(W090) (4002-D10) (2024)

Public Works Project
NW-C4002

PROJECT MANUAL

FOR

WELL DRILLING, CONSTRUCTION, DEVELOPMENT AND TESTING

AT

WALLACE FALLS STATE PARK

IN

SNOHOMISH COUNTY

BID DEADLINE: 1:00 P.M., THURSDAY, FEBRUARY 27, 2025
Bidders are required to submit bid prices electronically through the State Parks Public Opportunities-MRSC Rosters Bonfire Procurement Portal
https://mrscrosters.bonfirehub.com

****BIDS WILL BE OPENED WITHIN TWO BUSINESS DAYS****

WASHINGTON STATE PARKS & RECREATION COMMISSION
1111 ISRAEL ROAD SW
TUMWATER, WA 98501-6512
POST OFFICE BOX 42650
OLYMPIA, WASHINGTON 98504-2650

PROJECT MANUAL

FOR

WELL DRILLING, CONSTRUCTION, DEVELOPMENT, AND TESTING

AT

WALLACE FALLS STATE PARK

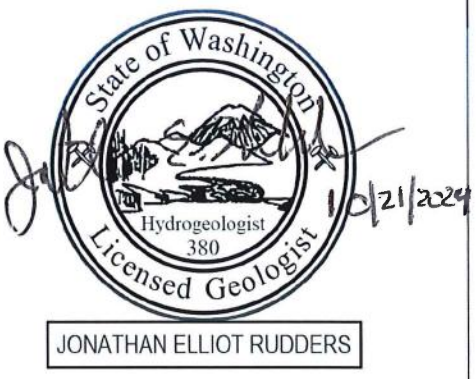
IN

SNOHOMISH COUNTY

Approved for Construction _____
Heather Saunders, Director of Parks Development

WASHINGTON STATE PARKS AND RECREATION COMMISSION
1111 ISRAEL ROAD SW
TUMWATER, WASHINGTON 9501-6512
P.O. BOX 42650
OLYMPIA, WASHINGTON 98504-2650

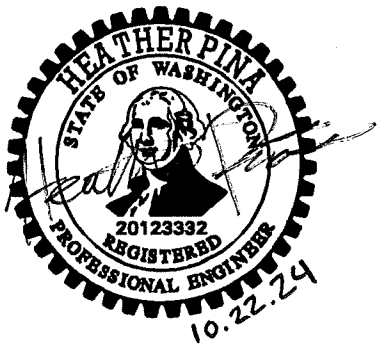
WALLACE FALLS STATE PARK
WELL DRILLING, CONSTRUCTION, DEVELOPMENT, AND TESTING

Section No.	Section Name	Prepared by
332100	Water Supply Wells	 [Jonathan Rudders, PG/LG, LHG; GeoEngineers]

TECHNICAL SPECIFICATIONS STAMP PAGE

WALLACE FALLS STATE PARK
WELL DRILLING, CONSTRUCTION, DEVELOPMENT, AND TESTING

The following sections of the Technical Specifications contained, herein, have been prepared by or under the supervision of the licensee described under "Prepared by" in the following table:

Section No.	Section Name	Prepared by
015713	Temporary Erosion and Sediment Control	
		[Heather Pina, PE; Consor]

TECHNICAL SPECIFICATIONS STAMP PAGE

WALLACE FALLS STATE PARK
WELL DRILLING, CONSTRUCTION, DEVELOPMENT, AND TESTING

TABLE OF CONTENTS

END OF SECTION

Diana Dupuis,
Director

STATE OF WASHINGTON

WASHINGTON STATE PARKS AND RECREATION COMMISSION

1111 Israel Road SW • PO Box 42650 • Olympia, WA 98504-2650 • (360) 902-8500
Internet Address: http://www.parks.wa.gov

ADVERTISEMENT FOR BID

Sealed bids will be received for the following project:

PROJECT NUMBER:	NW-C4002
PROJECT TITTLE:	Wallace Falls State Park - Well Drilling, Construction, Development and Testing
PROJECT DESCRIPTION:	This project involves drilling, constructing, developing, and testing up to two wells, with one well and its associated components considered an alternative bid item, along with related miscellaneous work.
PROJECT LOCATION:	The project is located near the parking lot within Wallace Falls State Park at 14503 Wallace Lake Road, Sultan WA 98294, in Snohomish County.
ESTIMATED BID RANGE:	$ 92,200.00 - $ 104,000.00
PROJECT REPRESENTATIVE:	Sheila Ranganath
PROCUREMENT COORDINATOR	Manuel Iglesias
PREBID WALKTHROUGH:	Thursday, February 13, 2025, at 1 PM. Meet outside of Park Office Building, Park address is 14503 Wallace Lake Road, Gold Bar, WA 98251
SUBMITTAL DUE DATE/TIME:	**1:00 PM on Thursday, February 27, 2025**
ELECTRONIC BIDDING:	Bidders are required to register as vendors on the MRSC Bonfire Procurement Portal https://mrscrosters.bonfirehub.com to be eligible to submit bids. All bid submissions must be completed electronically through the State Parks Public Opportunities section of the portal. Bidders must use the official Bid Proposal Form, provided as part of the electronic bid documents, ensuring that all required fields are properly filled out and submitted before the deadline. (See Bonfire support details further down.)

PLANS, SPECIFICATIONS, ADDENDA, AND PLAN HOLDERS LIST: Contractors can access plans and specifications through the State Parks Public Opportunities-MRSC Bonfire Procurement Portal at https://mrscrosters.bonfirehub.com/portal.

Important: Bidders are encouraged to “Register as a Prime/GC Interest” on the project details page of the MRSC Rosters Bonfire Procurement Portal to be placed on the Bidders List. This service is free for Prime Bidders, Subcontractors, and Vendors interested in bidding on this project.

Additionally, plans and specifications are available through Builders Exchange Washington, Inc. at http://www.bxwa.com. Posted Projects"; "Public Works", "Washington State Parks and Recreation. Bidders have the option to access Bid Documents, including Specifications and Drawings, at www.parks.wa.gov/contracts by clicking on the Construction Projects link for reference purposes. However, the official channel for bid notifications and addenda is the State Parks Public Opportunities-MRSC Rosters Bonfire Portal, and bidders should rely on it for the most up-to-date information.

PLANS MAY ALSO BE VIEWED THROUGH: Associated Builders And Contractors, Spokane WA; Tri City Construction Council, Kennewick WA; Daily Journal of Commerce, Seattle WA; Weekly Construction Reporter, Bellingham WA; Daily Journal Of Commerce Plan Center, Portland OR; Lower Columbia Contractor Plan Center, Longview WA; Abadan Spokane Plan Center, Spokane WA; ARC Document Solutions, Seattle, WA; Associated General Contractors, Boise, ID; Dodge Construction, Bedford, MA; Hermiston Plan Center, Hermiston, OR; Contractor Plan Center, Clackamas, OR; Wenatchee Plan Center, Wenatchee, WA; Spokane Regional Plan Center, Spokane, WA; Associated General Contractors, Spokane, WA; Walla Walla Valley Plan Center, Walla Wall, WA; Yakima Plan Center, Yakima, WA.

TECHNICAL QUESTIONS regarding this project shall be directed to: Sheila Ranganath, Project Representative at telephone: (360) 707-1943, email: Sheila.Ranganath@parks.wa.gov.

BID RESULTS will be published on the State Parks Public Opportunities-MRSC Bonfire Portal https://mrscrosters.bonfirehub.com/portal following the bid opening and in the Construction Projects section at www.parks.wa.gov/contracts after the bid submittal. This practice ensures that those involved and interested can readily view bid outcomes, enhancing transparency and efficiency in the bidding process.

THE STATE OF WASHINGTON PREVAILING WAGE RATES are applicable for this public works project. Bidders are responsible to verify and use the most recent prevailing wage rates. The "Effective Date" for this project is the bid submittal time and date above.

BIDDER RESPONSIBILITY will be evaluated for this project. In determining bidder responsibility, the Agency shall consider an overall accounting of the criteria set forth in Division 00 – Instructions To Bidders. Please direct questions regarding this subject to the Project Representative.

MANDATORY 15% APPRENTICE LABOR HOURS of the total labor hours are a requirement of this construction contract. Voluntary workforce diversity goals for this apprentice participation are identified in the Instructions to Bidders. Bidders may contact the Department of Labor & Industries, Apprenticeship Section, to obtain information on available apprenticeship programs.

SUBCONTRACTOR LISTINGS: Per RCW 39.30.060, when the bid proposal combined with any alternates totals one million dollars or more, the Bidder must list the Subcontractors they intend to use for structural steel, rebar installation, heating, ventilation, and air conditioning (HVAC), plumbing, and electrical work on the Subcontractor Utilization List form for this project.

ACCESS EQUITY: The successful Bidder is required to complete their vendor registration in Access Equity, a secure B2GNow online vendor management system. Prime Contractors already registered with B2GNow for any public entity must ensure their information is up to date. The system can be accessed either directly at https://omwbe.diversitycompliance.com/ or via the Office of Minority and Women's Business Enterprises (OMWBE) website at https://omwbe.wa.gov/.

FOR THIS PROJECT, VOLUNTARY DIVERSITY GOALS HAVE BEEN SET: 10% for Minority Business Enterprises (MBE), 6% for Women's Business Enterprises (WBE), 5% for Washington Small Businesses, and 5% for Veteran-owned businesses. While meeting these goals is not mandatory, it is strongly encouraged to promote diversity in business participation.

Bidders may contact the Office of Minority and Women's Business Enterprise (OMWBE) at: http://omwbe.wa.gov/ to obtain information on certified firms. Bidders may also utilize Washington Small Businesses registered in WEBS at https://pr-webs-vendor.des.wa.gov/ and Veteran-owned Businesses at https://www.dva.wa.gov/veterans-their-families/veteran-ownedbusinesses/vob-search.

Washington State Parks reserves the right to accept or reject any or all proposals and to waive informalities.

STATE OF WASHINGTON
PARKS AND RECREATION COMMISSION
CONTRACTS AND GRANTS

For assistance with the Bonfire Vendor Registration Process, please visit the following link: Vendor Registration Support

For guidance on the Bonfire Bid Submission Process, refer to this link: Bid Submission Support

Additional Bonfire Vendor Support resources, including support articles and instructional videos, are available at: Bonfire Vendor Support

If vendors experience any technical issues, they can contact Bonfire Support via email at Support@GoBonfire.com.

WALLACE FALLS STATE PARK
WELL DRILLING, CONSTRUCTION, DEVELOPMENT, AND TESTING

INVITATION TO BID

1.1 SPECIAL NOTICE(S)

A. All work for this project must be completed by June 30, 2025, and billing received by the Washington State Parks and Recreation Commission by 5:00 P.M., July 12, 2025.

A. Snohomish County Land Disturbing Activity (LDA) permit has not been finalized. Therefore, all land disturbing work must be deferred until the LDA permit is received by the Owner.

B. No overhead equipment or materials can come within 25ft of any overhead BPA energized conductor without the use of a qualified BPA Safety Watcher. It is the responsibility of the Contractor to coordinate with BPA for a qualified BPA Safety watcher.

1.2 DESCRIPTION OF WORK

A. This project includes the drilling, construction, development, and testing of up to two (2) wells in Wallace Falls State Park. Major items included in the base bid (but not limited to) are:

1. Drilling and installing temporary and permanent well casing.

2. Drilling open borehole

3. Installing well linear blank, tailpipe, and linear screen.

4. Well development and testing

5. Alternative/Contingency well drilling, construction, development, and testing

6. Other related miscellaneous items.

1.3 LOCATION OF PROJECT

A. The project is located near the parking lot within Wallace Falls Park. Wallace Falls State Park physical address at 14503 Wallace Lake Road, Sultan WA 98294 at the Wallace Falls State Park.

1.4 TECHNICAL QUESTIONS

A. Direct project questions to Sheila Ranganath, Project Representative at telephone: (360) 707-1943, email: Sheila.Ranganath@parks.wa.gov.

1.5 PRE-BID PROJECT SITE TOUR

DATE:	Thursday, February 13, 2025
TIME:	1 PM.
LOCATION:	Meet outside of Park Office Building, Park address is 14503 Wallace Lake Road, Gold Bar, WA 98251

1.6 BID OPENING

A. Bidders must be registered as vendors through the MRSC Bonfire Procurement Portal https://mrscrosters.bonfirehub.com/portal, which is free to sign up for, before submitting their bids electronically through the State Parks Public Opportunities section of the same portal. All bids must be submitted using the Bid Proposal Form, provided as part of the electronic bid documents. Submissions must fully comply with the requirements outlined in Sections 3.1 and 4.1 of the Instructions to Bidders. Bids are due at 1:00 p.m., Thursday, February 27, 2025. Late submissions will not be accepted.

B. The Agency does not guarantee a specific timeframe for the public release of bid results; however, they are typically available within three business days of the bid opening, often on the same day. Bid results can be accessed through the MRSC Bonfire Procurement Portal https://mrscrosters.bonfirehub.com/portal and public notices. Additionally, they may be available on the Washington State Parks website at www.parks.wa.gov/contracts under "Construction Projects – Public Works Bid Results." Bid results may also be shared through Plan Centers, but Bidders should note that the State Parks Public Opportunities - MRSC Bonfire Procurement Portal serves as the official release point for the Bid Tabulation or Bid Record for this solicitation

C. The Agency reserves the right to accept or reject all bids and to waive informalities. The Bidder will allow 60 days from bid opening date for acceptance of its bid by the Agency

1.7 COVID 19

A. COVID-19 Refer to the Department of Labor & Industries website for requirements regarding any safety plans needed. Novel Coronavirus Outbreak (COVID-19) Resources (wa.gov)

1.8 FOR INFORMATION ON:

A. Bidder Responsibility: Bidder responsibility will be evaluated for this project. In determining bidder responsibility, the Agency will consider an overall assessment of the criteria outlined in Division 00 – Instructions to Bidders.

For any questions regarding this topic, please contact the Project Representative or submit a vendor discussion through the State Parks Public Opportunities - MRSC Bonfire Procurement Portal https://mrscrosters.bonfirehub.com/portal. To ensure consideration, all inquiries must be received at least seven (7) working days before the bid opening date.

B. Reciprocal Preference: See Instructions to Bidders 11.1 Reciprocal Preference for Resident Contractors.

C. Apprenticeship Requirements: For projects estimated at or over $1,000,000, Apprenticeship Participation, Mandatory 15 percent apprentice labor, see Instructions to Bidders 5.1B Apprenticeship Participation.

D. Subcontractor Listings: When the base bid combined with any alternates totals $1,000,000 or more, the Bidder must list the Subcontractors they intend to use for structural steel, rebar installation, heating, ventilation, and air conditioning (HVAC), plumbing, and electrical work on the Subcontractor Utilization List form for this project, see Instructions to Bidders 5.1A Subcontractor Listing.

E. MWBE goals: See Instructions To Bidders 12.1 Minority And Women's Business Enterprise (MWBE) Utilization. For Veteran-Owned and Small Business utilization, see Instruction to Bidders 12.2.

F. Modification of Bid: See Instructions to Bidders 6.3 Modification of Bid.

G. Withdrawal of Bid: See Instructions to Bidders 6.4 Withdrawal of Bid.

H. Bid Guarantee: See Instructions to Bidders 4.1 Bid Bond. No particular bid bond form is required.

I. Bid Tabulation and Bid Record: See Instructions to Bidders 7.1B for Bid Tabulation, Bid Record, and Announcement of Apparent Low Bid.

J. Records Request: All submitted bids are subject to public records request once the lowest bidder has been determined and officially announced. See Instructions to Bidders 7.1D Records Request.

1.9 ACCESSIBILITY

A. Sites may not be fully accessible to people with disabilities. Please contact the Project Representative at least five (5) days prior to scheduled pre-bid tour if special accommodations are required for your attendance.

END OF SECTION

1.1 BIDDER DEFINED

A. A "*Bidder*" is an entity or person who submits a bid proposal for the work described in the contract documents.

B. The Bidder must be registered with the Washington State Department of Labor and Industries in accordance with RCW 18.27.020. The contractor registration number, expiration date, Uniform Business Identifier (UBI) number, and federal tax identification number must be entered in the applicable spaces on the Bidder Compliance Form within the Bid Proposal Form.

2.1 EXAMINATION OF THE WORK SITE AND BIDDING DOCUMENTS

A. Bidder acknowledges that it has taken steps necessary to ascertain the nature and location of the work, and that it has investigated and satisfied itself as to the general and local conditions which can affect the work or its cost, including but not limited to (1) conditions bearing upon transportation, disposal, handling, and storage of materials; (2) the availability of labor, water, electric power, and road; (3) uncertainties of weather, river stages, tides, or similar physical conditions at the site; (4) the conformation and conditions of the ground; and (5) the character of equipment and facilities needed preliminary to and during the work.

The bidder also acknowledges that it has satisfied itself as to character, quality, and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the site, including exploratory work done by the Agency, as well as from the drawings and specifications made a part of this contract. Any failure of the Bidder to take the actions described and acknowledged in this paragraph will not relieve the Bidder from responsibility for estimating properly the difficulty and cost of successfully performing the work.

B. No statement by any officer, agent, or employee of the Agency pertaining to the physical conditions of the site of the work will be binding on the Agency other than those statements issued in the contract documents.

C. Bidders shall promptly notify the Agency of ambiguities, inconsistencies, or errors, if any, which they may discover upon examination of the Bidding Documents or of the site and local conditions.

D. Interpretations and Clarifications

1) Prospective Bidders seeking clarification or interpretation of the solicitation, drawings, or specifications must submit a written request to the Project Representative listed in the Invitation to Bid or through the **State Parks Public Opportunities-MRSC Rosters Bonfire Procurement Portal** https://mrscrosters.bonfirehub.com/portal by submitting a vendor discussion. Requests must be received at least seven (7) working days prior to the bid opening date to be considered.

2) Any Agency responses that do not modify the Scope of Work outlined in the contract documents may be posted on the State Parks Public Opportunities-MRSC Rosters Bonfire Procurement Portal prior to the bid submission deadline. Such clarifications will not be considered part of the contract documents and do not need to be acknowledged by Bidders in their Bid Proposal Form. The Agency retains sole discretion to determine whether a clarification or interpretation affects the Scope of Work and requires inclusion in the Contract Documents.

3) Changes to the Scope of Work or schedule described in the contract documents will only be issued as written ADDENDA.

4) Oral interpretations or clarifications are not legally binding.

E. Substitutions

1) The product, equipment, materials, or methods described or noted within the Bidding Documents, whether currently available or not, are to establish a standard of quality, function, appearance and dimension. A proposed substitution shall have equal attributes in all respects.

2) No substitution will be considered unless a written request for approval is submitted by the Contractor, after Award, in accordance with the applicable provisions of Section 012500 of the specifications. If no Section 012500 is available, then see section 016000 Product Requirements, sub-section 1.5. Each such request shall describe the proposed substitution in its entirety including name of the material or equipment, drawings, catalog cuts, performance or test data and all other information required for an evaluation. The submittal shall also include a statement noting all changes required in adjoining, dependent or other interrelated work necessitated by the incorporation of the proposed substitute. The Bidder shall bear the burden of proof of merit of the proposed substitution. The Project Representative's decision of approval or disapproval of a proposed substitution shall be final.

3.1 BID PROPOSAL

A. Bidders must be registered as vendors through the **MRSC Rosters Bonfire Procurement Portal** https://mrscrosters.bonfirehub.com/portal. All bid submissions must be made through the State Parks Public Opportunities section on the same portal. The individual who signs and submits the bid through the Bonfire Portal must be an authorized designee responsible for the bid submission.

B. All bidders for Small Works Projects must be currently registered on the MRSC Small Works Roster (vendor list) found http://mrscrosters.org/.

C. Bidders are required to submit bid prices electronically through the **State Parks Public Opportunities-MRSC Rosters Bonfire Procurement Portal**. Submissions must be completed using the Bid Proposal Form, provided as part of the electronic bid proposal documents. The Bid Proposal Form is a spreadsheet consisting of four tabs:

1. Bidder Compliance Form
2. Bid Form
3. MWBE
4. Subcontractor Utilization (if applicable)

All fields in the Bid Proposal Form tabs must be properly and completely filled out to ensure compliance. Failure to fill in all required fields may result in the bid being deemed non-responsive.

The Bidder Compliance Form must include the Bidder's full and complete address and information, typed in the spaces provided. The Bid Form must be electronically signed in the firm's name, and a typewritten name is acceptable as an electronic signature, provided it complies with electronic submission requirements.

Once the Bid Proposal Form is completed, it must be uploaded in its original form to the appropriate section of the State Parks Public Opportunities-MRSC Rosters Bonfire Procurement Portal https://mrscrosters.bonfirehub.com/portal. Bidders are reminded to thoroughly review their submission before uploading to ensure compliance with all instructions and requirements. Incomplete submissions will be deemed non-responsive.

D. Except as otherwise provided in these instructions, bid proposals that are incomplete, or that are conditioned in any way, or that contain alterations, or items not called for in the contract documents, or that do not conform to the call for bids, may be rejected as non-responsive at the discretion of the Agency unless the law requires that the omission be deemed non-responsive, in which case the bid will be rejected as non-responsive. Only the amounts and information asked for on the Bid Proposal Form and the plans and specifications furnished will be considered as the bid. Bid amounts include all taxes imposed by law, **except** for Washington Sales Tax unless noted otherwise.

E. Each Bidder must submit their bid exactly as specified and as provided in the Bid Proposal Form. Bidders are required to include bids for all alternates if alternates are indicated on the Bid Form. For alternates that have no charge, the Bidder must type "**$0.00**" in the column for the unit price on the Bid Form.

F. Bidders shall acknowledge receipt of any ADDENDA to the solicitation for bids on the Bid form. Failure to do so may result in the bid being declared non-responsive.

G. Substitute bid forms will not be considered unless this solicitation authorizes their submission.

H. The bid prices listed in the Bid Form must include all labor, materials, equipment, overhead, and compensation necessary to complete the work for each item, while the costs for the building permit and public utility hookup fees will either be reimbursed directly to the Contractor or paid by the Agency to the permitting agency and therefore should not be included in the bid amount.

I. The low Bidder, for purposes of award, shall be the responsive and responsible Bidder offering the low aggregate amount for the base bid item, plus additive or deductive bid alternates selected by the Agency, and within funds available for the project. The Bidder agrees to hold all bid alternate prices for sixty (60) days from date of bid opening.

4.1 BID GUARANTEE: BID BOND

A. A bid bond is not required when the total bid amount, including the base bid and all additive alternates, is $35,000 or less. In such cases, instead of providing a bid bond, Bidders must complete and upload the **Bid Bond Requirement Statement** as part of their bid submission. This ensures compliance with the bidding requirements for projects below the $35,000 threshold.

B. When the sum of the base bid plus all additive alternates is greater than $35,000.00, a bid guarantee in the amount of 5% of the base bid amount is required. Failure of the Bidder to provide bid guarantee when required shall render the bid non-responsive.

C. Acceptable forms of bid guarantee are: A bid bond. A scanned copy (e.g., PDF) of the bid bond must be uploaded to the State Parks Public Opportunities-MRSC Rosters Bonfire Procurement Portal (https://mrscrosters.bonfirehub.com/portal) along with your bid response to the Agency. See also, Section 6.1 SUBMISSION OF BID.

D. The Bidder will allow 60 days from bid opening date for acceptance of its bid by the Agency.

E. Should the successful Bidder fail to enter into a contract and furnish a satisfactory performance bond within 15 days after receiving properly prepared contract forms from the Agency, the bid bond may be forfeited as liquidated damages for advertisements and administration of bid procedures. Additionally, the Agency reserves the right to terminate the contract award.

F. Bid bonds must be held for the three low bids for 30 days or until a contract is executed with the successful Bidder. All other bid bonds will be released or returned to the Bidders within 15 days of the bid opening.

5.1 REQUIREMENTS FOR PROJECTS ESTIMATED AT $1,000,000 OR MORE

A. SUBCONTRACTOR LISTING

Pursuant to RCW 39.30.060, if the base bid combined with the sum of the alternates exceeds one million dollars ($1,000,000.00) or more for the construction, alteration, or repair of any public building or public work of the state shall require each Bidder to submit as part of the bid the names of subcontractors with whom the Bidder, if awarded the contract, will subcontract for performance of the work of heating, ventilation and air conditioning, plumbing, and electrical, structural steel installation, rebar installation or to name itself for the work. The Bidder shall not list more than one subcontractor for each category of work identified, unless subcontractors vary with bid alternates, in which case the Bidder must indicate which subcontractor will be used for which alternate.

Subcontractor listing is not required for Small Works Projects under $350,000.

Failure of the Bidder to submit as part of the bid, the names of such subcontractors, or to name itself to perform such work, or the naming of two or more subcontractors to perform the same work, or failure to sign the form shall render the bid as non-responsive and therefore void.

B. APPRENTICESHIP PARTICIPATION

In projects estimated to cost one million dollars ($1,000,000.00) or more, be aware that the following requirements will be part of the resulting contract.

Apprenticeship requirements do not apply to Small Works Projects estimated below $350,000.

In accordance with RCW 39.04.320 (Apprenticeship Training Programs), for all public works estimated by the Agency Project Engineer to cost **one million dollars or more,** the state of Washington requires no less than **15% of the labor hours be performed by apprentices.** A contractor or subcontractor may not be required to exceed the 15% requirement. The bid advertisement and Bid Proposal Form shall establish a minimum required percentage of apprentice labor hours compared to the total labor hours. The project's apprenticeship utilization rate is calculated using the approved affidavits from the L&I portal.

1. **Incentives** - The Contractor who meets or exceeds this utilization requirement on eligible contracts, will be awarded a monetary incentive described in the Apprentice Utilization Requirements section of the Bid Proposal Form.

2. **Penalties** - The Contractor who fails to meet the utilization requirement and fails to demonstrate a Good Faith Effort, as outlined below, is subject to penalties described in the Apprentice Utilization Requirements section of the contract Bid Proposal Form. Contractor will receive an invoice payable to the Agency within 30 days. The contractor will have 30 days to pay the penalty invoice at the time of receipt before the penalty is considered outstanding. Contractors with outstanding apprenticeship penalties may be considered non-responsive.

3. **Cost Value** - The expected cost value associated with meeting the goal is included in the Base Bid as described on the Bid Proposal Form.

4. **Utilization Plan** - The Contractor shall provide an Apprentice Utilization Plan (Plan) demonstrating how and when they intend to achieve the Apprenticeship Utilization Requirement. The Plan shall have enough information to track the Contractor's progress in meeting the utilization requirement. The Contractor shall submit the Plan on the Apprentice Utilization Plan template within 10 business days of Notice to Proceed of the contract and prior to submitting the first invoice. The Contractor shall provide an updated Plan during the course of construction when there are significant changes to the Plan which may affect their ability to meet the requirement.

    a) The Plan shall be uploaded to the Department of Labor & Industries' (L&I): ***Prevailing Wage Intents and Affidavit (PWIA) system on L&I's website.***

    b) The Plan is not submitted for approval.

    c) It is expected that the Contractor will actively seek out opportunities to meet the Apprentice Utilization Requirement during construction even if the Plan indicates a shortfall in meeting the requirement.

    d) If the Plan indicates that the Contractor will not attain the Apprentice Utilization Requirement, then Contractor must submit "Good Faith Effort" (GFE) documentation with their Plan to L&I's PWIA system.

C. APPRENTICESHIP - GOOD FAITH EFFORT (GFE)

1. **Good Faith Effort (GFE)** documentation shall describe in detail why the Contractor is not or was not able to attain the Apprentice Utilization Requirement.

    a) Contractors may submit Good Faith Effort (GFE) documentation at any time during the construction.

    b) All GFE documentation must be submitted no later than 30 days before substantial completion.

    c) Only the awarding Agency can approve GFEs. The Department of Labor & Industries (L&I) may provide assistance but does not have approval authority

    d) The Awarding Agency must document its GFE decision in writing, including any monetary penalty if denied.

e) Good Faith Effort (GFE) documentation must be in signed letter format uploaded to the PWIA system and include:

1. The contract number, title and the apprentice utilization requirements,

2. The amount of apprentice labor hours the contract can or did attain along with the percentage of labor hours,

3. Contractors may receive a GFE credit for graduated Apprentice hours through the end of the calendar year for all projects worked on as long as the Apprentice remains continuously employed with the same Contractor they were working for when they graduated. If an Apprentice graduates during employment on a project of significant duration, they may be counted towards a GFE credit for up to one year after their graduation or until the end of the project (whichever comes first). Determination of whether or not Contract requirements were met in good faith will be made by subtracting the hours from the journeyman total reported hours for the project and adding them to the apprentice hour total. If the new utilization percentage meets the Contract requirement, the Contractor will be reported as meeting the requirement in good faith,

4. Anticipated or actual shortfall (in apprentice labor hours and percentage) and the reason(s) for not attaining the required apprentice labor hours,

5. Information from one or more of the following areas:

   (a) Names of any State-Approved Apprentice Training Programs contacted with the name(s) of person(s) contacted and dates of contacts, and a copy of each response from the Training Program(s),

   (b) Reference Contract Specifications or documents that affected the Contractor's ability to attain apprentice utilization,

   (c) Discuss efforts the Contractor has taken to require Subcontractors to solicit and employ apprentices,

6. Backup documentation to the letter consisting of the following:

   (a) Letters, emails, phone logs including names dates and outcomes, posters, photos, payrolls, timecards, schedules, copies or references to other contract specifications or documents.

Additional Resource Information

(a) For questions regarding how to complete the Apprentice Utilization Plan template or Good Faith Effort documentation, please contact the Project Manager listed in the Bid Advertisement.

(b) Step-by-step instructions on how to access and navigate the L&I's PWIA system, including uploading required documents can be found on the L&I website.

(c) Additional information about apprentice utilization on Public Works Project can be found on the L&I website.

6.1 SUBMISSION OF BID

A. Bids must be submitted on or before the time as specified in the Invitation to Bid.

B. Bid responses will only be accepted electronically through the State Parks Public Opportunities section using the MRSC Rosters Bonfire Procurement Portal as specified in the Invitation to Bid. https://mrscrosters.bonfirehub.com/portal.

C. People with disabilities who wish to request special accommodation, (e.g., sign language interpreters, braille, etc.) need to contact the Agency ten (10) working days prior to the scheduled bid opening.

D. In the event the MRSC Rosters Bonfire Procurement Portal is unavailable to all users at the bid submittal deadline, the Agency will contact the Bidders within 24 hours and the Agency will extend the bid submittal time.

E. Neither Agency nor MRSC Rosters Bonfire Procurement Portal can guarantee the availability of Internet connectivity or related telecommunication and hosting services and will not be liable or responsible if the Bidder and its representative(s) or designee(s) cannot connect to the MRSC Rosters Bonfire Procurement Portal.

F. The Bidder must comply with the MRSC Rosters Bonfire Portal's Terms of Service (https://gobonfire.com/termsservice/) when submitting the Bid through the MRSC Rosters Bonfire Procurement Portal.

6.2 BID CLOCK:

A. After the 1 P.M. bid deadline, which serves as the official bid clock to determine timely submission, Agency staff will review the bids. The MRSC Rosters Bonfire Procurement Portal does not permit submissions after the deadline, so bidders must ensure their bids are submitted on time. Late submissions will not be accepted under any circumstances.

B. CAUTION: To avoid issues, submit your bid response electronically well in advance of the deadline to account for potential technological delays, slow-downs, or malfunctions. Bids received after the deadline, regardless of the reason or responsibility, will be rejected.

6.3 MODIFICATION OF BID

A. Bidders may update their bid electronically via the MRSC Rosters Bonfire Procurement Portal before the bid due date.

Modifying: Modifying refers to altering information already contained in a submitted bid. If your submission has been finalized but needs modifications, you may update it electronically before the bid due date by navigating to the Submissions page and un-submitting your submission.

NOTE: Un-submitting removes your original bid, so ensure you resubmit before the deadline. Only upload updated files; unchanged files remain in place. A new confirmation email will be sent upon resubmission.

6.4 WITHDRAWAL OF BID

A. Withdrawal refers to a bid that has already been submitted to the Agency. A bid response may be withdrawn electronically by the Bidder's authorized representative before the Bid Opening (due date deadline) for the bid. The FAILURE TO WITHDRAW a bid prior to the bid due date deadline exposes the Bidder to the possibility that the Agency will make a demand against the Bidders bid bond.

B. Procedure for Withdrawing a Bid After Bid Opening Due to Error: If a Bidder discovers an error in its bid following the bid opening, the Bidder must submit written notification of the withdrawal to contracts@parks.wa.gov within 24 hours following the bid opening. Follow the example subject line. Example email subject line: SW-C9999 Withdraw Bid ACME Construction Inc.

- The Bidder must provide written documentation of the claimed error to the satisfaction of the Agency within 72 hours following the bid opening.

- The Agency will approve or disapprove the request for withdrawal of the bid in writing. If the Bidder's request for withdrawal of its bid is approved, the Bidder will be released from further obligation to the Agency without penalty. If it is disapproved, the Agency may retain the Bidder's bid bond.

6.5 REJECTION OF BID

A. The Agency reserves the right to reject any or all bids and to waive informalities in connection with the bids.

7.1 BID EVALUATION AND AWARD OF CONTRACT

A. Award of contract will be made by the Agency based upon any combination of the base bid and alternates that, in the Agency's sole discretion, is in the Agency's best interest considering price, schedule, and other factors. The numbering of the alternates in the bid proposal bears no relationship to the order in which the alternates may be selected by the Agency. Additionally, the Agency reserves the right to negotiate base bid prices (including changes to the contract plans and specifications) with the low responsive, responsible Bidder to bring the final contract amount within the funds available per RCW 39.04.015.

