MON IN CASE, DOWN 0.30'
LOCATION: OLD HIGHWAY 99 SOUTH ROAD & ANDERSON ROAD
NORTHING: 514022.70
EASTING: 1275520.68

DESCRIPTION: FOUND 3/4" PUNCHED BRASS DISK, MON IN CASE, DOWN 0.40'
LOCATION: 1/4 OF ANDERSON ROAD, ±90'W BLODGETT ROAD INTERSECTION
NORTHING: 514005.25
EASTING: 1278179.33

VERTICAL DATUM: NAVD 88

VERTICAL BENCHMARKS:

WSDOT ID# PHD-5

DESCRIPTION: FOUND 3/8" ALUMINUM DISK SET AT TOP OF METAL ROD, BELOW GRADE
LOCATION: LOCATED IN A GRASSY AREA IN FRONT OF MOTOR TRUCKS, NORTH SIDE OF ENTRANCE AT 2501 HENSON ROAD, ±11'NW OF CTY VAULT
ELEVATION: 23.36'

PRESSURE TEST LOG

Table with 4 columns: TEST DATE, TEST PRESSURE, TIME START, TIME END, PRESSURE DROP, MAKE-UP WATER

ABBREVIATIONS

Table listing abbreviations: AC ASBESTOS CEMENT PIPE, APPROX APPROXIMATELY, AWWA AMERICAN WATER WORKS ASSOCIATION, CB CATCH BASIN, CONC. CONCRETE, CMP CORRUGATED METAL PIPE, CPE CORRUGATED POLYETHYLENE, DI DUCTILE IRON, DISTRICT PUBLIC UTILITY DISTRICT NO. 1 OF SKAGIT COUNTY, ELL ELBOW, I.E. INVERT ELEVATION, HDPE HIGH DENSITY POLYETHYLENE, MJ MECHANICAL JOINT, MUTCD MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, PSI POUNDS PER SQUARE INCH, PVC POLYVINYL CHLORIDE, ROW RIGHT-OF-WAY, SKAGIT PUD PUBLIC UTILITY DISTRICT NO. 1 OF SKAGIT COUNTY, TESC TEMPORARY EROSION AND SEDIMENT CONTROL, WSDOT WASHINGTON STATE DEPARTMENT OF TRANSPORTATION

City of MOUNT VERNON RIGHT OF WAY PERMIT. This set of plans is approved for construction in accordance with the City of Mount Vernon's codes and policies. Approval of this set of plans does not imply or convey permission to construct any item unless accompanied by a signed and approved permit covering the work. Actual conformance of the design with applicable laws is the sole responsibility of the professional engineer whose name and stamp appear on this set of plans. Acquiring, complying with, and providing mitigation for all applicable Federal, State, County, and local laws, permits and mandates, is the responsibility of the Landowner, Engineer, and Contractors working on this project. The approval of this plan set shall not be construed as proof of compliance with applicable laws and permit requirements. The approval of this plan set will expire one-year from the date City staff signed this plan set. Signed: Alan Danforth, Engineering Manager 07/30/2025

Table with 4 columns: DATE, APPR, DESCRIPTION, REV

Skagit PUD PUBLIC UTILITY DISTRICT. Aspect CONSULTING. PROJECT NUMBER: AS24-0082. REVISION: 8/15/2024. DATE: 8/15/2024. DRAWN BY: CNV, CHECKED BY: JRG.

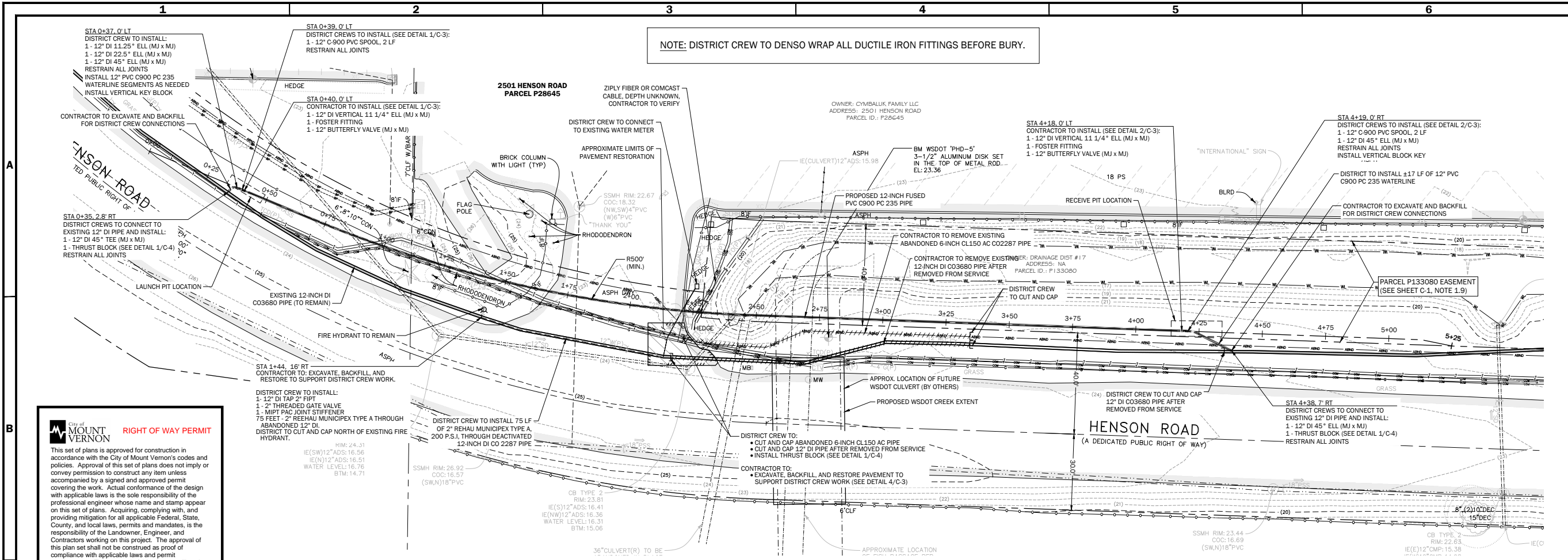
GENERAL NOTES AND ABBREVIATIONS. SKAGIT COUNTY PUD. PIPELINE RELOCATION AT HENSON ROAD. SKAGIT COUNTY, WASHINGTON.

SHEET REFERENCE NUMBER: G-2. SHEET 2 OF 6.



DRAFT

NOTE: DISTRICT CREW TO DENSO WRAP ALL DUCTILE IRON FITTINGS BEFORE BURY.

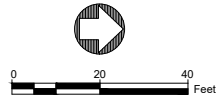


**City of MOUNT VERNON**  
**RIGHT OF WAY PERMIT**

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Signed: *[Signature]* 07/30/2025  
 Alan Danforth, Engineering Manager

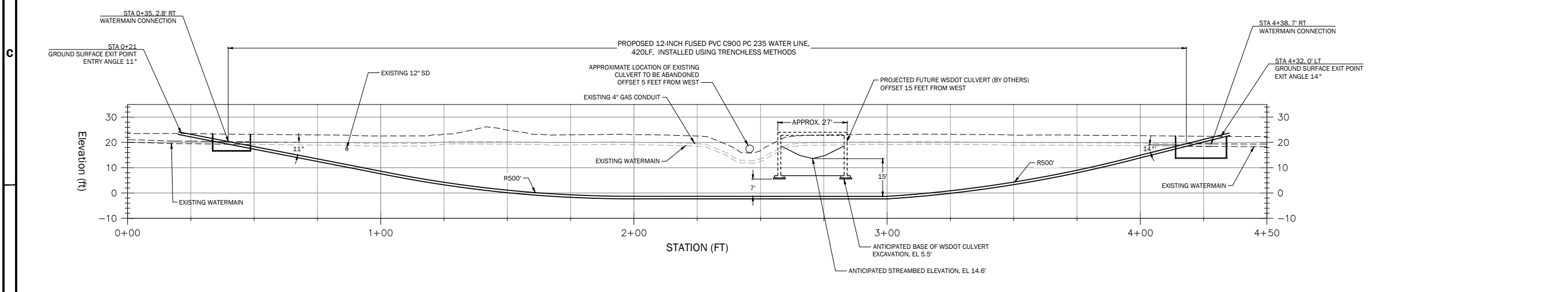
**1 TRENCHLESS PLAN**  
 SCALE: 1" = 20'



**LEGEND**

PIPE TO BE REMOVED

EXISTING PAVEMENT TO BE RESTORED



**2 TRENCHLESS PROFILE**  
 SCALE: 1" = 20'

Horizontal Scale: 1" = 20'  
 Vertical Scale: 1" = 20'  
 Vertical Exaggeration 1x

NOTE:

1. CONTRACTOR SHALL COORDINATE WITH CASCADE NATURAL GAS PRIOR TO ANY EXCAVATION NEAR THE GAS LINE. A CASCADE NATURAL GAS REPRESENTATIVE SHALL BE ON SITE DURING THE LAUNCH PIT EXCAVATION AND ANY OTHER EXCAVATION AS REQUIRED BY CASCADE NATURAL GAS.

NO.	DESCRIPTION	DATE	APPR.

**Skagit PUD**  
 PUBLIC UTILITY DISTRICT

DESIGNED BY: JRG  
 DRAWN BY: CMV  
 REVISION BY:   
 DATE: 8/15/2024

**Aspect CONSULTING**

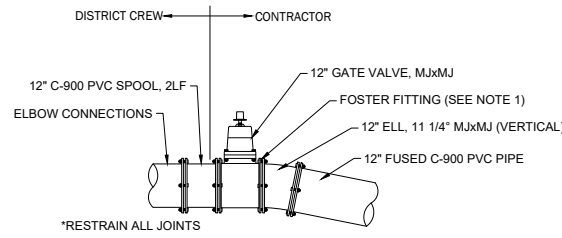
PROJECT NUMBER: AS24-0082  
 REVISION:   
 DATE: 8/15/2024

**TRENCHLESS PLAN AND PROFILE**

SKAGIT COUNTY PUD  
 PIPELINE RELOCATION AT HENSON ROAD  
 SKAGIT COUNTY, WASHINGTON

SHEET REFERENCE NUMBER:  
**C-2**  
 SHEET 4 OF 6

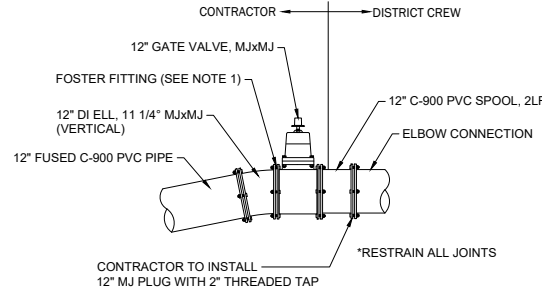
DRAFT



**1**  
DIRECTIONAL DRILLING  
SOUTH CONNECTION DETAIL  
SCALE: NTS

NOTE

- CONTRACTOR RESPONSIBLE FOR TEMPORARY END CONNECTIONS TO FACILITATE FLUSHING, DISINFECTION, AND PRESSURE TESTING.



**2**  
DIRECTIONAL DRILLING  
NORTH CONNECTION DETAIL  
SCALE: NTS

**RECOMMENDED PROCEDURE FOR RAISING AND SETTING CAST IRON VALVE BOX IN ASPHALT PAVING**

- LOCATE BURIED VALVE BOX USING REFERENCE MEASUREMENTS AND/OR ELECTRONIC OR MAGNETIC LOCATOR. MARK LOCATION WITH WHITE PAINT.
- BREAK OUT SMALL HOLE IN PAVEMENT AND LOCATE THE VALVE BOX COVER.
- CAREFULLY BREAK OUT AN 18-INCH DIAMETER HOLE WITH 9-INCH RADIUS FROM THE CENTER OF THE VALVE BOX. A CIRCLE TEMPLATE 18 INCHES IN DIAMETER IS HANDY TO MARK OUT THE PERIMETER OF THIS HOLE. USE A CURVED SPADE WITH A JACKHAMMER TO CUT A NEAT VERTICAL FACE HOLE IN THE ASPHALTIC CONCRETE PAVEMENT. DO NOT CRACK OR DAMAGE THE PAVEMENT BEYOND THIS HOLE. IF IT IS SUSPECTED THE VALVE CASING IS NOT VERTICAL OR CENTERED OVER THE VALVE OPERATING NUT, REMOVE JUST ENOUGH PAVEMENT TO ALLOW REMOVAL OF THE VALVE BOX LID SO IT CAN BE DETERMINED IF CASING ADJUSTMENT IS NEEDED. IT IS VERY IMPORTANT TO NOT REMOVE ANY MORE FINISHED PAVEMENT THAN ABSOLUTELY NECESSARY.
- COMPLETELY REMOVE THE WHOLE VALVE BOX. DO NOT DISTURB THE SURROUNDING EARTH ANY MORE THAN NECESSARY. EXAMINE THE CASING PIPE. MAKE SURE IT IS VERTICAL, SYMMETRICAL AROUND THE VALVE NUT AND CLEAN OF ALL ROCKS, DEBRIS AND DIRT. CLEAN AND CORRECT AS NECESSARY. CHECK WITH A VALVE WRENCH TO VERIFY OPERATION IS SMOOTH.
- TRIM OR ADD TO THE CASING PIPE (8-INCH PVC PLASTIC OR CONCRETE) AS NEEDED SO THE TOP OF THE CASING PIPE IS A MINIMUM OF 4 INCHES TO MAXIMUM OF 8 INCHES BELOW THE FINISHED PAVEMENT GRADE. THE LID WILL NOT FIT TIGHT IF THE CASING IS HIGHER. VALVE BOX WILL HAVE POOR SUPPORT IF THE CASING PIPE IS LOWER. TO ADD CASING PIPE, USE A PIECE OF 6-INCH PVC PLASTIC SEWER PIPE CUT 12 INCHES LONGER THAN NEEDED. SAW-CUT THIS PIECE ALONG ONE SIDE IN A STRAIGHT LINE THE FULL LENGTH. FOLD THE PIPE OVER THE SAW-CUT AND INSERT IT INSIDE THE CASING PIPE IN THE GROUND. SLIDE UP OR DOWN TO ACHIEVE DESIRED LEVEL.
- IF THE VALVE OPERATING NUT IS OVER 3 FEET BELOW FINISH PAVEMENT GRADE, INSTALL A STANDARD VALVE OPERATING EXTENSION, PER STANDARD SPECIFICATIONS.
- USING A 1-INCH ROD OR CAPPED 3/4-INCH PIPE, THOROUGHLY POUND THE EARTH ALL AROUND THE CASING PIPE TO OBTAIN MAXIMUM EARTH COMPACTION.
- FILL THE VOID BETWEEN THE CASING PIPE AND EARTH WALL UP TO EXACTLY 12 INCHES (1 FOOT) BELOW FINISH PAVEMENT GRADE WITH 5/8-INCH MINUS CRUSHED ROCK AND THOROUGHLY COMPACT USING ROD OR PIPE AS IN STEP 7. KEEP ADDING AND COMPACTING CRUSHED ROCK UNTIL HARD, TIGHT LEVEL SURFACE IS EXACTLY 12 INCHES BELOW PAVEMENT GRADE.
- INSERT THE VALVE BOX. USING A STRAIGHT BOARD OR ROD, CHECK THAT THE TOP RIM OF THE VALVE BOX IS EXACTLY LEVEL WITH THE FINISHED PAVEMENT. THE BOX MUST SET EVENLY ON THE CRUSHED ROCK BASE. IT MUST NOT ROCK OR WIGGLE. REMOVE THE BOX AND ADJUST THE CRUSHED ROCK AS OFTEN AS NECESSARY TO ACHIEVE EXACT GRADE WITH PAVEMENT AND UNIFORM BOX SUPPORT. PUT CAST IRON LID ON THE BOX. MAKE SURE IT FITS CORRECTLY AND IS FLUSH WITH THE BOX RIM. REPLACE LID IF INCORRECT FIT. REPLACE ENTIRE VALVE BOX IF BOX RIM PREVENTS A SNUG FIT OF THE LID.
- ADD 5/8-INCH MINUS CRUSHED ROCK UNIFORMLY IN THE SPACE BETWEEN THE VALVE BOX AND OUTSIDE EARTH WALL IN MAXIMUM 4-INCH LIFTS. COMPACT EACH LIFT COMPLETELY WITH 1-INCH ROD OR PIPE AS BEFORE. FILL AND COMPACT THE SPACE UP TO 2 INCHES BELOW FINISHED PAVEMENT GRADE.
- ADD HOT MIX ASPHALTIC CONCRETE MATERIAL AND THOROUGHLY COMPACT WITH ROD OR PIPE TO THE FINISH PAVEMENT GRADE. SMOOTH OFF THE SURFACE AS MUCH AS POSSIBLE.
- USING A BRUSH, PAINT THE SURFACE OF THE PATCH WITH ASPHALT TACK MATERIAL, EXTENDING MINIMUM OF 1 INCH OVER PAVEMENT AND ONTO EDGE OF VALVE BOX METAL RIM. DO NOT ALLOW ANY TACK MATERIAL TO FLOW INTO METAL RIM OR ON BOX COVER. USE A BRUSH TO CONTROL APPLICATION OF THIS TACK COAT AND PROVIDE A NEAT SEAL SURFACE.
- CHECK AGAIN THAT VALVE CASING IS CLEAR. THAT VALVE WRENCH CAN BE PUT ON OPERATING NUT AND VALVE CAN BE OPERATED PROPERLY.
- SPREAD CLEAN FINE SAND OVER THE TACK COAT SO THAT VEHICLE TIRES WILL NOT LIFT THE TACK MATERIAL BEFORE IT CURES AND SETS UP.
- EACH VALVE BOX IN A CLUSTER OF TWO TO FOUR VALVES MUST BE ADJUSTED INDEPENDENTLY AS OUTLINED ABOVE. CUTTING OUT TRIANGLES OR SQUARES OF FINISHED PAVEMENT RESULTS IN VALVE BOXES THAT DO NOT REMAIN EVEN WITH PAVEMENT, LEAN TOGETHER, AND BREAK OUT UNDER TRAFFIC BEATING.

CAREFULLY FOLLOWING THIS OUTLINED PROCEDURE RESULTS IN VALVE BOX SETTINGS THAT WILL REMAIN FIRM AND IN PLACE, AND ARE VIRTUALLY UNNOTICED BY THE PUBLIC PASSING OVER THEM IN THEIR VEHICLES.

*[Signature]*  
PUD NO. 1 OF SKAGIT COUNTY ENGINEERING MANAGER  
APPROVED ON: MAY 6, 2014



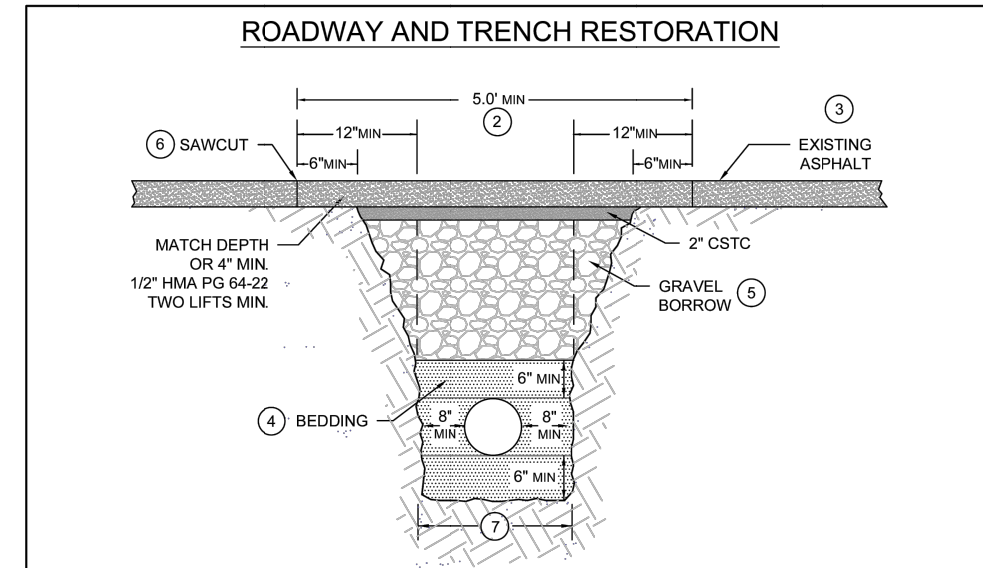
STANDARD INSTALLATION OF  
CAST IRON VALVE BOX &  
VALVE OPERATING NUT EXTENSION

SCALE: NTS	<b>STANDARD</b>
DATE: 3-25-05	
REVISED: 5/6/14	
DRAWN BY: CAS	
APPROVED BY: GJS	<b>WV-1b</b>

SHEET 2/2

**NOTES FOR STD INSTALLATION OF CAST IRON VALVE BOX AND VALVE OPERATING NUT EXTENSION**

**3**  
SCALE: NTS



NOTES:

- ALL TRENCH CUTS AND REPAIR SHALL CONFORM WITH THE CITY OF MOUNT VERNON TRENCH RESTORATION AND STREET REPAIR STANDARDS.
- THE RESTORATION WIDTH AS PER CITY ENGINEERING STANDARDS CHAPTER 3, SECTION 3-24. A MINIMUM OF 1 FOOT WIDER, ON EACH SIDE, THAN THE PROPOSED TRENCH. THE MINIMUM RESTORATION SHALL BE 5 FEET.
- ASPHALT STRIP BETWEEN TRENCH RESTORATION AND EDGE OF EXISTING CURB AND GUTTER OR EDGE OF EXISTING PAVEMENT MAY BE REMOVED AND REPLACED WITH 1/2" HMA PG 64-22 OF EQUIVALENT DEPTH AT THE DIRECTION OF THE PUBLIC WORKS DIRECTOR.
- GRANULAR MATERIAL 100% PASSING A 5/8" SCREEN, OR 5/8" CLEAR CRUSHED (NOT 5/8" MINUS) HAND COMPACTED. NO MORE THAN 3% BY WEIGHT PASSING A #200 SIEVE.
- GRAVEL BORROW PLACED IN LOOSE LIFTS NOT EXCEEDING 8" IN DEPTH AND COMPACTED TO A MINIMUM OF 95% DENSITY. CONTROL DENSITY BACKFILL (CDF) MAY BE USED IN LIEU OF GRAVEL BASE.
- SAWCUT AND SEAL FINISHED JOINT WITH AR 4000.
- TRENCH LIMITS PER SECTION 2-09.4 OF WSDOT STANDARD SPECIFICATIONS.
- TRENCH REPAIR IN CONCRETE STREETS MAY DIFFER FROM THESE STANDARDS.
- WIDTHS INDICATED ARE MINIMUMS. TRENCH RESTORATION WIDTHS SHALL BE INCREASED TO PROHIBIT CONSTRUCTING A PATCH WITHIN A PATCH. THIS MAY REQUIRE REMOVING AND RECONSTRUCTING EXISTING PATCHES THAT ARE ADJACENT TO OR CONTIGUOUS TO THE PROPOSED TRENCH. TRENCH RESTORATION WIDTHS SHALL ALSO BE INCREASED TO PREVENT THE CREATION OF ISOLATED SECTIONS OF PAVEMENT
- TRENCH LIMITS AND STREET CUT RESTORATION WIDTH MAY BE REDUCED FOR UTILITY SIDE SERVICE LINE INSTALLATION AND REPAIR, WITH CITY APPROVAL.