B. BID TABULATION, BID RECORD AND ANNOUNCEMENT OF APPARENT LOW BID:

The Agency does not guarantee when the Bid results will be released to the public. The bid results are usually released within three business days of the bid opening and often the same day. Bid results can be obtained from MRSC Rosters Bonfire Procurement Portal (https://mrscrosters.bonfirehub.com/portal) and viewing public notices. Bid Results may also be obtained by accessing the Washington State Parks webpage at www.parks.wa.gov/contracts (see "Construction Projects- Public works bid results"). The Bid results may also be released through the Plan Centers. But, Bidders are cautioned that the State Parks Public Opportunities-MRSC Rosters Bonfire Procurement Portal is the official release point for the Bid Tabulation or Bid Record for this solicitation.

The bid tabulation will identify all bids received by the Agency. Bids that were not rejected and not withdrawn prior to the bid opening will be ranked by base bid price. The first three lowest base bids will reflect detailed pricing information. The remaining Bidders will reflect only the base bid pricing. Bids that were rejected for any reason will reflect **Non-Responsive** in the bid tabulation but may include its total pricing.

The bid record will list all bids received, ordered alphabetically. Rejected bids will not show detailed pricing. The bid record is used for projects with Alternates. The Agency may consider Alternate Bid Items in any combination. The low Bidder for award purposes is the responsive Bidder offering the lowest aggregate amount for the base bid plus selected alternates, within available project funds.

Release of the Bid Tabulation or Announcement of the Apparent Low bid information that a Firm was identified as the apparent low base bid simply means that at this point in time the Agency believes the subject bid was the lowest cost responsive bid, but designation as the apparent low responsive bid is not a guarantee of a contract with the Agency. The Agency reserves the right to reevaluate the bid and determine whether the bid was responsive and responsible and successful as first thought. The Bidder identified as the apparent low responsive bid is cautioned not to commit funds, resources, and effort prior to receiving an actual executed contract. The Bidder identified as the apparent low responsive bid that commits funds, resources, and effort prior to a contract do so at its own risk and peril.

Within two (2) business days following the day of the release of the Bid Tabulation/Bid Record or the Announcement of the Apparent Low bid, the Bidder may file a Protest (Protest procedures are outlined in Section 9.1).

C. REJECTION LETTER & PROTEST: No matter the phase of the evaluation, if the Agency determines that the bid is not responsive or the Bidder is not responsible, the Agency will reject the bid/bidder, and send the bidder a Rejection Letter explaining why the bid/bidder was rejected. Within two (2) business days following the day of the release of the Rejection Letter, the Bidder may file a Protest, provided it meets one of the three (3) protest grounds (Protest procedures are outlined in Section 9.1 E.). The Rejection Letter will be sent by email/email attachment to the email address provided by the Bidder in the Bidder's bid response.

D. RECORDS REQUEST: All submitted bids are subject to public records request once the lowest bidder has been determined and officially announced.

After the announcement of the lowest bidder, any member of the public may request access to the bid documents. No official format is required for making a records request; however, the Agency recommends that requests be made through the Public Records Request Center on our website:https://parks.wa.gov/about/contact-us/public-records-requests.

E. The intent of the Agency is to award a contract to the low responsive, responsible bidder.

8.1 RESPONSIVE AND RESPONSIBLE BIDDER

A. The Agency will evaluate bids responsiveness and responsibility in the MRSC Rosters Bonfire Procurement Portal https://mrscrosters.bonfirehub.com/portal.

B. RESPONSIVE - A bid will be considered responsive if its electronic response meets the following requirements:

1. It is received at the proper submittal time, date and location online through the State Parks Public Opportunities-MRSC Rosters Bonfire Procurement Portal.

2. It meets the required requested information of the Bid Proposal Form through the State Parks Public Opportunities-MRSC Rosters Bonfire Procurement Portal.

3. It meets the requirements as stated in section 3.1. of the Instructions To Bidders.

4. It is submitted by a licensed/registered contractor within the state of Washington at the time of bid opening and is not banned from bidding by the Department of Labor and Industries.

5. It is accompanied by a bid guarantee, if required.

If inconsistencies or errors are noted in the bid proposal prices, the **unit and lump sum prices have precedence over their total amounts**; and the **total amounts have precedence over the total base bid**.

The apparent low Bidder, for purpose of award, is the responsive and responsible Bidder offering the low aggregate amount for the base bid plus selected additive or deductive bid alternates and meeting all other bid submittal requirements.

C. RESPONSIBLE – Before award of a public works contract, a Bidder must meet the following **mandatory responsibility criteria** under RCW 39.04.350 (1) & (2) to be considered a responsible Bidder and qualified to be awarded a public works project. The individual who has signed/submitted the Bid through the State Parks Public Opportunities-MRSC Rosters Bonfire Procurement Portal shall be the authorized designee responsible for bid submissions. The Bidder must:

1. At the time of bid submittal, have a certificate of registration in compliance with RCW 18.27, a plumbing contractor license in compliance with RCW 18.106, an elevator contractor license in compliance with RCW 70.87, or an electrical contractor license in compliance with RCW 19.28 as required under the provisions of those chapters;

2. Have a current state Unified Business Identifier (UBI) number;

3. If applicable, have industrial insurance coverage for the Bidder's employees working in Washington as required in RCW 51; an employment security department number as required in RCW 50; and a state excise tax registration number as required in RCW 82;

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

5. If bidding on a public works project subject to the apprenticeship utilization requirements in RCW 39.04.320, not have been found out of compliance by the Washington State Apprenticeship and Training Council for working apprentices out of ratio, without appropriate supervision, or outside their approved work processes as outlined in their standards of apprenticeship under Chapter 49.04 RCW for the one-year period immediately preceding the date of the bid solicitation; and

6. Public Works and Prevailing Wage Training/Exemption. Bidders shall have received training on the requirements related to public works and prevailing wage under this chapter and chapter 39.12 RCW. The bidder must designate a person or persons to be trained on these requirements. The training must be provided by the department of labor and industries or by a training provider whose curriculum is approved by the department. The department, in consultation with the prevailing wage advisory committee, must determine the length of the training. Bidders that have completed three or more public works projects and have had a valid business license in Washington for three or more years are exempt from this subsection. The department of labor and industries must keep records of entities that have satisfied the training requirement or are exempt and make the records available on its website. Responsible parties may rely on the records made available by the department regarding satisfaction of the training requirement or exemption.

https://lni.wa.gov/licensing-permits/public-works-projects/contractors-employers/contractor-training

7. Within the three-year period immediately preceding the bid solicitation, not have been determined by a final a 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 to have willfully violated, as defined in RCW 49.48.082, any provision of Chapters 49.46, 49.48, or 49.52 RCW. By signing the Bid Proposal Form, the bidder verifies under penalty of perjury, pursuant to RCW 9A.72.085. that the bidder is in compliance with this subsection

8. **Supplemental Responsibility Criteria**: In addition to the mandatory Bidder responsibility, the Agency may adopt relevant supplemental criteria for determining Bidder responsibility applicable to a particular project which the Bidder must meet (RCW 39.04.350 (3)).

   a. If applicable, the Agency shall consider an overall accounting of the attached supplemental criteria for determining Bidder responsibility "DIVISION 00 SUPPLEMENTAL RESPONSIBILITY CRITERIA".

   b. At least seven (7) days prior to the bid submittal deadline, a potential Bidder may request that the Agency modify the supplemental responsibility criteria. The Agency will evaluate the information submitted by the potential Bidder and respond before the bid submittal deadline. If the evaluation results in a change of the criteria, the Agency will issue an ADDENDA to the bidding documents identifying the new criteria. The Addendum will be posted as a public notice in the State Parks Public Opportunities-MRSC Rosters Bonfire Procurement Portal.

   c. Upon the Agency's request, the apparent low Bidder must supply the requested responsibility information within two (2) business days of request by the Agency. Withholding information or failure to submit all the information requested within the time provided may render the bid non-responsive and the bid/Bidder may be rejected by Rejection Letter. The rejection is specific to this project and will have no effect on other or future projects.

   d. The Agency will not execute a contract with any other Bidder until two (2) business days after the Bidder determined to be not responsible has received the rejection letter.

9.1 PROTEST PROCEDURES

A. GENERAL:

This protest process is a courtesy provided by the Agency and it is not governed by Washington's Administrative Procedures Act (APA), RCW 34.05, nor does it confer any additional rights above and beyond what the Bidder already enjoys as a taxpayer. The purpose of this process is to allow the Agency to correct evaluation process errors and problems before a contract is executed.

Only a Bidder may file a protest regarding this solicitation.

The Bidder must strictly adhere to the protest process as set forth herein, the failure of which may result in a summary determination that the protest is without merit without an opportunity to cure.

B. FORM AND CONTENT:

All protests must:

- Be in writing.
- The protest must state and clearly articulate the grounds for the protest with specific facts and complete statements of the action(s) being protested.
- A description of the relief or corrective action being requested should also be included.
- All protests shall be addressed to the Procurement Coordinator.

C. CONTENT LIMITATIONS:

The Agency does not currently mandate any page limitation. However, the protest must be clearly articulated, succinct, organized, logical, and professional.

The Agency will reject protests that:

- fail to state and clearly articulate at least one of the three GROUNDS;
- contain rants, attacks, and/or disparaging or abusive remarks;
- include multiple attachments or references (document dumping, document overload); or,
- appear to require the reader piece together voluminous amounts of material to decipher the argument being made.

D. SUBMISSION OF PROTEST:

- All protests must be submitted within two (2) business days following the day of the release of the Bid Tabulation/Announcement of the Apparent Low bid or after the formal Rejection Letter is sent. For purposes of timing the day of the release of the Bid Tabulation or the day of the Rejection Letter is sent to the Bidder shall not count.
- Bidders must send all protests to: contracts@parks.wa.gov. See also Subject Line.
- SUBJECT LINE: Must include the bid's identification number, and "PROTEST" in the subject line. Failure by the Bidder to include this information in the subject line may result in Bidder's protest not being timely recognized.

E. GROUNDS WHICH MAY BE PROTESTED:

- Conflict of Interest on the part of Agency staff.
- Errors in computing the score.
- Non-compliance with procedures described in the procurement document.

Protests will be rejected as without merit if they do not clearly and convincingly meet one of the GROUNDS above and/or seems to address issues such as:

- An evaluator's professional judgment on the quality of a response, or
- The Agency's assessment of its own and/or other agencies' needs or requirements, or,
- Issues, concerns, objections, or requests for changes that were or could have been addressed prior to the bids due date deadline.

Protests that do not clearly and convincingly meet the requirements and standards described herein are without merit and may be rejected.

F. MANAGER ASSIGNMENT AND REVIEW:

Upon receipt of a protest that meets the requirements described herein, a protest review will be held by the Agency. The Agency will assign a Manager. The Manager is responsible for reviewing and investigating the Bidder's written protest and may meet with agency staff or the agency program that was involved in the solicitation. The Manager may consider the record and all reasonably available facts and will issue a protest determination in writing within fifteen (15) business days from receipt of the protest. If additional time is needed, the Manager will notify the protesting party of the need for additional time within 15 business days from receipt of the protest.

In the event a protest may affect the interest of another Bidder that submitted a response, the Agency may reach out to that Bidder, may provide an unedited copy of the protest to that Bidder, and may invite that Bidder to submit its views and any relevant information on the protest to the Manager.

G. PROTEST DETERMINATION AND FINDINGS AND DISSEMINATION:

The Manager's protest determination may:

- Find the protest lacking in merit and reject the protest;
- Find only technical or harmless errors in the Agency's acquisition process and determine the Agency to be in substantial compliance and reject the protest; OR
- Find merit in the protest and provide THE AGENCY options which may include:
    - Correcting the errors and re-evaluating all responses;
    - Canceling the solicitation and possibly for a new solicitation to take place; OR
    - Making other findings and determining other courses of action as appropriate.

If the Agency rejects the protest, the Agency will enter into a contract with the Apparent Successful Bidder no sooner than two (2) business days after issuance of the protest determination by email to the protesting party at the email address indicated on the party's bid documents. For the purposes of timing, the date the protest determination is sent to the protesting party shall not count.

Dissemination: The Agency will disseminate the decision to all interested Bidders vie email/email attachment to the email address provided by the Bidder in the Bidder's bid response.

H. AGENCY DECISION IS FINAL:

The Manager's protest determination constitutes the agency's final decision regarding the protest. If the protesting party disagrees with the protest determination, the Bidder may seek judicial relief in the Washington Superior Court for Thurston County within two (2) business days of the issuance of the protest determination.

I. STRICT COMPLIANCE

Strict compliance with these protest procedures is essential in furtherance of the public interest. Any aggrieved party that fails to comply strictly with these protest procedures is deemed, by such failure, to have waived and relinquished forever any right or claim with respect to alleged irregularities in connection with the solicitation or award of the Contract. No person or party may pursue any judicial or administrative proceedings challenging the solicitation or award of this Contract, without first exhausting the administrative procedures specified herein.

J. REPRESENTATION

An aggrieved party may participate personally or, if a corporation or other artificial person, by a duly authorized representative. Whether or not participating in person, an aggrieved party may be represented, at the party's own expense, by counsel.

K. COMPUTATION OF TIME

In computing any period of time prescribed by this procedure, the day of the act or event from which the designated period of time begins to run is not included. The last day of the period is included. The term "business day" does not include Sunday, Saturday, or Washington State recognized holiday.

L. ACKNOWLEDGEMENT

By submitting a bid in response to this solicitation, the Bidder acknowledges that it has reviewed and acquainted itself with the bid protest procedures herein and agrees to be bound by such procedures as a condition of submitting a bid.

10.1 EXECUTION OF CONTRACT

A. The successful bidder will be required to execute the contract and furnish performance bond and insurance certificate satisfactory to the Agency within 15 days after receiving properly prepared contract documents from the Agency.

11.1 RECIPROCAL PREFERENCE FOR RESIDENT CONTRACTORS

A. In accordance with RCW 39.04.380 the State of Washington is enforcing a Reciprocal Preference for Resident Contractors. Any public works bid received from a nonresident contractor from a state that provides an in-state percentage bidding preference, a comparable percentage disadvantage must be applied to the bid of that nonresident contractor.

A nonresident contractor from a state that provides a percentage bid preference means a contractor that:

a) is from a state that provides a percentage bid preference to its resident contractors bidding on public works contracts.

b) at the time of bidding on a public works project, does not have a physical office located in Washington.

The state of residence for a nonresident contractor is the state in which the contractor was incorporated or, if not a corporation, the state where the contractor's business entity was formed, and for an individual, the individual's state of residence.

All nonresident contractors will be evaluated for out of state bidder preference. If the state of the nonresident contractor provides an in-state contractor preference, a comparable percentage disadvantage will be applied to their bid prior to contract award.

This section does not apply to public works procured pursuant to RCW 39.04.155, 39.04.280, or any other procurement exempt from competitive bidding.

B. A Comparable Percentage Disadvantage (CPD) will be applied to the bid of that nonresident contractor. The CPD is the in-state contractor percent advantage provided by the contractor's home state. For the purpose of determining the successful bidder, multiply the Nonresident Contractor bid amount by the CPD. The "bid amount" is be the total of the base bid and all accepted alternate bid items. The CPD is added to the Nonresident Contractor bid amount which equates to the Nonresident Disadvantage Total. The Nonresident Disadvantage Total is compared to the Washington contractor bid amounts. The bidder with the lowest total is the successful bidder. See example below.

Alaska Nonresident Contractor Bid Amount	$100,000
Multiplied by the Alaska CPD	x 0.05
Alaska CPD Total	$ 5,000
Alaska Nonresident Contractor Bid Amount	$100,000
Alaska CPD Total	$ 5,000
Nonresident Disadvantage Total	$105,000*

* Note – If the Nonresident Disadvantage Total is lower than all other Washington contractor bid amounts, the Alaska Nonresident Contractor is the successful bidder and will be awarded a contract for the bid amount of $100,000.

If the Nonresident Disadvantage Total is higher than a Washington contractor bid amount, the successful Washington bidder will be awarded a contract for the bid amount.

12.1 MINORITY AND WOMEN'S BUSINESS ENTERPRISE (MWBE) UTILIZATION

In accordance with the legislative findings and policies set forth in Chapter 39.19 RCW, the State of Washington encourages participation in contracts by MWBE firms certified by the Office of Minority and Women's Business Enterprises (OMWBE). Participation may be either on a direct basis in response to this solicitation/invitation or as a subcontractor to a Bidder. However, unless required by federal statutes, regulations, grants, or contract terms referenced in the contract documents, no preference will be included in the evaluation of bids, no minimum level of MWBE participation is required as a condition for receiving an award, and bids will not be rejected or considered non-responsive on that basis. Any affirmative action requirements set forth in federal regulations or statutes included or referenced in the contract documents will apply.

WASHINGTON STATE PARK AND RECREATION COMMISSION
PUBLIC WORKS PROJECT

A. VOLUNTARY MWBE GOALS

1. The following voluntary numerical MWBE participation goals have been established for this solicitation:

   MBE 10% WBE 6%

2. These goals are voluntary, but achievement of the goals is encouraged. Bidders may contact OMWBE at http://omwbe.wa.gov/ to obtain information on certified firms.

B. REPORTING REQUIREMENTS

1. If any part of the contract, (including the supply of materials and equipment) is subcontracted using certified MWBE firms during completion of the work, then prior to final acceptance or completion of the contract or as otherwise indicated in the contract documents the Bidder shall submit a statement of participation indicating that MWBEs were used and the dollar value of their subcontracts.

2. The provisions of this section are not intended to replace or otherwise change the requirements of RCW 39.30.060. If said statute is applicable to this contract then the failure to comply with RCW 39.30.060 will still render a bid non-responsive.

C. RECORD KEEPING

1. The Bidder shall maintain, for at least three years after completion of this contract, relevant records and information necessary to document the level of utilization of MWBEs and other businesses as subcontractors and suppliers in this contract as well as any efforts the Bidder makes to increase the participation of MWBEs. The Bidder shall also maintain, for at least three years after completion of this contract, a record of all quotes, bids, estimates, or proposals submitted to the Bidder by all businesses seeking to participate as subcontractors or suppliers in this contract. The State shall have the right to inspect and copy such records. If this contract involves federal funds, Bidder shall comply with all record keeping requirements set forth in any federal rules, regulations, or statutes included or referenced in the contract documents

D. SUGGESTED EFFORTS TO INCREASE PARTICIPATION BY MWBEs

1. Bidders are encouraged to advertise opportunities for subcontractors or suppliers in a manner reasonably designed to provide MWBEs capable of performing the work with timely notice of such opportunities, and all advertisements shall include a provision encouraging participation by MWBE firms. Advertising may be done through general advertisement (e.g., newspapers, journals, etc.) or by soliciting bids directly from MWBEs.

2. Additional Voluntary Efforts. Bidders are encouraged to:

   (a) Break down total requirements into smaller tasks or quantities, where economically feasible, in order to permit maximum participation by MWBEs and other small businesses.

   (b) Provide interested MWBEs with adequate and timely information about plans, specifications, and requirements of the Contract.

(c) Establish delivery schedules, where the requirements of this contract permit, that encourage participation by MWBEs and other small businesses.

(d) Reduce bonding requirements where practicable.

(e) Utilize the services of available minority community organizations, minority contractor groups, local minority assistance offices, and organizations that provide assistance in the recruitment and placement of MWBEs and other small businesses.

3. The actions described in this section should supplement efforts to provide information to all qualified firms, and nothing in this section is intended to prevent or discourage the Bidders from inviting proposals for participation from non-MWBE firms as well as MWBE firms.

E. NON-DISCRIMINATION

1. Bidders shall not create barriers to open and fair opportunities for all businesses including MWBEs to participate in all State contracts and to obtain or compete for contracts and subcontracts as sources of supplies, equipment, construction and services. In considering offers from and doing business with subcontractors and suppliers, the Bidder shall not discriminate on the basis of race, color, creed, religion, sex, age, nationality, marital status, or the presence of any mental or physical disability in an otherwise qualified disabled person.

F. SANCTIONS

1. Any violation of the mandatory requirements of this part of the contract shall be a material breach of contract for which the Bidder may be subject to a requirement of specific performance, or damages and sanctions provided by contract, by RCW 39.19.090, or by other applicable laws.

12.2 VETERAN-OWNED BUSINESS AND SMALL, MINI, AND MICRO BUISNESS UTILIZATION

The State of Washington encourages participation in all of its contracts by Veteran-owned businesses (defined in RCW 43.60A.010) and located at:

http://www.dva.wa.gov/program/certified-veteran-and-servicemember-owned-businesses and Small, Mini and Micro businesses (defined in RCW 39.26.010) which have registered in WEBS at https://pr-webs-vendor.des.wa.gov/.

1. The following voluntary numerical WDVA and Small Business participation goals have been established for this solicitation:

   WDVA 5% Small Business 5%

2. These goals are voluntary, but achievement of the goals is encouraged. Bidders may search Washington Small Businesses registered in WEBS at:

   https://pr-webs-vendor.des.wa.gov/ and WA Veteran-owned Businesses at https://www.dva.wa.gov/veterans-their-families/veteran-ownedbusinesses/vob-search to obtain information on registered firms.

12.3 SUBCONTRACTOR PARTICIPATION MONITORING AND REPORTING

A. Once a contract is awarded through the solicitation or proposal process, the awarded Prime Contractor is obligated to complete the vendor registration in Access Equity. Access Equity is a secure online vendor management system (B2GNow). Confidential information (Tax ID, etc.) will not be published. Prime Contractors that have previously registered with B2Gnow for any public entity, must verify the system has updated information. Contractors can access the system at:

https://omwbe.diversitycompliance.com/ or through a direct link on the Office of Minority and Women's Business Enterprises (OMWBE) website at: https://omwbe.wa.gov/.

B. Each month during the contract, the Prime Contractor will report payments to ALL Subcontractors through the Access Equity system. This monthly reporting information includes total payment in dollars made to the Subcontractor, payment dates, and any additional information required to verify payment to Subcontractors. The Prime Contractor will enter this payment information into the Access Equity system, and the Subcontractors will verify this payment information in the system. Online training is available through the Access Equity/B2Gnow system. This requirement applies to both Prime Contractors and Subcontractors.

END OF INSTRUCTIONS TO BIDDERS

/ / / / /

Wallace Falls State Park
Well Drilling, Construction, Development, and Testing
NW-C4002
https://mrscrosters.bonfirehub.com/portal
The Bidder will submit the Bid to State Parks Public Opportunities
MRSC Bonfire Procurement Portal

Bidder Compliance Form

Contractor Information

Person Signing Bid		**Firm Name**	
Title Person Signing		**Physical Address**	
Contractor Registration #		**City, State, ZIP**	
Taxpayer Identification #		**Phone #**	
Washington UBI #		**Cellular Phone #**	
WA ESD #		**Email Address**	

The Bidder Compliance Form verifies compliance with State of Washington Public Works Bid Laws and associated Project Documents. It highlights key project components and ensures acknowledgment. Failure to acknowledge this form within the Bid Form, as directed, will render the bid non-responsive. Acknowledging the form does not alter the bidder's obligation to comply with all contract documents if awarded the project.

Bidder's Declaration

The Bidder declares that they have carefully examined the site of the proposed work, the Drawings, Specifications and all of the conditions affecting the work. Therefore, the Bidder proposes to provide all labor, equipment, materials, and permits and to perform all work as required by, and in strict accordance with the Contract Documents as shown on the bid proposal form.

Bid Acceptance and Agency Discretion

The Agency reserves the right to accept or reject all bids and to waive informalities. The Bidder will allow 60 days from bid opening date for acceptance of its bid by the Agency.

Registration and Required Licenses

The Bidder is a registered contractor in compliance with Chapter 18.27 RCW. If applicable, as the prime contractor, the Bidder self-performing plumbing work holds the required licensure under Chapter 18.106 RCW. Similarly, if self-performing elevator work, the Bidder holds the necessary license in accordance with Chapter 70.87 RCW. Additionally, if the Bidder is self-performing electrical work, they are properly licensed under Chapter 19.28 RCW.

Time for Completion

Bidder agrees to complete project (including accepted alternates) in accordance with drawings and specifications within **90** calendar days from the date provided on the Notice to Proceed letter.

Liquidaded Damages

It is agreed that liquidated damages, in the amount of **$700.00**, shall be levied for each and every calendar day by which the completion of the work is delayed beyond the time fixed for completion or extension of the contract.

Wallace Falls State Park
Well Drilling, Construction, Development, and Testing
NW-C4002
https://mrscrosters.bonfirehub.com/portal
The Bidder will submit the Bid to State Parks Public Opportunities
MRSC Bonfire Procurement Portal

Bid Form

Unit prices and estimated quantities shall be used to determine the Base Bid

These prices shall also be used to adjust the Contract in the event there is an increase or decrease in the estimated quantities. All costs shall be "in place" costs and complete, **excluding State Sales Tax**. In the event of an irregularity, the unit price prevails. The Agency reserves the right to make mathematical corrections of multiplication or addition errors on the bid form.

Trench Excavation Safety Provisions

If the contract contains any work which requires trenching exceeding a depth of four (4) feet, all costs for adequate trench safety systems shall be identified as a separate bid item in compliance with Chapter 39.04 RCW. The purpose of this provision is to ensure that the bidder agrees to comply with all relevant trench safety requirements of Chapter 49.17 RCW. This bid amount shall be considered part of the total base bid. **Include a lump sum dollar amount (even if the value is $0.00) to be considered responsive to the bid solicitation.**

Wage Certification

The bidder certifies under penalty of perjury under the laws of the State of Washington that the foregoing is true and correct: within the three-year period immediately preceding the bid solicitation date, the bidder has not been 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.

Base Bid Items (Be sure to include unit prices)

Item No.	Description	Est Qty	Qty	Unit Price	Total Amount
1	Trench Excavation Safety Provisions	1	LS.		$0.00
2	Well Drilling, Construction, Development and Testing	2	EA.		$0.00
				Total Base Bid	**$0.00**

Alternate Bid Items

Item No.	Description	Est Qty	Qty	Unit Price	Total Amount
A1	Well Drilling, Construction, Development, and Testing at Alternate Well Site	1	LS.		$0.00
				Total Alternates	**$0.00**

Unit Prices

Item No.	Description	Unit	Unit Cost
UP1	Add/Subtract Drilling Borehole	1 LF	

Item No.	Description	Est Qty	Qty	Unit Price	Total Amount
UP2	Add/Subtract Drilling and Installing Permanent Casing			1 LF	
UP3	Add/Subtract Liner Blank			1 LF	
UP4	Add/Subtract Liner Screen			1 LF	
UP5	Add Well Development			1 HOUR	
UP6	Add Test Pump Operation			1 HOUR	

Receipt of Addenda

List all addenda received, separated by commas (e.g., "1, 2, 3, 4"). Do not list only the final number (e.g., "4"). If no addenda, type "N/A." Failure to follow this may render your bid non-responsive.

Bid Acknowledgment and Compliance Certification

By signing and returning this form, you acknowledge compliance with the bid requirements. Failure to sign and submit this form will result in the bid being considered non-responsive.

/s/ Signature of Authorized Official
Typing your name can count as a signature.

Date

Wallace Falls State Park
Well Drilling, Construction, Development, and Testing
NW-C4002
https://mrscrosters.bonfirehub.com/portal
The Bidder will submit the Bid to State Parks Public Opportunities MRSC Bonfire Procurement Portal

MWBE, WA Small Business, Veteran-Owned Business Utilization Certification

The bidder certifies good faith efforts to provide opportunities to MWBEs, Small Businesses, and Veteran-Owned Businesses. If awarded, the bidder commits to utilizing these firms or approved substitutes on the project. If no such firms will be used, enter **"N.A." on the first line**.

	Firm Name, Address	Federal I.D. #	Type of Work	Certificate Number	MBE%	WBE%	Small Business%	Veteran Business%
1								
2								
3								
4								
5								
6								
				Totals	0.00%	0.00%	0.00%	0.00%

The bidder may add rows for additional MWBE/WA Small and Veteran-Owned Business Utilization Certifications.

Wallace Falls State Park
Well Drilling, Construction
NW-C4002
https://mrscrosters.bonfirehub.com/portal
The Bidder will submit the Bid to State Parks Public Opportunities
MRSC Bonfire Procurement Portal

Subcontractor Utilization List

Subcontractor Utilization List (If Applicable)

In compliance with the contract documents, the following subcontractor list is submitted:

SUBCONTRACTOR LISTING - RCW 39.30.060

If the base bid and the sum of the additive alternates is **ONE MILLION DOLLARS OR MORE**, the Bidder shall provide names of the subcontractors with whom the Bidder will directly subcontract for performance of the following work. If the Bidder intends to perform the work, the Bidder must enter its name for that category of work.

A. Submission Deadline: **The completed and signed Subcontractors List must be submitted with bid.**

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

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

D. Name Only One Firm 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 Alternatives or Additives, in which case the Bidder must indicate which firm will be used for which Alternate or Additive.

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

F. 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 (subcontractors or Bidder) to perform the same work, or failure to sign the form shall render the Bidder's bid non-responsive and, therefore, VOID**.

G. The Subcontractor Utilization List is intended to discourage bid shopping, not to verify subcontractor qualifications. The Agency does not use the Subcontractor Utilization List as a tool to disqualify or qualify bidders.

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

1 HVAC. Electrical, Plumbing: The requirement of this section to name the bidder's 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

Category of Work	Bidder MUST check one box for each Category of Work. If subcontracting the work, bidder must name the subcontractor
HVAC (Heating, Ventilation & Air Conditioning)	☐ Name of Subcontractor: _____ ☐ Bidder will self-perform this work, or the project does not include this work.
Electrical	☐ Name of Subcontractor: _____ ☐ Bidder will self-perform this work, or the project does not include this work.
Plumbing	☐ Name of Subcontractor: _____ ☐ Bidder will self-perform this work, or the project does not include this work.

Bidder may attach a separate sheet for additional alternate bid subcontractors

2 Structural Steel Installation and Rebar Installation: The requirement of this section to name the bidder's proposed names of the subcontractors with whom the bidder, if awarded, will subcontract for performance of the work of structural steel installation and rebar installation.

Category of Work	Bidder MUST check one box for each Category of Work. If subcontracting the work, bidder must name the subcontractor
Structural Steel Installation	☐ Name of Subcontractor: _____ ☐ Bidder will self-perform this work, or the project does not include this work.
Rebar Installation	☐ Name of Subcontractor: _____ ☐ Bidder will self-perform this work, or the project does not include this work.

Bidder may attach a separate sheet for additional alternate bid subcontractors

/s/ Signature of Authorized Official
Typing your name can count as a signature.

Wallace Falls State Park
Well Drilling, Construction, Development, and Testing
NW-C4002
https://mrscrosters.bonfirehub.com/portal
The Bidder will submit the Bid Bond (if Applicable) to State Parks Public Opportunities MRSC Bonfire Procurement Portal

Bid Bond Requirements

Bid Guarantee: See Instructions to Bidders 11.1 Bid Bond. No particular bid bond form is required. Failure of the Bidder to provide bid guarantee when required shall render the bid non-responsive.

Bid Bond Threshold

1. A bid bond is not required if the total bid amount, including all additive alternates, is $35,000 or less.
2. For bids exceeding $35,000, a bid bond of 5% of the total bid amount is mandatory.

Acceptable Forms

1. Acceptable forms of bid guarantee: A bid bond, and must be submitted as part of the bid response.
2. Scanned copies of the bid bond (e.g., PDF) are acceptable and should be included with the electronic bid submission

Submission Process

1. Include the bid bond in a single PDF file.
2. At the time of bid, the bidder must upload an electronic copy of the acceptable bid guarantee to the State Parks Oportunities via MRSC Bonfire Procurement Portal https://mrscrosters.bonfirehub.com/portal

Retention and Forfeiture

1. Bid bonds for the three lowest bidders will be retained for 30 days or until a contract is executed with the successful bidder.
2. All other bid bonds will be released within 15 days of the bid opening.
3. If the successful bidder fails to execute the contract or provide a performance bond within 15 days of receiving the contract forms, the bid bond may be forfeited as liquidated damages.

Bid Validity Period

1. Bidders must allow for a 60-day acceptance period from the bid opening date.

Important Reminder

1. Review all bid documents thoroughly to ensure compliance with submission requirements, including proper completion and inclusion of the bid bond when applicable.

For further details or clarification, refer to Section 11.1 of the "Instructions to Bidders" in the project manual. If you have questions, contact contracts@parks.wa.gov

☐ **Check the box to the left if the total bid, including all additive alternates, is $35,000 or less**, and include this statement with your bid response. No bid bond is required for bids at or below this amount. For bids exceeding $35,000, a bid bond must be submitted instead. Failure to provide a required bid bond will render the bid non-responsive.

SECTION 0000009 – SUMMARY OF PAY ITEMS

The following list of major items of construction has been included for Bidder's convenience in preparing a bid proposal. Exclusion of items from this summary does not indicate exclusion from project. For lump sum items, the bidder is cautioned that the drawings are the only source for measurement of project quantities, and drawings have been detailed for this purpose. In preparing a bid proposal, Bidder should note apparent discrepancies between the list below and the drawings and consult with Engineer for verification.

BASE BID ITEMS

BID ITEM	DESCRIPTION	ESTIMATED QUANTITY	PAYMENT
1.	**TRENCH EXCAVATION SAFETY PROVISIONS**	**L.S.**	**PER LUMP SUM**
	See instructions on Bid Proposal Form.		
2.	**BASE BID - WELL DRILLING, CONSTRUCTION, DEVELOPMENT, AND TESTING**	**L.S.**	**PER LUMP SUM**

Work includes all materials, supplies, equipment, transport, and labor necessary to complete the work at Wallace Falls State Park as intended in the Contract Drawings and Specifications. Note links to UP1-UP6. Work includes but is not limited to the following:

1. MOBILIZATION & DEMOBILIZATION
2. TEMPORARY FACILITIES AND EROSION AND SEDIMENT CONTROL MEASURES
3. SITE PREPARATION & SITE RESTORATION
4. OFFSITE DISPOSAL OF EXCAVATED MATERIAL
5. DRILLING & INSTALLING TEMPORARY CASING AND PLACING SURFACE SEAL
6. DRILLING BOREHOLE
7. DRILLING & INSTALLING PERMANENT CASING
8. INSTALLING LINER BLANK
9. INSTALLING TAILPIPE
10. INSTALLING LINEAR SCREEN
11. WELL DEVELOPMENT
12. INSTALLING & REMOVING TEST PUMP & DISCHARGE PIPING SYSTEM
13. TEST PUMP OPERATION

UNIT PRICE BID ITEMS

UNIT BID ITEM	DESCRIPTION	ESTIMATED QUANTITY	UNIT PRICE	TOTAL PRICE
UP1	**DRILLING BOREHOLE**		**LF**	**PER LINEAR FOOT**

This unit bid item provides for more or less "drilling borehole" than anticipated in the lump sum bid. The anticipated amount of "drilling borehole" is indicated by the project plans and specifications. Only deviations from the project plans and specifications directed by the Engineer will require adjustment (either additive or subtractive) to the contract amount based on the unit price amount. All "drilling borehole" will provide for operating drilling equipment during drilling, sampling of drilled materials, sample containers, daily reports and containment, removal and disposal of drill cuttings, and water produced during drilling.

UP2	**DRILLING & INSTALLING PERMANENT CASING**		**LF**	**PER LINEAR FOOT**

This unit bid item provides for more or less "Drilling & Installing Permanent Casing" than anticipated in the lump sum bid. The anticipated amount of "Drilling & Installing Permanent Casing" is indicated by the project plans and specifications. Only deviations from the project plans and specifications directed by the Engineer will require adjustment (either additive or subtractive) to the contract amount based on the unit price amount. All "Drilling & Installing Permanent Casing" will provide for operating drilling equipment during drilling, installing the casing shoe.

UP3	**LINER BLANK**		**LF**	**PER LINEAR FOOT**

This unit bid item provides for more or less "Liner Blank" than anticipated in the lump sum bid. The anticipated amount of "Liner Blank" is indicated by the project plans and specifications. Only deviations from the project plans and specifications directed by the Engineer will require adjustment (either additive or subtractive) to the contract amount based on the unit price amount. All "Liner Blank" will provide for material, hauling, handling, and installing the blank liner pipe.

UP4	**LINER SCREEN**		**LF**	**PER LINEAR FOOT**

This unit bid item provides for more or less "Liner Screen" than anticipated in the lump sum bid. The anticipated amount of "Liner Screen" is indicated by the project plans and specifications. Only deviations from the project plans and specifications directed by the Engineer will require adjustment (either additive or subtractive) to the contract amount based on the unit price amount. All "Liner Screen" will provide for material, hauling, handling, and installing the liner screen.

UP5	**WELL DEVELOPMENT**		**HR**	**PER HOUR**

This unit bid item provides for more "Well Development" than anticipated in the lump sum

bid. The anticipated amount of "Well Development" is indicated by the project plans and specifications. Only deviations from the project plans and specifications directed by the Engineer will require adjustment (either additive or subtractive) to the contract amount based on the unit price amount. All "Well Development" will provide for equipment and material for well development.

UP6 TEST PUMP OPERATION HR PER HOUR

This unit bid item provides for more "Test Pump Operation" than anticipated in the lump sum bid. The anticipated amount of "Test Pump Operation" is indicated by the project plans and specifications. Only deviations from the project plans and specifications directed by the Engineer will require adjustment (only additive) to the contract amount based on the unit price amount. All "Test Pump Operation" will provide for conducting the testing.

END OF SECTION

GENERAL CONDITIONS FOR CONSTRUCTION AT WASHINGTON STATE PARKS

GENERAL CONDITIONS FOR CONSTRUCTION AT WASHINGTON STATE PARKS

PART 1 - GENERAL PROVISIONS

1.01 DEFINITIONS

A. "Application for Payment" means a written request submitted by Contractor to A/E for payment of Work completed in accordance with the Contract Documents and approved Schedule of Values, supported by such substantiating data as Owner or A/E may require.

B. “Architect,” “Engineer,” or “A/E" shall mean that person designated by the State Parks and Recreation Commission to be in charge of the work covered by this contract.

C. "Change Order" means a written instrument signed by Owner and Contractor stating their agreement upon all of the following: (1) a change in the Work; (2) the amount of the adjustment in the Contract Sum, if any, and (3) the extent of the adjustment in the Contract Time, if any.

D. "Claim" means Contractor's exclusive remedy for resolving disputes with Owner regarding the terms of a Change Order or a request for equitable adjustment, as more fully set forth in part 8.

E. “Contract Award Amount” is the sum of the Base Bid and any accepted Alternates.

F. "Contract Documents" means the Advertisement for Bids, Instructions for Bidders, completed Form of Proposal, General Conditions, Modifications to the General Conditions, Supplemental Conditions, Public Works Contract, other Special Forms, Drawings and Specifications, and all addenda and modifications thereof.

G. "Contract Sum" is the total amount payable by Owner to Contractor for performance of the Work in accordance with the Contract Documents, including all taxes imposed by law and properly chargeable to the Work, except Washington State sales tax.

H. "Contract Time" is the number of calendar days allotted in the Contract Documents for achieving Substantial Completion of the Work.

I. "Contractor" means the person or entity who has agreed with Owner to perform the Work in accordance with the Contract Documents.

J. "Drawings" are the graphic and pictorial portions of the Contract Documents showing the design, location, and dimensions of the Work, and may include plans, elevations, sections, details, schedules, and diagrams.

K. "Final Acceptance" means the written acceptance issued to Contractor by Owner after Contractor has completed the requirements of the Contract Documents, as more fully set forth in Section 6.09 B.

L. "Final Completion" means that the Work is fully and finally completed in accordance with the Contract Documents, as more fully set forth in Section 6.09 A.

M. "Force Majeure" means those acts entitling Contractor to request an equitable adjustment in the Contract Time, as more fully set forth in paragraph 3.05 A.

N. "Notice" means a written notice which has been delivered in person to the individual or a member of the firm or entity or to an officer of the corporation for which it was intended or, if delivered or sent by registered or certified mail, to the last business address known to the party giving notice.

O. "Notice to Proceed" means a notice from Owner to Contractor that defines the date on which the Contract Time begins to run.

P. "Owner" shall mean the Washington State Parks and Recreation Commission and its authorized representative with the authority to enter into, administer and/or terminate contracts and make related determinations and findings.

Q. "Person" means a corporation, partnership, business association of any kind, trust, company, or individual.

R. "Prior Occupancy" means Owner's use of all or parts of the Project before Substantial Completion, as more fully set forth in Section 6.08 A.

S. "Progress Schedule" means a schedule of the Work, in a form satisfactory to Owner, as further set forth in section 3.02.

T. "Project" means the total construction of which the Work performed in accordance with the Contract Documents may be the whole or a part and which may include construction by Owner or by separate contractors.

U. "Project Manual" means the volume usually assembled for the Work which may include the bidding requirements, sample forms, and other Contract Documents.

V. "Project Record" means the separate set of Drawings and Specifications as further set forth in paragraph 4.02A.

W. "Schedule of Values" means a written breakdown allocating the total Contract Sum to each principle category of Work, in such detail as requested by Owner.

X. "Specifications" are that portion of the Contract Documents consisting of the written requirements for materials, equipment, construction systems, standards, and workmanship for the Work, and performance of related services.

Y. "Subcontract" means a contract entered into by Subcontractor for the purpose of obtaining supplies, materials, equipment, or services of any kind for or in connection with the Work.

Z. "Subcontractor" means any person, other than Contractor, who agrees to furnish or furnishes any supplies, materials, equipment, or services of any kind in connection with the Work.

AA. "Substantial Completion" means that stage in the progress of the Work where Owner has full and unrestricted use and benefit of the facilities for the purposes intended, as more fully set forth in section 6.07.

AB. "Work" means the construction and services required by the Contract Documents, and includes, but is not limited to, labor, materials, supplies, equipment, services, permits, and the manufacture and fabrication of components, performed, furnished, or provided in accordance with the Contract Documents.

1.02 ORDER OF PRECEDENCE

Any conflict or inconsistency in the Contract Documents shall be resolved by giving the documents precedence in the following order.

1. Signed Public Works Contract, including any Change Orders, and any Special Forms.
2. Supplemental Conditions.
3. General Conditions.
4. Addenda
5. Specifications--provisions in Division 1 shall take precedence over provisions of any other Division.
6. Drawings--in case of conflict within the Drawings, large scale drawings shall take precedence over small scale drawings.
7. Signed and Completed Form of Proposal.
8. Instructions to Bidders.
9. Advertisement for Bids.

1.03 EXECUTION AND INTENT

Contractor makes the following representations to Owner:

1. The Contract Sum is reasonable compensation for the Work and the Contract Time is adequate for the performance of the Work, as represented by the Contract Documents;

2. Contractor has carefully reviewed the Contract Documents, visited and examined the Project site, become familiar with the local conditions in which the Work is to be performed, and satisfied itself as to the nature, location, character, quality and quantity of the Work, the labor, materials, equipment, goods, supplies, work, services and other items to be furnished and all other requirements of the Contract Documents, as well as the surface and subsurface conditions and other matters that may be encountered at the Project site or affect performance of the Work or the cost or difficulty thereof;

3. Contractor is financially solvent, able to pay its debts as they mature, and possesses sufficient working capital to complete the Work and perform Contractor's obligations required by the Contract Documents; and

4. Contractor is able to furnish the plant, tools, materials, supplies, equipment and labor required to complete the Work and perform the obligations required by the Contract Documents and has sufficient experience and competence to do so.

PART 2 - INSURANCE AND BONDS

2.01 CONTRACTOR'S LIABILITY INSURANCE

Prior to commencement of the Work, Contractor shall obtain all the insurance required by the Contract Documents and provide evidence satisfactory to Owner that such insurance has been procured. Review of the Contractor's insurance by Owner shall not relieve or decrease the liability of Contractor. Companies writing the insurance to be obtained by this part shall be licensed to do business under Chapter 48 RCW or comply with the Surplus Lines Law of the State of Washington. Contractor shall include in its bid the cost of all insurance and bond costs required to complete the base bid work and accepted alternates. Insurance carriers providing insurance in accordance with the Contract Documents shall be acceptable to Owner, and its A. M. Best rating shall be indicated on the insurance certificates.

A. Contractor shall maintain the following insurance coverage during the Work and for one year after Final Acceptance. Contractor shall also maintain the following insurance coverage during the performance of any corrective Work required by section 5.16.

    1. Commercial General Liability (CGL) on an Occurrence Form:

        a. Completed operations/products liability;

        b. Explosion, collapse, and underground; and

        c. Employer's liability coverage.

    2. Automobile liability

B. Contractor shall comply with the Washington State Industrial Insurance Act and, if applicable, the Federal Longshoremen's and Harbor Workers' Act and the Jones Act.

C. All insurance coverages shall protect against claims for damages for personal and bodily injury or death, as well as claims for property damage, which may arise from operations in connection with the Work whether such operations are by Contractor or any Subcontractor.

D. All insurance coverages shall be endorsed to include Owner as an additional named insured for Work performed in accordance with the Contract Documents, and all insurance certificates shall evidence the Owner as an additional insured.

2.02 COVERAGE LIMITS INSURANCE COVERAGE CERTIFICATES

A. Insurance Coverage Certificates
The Contractor shall furnish acceptable proof of insurance coverage on the State of Washington Certificate of Insurance form SF500A dated 07/02/92 or an acceptable ACORD form.

B. Required Coverages
1. For a contract less than $100,000.00, the coverage required is:
   a. Public Liability Insurance – The Contractor shall at all times during the term of this contract, at its cost and expense, carry and maintain general public liability insurance, including contractual liability, against claims for bodily injury, personal injury, death or property damage occurring or arising out of services provided under this contract. This insurance shall cover claims caused by any act, omission, or negligence of the Contractor or its officers, agents, representatives, assigns or servants. The limits of liability insurance, which may be increased as deemed necessary by the contracting parties, shall be:

Each Occurrence	$1,000,000.00
General Aggregate Limits (other than products – commercial operations)	$1,000,000.00
Products – Commercial Operations Limit	$1,000,000.00
Personal and Advertising Injury Limit	$1,000,000.00
Fire Damage Limit (any one fire)	$50,000.00
Medical Expense Limit (any one person)	$5,000.00

   b. If the contract is for underground utility work, then the Contractor shall provide proof of insurance for that above in the form of Explosion, Collapse and Underground (XCU) coverage.

   c. Employers Liability on an occurrence basis in an amount not less than $1,000,000.00 per occurrence.

2. For contracts over $100,000.00 but less than $5,000,000.00 the contractor shall obtain the coverage limits as listed for contracts below $100,000.00 and General Aggregate and Products – Commercial Operations Limit of not less than $2,000,000.00.

3. Coverage for Comprehensive General Bodily Injury Liability Insurance for a contract over $5,000,000.00 is:

Each Occurrence	$2,500,000.00
General Aggregate Limits (other than products – commercial operations)	$5,000,000.00
Products – Commercial Operations limit	$5,000,000.00
Personal and Advertising Injury Limit	$2,500,000.00
Fire Damage Limit (any one fire)	$50,000.00
Medical Expense Limit (any one Person)	$5,000.00

4. For all Contracts – Automobile Liability: in the event that services delivered pursuant to this contract involve the use of vehicles or the transportation of clients, automobile liability insurance shall be required. If Contractor-owned personal vehicles are used, a Business Automobile Policy covering at a minimum Code 2 “owned autos only” must be secured. If Contractor employee’s vehicles are used, the Contractor must also include under the Business Automobile Policy Code 9, coverage for non-owned autos. The minimum limits for automobile liability is: $1,000,000.00 per occurrence, using a combined single limit for bodily injury and property damage.

5. For Contracts for Hazardous Substance Removal (Asbestos Abatement, PCB Abatement, etc.)
   a. In addition to providing insurance coverage for the project as outlined above, the Contractor shall provide Environmental Impairment Liability insurance for the hazardous substance removal as follows:

EACH OCCURRENCE	AGGREGATE
$500,000.00	$1,000,000.00

   or $1,000,000.00 each occurrence/aggregate bodily injury and property damage combined single limit.

1) Insurance certificate must state that the insurer is covering hazardous substance removal.
2) Should this insurance be secured on a “claims made” basis, the coverage must be continuously maintained for one year following the project’s “final completion” through official completion of the project, plus one year following.

For Contracts where hazardous substance removal is a subcomponent of contracted work, the general contractor shall provide to the Owner a certificate of insurance for coverage as defined in 5a. above. The State of Washington must be listed as an additional insured. This certificate of insurance must be provided to the Owner prior to commencing work.

2.03 INSURANCE COVERAGE CERTIFICATES

A. Prior to commencement of the Work, Contractor shall furnish to Owner a completed certificate of insurance coverage.

B. All insurance certificates shall name Owner's Project number and Project title.

C. All insurance certificates shall specifically require 45 (forty-five) days prior notice to Owner of cancellation or any material change, except 30 (thirty) days for surplus line insurance.

2.04 PAYMENT AND PERFORMANCE BONDS

AIA Payment and Performance Bonds, form A312, or equivalent, is required by the Owner for the work of this contract. The forms shall be obtained from the Contractor’s bonding company. The Payment Bond shall cover payment to laborers and mechanics, including payments to Employee Benefit Funds, and payments to subcontractors, material suppliers, and persons who shall supply such person or persons, or subcontractors with materials and supplies.

2.05 ALTERNATIVE SURETY

Contractor shall promptly furnish alternative security required to protect Owner and persons supplying labor or materials required by the Contract Documents if:

A. Owner has a reasonable objection to the surety; or

B. Any surety fails to furnish reports on its financial condition if requested by Owner.

2.06 BUILDER'S RISK

A. Contractor shall purchase and maintain property insurance in the amount of the Contract Sum including all Change Orders for the Work on a replacement cost basis until Substantial Completion. The insurance shall cover the interest of Owner, Contractor, and any Subcontractors, as their interests may appear. For projects not involving New Building Construction, ‘Installation Floater’ is an acceptable substitute for the Builder’s Risk Insurance.

B. Contractor property insurance shall be placed on an "all risk" basis and insure against the perils of fire and extended coverage and physical loss or damage including theft, vandalism, malicious mischief, collapse, false work, temporary buildings, debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for A/E's services and expenses required as a result of an insured loss.

C. Owner and Contractor waive all subrogation rights against each other, any Subcontractors, A/E, A/E's subconsultants, separate contractors described in section 5.20, if any, and any of their subcontractors, for damages caused by fire or other perils to the extent covered by property insurance obtained pursuant to this section or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by Owner as fiduciary. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

PART 3 - TIME AND SCHEDULE

3.01 PROGRESS AND COMPLETION

A. Contractor shall diligently prosecute the Work, with adequate forces, achieve Substantial Completion within the Contract Time, and achieve Final Completion within 30 (thirty) calendar days thereafter, unless otherwise noted in Division 1 of the specifications.

B. The Contractor shall notify the Engineer at least two (2) weekdays in advance if work is to be performed on a Saturday, Sunday, or legal holiday. No excavation work will be allowed on Saturdays, Sundays, or legal holidays unless specifically authorized by the Engineer.

3.02 CONSTRUCTION SCHEDULE

A. Unless otherwise provided in Division 1, Contractor shall, within 14 (fourteen) calendar days after issuance of the Notice to Proceed, submit a preliminary Progress Schedule. The Progress Schedule shall show the sequence in which Contractor proposes to perform the Work, and the dates on which Contractor plans to start and finish major portions of the Work, including dates for shop drawings and other submittals, and for acquiring materials and equipment.

B. The Progress Schedule shall be in the form of a Critical Path Method (CPM) logic network or, with the approval of the Owner, a bar chart schedule may be submitted. The scheduling of construction is the responsibility of the Contractor and is included in the contract to assure adequate planning and execution of the work. The schedule will be used to evaluate progress of the work for payment based on the Schedule of Values. The schedule shall show the Contractor's planned order and interdependence of activities, and sequence of work. As a minimum the schedule shall include:

1. Date of Notice to Proceed;
2. Activities (resources, durations, individual responsible for activity, early starts, late starts, early finishes, late finishes, etc.);
3. Utility Shutdowns;
4. Interrelationships and dependence of activities;
5. Planned vs. actual status for each activity;
6. Substantial completion;
7. Punch list;
8. Final inspection;
9. Final completion, and
10. Float time

The Schedule Duration shall be based on the Contract Time of Completion listed on the Bid Proposal form. The Owner shall not be obligated to accept any Early Completion Schedule suggested by the Contractor. The Contract Time for Completion shall establish the Schedule Completion Date.

If the Contractor feels that the work can be completed in less than the Specified Contract Time, then the Surplus Time shall be considered Project Float. This Float time shall be shown on the Project Schedule. It shall be available to accommodate changes in the work and unforeseen conditions.

Neither the Contractor nor the Owner have exclusive right to this Float Time. It belongs to the project.

C. Owner shall return comments on the preliminary Progress Schedule to Contractor within 14 (fourteen) days of receipt. Review by Owner of Contractor's schedule does not constitute an approval or acceptance of Contractor's construction means, methods, or sequencing, or its ability to complete the Work within the Contract Time. Contractor shall revise and resubmit its schedule, as necessary. Owner may withhold a portion of progress payments until a Progress Schedule has been submitted which meets the requirements of this section.

D. Contractor shall utilize and comply with the Progress Schedule. On a monthly basis, or as otherwise directed by Owner, Contractor shall submit an updated Progress Schedule at its own expense to Owner indicating actual progress. If, in the opinion of Owner, Contractor is not in conformance with the Progress Schedule for reasons other than acts of Force Majeure as identified in section 3.05, Contractor shall take

such steps as are necessary to bring the actual completion dates of its work activities into conformance with the Progress Schedule, or revise the Progress Schedule to reconcile with the actual progress of the Work.

E. Contractor shall promptly notify Owner in writing of any actual or anticipated event which is delaying or could delay achievement of any milestone or performance of any critical path activity of the Work. Contractor shall indicate the expected duration of the delay, the anticipated effect of the delay on the Progress Schedule, and the action being or to be taken to correct the problem. Provision of such notice does not relieve Contractor of its obligation to complete the Work within the Contract Time.

3.03 OWNER'S RIGHT TO SUSPEND THE WORK FOR CONVENIENCE

A. Owner may, at its sole discretion, order Contractor, in writing, to suspend all or any part of the Work for up to 90 (ninety) days, or for such longer period as mutually agreed.

B. Upon receipt of a written notice suspending the Work, Contractor shall immediately comply with its terms and take all reasonable steps to minimize the incurrence of cost of performance directly attributable to such suspension. Within a period up to 90 (ninety) days after the notice is delivered to Contractor, or within any extension of that period to which the parties shall have agreed, Owner shall either:

1. Cancel the written notice suspending the Work; or

2. Terminate the Work covered by the notice as provided in the termination provisions as more fully set forth in Part 9.

C. If a written notice suspending the Work is cancelled or the period of the notice or any extension thereof expires, Contractor shall resume Work.

D. Contractor shall be entitled to an equitable adjustment in the Contract Time, or Contract Sum, or both, for increases in the time or cost of performance directly attributable to such suspension, provided Contractor complies with all requirements set forth in Part 7.

3.04 OWNER'S RIGHT TO STOP THE WORK FOR CAUSE

A. If Contractor fails or refuses to perform its obligations in accordance with the Contract Documents, Owner may order Contractor, in writing, to stop the Work, or any portion thereof, until satisfactory corrective action has been taken.

B. Contractor shall not be entitled to an equitable adjustment in the Contract Time or Contract Sum for any increased cost or time of performance attributable to Contractor's failure or refusal to perform or from any reasonable remedial action taken by Owner based upon such failure.

3.05 DELAY

A. Any delay in or failure of performance by Owner or Contractor, other than the payment of money, shall not constitute a default hereunder if and to the extent the cause for such delay or failure of performance was unforeseeable and beyond the control of the party ("Force Majeure"). Acts of Force Majeure include, but are not limited to:

1. Acts of God or the public enemy;

2. Acts or omissions of any government entity;

3. Fire or other casualty for which Contractor is not responsible;

4. Quarantine or epidemic;

5. Strike or defensive lockout;

6. Unusually severe weather, in excess of weather conditions which could not have been reasonably anticipated; and

7. Unusual delay in receipt of supplies or products which were ordered and expedited and for which no substitute reasonably acceptable to Owner was available.

B. Contractor shall be entitled to an equitable adjustment in the Contract Time for changes in the time of performance directly attributable to an act of Force Majeure, provided it makes a request for equitable adjustment according to section 7.03. Contractor shall not be entitled to an adjustment in the Contract Sum resulting from an act of Force Majeure.

C. Contractor shall be entitled to an equitable adjustment in Contract Time, and may be entitled to an equitable adjustment in Contract Sum, if the cost or time of Contractor's performance is changed due to the fault or negligence of Owner, provided the Contractor makes a request according to sections 7.02 and 7.03.

D. Contractor shall not be entitled to an adjustment in Contract Time or in the Contract Sum for any delay or failure of performance to the extent such delay or failure was caused by Contractor or anyone for whose acts Contractor is responsible.

E. To the extent any delay or failure of performance was concurrently caused by the Owner and Contractor, Contractor shall be entitled to an adjustment in the Contract Time for that portion of the delay or failure of performance that was concurrently caused, provided it makes a request for equitable adjustment according to section 7.03, but shall not be entitled to an adjustment in Contract Sum.

F. Contractor shall make all reasonable efforts to prevent and mitigate the effects of any delay, whether occasioned by an act of Force Majeure or otherwise.

G. The Owner has acquired ownership and/or easement of lands for the construction, as indicated on the drawings, without cost to the Contractor. The Contractor understands and agrees that, should it appear at any time that the Owner has not acquired title to all of the right-of-ways and lands necessary for the performance of the work under the provisions of this contract, and that if any delay in the performance of said work occasioned by the failure of the Owner, its officers, or employees to acquire a title of any of said lands or right-of-way, such failure shall extend the contract completion date the number of days equal to the period of such delay. The Contractor waives any and all claims for damages against the Owner which the Contractor may sustain by reason of this delay in the work.

3.06 NOTICE TO OWNER OF LABOR DISPUTES

A. If Contractor has knowledge that any actual or potential labor dispute is delaying or threatens to delay timely performance in accordance with the Contract Documents, Contractor shall immediately give notice, including all relevant information, to Owner.

B. Contractor agrees to insert a provision in its Subcontracts and to require insertion in all sub-subcontracts, that in the event timely performance of any such contract is delayed or threatened by delay by any actual or potential labor dispute, the Subcontractor or Sub-subcontractor shall immediately notify the next higher tier Subcontractor or Contractor, as the case may be, of all relevant information concerning the dispute.

3.07 DAMAGES FOR FAILURE TO ACHIEVE TIMELY COMPLETION

A. Liquidated Damages

1. Timely performance and completion of the Work is essential to Owner and time limits stated in the Contract Documents are of the essence. Owner will incur serious and substantial damages if Substantial Completion of the Work does not occur within the Contract Time. However, it would be difficult if not impossible to determine the exact amount of such damages. Consequently, provisions for liquidated damages are included in the Contract Documents.

2. The liquidated damage amounts set forth in the Contract Documents will be assessed not as a penalty, but as liquidated damages for breach of the Contract Documents. This amount is fixed and agreed upon by and between the Contractor and Owner because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the Owner would in such event sustain. This amount shall be construed as the actual amount of damages sustained by the Owner, and may be retained by the Owner and deducted from periodic payments to the Contractor.

3. Assessment of liquidated damages shall not release Contractor from any further obligations or liabilities pursuant to the Contract Documents.

B. Actual Damages

Actual damages will be assessed for failure to achieve Final Completion within the time provided. Actual damages will be calculated on the basis of direct architectural, administrative, and other related costs attributable to the Project from the date when Final Completion should have been achieved, based on the date Substantial Completion is actually achieved, to the date Final Completion is actually achieved. Owner may offset these costs against any payment due Contractor.

PART 4 - SPECIFICATIONS, DRAWINGS, AND OTHER DOCUMENTS

4.01 DISCREPANCIES AND CONTRACT DOCUMENT REVIEW

A. The intent of the Specifications and Drawings is to describe a complete Project to be constructed in accordance with the Contract Documents. Contractor shall furnish all labor, materials, equipment, tools, transportation, permits, and supplies, and perform the Work required in accordance with the Drawings, Specifications, and other provisions of the Contract Documents.

B. The Contract Documents are complementary. What is required by one part of the Contract Documents shall be binding as if required by all. Anything mentioned in the Specifications and not shown on the Drawings, or shown on the Drawings and not mentioned in the Specifications, shall be of like effect as if shown or mentioned in both.

C. Contractor shall carefully study and compare the Contract Documents with each other and with information furnished by Owner. If, during the performance of the Work, Contractor finds a conflict, error, inconsistency, or omission in the Contract Documents, it shall promptly and before proceeding with the Work affected thereby, report such conflict, error, inconsistency, or omission to A/E in writing.

D. Contractor shall do no Work without applicable Drawings, Specifications, or written modifications, or Shop Drawings where required, unless instructed to do so in writing by Owner. If Contractor performs any construction activity, and it knows or reasonably should have known that any of the Contract Documents contain a conflict, error, inconsistency, or omission, Contractor shall be responsible for the performance and shall bear the cost for its correction.

E. Contractor shall provide any work or materials the provision of which is clearly implied and is within the scope of the Contract Documents even if the Contract Documents do not mention them specifically.

F. Questions regarding interpretation of the requirements of the Contract Documents shall be referred to the A/E.

4.02 PROJECT RECORD

A. Contractor shall legibly mark in ink on a separate set of the Drawings and Specifications all actual construction, including depths of foundations, horizontal and vertical locations of internal and underground utilities and appurtenances referenced to permanent visible and accessible surface improvements, field changes of dimensions and details, actual suppliers, manufacturers and trade names, models of installed equipment, and Change Order Proposals (COP). This separate set of Drawings and Specifications shall be the "Project Record."

B. The Project Record shall be maintained on the project site throughout the construction and shall be clearly labeled "PROJECT RECORD". The Project Record shall be updated at least weekly noting all changes and shall be available to Owner at all times.

C. Contractor shall submit the completed and finalized Project Record to A/E prior to Final Acceptance.

4.03 SUBMITTALS

A. "Submittals" means documents and other information required to be submitted to A/E by Contractor pursuant to the Contract Documents, showing in detail: the proposed fabrication and assembly of structural

elements; and the installation (i.e. form, fit, and attachment details) of materials and equipment. Submittals include, but are not limited to, drawings, diagrams, layouts, schematics, descriptive literature, illustrations, schedules, performance and test data, samples, and similar materials furnished by Contractor to explain in detail specific portions of the Work required by the Contract Documents. For materials and equipment to be incorporated into the Work, Contractor submittal shall include the name of the manufacturer, the model number, and other information concerning the performance, capacity, nature, and rating of the item. When directed, Contractor shall submit all samples at its own expense. Owner may duplicate, use, and disclose Submittals provided in accordance with the Contract Documents.

B. Contractor shall coordinate all Shop Drawings, and review them for accuracy, completeness, and compliance with the Contract Documents and shall indicate its approval thereon as evidence of such coordination and review. Where required by law, Shop Drawings shall be stamped by an appropriate professional licensed by the state of Washington. Shop Drawings submitted to A/E without evidence of Contractor's approval shall be returned for resubmission. Contractor shall review, approve, and submit Shop Drawings with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of Owner or separate contractors. Contractor's submittal schedule shall allow a reasonable time for A/E review. A/E will review, approve, or take other appropriate action on the Shop Drawings. Contractor shall perform no portion of the Work requiring submittal and review of Shop Drawings until the respective submittal has been reviewed and the A/E has approved or taken other appropriate action. Owner and A/E shall respond to Shop Drawing submittals with reasonable promptness. Any Work by Contractor shall be in accordance with reviewed Shop Drawings. Submittals made by Contractor which are not required by the Contract Documents may be returned without action.

C. Approval, or other appropriate action with regard to Submittals, by Owner or A/E shall not relieve Contractor of responsibility for any errors or omissions in such Submittals, nor from responsibility for compliance with the requirements of the Contract Documents. Unless specified in the Contract Documents, review by Owner or A/E shall not constitute an approval of the safety precautions employed by Contractor during construction, or constitute an approval of Contractor's means or methods of construction. If Contractor fails to obtain approval before installation and the item or work is subsequently rejected, Contractor shall be responsible for all costs of correction.

D. If Shop Drawings show variations from the requirements of the Contract Documents, Contractor shall describe such variations in writing, separate from the Shop Drawings, at the time it submits the Shop Drawings containing such variations. If A/E approves any such variation, an appropriate Change Order will be issued. If the variation is minor and does not involve an adjustment in the Contract Sum or Contract Time, a Change Order need not be issued; however, the modification shall be recorded upon the Project Record.

E. Unless otherwise provided in Division I, Contractor shall submit to A/E for approval 5 (five) copies of all Submittals. Unless otherwise indicated, 3 (three) sets of all Submittals shall be retained by A/E and 2 (two) sets shall be returned to Contractor.

4.04 ORGANIZATION OF SPECIFICATIONS

Specifications are prepared in sections which conform generally with trade practices. These sections are for Owner and Contractor convenience and shall not control Contractor in dividing the Work among the Subcontractors or in establishing the extent of the Work to be performed by any trade.

4.05 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS, AND OTHER DOCUMENTS

A. The Drawings, Specifications, and other documents prepared by A/E are instruments of A/E's service through which the Work to be executed by Contractor is described. Neither Contractor nor any Subcontractor shall own or claim a copyright in the Drawings, Specifications, and other documents prepared by A/E, and A/E shall be deemed the author of them and will, along with any rights of Owner, retain all common law, statutory, and other reserved rights, in addition to the copyright. All copies of these documents, except Contractor's set, shall be returned or suitably accounted for to A/E, on request, upon completion of the Work.

B. The Drawings, Specifications, and other documents prepared by the A/E, and copies thereof furnished to Contractor, are for use solely with respect to this Project. They are not to be used by Contractor or any

Subcontractor on other projects or for additions to this Project outside the scope of the Work without the specific written consent of Owner and A/E. Contractor and Subcontractors are granted a limited license to use and reproduce applicable portions of the Drawings, Specifications, and other documents prepared by A/E appropriate to and for use in the execution of their Work.

C. Contractor and all Subcontractors grant a non-exclusive license to Owner, without additional cost or royalty, to use for its own purposes (including reproduction) all Shop Drawings, together with the information and diagrams contained therein, prepared by Contractor or any Subcontractor. In providing Shop Drawings, Contractor and all Subcontractors warrant that they have authority to grant to Owner a license to use the Shop Drawings, and that such license is not in violation of any copyright or other intellectual property right. Contractor agrees to defend and indemnify Owner pursuant to the indemnity provisions in section 5.03 and 5.23 from any violations of copyright or other intellectual property rights arising out of Owner's use of the Shop Drawings hereunder, or to secure for Owner, at Contractor's own cost, licenses in conformity with this section.