STANDARD DETAIL	3-3
SCALE	NONE
REVISION DATE	04/16

**4**  
ROADWAY AND TRENCH RESTORATION DETAIL  
SCALE: NTS

City of MOUNT VERNON  
**RIGHT OF WAY PERMIT**

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Signed: *[Signature]* 07/30/2025  
Alan Darforth, Engineering Manager

APPR.	DATE	DESCRIPTION

Skagit PUD PUBLIC UTILITY DISTRICT

DESIGNED BY: JRG  
DRAWN BY: CAV  
REVISION BY: JRG

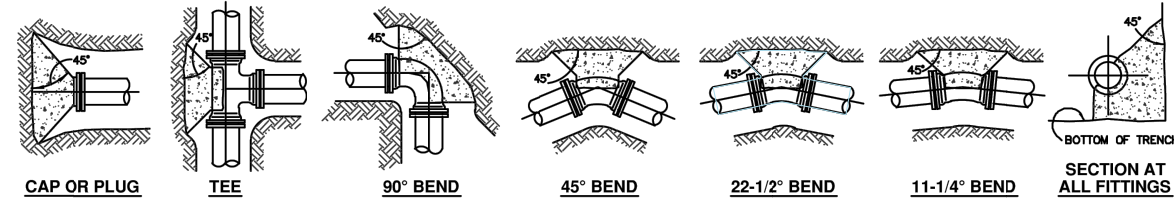
Aspect CONSULTING

PROJECT NUMBER: AS24-0082  
REVISION:    
DATE: 8/15/2024

**DETAILS 1**  
SKAGIT COUNTY PUD  
PIPELINE RELOCATION AT HENSON ROAD  
SKAGIT COUNTY, WASHINGTON

SHEET REFERENCE NUMBER:  
**C-3**  
SHEET 5 OF 6

DRAFT



THRUST BLOCK REQUIREMENTS		BEARING AREA REQUIRED IN SQUARE FEET														
PIPE SIZE nominal	PIPE SIZE outside dia.	KEY BLOCK** & TEE/CAP OR PLUG test pressures			90 Degree BEND test pressures			45 Degree BEND test pressures			22.5 Degree BEND test pressures			11.25 Degree BEND test pressures		
		200	225	250	200	225	250	200	225	250	200	225	250	200	225	250
4	4.80	1.8	2.0	2.3	2.6	2.9	3.2	1.4	1.6	1.7	0.7	0.8	0.9	0.4	0.4	0.4
6	6.30	3.7	4.2	4.7	5.3	5.9	6.6	2.9	3.2	3.6	1.5	1.6	1.8	0.7	0.8	0.9
8	8.05	6.4	7.2	8.0	9.1	10.2	11.4	4.9	5.5	6.2	2.5	2.8	3.1	1.3	1.4	1.6
12	13.20	13.7	15.4	17.1	19.4	21.8	24.2	10.5	11.8	13.1	5.3	6.0	6.7	2.7	3.0	3.4
16	17.40	23.8	26.8	29.7	33.6	37.8	42.0	18.2	20.5	22.7	9.3	10.4	11.6	4.7	5.2	5.8
18	19.50	26.9	33.6	37.3	42.2	47.5	52.8	22.9	25.7	28.6	11.7	13.1	14.6	5.9	6.6	7.5
24	25.80	52.3	58.8	65.3	73.9	83.2	92.4	40.0	45.0	50.0	20.4	22.9	25.5	10.2	11.5	12.8

**NOTES:**

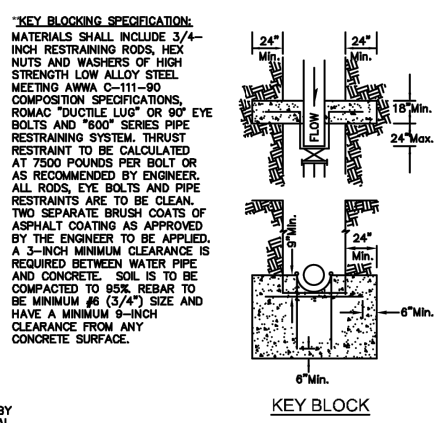
- ALL CONCRETE BLOCKING SHALL BE POURED AGAINST DRY, UNDISTURBED SUBGRADE. TABLE IS BASED ON 2000 POUNDS PER SQUARE FOOT ALLOWABLE SOIL BEARING. WEAKER SOIL WILL REQUIRE INCREASED BEARING AREA. SEE SOIL BEARING LOAD CHART.
- KEEP CONCRETE CLEAR OF JOINTS AND ACCESSORIES. USE FORMING AS NECESSARY.
- HORIZONTAL ANCHOR BLOCKING CONFIGURATIONS FOR FITTINGS NOT SHOWN SHALL HAVE APPROVAL OF THE P.U.D.
- THE SQUARE FOOT AREAS REQUIRED FOR BEARING ARE CALCULATED BY THE FOLLOWING FORMULAS:  
 FORMULA AT TEE & CAP OR PLUG:  
 $T = PA$   
 $T + K =$  BEARING AREA REQUIRED IN SQUARE FEET  
 FORMULA AT ALL PIPE BENDS:  
 $T = 2PA (\sin 1/2 \text{ ANGLE})$  WHERE ANGLE = THE DEGREE BEND OF THE FITTING  
 $T + K =$  BEARING AREA REQUIRED IN SQ. FEET  
 WHEN:  
 $T =$  THRUST IN POUNDS  
 $P =$  TEST PRESSURE IN PSI  
 $A =$  CROSS-SECTIONAL AREA OF PIPE IN SQ. INCHES  
 $K =$  ASSUMED 2000 PSF SOIL BEARING PRESSURE
- FITTINGS SHALL BE WRAPPED WITH POLYETHYLENE ENCASUREMENT WITH A MIN. OF 8-MIL THICKNESS. IT MUST BE INSTALLED AS PER W.S.D.O.T. STANDARDS AND IN ACCORDANCE WITH A.W.W.A. C106.

**BEARING AREA REQUIRED IN SQUARE FEET**

THE SAFE SOIL BEARING LOADS SHOWN BELOW ARE FOR HORIZONTAL THRUSTS WHEN THE DEPTH OF COVER OVER THE PIPE EXCEEDS 2 FEET.

SOIL	SAFE BEARING LOAD LBS./SQ. FT.
MUCK, PEAT, ETC.	0
SOFT CLAY, SILT	1,000
SAND, SANDY SILT	2,000
SAND AND GRAVEL	3,000
SAND AND GRAVEL CEMENTED W/ CLAY	4,000
HARD SHALE	10,000

\*MIN MUCK OR PEAT. ALL THRUSTS SHALL BE RESTRAINED BY PILES OR TIE RODS TO SOLID FOUNDATIONS OR BY REMOVAL OF MUCK OR PEAT AND REPLACEMENT WITH BALLAST OF SUFFICIENT STABILITY TO RESIST THRUSTS.



**\*KEY BLOCKING SPECIFICATION:**  
 MATERIALS SHALL INCLUDE 3/4-INCH RESTRAINING RODS, HEX NUTS AND WASHERS OF HIGH STRENGTH LOW ALLOY STEEL MEETING AWWA C-111-90 COMPOSITION SPECIFICATIONS, ROMAC "DUCTILE LUG" OR 90° EYE BOLTS AND "900" SERIES PIPE RESTRAINING SYSTEM. THRUST RESTRAINT TO BE CALCULATED AT 7500 POUNDS PER BOLT OR AS RECOMMENDED BY ENGINEER. ALL RODS, EYE BOLTS AND PIPE RESTRAINTS ARE TO BE CLEAN, TWO SEPARATE BRUSH COATS OF ASPHALT COATING AS APPROVED BY THE ENGINEER TO BE APPLIED. A 3-INCH MINIMUM CLEARANCE IS REQUIRED BETWEEN WATER PIPE AND CONCRETE. SOIL IS TO BE COMPACTED TO 95% REBAR TO BE MINIMUM #6 (3/4") SIZE AND HAVE A MINIMUM 9-INCH CLEARANCE FROM ANY CONCRETE SURFACE.

PUD NO. 1 OF SKAGIT COUNTY ENGINEERING MANAGER

APPROVED ON: MAY 6, 2014

**HORIZONTAL THRUST BLOCKING DETAILS**

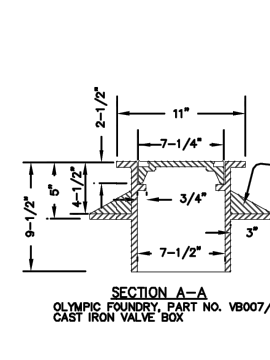
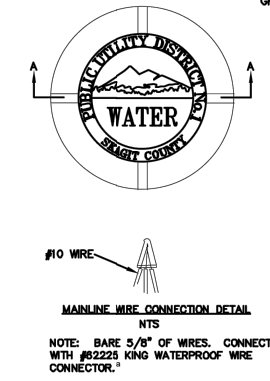
SCALE: NTS

STANDARD

WT-1

APPROVED BY: GJS

1 HORIZONTAL THRUST BLOCKING DETAILS  
 SCALE: NTS



**STANDARD INSTALLATION OF CAST IRON VALVE BOX & VALVE OPERATING NUT EXTENSION**

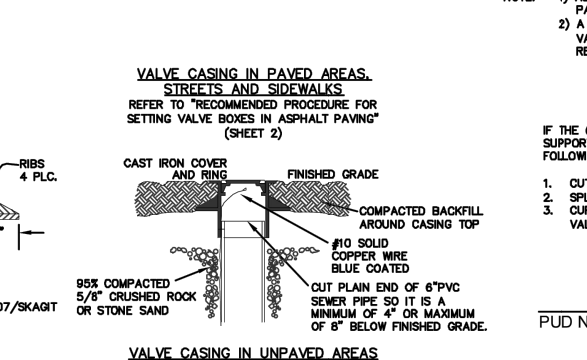
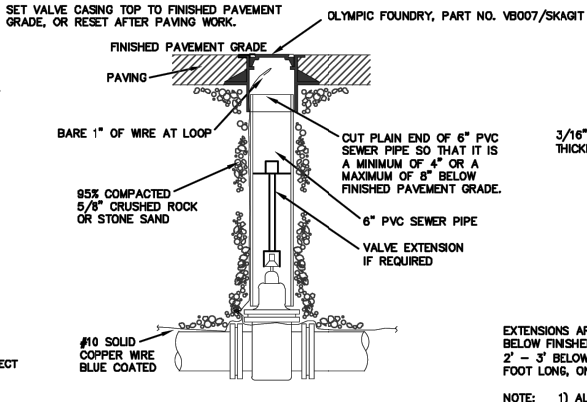
SCALE: NTS

STANDARD

WV-1a

APPROVED BY: GJS

2 STD INSTALLATION OF CAST IRON VALVE BOX AND VALVE OPERATING NUT EXTENSION  
 SCALE: NTS



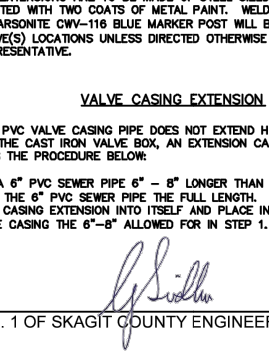
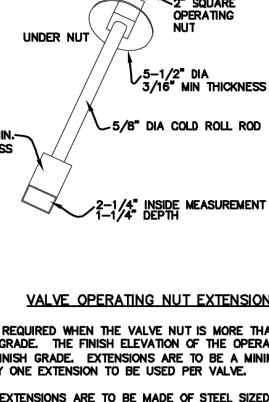
**STANDARD INSTALLATION OF CAST IRON VALVE BOX & VALVE OPERATING NUT EXTENSION**

SCALE: NTS

STANDARD

WV-1a

APPROVED BY: GJS



**STANDARD INSTALLATION OF CAST IRON VALVE BOX & VALVE OPERATING NUT EXTENSION**

SCALE: NTS

STANDARD

WV-1a

APPROVED BY: GJS

APPR.	DATE	DESCRIPTION	REV.

**Skagit PUD**  
PUBLIC UTILITY DISTRICT

REVISION BY: JRG

DRAWN BY: CAS

**Aspect CONSULTING**

PROJECT NUMBER: AS24-0082

REVISION: 8/15/2024

**DETAILS 2**  
 SKAGIT COUNTY PUD  
 PIPELINE RELOCATION AT HENSON ROAD  
 SKAGIT COUNTY, WASHINGTON

SHEET REFERENCE NUMBER:  
**C-4**  
 SHEET 6 OF 6

**City of MOUNT VERNON**

**RIGHT OF WAY PERMIT**

This set of plans is approved for construction in accordance with the City of Mount Vernon's codes and policies. Approval of this set of plans does not imply or convey permission to construct any item unless accompanied by a signed and approved permit covering the work. Actual conformance of the design with applicable laws is the sole responsibility of the professional engineer whose name and stamp appear on this set of plans. Acquiring, complying with, and providing mitigation for all applicable Federal, State, County, and local laws, permits and mandates, is the responsibility of the Landowner, Engineer, and Contractors working on this project. The approval of this plan set shall not be construed as proof of compliance with applicable laws and permit requirements. The approval of this plan set will expire one-year from the date City staff signed this plan set.

Signed: 07/30/2025  
 Alan Danforth, Engineering Manager

**SIGN SPACING = X (1)**

RURAL ROADS & URBAN ARTERIALS	35 / 40 MPH	350' ±
RURAL ROADS & URBAN ARTERIALS	25 / 30 MPH	200' ± (2)
RESIDENTIAL & BUSINESS DISTRICTS		
URBAN STREETS	25 MPH OR LESS	100' ± (2)

(1) ALL SPACING MAY BE ADJUSTED TO ACCOMMODATE INTERCHANGE RAMP, AT-GRADE INTERSECTIONS AND DRIVEWAYS.  
 (2) THIS SPACING MAY BE REDUCED IN URBAN AREAS TO FIT ROADWAY CONDITIONS.

**LONGITUDINAL BUFFER SPACE = B**

SPEED (MPH)	20	25	30	35	40
LENGTH (feet)	115	155	200	250	305

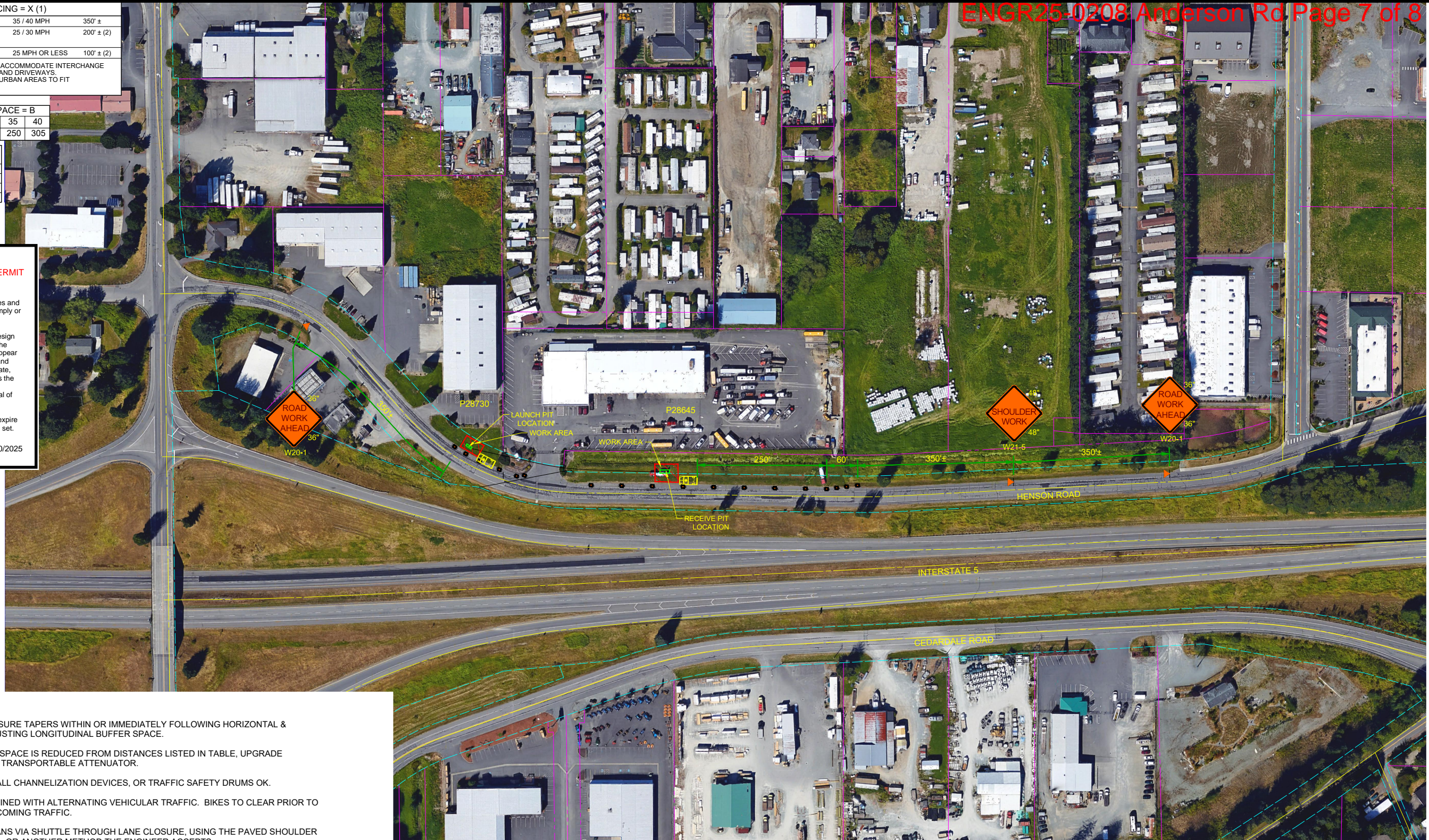
**CHANNELIZATION DEVICE SPACING (feet)**

MPH	TAPER	TANGENT
50/70	40	80
35/45	30	60
25/30	20	40

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- NOTES:**
1. AVOID PLACING LANE CLOSURE TAPERS WITHIN OR IMMEDIATELY FOLLOWING HORIZONTAL & VERTICAL CURVES BY ADJUSTING LONGITUDINAL BUFFER SPACE.
  2. IF LONGITUDINAL BUFFER SPACE IS REDUCED FROM DISTANCES LISTED IN TABLE, UPGRADE PROTECTIVE VEHICLE TO A TRANSPORTABLE ATTENUATOR.
  3. 36" TRAFFIC CONES, 42" TALL CHANNELIZATION DEVICES, OR TRAFFIC SAFETY DRUMS OK.
  4. BICYCLISTS MAY BE COMBINED WITH ALTERNATING VEHICULAR TRAFFIC. BIKES TO CLEAR PRIOR TO FLAGGERS RELEASING ONCOMING TRAFFIC.
  5. ACCOMMODATE PEDESTRIANS VIA SHUTTLE THROUGH LANE CLOSURE, USING THE PAVED SHOULDER OPPOSITE THE WORK AREA, OR ANOTHER METHOD THE ENGINEER ACCEPTS.
  6. SEE STANDARD SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS:  
 1-07.8(1) HIGH-VISIBILITY APPAREL  
 1-10.3(1)A FLAGGERS AND NIGHTTIME ILLUMINATION  
 1-10.3(2)A TRAFFIC CONTROL PROCEDURES  
 9-35.1 24-INCH STOP/SLOW PADDLE SIZE
  7. FOR PROJECT-SPECIFIC REQUIREMENTS, SEE SPECIAL PROVISIONS.
  8. SIGNS ARE BLACK ON ORANGE UNLESS OTHERWISE INDICATED.
  9. ACTUAL CENTERLINE PAVEMENT MARKINGS MAY VARY.
  10. PARCEL, CL AND ROW LINES ARE APPROXIMATE.