D. The Shop Drawings and other submittals prepared by Contractor, Subcontractors of any tier, or its or their equipment or material suppliers, and copies thereof furnished to Contractor, are for use solely with respect to this Project. They are not to be used by Contractor or any Subcontractor of any tier, or material or equipment supplier, on other projects or for additions to this Project outside the scope of the Work without the specific written consent of Owner. The Contractor, Subcontractors of any tier, and material or equipment suppliers are granted a limited license to use and reproduce applicable portions of the Shop Drawings and other submittals appropriate to and for use in the execution of their Work under the Contract Documents.

PART 5 - PERFORMANCE

5.01 CONTRACTOR CONTROL AND SUPERVISION

A. Contractor shall supervise and direct the Work, using its best skill and attention, and shall perform the Work in a skillful manner. Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences, and procedures and for coordinating all portions of the Work, unless the Contract Documents give other specific instructions concerning these matters. Contractor shall disclose its means and methods of construction when requested by Owner.

B. Performance of the Work shall be directly supervised by a competent superintendent who is satisfactory to Owner and has authority to act for Contractor. The superintendent shall not be changed without the prior written consent of Owner. Owner may require Contractor to remove the superintendent from the Work or Project site, if Owner reasonably deems the superintendent incompetent, careless, or otherwise objectionable, provided Owner has first notified Contractor in writing and allowed a reasonable period for transition. The superintendent shall be on-site at all times while the Work is being performed, unless approved in writing by owner, in advance.

C. Contractor shall be responsible to Owner for acts and omissions of Contractor, Subcontractors, and their employees and agents.

D. Contractor shall enforce strict discipline and good order among Contractor's employees and other persons performing the Work. Contractor shall not permit employment of persons not skilled in tasks assigned to them. Contractor's employees shall at all times conduct business in a manner which assures fair, equal, and nondiscriminatory treatment of all persons. Owner may, by written notice, request Contractor to remove from the Work or Project site any employee Owner reasonably deems incompetent, careless, or otherwise objectionable.

E. Contractor shall, at all times, keep on the Project site a copy of the Drawings, Specifications, addenda, reviewed Shop Drawings, permits, and permit drawings.

F. Contractor shall ensure that its owner(s) and employees, and those of its Subcontractors, comply with the Ethics in Public Service Act RCW 42.52, which, among other things, prohibits state employees from having an economic interest in any public works contract that was made by, or supervised by, that employee. Contractor shall remove, at its sole cost and expense, any of its, or its Subcontractors', employees, if they are in violation of this act.

5.02 PERMITS, FEES, AND NOTICES

A. The Owner has obtained a Shorelines Substantial Development Permit and/or other environmental permits as required for this project. The permits with provisions which affect the construction methods or schedule have been incorporated into these specifications. The Contractor shall abide by all restrictions noted in these permits as the construction is in progress.

B. All other permits or fees required by local, state or federal governmental agencies necessary for the construction of this project shall be obtained and paid by the Contractor. Only the cost for the building permit will be reimbursed by the Owner.

C. The Contractor shall conform to all local, State and National Codes in all phases of this project. Where conflicts arise between plans, specifications and code requirements, the code shall prevail unless the plans or specifications are more stringent.

5.03 PATENTS AND ROYALTIES

Contractor is responsible for, and shall pay, all royalties and license fees. Contractor shall defend, indemnify, and hold Owner harmless from any costs, expenses, and liabilities arising out of the infringement by Contractor of any patent, copyright, or other intellectual property right used in the Work; however, provided that Contractor gives prompt notice, Contractor shall not be responsible for such defense or indemnity when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents. If Contractor has reason to believe that use of the required design, process, or product constitutes an infringement of a patent or copyright, it shall promptly notify Owner of such potential infringement.

5.04 PREVAILING WAGES

A. Contractor and all subcontractors shall pay the prevailing rate of wages to all workers, laborers, or mechanics employed in the performance of any part of the Work in accordance with RCW 39.12 and the rules and regulations of the Department of Labor and Industries. The schedule of prevailing wage rates for the locality or localities of the Work is determined by the Industrial Statistician of the Department of Labor and Industries. It is the Contractor's responsibility to verify the applicable prevailing wage rate.

B. Before payment is made by the Owner to the Contractor for any work performed by the Contractor and subcontractors whose work is included in the application for payment, the Contractor shall submit, or shall have previously submitted to the Owner for the Project, a Statement of Intent to Pay Prevailing Wages, approved by the Department of Labor and Industries, certifying the rate of hourly wage paid and to be paid each classification of laborers, workers, or mechanics employed upon the Work by Contractor and Subcontractors. Such rates of hourly wage shall not be less than the prevailing wage rate.

C. Prior to release of retainage, the Contractor shall submit to the Owner an Affidavit of Wages Paid, approved by the Department of Labor and Industries, for the Contractor and every subcontractor, of any tier, that performed work on the Project.

D. Disputes regarding prevailing wage rates shall be referred for arbitration to the Director of the Department of Labor and Industries. The arbitration decision shall be final and conclusive and binding on all parties involved in the dispute as provided for by RCW 39.12.060.

E. Each Application for Payment submitted by Contractor shall state that prevailing wages have been paid in accordance with the prefiled statement(s) of intent, as approved. Copies of the approved intent statement(s) shall be posted on the job site with the address and telephone number of the Industrial Statistician of the Department of Labor and Industries where a complaint or inquiry concerning prevailing wages may be made.

F. In compliance with chapter 296-127 WAC, Contractor shall pay to the Department of Labor and Industries the currently established fee(s) for each statement of intent and/or affidavit of wages paid submitted to the Department of Labor and Industries for certification.

G. Copies of approved Intents to Pay Prevailing Wages for the Contractor and all subcontractors shall be submitted with the Contractor's first application for payment. As additional subcontractors perform work on

the project, their approved Intent forms shall be submitted with the Contractor's next application for payment.

H. The Contractor or subcontractor directly contracting for "Off-Site, Prefabricated, Non-Standard, Project Specific Items" shall identify and report information required on the affidavit of wages paid form filed with the Department of Labor and Industries. The Contractor shall include language in its subcontracts requiring subcontractors and lower-tier subcontractors to comply with the reporting requirements for "Off-Site, Prefabricated, Non-Standard, Project Specific Item(s)" on the affidavit of wages paid.

The reporting requirement for Items shall apply for all public works contracts estimated to cost over $1 million entered into by the Owner and Contractor between September 1, 2010 and December 31, 2013.

"Off-site, prefabricated, nonstandard, project specific item(s)" means products or items that are:

1. Made primarily of architectural or structural precast concrete, fabricated steel, pipe and pipe systems, or sheet metal and sheet metal duct work;
2. Produced specifically for the public work and not considered to be regularly available shelf items;
3. Produced or manufactured by labor expended to assemble or modify standard items; and
4. Produced at an off-site location outside Washington.

The Contractor or subcontractor shall comply with the reporting requirements and instructions on the affidavit of wages paid form, and shall report the following information on the affidavit of wages paid form submitted to the Department of Labor and Industries in order to comply with the reporting requirements for use of "Off-Site, Prefabricated, Non-Standard, Project Specific item(s)":

1. The estimated cost of the public works project;
2. The name of the awarding agency and the project title;
3. The contract value of the off-site, prefabricated, nonstandard, project specific item(s) produced outside of Washington State, including labor and materials; and
4. The name, address, and federal employer identification number of the contractor that produced the off-site, prefabricated, nonstandard, project specific item(s).

The owner may direct the contractor, at no additional cost to the owner, to remove and substitute any subcontractor(s) found to be out of compliance with the "Off-Site Prefabricated Non-Standard Project Specific Item(s)" reporting requirements more than one time as determined by the Department of Labor and Industries.

I. The Contractor and all subcontractors shall promptly submit to the Owner certified payroll copies if requested.

5.05 HOURS OF LABOR

A. Contractor shall comply with all applicable provisions of RCW 49.28 and they are incorporated herein by reference. Pursuant to that statute, no laborer, worker, or mechanic employed by Contractor, any Subcontractor, or any other person performing or contracting to do the whole or any part of the Work, shall be permitted or required to work more than eight (8) hours in any one calendar day, provided, that in cases of extraordinary emergency, such as danger to life or property, the hours of work may be extended, but in such cases the rate of pay for time employed in excess of eight (8) hours of each calendar day shall be not less than one and one-half times (x1.5) the rate allowed for this same amount of time during eight (8) hours service.

B. Notwithstanding the preceding paragraph, RCW 49.28 permits a contractor or subcontractor in any public works contract subject to those provisions, to enter into an agreement with its employees in which the employees work up to ten (10) hours in a calendar day. No such agreement may provide that the employees work ten-hour days for more than four (4) calendar days a week. Any such agreement is subject to approval by the employees. The overtime provisions of RCW 49.28 shall not apply to the hours, up to forty (40) hours per week, worked pursuant to any such agreement.

5.06 NONDISCRIMINATION

A. Discrimination in all phases of employment is prohibited by, among other laws and regulations, Title VII of the Civil Rights Act of 1964, the Vietnam Era Veterans Readjustment Act of 1974, sections 503 and 504 of the Vocational Rehabilitation Act of 1973, the Equal Employment Act of 1972, the Age Discrimination Act of

1967, the Americans with Disabilities Act of 1990, the Civil Rights Act of 1991, Presidential Executive Order 11246, Executive Order 11375, the Washington State Law Against Discrimination, RCW 49.60, and Gubernatorial Executive Order 85-09. These laws and regulations establish minimum requirements for affirmative action and fair employment practices which Contractor must meet.

B. During performance of the Work:

1. Contractor shall not discriminate against any employee or applicant for employment because of race, creed, color, national origin, sex, age, marital status, or the presence of any physical, sensory, or mental disability, Vietnam era veteran status, or disabled veteran status, nor commit any other unfair practices as defined in RCW 49.60.

2. Contractor shall, in all solicitations or advertisements for employees placed by or for it, state that the contractor is an “equal opportunity employer”.

3. Contractor shall send to each labor union, employment agency, or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice advising the labor union, employment agency, or workers' representative of Contractor's obligations according to the Contract Documents and RCW 49.60.

4. Contractor shall permit access to its books, records, and accounts, and to its premises by Owner, and by the Washington State Human Rights Commission, for the purpose of investigation to ascertain compliance with this section of the Contract Documents.

5. Contractor shall include the provisions of this section in every Subcontract.

C. Nondiscrimination Requirement. During the term of this Contract, Contractor, including any subcontractor, shall not discriminate on the bases enumerated at RCW 49.60.530(3). In addition, Contractor, including any subcontractor, shall give written notice of this nondiscrimination requirement to any labor organizations with which Contractor, or subcontractor, has a collective bargaining or other agreement.

D. Obligation to Cooperate. Contractor, including any subcontractor, shall cooperate and comply with any Washington state agency investigation regarding any allegation that Contractor, including any subcontractor, has engaged in discrimination prohibited by this Contract pursuant to RCW 49.60.530(3).

E. Default. Notwithstanding any provision to the contrary, Owner may suspend Contractor, including any subcontractor, upon notice of a failure to participate and cooperate with any state agency investigation into alleged discrimination prohibited by this Contract, pursuant to RCW 49.60.530(3). Any such suspension will remain in place until Owner receives notification that Contractor, including any subcontractor, is cooperating with the investigating state agency. In the event Contractor, or subcontractor, is determined to have engaged in discrimination identified at RCW 49.60.530(3), Owner may terminate this Contract in whole or in part, and Contractor, subcontractor, or both, may be referred for debarment as provided in RCW 39.26.200. Contractor or subcontractor may be given a reasonable time in which to cure this noncompliance, including implementing conditions consistent with any court-ordered injunctive relief or settlement agreement.

F. Remedies for Breach. Notwithstanding any provision to the contrary, in the event of Contract termination or suspension for engaging in discrimination, Contractor, subcontractor, or both, shall be liable for contract damages as authorized by law including, but not limited to, any cost difference between the original contract and the replacement or cover contract and all administrative costs directly related to the replacement contract, which damages are distinct from any penalties imposed under Chapter 49.60, RCW. Owner shall have the right to deduct from any monies due to Contractor or subcontractor, or that thereafter become due, an amount for damages Contractor or subcontractor will owe Owner for default under this provision.

5.07 SAFETY PRECAUTIONS

A. In performing this contract, the Contractor shall provide for protecting the lives and health of employees and other persons; preventing damage to property, materials, supplies, and equipment; and avoid work interruptions. For these purposes, the Contractor shall:

1. Follow Washington Industrial Safety and Health Act (WISHA) regional directives and provide a site-specific safety program that will require an accident prevention and hazard analysis plan for the contractor and each subcontractor on the work site. The Contractor shall submit a site-specific safety plan to the Owner's representative prior to the initial scheduled construction meeting.

2. Provide adequate safety devices and measures including, but not limited to, the appropriate safety literature, notice, training, permits, placement and use of barricades, signs, signal lights, ladders, scaffolding, staging, runways, hoist, construction elevators, shoring, temporary lighting, grounded outlets, wiring, hazardous materials, vehicles, construction processes, and equipment required by Chapter 19.27 RCW, State Building Code (International Building, Electrical, Mechanical, Fire, and Uniform Plumbing Codes); Chapter 212-12 WAC, Fire Marshal Standards, Chapter 49.17 RCW, WISHA; Chapter 296-155 WAC, Safety Standards for Construction Work; Chapter 296-65 WAC; WISHA Asbestos Standard; WAC 296-62-071, Respirator Standard; WAC 296-62, General Occupation Health Standards, WAC 296-24, General Safety and Health Standards, WAC 296-24, General Safety and Health Standards, Chapter 49.70 RCW, and Right to Know Act.

3. Comply with the State Environmental Policy Act (SEPA), Clean Air Act, Shoreline Management Act, and other applicable federal, state, and local statutes and regulations dealing with the prevention of environmental pollution and the preservation of public natural resources.

4. Post all permits, notices, and/or approvals in a conspicuous location at the construction site.

5. Provide any additional measures that the Owner determines to be reasonable and necessary for ensuring a safe environment in areas open to the public. Nothing in this part shall be construed as imposing a duty upon the Owner or A/E to prescribe safety conditions relating to employees, public, or agents of the Contractors.

6. The Contractor shall make available a list of hazardous products being used on the project, and their respective Material Safety Data Sheets (MSDS) to the Engineer. This information will be required at the pre-construction conference.

B. In carrying out its responsibilities according to the Contract Documents, Contractor shall protect the lives and health of employees performing the Work and other persons who may be affected by the Work; prevent damage to materials, supplies, and equipment whether on site or stored off-site; and prevent damage to other property at the site or adjacent thereto. Contractor shall comply with all applicable laws, ordinances, rules, regulations, and orders of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury, or loss; shall erect and maintain all necessary safeguards for such safety and protection; and shall notify owners of adjacent property and utilities when prosecution of the Work may affect them.

C. Contractor shall maintain an accurate record of exposure data on all incidents relating to the Work resulting in death, traumatic injury, occupational disease, or damage to property, materials, supplies, or equipment. Contractor shall immediately report any such incident to Owner. Owner shall, at all times, have a right of access to all records of exposure.

D. Contractor shall provide all persons working on the Project site with information and training on hazardous chemicals in their work at the time of their initial assignment, and whenever a new hazard is introduced into their work area.

1. Information. At a minimum, Contractor shall inform persons working on the Project site of:

   a. The requirements of chapter 296-62 WAC, General Occupational Health Standards;
   b. Any operations in their work area where hazardous chemicals are present; and
   c. The location and availability of written hazard communication programs, including the required list(s) of hazardous chemicals and material safety data sheets required by chapter 296-62 WAC.

2. Training. At a minimum, Contractor shall provide training for persons working on the Project site which includes:

a. Methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area (such as monitoring conducted by the employer, continuous monitoring devices, visual appearance or odor of hazardous chemicals when being released, etc.);
b. The physical and health hazards of the chemicals in the work area;
c. The measures such persons can take to protect themselves from these hazards, including specific procedures Contractor, or its Subcontractors, or others have implemented to protect those on the Project site from exposure to hazardous chemicals, such as appropriate work practices, emergency procedures, and personal protective equipment to be used; and
d. The details of the hazard communications program developed by Contractor, or its Subcontractors, including an explanation of the labeling system and the material safety data sheet, and how employees can obtain and use the appropriate hazard information.

E. Contractor's responsibility for hazardous, toxic, or harmful substances shall include the following duties:

1. Contractor shall not keep, use, dispose, transport, generate, or sell on or about the Project site, any substances now or hereafter designated as, or which are subject to regulation as, hazardous, toxic, dangerous, or harmful by any federal, state or local law, regulation, statute or ordinance (hereinafter collectively referred to as "hazardous substances", in violation of any such law, regulation, statute, or ordinance, but in no case shall any such hazardous substance be stored more than 90 days on the Project site.

2. Contractor shall promptly notify Owner of all spills or releases of any hazardous substances which are otherwise required to be reported to any regulatory agency and pay the cost of cleanup. Contractor shall promptly notify Owner of all failures to comply with any federal, state, or local law, regulation, or ordinance; all inspections of the Project site by any regulatory entity concerning the same; all regulatory orders or fines; and all responses or interim cleanup actions taken by or proposed to be taken by any government entity or private party on the Project site.

F. All Work shall be performed with due regard for the safety of the public. Contractor shall perform the Work so as to cause a minimum of interruption of vehicular traffic or inconvenience to pedestrians. All arrangements to care for such traffic shall be Contractor's responsibilities. All expenses involved in the maintenance of traffic by way of detours shall be borne by Contractor.

G. In an emergency affecting the safety of life or the Work or of adjoining property, Contractor is permitted to act, at its discretion, to prevent such threatened loss or injury, and Contractor shall so act if so authorized or instructed.

H. Nothing provided in this section shall be construed as imposing any duty upon Owner or A/E with regard to, or as constituting any express or implied assumption of control or responsibility over, Project site safety, or over any other safety conditions relating to employees or agents of Contractor or any of its Subcontractors, or the public.

5.08 OPERATIONS, MATERIAL HANDLING, AND STORAGE AREAS

A. Contractor shall confine all operations, including storage of materials, to Owner-approved areas.

B. Temporary buildings (e.g., storage sheds, shops, offices) and utilities may be provided by Contractor only with the consent of Owner and without expense to Owner. The temporary buildings and utilities shall remain the property of Contractor and shall be removed by Contractor at its expense upon completion of the Work.

C. Contractor shall use only established roadways or temporary roadways authorized by Owner. When materials are transported in prosecuting the Work, vehicles shall not be loaded beyond the loading capacity recommended by the manufacturer of the vehicle or prescribed by federal, state, or local law or regulation.

D. Ownership and control of all materials or facility components to be demolished or removed from the Project site by Contractor shall immediately vest in Contractor upon severance of the component from the facility or severance of the material from the Project site. Contractor shall be responsible for compliance with all

laws governing the storage and ultimate disposal. Contractor shall provide Owner with a copy of all manifests and receipts evidencing proper disposal when required by Owner or applicable law.

E. Contractor shall be responsible for the proper care and protection of its materials and equipment delivered to the Project site. Materials and equipment may be stored on the premises subject to approval of Owner. When Contractor uses any portion of the Project site as a shop, Contractor shall be responsible for any repairs, patching, or cleaning arising from such use.

F. Contractor shall protect and be responsible for any damage or loss to the Work, or to the materials or equipment until the date of Substantial Completion, and shall repair or replace without cost to Owner any damage or loss that may occur, except damages or loss caused by the acts or omissions of Owner. Contractor shall also protect and be responsible for any damage or loss to the Work, or to the materials or equipment, after the date of Substantial Completion, and shall repair or replace without cost to Owner any such damage or loss that might occur, to the extent such damages or loss are caused by the acts or omissions of Contractor, or any Subcontractor.

G. Any removed item shall be salvaged without undue damage and stockpiled in a neat and orderly fashion in an area designated by the Engineer. All removed items shall remain the property of the Owner, unless, due to their condition, they are rejected by the Engineer. All materials of whatever nature that are rejected shall be properly disposed by the Contractor in compliance with all laws and regulations.

H. If designated campsites or emergency overflow areas are approved for use, the Contractor shall comply with all campground rules and regulations of the Washington State Parks and Recreation Commission and the park manager.

5.09 PRIOR NOTICE OF EXCAVATION

A. "Excavation" means an operation in which earth, rock, or other material on or below the ground is moved or otherwise displaced by any means, except the tilling of soil less than 12 (twelve) inches in depth for agricultural purposes, or road ditch maintenance that does not change the original road grade or ditch flow line. Before commencing any excavation, Contractor shall provide notice of the scheduled commencement of excavation to all owners of underground facilities or utilities, through locator services.

5.10 UNFORESEEN PHYSICAL CONDITIONS

A. If Contractor encounters conditions at the site which are subsurface or otherwise concealed physical conditions which differ materially from those indicated in the Contract Documents, or unknown physical conditions of an unusual nature which differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, then Contractor shall give written notice to Owner promptly and in no event later than 7 (seven) days after the first observance of the conditions. Conditions shall not be disturbed prior to such notice.

B. If such conditions differ materially and cause a change in Contractor's cost of, or time required for, performance of any part of the Work, the Contractor may be entitled to an equitable adjustment in the Contract Time or Contract Sum, or both, provided it makes a request therefore as provided in part 7.

5.11 PROTECTION OF EXISTING STRUCTURES, EQUIPMENT, VEGETATION, UTILITIES, AND IMPROVEMENTS

A. Contractor shall protect from damage all existing structures, equipment, improvements, utilities, and vegetation: at or near the Project site; and on adjacent property of a third party, the locations of which are made known to or should be known by Contractor. Contractor shall repair any damage, including that to the property of a third party, resulting from failure to comply with the requirements of the Contract Documents or failure to exercise reasonable care in performing the Work. If Contractor fails or refuses to repair the damage promptly, Owner may have the necessary work performed and charge the cost to Contractor.

B. Contractor shall only remove trees when specifically authorized to do so, and shall protect vegetation that will remain in place.

C. In general, the locations of existing major utilities and equipment, whether above ground or underground, are indicated on the drawings. This information has been obtained from utility maps and verbal

descriptions. The Engineer does not guarantee the accuracy or completeness of this information. Other above ground or underground facilities not shown on the drawings may be encountered during the course of the work for which the Contractor is fully responsible to properly locate and identify within the construction area.

D. Existing above ground and underground facilities and appurtenant structures, which includes but is not limited to, power transmission and distribution, telephone, alarm systems, sanitary sewers, gas services, water service and house or yard drains and fences, shall be located, protected, maintained, relocated, rerouted, removed and restored as may be necessary by the Contractor for completion of the work, but in a manner satisfactory to their respective owners and operators of the services and to the Engineer with the least possible interruption to existing services.

E. The Contractor shall be responsible for location and maintenance of existing utilities and improvements. Under no circumstances will errors or omissions in location of utilities or improvements, whether they be visible from the surface, buried, or otherwise obscured, be considered as a basis for a claim for additional compensation by the Contractor.

F. All utilities shall be protected and maintained in continuous operation except where special arrangements have been made with the appropriate utility owner. All damaged utilities shall be restored to original condition, subject to the approval of its owner and at the Contractor's own expense.

G. If requested, the Contractor shall provide record information about locations, depths, and dimensions of lines, appurtenances, and structures, and any other relevant information about electrical power, water, sewer, and other utilities.

H. The Contractor shall provide the Engineer with the data required to make a detailed set of record plans. This data will be obtained and recorded by the Contractor during construction on plans supplied by the Engineer. The Contractor shall ensure that the data is obtained. Typical information to be gathered includes the locations of:

1. Buried utilities
2. Junctions of sewer wyes
3. Junctions of electrical taps
4. Clean-outs
5. Deflection points of utilities
6. Valves

I. Procedure for obtaining this information will be developed by the Engineer working with the Contractor.

J. Contractor shall protect all existing facilities using whatever methods are necessary, subject to the Engineer's approval. Trees, shrubs, vegetation, or lawn shall not be damaged, scarred, or destroyed unless deemed necessary for work on this contract. All trees damaged during construction shall be immediately repaired using SEAL AND HEAL or other materials as directed by the Engineer. Any damage to the above-mentioned items shall be repaired at the Contractor's expense and to the Engineer's satisfaction.

K. In the event that archaeological resources are found or unearthed on public land during the performance of this contract, the Contractor shall be required to comply with RCW 27.44 and RCW 27.53 and the rules and regulations of the office of Archaeology and Historic Preservation, including compliance with all archaeological excavation permit requirements.

5.12 LAYOUT OF WORK

A. Contractor shall plan and lay out the Work in advance of operations so as to coordinate all work without delay or revision.

B. Contractor shall lay out the Work from Owner-established baselines and bench marks indicated on the Drawings, and shall be responsible for all field measurements in connection with the layout. Contractor shall furnish, at its own expense, all stakes, templates, platforms, equipment, tools, materials, and labor required to lay out any part of the Work. Contractor shall be responsible for executing the Work to the lines

and grades that may be established. Contractor shall be responsible for maintaining or restoring all stakes and other marks established.

C. The indicated limits of work shall be the controlling factor in the Contractor's scope of operation and no payment shall be due for work done out of the limits. Damage to areas not in the Contractor's work area shall be repaired at the Contractor's expense. Questions of what constitutes the work area shall be determined by the Engineer. Only the best methods of construction will be allowed.

D. The Engineer may adjust or relocate any portion of the system to meet site requirements or to improve the system without additional compensation to the Contractor, provided such adjustments do not represent appreciable costs for additional labor and materials.

5.13 MATERIAL AND EQUIPMENT

A. All equipment, material, and articles incorporated into the Work shall be new and of the most suitable grade for the purpose intended, unless otherwise specifically provided in the Contract Documents. References in the Specifications to equipment, material, articles, or patented processes by trade name, make, or catalog number, shall be regarded as establishing a standard quality and shall not be construed as limiting competition. Contractor may, at its option, use any equipment, material, article, or process that, in the judgment of A/E, is equal to that named in the specifications, unless otherwise specifically provided in the Contract Documents.

B. Contractor shall do all cutting, fitting, or patching that may be required to make its several parts fit together properly, or receive or be received by work of others set forth in, or reasonably implied by, the Contract Documents. Contractor shall not endanger any work by cutting, excavating, or otherwise altering the Work and shall not cut or alter the work of any other contractor unless approved in advance by Owner.

C. Should any of the Work be found defective, or in any way not in accordance with the Contract Documents, this work, in whatever stage of completion, may be rejected by Owner.

D. The Contractor shall furnish proof of equality in all respects to the specified items when proposing alternate brands or materials. Any significant deviations from specifications, drawings, or equality must be noted by the Contractor when submitting alternate products or materials for approval. The Engineer shall be the sole judge of the equality and suitability of any products, materials, or components proposed by the Contractor as alternates to specified items. The Contractor shall bear all costs and make all secondary changes required to incorporate an approved substitute or alternate into the work. No offers for substitution will be acknowledged from suppliers, distributors, manufacturers, or subcontractors.

5.14 AVAILABILITY AND USE OF UTILITY SERVICES

A. Owner shall make all reasonable utilities available to Contractor from existing outlets and supplies, as specified in the Contract Documents. Unless otherwise provided in the Contract Documents, the utility service consumed shall be charged to or paid for by Contractor at prevailing rates charged to Owner or, where the utility is produced by Owner, at reasonable rates determined by Owner. Contractor will carefully conserve any utilities furnished.

B. Contractor shall, at its expense and in a skillful manner satisfactory to Owner, install and maintain all necessary temporary connections and distribution lines, together with appropriate protective devices, and all meters required to measure the amount of each utility used for the purpose of determining charges. Prior to the date of Final Acceptance, Contractor shall remove all temporary connections, distribution lines, meters, and associated equipment and materials.

5.15 TESTS AND INSPECTION

A. Contractor shall maintain an adequate testing and inspection program and perform such tests and inspections as are necessary or required to ensure that the Work conforms to the requirements of the Contract Documents. Contractor shall be responsible for inspection and quality surveillance of all its Work and all Work performed by any Subcontractor. Unless otherwise provided, Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. Contractor shall give Owner timely notice of when and where tests and

inspections are to be made. Contractor shall maintain complete inspection records and make them available to Owner.

B. Owner may, at any reasonable time, conduct such inspections and tests as it deems necessary to ensure that the Work is in accordance with the Contract Documents. Owner shall promptly notify Contractor if an inspection or test reveals that the Work is not in accordance with the Contract Documents. Unless the subject items are expressly accepted by Owner, such Owner inspection and tests are for the sole benefit of Owner and do not:

1. Constitute or imply acceptance;
2. Relieve Contractor of responsibility for providing adequate quality control measures;
3. Relieve Contractor of responsibility for risk of loss or damage to the Work, materials, or equipment;
4. Relieve Contractor of its responsibility to comply with the requirements of the Contract Documents; or
5. Impair Owner's right to reject defective or nonconforming items, or to avail itself of any other remedy to which it may be entitled.

C. Neither observations by an inspector retained by Owner, the presence or absence of such inspector on the site, nor inspections, tests, or approvals by others, shall relieve Contractor from any requirement of the Contract Documents, nor is any such inspector authorized to change any term or condition of the Contract Documents.

D. Contractor shall promptly furnish, without additional charge, all facilities, labor, material and equipment reasonably needed for performing such safe and convenient inspections and tests as may be required by Owner. Owner may charge Contractor any additional cost of inspection or testing when Work is not ready at the time specified by Contractor for inspection or testing, or when prior rejection makes re-inspection or retest necessary. Owner shall perform its inspections and tests in a manner that will cause no undue delay in the Work.

E. The Owner shall have the right to appoint an Inspector who will have the authority to reject materials or workmanship which does not fulfill the requirements of these specifications. In case of dispute, the Contractor may appeal to the Engineer whose decision shall be final. The acceptance of any material by the Inspector shall not hinder its subsequent rejection if found defective. Rejected materials and workmanship shall be replaced promptly or be made good by the Contractor without additional cost to the Owner.

F. Contractor shall deliver one (1) key for each type of lock installed on the project to the Engineer to enable the Engineer to enter all facilities under construction for the purpose of inspection. This includes temporary as well as State Parks' key-coded locks. All keys for key-coded locks shall be delivered to the Engineer as they are made available to the Contractor. These coded keys shall then be signed out to the Contractor on an accountable basis for security purposes.

5.16 CORRECTION OF NONCONFORMING WORK

A. If a portion of the Work is covered contrary to the requirements in the Contract Documents, it must, if required in writing by Owner, be uncovered for Owner's observation and be replaced at the Contractor's expense and without change in the Contract Time.

B. If, at any time prior to Final Completion, Owner desires to examine the Work, or any portion of it, which has been covered, Owner may request to see such Work and it shall be uncovered by Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an adjustment in the Contract Sum for the costs of uncovering and replacement, and, if completion of the Work is thereby delayed, an adjustment in the Contract Time, provided it makes a request therefore as provided in part 7. If such Work is not in accordance with the Contract Documents, the Contractor shall pay the costs of examination and reconstruction.

C. Contractor shall promptly correct Work found by Owner not to conform to the requirements of the Contract Documents, whether observed before or after Substantial Completion and whether or not fabricated, installed, or completed. Contractor shall bear all costs of correcting such nonconforming Work, including additional testing and inspections.

D. If, within one year after the date of Substantial Completion of the Work or designated portion thereof, or within one year after the date for commencement of any system warranties established under section 6.08, or within the terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, Contractor shall correct it promptly after receipt of written notice from Owner to do so. Owner shall give such notice promptly after discovery of the condition. This period of one year shall be extended, with respect to portions of Work first performed after Substantial Completion, by the period of time between Substantial Completion and the actual performance of the Work. Contractor's duty to correct with respect to Work repaired or replaced shall run for one year from the date of repair or replacement. Obligations under this paragraph shall survive Final Acceptance.

E. Contractor shall remove from the Project site portions of the Work which are not in accordance with the requirements of the Contract Documents and are neither corrected by Contractor nor accepted by Owner.

F. If Contractor fails to correct nonconforming Work within a reasonable time after written notice to do so, Owner may replace, correct, or remove the nonconforming Work and charge the cost thereof to the Contractor.

G. Contractor shall bear the cost of correcting destroyed or damaged Work, whether completed or partially completed, caused by Contractor's correction or removal of Work which is not in accordance with the requirements of the Contract Documents.

H. Nothing contained in this section shall be construed to establish a period of limitation with respect to other obligations which Contractor might have according to the Contract Documents. Establishment of the time period of one (1) year as described in paragraph 5.16D relates only to the specific obligation of Contractor to correct the Work, and has no relationship to the time within which the Contractor's obligation to comply with the Contract Documents may be sought to be enforced, including the time within which such proceedings may be commenced.

I. If Owner prefers to accept Work which is not in accordance with the requirements of the Contract Documents, Owner may do so instead of requiring its removal and correction, in which case the Contract Sum may be reduced as appropriate and equitable.

5.17 CLEAN UP

Contractor shall at all times keep the Project site, including hauling routes, infrastructures, utilities, and storage areas, free from accumulations of waste materials. Before completing the Work, Contractor shall remove from the premises its rubbish, tools, scaffolding, equipment, and materials. Upon completing the Work, Contractor shall leave the Project site in a clean, neat, and orderly condition satisfactory to Owner. If Contractor fails to clean up as provided herein, and after reasonable notice from Owner, Owner may do so and the cost thereof shall be charged to Contractor.

5.18 ACCESS TO WORK

Contractor shall provide Owner and A/E access to the Work in progress wherever located.

5.19 OTHER CONTRACTS

Owner may undertake or award other contracts for additional work at or near the Project site. Contractor shall reasonably cooperate with the other contractors and with Owner's employees and shall carefully adapt scheduling and perform the Work in accordance with these Contract Documents to reasonably accommodate the other work.

5.20 SUBCONTRACTORS AND SUPPLIERS

A. The Contractor shall include the language of this paragraph in each of its first tier subcontracts, and shall require each of its subcontractors to include the same language of this section in each of their subcontracts, adjusting only as necessary the terms used for the contracting parties. Upon request of the Owner, the Contractor shall promptly provide documentation to the Owner demonstrating that the subcontractor meets the subcontractor responsibility criteria below. The requirements of this paragraph apply to all subcontractors regardless of tier. At the time of subcontract execution, the Contractor shall verify that each of its first tier subcontractors meets the following bidder responsibility criteria:

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 subcontract bid submittal;
2. Have a current Washington Unified Business Identifier (UBI) number;
3. If applicable, have:

    a. Industrial Insurance (workers' compensation) coverage for the subcontractor's employees working in Washington, as required in Title 51 RCW;
    b. A Washington Employment Security Department number, as required in Title 50 RCW;
    c. A Washington Department of Revenue state excise tax registration number, as required in Title 82 RCW;
    d. An electrical contractor license, if required by Chapter 19.28 RCW;
    e. An elevator contractor license, if required by Chapter 70.87 RCW.

4. Not be disqualified from bidding on any public works contract under RCW 39.06.010 or 39.12.065 (3).
5. On a project subject to the apprenticeship utilization requirements in RCW 39.04.320, not have been found out of compliance by the Washington state apprenticeship and training council for working apprentices out of ratio, without appropriate supervision, or outside their approved work processes as outlined in their standards of apprenticeship under chapter 49.04 RCW for the one-year period immediately preceding the date of the Owner's first advertisement of the project.

B. Prior to submitting the first Application for Payment, Contractor shall furnish in writing to Owner, on Owner provided form(s), the names, addresses, telephone numbers, and Tax Identification Numbers (TIN) of all subcontractors, as well as suppliers providing materials in excess of $2,500.00 which Contractor believes to be MBE or WBE owned businesses, or have identified themselves to the Contractor as MBE or WBE, or are Washington State OMWBE certified. The Contractor shall indicate the anticipated dollar value of each MWBE subcontract. Contractor shall utilize subcontractors and suppliers, which are experienced and qualified, and meet the requirements of the Contract Documents, if any. Contractor shall not utilize any subcontractor or supplier to whom the Owner has a reasonable objection, and shall obtain Owner's written consent before making any substitutions or additions. The Owner may direct the Contractor, at no additional cost to the Owner, to remove and substitute any subcontractor(s) found to be out of compliance with the "Off-Site Prefabricated Non-Standard Project Specific Items" reporting requirements more than one time as determined by the Department of Labor and Industries and as defined in EHB 2805 that amends RCW 39.04.

C. All Subcontracts must be in writing. By appropriate written agreement, Contractor shall require each Subcontractor, so far as applicable to the Work to be performed by the Subcontractor, to be bound to Contractor by terms of the Contract Documents, and to assume toward Contractor all the obligations and responsibilities which Contractor assumes toward Owner in accordance with the Contract Documents. Each Subcontract shall preserve and protect the rights of Owner in accordance with the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights. Where appropriate, Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. However, nothing in this paragraph shall be construed to alter the contractual relations between Contractor and its Subcontractors with respect to insurance or bonds.

D. Contractor shall schedule, supervise, and coordinate the operations of all Subcontractors. No Subcontracting of any of the Work shall relieve Contractor from its responsibility for the performance of the Work in accordance with the Contract Documents or any other obligations of the Contract Documents.

E. Each subcontract agreement for a portion of the Work is hereby assigned by Contractor to Owner provided that:

1. The assignment is effective only after termination by Owner for cause pursuant to section 9.01 and only for those Subcontracts which Owner accepts by notifying the Subcontractor in writing; and

2. After the assignment is effective, Owner will assume all future duties and obligations toward the Subcontractor which Contractor assumed in the Subcontract.

3. The assignment is subject to the prior rights of the surety, if any, obligated under any bond provided in accordance with the Contract Documents.

5.21 WARRANTY OF CONSTRUCTION

A. In addition to any special warranties provided elsewhere in the Contract Documents, Contractor warrants that all Work conforms to the requirements of the Contract Documents and is free of any defect in equipment, material, or design furnished, or workmanship performed, by Contractor.

B. With respect to all warranties, express or implied, for Work performed or materials furnished according to the Contract Documents, Contractor shall:

1. Obtain all warranties that would be given in normal commercial practice;
2. Require all warranties to be executed, in writing, for the benefit of Owner;
3. Enforce all warranties for the benefit of Owner, if directed by Owner; and
4. Be responsible to enforce any subcontractor's, manufacturer's, or supplier's warranty should they extend beyond the period specified in the Contract Documents.

C. The obligations under this section shall survive Final Acceptance.

5.22 INDEMNIFICATION

A. Contractor shall defend, indemnify, and hold Owner and A/E harmless from and against all claims, demands, losses, damages, or costs, including but not limited to damages arising out of bodily injury or death to persons and damage to property, caused by or resulting from:

1. The sole negligence of Contractor or any of its Subcontractors;
2. The concurrent negligence of Contractor, or any Subcontractor, but only to the extent of the negligence of Contractor or such Subcontractor; and
3. The use of any design, process, or equipment which constitutes an infringement of any United States patent presently issued, or violates any other proprietary interest, including copyright, trademark, and trade secret.

B. In any action against Owner and any other entity indemnified in accordance with this section, by any employee of Contractor, its Subcontractors, Sub-subcontractors, agents, or anyone directly or indirectly employed by any of them, the indemnification obligation of this section shall not be limited by a limit on the amount or type of damages, compensation, or benefits payable by or for Contractor or any Subcontractor under RCW Title 51, the Industrial Insurance Act, or any other employee benefit acts. In addition, Contractor waives immunity as to Owner and A/E only, in accordance with RCW Title 51.

5.23 AMERICANS WITH DISABILITIES ACT (ADA) COMPLIANCE

A. General Requirements
The Contractor and subcontractor shall ensure that all work performed under this Contract complies with the Americans with Disabilities Act (ADA), as codified in 28 C.F.R. § 35.151, and the 2010 ADA Standards for Accessible Design. The Contractor and subcontractor shall construct and maintain all accessible features in operable condition and correct any identified deficiencies in a timely manner.

B. Accessibility in New Construction and Alterations
1. All new facilities and alterations to existing facilities shall be designed and constructed in a manner that ensures accessibility and usability for individuals with disabilities, consistent with ADA accessibility standards.
2. Alterations shall, to the maximum extent feasible, ensure the altered area and the associated path of travel comply with accessibility requirements.
3. If technical infeasibility prevents full compliance, the Contractor and subcontractor shall notify the Owner’s Representative and submit a written request for determination of technical infeasibility.

4. The Contractor and subcontractor shall coordinate with the Owner to ensure that all public notices related to temporary accessibility interruptions are posted on the project site and on designated agency communication channels.

C. Maintenance and Inspection of Accessible Features
1. The Contractor and subcontractor shall be responsible for maintaining accessible routes, parking, restrooms, and other accessible features in operable condition throughout the duration of the Work.
2. Any temporary disruptions affecting accessibility shall be scheduled in a manner that minimizes impact and includes reasonable alternative accommodations where feasible.
3. The Contractor and subcontractor shall notify the Owner immediately if any accessibility feature is found to be non-compliant or requires repair.

D. Historic Structures
If the Work involves historic structures or landscapes that are listed or eligible for listing in the National Register of Historic Places, modifications shall be made in compliance with ADA requirements to the maximum extent feasible. The State Historic Preservation Officer (SHPO) must approve any exemptions for alterations that may impact the historic significance of a structure or landscape.

E. Compliance and Documentation
1. The Contractor and subcontractor shall comply with all applicable local, state, and federal accessibility requirements.
2. Any non-compliant work shall be corrected at the Contractor's expense prior to final acceptance.

F. Submission of Progress Reports – Americans with Disabilities Act (ADA) Compliance
The Contractor shall submit regular progress reports to the Owner, which shall include the following:

1. Status of Accessible Features – Updates on the construction, installation, and maintenance of all accessibility-related features in accordance with ADA standards.
2. Compliance Issues – Identification of any non-compliance issues encountered, including deviations from ADA accessibility standards, technical infeasibility determinations, or unforeseen site conditions affecting accessibility.
3. Corrective Actions – Description of corrective actions taken or proposed to address any identified accessibility deficiencies, including timelines for remediation and any required approvals from the Owner.
4. Temporary Disruptions – Notification of any planned or unplanned interruptions to accessibility features, including measures taken to minimize impacts and alternative accommodations provided.
5. Final Verification – Prior to Substantial Completion, the Contractor shall provide documentation verifying that all constructed and altered elements comply with applicable ADA requirements, subject to inspection and approval by the Owner.

Failure to comply with the provisions of this section may result in suspension of the Work, withholding of payment or other remedies as deemed necessary by the Owner.

PART 6 - PAYMENTS AND COMPLETION

6.01 CONTRACT SUM

Owner shall pay Contractor the Contract Sum for performance of the Work, in accordance with the Contract Documents. The Contract Sum shall include all taxes imposed by law and properly chargeable to the Project, including sales tax.

6.02 SCHEDULE OF VALUES

Before submitting its first Application for Payment, Contractor shall submit to Owner for approval a breakdown allocating the total Contract Sum to each principle category of work, in such detail as requested by Owner ("Schedule of Values"). The approved Schedule of Values shall include appropriate amounts for demobilization, record drawings, O&M manuals, and any other requirements for Project closeout, and shall be used by Owner as the basis for progress payments. Payment for Work shall be made only for and in accordance with those items included in the Schedule of Values.

6.03 APPLICATION FOR PAYMENT

A. At monthly intervals, unless determined otherwise by Owner, Contractor shall submit to Owner an itemized Application for Payment for Work completed in accordance with the Contract Documents and the approved Schedule of Values. Each application shall be supported by such substantiating data as Owner may require.

B. By submitting an Application for Payment, Contractor is certifying that all Subcontractors have been paid, less earned retainage in accordance with RCW 60.28.010, as their interests appeared in the last preceding certificate of payment. By submitting an Application for Payment, Contractor is recertifying that the representations set forth in section 1.03 are true and correct, to the best of Contractor's knowledge, as of the date of the Application for Payment.

C. At the time it submits an Application for Payment, Contractor shall analyze and reconcile, to the satisfaction of Owner, the actual progress of the Work with the Progress Schedule.

D. If authorized by Owner, the Application for Payment may include request for payment for material delivered to the Project site and suitably stored, or for completed preparatory work. Payment may similarly be requested for material stored off the Project site, provided Contractor complies with or furnishes satisfactory evidence of the following:

1. The material will be placed in a warehouse that is structurally sound, dry, lighted, and suitable for the materials to be stored;

2. The warehouse is located within a 10-mile radius of the Project. Other locations may be utilized, if approved in writing, by Owner;

3. Only materials for the Project are stored within the warehouse (or a secure portion of a warehouse set aside for the Project);

4. Contractor furnishes Owner a certificate of insurance extending Contractor's insurance coverage for damage, fire, and theft to cover the full value of all materials stored, or in transit;

5. The warehouse (or secure portion thereof) is continuously under lock and key, and only Contractor's authorized personnel shall have access;

6. Owner shall at all times have the right of access in company of Contractor;

7. Contractor and its surety assume total responsibility for the stored materials; and

8. Contractor furnishes to Owner certified lists of materials stored, bills of lading, invoices, and other information as may be required, and shall also furnish notice to Owner when materials are moved from storage to the Project site.

6.04 PROGRESS PAYMENTS

A. Owner shall make progress payments, in such amounts as Owner determines are properly due, within 30 days after receipt of a properly executed Application for Payment. Owner shall notify Contractor in accordance with RCW 39.76 if the Application for Payment does not comply with the requirements of the Contract Documents.

B. Owner shall retain 5% (five percent) of the amount of each progress payment until forty-five (45) days after Final Acceptance and receipt of all documents required by law or the Contract Documents, including, at Owner's request, consent of surety to release of the retainage. In accordance with RCW 60.28, Contractor may request that monies reserved be retained in a fund by Owner, deposited by Owner in a bank or savings and loan, or placed in escrow with a bank or trust company to be converted into bonds and securities to be held in escrow with interest to be paid to Contractor. Owner may permit Contractor to provide an appropriate bond in lieu of the retained funds.

C. Title to all Work and materials covered by a progress payment shall pass to Owner at the time of such payment free and clear of all liens, claims, security interests, and encumbrances. Passage of title shall not,

however, relieve Contractor from any of its duties and responsibilities for the Work or materials, or waive any rights of Owner to insist on full compliance by Contractor with the Contract Documents.

D. Payments due and unpaid in accordance with the Contract Documents shall bear interest as specified in RCW 39.76.

6.05 PAYMENTS WITHHELD

A. Owner may withhold or, on account of subsequently discovered evidence, nullify the whole or part of any payment to such extent as may be necessary to protect Owner from loss or damage for reasons including but not limited to:

1. Work not in accordance with the Contract Documents;
2. Reasonable evidence that the Work required by the Contract Documents cannot be completed for the unpaid balance of the Contract Sum;
3. Work by Owner to correct defective Work or complete the Work in accordance with section 5.17;
4. Failure to perform in accordance with the Contract Documents; or
5. Cost or liability that may occur to Owner as the result of Contractor's fault or negligent acts or omissions.

B. In any case where part or all of a payment is going to be withheld for unsatisfactory performance, Owner shall notify Contractor in accordance with RCW 39.76.

6.06 RETAINAGE AND BOND CLAIM RIGHTS

A. Prior to release of the contract retainage, an "Affidavit of Wages Paid", approved by the Washington State Department of Labor and Industries, must be on file in the Owner's office. Contracts over $20,000, including tax, necessitate a clearance from the Washington State Department of Revenue and the Washington State Department of Employment Security. The Owner shall initiate action for the releases from the Departments of Revenue and Employment Security.

B. RCW chapters 39.08 and 60.28, concerning the rights and responsibilities of Contractor and Owner with regard to the performance and payment bonds and retainage, are made a part of the Contract Documents by reference as though fully set forth herein.

C. In accordance with RCW 60.28, the lien period for filing liens against the contract retainage shall be forty-five (45) days. Persons performing labor or furnishing supplies toward the completion of the contract who intend to file a lien against the contract retainage must do so within forty-five (45) days from the date of Final Acceptance of the contract by the Owner and in the manner as described in RCW 39.08.030.

6.07 SUBSTANTIAL COMPLETION

Substantial Completion is the stage in the progress of the Work (or portion thereof designated and approved by Owner) when the construction is sufficiently complete, in accordance with the Contract Documents, so Owner can fully occupy the Work (or the designated portion thereof) for the use for which it is intended. All Work other than incidental corrective or punch list work shall be completed. Substantial Completion shall not have been achieved if all systems and parts are not functional, if utilities are not connected and operating normally, if all required occupancy permits have not been issued, or if the Work is not accessible by normal vehicular and pedestrian traffic routes. The date Substantial Completion is achieved shall be established in writing by Owner. Contractor may request an early date of Substantial Completion which must be approved by Change Order. Owner's occupancy of the Work or designated portion thereof does not necessarily indicate that Substantial Completion has been achieved.

6.08 PRIOR OCCUPANCY

A. Owner may, upon written notice thereof to Contractor, take possession of or use any completed or partially completed portion of the Work ("Prior Occupancy") at any time prior to Substantial Completion. Unless otherwise agreed in writing, Prior Occupancy shall not: be deemed an acceptance of any portion of the

Work; accelerate the time for any payment to Contractor; prejudice any rights of Owner provided by any insurance, bond, guaranty, or the Contract Documents; relieve Contractor of the risk of loss or any of the obligations established by the Contract Documents; establish a date for termination or partial termination of the assessment of liquidated damages; or constitute a waiver of claims.

B. Notwithstanding anything in the preceding paragraph, Owner shall be responsible for loss of or damage to the Work resulting from Prior Occupancy. Contractor's one (1) year duty to repair and any system warranties shall begin on building systems activated and used by Owner as agreed in writing by Owner and Contractor.

6.09 FINAL COMPLETION, ACCEPTANCE, AND PAYMENT

A. Final Completion shall be achieved when the Work is fully and finally complete in accordance with the Contract Documents. The date Final Completion is achieved shall be established by Owner in writing.

B. Final Acceptance is the formal action of Owner acknowledging Final Completion. Prior to Final Acceptance, Contractor shall, in addition to all other requirements in the Contract Documents, submit to Owner a written notice of any outstanding disputes or claims between Contractor and any of its Subcontractors, including the amounts and other details thereof. Neither Final Acceptance, nor final payment, shall release Contractor or its sureties from any obligations of these Contract Documents or the Public Works Bond, or constitute a waiver of any claims by Owner arising from Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Acceptance of final payment by Contractor, or any Subcontractor, shall constitute a waiver and release to Owner of all claims by Contractor, or any such Subcontractor, for an increase in the Contract Sum or the Contract Time, and for every act or omission of Owner relating to or arising out of the Work, except for those Claims made in accordance with the procedures, including the time limits, set forth in part 8.

PART 7 - CHANGES

7.01 CHANGES IN THE WORK

A. Owner may, at any time and without notice to Contractor's surety, order additions, deletions, revisions, or other changes in the Work. These changes in the Work shall be incorporated into the Contract Documents through the execution of Change Orders. If any change in the Work ordered by Owner causes an increase or decrease in the Contract Sum or the Contract Time, an equitable adjustment shall be made as provided in section 7.02 or 7.03, respectively, and such adjustment(s) shall be incorporated into a Change Order.

B. If Owner desires to order a change in the Work, it may request a written Change Order Proposal (COP) from Contractor. Contractor shall submit a Change Order Proposal within 14 (fourteen) days of the request from Owner, or within such other period as mutually agreed. Contractor's Change Order Proposal shall be full compensation for implementing the proposed change in the Work, including any adjustment in the Contract Sum or Contract Time, and including compensation for all delays in connection with such change in the Work and for any expense or inconvenience, disruption of schedule, or loss of efficiency or productivity occasioned by the change in the Work.

C. Upon receipt of the Change Order proposal, or a request for equitable adjustment in the Contract Sum or Contract Time, or both, as provided in sections 7.02 and 7.03, Owner may accept or reject the proposal, request further documentation, or negotiate acceptable terms with Contractor. Pending agreement on the terms of the Change Order, Owner may direct Contractor to proceed immediately with the Change Order Work. Contractor shall not proceed with any change in the Work until it has obtained Owner's approval. All Work done pursuant to any Owner-directed change in the Work shall be executed in accordance with the Contract Documents.

D. If Owner and Contractor reach agreement on the terms of any change in the Work, including any adjustment in the Contract Sum or Contract Time, such agreement shall be incorporated in a Change Order. The Change Order shall constitute full payment and final settlement of all claims for time and for direct, indirect, and consequential costs, including costs of delays, inconvenience, disruption of schedule, or loss of efficiency or productivity, related to any Work either covered or affected by the Change Order, or related to the events giving rise to the request for equitable adjustment.

E. If Owner and Contractor are unable to reach agreement on the terms of any change in the Work, including any adjustment in the Contract Sum or Contract Time, Contractor may at any time in writing, request a final offer from Owner. Owner shall provide Contractor with its written response within 30 (thirty) days of Contractor's request. Owner may also provide Contractor with a final offer at any time. If Contractor rejects Owner's final offer, or the parties are otherwise unable to reach agreement, Contractor's only remedy shall be to file a Claim as provided in part 8.

F. Field Authorization

1. The Field Authorization (FA) is executed as a directive to proceed with work when the processing time for an approved change order would impact the project.

2. A scope of work must be defined, a maximum not to exceed cost agreed upon, and any estimated modification to the contract completion time determined. The method of final cost verification must be noted and supporting cost data must be submitted in accordance with the requirements of Part 7 of the General Conditions. Upon satisfactory submittal and approval of supporting cost data, the completed FA will be processed into a change order. No payment will be made to the Contractor for FA work until that FA is converted to a Change Order.

7.02 CHANGES IN THE CONTRACT SUM

A. General Application

1. The Contract Sum shall only be changed by a Change Order. Contractor shall include any request for a change in the Contract Sum in its Change Order Proposal.

2. If the cost of Contractor's performance is changed due to the fault or negligence of Owner, or anyone for whose acts Owner is responsible, Contractor shall be entitled to make a request for an equitable adjustment in the Contract Sum in accordance with the following procedure. No change in the Contract Sum shall be allowed to the extent: Contractor's changed cost of performance is due to the fault or negligence of Contractor, or anyone for whose acts Contractor is responsible; the change is concurrently caused by Contractor and Owner; or the change is caused by an act of Force Majeure as defined in Section 3.05.

a. A request for an equitable adjustment in the Contract Sum shall be based on written notice delivered to Owner within 7 (seven) days of the occurrence of the event giving rise to the request. For purposes of this part, "occurrence" means when Contractor knew, or in its diligent prosecution of the Work should have known, of the event giving rise to the request. If Contractor believes it is entitled to an adjustment in the Contract Sum, Contractor shall immediately notify Owner and begin to keep and maintain complete, accurate, and specific daily records. Contractor shall give Owner access to any such records and, if requested shall promptly furnish copies of such records to Owner.

b. Contractor shall not be entitled to any adjustment in the Contract Sum for any occurrence of events or costs that occurred more than 7 (seven) days before Contractor's written notice to Owner. The written notice shall set forth, at a minimum, a description of: the event giving rise to the request for an equitable adjustment in the Contract Sum; the nature of the impacts to Contractor and its Subcontractors of any tier, if any; and to the extent possible the amount of the adjustment in Contract Sum requested. Failure to properly give such written notice shall, to the extent Owner’s interests are prejudiced, constitute a waiver of Contractor's right to an equitable adjustment.

c. Within 30 (thirty) days of the occurrence of the event giving rise to the request, unless Owner agrees in writing to allow an additional period of time to ascertain more accurate data, Contractor shall supplement the written notice provided in accordance with subparagraph a. above with additional supporting data. Such additional data shall include, at a minimum: the amount of compensation requested, itemized in accordance with the procedure set forth herein; specific facts, circumstances, and analysis that confirms not only that Contractor suffered the damages claimed, but that the damages claimed were actually a result of the act, event, or condition complained of and that the Contract Documents provide entitlement to an equitable adjustment to Contractor for

such act, event, or condition; and documentation sufficiently detailed to permit an informed analysis of the request by Owner. When the request for compensation relates to a delay, or other change in Contract Time, Contractor shall demonstrate the impact on the critical path, in accordance with section 7.03C. Failure to provide such additional information and documentation within the time allowed or within the format required shall, to the extent Owner's interests are prejudiced, constitute a waiver of Contractor's right to an equitable adjustment.

d. Pending final resolution of any request made in accordance with this paragraph, unless otherwise agreed in writing, Contractor shall proceed diligently with performance of the Work.

e. Any requests by Contractor for an equitable adjustment in the Contract Sum and in the Contract Time that arise out of the same event(s) shall be submitted together.

3. The value of any Work covered by a Change Order, or of any request for an equitable adjustment in the Contract Sum, shall be determined by one of the following methods:

   a. On the basis of a fixed price as determined in paragraph 7.02B.
   b. By application of unit prices to the quantities of the items involved as determined in paragraph 7.02C.
   c. On the basis of time and material as determined in paragraph 7.02D.

4. When Owner has requested Contractor to submit a Change Order proposal, Owner may direct Contractor as to which method in subparagraph 3 above to use when submitting its proposal. Otherwise, Contractor shall determine the value of the Work, or a request for an equitable adjustment, on the basis of the fixed price method.

B. Change Order Pricing -- Fixed Price

When the fixed price method is used to determine the value of any Work covered by a Change Order or a request for an equitable adjustment in the Contract Sum, the following procedures shall apply:

1. Contractor's Change Order Proposal, or request for adjustment in the Contract Sum, shall be accompanied by a complete itemization of the costs, including labor, material, subcontractor costs, and overhead and profit. The costs shall be itemized in the manner set forth below, and shall be submitted on breakdown sheets in a form approved by Owner.

2. All costs shall be calculated based upon appropriate industry standard methods of calculating labor, material quantities, and equipment costs.

3. If any of Contractor's pricing assumptions are contingent upon anticipated actions of Owner, Contractor shall clearly state them in the proposal or request for an equitable adjustment.

4. The cost of any additive or deductive changes in the Work shall be calculated as set forth below, except that overhead and profit shall not be included on deductive changes in the Work. Where a change in the Work involves additive and deductive work by the same Contractor or Subcontractor, small tools, overhead, profit, bond, and insurance markups will apply to the net difference.

5. If the total cost of the change in the Work or request for equitable adjustment does not exceed $1,000, Contractor shall not be required to submit a breakdown if the description of the change in the Work or request for equitable adjustment is sufficiently definitive for Owner to determine fair value.

6. If the total cost of the change in the Work or request for equitable adjustment is between $1,000 and $2,500, Contractor may submit a breakdown in the following level of detail if the description of the change in the Work or if the request for equitable adjustment is sufficiently definitive to permit the Owner to determine fair value:

   a. lump sum labor;
   b. lump sum material;
   c. lump sum equipment usage;
   d. overhead and profit as set forth below; and
   e. insurance and bond costs as set forth below.

7. Any request for adjustment of Contract Sum based upon the fixed price method shall include only the following items:

   a. Craft labor costs: These are the labor costs determined by multiplying the estimated or actual additional number of craft hours needed to perform the change in the Work by the hourly labor costs. Craft hours should cover direct labor, as well as indirect labor due to trade inefficiencies. The hourly costs shall be based on the following:

      1) Basic wages and benefits: Hourly rates and benefits as stated on the Department of Labor and Industries approved "statement of intent to pay prevailing wages." Direct supervision shall be a reasonable percentage not to exceed 15% (fifteen percent) of the cost of direct labor. No supervision markup shall be allowed for a working supervisor's hours.

      2) Worker's insurance: Direct contributions to the state of Washington for industrial insurance; medical aid; and supplemental pension, by the class and rates established by the Department of Labor and Industries.

      3) Federal insurance: Direct contributions required by the Federal Insurance Compensation Act; Federal Unemployment Tax Act; and the State Unemployment Compensation Act.

      4) Travel allowance: Travel allowance and/or subsistence, if applicable, not exceeding those allowances established by regional labor union agreements, which are itemized and identified separately.

      5) Safety: Cost incurred due to the Washington Industrial Safety and Health Act, which shall be a reasonable percentage not to exceed 2% (two percent) of the sum of the amounts calculated in (1), (2), and (3) above.

   b. Material costs: This is an itemization of the quantity and cost of materials needed to perform the change in the Work. Material costs shall be developed first from actual known costs, second from supplier quotations or if these are not available, from standard industry pricing guides. Material costs shall consider all available discounts. Freight costs, express charges, or special delivery charges, shall be itemized.

   c. Equipment costs: This is an itemization of the type of equipment and the estimated or actual length of time the construction equipment appropriate for the Work is or will be used on the change in the Work. Costs will be allowed for construction equipment only if used solely for the changed Work, or for additional rental costs actually incurred by the Contractor. Equipment charges shall be computed on the basis of actual invoice costs or if owned, from the current edition of one of the following sources:

      1) Associated General Contractors - Washington State Department of Transportation (AGC-WSDOT) Equipment Rental Agreement; current edition, on the Contract execution date.

      2) The state of Washington Utilities and Transportation Commission for trucks used on highways.

      3) The National Electrical Contractors Association for equipment used on electrical work.

      4) The Mechanical Contractors Association of America for equipment used on mechanical work.

      The Data Quest Rental Rate (Blue Book) shall be used as a basis for establishing rental rates of equipment not listed in the above sources. The maximum rate for standby equipment shall not exceed that shown in the AGC WSDOT Equipment Rental Agreement, current edition, on the Contract execution date.

   d. Allowance for small tools, expendables, and consumable supplies: Small tools consist of tools which cost $250 or less and are normally furnished by the performing contractor. The maximum rate for small tools shall not exceed the following:

1) For Contractor, 3% (three percent) of direct labor costs.

2) For Subcontractors, 5% (five percent) of direct labor costs.

Expendables and consumable supplies directly associated with the change in Work must be itemized.

e. Subcontractor costs: This is defined as payments Contractor makes to Subcontractors for changed Work performed by Subcontractors of any tier. The Subcontractors' cost of Work shall be calculated and itemized in the same manner as prescribed herein for Contractor.

f. Allowance for overhead: This is defined as costs of any kind attributable to direct and indirect delay, acceleration, or impact, added to the total cost to Owner of any change in the Contract Sum but not to the cost of any change in the Contract Time for which contractor has been compensated pursuant to the conditions set forth in Section 7.03. This allowance shall compensate Contractor for all non-craft labor, temporary construction facilities, field engineering, schedule updating, record drawings, home office cost, B&O taxes, office engineering, estimating costs, additional overhead because of extended time, and any other cost incidental to the change in the Work. It shall be strictly limited in all cases to a reasonable amount, mutually acceptable, or if none can be agreed upon to an amount not to exceed the rates below:

1) For projects where the Contract Award Amount is under $3 million, the following shall apply:

a) For Contractor, for any Work actually performed by Contractor's own forces, 16% (sixteen percent) of the first $50,000 of the cost, and 4% (four percent) of the remaining cost, if any.

b) For each Subcontractor (including lower tier subcontractors), for any Work actually performed by its own forces, 16% (sixteen percent) of the first $50,000 of the cost, and 4% (four percent) of the remaining cost, if any.

c) For Contractor, for any work performed by its Subcontractor(s), 6% (six percent) of the first $50,000 of the amount due each Subcontractor, and 4% (four percent) of the remaining amount if any.

d) For each Subcontractor, for any Work performed by its Subcontractor(s) of any lower tier, 4% (four percent) of the first $50,000 of the amount due the sub-Subcontractor, and 2% (two percent) of the remaining amount if any.

e) The cost to which overhead is to be applied shall be determined in accordance with subparagraphs a.-e. above.

2) For projects where the Contract Award Amount is equal to or exceeds $3 million, the following shall apply:

a) For Contractor, for any Work actually performed by Contractor's own forces, 12% (twelve percent) of the first $50,000 of the cost, and 4% (four percent) of the remaining cost, if any.

b) For each Subcontractor (including lower tier subcontractors), for any Work actually performed by its own forces, 12% (twelve percent) of the first $50,000 of the cost, and 4% (four percent) of the remaining cost, if any.

c) For Contractor, for any Work performed by its Subcontractor(s), 4% (four percent) of the first $50,000 of the amount due each Subcontractor, and 2% (two percent) of the remaining amount if any.

d) For each Subcontractor, for any Work performed by its Subcontractor(s) of any lower tier, 4% (four percent) of the first $50,000 of the amount due the sub-Subcontractor, and 2% (two percent) of the remaining amount if any.

e) The cost to which overhead is to be applied shall be determined in accordance with subparagraphs a.- e. above.

g. Allowance for profit: This is an amount to be added to the cost of any change in contract sum, but not to the cost of change in Contract Time for which contractor has been compensated pursuant to the conditions set forth in section 7.03. It shall be limited to a reasonable amount, mutually acceptable, or if none can be agreed upon, to an amount not to exceed the rates below:

1) For Contractor or Subcontractor of any tier for work performed by their forces, 6% (six percent) of the cost developed in accordance with Section 7.02 b. 7a.- e.

2) For Contractor or Subcontractor of any tier for work performed by a subcontractor of a lower tier, 4% (four percent) of the Subcontractor cost developed in accordance with Section 7.02 b. 7a. - h.

h. Cost of change in insurance or bond premium: This is defined as:

1) Contractor's liability insurance: The cost of any changes in Contractor's liability insurance arising directly from execution of the Change Order; and

2) Public works bond: The cost of the additional premium for Contractor's bond arising directly from the changed Work.

The costs of any change in insurance or bond premium shall be added after overhead and allowance for profit are calculated in accordance with subparagraph f. and g. above.

C. Change Order Pricing -- Unit Prices

1. Whenever Owner authorizes Contractor to perform Work on a unit-price basis, Owner's authorization shall clearly state:

a. Scope of work to be performed;
b. Type of reimbursement including pre-agreed rates for material quantities; and
c. Cost limit of reimbursement.

2. Contractor shall:

a. Cooperate with Owner and assist in monitoring the Work being performed. As requested by Owner, Contractor shall identify workers assigned to the Change Order Work and areas in which they are working;
b. Leave access as appropriate for quantity measurement; and
c. Not exceed any cost limit(s) without Owner's prior written approval.

3. Contractor shall submit costs in accordance with paragraph 7.02B. and satisfy the following requirements:

a. Unit prices shall include reimbursement for all direct and indirect costs of the Work, including overhead and profit, and bond and insurance costs; and
b. Quantities must be supported by field measurement statements signed by Owner.

D. Change Order Pricing -- Time-and-Material Prices

1. Whenever Owner authorizes Contractor to perform Work on a time-and-material basis, Owner's authorization shall clearly state:

a. Scope of Work to be performed;
b. Type of reimbursement including pre-agreed rates, if any, for material quantities or labor; and
c. Cost limit of reimbursement.

2. Contractor shall:

a. Cooperate with Owner and assist in monitoring the Work being performed. As requested by Owner, identify workers assigned to the Change Order Work and areas in which they are working;
b. Identify on daily time sheets all labor performed in accordance with this authorization. Submit copies of daily time sheets within 2 working days for Owner's review;
c. Leave access as appropriate for quantity measurement;
d. Perform all Work in accordance with this section as efficiently as possible; and
e. Not exceed any cost limit(s) without Owner's prior written approval.

3. Contractor shall submit costs in accordance with paragraph 7.02B and additional verification supported by:

a. Labor detailed on daily time sheets; and
b. Invoices for material.

7.03 CHANGES IN THE CONTRACT TIME

A. The Contract Time shall only be changed by a Change Order. Contractor shall include any request for a change in the Contract Time in its Change Order Proposal.