**LEGEND:**

-  TEMPORARY SIGN LOCATION
-  28" REFLECTIVE TRAFFIC CONE (SEE NOTE 3)
-  PROTECTIVE VEHICLE (SEE NOTE 2)



**City of MOUNT VERNON** **Received**  
 DEVELOPMENT SERVICES 7/29/2025

ISSUE	REVISIONS	BY	DATE
1.	TRAFFIC CONTROL PLAN	JLB	6/6/24



DATUM: HOR: NAD 83 VERT: NAVD 88	DSGN BY: JLB DWN BY: JLB APPVD BY: MCH
DATE PRINTED: 6/6/24	SEC: 29 TWP: 34 N RGE: 4 E

**Skagit PUD**  
 PUBLIC UTILITY DISTRICT  
 NO. 1 of SKAGIT COUNTY  
 1415 Freeway Drive  
 P.O. BOX 1436  
 Mount Vernon, WA 98273  
 (360) 424-7104  
 www.SkagitPud.org

PIPELINE RELOCATION  
 AT HENSON ROAD  
 TRAFFIC CONTROL  
 SHOULDER CLOSURE

SCALE: NTS    JOB ID: CP14018    SHEET: 1 OF 2

**SIGN SPACING = X (1)**

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RURAL ROADS & URBAN ARTERIALS	25 / 30 MPH	200' ± (2)
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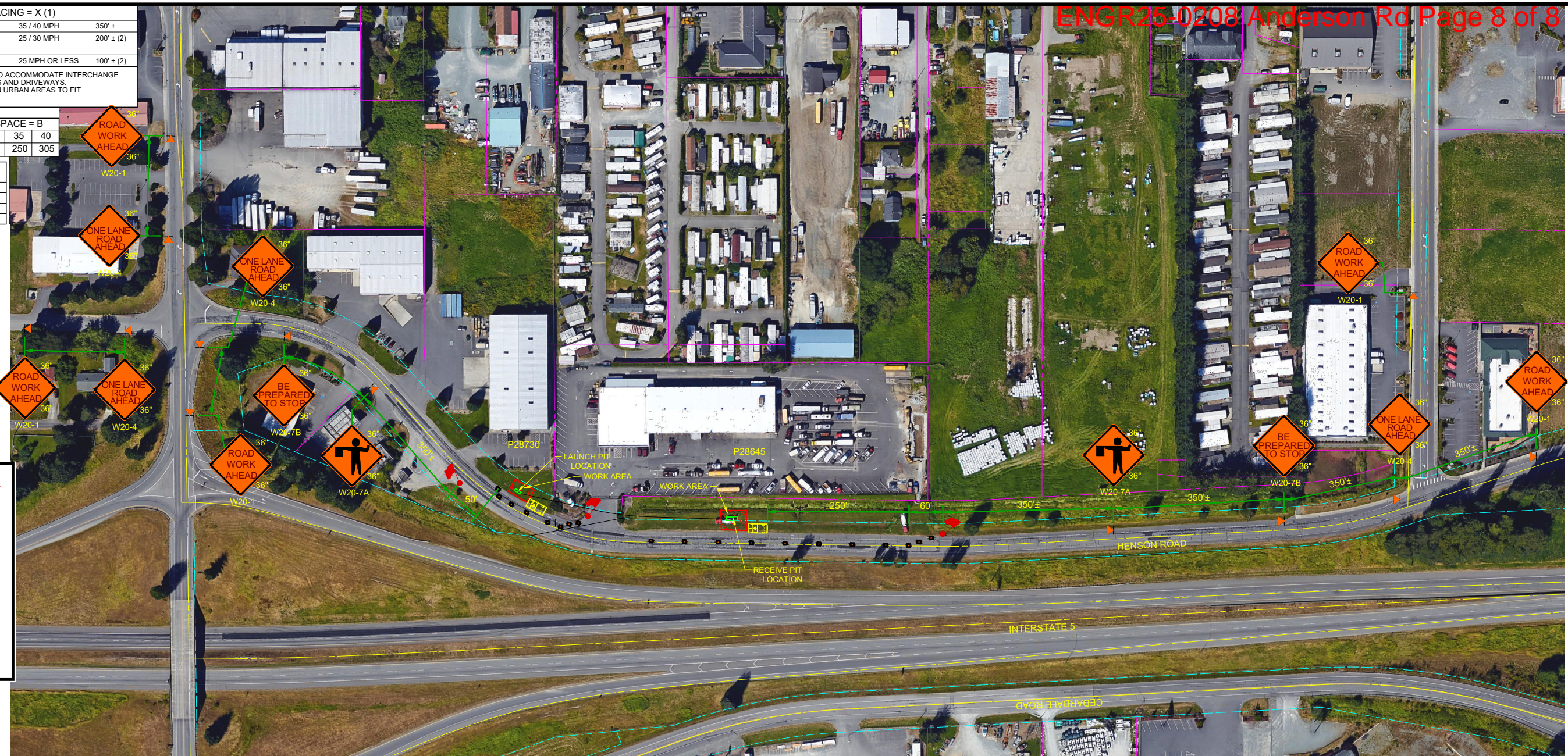
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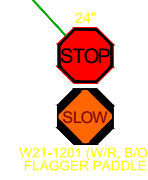
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PIPELINE RELOCATION  
 AT HENSON ROAD  
 TRAFFIC CONTROL  
 ONE LANE CLOSURE

SCALE: NTS    JOB ID : CP14018    SHEET: 2 OF 2

# A p p e n d i x B

Geotechnical Report

# FINAL GEOTECHNICAL ENGINEERING REPORT

Pipeline Relocation at Henson Road

Prepared for: Public Utility District No. 1 of Skagit County

Project No. 240082 • August 15, 2025 FINAL



e a r t h + w a t e r



# FINAL GEOTECHNICAL ENGINEERING REPORT

## Pipeline Relocation at Henson Road

Prepared for: Public Utility District No. 1 of Skagit County

Project No. 240082 • August 15, 2025 FINAL

Aspect Consulting, a Geosyntec Company



**Erik O. Andersen, PE**  
Principal Geotechnical Engineer  
Erik.andersen@geosyntec.com

**Samantha Muchongwe, EIT**  
Senior Staff Geotechnical Engineer  
Samantha.muchongwe@geosyntec.com

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# Contents

<b>1</b>	<b>Introduction .....</b>	<b>1</b>
1.1	Project Background.....	1
1.2	Scope of Work.....	1
<b>2</b>	<b>Site Conditions .....</b>	<b>3</b>
2.1	Surface Conditions.....	3
2.2	Subsurface Conditions .....	3
2.2.1	Mapped Geologic Conditions .....	3
2.2.2	Explorations by WSDOT .....	4
2.2.3	Explorations by Aspect .....	4
2.2.4	Stratigraphy.....	4
	Topsoil .....	4
	Alluvium – Silt Facies.....	4
	Alluvium – Sand Facies.....	5
2.3	Groundwater .....	5
<b>3</b>	<b>Geotechnical Engineering Conclusions and Recommendations .....</b>	<b>6</b>
3.1	Trenchless Construction .....	7
3.1.1	Water Main Alignment Geometry .....	8
3.1.2	Horizontal Directional Drilling (HDD).....	8
3.1.3	Borehole Stability .....	8
3.1.4	Surface Settlement and Minimum Vertical Clearance.....	9
3.1.5	Hydraulic Fracture and Fluid Release.....	10
3.1.6	Pipeline Deformation Potential.....	12
3.1.7	Pullback Load Estimate .....	12
3.1.8	Mitigation of Impacts to Henson Road Embankment .....	12
3.2	Temporary Excavations and Shoring.....	12
3.3	Construction Dewatering.....	13
3.4	Utility Bedding Backfill and Compaction .....	14
<b>4</b>	<b>Continuing Geotechnical Services .....</b>	<b>15</b>
<b>5</b>	<b>References .....</b>	<b>16</b>
<b>6</b>	<b>Limitations .....</b>	<b>17</b>

## List of Charts *(in text)*

1	Hydraulic Fracture Analysis Results.....	11
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**List of Tables** *(in text)*

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Table 1. Surface Settlement Calculations Summary .....9  
Table 2. Soil Engineering Properties for Hydraulic Fracture Analysis .....10  
Table 3. Drilling Fluid and Drill Hole Properties for Hydraulic Fracture Analysis .11

**List of Figures**

---

- 1 Site Location Map
- 2 Site and Exploration Map
- 3 Geologic Cross Section
- 4 Temporary Lateral Shoring Pressures

**List of Appendices**

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- A WSDOT Subsurface Exploration Map and Log
- B Aspect Subsurface Exploration Logs
- C Geotechnical Laboratory Analysis Results
- D Report Limitations and Guidelines for Use

# 1 Introduction

This report presents the results of Aspect Consulting's, a Geosyntec Company, (Aspect) geotechnical investigation and evaluation supporting the Public Utility District No.1 of Skagit County's (Skagit PUD) pipeline relocation at Henson Road and Martha Washington Creek (Martha Creek) in Mount Vernon, Washington (Project). The Project is located adjacent to Henson Road, west of Interstate 5 (I-5) and north of Anderson Road (Site; Figure 1).

This report summarizes the results of field investigations and laboratory testing and presents Aspect's geotechnical design and construction recommendations for the Project.

## 1.1 Project Background

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The Martha Creek culvert conveys water underneath Henson Road. The culvert crossing is reportedly a 36-inch corrugated metal pipe (CMP) designated as a partial blockage by Washington State Department of Transportation (WSDOT). WSDOT proposes to replace the existing culvert with a 3-sided box culvert. The WSDOT 90-percent design plans show the culvert on shallow footing foundations; however, the final culvert plans could require a pile-supported box culvert to address liquefaction concerns.

Skagit PUD has a 12-inch ductile iron (DI) pipeline along the west side of Henson Road that was installed in 1995 and crosses over the existing CMP. As a result of WSDOT's culvert replacement, Skagit PUD plans to install a new 12-inch-diameter C-900 polyvinyl chloride (PVC) water main pipe under the creek. We anticipate the new water main will be installed using horizontal directional drilling (HDD) methods to connect to the existing water main on either side of the crossing. This new main will incorporate a horizontal bend to avoid existing utilities along the proposed alignment. The new trenchless crossing will be approximately 420 feet long. The proposed improvements will be designed and constructed in accordance with Skagit PUD standards.

This work will be completed in general accordance with the requirements of WSDOT's *Utilities Manual* (WSDOT, 2019). Our design was performed in accordance with ASTM F1962 *Standard Guide of Use of Maxi-Horizontal Directional Drilling for Placement of Polyethylene Pipe or Conduit* (ASTM, 2022).

## 1.2 Scope of Work

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Our scope of work included conducting subsurface explorations, laboratory testing, Site survey, and a review of existing data at the Site. This information provided the baseline data for geotechnical engineering calculations, HDD evaluations, and replacement water main layout/design. This geotechnical engineering report includes the following:

- Project and Site description
- Results of the subsurface explorations

## ASPECT CONSULTING

- Exploration logs, Site plan, and a cross section showing the exploration locations and subsurface conditions
- Laboratory test results
- Geotechnical engineering design conclusions and recommendations for trenchless construction methods, temporary excavations and shoring, and construction dewatering.

Our scope also includes a construction plan set, specifications, and a construction cost estimate. These elements have been provided under separate cover.

## 2 Site Conditions

The sections below describe Site conditions gathered from our field explorations, observations, and our review of existing publicly available information.

### 2.1 Surface Conditions

---

The southern half of the proposed pipeline will be within the City of Mount Vernon (City) right-of-way (ROW) limits for Henson Road. The northern half of the pipeline will be on a 40-foot-wide drainage ROW west of Henson Road (Skagit County parcel PP133080). Skagit County parcel PP133080 is owned by Drainage District No. 17 (Figure 2) and an easement has been granted to the Client for this Project. The City ROW is 100 feet wide on the south end of the Site, then narrows to 70 feet wide in the north where the ROW borders the I-5 and Drainage District easements. The Project is bordered by WW Properties Management, LLC. (Skagit County parcel P28645) to the southwest and by Cymbaluk Family LLC. (Skagit County parcel PP133080) to the northwest.

Henson Road, driveways, and neighboring parking lots are surfaced with hot mix asphalt (HMA). The Site is generally flat except where the ground surface slopes down into drainage ditches and Martha Creek. The water in Martha Creek flows north to south parallel to Henson Road, then west to east below Henson Road through the existing CMP culvert. In unpaved areas, vegetation consists of residential lawns, short trees, shrubbery, and grass. Several utilities run along the west side of Henson Road including the existing water main, stormwater drainage pipes and catch basins, sewer lines, gas lines, and communication lines.

### 2.2 Subsurface Conditions

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Subsurface conditions at the Site were inferred from the completed field investigation, a review of previous explorations by others, applicable geologic literature, local geologic experience, and geotechnical laboratory testing. A summary of available subsurface data is provided in the following sections.

#### 2.2.1 Mapped Geologic Conditions

A 1981 geologic map (Dethier et al., 1981) indicates that the Site is underlain by alluvium deposits. This unit is described as fluvial sand, silt, and gravel with minor lacustrine deposits exposed along the modern Skagit River and its former course north and northwest of Mount Vernon. Deposits of the Skagit River are well-sorted and stratified, generally with subrounded and rounded clasts derived largely from metamorphic and plutonic rocks found in the upper part of its drainage basin.

A 1990 geologic map (Pessl et al., 1990) indicates that the Site is underlain by younger alluvium deposits of the Holocene age. This unit is described as moderate to well-sorted silt, clay, and fine sand with minor sand and pebble gravel. It also includes moderately sorted sand and gravel with local deposits of silt, clay, and fine sand. It is common to encounter layers, lenses, or pods of organic material in finer grained sediments.

### **2.2.2 Explorations by WSDOT**

To inform their culvert replacement design, WSDOT completed several explorations in 2023 near the I-5 interchange at Anderson Road. One drilled soil boring (designated H-4p-23) was advanced near the proposed HDD alignment to a depth of 150.5 feet below ground surface (bgs). A monitoring well was installed at H-4p-23 for continued groundwater measurements. We reviewed the exploration log for this exploration to inform our characterization of the Site. The exploration log is presented in Appendix A, and the approximate exploration location is shown on Figure 2.

### **2.2.3 Explorations by Aspect**

To augment the WSDOT boring, Aspect completed two drilled soil borings on April 23, 2024 (designated AB-01 and AB-02). We completed each boring to a depth of approximately 41.5 feet bgs using mud rotary drilling techniques with in-situ density/consistency testing and sample collection at select depth intervals. The approximate locations of Aspect’s explorations are shown on Figure 2. A more detailed description of the field exploration methods and exploration logs are presented in Appendix B. The results of our geotechnical laboratory testing are included in Appendix C.

### **2.2.4 Stratigraphy**

The results of our subsurface explorations generally agreed with the geologic maps and previous explorations at the Site. The soils encountered at the Site were native alluvium deposits. For engineering purposes, we subdivided the alluvium deposits into two separate units: alluvium – silt facies and alluvium – sand facies. The primary engineering geologic soil units used in our analyses, presented from top to bottom in stratigraphic order, are topsoil, fill, and interlayered alluvium – silt facies and alluvium – sand facies. The ground surface and stratigraphy are described in more detail below. Our interpretation of subsurface conditions is shown on Figure 3.

#### **Topsoil**

We encountered up to 18 inches of soft, moist, brown topsoil at each boring location.

#### **Alluvium – Silt Facies**

We encountered alluvium – silt facies in both borings (AB-01 and AB-02) at varying depths. This unit consisted of very loose to loose, very moist to wet, gray and brown, non-plastic silt (ML<sup>1</sup>) with fine to coarse sand.

The silt facies exhibit low shear strength characteristics, very low permeability, high compressibility, and high moisture sensitivity.

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<sup>1</sup> Soils are classified per the United Soil Classification System (USCS) in general accordance with the ASTM International (ASTM) Method D2488 Standard Practice of Description and Identification of Soils.

### **Alluvium – Sand Facies**

We encountered alluvium – sand facies in both locations (AB-01 and AB-02) at varying depths. This unit consisted of very loose to medium dense, moist, gray, silty sand, (SM) and sand with silt (SP-SM) with fine sand.

The sand facies exhibit low to moderate shear strength characteristics, moderate permeability, moderate compressibility, and moderate moisture sensitivity.

## **2.3 Groundwater**

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Groundwater was encountered during drilling at approximately 5 feet bgs in borings AB-01 and AB-02 (completed in April 2024). Groundwater was measured at 1-foot bgs and 2.5 feet bgs by WSDOT in monitoring well H-4p-23 on January 11 and 12, 2023, respectively (Appendix A). We anticipate groundwater rises and falls with the seasons, with high groundwater levels between the months of November through May and falling/low groundwater between the months of June and September.

Our interpretation of conservatively high groundwater conditions at the Site is presented in Figure 3. Groundwater conditions, including the presence of localized seepage or perched groundwater zones, will be variable depending on local subsurface conditions, precipitation, and the time of year.

### 3 Geotechnical Engineering Conclusions and Recommendations

In our opinion the Project is feasible from a geotechnical perspective, provided the recommendations in this report are properly incorporated into design and construction. Key geotechnical considerations are summarized below and discussed in detail in subsequent sections:

- **Proposed Pipe:** The proposed replacement watermain is a 12-inch DR18 fused PVC C900 PC235<sup>2</sup> pipe.
- **Horizontal Directional Drilling (HDD):** We evaluated the suitability of HDD for the required pipe diameter, bore length, and subsurface conditions at the Site. The conceptual HDD alignment and other key elements such as launch and receiving pits for installation are shown on Figure 3. The design radius of curvature for the entry and exit vertical curves along the HDD alignment was chosen to be 500 feet for constructability. For the proposed pipe, a 500-foot bend radius will be achievable. Based on the design alignment, the entry and exit angles will be approximately 11 and 14 degrees, respectively.
- **Variable Conditions:** As shown on Figure 3, the HDD bore path will encounter variable conditions and facies within the alluvium soils. Although not encountered in our explorations, experience has shown that gravel and cobbles may be encountered within the alluvium soils. The HDD Contractor should be prepared for this variation during construction.
- **Surface Settlements and Recommended Vertical Clearance:** We estimated potential surface settlements using guidance from the United States Army Corps of Engineers (USACE; 2020). Based on our analysis, we anticipate the HDD installation will result in less than 1.5 inches of surface settlement along the proposed water main alignment.
- **Hydraulic Fracture:** We used the “Delft Equation” (USACE, 2020; Luger and Hergarden, 1988) to calculate formation limit pressures along the alignment, and compared them with estimated drilling fluid pressures. Our analysis showed that the risk of hydraulic fracture and/or inadvertent fluid return is low provided best practices are followed during drilling operations. Because the parameters used in our analysis are dependent on the HDD Contractor’s means and methods, we recommend the Contractor perform an independent hydraulic fracture evaluation prior to construction.
- **Pipe Deformation Potential:** We estimated the deformation potential of the PVC pipe in accordance with ASTM F1962. Our analysis showed that the factor of safety against pipe buckling was greater than 2 and the estimated ring deflection of the installed PVC pipe will be less than 7.5 percent. These values are within the recommended limits of pipe deflection per ASTM F1962.

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<sup>2</sup> PVC = polyvinyl chloride; PC = pressure class; DR = dimension ratio

- **Pullback Load Estimate:** We estimated the pullback loads that will be applied to the PVC pipe during pullback in accordance with ASTM F1962. The estimated pullback load is on the order of 31 kips, which is less than the allowable tensile load of a DR18 PVC pipe (71.6 kips).
- **Offsets from Future WSDOT Culvert Replacement Project:** The proposed pipeline alignment will not conflict with future WSDOT work provided the recommendations in this report are properly incorporated into the Contractor's design and construction. The proposed HDD alignment includes a 15-foot horizontal offset from the future culvert location, a minimum 5-foot vertical clearance from the project base of the future culvert foundation, and a 10-foot vertical clearance from the future streambed elevation. At the time of this report, the culvert replacement design has not yet been finalized.
- **Temporary Excavations and Shoring:** The launch and receive pit locations are in close proximity to existing utilities, including a gas line. If the Contractor requires excavations at the launch and receive locations, it is feasible to use sheet piles, slide rail shoring systems, or trench boxes to support the excavations. The Contractor is responsible for the shoring design and may use the earth pressures presented in Figure 3 for their design.
- **Construction Dewatering:** Based on the groundwater elevations encountered during drilling, groundwater is likely to be encountered during trenching and excavation of the potential launch/receiving pits. The Contractor should be prepared to dewater excavations. Construction dewatering shall be designed by the Contractor. In our opinion, construction dewatering for a typical launch/receiving pit size (up to 4 feet deep) will be feasible to manage with a system of sumps and pumps. Higher dewatering rates will be necessary where the excavation extends into the alluvium – sand facies (see Figure 3), due to the permeable nature of the soil.

### 3.1 Trenchless Construction

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Design considerations include:

- The proposed replacement watermain is a 12-inch DR18 fused PVC C900 PC235 pipe.
- The trenchless alignment will be approximately 442 feet long.
- All piping, valves, etc. will be installed within the City ROW or Drainage District easement.
- The work will be completed in accordance with applicable Skagit PUD design and construction standards.

We have completed geotechnical engineering analyses to evaluate the potential surface settlements from the installation, to evaluate borehole stability considerations, to make recommendations for minimum depth requirements, and to make general recommendations for best management practice during installation. Our evaluations and analyses are summarized in the following sections.

### **3.1.1 Water Main Alignment Geometry**

The conceptual water main alignment is shown on Figure 3. The alignment will be vertically curved such that there is a clearance of 5 vertical feet from the projected future culvert foundation base and 10 vertical feet from the future streambed elevation. The pipe will be horizontally curved to follow the curvature of Henson Road, to avoid existing buried utilities, and to maintain a horizontal offset of 15 feet from the future WSDOT culvert. We recommend a minimum horizontal and vertical bend radius of 500 feet for constructability.

This alignment accounts for several design factors, such as the minimum depth of the HDD installation required to meet borehole stability requirements, reduce risk of hydraulic fracture and surface settlement, and meet minimum vertical clearance between the anticipated base of the proposed culvert crossing. These design factors are discussed in the following sections.

### **3.1.2 Horizontal Directional Drilling (HDD)**

HDD methods utilize steerable, fluid-assisted drilling systems that involve three stages. First, a relatively small diameter pilot hole is drilled by a bit with pressurized fluid jets. The cuttings/spoils are transported by the drilling fluid back to the drill rig or launch pit. Next, the hole is reamed and enlarged to the desired size by pulling a rotating reamer through the pilot hole. Drilling fluid is pumped continuously to assist with reaming and to remove cuttings/spoils. Typically, with the final reaming pass, the pipeline is pulled back through the reamed hole. Drilling is accomplished with a bentonite- or polymer-based drilling fluid. HDD is best suited for pipe diameters between approximately 3 to 48 inches. Bore lengths up to several thousand feet are common. HDD methods can accommodate a wide variety of ground conditions, contingent on proper fluid management and drilling operations.

The success of any trenchless project is highly dependent on the skill, qualifications, and local experience of the Contractor. Ultimately, we recommend the Contractor be responsible for selecting the means and methods used to install the pipe, considering WSDOT requirements as applicable.

### **3.1.3 Borehole Stability**

As shown in the geologic cross section on Figure 3, from the assumed launch pit location, the bore will encounter very loose to medium dense silty sand, then encounter loose to medium dense sand and finally encounter loose non-plastic silt toward the assumed receiving pit on the north side. We anticipate the majority of the bore will be under the groundwater table. The Contractor should use a drilling fluid mix design that is suitable for these materials. If the borehole becomes unstable, the Contractor may be required to modify the drilling fluid properties or pump lost circulation materials.

Saturated non-plastic sand and silt deposits like those at the Site below the groundwater table can “run” during HDD operations (i.e., flowing ground). In our opinion, risk of flowing ground can be suitably mitigated for the Project by selecting a qualified HDD Contractor, and with proper drilling fluid mix design, flow rate management, and controlling drilling speeds.

### 3.1.4 Surface Settlement and Minimum Vertical Clearance

Settlement during HDD operation is most commonly caused by ground loss associated with over-excavation beyond the diameter of the installed pipeline. USACE provides guidance to estimate potential surface settlements due to trenchless pipe installations (USACE, 2020). This method approximates the deformation trough at the surface as an inverted gaussian distribution curve modified to consider the soil properties, degree of over-excavation, and depth of the pipe. A percentage of the annular over-excavation volume is assumed to translate directly to the volume of the settlement trough at the surface.

We identified the following settlement-sensitive structures along the HDD alignment: a stormdrain and gas line at approximately Station 0+75, asphalt pavement between Stations 1+25 and 2+25, a watermain at approximately Station 1+75, and several buried utilities at approximately Station 2+25<sup>3</sup>. Based on the anticipated depth of alignment below these structures, we anticipate less than 1.5 inches of surface settlement will impact these structures HDD processes. We do not consider HDD-induced surface settlement to be a controlling design factor for the Project. Our inputs and results are summarized in Table 1.

**Table 1. Surface Settlement Calculations Summary**

Parameter	Value	Units
Diameter of the pipeline <sup>1</sup>	12.0	inches
Maximum diameter of bore <sup>2</sup>	18.0	inches
Soil type correction factor <sup>3,4</sup>	0.75	-
Soil drained friction angle <sup>4</sup>	32	degrees
Maximum anticipated surface settlement near comcast line	0.7	inches
Maximum anticipated surface settlement near buried utilities	1.3	inches

**Notes:**

1. Outer diameter of the pipeline, assumed to be a 12-inch-diameter PVC DR18 pipe.
2. The size of the bore opening shall not exceed 5 percent oversize in diameter, per WSDOT Utility Accommodation Manual (WSDOT, 2019).
3. Correction factors are as follows: stiff to hard clays, cohesive sands, rock, and very dense or cemented sands ≈ 0.0 to 0.25; medium clay and medium dense to dense sand ≈ 0.50; soft clay and loose sand ≈ 0.75; very soft clays, and very loose sands ≈ 1.
4. Assumed to be the most conservative value for all anticipated soil types along the bore path.
5. Includes a factor of safety of approximately 2.0, to be measured between the culvert leveling pad and the crown of the bore.

<sup>3</sup> Project stationing is shown on Figure 3.

Surface settlement is significantly affected by the Contractor’s means, methods, and workmanship. Our estimates of surface settlement are contingent on the Contractor following best practices. To limit surface settlement, the Contractor must limit their over-excavation, associated ground loss, and drilling fluid pressures.

We recommend that the Contractor develop a settlement monitoring plan to implement during construction, as well as an action and remediation plan if acceptable surface movements are reached or exceeded.

**3.1.5 Hydraulic Fracture and Fluid Release**

During HDD operations, drilling pressures must be carefully controlled to minimize risk of hydraulic fracture (i.e., “frac out”). Hydraulic fracture occurs when the borehole fails due to uncontrolled expansion, allowing drilling fluids to migrate to the ground surface. The USACE provides guidance to estimate maximum allowable fluid pressures via cavity expansion theory and the so-called “Delft Equation” (USACE, 2020; Luger and Hergarden, 1988). This method assumes that the borehole radius expands as the annular fluid pressure increases. Initial deformations are elastic, but if the pressure exceeds a certain threshold, deformations become plastic. The zone of plastic deformation can reach the ground surface and result in fluid loss.

We completed a hydraulic fracture analysis to determine the maximum recommended drilling fluid pressure along the pipe alignment and compared it with estimated drilling fluid pressures. The soil properties we used for our analyses are shown in Table 2.

**Table 2. Soil Engineering Properties for Hydraulic Fracture Analysis**

Soil Unit	USCS Classification	Unit Weight Total / Effective (pcf) <sup>1</sup>	Effective Friction Angle (degrees)	Effective Cohesion Intercept (psf) <sup>2</sup>	Shear Modulus (psf)
Alluvium – Silt Facies	ML	110 / 47.6	28	0	4x10 <sup>4</sup>
Alluvium – Sand Facies	SM	115 / 52.6	30	0	2x10 <sup>4</sup>

**Notes:**

- 1. Pounds per cubic foot = pcf.
- 2. Pounds per square foot = psf.

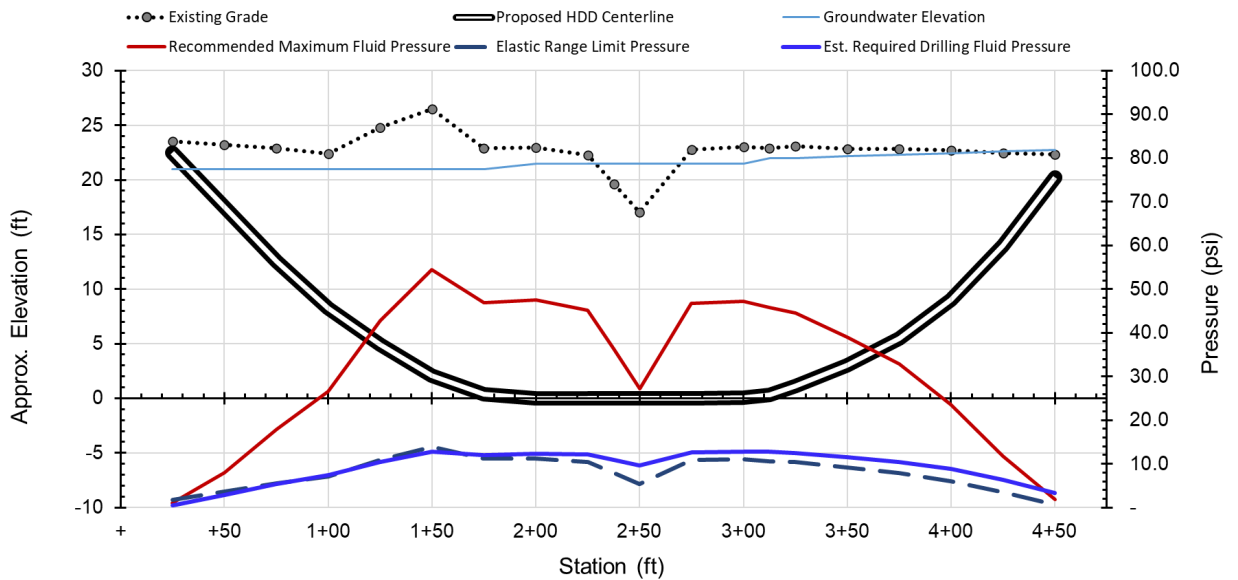
For our analysis, we assumed the design groundwater profile shown on Figure 3. We calculated both the pressure limiting deformations to the elastic range (with a factor of safety of 1.0) and the pressure limiting plastic deformations to a radius equal to half of the distance to the ground surface (with a factor of safety of 2.0), in accordance with USACE recommendations. We also estimated the fluid pressures required to drill the pilot hole, based on the assumed fluid values shown in Table 3, below, and guidance from Bennett and Wallin (2008).

**Table 3. Drilling Fluid and Drill Hole Properties for Hydraulic Fracture Analysis**

Parameter	Value	Units
Unit weight of the drilling fluid	9.5	pounds per gallon
Viscosity of the drilling fluid	10	centipoise
Velocity of the drilling fluid	4.5	feet per second
Yield point of drilling fluid	10	pounds per 100 square feet
Diameter of the pilot hole	18	inches
Diameter of drill pipe	8	inches

The results of our hydraulic fracture analysis are shown in Chart 1 below.

**Chart 1. Hydraulic Fracture Analysis Results**



As shown in Chart 1, our analyses indicate that it is feasible to complete the HDD bore without exceeding the recommended maximum drilling fluid pressures. We conclude that the risk of hydraulic fracture and/or inadvertent fluid return is low provided best practices are followed during drilling operations.

The Contractor is responsible for developing the drilling fluid mix and determining appropriate mud weights, flow rates, and drilling speeds, which may differ from our assumptions. We recommend that real-time, continuous monitoring of drilling fluid pressures be maintained during drilling operations. The Contractor will be responsible for maintaining low-enough annular pressures to prevent hydraulic fracture at all times.

Hydraulic fracture potential is a combination of the Site's subsurface conditions and the Contractor's approach to installing the pipeline. In addition, not all inadvertent fluid returns are due to hydraulic fracture. Other causes include existing fissures in the soil, preferential seepage paths, and open-graded, loose gravel or rocks above the bore.

The Contractor is solely responsible for the HDD pipe installation. The contract documents should require the Contractor to perform an independent hydraulic fracture calculation and employ means and methods that will minimize the risk of uncontrolled releases of drilling fluid.

### **3.1.6 Pipeline Deformation Potential**

We evaluated the factor of safety against collapse of the PVC pipe in accordance with ASTM F1962, and conservatively assuming that the pipe is empty and unpressurized. We used the following parameters and assumptions in our analysis:

- Pipeline PVC pipe: 12-inch PVC pipe of standard dimension ratio 18
- Modulus of elasticity of the PVC pipe of 360,000 pounds per square inches (psi)
- Poisson's ratio of the PVC pipe of 0.45

ASTM F1962 recommends a minimum factor of safety against pipe buckling of 2 and a 7.5 percent maximum ring deflection for unpressurized DR18 PVC pipes. Based on our analyses, these deformation limits are satisfied.

### **3.1.7 Pullback Load Estimate**

For the proposed HDD, we analyzed the anticipated pull loads based on the drill fluid and drill hole parameters presented in Table 3. Because the PVC pipe will be buoyant in the anticipated drilling fluid weights, we anticipate the Contractor may elect to utilize buoyancy control during the installation of the pipeline. Typical buoyancy control involves filling the pipe with ballast such as water. The approximate maximum pullback load we estimated was 31 kips. Based on the PVC pipe properties, we determined the allowable pipe tensile load of 71.6 kips; therefore, we anticipate the pipe pullback load will not exceed the allowable pipe tensile load.

### **3.1.8 Mitigation of Impacts to Henson Road Embankment**

The trenchless alignment will run along the Henson Road embankment. Based on the results of our reconnaissance, subsurface explorations, and the geotechnical engineering analyses described herein, it is our opinion that risks to the embankment are low as long as appropriate construction techniques and best management practices are followed and the recommendations in this report are implemented.

## **3.2 Temporary Excavations and Shoring**

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Maintenance of safe working conditions, including temporary excavation stability, is the responsibility of the Contractor. All temporary cuts more than 4 feet in height that are not protected by trench boxes or otherwise shored, should be sloped in accordance with Part N of Washington Administrative Code (WAC) 296-155 for worker safety (WAC, 2020). Using guidance provided by the WAC and our Site observations, we classify the Site soils as Type C with a maximum allowable temporary slope inclination of 1.5H:1V.

With time and the presence of seepage and/or precipitation, the stability of temporary unsupported cut slopes can be significantly reduced; therefore, all temporary slopes should be protected from erosion by installing a surface water diversion ditch or berm at the top of the slope if precipitation is expected. In addition, the Contractor is responsible for monitoring the stability of the temporary cut slopes and adjusting the construction schedule and slope inclination accordingly. Vibrations created by traffic and construction equipment may cause caving and raveling of the temporary slopes. In such an event, lateral support for the temporary slopes may be provided by the Contractor.

Temporary shoring may be required for the launch and receiving pit excavations. The Contractor is responsible for the design and successful installation of the temporary shoring system. The Contractor's design should verify that the provided information is appropriate for their operation or use, and the soil and groundwater conditions are appropriate for the Site to develop their own design. Temporary shoring systems used should be designed and constructed to support lateral loads exerted by the retained soil mass and any pressures applied during construction, such as heavy equipment and stockpiles next to the excavation.

A variety of shoring systems are feasible for the Project, including (but not limited to) the following:

- Trench boxes
- Slide rail shoring system
- Internally braced or cantilevered sheet piling

If engineered shoring systems are used, they may be designed utilizing the temporary lateral shoring pressures provided in Figure 4.

### **3.3 Construction Dewatering**

---

Localized construction dewatering may be necessary at the launch and receiving pits. As shown on the geologic cross section in Figure 3, anticipated high groundwater levels at the launch and receiving pits may be within 1 or 2 feet of the ground surface. We anticipate strategically placed sumps and pumps can be used as the construction dewatering method at the Site.

Sumps are often constructed by placing a short section of perforated corrugated steel pipe (or surplus 8- to 12-inch-diameter well screen) in a small hole excavated below the trench bottom elevation. The annular space around the pipe is backfilled with drain rock, with several inches placed inside the casing to help control the pumping of fines. Submersible pumps (trash pumps) are then placed inside the pipe and connected to a central discharge pipe. The Contractor should be responsible for design, implementation, and any necessary permits associated with any construction dewatering system used for the Project.

Dewatering discharge rates for trenches and at the launch and receiving pit locations shall be determined by the Contractor prior to construction based on estimated excavation dimensions and depths, anticipated groundwater levels, and empirical correlations between soil grain size distributions and hydraulic properties from the literature. Based

on our analysis, we estimated discharge rates at each of the launch/receiving pit locations could range up to 10 gallons per minute. These discharge rates are provided for planning purposes only. Actual rates will depend on the Contractor's construction dewatering design and implementation, the time of year, and recent prescription rates. The Contractor should consider the potential for piping and heave between the silt and sand contacts during excavation.

### 3.4 Utility Bedding Backfill and Compaction

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Utility bedding and backfill is required at the connection point of the new HDD-installed water main to the existing water main. General recommendations for bedding of utilities and backfill of utility trenches include the following:

- Materials to be used for utility bedding and backfill should meet the requirements for WSDOT Standard Specification 7-09.3(9) and 9-03.12(3) for Gravel Backfill for Pipe Zone Bedding (WSDOT, 2024).
- Bedding and backfill material placed around pipes should be manually tamped into place on each side of the pipe to obtain complete contact. Pipe bedding material should be used as trench backfill to at least 6 inches above the top of the pipe, for the full width of the trench.
- Trench backfill over 6 inches above the top of the pipe should meet the requirements for structural fill as described below.
- Utility bedding and backfill should be mechanically compacted in lifts no greater than 6 inches from base to springline and from springline to the top of the pipe using a jumping jack. Hoe-packs, sheepsfoots, and vibratory rollers shall not be used within 12 inches above the pipe.

## 4 Continuing Geotechnical Services

Before construction begins, Aspect will continue to meet with the Project team, as needed, to address geotechnical questions that may arise throughout the remainder of the design, bidding, and construction process.

We are available to provide geotechnical engineering and monitoring services during construction. The integrity of the geotechnical elements depends on proper Site preparation and construction procedures. In addition, engineering decisions may have to be made in the field if variations in subsurface conditions become apparent.

During the construction phase of the Project, we recommend that Aspect be retained to perform the following tasks:

- Review applicable submittals.
- Observe and monitor trenchless construction operations.
- Observe and evaluate utility backfill placement.
- Attend meetings, as needed.
- Address other geotechnical engineering considerations that may arise during construction.

The purpose of our observations is to verify compliance with design concepts and recommendations, and to allow design changes or evaluation of appropriate construction methods if subsurface conditions differ from those anticipated prior to the start of construction.

## 5 References

- ASTM International (ASTM), 2022, ASTM F1962-22 Standard Guide for Use of Maxi-Horizontal Directional Drilling for Placement of Polyethylene Pipe or Conduit Under Obstacles, Including River Crossings.
- Bennett, D., Wallin, K. 2008, Step-By-Step Evaluation of Hydrofracture Risks for HDD Projects. North American Society for Trenchless Technology. 2008 No-Dig Conference and Exhibition. Dallas Texas. April 27 to May 2, 2008.
- Dethier, D.P., and Whetten, J.T (Dethier et al.), 1981, Preliminary geologic map of the Mount Vernon 7 1/2' quadrangle, Skagit County, Washington, Open-File Report OF-81-105, Map Scale: 1:24,000.
- Luger, H.J., Hergarden, H.J.A.M., 1988. Directional drilling in soft soil: influence of mud pressures. In: Proc., 1988 International No-Dig Conf., Washington D.C., 6B, pp. 1–7.
- Pessl, Fred, Dethier, D.P., Booth, D.B., and Minard, J.P. (Pessl et al.), 1990, Surficial geologic map of the Port Townsend 30- by 60-minute quadrangle, Puget Sound region, Washington, Miscellaneous Investigations Series Map I-1198-F, Map Scale: 1:100,000, May 9, 1990.
- United States Army Corps of Engineers (USACE), 2020. Conduits, Pipes, and Culverts Associated with Dams and Levee Systems. EM 1110-2-2902. December 31, 2020.
- Washington State Department of Transportation (WSDOT), 2019. Utilities Manual. Publication No. M 22-87. February 28, 2019.
- Washington State Department of Transportation (WSDOT), 2024. Standard Specifications for Road, Bridge and Municipal Construction, Document M 41-10.
- Washington Administrative Code (WAC), 2020, Chapter 296-155, Part N - Excavation, Trenching, and Shoring, April 20, 2020.

## 6 Limitations

Work for this project was performed for the Skagit County Public Utility District No. 1 (Client), and this report was prepared consistent with recognized standards of professionals in the same locality and involving similar conditions, at the time the work was performed. No other warranty, expressed or implied, is made by Geosyntec Consultants, Inc dba Aspect Consulting, (Aspect).

Recommendations presented herein are based on our interpretation of site conditions, geotechnical engineering calculations, and judgment in accordance with our mutually agreed-upon scope of work. Our recommendations are unique and specific to the project, site, and Client. Application of this report for any purpose other than the project should be done only after consultation with Aspect.

Variations may exist between the soil and groundwater conditions reported and those actually underlying the site. The nature and extent of such soil variations may change over time and may not be evident before construction begins. If any soil conditions are encountered at the site that are different from those described in this report, Aspect should be notified immediately to review the applicability of our recommendations.

Risks are inherent with any site involving slopes and no recommendations, geologic analysis, or engineering design can assure slope stability. Our observations, findings, and opinions are a means to identify and reduce the inherent risks to the Client.

It is the Client's responsibility to see that all parties to this project, including the designer, contractor, subcontractors, and agents, are made aware of this report in its entirety. If project developments result in changes from the current project information, Aspect should be contacted to determine if our recommendations contained in this report should be revised and/or expanded upon.

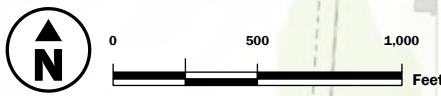
The scope of work does not include services related to construction safety precautions. Site safety is typically the responsibility of the contractor, and our recommendations are not intended to direct the contractor's site safety methods, techniques, sequences, or procedures. The scope of our work also does not include the assessment of environmental characteristics, particularly those involving potentially hazardous substances in soil or groundwater.

All reports prepared by Aspect for the Client apply only to the services described in the Agreement(s) with the Client. Any use or reuse by any party other than the Client is at the sole risk of that party, and without liability to Aspect. Aspect's original files/reports shall govern in the event of any dispute regarding the content of electronic documents furnished to others.

**Please refer to Appendix D titled "Report Limitations and Guidelines for Use" for additional information governing the use of this report.**

We appreciate the opportunity to perform these services. If you have any questions please call Erik Andersen, PE at 425-772-4705.

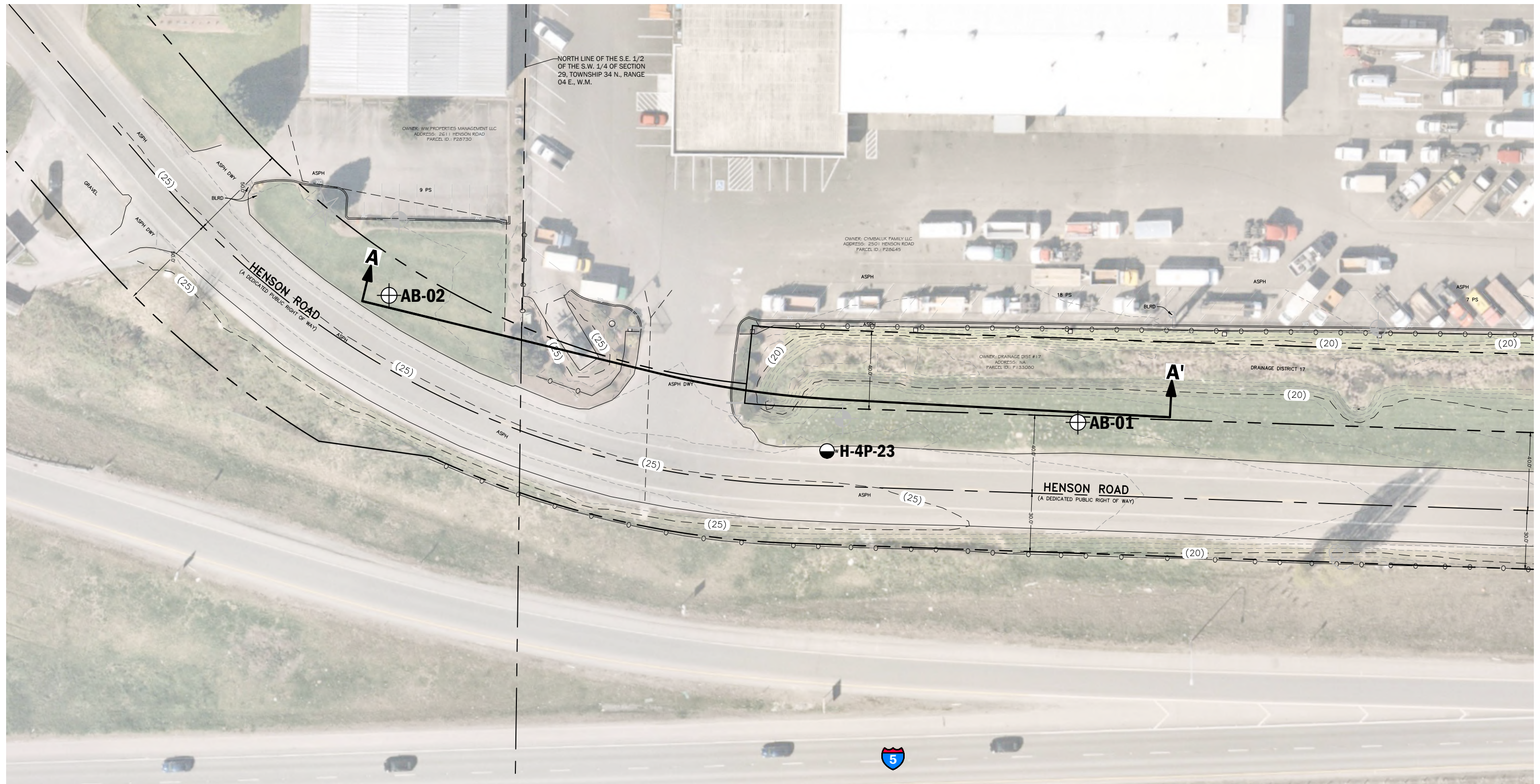
# FIGURES






**Site Location Map**  
 Geotechnical Engineering Report  
 Pipeline Relocation at Henson Road  
 Mount Vernon, Washington

	APR-2024	BY: JRG / KMJ	FIGURE NO. <b>1</b>
	PROJECT NO. 240082	REVISED BY: - / -	

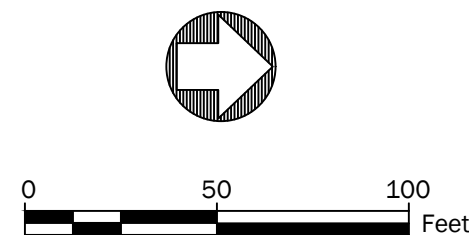
Data source credits: None | Basemap Service Layer Credits: Esri, NASA, NGA, USGS, County of Skagit, Island County, Bureau of Land Management, Province of British Columbia, Esri Canada, Esri, HERE, Garmin, INCREMENT P, Intermap, USGS, METI/NASA, EPA, USDA, County of Skagit, Island County, WA State Parks GIS, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USFWS, Esri, HERE, Garmin, USGS, EPA, NPS



**Legend**

-  Boring Location (Aspect)
-  Boring Location (WSDOT, February 2023)
-  Cross-Section Location

Source: Base map provided by Bush, Roed & Hitchings, Inc. survey dated 3/29/2024  
 Aerial imagery provided by Nearmap, 2024.