B. If the time of Contractor's performance is changed due to an act of Force Majeure, or due to the fault or negligence of Owner or anyone for whose acts Owner is responsible, Contractor shall be entitled to make a request for an equitable adjustment in the Contract Time in accordance with the following procedure. No adjustment in the Contract Time shall be allowed to the extent Contractor's changed time of performance is due to the fault or negligence of Contractor, or anyone for whose acts Contractor is responsible.

1. A request for an equitable adjustment in the Contract Time shall be based on written notice delivered within 7 (seven) days of the occurrence of the event giving rise to the request. If Contractor believes it is entitled to adjustment of Contract Time, Contractor shall immediately notify Owner and begin to keep and maintain complete, accurate, and specific daily records. Contractor shall give Owner access to any such record and if requested, shall promptly furnish copies of such record to Owner.

2. Contractor shall not be entitled to an adjustment in the Contract Time for any events that occurred more than 7 (seven) days before Contractor's written notice to Owner. The written notice shall set forth, at a minimum, a description of: the event giving rise to the request for an equitable adjustment in the Contract Time; the nature of the impacts to Contractor and its Subcontractors of any tier, if any; and to the extent possible the amount of the adjustment in Contract Time requested. Failure to properly give such written notice shall, to the extent Owner's interests are prejudiced, constitute a waiver of Contractor's right to an equitable adjustment.

3. Within 30 (thirty) days of the occurrence of the event giving rise to the request, unless Owner agrees in writing to allow an additional period of time to ascertain more accurate data, Contractor shall supplement the written notice provided in accordance with subparagraph 7.03B.2 with additional supporting data. Such additional data shall include, at a minimum: the amount of delay claimed, itemized in accordance with the procedure set forth herein; specific facts, circumstances, and analysis that confirms not only that Contractor suffered the delay claimed, but that the delay claimed was actually a result of the act, event, or condition complained of, and that the Contract Documents provide entitlement to an equitable adjustment in Contract Time for such act, event, or condition; and supporting documentation sufficiently detailed to permit an informed analysis of the request by Owner. Failure to provide such additional information and documentation within the time allowed or within the format required shall, to the extent Owner's interests are prejudiced, constitute a waiver of Contractor's right to an equitable adjustment.

4. Pending final resolution of any request in accordance with this paragraph, unless otherwise agreed in writing, Contractor shall proceed diligently with performance of the Work.

C. Any change in the Contract Time covered by a Change Order, or based on a request for an equitable adjustment in the Contract Time, shall be limited to the change in the critical path of Contractor's schedule attributable to the change of Work or event(s) giving rise to the request for equitable adjustment. Any Change Order proposal or request for an adjustment in the Contract Time shall demonstrate the impact on the critical path of the schedule. Contractor shall be responsible for showing clearly on the Progress

Schedule that the change or event: had a specific impact on the critical path, and except in case of concurrent delay, was the sole cause of such impact; and could not have been avoided by resequencing of the Work or other reasonable alternatives.

D. Contractor may request compensation for the cost of a change in Contract Time in accordance with this paragraph, 7.03D, subject to the following conditions:

1. The change in Contract Time shall solely be caused by the fault or negligence of Owner or A/E;

2. Compensation under this paragraph is limited to changes in Contract Time for which Contractor is not entitled to be compensated under section 7.02;

3. Contractor shall follow the procedure set forth in paragraph 7.03B;

4. Contractor shall establish the extent of the change in Contract Time in accordance with paragraph 7.03C; and

5. The daily cost of any change in Contract Time shall be limited to the items below, less funds that may have been paid pursuant to a change in the Contract Sum that contributed to this change in Contract Time:

   a. cost of nonproductive field supervision or labor extended because of the delay;
   b. cost of weekly meetings or similar indirect activities extended because of the delay;
   c. cost of temporary facilities or equipment rental extended because of the delay;
   d. cost of insurance extended because of the delay;
   e. general and administrative overhead in an amount to be agreed upon, but not to exceed 3% (three percent) of Contract Sum divided by the Contract Time for each day of the delay.

PART 8 - CLAIMS AND DISPUTE RESOLUTION

8.01 CLAIMS PROCEDURE

A. If the parties fail to reach agreement on the terms of any Change Order for Owner-directed Work as provided in section 7.01, or on the resolution of any request for an equitable adjustment in the Contract Sum as provided in section 7.02 or the Contract Time as provided in section 7.03, Contractor's only remedy shall be to file a Claim with Owner as provided in this section.

B. Contractor shall file its Claim within the earlier of: 120 (one hundred twenty) days from Owner's final offer in accordance with either paragraph 7.01E or the date of Final Acceptance.

C. The Claim shall be deemed to cover all changes in cost and time (including direct, indirect, impact, and consequential) to which Contractor may be entitled. It shall be fully substantiated and documented. At a minimum, the Claim shall contain the following information:

1. A detailed factual statement of the Claim for additional compensation and time, if any, providing all necessary dates, locations, and items of Work affected by the Claim;

2. The date on which facts arose which gave rise to the Claim

3. The name of each employee of Owner or A/E knowledgeable about the Claim;

4. The specific provisions of the Contract Documents which support the Claim;

5. The identification of any documents and the substance of any oral communications that support the Claim;

6. Copies of any identified documents, other than the Contract Documents, that support the Claim;

7. If an adjustment in the Contract Time is sought: the specific days and dates for which it is sought; the specific reasons Contractor believes an extension in the Contract Time should be granted; and Contractor's analysis of its Progress Schedule to demonstrate the reason for the extension in Contract Time;

8. If an adjustment in the Contract Sum is sought, the exact amount sought and a breakdown of that amount into the categories set forth in, and in the detail required by, section 7.02; and

9. A statement certifying, under penalty of perjury, that the Claim is made in good faith, that the supporting cost and pricing data are true and accurate to the best of Contractor's knowledge and belief, that the Claim is fully supported by the accompanying data, and that the amount requested accurately reflects the adjustment in the Contract Sum or Contract Time for which Contractor believes Owner is liable.

D. After Contractor has submitted a fully documented Claim that complies with all applicable provisions of parts 7 and 8, Owner shall respond, in writing, to Contractor as follows:

1. If the Claim amount is less than $50,000, with a decision within 60 (sixty) days from the date the Claim is received; or

2. If the Claim amount is $50,000 or more, with a decision within 60 (sixty) days from the date the Claim is received, or with notice to Contractor of the date by which it will render its decision. Owner will then respond with a written decision in such additional time.

E. To assist in the review of Contractor's Claim, Owner may visit the Project site, or request additional information, in order to fully evaluate the issues raised by the Claim. Contractor shall proceed with performance of the Work pending final resolution of any Claim. Owner's written decision as set forth above shall be final and conclusive as to all matters set forth in the Claim, unless Contractor follows the procedure set forth in section 8.02.

F. Any Claim of the Contractor against the Owner for damages, additional compensation, or additional time, shall be conclusively deemed to have been waived by the Contractor unless timely made in accordance with the requirements of this section.

8.02 ARBITRATION

A. If Contractor disagrees with Owner's decision rendered in accordance with paragraph 8.01D, Contractor shall provide Owner with a written demand for arbitration. No demand for arbitration of any such Claim shall be made later than 30 (thirty) days after the date of Owner's decision on such Claim; failure to demand arbitration within said 30-day period shall result in Owner's decision being final and binding upon Contractor and its Subcontractors.

B. Notice of the demand for arbitration shall be filed with the American Arbitration Association (AAA), with a copy provided to Owner. The parties shall negotiate or mediate under the Voluntary Construction Mediation Rules of the AAA, or mutually acceptable service, before seeking arbitration in accordance with the Construction Industry Arbitration Rules of AAA as follows:

1. Disputes involving $30,000 or less shall be conducted in accordance with the Northwest Region Expedited Commercial Arbitration Rules; or

2. Disputes over $30,000 shall be conducted in accordance with the Construction Industry Arbitration Rules of the AAA, unless the parties agree to use the expedited rules.

C. All Claims arising out of the Work shall be resolved by arbitration. The judgment upon the arbitration award may be entered, or review of the award may occur, in the superior court having jurisdiction thereof. No independent legal action relating to or arising from the Work shall be maintained.

D. Claims between Owner and Contractor, Contractor and its Subcontractors, Contractor and A/E, and Owner and A/E shall, upon demand by Owner, be submitted in the same arbitration or mediation.

E. If the parties resolve the Claim prior to arbitration judgment, the terms of the resolution shall be incorporated in a Change Order. The Change Order shall constitute full payment and final settlement of the Claim, including all claims for time and for direct, indirect, or consequential costs, including costs of delays, inconvenience, disruption of schedule, or loss of efficiency or productivity.

8.03 CLAIMS AUDITS

A. All Claims filed against Owner shall be subject to audit at any time following the filing of the Claim. Failure of Contractor, or Subcontractors of any tier, to maintain and retain sufficient records to allow Owner to verify all or a portion of the Claim or to permit Owner access to the books and records of Contractor, or Subcontractors of any tier, shall constitute a waiver of the Claim and shall bar any recovery.

B. In support of Owner audit of any Claim, Contractor shall, upon request, promptly make available to Owner the following documents:

1. Daily time sheets and supervisor's daily reports;
2. Collective bargaining agreements;
3. Insurance, welfare, and benefits records;
4. Payroll registers;
5. Earnings records;
6. Payroll tax forms;
7. Material invoices, requisitions, and delivery confirmations;
8. Material cost distribution worksheet;
9. Equipment records (list of company equipment, rates, etc.);
10. Vendors', rental agencies', Subcontractors', and agents' invoices;
11. Contracts between Contractor and each of its Subcontractors, and all lower-tier Subcontractor contracts and supplier contracts;
12. Subcontractors' and agents' payment certificates;
13. Cancelled checks (payroll and vendors);
14. Job cost report, including monthly totals;
15. Job payroll ledger;
16. Planned resource loading schedules and summaries;
17. General ledger;
18. Cash disbursements journal;
19. Financial statements for all years reflecting the operations on the Work. In addition, the Owner may require, if it deems it appropriate, additional financial statements for 3 (three) years preceding execution of the Work;
20. Depreciation records on all company equipment whether these records are maintained by the company involved, its accountant, or others;
21. If a source other than depreciation records is used to develop costs for Contractor's internal purposes in establishing the actual cost of owning and operating equipment, all such other source documents;
22. All non-privileged documents which relate to each and every Claim together with all documents which support the amount of any adjustment in Contract Sum or Contract Time sought by each Claim;
23. Work sheets or software used to prepare the Claim establishing the cost components for items of the Claim including but not limited to labor, benefits and insurance, materials, equipment, Subcontractors,

all documents which establish the time periods, individuals involved, the hours for the individuals, and the rates for the individuals; and

24. Work sheets, software, and all other documents used by Contractor to prepare its bid.

C. The audit may be performed by employees of Owner or a representative of Owner. Contractor, and its Subcontractors, shall provide adequate facilities acceptable to Owner, for the audit during normal business hours. Contractor, and all Subcontractors, shall make a good faith effort to cooperate with Owner's auditors.

PART 9 - TERMINATION OF THE WORK

9.01 TERMINATION BY OWNER FOR CAUSE

A. Owner may, upon 7 (seven) days written notice to Contractor and to its surety, terminate (without prejudice to any right or remedy of Owner) the Work, or any part of it, for cause upon the occurrence of any one or more of the following events:

1. Contractor fails to prosecute the Work or any portion thereof with sufficient diligence to ensure Substantial Completion of the Work within the Contract Time;
2. Contractor is adjudged bankrupt, makes a general assignment for the benefit of its creditors or a receiver is appointed on account of its insolvency;
3. Contractor fails in a material way to replace or correct Work not in conformance with the Contract Documents;
4. Contractor repeatedly fails to supply skilled workers or proper materials or equipment;
5. Contractor repeatedly fails to make prompt payment due to Subcontractors or for labor;
6. Contractor materially disregards or fails to comply with laws, ordinances, rules, regulations, or orders of any public authority having jurisdiction; or
7. Contractor is otherwise in material breach of any provision of the Contract Documents.

B. Upon termination, Owner may at its option:

1. Take possession of the Project site and take possession of or use all materials, equipment, tools, and construction equipment and machinery thereon owned by Contractor to maintain the orderly progress of, and to finish, the Work;
2. Accept assignment of subcontracts pursuant to section 5.20; and
3. Finish the Work by whatever other reasonable method it deems expedient.

C. Owner's rights and duties upon termination are subject to the prior rights and duties of the surety, if any, obligated under any bond provided in accordance with the Contract Documents.

D. When Owner terminates the Work in accordance with this section, Contractor shall take the actions set forth in paragraph 9.02B, and shall not be entitled to receive further payment until the Work is accepted.

E. If the unpaid balance of the Contract Sum exceeds the cost of finishing the Work, including compensation for A/E's services and expenses made necessary thereby and any other extra costs or damages incurred by Owner in completing the Work, or as a result of Contractor's actions, such excess shall be paid to Contractor. If such costs exceed the unpaid balance, Contractor shall pay the difference to Owner. These obligations for payment shall survive termination.

F. Termination of the Work in accordance with this section shall not relieve Contractor or its surety of any responsibilities for Work performed.

G. If Owner terminates Contractor for cause, and it is later determined that none of the circumstances set forth in paragraph 9.01A exist, then such termination shall be deemed a termination for convenience pursuant to section 9.02.

9.02 TERMINATION BY OWNER FOR CONVENIENCE

A. Owner may, upon written notice, terminate (without prejudice to any right or remedy of Owner) the Work, or any part of it, for the convenience of Owner.

B. Unless Owner directs otherwise, after receipt of a written notice of termination for either cause or convenience, Contractor shall promptly:

1. Stop performing Work on the date and as specified in the notice of termination;

2. Place no further orders or subcontracts for materials, equipment, services or facilities, except as may be necessary for completion of such portion of the Work as is not terminated;

3. Cancel all orders and subcontracts, upon terms acceptable to Owner, to the extent that they relate to the performance of Work terminated;

4. Assign to Owner all of the right, title, and interest of Contractor in all orders and subcontracts;

5. Take such action as may be necessary or as directed by Owner to preserve and protect the Work, Project site, and any other property related to this Project in the possession of Contractor in which Owner has an interest; and

6. Continue performance only to the extent not terminated.

C. If Owner terminates the Work or any portion thereof for convenience, Contractor shall be entitled to make a request for an equitable adjustment for its reasonable direct costs incurred prior to the effective date of the termination, plus a reasonable allowance for overhead and profit on Work performed prior to termination, plus the reasonable administrative costs of the termination, but shall not be entitled to any other costs or damages, whatsoever, provided however, the total sum payable upon termination shall not exceed the Contract Sum reduced by prior payments. Contractor shall be required to make its request in accordance with the provisions of part 7.

D. If Owner terminates the Work or any portion thereof for convenience, the Contract Time shall be adjusted as determined by Owner.

PART 10 - MISCELLANEOUS PROVISIONS

10.01 GOVERNING LAW

The Contract Documents and the rights of the parties herein shall be governed by the laws of the state of Washington. Venue shall be in the county in which Owner's principal place of business is located, unless otherwise specified.

10.02 SUCCESSORS AND ASSIGNS

Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to the other party hereto and to partners, successors, assigns, and legal representatives of such other party in respect to covenants, agreements, and obligations contained in the Contract Documents. Neither party shall assign the Work without written consent of the other, except that Contractor may assign the Work for security purposes, to a bank or lending institution authorized to do business in the state of Washington. If either party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations set forth in the Contract Documents.

10.03 MEANING OF WORDS

Unless otherwise stated in the Contract Documents, words which have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings. Reference to standard specifications, manuals, or codes of any technical society, organization, or association, or

to the code of any governmental authority, whether such reference be specific or by implication, shall be to the latest standard specification, manual, or code in effect on the date for submission of bids, except as may be otherwise specifically stated. Wherever in these Drawings and Specifications an article, device, or piece of equipment is referred to in the singular manner, such reference shall apply to as many such articles as are shown on the drawings, or required to complete the installation.

10.04 RIGHTS AND REMEDIES

No action or failure to act by Owner or A/E shall constitute a waiver of a right or duty afforded them under the Contract Documents, nor shall such action or failure to act constitute approval of an acquiescence in a breach therein, except as may be specifically agreed in writing.

10.05 CONTRACTOR REGISTRATION

Pursuant to RCW 39.06, Contractor shall be registered or licensed as required by the laws of the State of Washington, including but not limited to RCW 18.27.

10.06 TIME COMPUTATIONS

When computing any period of time, the day of the event from which the period of time begins shall not be counted. The last day is counted unless it falls on a weekend or legal holiday, in which event the period runs until the end of the next day that is not a weekend or holiday. When the period of time allowed is less than 7 (seven) days, intermediate Saturdays, Sundays, and legal holidays are excluded from the computation.

10.07 RECORDS RETENTION

The wage, payroll, and cost records of Contractor, and its Subcontractors, and all records subject to audit in accordance with section 8.03, shall be retained for a period of not less than 6 (six) years after the date of Final Acceptance.

10.08 THIRD-PARTY AGREEMENTS

The Contract Documents shall not be construed to create a contractual relationship of any kind between: A/E and Contractor; Owner and any Subcontractor; or any persons other than Owner and Contractor.

10.09 ANTITRUST ASSIGNMENT

Owner and Contractor recognize that in actual economic practice, overcharges resulting from antitrust violations are in fact usually borne by the purchaser. Therefore, Contractor hereby assigns to Owner any and all claims for such overcharges as to goods, materials, and equipment purchased in connection with the Work performed in accordance with the Contract Documents, except as to overcharges which result from antitrust violations commencing after the Contract Sum is established and which are not passed on to Owner under a Change Order. Contractor shall put a similar clause in its Subcontracts, and require a similar clause in its sub-Subcontracts, such that all claims for such overcharges on the Work are passed to Owner by Contractor.

10.10 MINORITY AND WOMEN'S BUSINESS ENTERPRISES (MWBE) PARTICIPATION

In Accordance with the legislative findings and policies set forth in Chapter 39.19 RCW the State of Washington encourages participation in all of its contracts by MWBE firms certified by the Office of Minority and Women's Business Enterprises (OMWBE). Participation may be either on a direct basis in response to this solicitation or as a subcontractor to a Bidder. Any affirmative action requirements set forth in federal regulations or statutes included or referenced in the contract documents will apply. Bidders may contact OMWBE to obtain information on certified firms for potential subcontractors/suppliers.

A. When referred to in this Contract, the terms Minority Business Enterprise (MBE) and Women's Business Enterprise (WBE) will be as defined by OMWBE, WAC 326-02-030.

B. The OMWBE has compiled a directory of certified firms. Copies of this directory may be obtained through the OMWBE. For information regarding the certification process or the certification status of a particular firm, contact:

OMWBE, 406 South Water Street, PO Box 41160, Olympia, WA 98504-1160, telephone (360) 753-9693.

C. Eligible MWBEs or M/W firms

MWBE firms utilized for this project for voluntary MWBE goals may be certified by Washington State OMWBE or self identified as minority or women owned (M/W firm).

D. MWBE Voluntary Goals

The Owner has established voluntary goals for MWBE participation for this project. The voluntary goals are set forth in the Advertisement for Bids.

E. If any part of the contract, including the supply of materials and equipment, is anticipated to be subcontracted, then prior to receipt of the first payment, Contractor shall submit, pursuant to Section 5.20 A, a list of all subcontractors/suppliers it intends to use, designate whether any of the subcontractors/suppliers are MWBE firms, indicate the anticipated dollar value of each MWBE subcontract, and provide Tax Identification Number (TIN).

F. If any part of the contract, including the supply of materials and equipment is actually subcontracted during completion of the work, then prior to final acceptance or completion of the contract or as otherwise indicated in the contract documents, the Contractor shall submit a statement of participation indicating what MWBEs were used and the dollar value of their subcontracts.

G. The provisions of this section are not intended to replace or otherwise change the requirements of RCW 39.30.060. If said statute is applicable to this contract then the failure to comply with RCW 39.30.060 will still render a bid non-responsive.

H. The Contractor shall maintain, for at least three years after completion of this contract, relevant records and information necessary to document the level of utilization of MWBEs and other businesses as subcontractors and suppliers in this contract, as well as any efforts the Contractor makes to increase the participation of MWBEs as listed in section I below. The Contractor shall also maintain, for at least three years after completion of this contract, a record of all quotes, bids, estimates, or proposals submitted to the Contractor by all businesses seeking to participate as subcontractors or suppliers in this contract. The state shall have the right to inspect and copy such records. If this contract involves federal funds, Contractor shall comply with all record keeping requirements set forth in any federal rules, regulations, or statutes included or referenced in the contract documents.

I. Bidders should advertise opportunities for subcontractors or suppliers in a manner reasonably designed to provide MWBEs capable of performing the work with timely notice of such opportunities, and all advertisements shall include a provision encouraging participation by MWBE firms. Advertising may be done through general advertisements (e.g. newspapers, journals, etc.) or by soliciting bids directly from MWBEs. Bidders shall provide MWBEs that express interest with adequate and timely information about plans, specifications, and requirements of the contract.

J. Contractors shall not create barriers to open and fair opportunities for all businesses including MWBEs to participate in all State contracts and to obtain or compete for contracts and subcontracts as sources of supplies, equipment, construction and services.

K. Any violation of the mandatory requirements of this part of the contract shall be a material breach of contract for which the Contractor may be subject to a requirement of specific performance, or damages and sanctions provided by contract, by RCW 39.19.090, or by other applicable laws.

10.11 MINIMUM LEVELS OF APPRENTICESHIP PARTICIPATION

In accordance with Executive Order 00-01 the State of Washington may require apprenticeship participation for projects of a certain cost. The bid advertisement and Bid Proposal form shall establish the minimum percentage of apprentice labor hours as compared to the total labor hours.

A. Voluntary workforce diversity goals have been established for the apprentice hours. These goals are that one-fifth (1/5) of the apprentice hours be performed by minorities, and one-sixth (1/6) of the apprentice hours be performed by women.

B. Apprentice participation, under this contract, may be counted towards the required percentage (%) only if the apprentices are from an apprenticeship program registered and approved by the Washington State Apprenticeship and Training Council (RCW 49.04 and WAC 296-04).

C. Bidders may contact the Department of Labor and Industries, Specialty Compliance Services Division, Apprenticeship Section, P.O. Box 44530, Olympia, WA 98504-4530 by phone at (360) 902-5320, and e-mail at Apprentice@Lni.wa.gov, to obtain information on available apprenticeship programs.

D. For each project that has apprentice requirements, the contractor shall submit a "Statement of Apprentice/Journeyman Participation" on forms provided by the Department of General Administration, with every request for progress payment. The Contractor shall submit consolidated and cumulative data collected by the Contractor and collected from all subcontractors by the Contractor. The data to be collected and submitted includes the following:

1. Contractor name and address
2. Contract number
3. Project name
4. Contract value
5. Reporting period "Notice to Proceed" through "Invoicing Date"
6. Craft/trade/occupation of all (contractor and subcontractor trades working on the project) apprentices and journeymen
7. Total number of apprentices and total number of hours worked by apprentices, both categorized by gender and ethnicity
8. Total number of journeymen and total number of hours worked by journeymen, both categorized by gender and ethnicity
9. Cumulative combined total of apprentice and journeymen labor hours.
10. Total percentage of apprentice hours worked
11. No changes to the required percentage (%) of apprentice participation shall be allowed without written approval of the Owner. In any request for the change the Contractor shall clearly demonstrate a good faith effort to comply with the requirements for apprentice participation.
12. Any substantive violation of the mandatory requirements of this part of the contract may be a material breach of the contract by the Contractor. The Owner may withhold payment pursuant to Part 6.05, stop the work for cause pursuant to Part 3.04, and terminate the contract for cause pursuant to Part 9.01.

10.12 HEADINGS AND CAPTIONS

Headings for convenience only: All headings and captions used in these General Conditions are only for convenience of reference and shall not be used in any way in connection with the meaning, effect, interpretation, construction, or enforcement of the General Conditions, and do not define the limit or describe the scope or intent of any provision of these General Conditions.

10.13 SUBCONTRACTOR PAYMENTS REPORTING REQUIREMENTS

This Contract is subject to compliance tracking using the State's business diversity management system, Access Equity (B2Gnow). Access Equity is web-based and can be accessed at the Office of Minority and Women's Business Enterprises at https://omwbe.diversitycompliance.com/. The Contractor and all Subcontractors shall report and confirm receipt of payments made to the Contractor and each Subcontractor through Access Equity.

The Contractor may contact the Owner at contracts@parks.wa.gov for technical assistance in using the Access Equity system. User guides and documentation related to Contractor and Subcontractor access to and use of Access Equity are available online at https://omwbe.wa.gov/access-equity-help-center. The Owner reserves the

right to withhold payments from the Contractor for non-compliance with this section. For purposes of this section, Subcontractor means any subcontractor working on the Contract, at any tier and regardless of status as certified WMBE or Non-WMBE.
The Contractor shall:

a. Register and enter all required Subcontractor information into Access Equity no later than 15 days after the Owner creates the Contract Record.

b. Complete the required user training (two (2) one-hour online sessions) no later than 20 days after the Owner creates the Contract Record.

c. Report the amount and date of all payments (i) received from the Owner, and (ii) paid to Subcontractors, no later than 30 days, issuance of each payment made by the Owner to the Contractor, unless otherwise specified in writing by the Owner, except that the Contractor shall mark as "Final" and report the final Subcontractor payments) into Access Equity no later than thirty (30) days after the final payment is due the Subcontractor(s) under the Contract, with all payment information entered no later than sixty (60) days after end of fiscal year.

d. Monitor contract payments and respond promptly to any requests or instructions from the Owner or system-generated messages to check or provide information in Access Equity.

e. Coordinate with Subcontractors, or Owner when necessary, to resolve promptly any discrepancies between reported and received payments.

f. Require each Subcontractor to: (i) register in Access Equity and complete the required user training; (ii) verify the amount and date of receipt of each payment from the Contractor or a higher tier Subcontractor, if applicable, through Access Equity; (iii) report payments made to any lower tier Subcontractors, if any, in the same manner as specified herein; (iv) respond promptly to any requests or instructions from the Contractor or system-generated messages to check or provide information in Access Equity; and (v) coordinate with Contractor, or Owner when necessary, to resolve promptly any discrepancies between reported and received payments.

END OF CONDITIONS

/ / / / /

Approved as to Form:
William Van Hook /s/
Asst. Attorney General
02/2007
08/2010 GA Updates – jrc
09/2010 to AAG Schwartz

PREVAILING WAGES

Instruction for Prevailing Wage Rates

The State of Washington prevailing wage rates for this public works project, which is located in Snohomish County, may be found at the following website address of the Department of Labor and Industries:

https://secure.lni.wa.gov/wagelookup/rates/journey-level-rates

The prevailing wages for this project are those that are in effect on the date that the bids are due.

Contractor to Pay Prevailing Wages

The Contractor shall pay the prevailing rate of wages to all workers, laborers, or mechanics employed in the performance of any part of the Work in accordance with RCW 39.12 and the rules and regulations of the Department of Labor and Industries. The schedule of prevailing wage rates for the locality or localities of the Work is determined by the Industrial Statistician of the Department of Labor and Industries. It is the Contractor's responsibility to verify the applicable prevailing wage rate.

A copy of the applicable wage rates is available upon request. Please request a copy by email at: contracts@parks.wa.gov.

CRITICAL AREA STUDY & HABITAT MANAGEMENT PLAN

WALLACE FALLS STATE PARK WATER SYSTEM REPLACEMENT AND PARKING LOT EXPANSION

Washington State Parks and Recreation Commission
220 N. Walnut Street
Burlington, WA 98233

Prepared by:

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David Evans and Associates, Inc.

April 2024

Executive Summary

Washington State Parks and Recreation Commission (State Parks) proposes improvements to Wallace Falls State Park (Park), including an expanded parking lot, fencing at the shared property line with the Huston Center, a new groundwater well source and maintenance access road, a water treatment building, a storage tank, a new precast vault toilet building, and associated other improvements.

The Park encompasses 1,380 acres with shoreline access on the Wallace River, Wallace Lake, Jay Lake, and Shaw Lake and formally entered the state park system in 1977. The Park is located on the west side of the Cascades in Snohomish County near the City of Gold Bar. The Park's address is 14503 Wallace Lake Road Gold Bar, WA 98251. The project study area is located in Section 32 Township 28 North Range 9 East, W.M.

This study assesses the presence or absence of wetlands, streams and fish and wildlife habitat conservation areas. Two wetlands and a fish-bearing stream were delineated near the west side of the study area. The wetlands have a 110-foot standard buffer and the stream has a 150-foot standard buffer (SCC 30.62A.320). The proposed project would result in no permanent or temporary impacts to wetlands or streams, but would include buffer impacts (1,129 square feet of permanent buffer impact and 1,403 square feet of temporary buffer impact). The project will add approximately 618 square feet of new effective impervious surface (NEIS) within critical area buffers, which is less than 0.01 percent of NEIS in the project area. No significant impact to critical species and primary association areas (PAA) are identified in this report.

Mitigation for permanent buffer impacts will use enhancement of 4,291 square feet of existing buffer that is currently disturbed lawn, including enhancement of temporary buffer impact areas.

Table 1. Summary of Critical Area Impacts and Compensatory Mitigation

Township/Range/Section (impact)	T 27 North / R 4 East / Section 3
Permanent Wetland Impact	None
Temporary Wetland Impact	None
Permanent Stream Impact	None
Indirect Stream Impact	None
Temporary Stream Impact	None
Permanent Primary Association Area Impact	None
Permanent Critical Area Buffer Impact	1,129 square feet
Temporary Critical Area Buffer Impact	1,403 square feet
New Effective Impervious Surface Impact (NEIS)	618 square feet
Off-site Wetland Buffer Mitigation	NA
Watershed name	WRIA 7 Snohomish
Site ownership	Wallace Falls State Park
Acres	5 acres
Total Area of Buffer Mitigation	4,291 square feet of buffer restoration and enhancement.

Table of Contents

Figures

Tables

Acronyms and Abbreviations

BMPs	Best Management Practices
BPA	Bonneville Power Administration
CAS	Critical Area Study
DEA	David Evans and Associates, Inc.
DOE	Washington State Department of Ecology
EIS	Effective Impervious Surface
ESA	Endangered Species Act
FCAR	Facilities Condition Assessment Report
FWHCA	Fish and Wildlife Habitat Conservation Area
HDPE	High density polyethylene
HMP	Habitat Management Plan
HPA	Hydraulic Project Approval
HUC	Hydrological Unit Code
LWD	Large Woody Debris
NEIS	New Effective Impervious Surface
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OHWM	Ordinary High Water Mark
PAA	Primary Association Area
Park	Wallace Falls State Park
PGIS	Pollutant-Generating Impervious Surface
PHS	Priority Habitats and Species
PIT	Pilot Infiltration Tests
PFO	Palustrine Forested
PSS	Palustrine Scrub-shrub
PVC	Polyvinyl chloride
RCO	Washington State Recreation and Conservation Office
RCW	Revised Code of Washington
SCC	Snohomish County Code
State Parks	Washington State Parks and Recreation Commission
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WDNR	Washington Department of Natural Resources
WNHP	Washington Natural Heritage Program
WWHM	Western Washington Hydrology Model

1. Proposed Project

1.1 Introduction and Background

Washington State Parks and Recreation Commission (State Parks) proposes improvements to Wallace Falls State Park (Park), including an expanded parking lot, fencing at the shared property line with the Huston Center, a new groundwater well source and maintenance access road, a water treatment building, a storage tank, a new precast vault toilet building, and associated other improvements.

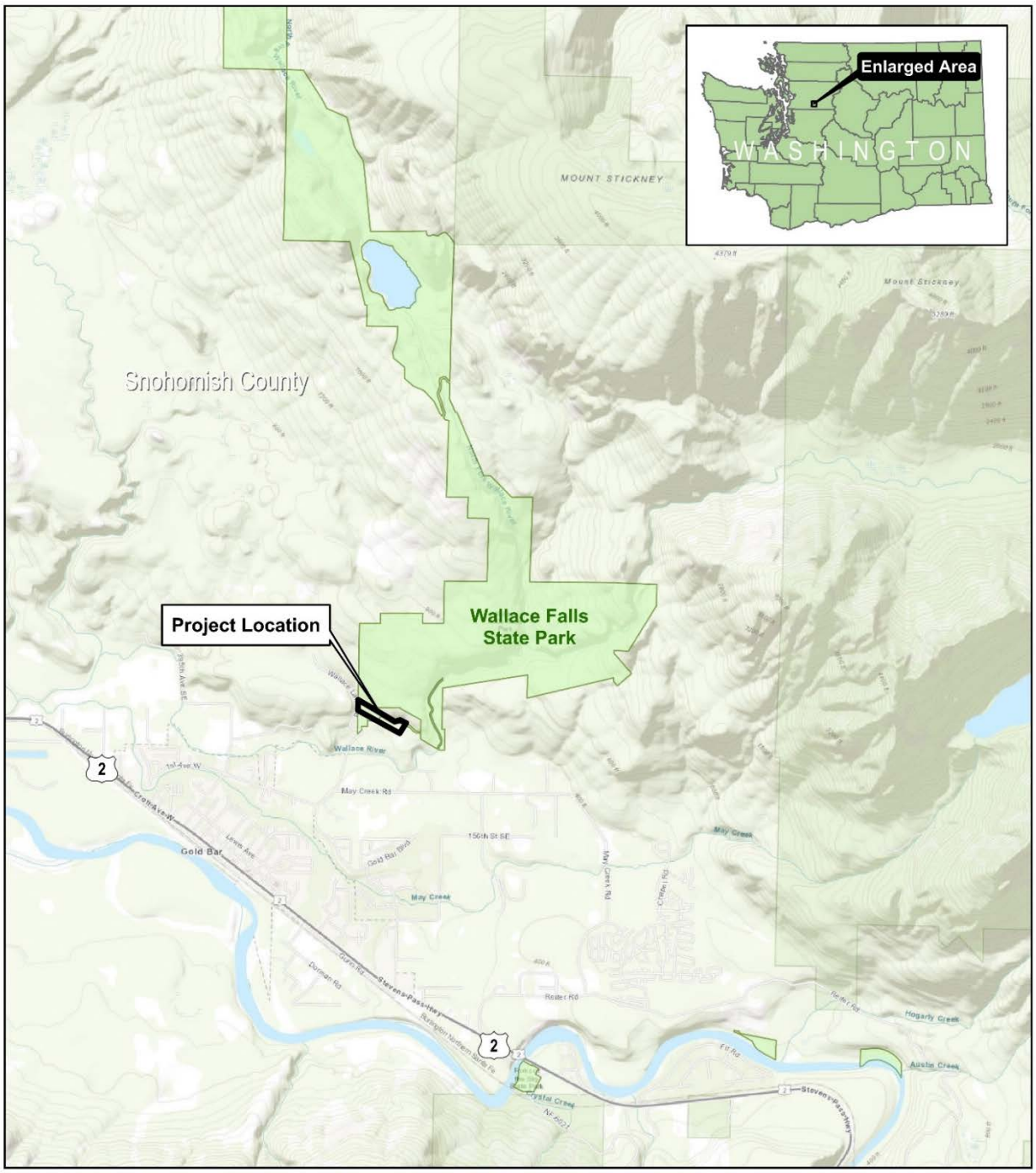
State Parks proposes improvements in the vicinity of the existing parking lot and along the existing entry trail, underneath the Bonneville Power Administration (BPA) powerlines. The project vicinity map is shown in **Figure 1**.