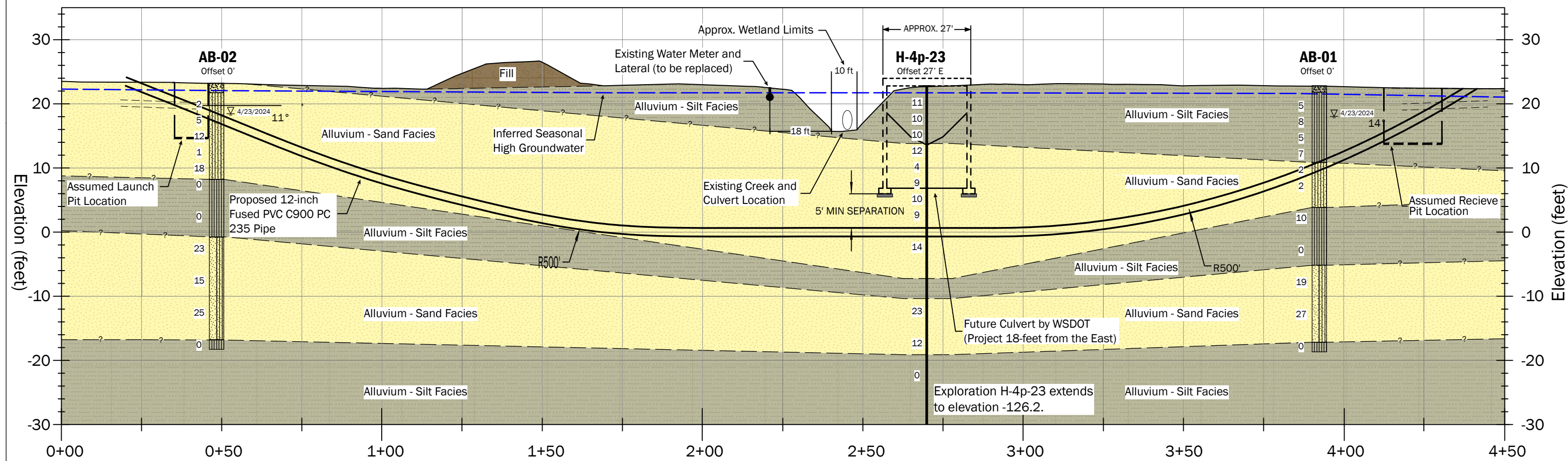
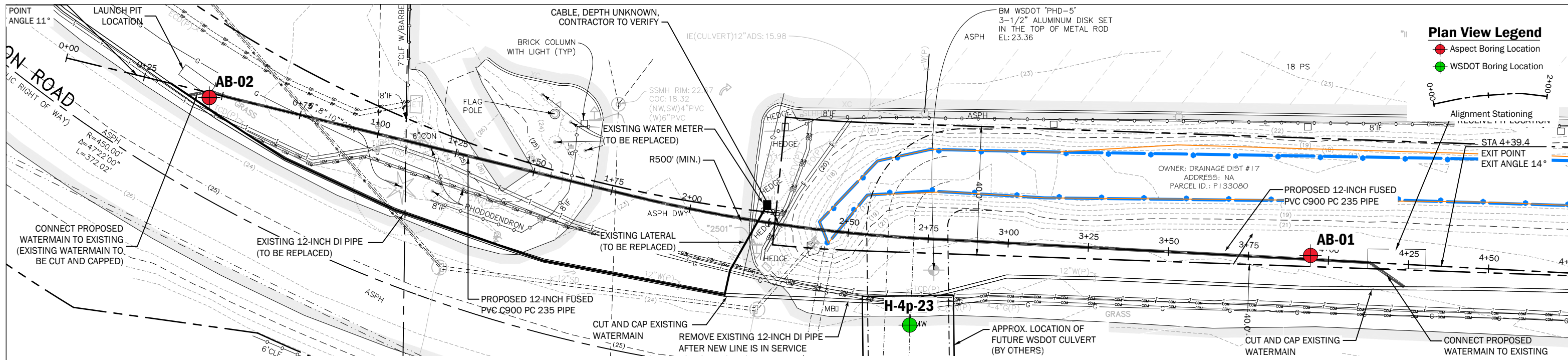
**Site and Exploration Map**  
 Geotechnical Engineering Report  
 Pipeline Relocation at Henson Road  
 Mount Vernon, Washington



Apr-2024  
 PROJECT NO.  
 AS240082

BY: JRG  
 REVISED BY: -

FIGURE NO.  
**2**



**Profile Legend**

**Lithology Graphics**

- Fill
- Alluvium - Silt Facies (ML, SM)
- Alluvium - Sand Facies (SM, SP-SM, SP)

**Contacts**

- Contact - Known
- Contact - Inferred
- Contact - Queried
- Inferred Seasonal High Groundwater

**Aspect Explorations**

**B-01 (Offset 31' SE)**

- Borehole ID Offset and direction
- Groundwater at time of drilling
- Material Type (see Lithology Graphics)
- Inferred Geologic Contact
- SPT Blow Count N Value

**Explorations by Others**

**B-01 (Offset 31' SE)**

- Borehole ID Offset and direction
- SPT Blow Count N Value

**Scale:** Horizontal Scale 1" = 30', Vertical Scale 1" = 15', Vertical Exaggeration 2x

**Disclaimer:** The subsurface conditions presented in this geologic cross section are conceptual. Variations may exist between the soil and groundwater conditions depicted on this figure and those actually underlying the site. Refer to the contents of this report and boring logs for further context.

**Notes:**

- Cross section surface and plan view generated from base CAD files provided by Bush, Roed & Hitchings, Inc. dated 3/29/2024.
- Cross section profile is taken along project station alignment.
- Site features are approximate.

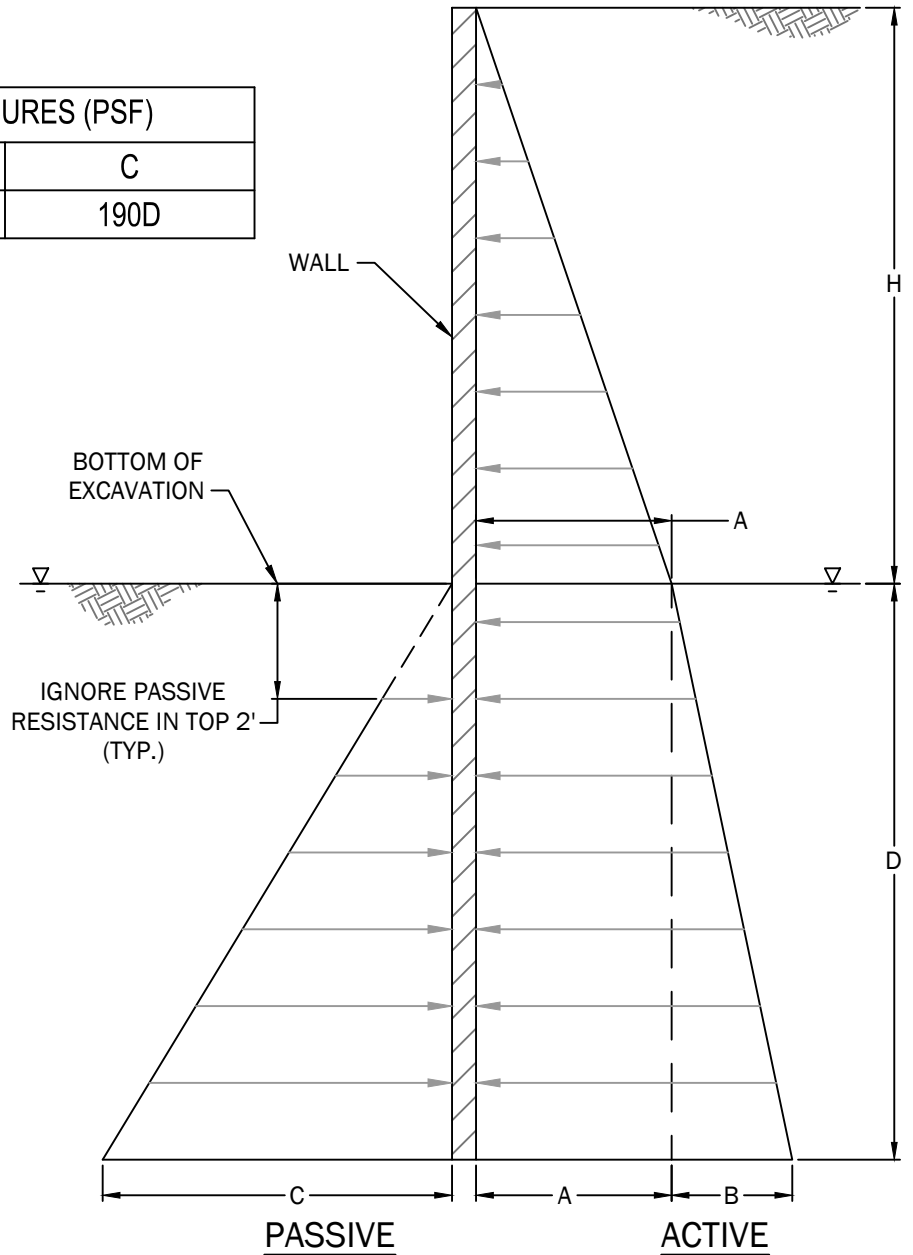
**Geologic Cross Section**

Geotechnical Engineering Report  
Pipeline Relocation at Henson Road  
Skagit County, Washington

Aspect A Geosyntec Company	AUG-2024	BY: JBM	FIGURE NO. <b>3</b>
	PROJECT NO. AS240082	REVISED BY: MO	

# RECOMMENDED TEMPORARY EARTH PRESSURES FOR CANTILEVERED WALL

RECOMMENDED EARTH PRESSURES (PSF)		
A	B	C
37H	17D	190D



**NOTES:**

1. Groundwater is assumed to be lowered and maintained at the base of the excavation during construction.
2. Allowable passive earth pressures include a factor of safety of 1.5.
3. Active pressures are assumed to act over the full width of the retained soil and over the width of any elements embedded below the base of the wall. For soldier pile and lagging systems, passive pressures can be assumed to act over the lesser of 3 times the concreted diameter of the soldier pile or the center-to-center embedded pile spacing.
4. Earth pressure units are pounds per square foot.
5. Wall embedment should be established by the shoring designer considering global stability and 'kickout' resistance. Embedment should satisfy horizontal static equilibrium about the bottom of the pile. Min. recommended embedment is 10 feet.
6. Figure is not to scale.
7. The shoring designer should include loads from groundwater and surface surcharge loads as applicable and appropriate.

**LEGEND:**

H = Total excavation height, feet

D = Total embedment depth, feet

A, B, C = Earth pressure factors, see table.

NOT TO SCALE

## Temporary Lateral Shoring Pressures

Geotechnical Engineering Report  
 Skagit County PUD  
 Pipeline Relocation at Henson Road  
 Skagit County, Washington



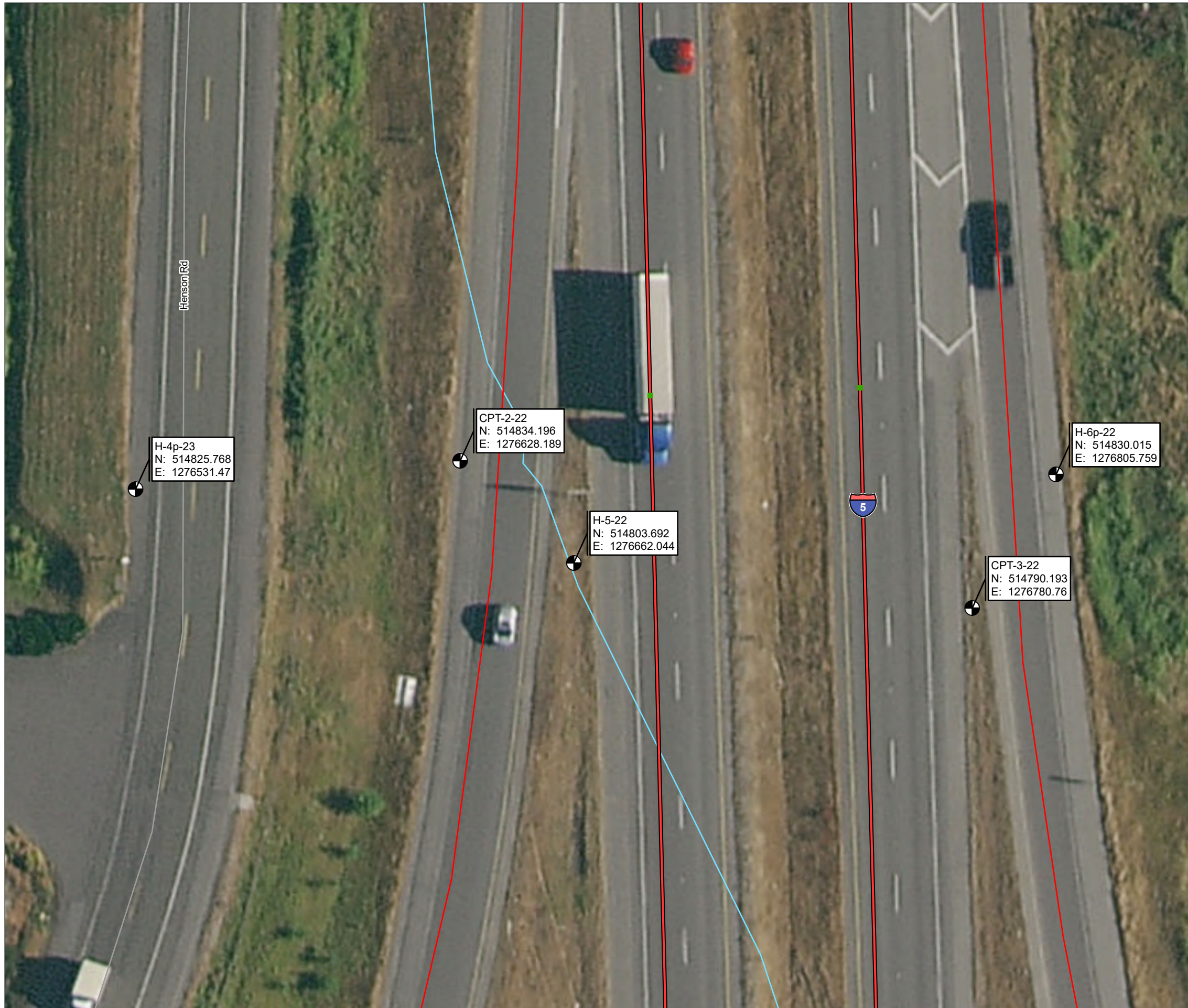
Aug-2024  
 PROJECT NO.  
 240082

BY:  
 MOO/CMV  
 REVISED BY:  
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FIGURE NO.  
**4**

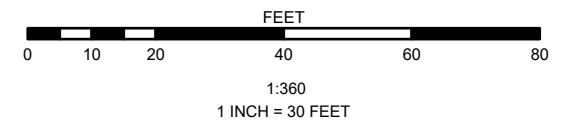
## **APPENDIX A**

### **WSDOT Subsurface Exploration Map and Log**



**Legend**

-  Test Borings
-  Milepost - 1/10th Mile
-  Milepost - 1 Mile
-  U.S. Interstate
-  Ramps (1:24K)
-  Local Access
-  NHD Rivers & Streams



JOB # XL4925 STATE ROUTE 005 MILEPOST(S) 224.55 to 225.30

**FIGURE 2a: SITE EXPLORATION PLAN  
MARTHA WASHINGTON CREEK**

I-5 / Martha Washington and Maddox Creeks  
Fish Passage



PREPARED BY TropleT

Date: February 9, 2023

Project: I-5 Maddox Creek - Fish Passage  
 Northing: 514,825.8 feet Latitude: 48.401641 deg.  
 Easting: 1,276,531.5 feet Longitude: -122.331418 deg.  
 Elevation: 24.3 feet Collector: Region Survey  
 Horizontal/Vertical Datum: NAD 83 HARN, SPN / NAVD88  
 Started: January 10, 2023 Completed: January 12, 2023

Job Number: XL4925 Route & MP Range: SR 005 MP 224.55 - 225.30  
 Driller/Inspector: Harrell, Nicholas (#3322T) / Cooper, Rich (#2964)  
 Start Card: RE23592 Well Tag: BBC-847 Instrument: 1" PVC  
 Drilling Method: Casing Advancer Hole Diam.: 4 in  
 Equipment: CME 45C (ID:9A4-7) Rod Type: AWJ  
 Hammer Type: Autohammer Historic Efficiency: 91.5%

Depth (feet)	Elevation (feet)	Profile	Moisture Content (%) Fines Content (%) Penetration Resistance (blows/ft) Field N	Blows/6" (N bpf) and other Field Data	Sample Type	Sample Number	Lab Tests	Material Description	Groundwater Data	As-Built
			0 20 40 60 80 100					-ASPHALT		
			◆ ○					SILTY SAND WITH GRAVEL, rounded, medium dense, gray, moist, homogeneous.	01-12-23 MK01-11-23 MK	
5			◆ ○	7 5 6 11 (11) Rec=1.3'	D-1			SILTY SAND, loose, gray, moist, homogeneous.		
			◆ ○	5 5 5 6 (10) Rec=1.5'	D-2			SILTY SAND, loose, gray, wet, homogeneous.		
15			◆ ○ ✕	2 5 5 6 (10) Rec=1.7'	D-3	GS		POORLY GRADED SAND, very loose, gray, wet, stratified.		
10			◆ ○	1 5 7 7 (12) Rec=1.8'	D-4			POORLY GRADED SAND, very loose, gray, wet, homogeneous.		
			◆ ○ ✕	1 2 2 4 (4) Rec=1.5'	D-5	GS		POORLY GRADED SAND, loose, gray, wet, homogeneous.		
15			◆ ○	3 5 4 4 (9) Rec=1.7'	D-6			POORLY GRADED SAND, loose, gray, wet, homogeneous.		
			◆ ○	2 4 6 7 (10) Rec=1.5'	D-7			POORLY GRADED SAND, loose, gray, wet, homogeneous.		
20			◆ ○	3 4 5 5 (9) Rec=1.7'	D-8			POORLY GRADED SAND, loose, gray, wet, homogeneous.		
25			◆ ○	3 7 7 9 (14) Rec=1.7'	D-9			POORLY GRADED SAND, medium dense, gray, wet, homogeneous.		

Project: I-5 Maddox Creek - Fish Passage

Job Number: XL4925

Route &amp; MP Range: SR 005 MP 224.55 - 225.30

Depth (feet)	Elevation (feet)	Profile	Moisture Content (%) Fines Content (%) Penetration Resistance (blows/ft) Field N	Blows/6" (N bpf) and other Field Data	Sample Type Sample Number	Lab Tests	Material Description	Groundwater Data	As-Built
30	-5				Rec=2.0'	S-10	SANDY SILT, gray, wet.		
35	-10		○ ✕ ◇		2 10 13 10 (23) Rec=1.5'	D-11 GS	WELL-GRADED SAND WITH SILT, medium dense, gray, wet, homogeneous.		
40	-15		◆ ◇ ✕		7 9 3 3 (12) Rec=1.7'	D-12 GS	SILTY SAND, medium dense, gray, wet, homogeneous.		
45	-20				Rec=2.0'	S-13	SANDY SILT, gray, wet.		
45	-20				0 0 0 3 (0) Rec=2.0'	D14	SANDY SILT, very loose, gray, moist, stratified, Organics/shells.		
45	-20		✕ ○		Rec=1.1'	S15	SILT WITH SAND, gray, wet.	GS, AL, LOI, HT, SG, PH, RES	
50	-25				Rec=2.0'	S-16	ELASTIC SILT, gray, wet.		
55	-30		◆ ◇ ✕ ○		3 6 9 9 (15) Rec=1.7'	D-17 GS	SILTY SAND, medium dense, gray, wet, stratified.		
60	-35		◆ ◇		3 7 14 (21) Rec=1.5'	D-18	SILTY SAND, medium dense, gray, wet, homogeneous.		

CONTINUED NEXT PAGE (see last page for notes)

Project: I-5 Maddox Creek - Fish Passage

Job Number: XL4925

Route & MP Range: SR 005 MP 224.55 - 225.30

Depth (feet)	Elevation (feet)	Profile	Moisture Content (%)			Blows/6" (N bpf) and other Field Data	Sample Type	Sample Number	Lab Tests	Material Description	Groundwater Data	As-Built
			Fines Content (%)	Penetration Resistance (blows/ft) Field N	SPT N <sub>60</sub>							
65	40		35	25	25	9 15 10 (25) Rec=1.5'	D-19	GS	POORLY GRADED SAND WITH SILT, dense, gray, wet, homogeneous.			
70	45		35	25	40	7 15 25 (40) Rec=1.5'	D-20		POORLY GRADED SAND WITH GRAVEL, rounded, dense, gray, wet, homogeneous.			
75	50		35	25	19	7 8 11 (19) Rec=1.5'	D-21	GS	SILTY SAND, medium dense, gray, wet, stratified, Organics.			
80	55		35	25	22	6 11 11 (22) Rec=1.5'	D-22		SILTY SAND, medium dense, gray, wet, homogeneous.			
85	60		35	25	25	10 12 13 (25) Rec=1.5'	D-23		SILTY SAND, dense, gray, wet, homogeneous.			
90	65		35	25	23	12 12 11 (23) Rec=1.5'	D-24		WELL-GRADED GRAVEL WITH SAND, subangular to subrounded, medium dense, gray, wet, homogeneous.			
95	70		35	25	20	14 10 10 (20) Rec=1.5'	D-25		WELL-GRADED GRAVEL WITH SAND, subangular to subrounded, medium dense, gray, wet, homogeneous.			

INTERNAL USE ONLY

STANDARD BORING LOG: XL-4925 005-MADDOXCREEK-FP-GPJ\_2020 WSDOT GINT TEMPLATE.GDT 3/24/23

Project: I-5 Maddox Creek - Fish Passage

Job Number: XL4925

Route & MP Range: SR 005 MP 224.55 - 225.30

Depth (feet)	Elevation (feet)	Profile	Moisture Content (%) Fines Content (%) Penetration Resistance (blows/ft) Field N	Blows/6" (N bpf) and other Field Data	Sample Type Sample Number	Lab Tests	Material Description	Groundwater Data	As-Built
100	-75		Moisture Content (%) $\times$ Fines Content (%) $\circ$ Penetration Resistance (blows/ft) $\diamond$ Field N $\blacklozenge$ SPT N <sub>60</sub> $\diamond$	16 7 7 (14) Rec=1.2'	D-26	GS	SANDY SILT, medium dense, gray, wet, stratified.		
110	-85			37 38 32 (42) Rec=1.5'	D-27		WELL-GRADED GRAVEL WITH SAND, subangular to subrounded, very dense, gray, wet, homogeneous.		
120	-95			14 14 20 (34) Rec=1.5'	D-28	GS	POORLY GRADED SAND WITH SILT AND GRAVEL, subangular to subrounded, dense, gray, wet, homogeneous.		
130	-105			6	D-29		POORLY GRADED SAND WITH SILT AND GRAVEL,		

INTERNAL USE ONLY

STANDARD BORING LOG: XL-4925 005-MADDOXCREEK-FISH-PASSAGE 3/24/23

CONTINUED NEXT PAGE (see last page for notes)

VERSION 0.1  
IN PROGRESS

Project: I-5 Maddox Creek - Fish Passage

Job Number: XL4925

Route & MP Range: SR 005 MP 224.55 - 225.30

Depth (feet)	Elevation (feet)	Profile	Moisture Content (%) Fines Content (%) Penetration Resistance (blows/ft) Field N	SPT N <sub>60</sub>	Blows/6" (N bpf) and other Field Data	Sample Type	Sample Number	Lab Tests	Material Description	Groundwater Data	As-Built
135	-110						D-29		subrounded to rounded, dense, gray, wet, homogeneous.		
140	-115		○	◆	◆	◆	D-30	GS	POORLY GRADED SAND WITH SILT, dense, gray, wet, homogeneous.		
150	-125			◆	◆	◆	D-31		POORLY GRADED SAND WITH SILT, very dense, gray, wet, homogeneous.		

HOLE ENDED AT 150.5 FEET ON 1-12-2023

**NOTES:**

1. This is a summary log of the boring. Soil/rock descriptions are derived from visual field identifications and laboratory test data (where tested). See exploration log legend for explanation of graphics and abbreviations.
2. The implied accuracy of the location information displayed on this log is typically sub-meter(X,Y) when collected using GPS methods by the Geotechnical Office and sub-centimeter (X,Y,Z) when collected by the Region survey crew.
3. Where oversized samplers were used, a correction was made to the N-value per the AASHTO Manual on Subsurface Investigations, 1988. Blow counts per 6-inch increment have not been corrected.
4. The groundwater level(s), if shown, represents observations made during drilling. The groundwater level should be considered approximate and will vary based on seasonal and other effects.

## **APPENDIX B**

### **Aspect Subsurface Exploration Logs**

## B. Subsurface Exploration Program

Two borings, designated AB-01 and AB-02 were advanced at the Site on April 23, 2024. The borings were advanced with mud rotary drilling methods by Holocene Drilling (under subcontract to Aspect), using a Diederich D-50 track-mounted drill rig. Samples were obtained at 2.5- to 5-foot intervals below ground surface (bgs) to the depths explored using the Standard Penetration Test (SPT) in general accordance with ASTM International Method D1586.

The SPT method involves driving a 2-inch-outside-diameter split-barrel sampler with a 140-pound hammer free-falling 30 inches. The number of blows for each 6-inch interval are recorded, and the number of blows required to drive the sampler the final 12 inches is known as the Standard Penetration Resistance (“N”) or blow count. The resistance, or N-value, provides a measure of the relative density of granular soils or the relative consistency of cohesive soils. If a total of 50 blows are recorded for a single 6-inch interval, the test is terminated, and the blow count is recorded as 50 blows for the total inches of penetration. Select soil samples taken to a laboratory for further classification.

An Aspect staff geologist was present throughout the field exploration program to observe the drilling procedure, assist in sampling, and prepare descriptive logs of the exploration. Soils were classified in general accordance with ASTM D2488, *Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)*. Detailed descriptions of the subsurface conditions encountered in our explorations, as well as the depths where characteristics of the soils changed, are indicated on the soil boring logs presented in this appendix. The summary exploration log represents our interpretation of the contents of the field logs. The stratigraphic contacts shown on the individual summary logs represent the approximate boundaries between soil types; actual transitions may be more gradual. The subsurface conditions depicted are only for the specific date and locations reported and, therefore, are not necessarily representative of other locations and times. A key to the symbols and terms used on the logs is provided on the Exploration Log Key.

Upon completion, both borings were backfilled with 3/8-inch bentonite chips in accordance with requirements of the Washington State Department of Ecology.

Coarse-Grained Soils - More than 50% <sup>1</sup> Retained on No. 200 Sieve	Gravels - More than 50% <sup>1</sup> of Coarse Fraction Retained on No. 4 Sieve	≤ 5% Fines	GW	Well-graded GRAVEL Well-graded GRAVEL WITH SAND
			GP	Poorly-graded GRAVEL Poorly-graded GRAVEL WITH SAND
			GM	SILTY GRAVEL SILTY GRAVEL WITH SAND
	Sands - 50% <sup>1</sup> or More of Coarse Fraction Passes No. 4 Sieve	≥ 15% Fines	GC	CLAYEY GRAVEL CLAYEY GRAVEL WITH SAND
			SW	Well-graded SAND Well-graded SAND WITH GRAVEL
			SP	Poorly-graded SAND Poorly-graded SAND WITH GRAVEL
Fine-Grained Soils - 50% <sup>1</sup> or More Passes No. 200 Sieve	Sands - 50% <sup>1</sup> or More of Coarse Fraction Passes No. 4 Sieve	≤ 5% Fines	SM	SILTY SAND SILTY SAND WITH GRAVEL
			SC	CLAYEY SAND CLAYEY SAND WITH GRAVEL
			Silt and Clays Liquid Limit Less than 50%	ML
	CL	LEAN CLAY SANDY or GRAVELLY LEAN CLAY LEAN CLAY WITH SAND LEAN CLAY WITH GRAVEL		
	OL	ORGANIC SILT SANDY or GRAVELLY ORGANIC SILT ORGANIC SILT WITH SAND ORGANIC SILT WITH GRAVEL		
	Silt and Clays Liquid Limit 50% or More	MH	ELASTIC SILT SANDY or GRAVELLY ELASTIC SILT ELASTIC SILT WITH SAND ELASTIC SILT WITH GRAVEL	
CH		FAT CLAY SANDY or GRAVELLY FAT CLAY FAT CLAY WITH SAND FAT CLAY WITH GRAVEL		
OH		ORGANIC CLAY SANDY or GRAVELLY ORGANIC CLAY ORGANIC CLAY WITH SAND ORGANIC CLAY WITH GRAVEL		
Highly Organic Soils			PT	PEAT and other mostly organic soils

"WITH SILT" or "WITH CLAY" means 5 to 15% silt and clay, denoted by a "-" in the group name; e.g., SP-SM • "SILTY" or "CLAYEY" means >15% silt and clay • "WITH SAND" or "WITH GRAVEL" means 15 to 30% sand and gravel. • "SANDY" or "GRAVELLY" means >30% sand and gravel. • "Well-graded" means approximately equal amounts of fine to coarse grain sizes • "Poorly graded" means unequal amounts of grain sizes • Group names separated by "/" means soil contains layers of the two soil types; e.g., SM/ML.

Soils were described and identified in the field in general accordance with the methods described in ASTM D2488. Where indicated in the log, soils were classified using ASTM D2487 or other laboratory tests as appropriate. Refer to the report accompanying these exploration logs for details.

1. Estimated or measured percentage by dry weight
2. (SPT) Standard Penetration Test (ASTM D1586)
3. Determined by SPT, DCPT (ASTM STP399) or other field methods. See report text for details.

MC	=	Natural Moisture Content	<b>GEOTECHNICAL LAB TESTS</b>
PS	=	Particle Size Distribution	
FC	=	Fines Content (% < 0.075 mm)	
GH	=	Hydrometer Test	
AL	=	Atterberg Limits	
C	=	Consolidation Test	
Str	=	Strength Test	
OC	=	Organic Content (% Loss by Ignition)	
Comp	=	Proctor Test	
K	=	Hydraulic Conductivity Test	
SG	=	Specific Gravity Test	

<b>Organic Chemicals</b>			<b>CHEMICAL LAB TESTS</b>
BTEX	=	Benzene, Toluene, Ethylbenzene, Xylenes	
TPH-Dx	=	Diesel and Oil-Range Petroleum Hydrocarbons	
TPH-G	=	Gasoline-Range Petroleum Hydrocarbons	
VOCs	=	Volatile Organic Compounds	
SVOCs	=	Semi-Volatile Organic Compounds	
PAHs	=	Polycyclic Aromatic Hydrocarbon Compounds	
PCBs	=	Polychlorinated Biphenyls	
<b>Metals</b>			
RCRA8	=	As, Ba, Cd, Cr, Pb, Hg, Se, Ag, (d = dissolved, t = total)	
MTCA5	=	As, Cd, Cr, Hg, Pb (d = dissolved, t = total)	
PP-13	=	Ag, As, Be, Cd, Cr, Cu, Hg, Ni, Pb, Sb, Se, Tl, Zn (d=dissolved, t=total)	

PID	=	Photoionization Detector	<b>FIELD TESTS</b>
Sheen	=	Oil Sheen Test	
SPT <sup>2</sup>	=	Standard Penetration Test	
NSPT	=	Non-Standard Penetration Test	
DCPT	=	Dynamic Cone Penetration Test	

<b>Descriptive Term</b>	<b>Size Range and Sieve Number</b>	<b>COMPONENT DEFINITIONS</b>
Boulders	= Larger than 12 inches	
Cobbles	= 3 inches to 12 inches	
Coarse Gravel	= 3 inches to 3/4 inches	
Fine Gravel	= 3/4 inches to No. 4 (4.75 mm)	
Coarse Sand	= No. 4 (4.75 mm) to No. 10 (2.00 mm)	
Medium Sand	= No. 10 (2.00 mm) to No. 40 (0.425 mm)	
Fine Sand	= No. 40 (0.425 mm) to No. 200 (0.075 mm)	
Silt and Clay	= Smaller than No. 200 (0.075 mm)	

<b>% by Weight</b>	<b>Modifier</b>	<b>% by Weight</b>	<b>Modifier</b>	<b>ESTIMATED<sup>1</sup> PERCENTAGE</b>
<1	=	Subtrace	15 to 25 = Little	
1 to <5	=	Trace	30 to 45 = Some	
5 to 10	=	Few	>50 = Mostly	

Dry	=	Absence of moisture, dusty, dry to the touch	<b>MOISTURE CONTENT</b>
Slightly Moist	=	Perceptible moisture	
Moist	=	Damp but no visible water	
Very Moist	=	Water visible but not free draining	
Wet	=	Visible free water, usually from below water table	

<b>Non-Cohesive or Coarse-Grained Soils</b>			<b>RELATIVE DENSITY</b>
<b>Density<sup>3</sup></b>	<b>SPT<sup>2</sup> Blows/Foot</b>	<b>Penetration with 1/2" Diameter Rod</b>	
Very Loose	= 0 to 4	≥ 2'	
Loose	= 5 to 10	1' to 2'	
Medium Dense	= 11 to 30	3" to 1'	
Dense	= 31 to 50	1" to 3"	
Very Dense	= > 50	< 1"	

<b>Cohesive or Fine-Grained Soils</b>			<b>CONSISTENCY</b>
<b>Consistency<sup>3</sup></b>	<b>SPT<sup>2</sup> Blows/Foot</b>	<b>Manual Test</b>	
Very Soft	= 0 to 1	Penetrated >1" easily by thumb. Extrudes between thumb & fingers.	
Soft	= 2 to 4	Penetrated 1/4" to 1" easily by thumb. Easily molded.	
Medium Stiff	= 5 to 8	Penetrated >1/4" with effort by thumb. Molded with strong pressure.	
Stiff	= 9 to 15	Indented ~1/4" with effort by thumb.	
Very Stiff	= 16 to 30	Indented easily by thumbnail.	
Hard	= > 30	Indented with difficulty by thumbnail.	

<b>GEOLOGIC CONTACTS</b>		
Observed and Distinct	Observed and Gradual	Inferred

	Exploration Log Key
---	---------------------



# Pipeline Relocation at Henson Rd. - AS240082

# Geotechnical Exploration Log

Project Address & Site Specific Location  
Henson Road at Martha Creek, west of I-5, See Figure 2.

Coordinates (Lat, Lon WGS84)  
48.4020, -122.3316 (est)

Exploration Number  
**AB-01**

Contractor  
Holocene Drilling

Equipment  
Diedrich D-50 rubber track rig

Sampling Method  
Autohammer; 140 lb hammer; 30" drop

Ground Surface Elev.  
23' (est)

Operator  
Tom Adams

Exploration Method(s)  
Mud rotary

Work Start/Completion Dates  
4/23/2024

Top of Casing Elev.  
NA

Depth to Water (Below GS)  
5' (ATD)

Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Blows/foot					Blows/6'	Tests	Material Type	Description	Depth (ft)
				0	10	20	30	40					
1	22	Soil cover 0 to 1' bgs Boring backfilled with bentonite chips.									TOPSOIL	1	
2	21										TOPSOIL; moist, brown; few organics (grass and rootlets).	2	
3	20		S-1						3		<b>ALLUVIUM - SILT FACIES (Qal)</b>	3	
4	19								3		SILT WITH SAND (ML); loose, very moist, brown; non-plastic; fine sand.	4	
5	18	▽ 4/23/2024 sample color indicative of groundwater table fluctuation at this elevation.							2	GH, MC FC=79%	Becomes wet and gray-brown with iron-oxide staining.	5	
6	17		S-2						3			6	
7	16								5			7	
8	15		S-3						3		Becomes gray-brown.	8	
9	14								3			9	
10	13		S-4						2			10	
11	12								2			11	
12	11								5			12	
13	10		S-5						3	FC, MC FC=33.1%	<b>ALLUVIUM - SAND FACIES (Qal)</b>	13	
14	9								1		SILTY SAND (SM); very loose, wet, gray-brown; fine sand.	14	
15	8								1		Becomes gray to dark gray.	15	
16	7		S-6						0			16	
17	6								2			17	
18	5											18	
19	4										<b>ALLUVIUM - SILT FACIES (Qal)</b>	19	
20	3										SILT WITH SAND (ML); loose, wet, gray; non-plastic; fine to medium sand.	20	
21	2		S-7						0			21	
22	1								3			22	
23	0								7			23	
24	-1											24	

**Legend**

- No Soil Sample Recovery
- Split Barrel 2" X 1.375" (SPT)
- ▽ Water Level ATD

Plastic Limit |——| Liquid Limit

Water Level

See Exploration Log Key for explanation of symbols

Logged by: KR  
Approved by: SM/MO

**Exploration Log**  
**AB-01**  
Sheet 1 of 2

NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINT\PROJECTS\AS240082 - HENSON ROAD AT MARTHA CREEK.GPJ July 19, 2024

Review Stage: DRAFT Rev.2



# Pipeline Relocation at Henson Rd. - AS240082

# Geotechnical Exploration Log

*Project Address & Site Specific Location*  
 Henson Road at Martha Creek, west of I-5, See Figure 2.

*Equipment*  
 Diedrich D-50 rubber track rig

*Sampling Method*  
 Autohammer; 140 lb hammer; 30" drop

*Exploration Method(s)*  
 Mud rotary

*Work Start/Completion Dates*  
 4/23/2024

*Coordinates (Lat,Lon WGS84)*  
 48.4020, -122.3316 (est)

*Ground Surface Elev.*  
 23' (est)

*Top of Casing Elev.*  
 NA

*Exploration Number*  
**AB-01**

*Depth to Water (Below GS)*  
 5' (ATD)

Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Blows/foot					Blows/6'	Tests	Material Type	Description	Depth (ft)									
				0	10	20	30	40						50								
26	-3	[Cross-hatched pattern]	S-8					37.2		0	GH, MC FC=70.4%	[Vertical lines pattern]	26									
27	-4									0			ALLUVIUM - SILT FACIES (Qal) SILT WITH SAND (ML); loose, wet, gray; non-plastic; fine to medium sand. (continued) Becomes very loose; fine sand.	27								
28	-5									0				ALLUVIUM - SAND FACIES (Qal) SAND WITH SILT (SP-SM); medium dense, wet, gray; fine to medium sand.	28							
29	-6									0					SAND WITH SILT (SP-SM); medium dense, wet, gray; fine to medium sand.	29						
30	-7									10						ALLUVIUM - SILT FACIES (Qal) SILT WITH SAND (ML); very loose, wet, gray; fine sand; subtrace marine shells and wood fragments.	30					
31	-8			S-9						11							Bottom of exploration at 41.5 ft. bgs.	31				
32	-9									8									32			
33	-10																			33		
34	-11																				34	
35	-12									12												35
36	-13			S-10						15												
37	-14										37											
38	-15											38										
39	-16												39									
40	-17								0					40								
41	-18		S-11						0						41							
42	-19								0							42						
43	-20								0								43					
44	-21																	44				
45	-22																		45			
46	-23																			46		
47	-24																				47	
48	-25																				48	
49	-26																				49	

NEW STANDARD EXPLORATION LOG TEMPLATE - P:\GINT\PROJECTS\AS240082 - HENSON ROAD AT MARTHA CREEK.GPJ July 19, 2024

<b>Legend</b> <input type="checkbox"/> No Soil Sample Recovery <input checked="" type="checkbox"/> Split Barrel 2" X 1.375" (SPT)		Plastic Limit ———> Liquid Limit Water Level  Water Level ATD	See Exploration Log Key for explanation of symbols  Logged by: KR Approved by: SM/MO	<b>Exploration Log AB-01</b> Sheet 2 of 2
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Review Stage: DRAFT Rev.2



# Pipeline Relocation at Henson Rd. - AS240082

# Geotechnical Exploration Log

Project Address & Site Specific Location  
Henson Road at Martha Creek, west of I-5, See Figure 2.

Coordinates (Lat, Lon WGS84)  
48.4010, -122.3317 (est)

Exploration Number  
**AB-02**

Contractor  
Holocene Drilling

Equipment  
Diedrich D-50 rubber track rig

Sampling Method  
Autohammer; 140 lb hammer; 30" drop

Ground Surface Elev.  
23.5' (est)

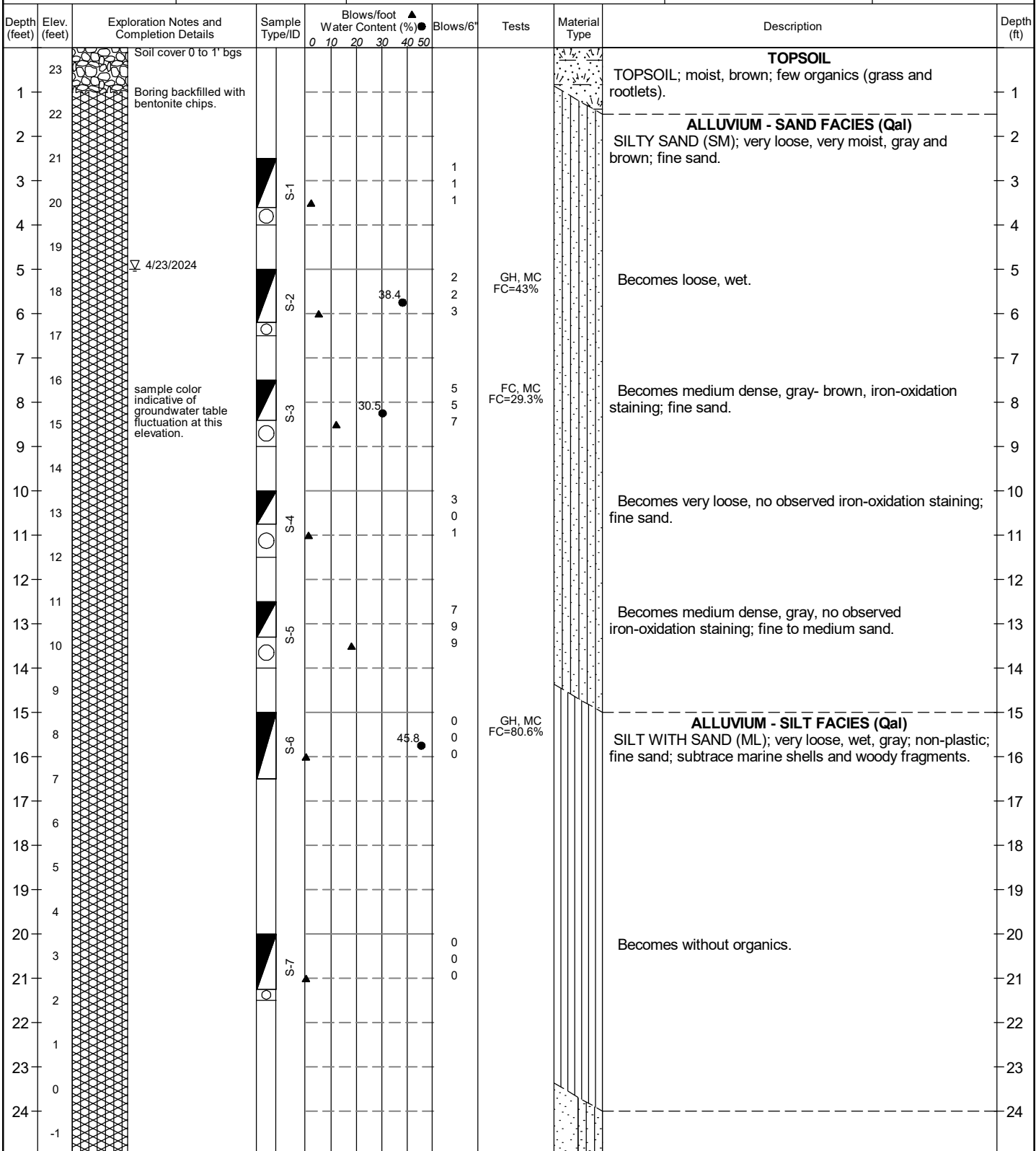
Operator  
Tom Adams

Exploration Method(s)  
Mud rotary

Work Start/Completion Dates  
4/23/2024

Top of Casing Elev.  
NA

Depth to Water (Below GS)  
5' (ATD)



**Legend**

- No Soil Sample Recovery
- Split Barrel 2" X 1.375" (SPT)
- Water Level
- Water Level ATD

Plastic Limit ——— Liquid Limit

See Exploration Log Key for explanation of symbols

Logged by: KR  
Approved by: SM/MO

**Exploration Log**  
**AB-02**  
Sheet 1 of 2

NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINT\PROJECTS\AS240082 - HENSON ROAD AT MARTHA CREEK.GPJ July 19, 2024

Review Stage: DRAFT Rev.2



## **APPENDIX C**

### **Geotechnical Laboratory Analysis Results**

## Geotechnical Laboratory Tests

A geotechnical laboratory testing program was developed to determine index and engineering properties of materials at the Site. Soil samples used in the testing program were collected from the soil borings. The ASTM tests that were performed and the procedures followed are outlined below.

### Soil Classification

---

Soil samples from the explorations were visually classified in the field and then taken to our laboratory, where the classifications were verified in a controlled environment. Field and laboratory observations included density/consistency, moisture condition, and grain size and plasticity estimates. The classifications of selected samples were checked by grain-size analysis and plasticity index testing. Classifications were made in general accordance with the Unified Soil Classification System (USCS), ASTM D2488.

### Moisture-Content Determination

---

Moisture contents were determined for samples recovered in the explorations in general accordance with ASTM D2216, as soon as possible following their arrival to the laboratory. Moisture contents are shown on the exploration logs in Appendix B.

### Particle-Size Analyses

---

Particle-size analyses were performed on select soil samples in general accordance with ASTM D6913 and ASTM D422 to determine their grain-size distributions. The Sieve Analysis of Fine and Coarse Aggregates was performed by wet sieve analyses, determining percentages (by weight) of the sample passing a series of sieves from the 1-inch sieve, down to the No. 200 (0.75 mm) sieve.

Test Method for Materials Finer than 75 micrometers ( $\mu\text{m}$ ) (No. 200) in Mineral Aggregates was performed by wet sieve analyses, determining a percentage (by weight) of the sample passing the No. 200 (0.75 mm) sieve. For select samples, the distribution of particle sizes smaller than 75  $\mu\text{m}$  (No. 200) was determined by a sedimentation process, using a hydrometer.

The results of the particle-size analyses are presented in this appendix. Grain-size analysis results for full sieve and percent passing No. 200 sieve are presented in numerical order based on boring and sample number.

### Atterberg Limits

---

The standard test for Atterberg Limits of soils was performed on select samples in general accordance with ASTM 4318 to determine its plastic limit, liquid limit, and plasticity index. The results of the Atterberg Limits analyses can be found in this appendix.