The Park encompasses 1,380 acres with shoreline access on the Wallace River, Wallace Lake, Jay Lake, and Shaw Lake and formally entered the state park system in 1977. The Park is located on the west side of the Cascades in Snohomish County near the City of Gold Bar. The Park's address is 14503 Wallace Lake Road Gold Bar, WA 98251.

The Park is primarily a day-use park, although there are five cabins and three backcountry campsites providing overnight opportunities in the southwest corner of the property. The Park is a popular destination for hiking, mountain biking, wildlife viewing, and rock climbing. Also available to park users are two comfort stations and kitchen shelters. An employee restroom and a shop/office are located north of the Park entrance and a residence is located near the entrance road.

The project study area is located in Section 32 Township 28 North Range 9 East, W.M. The approximate latitude and longitude of the project is 47.8648° N by -122.2804° W in the north and is 47.8501° N by -122.2818° W in the south. The project is located within the Upper Wallace River subbasin (Hydrological Unit Code [HUC] 171100090602). The project location is shown in **Figure 1**.

Figure 1. Vicinity Map



Data Sources: Oregon Geospatial Enterprise Office
Background: ESRI Topographic Basemap

Wallace Falls Water System Replacement and Parking Lot Expansion

Figure 1
Project Vicinity

Path: P:\W\WPRC00000007\0600INFO\GS\WPRC0007.aprx

1.2 Project Description

Wallace Falls State Park (Park) currently has a shortage in parking space availability; up to 150 vehicles park daily outside the Park entrance. This shortage has prompted the development of a plan for parking expansion. The Park currently purchases its water supply from the adjacent Huston Center water system through a metered connection. However, the proposed parking expansion plans and increased use of the Park prompted State Parks to complete a study of water supply alternatives. This study was performed by Consor North America, Inc. (Consor), previously Murraysmith, in 2020 as part of the Utility Facilities Condition Assessment Report (FCAR) project. The August 2020 Water Supply Feasibility Study conducted as part of the FCAR concluded that although the existing supply and storage capacity can meet the current demand for both Huston Center and the Park, a new groundwater well source would be needed to provide additional supply capacity and source redundancy for increased water system demands from the parking lot expansion. Following these recommendations, State Parks proposes to install a new water source/supply to the Park. This would allow for a back-up water supply, thru an intertie between State Parks and Huston Center water systems. State Parks retained Consor to design upgrades to the water system, which include a new well source in addition to designing the expanded parking lot for the Park. Consor has prepared a Preliminary Design Report for the project (Consor 2022).

The 30 percent design drawings from that report are included within this Critical Area Study (CAS) as **Appendix A**.

1.2.1 Proposed Water System Modifications (Phase 1)

The project proposes a variety of improvements to provide full water supply from an onsite well, including installation of a well, water storage tank, treatment and booster pump building, electrical, and associated piping and accessories. These improvements are considered part of the same phase now, but may ultimately be built in two separate phases, one for the well drilling and testing, and one for the remainder of the water system improvements. The well would pump water into an atmospheric ground level storage tank and a booster pump system will pump water from the storage tank to the distribution system. Disinfection treatment would take place at two locations; at the tank inlet and tank outlet to maintain chlorine residual in the tank and overall distribution system. Various locations were considered for the siting of the new well and associated buildings. The treatment and booster pump building would be located near the proposed well and would allow operator access, equipment maintenance, and safety. This building would consist of a booster pump system, pressure gages, pressure tank(s), flow meter, piping components, sampling taps for water quality monitoring, emergency generator receptacle and transfer switch, and necessary footprint for future inclusion of a chlorine treatment for disinfection purposes. The building would be placed on top of a conventional concrete slab-on grade foundation and would include one single door and no windows. The proposed building would have dimensions of 8 feet by 10 feet and may be prefabricated. There would be 3-inch Polyvinyl chloride (PVC) and high density polyethylene (HDPE) piping to connect the water storage tank to the existing waterline near the Park access road.

State Parks made all reasonable efforts to avoid and minimize impacts to wetlands, fish and wildlife habitat conservation areas (FWHCA), and buffers through project design and implementation. Total buffer avoidance was not possible due to constraints associated with location of the proposed well location and treatment building. Impacts were minimized through location of the new facilities in previously disturbed areas lacking significant native vegetation. The remainder of the project is located outside of critical areas. Also, the project includes improved water quality treatment facilities which will improve downstream water quality. Compensatory stream buffer mitigation will replace all critical area functions lost as a result of these unavoidable impacts.

Buffer mitigation for permanent impact is proposed to be met through use of on-site buffer restoration and enhancement. Temporary buffer impacts associated with construction will be mitigated onsite with

the restoration of the temporary impacts once construction is completed. Temporary impact areas will be restored to enhanced native plant vegetative conditions than the existing lawn.

1.2.2 Proposed Boundary Line Adjustment (Phase 2)

A Boundary Line Adjustment (Phase 2) is proposed to acquire property, so that State Parks may install the proposed parking and pedestrian trail improvements. The total acreage proposed to be acquired is approximately 14 acres; this is made up of two separate areas with the same parcel number. A 3-acre area lies adjacent to the neighboring Huston Center property; the acquisition of approximately 1.3 acres of this area is necessary to accommodate the overflow parking project. The approximately 11-acre area is an existing in-holding area. Both proposed acquisition areas are owned by Huston Center, parcel 28093200400400. The property acquisition is funded through a Washington State Recreation and Conservation Office (RCO) Grant, 22-1438-2022 Inholdings. Per the 2021 Wallace Falls Classification and Management Plan: the Director has been authorized to enter into agreements, easements and other less than fee or no fee real estate transactions with owners of properties in the vicinity of the park that further the goals of providing additional parking, enhancing trail opportunities and otherwise advancing the park's recreation and conservation purposes.

1.2.3 Proposed Parking Lot Modifications (Phase 3)

As mentioned previously, the project site needs additional parking to accommodate the current and future use of the facilities during the peak weekends and holidays. To provide additional parking spaces, the following improvements are proposed:

- Install approximately 15,071 square feet of new pavement in the vicinity of the existing above ground retention pond at the northwest end of the parking lot and add additional stalls.
- Expand the paving along the north edge to allow room for a drive aisle and additional parallel parking.
- Add additional pavement at the northeast corner of the lot to provide new parking stalls.
- Revise the existing stall layout and re-stripe the pavement to allow for two-lane traffic and improve maneuverability throughout the parking lot. Revise some of the parking stall sizes to be the minimum size allowed by Snohomish County (18-foot by 9-foot). By reducing the size of some of the stalls, it helps provide the necessary space for a drive aisle and additional stalls with minimal new pavement construction.
- Construct a new access road in the general location of the existing pedestrian trail, east of the parking lot, and additional parking stalls along the road to a new turnaround. The new access road would be approximately 370-feet-long (to the center of end roundabout) and an average of 26-feet-wide. There would be 90-degree parking along the new road as a more efficient use of space; the overall footprint would be generally the same; however, the 90-degree stalls would provide ten additional parking spaces. Additionally, vehicles could pull into the parking spaces from either direction along the access road. As part of this work, a new pedestrian path would be added along the end of the parking stalls to replace the existing path impacted by the new road.
- The new turnaround at the end of the proposed road would also serve as a bus and vehicle drop-off area. Space is provided so that vehicles can pull off the side of the travel area to allow pedestrians to enter/exit a vehicle without impeding traffic.
- Construct new retaining walls in select areas to minimize excavation into the existing hillside. Overall, three new retaining walls would be built along the north side of the expanded parking lot and the new access road totaling approximately 461 linear feet. It is anticipated that the proposed walls would be rockery walls based on material availability.
- Construct new stormwater facilities to current standards to address runoff associated with the new and existing impervious surfaces. Refer to Section 2.3 for additional information.

Based on the proposed improvements, it is anticipated that the final parking stall count would be 200, with an overall increase of approximately 92 parking stalls from the original layout. Preliminary drawings detailing this parking expansion have been developed and are provided in **Appendix A**.

1.2.4 Proposed Stormwater Modifications (Phase 3)

As a result of the site improvements and parking lot expansion, additional hard and impervious surfaces will generate increased stormwater runoff. To address the increased flow, the proposed stormwater management approach will include the following:

- Repurpose the existing infiltration pond to accommodate the expanded parking lot as described in Section 2.2.
- Install multiple new subsurface dome-chamber style infiltration facilities below the proposed parking lot. The facilities will be made up of multiple treatment, detention, and infiltration systems.
- Runoff from the parking lot will be conveyed through collection and pollution control features to the infiltration facility. Due to the limited space available, it is proposed that a hydrodynamic separator, such as a Contech Stormceptor®, is installed to address sediment prior to entering the infiltration basins.
- Runoff from the unimproved areas currently discharging to the existing detention pond will be routed into the new infiltration facility.

The proposed new and redeveloped impervious surface, including an expanded parking lot, added roadway, parking stalls, and turnaround, is approximately 62,000 square feet. Due to the impacted area being greater than one acre, and assuming no regulatory exemptions apply, the stormwater modification will need to meet the Snohomish County Minimum Requirements as identified in the Snohomish County Drainage Manual (Snohomish County 2021).

Onsite stormwater management, detention facilities, and flow control measures will be sized using the results of an approved continuous runoff hydrologic model, Western Washington Hydrology Model. The detention facilities will be designed to infiltrate a minimum of 91 percent of the design storms influent runoff within 48 hours, per the Drainage Manual requirements. The need for an overflow will be evaluated and included if the infiltration capacity of the facility is reached during the design storm event. Any overflow discharge will match developed discharge durations to the pre-developed duration for the ranges established in Snohomish County Minimum Requirements.

GeoEngineers, Inc. (Geoengineers) conducted Pilot Infiltration Tests (PIT) to estimate the initial saturation hydraulic conductivity. Based on these tests, the preliminary long-term design infiltration rate is approximately 1.5 inches per hour (Consor 2022). A preliminary layout of the stormwater facilities is shown in **Appendix A**.

1.2.5 Proposed Comfort Station (Comfort station) (Phase 3)

As part of this project, a new comfort station is proposed at the end of the access road near the turnaround. This new comfort station will provide facilities to those Park users that park along the proposed roadway, without having to return to the parking lot prior to proceeding to the Park trails. The proposed comfort station shall be a precast CXT Double Cascadian vault toilet (approximately 12 feet wide by 14 feet long) and would match the style and features of the existing comfort station. The toilet is sited to be near the paved area so that it is easily accessible along the footpath without a separate access road.

1.3 Project Schedule

This project will be pursued in three phases: 1) Water System Replacement, 2) Boundary Line Adjustment, and 3) Parking Lot Expansion. Completion of all three phases is anticipated to require approximately 1.5 years to complete.

The water system expansion **(Phase 1)** is anticipated to occur in the summer and fall of 2024. These improvements are considered part of the same phase now, but may ultimately be built in two separate phases, one for the well drilling and testing, and one for the remainder of the water system improvements.

State Parks is working with the neighboring Huston Center for a potential boundary line adjustment **(Phase 2)**, that will allow for the Parking Lot Expansion. The property acquisition is anticipated to take place in 2024.

The parking lot expansion **(Phase 3)** is likely to begin in the fall of 2025 and extend into 2026. Limited parking expansion work is expected to occur during winter.

1.4 Best Management Practices

Best management practices (BMPs) will be used during project construction and are an inherent part of the project design intended to reduce the risk to adjacent critical areas and minimize the potential for adverse effects to the environment. These BMPs include, but are not limited to:

- Mulching exposed bare soil areas with weed-free straw;
- Placing erosion control coir matting, most likely along edge of stream buffer;
- Installing silt fencing and high visibility fencing at the outside edges of project prior to any grading;
- Minimizing sediments by implementing a temporary erosion sediment control plan;
- Installing triangular silt dikes to contain sediment;
- Using temporary sediment control devices, such as sediment mats, filter bags, erosion blankets, sediment traps, staked sediment barriers, water bladder dams, and/or "dirt bags";
- Revegetating disturbed areas upon project completion to match pre-construction conditions;
- Locating staging areas in areas that will prevent the potential contamination of any wetland or waterbody;
- Servicing and refueling vehicles a minimum of 150 feet from the stream and wetlands to reduce potential spills of petroleum and hydraulic fluids in sensitive areas. Additionally, drip pans will be fitted with absorbent pads and placed under all equipment being fueled;
- Inspecting all vehicles daily operating within 100 feet of any stream or waterbody for fluid leaks before leaving the vehicle staging area. Any leaks detected will be repaired before the vehicle resumes operation. When not in use, all vehicles will be stored in the vehicle staging area as practicable;
- Other vehicles that may be stored in place, such as cranes, will be inspected daily for fluid leaks;
- Implementing spill control and emergency response plans for fueling, concrete activity, and staging areas. The spill control/prevention plan will include the following items: notification procedures; specific cleanup and disposal instructions for different products; quick response containment and cleanup measures that will be available on site; and employee training for spill containment. These plans will satisfy all pertinent requirements set forth by federal, state, and local laws and regulations;
- No wet or curing concrete, including washout of equipment, will enter project waters. A containment tarp will be used to isolate any runoff from activities involving wet or curing concrete activities;

- Hydroseeding or broadcasting the seed and mulching for grass establishment immediately upon completion of the project in appropriate locations;
- No material will be placed or discharged into project area wetlands or streams.

2. Methods

This chapter summarizes the methods used to identify critical areas in the proposed project study area.

2.1 Study Area

The site is defined as that portion of the subject property within 200 feet of the development activity per Snohomish County Code (SCC) 30.91S.350. The location and description of all wetlands and FWHCA and buffers within 300 feet or the width of the widest potential buffer of the site boundaries is required per SCC 30.62A.130(1)(f). The study area is shown in **Figure 2**.

2.2 Review of Existing Information

Prior to undertaking the field investigations for this report, sources of existing information were reviewed to determine if wetlands and other water resources exist in the study area. In addition, all available information was reviewed to gain an understanding of the sensitive fish and wildlife resources present in the watershed.

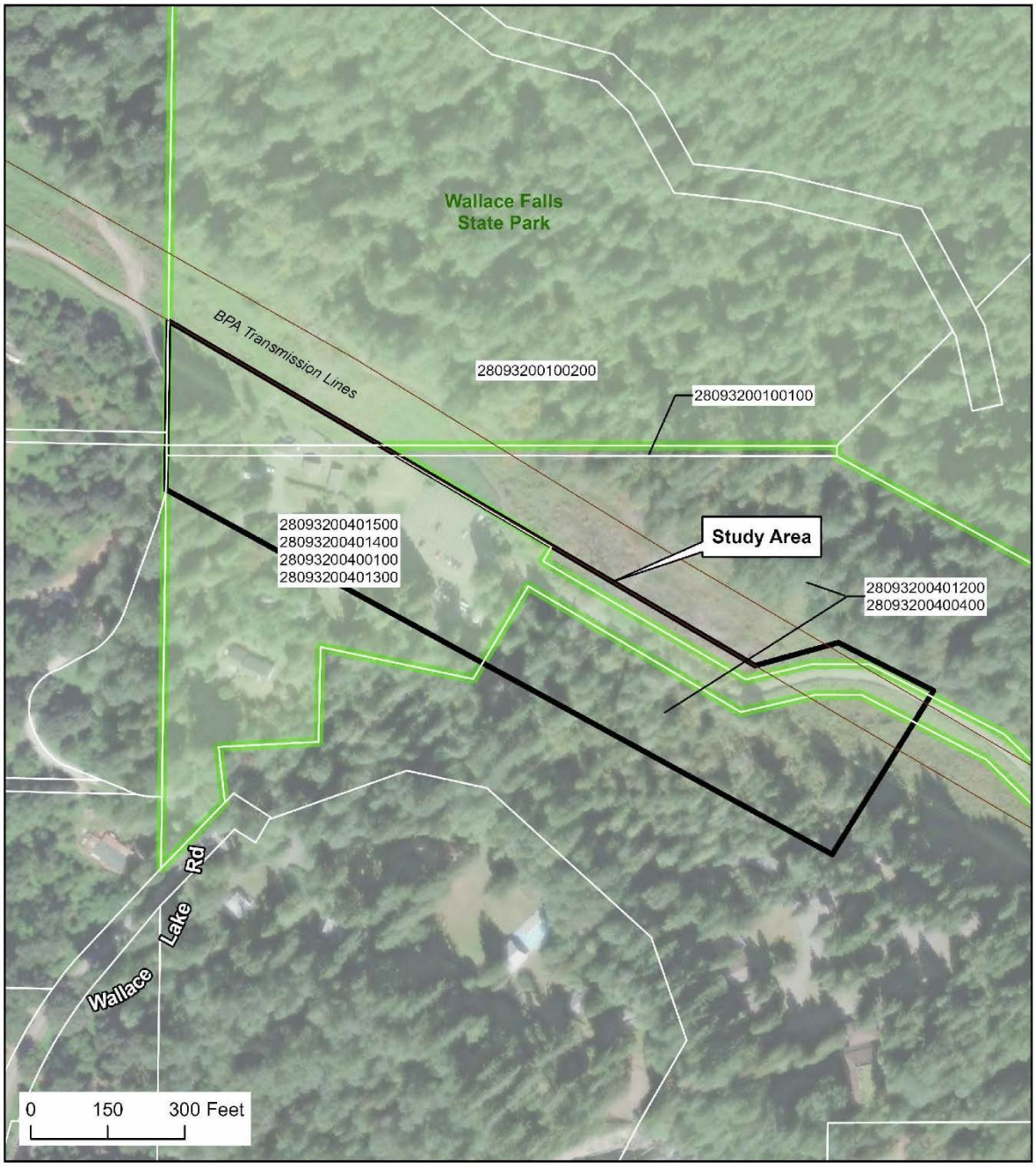
Existing information reviewed by project biologists prior to fieldwork included:

- Natural Resources Conservation Service (NRCS) Web Soil Survey (NRCS 2023a);
- U.S. Fish and Wildlife Service (USFWS) Critical Habitat Mapper, Critical Habitat Portal (USFWS 2023a);
- USFWS Threatened & Endangered Species IPAC List (USFWS 2023b);
- USFWS National Wetlands Inventory (NWI) (USFWS 2023c);
- Washington Department of Fish and Wildlife (WDFW) Priority Habitats and Species (PHS) database (WDFW 2023a);
- WDFW SalmonScape (WDFW 2023b);
- Snohomish County PDS Map Portal (2023);
- Google Earth Pro (2023).

2.3 Field Investigation

Site investigations were conducted on August 25 and November 16, 2022. The extent of potential project impacts to species habitat, critical areas, and buffers were evaluated in the field. The location and description of all wetlands, FWHCA, and buffers located within the study area were mapped. The ordinary high water mark (OHWM) of any streams, lakes and marine waters present on the project site are also identified on the site plans per SCC 30.62A.140(6).

Figure 2. Study Area Map



Data Sources: Oregon Geospatial Enterprise Office, Snohomish County GIS (2023)
Background: ESRI World Imagery Basemap

Wallace Falls Water System Replacement and Parking Lot Expansion

Study Area
Tax Parcel
Transmission Line
Park Boundary

Figure 2
Study Area

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2.3.1 Fish and Wildlife Habitat Conservation Areas

Under SCC 30.62A.010, critical areas include:

Wetlands, and FWHCA including:

- Streams
- Lakes
- Marine waters
- Naturally occurring ponds under 20 acres and their submerged aquatic beds
- Lakes, ponds, streams, and rivers planted with game fish
- State natural area preserves, natural resource conservation areas, and state wildlife areas
- Primary Association Area (PAA) for critical species

Wetlands

Potential wetlands in the area were initially identified using area maps and other documented information. In the field, staff evaluated all potential wetlands and compared observed features to the definition of wetlands used by Snohomish County under SCC 30.90W.060. Wetlands in the study area were identified on the site plan and categorized pursuant to the typing system contained in SCC 30.62A.230 (**Table 1**) as required per SCC 30.62A.140(1,2,3).

Wetlands in the study area were identified and delineated using the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Regions (USACE 2010), as specified under SCC 30.62A.140(1) and Washington Administrative Code (WAC) 173-22-035. Wetlands were rated using the Washington State Department of Ecology (DOE) Washington State Wetland Rating System for Western Washington (Hruby, 2014) per SCC 30.62A.140(2). Wetland classes are presented as defined in the United States Fish and Wildlife Service's Classification of Wetlands and Deep Water Habitats in the U.S. (Cowardin et al., 1979) as required under SCC 30.62A.140(3). The wetland data sheets are in **Appendix B**. The wetland rating sheets are in **Appendix C**. Photographs of the site and delineated wetlands are included in **Appendix D**.

Streams

Potential streams in the area were initially identified using area maps and other documented information. In the field, staff evaluated all potential watercourses, drainage ways, and other water features and compared observed features to the definition of streams used by Snohomish County under SCC 30.91S.640.

Streams in the study area were identified on the site plan and typed pursuant to the typing system contained in SCC 30.62A.230 (**Table 1**) as required per SCC 30.62A.140(4).

Primary Association Areas

PAA were identified within the study area. PAA are known to provide habitat for critical species defined in SCC 30.62A.410. Based upon review of literature and data from agency websites, the USFWS and the National Oceanic and Atmospheric Administration (NOAA) Fisheries, species lists were reviewed to identify potential presence of threatened and endangered species. Additionally, the WDFW Priority Habitat Species list was consulted to identify State-listed species. Listed species study area information from IPaC and National Marine Fisheries Service (NMFS) is included in **Appendix E**.

2.3.2 Buffers

Buffers associated with wetlands and streams were identified within the study area. Buffers are required adjacent to streams, lakes, wetlands, and marine waters to protect the functions and values of these aquatic and terrestrial critical areas per SCC 30.62A.320. Buffer widths are measured from the wetland edge and extend horizontally in a landward direction.

The condition of buffers was qualitatively assessed (based on ratings and types) using the following criteria:

- Dominant land use (e.g., agriculture, residential, commercial, industrial)
- Dominant buffer vegetation type (mature forest, non-mature forest, shrub, non-woody vegetation, non-vegetated cover)
- Estimated percent cover of invasive plants by species

2.3.3 Impervious Surface

SCC 30.62A.320(1)(c) states that no new effective impervious surface (NEIS) is allowed within the buffer of streams, wetlands, lakes, or marine waters; and that the total effective impervious surface (EIS) shall be limited to ten percent within 300 feet of any streams or lakes containing salmonids, wetlands containing salmonids, or marine waters containing salmonids. NEISs can include rooftops, roads, sidewalks, and parking areas. Stormwater runoff from these areas is often drained via pipes to a detention pond.

NEIS numbers are calculated by subtracting the existing effective impervious square footage within critical area buffers from the total NEIS within the same buffers.

2.4 Impact Assessment

Impacts to wetlands, streams, lakes, marine waters, PAA, naturally occurring ponds under 20 acres and their submerged aquatic beds, lakes, ponds, streams, and rivers planted with game fish, state natural area preserves, natural resource conservation areas, state wildlife areas, and buffers were assessed by overlaying the proposed design onto project base maps showing critical area locations. Impact areas were determined as the area of intersection between the proposed design footprint, including temporary work, and the surveyed base maps. This assessment also considers the loss of wetland, stream, buffers, and terrestrial habitat functions and values, and other direct and indirect impacts to FWHCA.

3. Existing Conditions

This chapter summarizes the landscape setting, existing conditions of the critical areas and buffers within or near the project setting, and watershed conditions.

3.1 Watershed Perspective

The proposed project is located within Water Resource Inventory Area 7: Snohomish/Snoqualmie Watershed. More specifically, the project site is within the Upper Wallace River subbasin, 6th Field HUC 171100090602. The study area is located on a small plateau at the south end of the Park, where the Wallace Rivers turns west and flows along the north edge of the Town of Gold Bar. The watershed is characterized primarily by undeveloped forest land, mostly in federal and state ownership, including the Park. The study area and lower watershed are characterized by low density rural and suburban residential development.

3.2 Study Area Characteristics

The study area is the south end of the Park, where almost all of the existing Park infrastructure is located, including the existing parking lot, bathrooms, trailhead, campground, ranger residence, and maintenance buildings. The study area is crossed by a major transmission line corridor maintained by BPA, which manages vegetation to prevent vertical interference with power lines. The trailhead and parking lot area is connected to the rest of the Park by a trail easement that crosses property under the power lines owned by Camp Huston, a summer camp and conference center managed by the Episcopal Diocese of Olympia. Vegetation under the power lines is characterized by a mix of native and non-native shrubs and herbaceous plants since trees are typically removed due to height limits under the power lines. Surrounding areas are characterized by mixed conifer forest.

3.2.1 Topography

The study area ranges in elevation from approximately 325 feet on the western side of the Park near the entrance to approximately 350 feet on the eastern side of the study area. The study area generally drains to the south and west toward the mainstem Wallace River. A small unnamed tributary to the Wallace River flows down the west side of the study area, flowing under the Park entrance road.

3.2.2 Soils

The U.S. Department of Agriculture (USDA) NRCS mapped soils in the project area as Tokul-Ogarty-Rock outcrop complex, 0 to 25 percent slopes, Ragnar fine sandy loam, 0 to 8 percent slopes, and Tokul-Winston gravelly loams, 25 to 65 percent slopes (NRCS 2023a) (**Figure 3**).

Tokul-Ogarty-Rock complex is defined as being about 60 percent Tokul and similar soils, 20 percent Ogarty and similar soils, and the remainder is a mixture of other types. This series forms on till plains and is moderately well drained. Depth to water table in the Tokul soils is 18 to 36 inches, and more than 80 inches for Ogarty soils. Neither soil is considered hydric (NRCS 2023a).

The Ragnar soil forms on glacial outwash plains and is well drained. Depth to water table is more than 80 inches. This soil is listed as non-hydric on the Hydric Soils List (NRCS 2023a).

The Tokul-Winston soil consists of 60 percent Tokul and similar soils, 30 percent Winston and similar soils, and the remainder is a mixture of other types. This series forms on escarpments and fill plains. Tokul soils are moderately well drained, and Winston soils are somewhat excessively drained. Neither is considered hydric (NRCS 2023a).

3.2.3 National Wetland Inventory (NWI)

The NWI map does not show wetlands mapped in the project study area. An upper perennial riverine system (Wallace River) is mapped to the south of the study area and an intermittent stream is mapped to the north of the study area (**Figure 4**).

3.2.4 Impervious Surface

The project area has approximately 6,000 square feet of existing effective impervious surface (EIS) within the critical area buffer of streams and wetlands in the study area.

3.2.5 Vegetation

Vegetation in the study area includes Douglas-fir (*Pseudotsuga menziesii*), bigleaf maple (*Acer macrophyllum*), red alder (*Alnus rubra*), western red cedar (*Thuja plicata*), western hemlock (Tsuga heterophylla), and black cottonwood (*Populus balsamifera*) in the overstory, and vine maple (*Acer circinatum*), beaked hazelnut (*Corylus cornuta*), salmonberry (*Rubus spectabilis*), Himalayan blackberry (*Rubus armeniacus*), Oregon grape (*Mahonia nervosa*), salal (*Gaultheria shallon*), ocean spray (*Holodiscus discolor*), Douglas spirea (*Spirea douglasii),* reed canarygrass (*Phalaris arundinacea*), swordfern (*Polystichum munitum*), and bracken fern (*Pteridium aquilinum*) in the understory. Areas of lawn surround the developed areas of the Park.

Figure 3. NRCS Soils Map

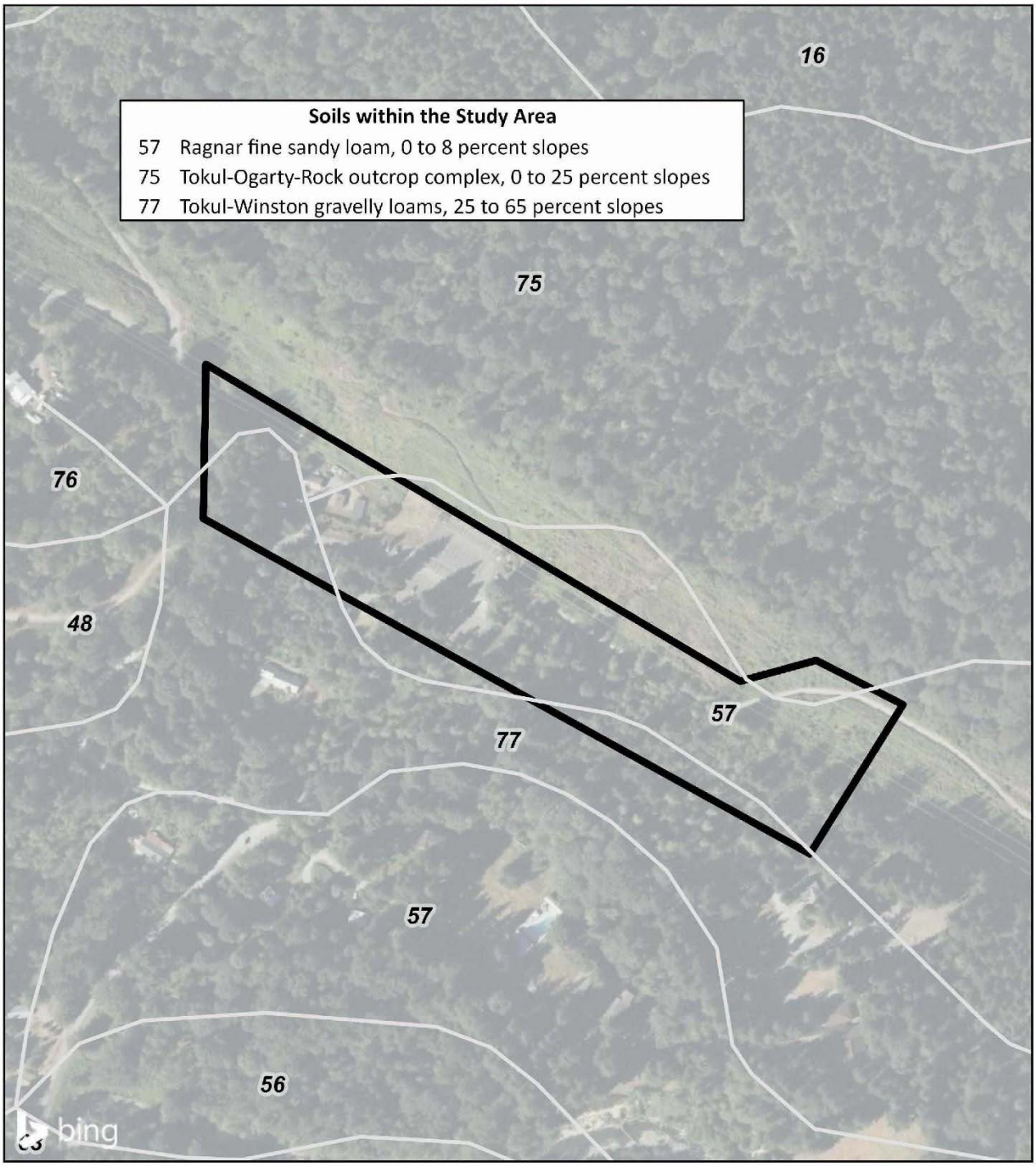
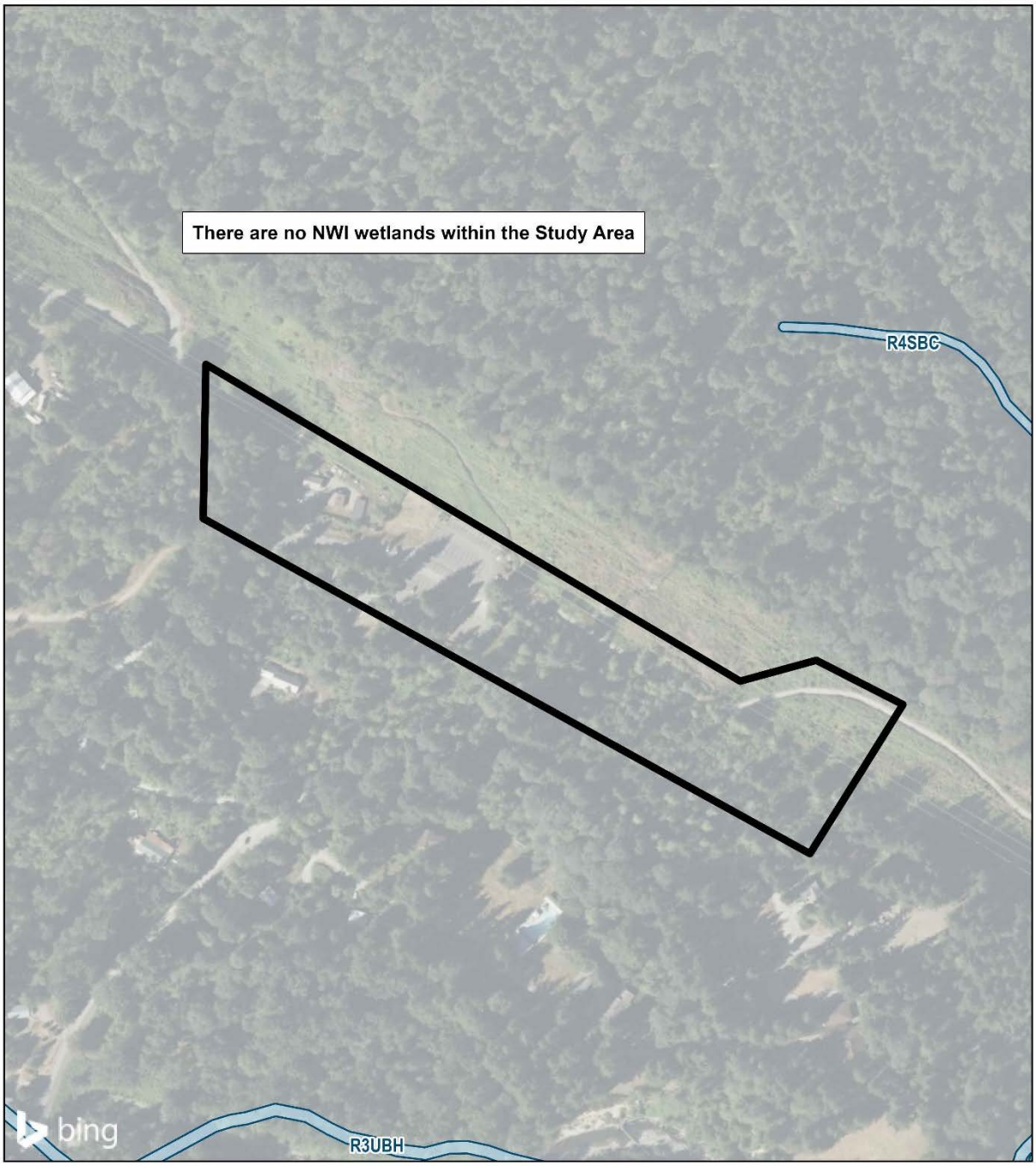


Figure 4. National Wetland Inventory Map



Source(s): USFWS, Bing Maps Aerial

Wallace Falls Water System Replacement and Parking Lot Expansion

Figure 4
National Wetland Inventory

N

0 250 500 Feet

Study Area
NWI Wetland

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3.2.6 Wetlands and Associated Buffers

Two small riverine wetlands were found in the study area, which are described below. The wetland characteristics for all wetlands are listed in **Table 2**. The wetlands are shown within the study area in **Figure 5**. The wetland data sheets are in **Appendix B**. The wetland rating sheets are in **Appendix C**. Photos that include the delineated wetlands are included in the summary sheet below and **Appendix D. Figure 5** also displays the location of various upland data plots taken in the study area. All of the study area was dominated by upland habitat except the unnamed stream and two associated small wetlands along the western edge of the study area.