**Client:** Aspect Consulting, LLC.  
**Address:** 710 2nd Avenue, Suite 550  
Seattle, WA 98104  
**Attn:** Kevin Ross  
**Revised On:** \_\_\_\_\_

**Date:** May 29, 2024  
**Project:** Q.C. - Henson Road - AS240082  
**Project #:** 24B007-06  
**Sample #:** B24-0798 - 0804  
**Date sampled:** Not Reported  
**Control No:** 5292024

As requested and authorized by the Client, MTC has performed the following test(s) on the sample number referenced above. The testing was performed in accordance with current, applicable AASHTO, ASTM, and/or WSDOT standards, which are referenced on the correlating test report pages. The results obtained in our laboratory are as detailed below and/or on the following pages:

	Test(s) Performed:	Test Results		Test(s) Performed:	Test Results
X	Sieve Analysis	See Attached Reports		Sulfate Soundness	
	Proctor			Bulk Density & Voids	
	Sand Equivalent			WSDOT Degradation	
	Fracture Count			LA Abrasion	
X	Moisture Content	See Attached Report		Cation Exchange Capacity	
	Specific Gravity, Coarse		X	Minus #200 Wash	See Attached Report
	Specific Gravity, Fine				
X	Hydrometer Analysis	See Attached Reports			
	Atterberg Limits				

If you have any questions concerning the test results, the procedures used, or if we can be of any further assistance please call the number below and ask to speak with your Project Manager or the Laboratory Manager.

*Alex Eifrig*

\_\_\_\_\_  
 Respectfully Submitted,  
 Alex Eifrig  
 WABO Supervising Laboratory Technician



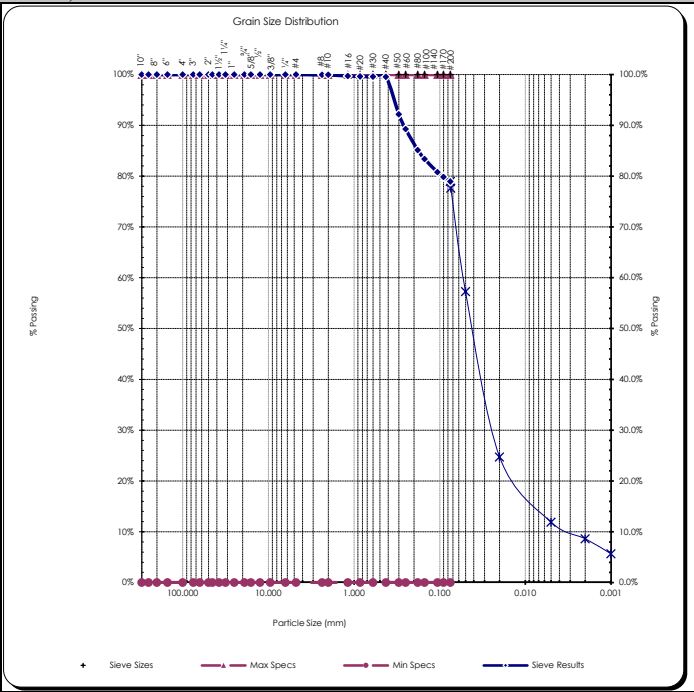


## Sieve Report

<b>Project:</b> Q.C. - Henson Road - AS240082 <b>Project #:</b> 24B007-06 <b>Client:</b> Aspect Consulting, LLC. <b>Source:</b> AB-01, S-2 @ 5.0 ft <b>Sample#:</b> B24-0798	<b>Date Received:</b> 14-May-24 <b>Sampled By:</b> Client <b>Date Tested:</b> 22-May-24 <b>Tested By:</b> S. Boessenberg <b>Control No.:</b> 5292024	<b>Visual Soils Classification</b> Silty Sand with Clay <b>Sample Color:</b> Brown
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<b>Method(s) ASTM D-2216, ASTM D-2419, ASTM D4318, ASTM D-5281</b>			
<b>Specifications</b>		D <sub>(5)</sub> = 0.005 mm      % Gravel = 0.0% D <sub>(10)</sub> = 0.009 mm      % Sand = 21.0% D <sub>(15)</sub> = 0.014 mm      % Silt & Clay = 79.0% D <sub>(30)</sub> = 0.028 mm      Liquid Limit = n/a D <sub>(50)</sub> = 0.047 mm      Plasticity Index = n/a D <sub>(60)</sub> = 0.057 mm      Sand Equivalent = n/a D <sub>(90)</sub> = 0.263 mm      Fracture %, 1 Face = n/a Dust Ratio = 23/29      Fracture %, 2+ Faces = n/a	Coeff. of Curvature, C <sub>c</sub> = 1.50 Coeff. of Uniformity, C <sub>u</sub> = 6.00 Fineness Modulus = 0.25 Plastic Limit = n/a Moisture %, as sampled = n/a Req'd Sand Equivalent = Req'd Fracture %, 1 Face = Req'd Fracture %, 2+ Faces =
No Specs	<b>Sample Meets Specs ? N/A</b>		

<b>Method(s) ASTM C-136, ASTM D-6913, ASTM C-117</b>					
Sieve Size		Actual Cumulative Percent Passing	Interpolated Cumulative Percent Passing	Specs	
US	Metric			Max	Min
12.00"	300.00		100%	100.0%	0.0%
10.00"	250.00		100%	100.0%	0.0%
8.00"	200.00		100%	100.0%	0.0%
6.00"	150.00		100%	100.0%	0.0%
4.00"	100.00		100%	100.0%	0.0%
3.00"	75.00		100%	100.0%	0.0%
2.50"	63.00		100%	100.0%	0.0%
2.00"	50.00	100%	100%	100.0%	0.0%
1.75"	45.00		100%	100.0%	0.0%
1.50"	37.50		100%	100.0%	0.0%
1.25"	31.50		100%	100.0%	0.0%
1.00"	25.00	100%	100%	100.0%	0.0%
3/4"	19.00	100%	100%	100.0%	0.0%
5/8"	16.00		100%	100.0%	0.0%
1/2"	12.50	100%	100%	100.0%	0.0%
3/8"	9.50	100%	100%	100.0%	0.0%
1/4"	6.30		100%	100.0%	0.0%
#4	4.75	100%	100%	100.0%	0.0%
#8	2.36		100%	100.0%	0.0%
#10	2.00	100%	100%	100.0%	0.0%
#16	1.18		100%	100.0%	0.0%
#20	0.850		100%	100.0%	0.0%
#30	0.600		100%	100.0%	0.0%
#40	0.425	100%	100%	100.0%	0.0%
#50	0.300		92%	100.0%	0.0%
#60	0.250		89%	100.0%	0.0%
#80	0.180		85%	100.0%	0.0%
#100	0.150		83%	100.0%	0.0%
#140	0.106		81%	100.0%	0.0%
#170	0.090		80%	100.0%	0.0%
#200	0.075	79.0%	79.0%	100.0%	0.0%



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All results apply only to actual locations and materials tested. As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

**Comments:** \_\_\_\_\_

Reviewed by: Alex Eifrig  
 Alex Eifrig  
 WABO Supervising Laboratory Technician



## Hydrometer Report

<b>Project:</b> Q.C. - Henson Road - AS240082 <b>Project #:</b> 24B007-06 <b>Client:</b> Aspect Consulting, LLC. <b>Source:</b> AB-01, S-2 @ 5.0 ft <b>Sample#:</b> B24-0798	<b>Date Received:</b> 14-May-24 <b>Sampled By:</b> Client <b>Date Tested:</b> 22-May-24 <b>Tested By:</b> S. Boesenberg <b>Control No.:</b> 5292024	<b>Visual Soils Classification</b> Silty Sand with Clay <b>Sample Color</b> Brown																																																																																																																						
<b>ASTM D-7928 HYDROMETER ANALYSIS</b>		<b>ASTM D-6913</b>																																																																																																																						
<b>Assumed Sp Gr :</b> 2.65 <b>Sample Weight:</b> 50.03 grams <b>Hydroscopic Moist.:</b> 0.83% <b>Adj. Sample Wgt :</b> 49.62 grams		<b>Sieve Analysis</b> <b>Grain Size Distribution</b>																																																																																																																						
<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Hydrometer Reading</th> <th style="text-align: center;">Corrected Reading</th> <th style="text-align: center;">Percent Passing</th> <th style="text-align: left;">Soils Particle Diameter</th> </tr> </thead> <tbody> <tr><td>1</td><td style="text-align: center;">22</td><td style="text-align: center;">44.3%</td><td>0.0486 mm</td></tr> <tr><td>2</td><td style="text-align: center;">19</td><td style="text-align: center;">38.3%</td><td>0.0351 mm</td></tr> <tr><td>4</td><td style="text-align: center;">15</td><td style="text-align: center;">30.2%</td><td>0.0254 mm</td></tr> <tr><td>8</td><td style="text-align: center;">13</td><td style="text-align: center;">26.2%</td><td>0.0182 mm</td></tr> <tr><td>15</td><td style="text-align: center;">9</td><td style="text-align: center;">18.1%</td><td>0.0136 mm</td></tr> <tr><td>30</td><td style="text-align: center;">8</td><td style="text-align: center;">16.1%</td><td>0.0097 mm</td></tr> <tr><td>60</td><td style="text-align: center;">7</td><td style="text-align: center;">14.1%</td><td>0.0069 mm</td></tr> <tr><td>240</td><td style="text-align: center;">5</td><td style="text-align: center;">10.1%</td><td>0.0035 mm</td></tr> <tr><td>1440</td><td style="text-align: center;">4</td><td style="text-align: center;">8.1%</td><td>0.0014 mm</td></tr> </tbody> </table>		Hydrometer Reading	Corrected Reading	Percent Passing	Soils Particle Diameter	1	22	44.3%	0.0486 mm	2	19	38.3%	0.0351 mm	4	15	30.2%	0.0254 mm	8	13	26.2%	0.0182 mm	15	9	18.1%	0.0136 mm	30	8	16.1%	0.0097 mm	60	7	14.1%	0.0069 mm	240	5	10.1%	0.0035 mm	1440	4	8.1%	0.0014 mm	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Sieve Size</th> <th style="text-align: center;">Percent Passing</th> <th style="text-align: left;">Soils Particle Diameter</th> </tr> </thead> <tbody> <tr><td>3.0"</td><td style="text-align: center;">100%</td><td>75.000 mm</td></tr> <tr><td>2.0"</td><td style="text-align: center;">100%</td><td>50.000 mm</td></tr> <tr><td>1.5"</td><td style="text-align: center;">100%</td><td>37.500 mm</td></tr> <tr><td>1.25"</td><td style="text-align: center;">100%</td><td>31.500 mm</td></tr> <tr><td>1.0"</td><td style="text-align: center;">100%</td><td>25.000 mm</td></tr> <tr><td>3/4"</td><td style="text-align: center;">100%</td><td>19.000 mm</td></tr> <tr><td>5/8"</td><td style="text-align: center;">100%</td><td>16.000 mm</td></tr> <tr><td>1/2"</td><td style="text-align: center;">100%</td><td>12.500 mm</td></tr> <tr><td>3/8"</td><td style="text-align: center;">100%</td><td>9.500 mm</td></tr> <tr><td>1/4"</td><td style="text-align: center;">100%</td><td>6.300 mm</td></tr> <tr><td>#4</td><td style="text-align: center;">100%</td><td>4.750 mm</td></tr> <tr><td>#10</td><td style="text-align: center;">100%</td><td>2.000 mm</td></tr> <tr><td>#20</td><td style="text-align: center;">100%</td><td>0.850 mm</td></tr> <tr><td>#40</td><td style="text-align: center;">100%</td><td>0.425 mm</td></tr> <tr><td>#100</td><td style="text-align: center;">83%</td><td>0.150 mm</td></tr> <tr><td>#200</td><td style="text-align: center;">79.0%</td><td>0.075 mm</td></tr> <tr><td colspan="3" style="text-align: center;"><b>Silts</b></td></tr> <tr><td></td><td style="text-align: center;">77.6%</td><td>0.074 mm</td></tr> <tr><td></td><td style="text-align: center;">57.3%</td><td>0.050 mm</td></tr> <tr><td></td><td style="text-align: center;">24.7%</td><td>0.020 mm</td></tr> <tr><td colspan="3" style="text-align: center;"><b>Clays</b></td></tr> <tr><td></td><td style="text-align: center;">11.9%</td><td>0.005 mm</td></tr> <tr><td></td><td style="text-align: center;">8.6%</td><td>0.002 mm</td></tr> <tr><td colspan="3" style="text-align: center;"><b>Colloids</b></td></tr> <tr><td></td><td style="text-align: center;">5.7%</td><td>0.001 mm</td></tr> </tbody> </table>	Sieve Size	Percent Passing	Soils Particle Diameter	3.0"	100%	75.000 mm	2.0"	100%	50.000 mm	1.5"	100%	37.500 mm	1.25"	100%	31.500 mm	1.0"	100%	25.000 mm	3/4"	100%	19.000 mm	5/8"	100%	16.000 mm	1/2"	100%	12.500 mm	3/8"	100%	9.500 mm	1/4"	100%	6.300 mm	#4	100%	4.750 mm	#10	100%	2.000 mm	#20	100%	0.850 mm	#40	100%	0.425 mm	#100	83%	0.150 mm	#200	79.0%	0.075 mm	<b>Silts</b>				77.6%	0.074 mm		57.3%	0.050 mm		24.7%	0.020 mm	<b>Clays</b>				11.9%	0.005 mm		8.6%	0.002 mm	<b>Colloids</b>				5.7%	0.001 mm
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**Comments:** \_\_\_\_\_

**Reviewed by:** *Alex Eifrig*  
 Alex Eifrig  
 WABO Supervising Laboratory Technician



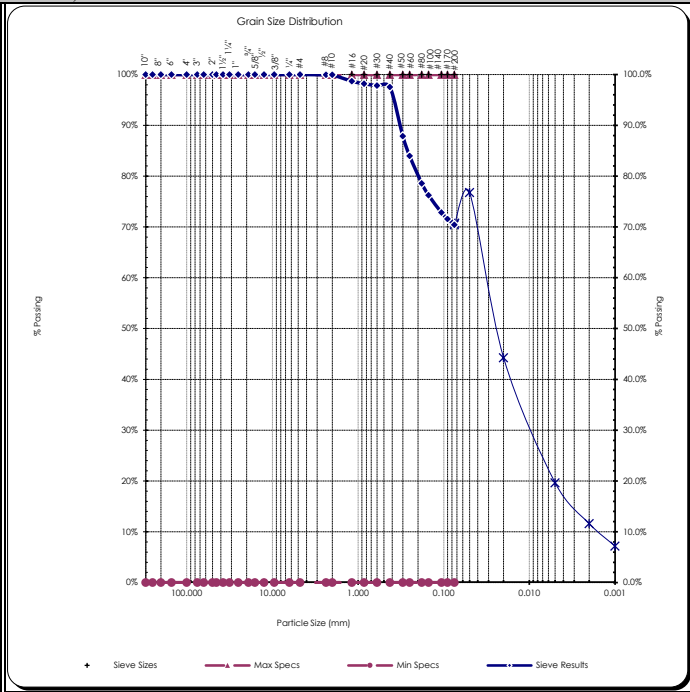


## Sieve Report

<b>Project:</b> Q.C. - Henson Road - AS240082 <b>Project #:</b> 24B007-06 <b>Client:</b> Aspect Consulting, LLC. <b>Source:</b> AB-01, S-8 @ 25.0 ft <b>Sample#:</b> B24-0800	<b>Date Received:</b> 14-May-24 <b>Sampled By:</b> Client <b>Date Tested:</b> 22-May-24 <b>Tested By:</b> S. Boessenberg <b>Control No.:</b> 5292024	<b>Visual Soils Classification</b> Silty Clay with Sand <b>Sample Color:</b> Gray-Brown
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<b>Method(s) ASTM D-2216, ASTM D-2419, ASTM D4318, ASTM D-5281</b>			
<b>Specifications</b>		D <sub>(5)</sub> = 0.005 mm      % Gravel = 0.0% D <sub>(10)</sub> = 0.011 mm     % Sand = 29.6% D <sub>(15)</sub> = 0.016 mm     % Silt & Clay = 70.4% D <sub>(30)</sub> = 0.032 mm     Liquid Limit = n/a D <sub>(50)</sub> = 0.053 mm     Plasticity Index = n/a D <sub>(60)</sub> = 0.064 mm     Sand Equivalent = n/a D <sub>(90)</sub> = 0.328 mm     Fracture %, 1 Face = n/a Dust Ratio = 13/18    Fracture %, 2+ Faces = n/a	Coeff. of Curvature, C <sub>c</sub> = 1.50 Coeff. of Uniformity, C <sub>u</sub> = 6.00 Fineness Modulus = 0.39 Plastic Limit = n/a Moisture %, as sampled = n/a Req'd Sand Equivalent = Req'd Fracture %, 1 Face = Req'd Fracture %, 2+ Faces =
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**Comments:** \_\_\_\_\_

Reviewed by: Alex Eifrig  
 Alex Eifrig  
 WABO Supervising Laboratory Technician



## Hydrometer Report

<b>Project:</b> Q.C. - Henson Road - AS240082 <b>Project #:</b> 24B007-06 <b>Client :</b> Aspect Consulting, LLC. <b>Source:</b> AB-01, S-8 @ 25.0 ft <b>Sample#:</b> B24-0800	<b>Date Received:</b> 14-May-24 <b>Sampled By:</b> Client <b>Date Tested:</b> 22-May-24 <b>Tested By:</b> S. Boesenberg <b>Control No.:</b> 5292024	<b>Visual Soils Classification</b> Silty Clay with Sand <b>Sample Color</b> Gray-Brown																																																																																																													
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**Comments:** \_\_\_\_\_

**Reviewed by:** Alex Eifrig  
 Alex Eifrig  
 WABO Supervising Laboratory Technician



## Sieve Report

<b>Project:</b> Q.C. - Henson Road - AS240082 <b>Project #:</b> 24B007-06 <b>Client:</b> Aspect Consulting, LLC. <b>Source:</b> AB-02, S-2 @ 5.0 ft <b>Sample#:</b> B24-0801	<b>Date Received:</b> 14-May-24 <b>Sampled By:</b> Client <b>Date Tested:</b> 22-May-24 <b>Tested By:</b> S. Boessenberg <b>Control No.:</b> 5292024	<b>Unified Soils Classification System, ASTM D-2487</b> SC-SM, Silty, Clayey Sand <b>Sample Color:</b> Brown
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<b>Specifications</b> No Specs <p style="text-align: center;"><b>Sample Meets Specs ? N/A</b></p>	<b>Method(s) ASTM D-2216, ASTM D-2419, ASTM D4318, ASTM D-5281</b> D <sub>(5)</sub> = 0.009 mm      % Gravel = 0.2%      Coeff. of Curvature, C <sub>c</sub> = 0.87 D <sub>(10)</sub> = 0.017 mm      % Sand = 56.9%      Coeff. of Uniformity, C <sub>u</sub> = 10.37 D <sub>(15)</sub> = 0.026 mm      % Silt & Clay = 43.0%      Fineness Modulus = 0.68 D <sub>(30)</sub> = 0.052 mm      Liquid Limit = n/a      Plastic Limit = n/a D <sub>(50)</sub> = 0.119 mm      Plasticity Index = n/a      Moisture %, as sampled = n/a D <sub>(60)</sub> = 0.181 mm      Sand Equivalent = n/a      Req'd Sand Equivalent = D <sub>(90)</sub> = 0.368 mm      Fracture %, 1 Face = n/a      Req'd Fracture %, 1 Face = Dust Ratio = 42/97      Fracture %, 2+ Faces = n/a      Req'd Fracture %, 2+ Faces =
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Method(s) ASTM C-136, ASTM D-6913, ASTM C-117					
Sieve Size		Actual Cumulative Percent Passing	Interpolated Cumulative Percent Passing	Specs Max	Specs Min
US	Metric				
12.00"	300.00		100%	100.0%	0.0%
10.00"	250.00		100%	100.0%	0.0%
8.00"	200.00		100%	100.0%	0.0%
6.00"	150.00		100%	100.0%	0.0%
4.00"	100.00		100%	100.0%	0.0%
3.00"	75.00		100%	100.0%	0.0%
2.50"	63.00		100%	100.0%	0.0%
2.00"	50.00	100%	100%	100.0%	0.0%
1.75"	45.00		100%	100.0%	0.0%
1.50"	37.50		100%	100.0%	0.0%
1.25"	31.50		100%	100.0%	0.0%
1.00"	25.00	100%	100%	100.0%	0.0%
3/4"	19.00	100%	100%	100.0%	0.0%
5/8"	16.00		100%	100.0%	0.0%
1/2"	12.50	100%	100%	100.0%	0.0%
3/8"	9.50	100%	100%	100.0%	0.0%
1/4"	6.30		100%	100.0%	0.0%
#4	4.75	100%	100%	100.0%	0.0%
#8	2.36		99%	100.0%	0.0%
#10	2.00	99%	99%	100.0%	0.0%
#16	1.18		99%	100.0%	0.0%
#20	0.850		99%	100.0%	0.0%
#30	0.600		99%	100.0%	0.0%
#40	0.425	99%	99%	100.0%	0.0%
#50	0.300		79%	100.0%	0.0%
#60	0.250		71%	100.0%	0.0%
#80	0.180		60%	100.0%	0.0%
#100	0.150		55%	100.0%	0.0%
#140	0.106		48%	100.0%	0.0%
#170	0.090		45%	100.0%	0.0%
#200	0.075	43.0%	43.0%	100.0%	0.0%

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**Comments:** \_\_\_\_\_

Reviewed by: *Alex Eifrig*  
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## Hydrometer Report

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**Comments:** \_\_\_\_\_

**Reviewed by:** Alex Eifrig  
 Alex Eifrig  
 WABO Supervising Laboratory Technician

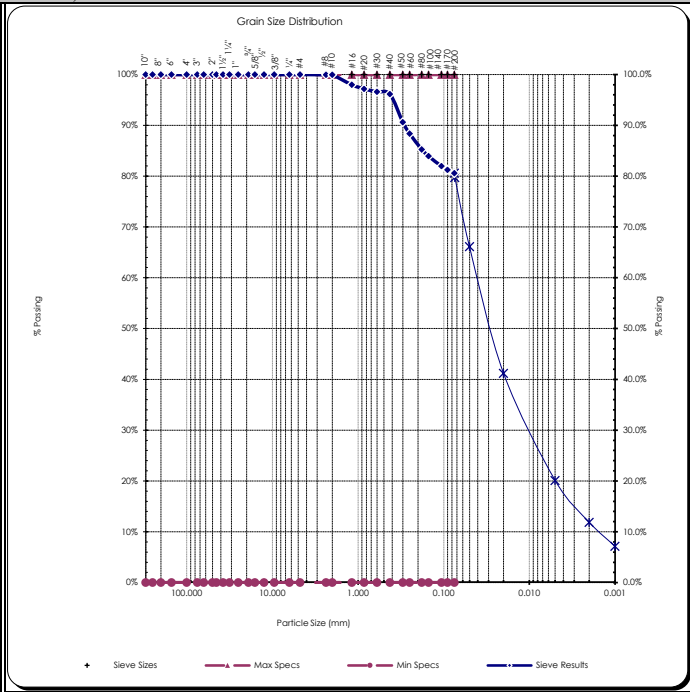


## Sieve Report

<b>Project:</b> Q.C. - Henson Road - AS240082 <b>Project #:</b> 24B007-06 <b>Client:</b> Aspect Consulting, LLC. <b>Source:</b> AB-02, S-6 @ 15.0 ft <b>Sample#:</b> B24-0803	<b>Date Received:</b> 14-May-24 <b>Sampled By:</b> Client <b>Date Tested:</b> 22-May-24 <b>Tested By:</b> S. Boessenberg <b>Control No.:</b> 5292024	<b>Visual Soils Classification</b> Silty Clay with Sand <b>Sample Color:</b> Dark-Brown
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<b>Specifications</b> No Specs <p style="text-align: center;"><b>Sample Meets Specs ? N/A</b></p>	<b>Method(s)</b> ASTM D-2216, ASTM D-2419, ASTM D4318, ASTM D-5281 D <sub>(5)</sub> = 0.005 mm      % Gravel = 0.0% D <sub>(10)</sub> = 0.009 mm      % Sand = 19.4% D <sub>(15)</sub> = 0.014 mm      % Silt & Clay = 80.6% D <sub>(30)</sub> = 0.028 mm      Liquid Limit = n/a D <sub>(50)</sub> = 0.047 mm      Plasticity Index = n/a D <sub>(60)</sub> = 0.056 mm      Sand Equivalent = n/a D <sub>(90)</sub> = 0.287 mm      Fracture %, 1 Face = n/a Dust Ratio = 31/37      Fracture %, 2+ Faces = n/a	Coeff. of Curvature, C <sub>c</sub> = 1.50 Coeff. of Uniformity, C <sub>u</sub> = 6.00 Fineness Modulus = 0.31 Plastic Limit = n/a Moisture %, as sampled = n/a Req'd Sand Equivalent = Req'd Fracture %, 1 Face = Req'd Fracture %, 2+ Faces =
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Method(s) ASTM C-136, ASTM D-6913, ASTM C-117					
Sieve Size		Actual Cumulative Percent Passing	Interpolated Cumulative Percent Passing	Specs Max	Specs Min
US	Metric				
12.00"	300.00		100%	100.0%	0.0%
10.00"	250.00		100%	100.0%	0.0%
8.00"	200.00		100%	100.0%	0.0%
6.00"	150.00		100%	100.0%	0.0%
4.00"	100.00		100%	100.0%	0.0%
3.00"	75.00		100%	100.0%	0.0%
2.50"	63.00		100%	100.0%	0.0%
2.00"	50.00	100%	100%	100.0%	0.0%
1.75"	45.00		100%	100.0%	0.0%
1.50"	37.50		100%	100.0%	0.0%
1.25"	31.50		100%	100.0%	0.0%
1.00"	25.00	100%	100%	100.0%	0.0%
3/4"	19.00	100%	100%	100.0%	0.0%
5/8"	16.00		100%	100.0%	0.0%
1/2"	12.50	100%	100%	100.0%	0.0%
3/8"	9.50	100%	100%	100.0%	0.0%
1/4"	6.30		100%	100.0%	0.0%
#4	4.75	100%	100%	100.0%	0.0%
#8	2.36		100%	100.0%	0.0%
#10	2.00	100%	100%	100.0%	0.0%
#16	1.18		98%	100.0%	0.0%
#20	0.850		97%	100.0%	0.0%
#30	0.600		97%	100.0%	0.0%
#40	0.425	96%	96%	100.0%	0.0%
#50	0.300		91%	100.0%	0.0%
#60	0.250		88%	100.0%	0.0%
#80	0.180		85%	100.0%	0.0%
#100	0.150		84%	100.0%	0.0%
#140	0.106		82%	100.0%	0.0%
#170	0.090		81%	100.0%	0.0%
#200	0.075	80.6%	80.6%	100.0%	0.0%



Copyright Spears Engineering & Technical Services PS, 1996-98  
 All results apply only to actual locations and materials tested. As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

**Comments:** \_\_\_\_\_

Reviewed by: Alex Eifrig  
 Alex Eifrig  
 WABO Supervising Laboratory Technician



## Hydrometer Report

<b>Project:</b> Q.C. - Henson Road - AS240082 <b>Project #:</b> 24B007-06 <b>Client :</b> Aspect Consulting, LLC. <b>Source:</b> AB-02, S-6 @ 15.0 ft <b>Sample#:</b> B24-0803	<b>Date Received:</b> 14-May-24 <b>Sampled By:</b> Client <b>Date Tested:</b> 22-May-24 <b>Tested By:</b> S. Boesenberg <b>Control No.:</b> 5292024	<b>Visual Soils Classification</b> Silty Clay with Sand <b>Sample Color</b> Dark-Brown																																																																																																													
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<b>Assumed Sp Gr :</b> 2.65 <b>Sample Weight:</b> 50.05 grams <b>Hydroscopic Moist.:</b> 1.07% <b>Adj. Sample Wgt :</b> 49.52 grams		<b>Sieve Analysis</b> <b>Grain Size Distribution</b>																																																																																																													
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**Comments:** \_\_\_\_\_

**Reviewed by:** Alex Eifrig  
 Alex Eifrig  
 WABO Supervising Laboratory Technician

## **APPENDIX D**

### **Report Limitations and Guidelines for Use**

# REPORT LIMITATIONS AND GUIDELINES FOR USE

## Geoscience is Not Exact

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The geoscience practices (geotechnical engineering, geology, and environmental science) are far less exact than other engineering and natural science disciplines. It is important to recognize this limitation in evaluating the content of the report. If you are unclear how these "Report Limitations and Guidelines for Use" apply to your project or property, you should contact Aspect Consulting (Aspect).

## This Report and Project-Specific Factors

---

Aspect's services are designed to meet the specific needs of our clients. Aspect has performed the services in general accordance with our agreement (the Agreement) with the Client (defined under the Limitations section of this project's work product). This report has been prepared for the exclusive use of the Client. This report should not be applied for any purpose or project except the purpose described in the Agreement.

Aspect considered many unique, project-specific factors when establishing the Scope of Work for this project and report. You should not rely on this report if it was:

- Not prepared for you;
- Not prepared for the specific purpose identified in the Agreement;
- Not prepared for the specific subject property assessed; or
- Completed before important changes occurred concerning the subject property, project, or governmental regulatory actions.

If changes are made to the project or subject property after the date of this report, Aspect should be retained to assess the impact of the changes with respect to the conclusions contained in the report.

## Reliance Conditions for Third Parties

---

This report was prepared for the exclusive use of the Client. No other party may rely on the product of our services unless we agree in advance to such reliance in writing. This is to provide our firm with reasonable protection against liability claims by third parties with whom there would otherwise be no contractual limitations. Within the limitations of scope, schedule, and budget, our services have been executed in accordance with our Agreement with the Client and recognized geoscience practices in the same locality and involving similar conditions at the time this report was prepared.

## Property Conditions Change Over Time

---

This report is based on conditions that existed at the time the study was performed. The findings and conclusions of this report may be affected by the passage of time, by events such as a change in property use or occupancy, or by natural events, such as floods,

earthquakes, slope instability, or groundwater fluctuations. If any of the described events may have occurred following the issuance of the report, you should contact Aspect so that we may evaluate whether changed conditions affect the continued reliability or applicability of our conclusions and recommendations.

## **Geotechnical, Geologic, and Environmental Reports Are Not Interchangeable**

---

The equipment, techniques, and personnel used to perform a geotechnical or geologic study differ significantly from those used to perform an environmental study and vice versa. For that reason, a geotechnical engineering or geologic report does not usually address any environmental findings, conclusions, or recommendations (e.g., about the likelihood of encountering underground storage tanks or regulated contaminants). Similarly, environmental reports are not used to address geotechnical or geologic concerns regarding the subject property.

We appreciate the opportunity to perform these services. If you have any questions please contact the Aspect Project Manager for this project.

# A p p e n d i x C

Inadvertent Discovery Plan



1415 Freeway Drive  
Mount Vernon, WA 98273-1436

tel: (360) 424-7104

www.SkagitPUD.org

*"Owned by the people we serve."*

## **Contractor Inadvertent Discovery Plan**

### **I. Protocol**

In the event that human remains and/or cultural or archaeological resources (see section II below) are encountered during the course of project construction, the following actions shall be taken:

- A. The contractor shall immediately stop work at and adjacent to the site of discovery, call back all haul trucks in transit containing loads of site soils, move any land-altering equipment to a reasonable distance from the discovery, completely secure the site, and contact Skagit PUD.
- B. If the discovery consists of cultural or archaeological items that do not include human remains, Skagit PUD shall notify the following parties:
  - 1) A professional archaeologist
  - 2) The Department of Archaeology and Historic Preservation (DAHP) (Rob Whitlam 360-890-2615)
  - 3) Swinomish Indian Tribal Community (Josephine Jefferson, 360-466-7352)
  - 4) Upper Skagit Tribe (Scott Schuyler, 360-982-8218)
  - 5) Samish Indian Nation (Jackie Ferry, 360-726-3399)
  - 6) Stillaguamish Tribe (Kerry Lyste, 360-657-3687 ext. 14)

If the discovery consists of human remains, the District shall immediately contact the following parties:

- 1) The Skagit County Sheriff's Department (non-emergency line: 360-416-1911) and the Skagit County Coroner, (Hayley L. Thompson 360-416-1996) to determine if the remains are forensic in nature.
  - 2) If the remains are not forensic in nature, Skagit PUD shall contact DAHP (Rob Whitlam 360-890-2615 and Lance Wollwage 360-890-2616); who will take the lead on determining the appropriate method of treatment for the remains and will consult with the affected tribes.
- C. Skagit PUD shall issue a written order to the contractor to cease all construction operations at the location of the potential cultural resources find. The order shall contain the following:

- 1) A clear description of the work to be suspended.
- 2) Any instructions regarding issuance of further orders by the contractor for material services.
- 3) Guidance as to action to be taken on the subcontracts.
- 4) Any suggestions to the contractor as to minimization of its costs.
- 5) Estimated duration of the temporary suspension.

The work suspension order shall be effective until such time as a qualified archaeologist can be called by Skagit PUD to assess the significance of the potential cultural resources and make recommendations to the State Historical Preservation Officer. If the archaeologist, in consultation with the State Historic Preservation Officer, determines that the potential find is a significant cultural resource, Skagit PUD shall extend the duration of the work suspension order, in writing, and the contractor shall suspend work at the location of the find.

## **II. Protected Cultural or Archaeological Resources**

Cultural material that may be protected by law could include but is not limited to:

- Buried layers of black soil with layers of shell, charcoal, and fish and/or mammal bones.
- Buried cobbles that may indicate a hearth feature;
- Non-natural sediment or stone deposits that may be related to activity areas of people;
- Stone, bone, shell, horn, or antler tools that may include projectile points, scrapers, cutting tools, wood working wedges or axes, and grinding stones;
- Stone tools or stone flakes;
- Perennially damp areas may have preservation conditions that allow for remnants of wood and other plant fibers; in these locations there may be remains including fragments of basketry, weaving, wood tools, or carved pieces; and
- Human remains.

# A p p e n d i x D

Utility Easement P133080



202407120075

07/12/2024 03:09 PM Pages: 1 of 4 Fees: \$306.50  
Skagit County Auditor

SKAGIT COUNTY WASHINGTON  
REAL ESTATE EXCISE TAX

2024 1325  
JUL 12 2024

Amount Paid \$ 105.00  
Skagit Co. Treasurer

By *[Signature]* Deputy

**RETURN TO:**

Public Utility District No. 1 of Skagit County  
1415 Freeway Drive  
Mount Vernon, WA 98273-1436

**PUD UTILITY EASEMENT**

**Reference #: CP# 14018**

**Grantor: Skagit County Drainage District No. 17**

**Grantee: Public Utility District No. 1 of Skagit County**

**Short Legal: DIKE DISTRICT #17 R/O/W ALONG HENSON ROAD, S29, T34N, R4E, W.M.**

**Assessor's Tax Parcel: P133080**

THIS AGREEMENT is made this 10 day of JULY, 2024, between **SKAGIT COUNTY DRAINAGE DISTRICT NO. 17**, also known as **SKAGIT COUNTY DRAINAGE AND IRRIGATION IMPROVEMENT DISTRICT NO. 17**, hereinafter referred to as "Grantor(s)", and **PUBLIC UTILITY DISTRICT NO. 1 OF SKAGIT COUNTY, WASHINGTON**, a Municipal Corporation, hereinafter referred to as "PUD."

Witnesseth:

WHEREAS, Grantor(s) are the owners of certain lands and premises situated in the County of Skagit, and

WHEREAS, the PUD wishes to acquire certain permanent, perpetual, non-exclusive rights and privileges along, over, within, across, under, through, and upon the said lands and premises.

NOW, THEREFORE, Grantor(s), for and in consideration of good and valuable consideration, receipt and sufficiency of which is hereby acknowledged, conveys and grants to the PUD, its successors or assigns, the perpetual right, privilege, and authority to do all things necessary or proper in the construction, placement, installation, maintenance, use, operation, and retirement of water in a pipe as authorized by Title 54 RCW "Public Utility Districts," provided the PUD's uses and facilities will be designed, installed, and maintained to not interfere with Grantor's drainage district uses at present or in future, which drainage district uses under Title RCW 85 and RCW 87 shall be paramount. The Grantor's drainage district functions and purposes are paramount to the PUD's uses, therefore, should Grantor need to install, enlarge, modify, or change its uses of the Property consistent with Title 85 RCW or other lawful uses, Grantor shall provide reasonable notice to the PUD (e.g. 180 days), and the PUD shall make provision at the PUD's sole cost and expense to modify their utility crossing to the extent it would interfere with Grantor's uses. The grant includes, subject to the paramount rights of the Grantor, the right to construct, operate, maintain, inspect, improve, remove, restore, alter, replace, change the size of, relocate, connect to, locate and abandon at any time pipe(s), line(s) or related facilities, along with necessary appurtenances for the transportation and control of water in a pipe over, across, along, through, upon, in and under the Easement Area portion of the following described lands and premises (the "Property" herein) in the County of Skagit, State of Washington, to wit:

**THAT PORTION OF THE WEST HALF OF THE SOUTHWEST QUARTER OF SECTION 29, TOWNSHIP 34 NORTH, RANGE 4 EAST, W.M., SHOWN HATCHED ON EXHIBIT A, BEING SHEETS 6, 8, 9, AND 10 OF THAT CERTAIN PLAN ENTITLED "SR 5, JOHNSON ROAD TO BLACKBURN ST." AS DISCLOSED IN INSTRUMENT RECORDED ON DECEMBER 21, 1978 AS AUDITOR'S FILE NO. 893555, RECORDS OF SKAGIT COUNTY, WASHINGTON.**

**SITUATE IN THE COUNTY OF SKAGIT, STATE OF WASHINGTON**

**SKAGIT COUNTY TAX PARCEL NO. 340429-3-006-1001 (P133080)**

The PUD's rights shall be exercised only on that portion of the Property, called the Easement Area, described as follows:

**THAT PORTION OF THE NORTHEAST QUARTER OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 29, TOWNSHIP 34 NORTH, RANGE 4 EAST, W.M. DESCRIBED AS THE SOUTH 125 FEET OF GRANTOR'S RIGHT-OF-WAY ALONG HENSON ROAD LYING WEST OF STATE OF WASHINGTON PSH NO. 1, CONWAY JUNCTION TO JUNCTION PSH NO. 1 NORTH OF BURLINGTON AND PORTION TAKEN BY THE STATE OF WASHINGTON BY CONDEMNATION UNDER SKAGIT COUNTY CAUSE NO. 32903.**

Grantor(s) authorizes the PUD, its contractor/sub-contractors, consultants, agents, successors or assigns, the right of ingress and egress from said lands of the Grantor(s). The Grantor(s) also gives the PUD permission to cut, trim and/or remove all timber, trees, brush, or other growth standing or growing upon the lands of the Grantor(s) in the described easement for the purposes of the activities listed above, as well as the right to cut, trim and/or remove vegetation which, in the opinion of the PUD, constitutes a menace or danger to said pipe(s), line(s) or related facilities, and/or to persons or property by reason of proximity to the line. The Grantor(s) agrees that title to all brush, other vegetation or debris trimmed, cut, and removed from the easement pursuant to this Agreement is vested in the PUD.

Following initial installation, repair, maintenance or extension of its facilities, the PUD shall, to the extent reasonably practicable, restore landscaping, surfaces and portions of the Property affected by the PUD's work to the condition existing immediately prior to such work. The PUD shall use good faith efforts to perform its restoration obligations under this paragraph as soon as reasonably possible after the completion of the PUD's work. NOTE: the PUD's work presently contemplates a trenchless bore with a vertical separation from the Grantor's drainage facilities of a minimum of 5 feet of vertical separation from the base of the Grantor's drainage facilities or related drainage facilities.

Grantor(s), their heirs, successors, or assigns hereby conveys and agrees not to construct or permit to be constructed structures of any kind on the easement area without written notice to and coordinated approval of the General Manager of the PUD, which approval shall not be unreasonably withheld for any and all drainage district purposes under Title 85 RCW or Title 87 RCW. Grantor(s) shall conduct any other activities on Grantor's property so as not to interfere with, obstruct or endanger the usefulness of any improvements or other facilities, now or hereafter maintained upon the easement or in any way interfere with, obstruct, or endanger the PUD's use of the easement. Fences constructed across the easement area shall have gates or removable sections installed not less than twelve feet wide.

The PUD agrees to indemnify Grantor from and against liability incurred by Grantor as a result of the negligence of the PUD or its contractors in the exercise of the rights herein granted, but nothing herein shall require the PUD to indemnify the Grantor for that portion of any such liability attributable to the negligence of the Grantor.

The Grantor(s) also agree and warrant that the Grantor(s) lawfully own the land aforesaid, has a good and lawful right and power to sell and convey same, that same is free and clear of encumbrances except as indicated in the above legal description, subject to provisions (1) – (5) listed in that Subdivision Guarantee from Guardian Northwest Title & Escrow Company, Guarantee No.: 000012605 dated September 14, 2023, and that Grantor(s) will warrant and defend the title subject to said provisions to said easement and the quiet possession thereof against the lawful claims and demands of all persons whomsoever, subject to any limitations of authority in Title 85 RCW.

The rights herein granted shall continue until such time as the PUD terminates such right by written instrument. No termination shall be deemed to have occurred by the PUD's failure to install its systems on the easement area.

The PUD shall have the right to assign, apportion, or otherwise transfer any or all of its rights, benefits, privileges, and interests arising in and under this easement to any public or private utility.

In Witness Whereof, the Grantor(s) hereunto sets his hand and seal this 10 day of JULY, 2024.

  
\_\_\_\_\_  
Signature

Chair  
\_\_\_\_\_  
Print Title  
Brian Waltner, Chair  
\_\_\_\_\_  
Print Name

STATE OF WASHINGTON  
COUNTY OF SKAGIT

I certify that I know or have satisfactory evidence that Brian Waltner  
is the person who appeared before me, and said person acknowledged that he signed this instrument, on  
oath stated that he was authorized to execute the instrument and acknowledged it as the Chair  
of Skagit County Drainage and Irrigation District No. 17  
to be the free and voluntary act of such party for the uses and purposes mentioned in the instrument.

Date: July 10, 2024

(Signature) Mark L. Semrau  
Notary Public in and for the State of Washington

(Printed Name): Mark L. Semrau  
My appointment expires: October 31, 2026

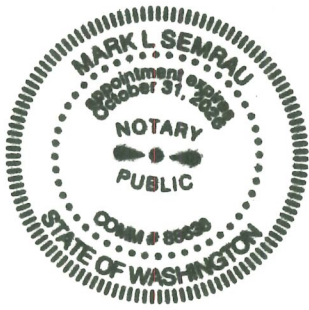
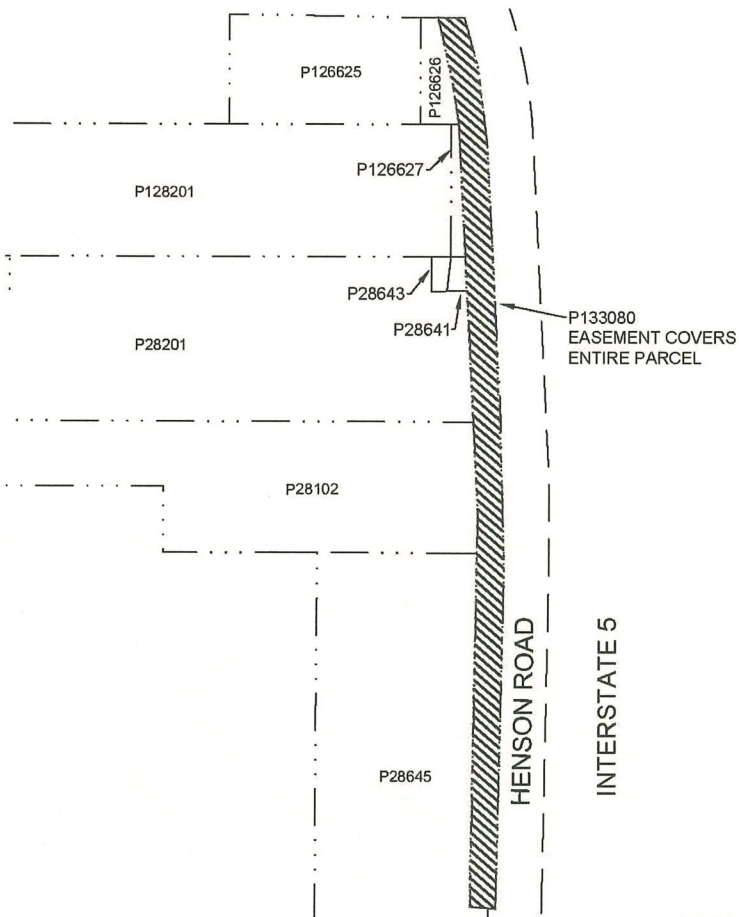


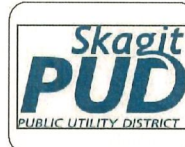
EXHIBIT A  
DEPICTION OF EASEMENT AREA



LEGEND:

	PARCEL LIMITS (PROPERTY LINE)
	EASEMENT

DATE:	02.05.2024				
DESIGNED BY:	K. LAFLEUR				
ATCO CONTACT:	360.853.6418 kateryna.buxton@atcotelecom.com				
NOT TO SCALE	<table border="1"> <tr> <td>N</td> <td rowspan="3">SIGNATURE: <i>Kateryna La Fleur</i></td> </tr> <tr> <td>↑</td> </tr> <tr> <td>↘</td> </tr> </table>	N	SIGNATURE: <i>Kateryna La Fleur</i>	↑	↘
N	SIGNATURE: <i>Kateryna La Fleur</i>				
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PERMITS  
EASEMENT  
LAND SURVEY  
RIGHT OF WAY  
360.563.9000  
708 FIRST STREET  
SNOHOMISH, WA  
98290