Wetland W1 and W2

Wetland W1 is approximately 100 square feet and Wetland W2 is 350 square feet in size. These wetlands are Category III riverine wetlands located immediately adjacent to the unnamed tributary (stream S1) to Wallace River, which is located in a well-defined ravine along the western edge of the study area. This stream appears to be perennial and originates on the slopes north of the transmission line. It flows approximately ¼ mile before reaching the Wallace River. WDFW documents two fish passage barriers downstream of Wallace Lake Road. A summary of the wetlands is included in **Figure 6**. The vegetation, soils, and hydrologic characteristics are provided and the background data is included in **Appendix B** and **Appendix C**.

Wetland functions were assessed using the functional system included in the wetlands rating sheets (**Appendix C**) and the functional score is included in the summary sheets (**Figure 6**). Both wetlands scored 6 points for water quality and hydrologic functions. The wetlands have potential to improve water quality because it is on an average slope of 1-2 percent and woody vegetation for greater than half the area that can decrease water velocity and increase detention time of surface water. The wetland has the opportunity to improve water quality because stormwater from nearby residents, roads, and powerline maintenance. Wetland scores 6 points for hydrologic functions because of uncut, rigid vegetation for greater than half the area (to decrease water velocity). The wetland has low opportunity to reduce flooding and erosion because it is located in a small basin with limited development. Wetlands scored 7 points for habitat functions. The wetland contains one Cowardin classes and three hydrologic regimes. There is a high percent of adjacent undisturbed habitat along with 4 priority habitats.

Buffer width is based on the wetland classification (Category III and 7-point habitat score). The County standard buffer is 110 feet (SCC 30.62A.320). Much of the wetland buffer is a mix of forest, Park facilities, driveways, and powerline right or way. The buffer overlapping proposed development (new well building and gravel access road) is lawn.

Table 2. Wetland Characteristics Summary

	Wetland	
	W1	**W2**
Hydrogeomorphic Class	Riverine	Riverine
Wetland Type (Cowardin)	PFO	PFO
Size (square feet)	100	350
Category[a]	III	III
Buffer Width (feet)[b]	110	110

[a] Based on Wetland Rating System for Western Washington, (Hruby, T., August 2014)

[b] Per SCC 30.62A.320(1)(a) Table 2b

Figure 5. Wetland and Stream Map

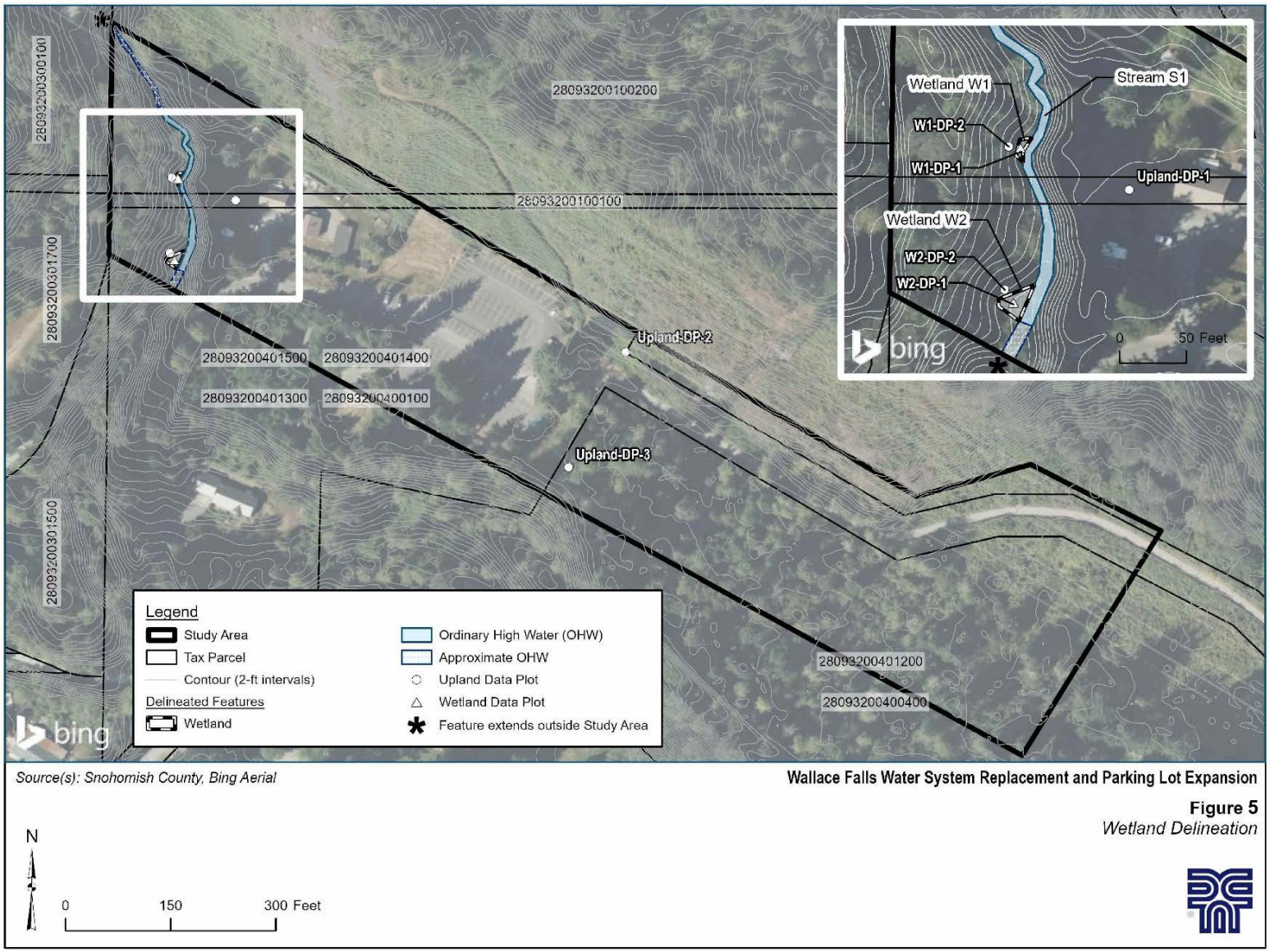

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Figure 6. Summary Sheet for Wetlands W1 and W2

WETLAND W1 and W2 – INFORMATION SUMMARY

Location: Wallace Falls State Park (Lat. 47.8677° N Long. -121.6800° W).

Wetland W1 between the stream and the yellow line.

Wetland W2 with wetland at bottom and buffer at top.

WRIA / HUC	WRIA 7- Snohomish /HUC #171100090602 Wallace River Subbasin
W. WA Ecology Rating	III
Wetland Size (acre)	W1 – 100 square feet; W2 – 350 square feet
Cowardin Classifications	PSS/PFO
HGM Classification	Depressional
Wetland Data Sheet(s)	W1-DP-1 and W2-DP-1
Upland Data Sheet(s)	W1-DP-2 and W2-DP-2
Dominant Vegetation	salmonberry (Rubus spectabilis), common ladyfern (Athyrium cyclosorum), and western swordfern (Polystichum munitum). There is western red cedar (Thuja plicata), western hemlock (Tsuga heterophylla), and Douglas-fir (Pseudotsuga menziesii) forest overstory, but trees are not rooted in wetland.
Soils	Soil Survey data: Tokul-Winston gravelly loams, 25 to 65 percent slopes. Field data: Loamy Mucky Mineral (F1).
Hydrology	Assumed Source: Precipitation, groundwater, and adjacent area runoff. Field Data: Saturation (A3) and Geomorphic Position (D2).

Wetland Functions Summary

Function	**Water Quality**	**Hydrologic**	**Habitat**	
	Circle the appropriate ratings			
Site Potential	H M [L]	H [M] L	H M [L]	
Landscape Potential	H [M] L	H [M] L	[H] M L	
Value	H [M] L	[H] M L	[H] M L	**TOTAL**
Score Based on Ratings	5	7	7	19

General Description and Comments

Wetland W1 and W2 have a hydrogeomorphic class of Riverine. Vegetation is scrub-shrub and herbaceous. Canopy trees are not rooted in the wetland. Wetlands would have a standard 110-foot buffer based on 7 habitat score. If County determines this site is a low intensity land use (with includes Park land) the buffer would be 75 feet.

3.2.7 Fish and Wildlife Habitat Conservation Areas

The WDFW PHS data mapped multiple salmonids, a mammal, and two birds in the vicinity of the study area (WDFW 2023a). The mainstem of Wallace River flows south and west around the east end of the study area. The Wallace River is approximately 0.25 mile downstream of Wetlands W1 and W2. Stream S1 flows south to the Wallace River.

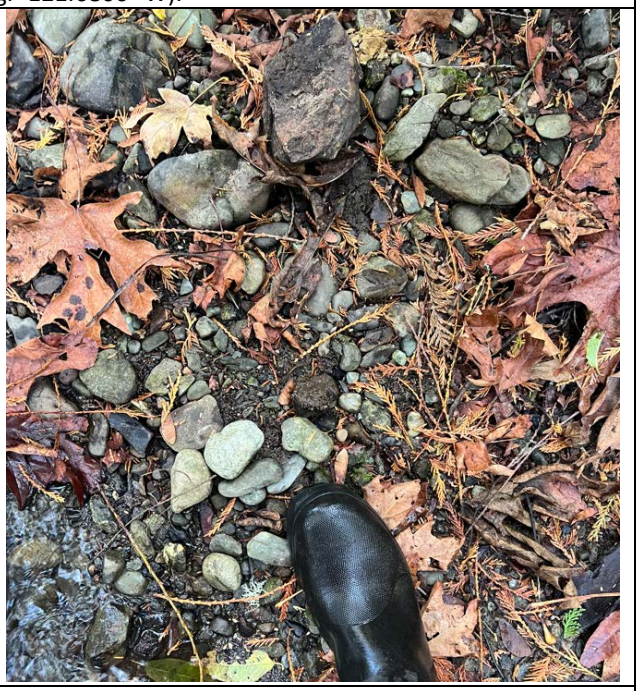
The WDFW PHS (WDFW 2023a) does not map Stream S1 but includes the nearby Wallace River. Wallace River contains several priority anadromous and resident fish including pink salmon (odd year) (*Oncorhynchus gorbuscha*), steelhead (*Oncorhynchus mykiss*), chum (*Oncorhynchus keta*), coho (*Oncorhynchus kisutch*), dolly varden/bull trout (*Salvelinus malma/S. confluentus*), Chinook (*Oncorhynchus tshawytscha*), resident coastal cutthroat trout (*Oncorhynchus clarki*), rainbow trout (*Oncorhynchus mykiss*), and cutthroat trout (*Oncorhynchus clarki*).

PHS data near the Park also includes Harlequin duck (*Histrionicus histrionicus*) breeding along the Wallace River, a northern goshawk (*Accipiter gentilis*) breeding area point upslope in the Park approximately 8000 feet to the northeast, and a wolverine (*Gulo gulo*) record in a large polygon that includes the study area.

Streams and Buffers

One stream was identified in the study area – an unnamed tributary to the Wallace River designated Stream S1 (**Figure 5**). The stream is in a narrow ravine approximately 20 to 35 feet below the existing Park facilities at the west end of the study area. There was flow in the stream during the site visit and the stream could be perennial. While neither the stream nor fish presence has been mapped, the stream meets the WAC criteria of a type F system (SCC 30.62A.230). Type F streams are afforded a 150-foot-wide buffer based on County code (SCC 30.62A.320). A summary of the characteristics of Stream S1 are included in **Figure 7**.

Figure 7. Summary Sheet for Stream S1

Stream S1 – INFORMATION SUMMARY	
Location: Wallace Falls State Park (Lat. 47.8677° N Long. -121.6800° W).	
	
Stream S1 (near Wetland W1) looking down stream to the west.	Stream S1 Substrate character within the OWHM delineation.
WRIA / HUC	WRIA 7- Snohomish /HUC #171100090602 Wallace River Subbasin
WDNR FPARS mapper	This stream is not mapped by WDNR.
WAC defined Fish Stream	The stream meets the WAC definition of a fish baring stream. It is greater than 2-foot bank full width and the channel slope is less than 16 percent.
Snohomish County PDS Map Portal	This stream is not mapped by Snohomish County.
Documented Fish Use	Fish are not documented in Stream S1. The nearby Wallace River includes chinook, Coho, chum, pink, steelhead (WDFW 2023b).
Location of Stream Relative to Study Area	S1 is located along the west side of the study area. It extends north from the Wallace River just east of the Lay Road Bridge and originates to the north of the study area.
Connectivity (where stream flows from/to)	S1 originates from the mountains to the north of the study area. The stream flows to the Wallace River, and then to the Skykomish River and into Puget Sound.
Stream Characteristics	Stream channel width averages 3 to 6 feet wide, slope is 1 to 5%, channel depth is 6 to 18 inches, substrate includes cobble, gravels, sands and fines, Flow observed during site visit, and the stream is assumed to have perennial flow.
Riparian/Buffer Condition	The buffer is forest with residential to the west, Forest and cleared power right of way to the north, and developed Park land to the east.
General Description and Comments	
As a Type F stream, S1 would have a 150-foot standard stream buffer.	

Primary Association Areas for Critical Species

The SCC 30.62A.400 requires proponents for all development activities, actions requiring project permits, or clearing to make all reasonable efforts to avoid and minimize impacts to critical species. The purpose of this section is to identify PAA associated with the project, and describe the known distribution of critical species, including those listed for protection under the Endangered Species Act (ESA).

There are no WDFW PHS mapped priority habitats or species (WDFW 2022a) in the project study area. There are several species associated with the Wallace River outside the study area.

The USFWS IPaC (USFWS 2023b) species list for the study area includes five species listed as threatened or endangered and two designated critical habitats. Species listed are gray wolf (*Canis lupus*), North American wolverine (*Gulo gulo luscus*), marbled murrelet (*Brachyramphus marmoratus*), yellow-billed cuckoo (*Coccyzus americanus*), and bull trout (*Salvelinus confluentus*) (**Table 3**). The Candidate monarch butterfly (*Danaus plexippus*) is also listed for the vicinity. Of these species, designated critical habitat is listed for bull trout and marbled murrelet. Based on a review of existing habitat conditions and the WDFW PHS data, no federally listed species under the jurisdiction of the USFWS could potentially utilize the study area or the project vicinity. See Sections 3.2.8 and 3.2.9 below for more detailed discussion.

Table 3. Critical Species [+] and/or Primary Association Areas[*] Within the Study Area

Common Name	*Scientific Name*	Critical Species Status	Primary Association Area[*]	Period of Likely Occurrence
Puget Sound Evolutionarily Significant Unit (ESU) Chinook Salmon	*Oncorhynchus tshawytscha*	Federally threatened	No	None
Coastal-Puget Sound Distinct Population Segment (DPS) Bull trout	*Salvelinus confluentus*	Federally threatened	No	None
Puget Sound DPS Steelhead	*O. mykiss*	Federally threatened	No	None
Yellow-billed cuckoo	*Coccyzus americanus*	Federally threatened/state endangered	No	None
Marbled murrelet	*Brachyramphus marmoratus*	Federally threatened/State endangered	No	Transit
North American Wolverine	*Gulo gulo luscus*	Proposed Federally threatened	No	None
Gray wolf	*Canis lupus*	Federally endangered/State endangered	No	None
Monarch Butterfly	*Danaus plexippus*	Candidate	No	None
Critical Habitats				
Bull Trout	Salvelinus confluentus	Final Critical Habitat		Not likely
Marbled Murrelet	Brachyramphus marmoratus	Final Critical Habitat		Not likely

[+]all species listed currently by the state or federal government as endangered or threatened, and species of local importance (SCC 30.91S.535), which includes: Larch Mountain salamander, common loon, peregrine falcon, Olympic mudminnow, pygmy whitefish, bald eagle, margined sculpin, and gray whale SCC 30.91C.370.

[*]Primary Association Area (SCC 30.91P.290) for fish species is assumed to be the stream/lake/wetland/marine water in which they are present and the 150-foor buffer as described in SCC 30.62A.320. Primary Association Area for terrestrial species is assumed to be breeding, feeding, cover, and migration areas, including surrounding areas needed for protection of the habitat. The size of the area depends on the species and population needs and is based on the known habitat requirements.

Sources:
Washington Department of Fish and Wildlife – https://wdfw.wa.gov/species-habitats/at-risk/phs/list
U.S. Fish and Wildlife Service – Washington Fish and Wildlife Office – https://www.fws.gov/endangered/
National Oceanic and Atmospheric Administration (NOAA) Fisheries – http://www.nmfs.noaa.gov/pr/species/esa/
U.S. Department of Agriculture National Resources Conservation Service – http://plants.usda.gov/java/threat?statelist=states&stateSelect=US53
Washington State Department of Natural Resources/WDNR Natural Heritage Program – https://www.dnr.wa.gov/NHPspecies

3.2.8 Salmonids

No salmonids will be directly affected by the project because there are no impacts to stream habitat. The Wallace River outside the study area is documented spawning habitat for steelhead, Chinook, and coho salmon (WDFW 2023b). The river is also designated critical habitat for bull trout. The unnamed stream (S1) in the study is not documented habitat for any critical salmonid species; however, it is considered to have potential to support coho, steelhead, bull trout and cutthroat trout by the WDFW Fish Passage Inventory database (WDFW 2023b).

3.2.9 Other Wildlife

Additional species listed in **Table 3** are currently state or federal government endangered or threatened species, and species of local importance (SCC 30.91S.535). These species include amphibians, mammals, fish, and birds.

Olympic mudminnow, pygmy whitefish, gray whale, and margined sculpin are not mapped in the drainages associated with the study area are not expected to be impacted by the project.

Larch Mountain salamander are not mapped in the study area. Species known range generally occurs in alpine areas associated with talus or rock or gravel slopes. These habitat features are not present in the study area. The nearest documented population is in Lewis County.

Common loons currently have only a small breeding population in Washington, where they occur in freshwater lakes and reservoirs, mainly in remote areas of northern Washington. They winter in many nearshore marine shorelines and large freshwater lakes in western Washington. There is no habitat for this species in the study area, but they could potentially utilize the lower Wallace River during winter.

The two raptors, peregrine falcon and bald eagle, range widely in search of prey. However, peregrine falcons typically breed on cliffs and tall buildings and bridges, which do not occur in or near the study area. Bald eagles could nest or forage along the Wallace River or the Skykomish River.

Marbled murrelets forage in marine waters and fly inland to nest in old growth or large conifer trees. Nesting behavior has been observed as far as 88 kilometers (55 miles) from the ocean in Washington. There is designated critical habitat for murrelet approximately 0.5 mile to the east and west of the study area (USFWS 2023d). The study area does not contain suitable nesting habitat, but suitable habitat may be present within the Park. The study area does not support marine foraging habitat, will not affect any potentially suitable habitat, and is not located in a major movement pathway. Therefore, the project would have no impact on marbled murrelets.

Yellow-billed cuckoos prefer open lowland deciduous woodlands with clearings and shrubby vegetation, especially those near rivers and streams. In western North America, there is a strong preference for large continuous riparian zones with cottonwoods and willows. Yellow-billed cuckoos are considered extirpated in Washington as a breeding population (Wiles et. al. 2017). Therefore, this species is not expected to occur in the study area.

The two large predators listed are the gray wolf and wolverine. These species are not mapped in the study area or in the vicinity of the project. These species typically use forest and alpine habitat away from urban development. It is not expected that these species will occur near the study area. Both species can make long distance movements in search of food or new home ranges, so it is possible that they could in the park on a transient basis.

The Washington Natural Heritage Program (WNHP) maps no locations of rare plants or high quality ecosystems in the study area (WNHP 2023).

3.2.10 Wildlife Habitat Connectivity

The study area is part of the Wallace Falls State Park, which provides a significant protected regional wildlife habitat connectivity corridor along the Wallace River. However, the study area encompasses the most developed portion of the Park. Therefore, the study area is not likely to contribute to the overall value of the habitat corridor significantly. The ravine associated with Stream S1 provides a local habitat corridor, but the proposed project will not affect this ravine; also, proposed buffer mitigation will improve the vegetative diversity and structure of the existing corridor.

4. Impact Assessment

This chapter summarizes and assesses the impacts to critical areas, buffers, and their functions and values. A representation of the project impacts is shown in **Figure 8.**

4.1 Wetland Impacts

Wetland impacts were avoided through project locations and design (**Table 4**).

Permanent Wetland Impacts

The proposed project will have no permanent impacts to wetlands. The design process and review developed a project that avoids permanent impacts to wetlands. For example, location and access to the proposed well are located beyond the delineated boundaries of wetlands W1 and W2.

Temporary Wetland Impacts

The proposed project will have no temporary wetland impacts. Similar to permanent impacts, the design process and review developed a project that avoids temporary impacts.

Indirect Wetland Impacts

The proposed project will result in no indirect impacts to wetlands. The project will not create any new pollutant-generating impervious surface (PGIS) that drains to wetlands.

Table 4. Summary of Wetland Impacts

Wetland	Category[a]	Vegetation Type[b]	Wetland Size (acre)	Wetland Impact Area (square feet)		
				Permanent	Temporary	Indirect
W1	III	PSS	Approximately 0.2	0	0	0
W2	III	PSS	Approximately 0.8	0	0	0
Total				0	0	0

[a] Ecology rating according to Hruby (2014); [b] PSS=palustrine scrub-shrub

No wetland functions and values are expected to be negatively affected by construction or operation of this project. The wetland functions were evaluated using the Wetland Rating System for Western Washington (Hruby 2014).

4.2 Fish and Wildlife Habitat Conservation Areas

4.2.1 Stream Impacts

No direct stream impacts will occur for this project. A portion of the stream buffer will be impacted.

4.2.2 Primary Association Areas for Critical Species

In accordance with Snohomish County CAS (SCC 30.62A.140) and Habitat Management Plan (HMP) requirements (SCC 30.62A.460), this section is intended to identify potential impacts to critical species and PAA resulting from project activities.

Salmonids

With all stream impacts avoided and limited fish use of the streams near the study area there will be no direct impacts to salmonids from this project.

The functions and values essential to the development and maintenance of PAA that provide habitat for salmonids (SCC 30.62A.220(5)) are discussed below. These functions and values include, but are not limited to:

- Riparian shading and Large Woody Debris (LWD) recruitment
- Organic inputs
- Bank stabilization
- Sediment control
- Pollution assimilation
- Temperature maintenance
- Floodwater attenuation and storage

No change is expected from existing conditions for any of these indicators. No vegetation that influences riparian shading, LWD recruitment, organic inputs, bank stabilization, or temperature maintenance will be affected. Impervious surface for the project as a whole will increase, but runoff will be detained and treated with improved onsite stormwater facilities, so there would be no effects to downstream floodwater attenuation and storage.

Terrestrial Species

The functions and values essential to the development and maintenance of PAA that provide habitat for terrestrial wildlife species (SCC 30.62A.220) are discussed below. These functions and values include, but are not limited to:

- Habitat connectivity and travel corridors
- Structural and spatial complexity
- Breeding and nesting areas
- Roosting habitat and shelter
- Dispersal habitat
- Feeding areas and food source

Approximately 1.65 acres of various existing habitat types will be affected by the proposed project. The majority of the habitat has been affected by previous and ongoing human activities, including Park maintenance, active vegetation maintenance along the BPA transmission line, and recreation activities. All of the habitat is in close proximity to high levels of ongoing human activity and is not documented habitat for any priority species.

Effects to habitat connectivity and travel corridors are negligible. The proposed project maximizes use of existing disturbed areas, including improvements (including additional parking) to an existing parking area. The project will widen the area of disturbance associated with the existing trail that extends east of the parking area. However, this area is already influenced by the presence of the transmission line, managed buffer and lacks a forest overstory.

The proposed project will reduce structural and spatial complexity of existing habitats. **Table 5** displays the estimated acres of forest, shrub and grass habitat that will be converted to developed surfaces. Approximately 35 percent of project impacts are associated with areas of lawn with low structural complexity. Maps displaying proposed habitat impacts are included in **Appendix F**.

Effects to nesting and roosting habitat will be limited primarily to the 0.63 acre of forest. State Parks has carefully designed the project to minimize impacts to trees by eliminating proposed parking spots to save trees and by meandering the new trail around existing trees. These measures have reduced estimated tree impacts to 30 significant trees (per SCC 30.91S.320), mostly in the area adjacent to and south of the existing trail. This area could be used as nesting and roosting habitat by a variety of native birds. **Table 6** below lists the 30 trees by species and diameter that are proposed to be taken. Alder trees are not considered significant trees under SCC.

Effects to dispersal and foraging habitat should be minimal. All impacts are associated with edge habitat adjacent to existing developed surfaces. Wildlife in these areas are acclimated to a high level of human activity. Furthermore, these habitats are not limited in the project area.

Figure 8. Critical Area Buffer Impacts

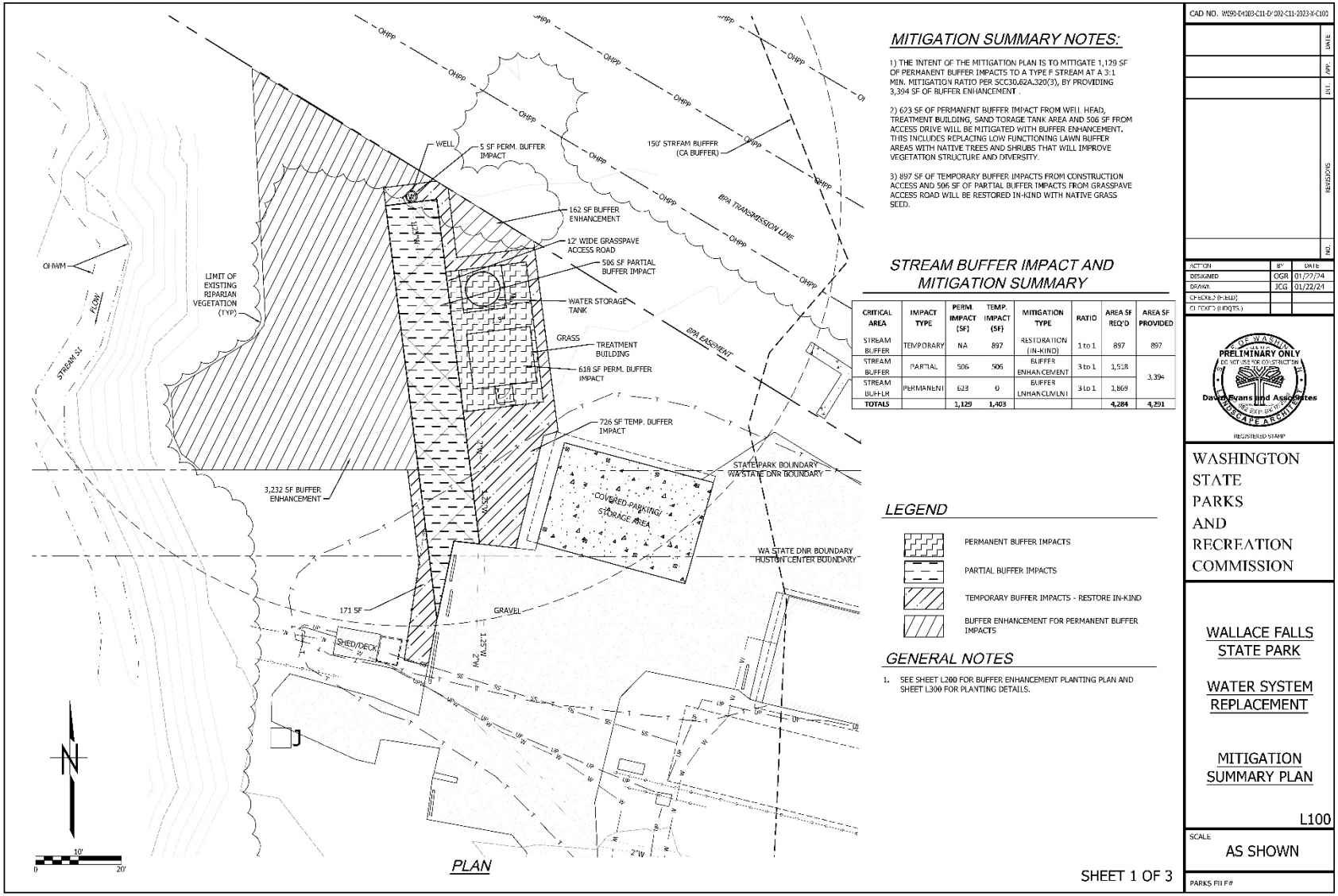


Table 5. Summary of Estimated Overall Project Habitat Impacts

Habitat Type	Impact (square feet/acres)
Grass	18,500/0.42
Shrub	26,000/0.60
Forest	27,500/0.63
Total	**72,000/1.65**

Table 6. List of Tree Proposed to be Removed by the Project

Tree Species	Number of Trees	DBH Range (inches)
Red alder	25	12-24
Western hemlock	4	12-28
Bigleaf maple	1	54

4.3 Buffer Impacts

Critical area buffer impacts will occur for construction of the project. The impacts are shown in **Figure 8** and listed in **Table 7.** Temporary impact to buffer will occur in areas of existing lawn. Tree impacts are avoided, except for a single small red alder near the proposed new well. Areas of buffer impact to lawn vegetation can be replaced quickly and is therefore considered a short term temporary impact.

The functions and values of buffers are listed in SCC 30.62A.220(7) and include the following:

- Habitat for water – and riparian-associated species
- Wildlife movement corridor
- Streambank stabilization
- Noise and visual screening
- Organic inputs, including LWD, nutrients
- Pollution assimilation
- Temperature maintenance
- Surface water infiltration
- Light pollution

Table 7. Summary of Buffer Impacts

Critical Area	Classification /Category	Buffer Width (feet)	Vegetation Types	Buffer Impact Area (square feet)		
				Permanent	Temporary	
					Short Term[b]	Long Term[c]
W1	III	110	Grass	0[a]	0	0
W2	III	110	Grass	0	0	0
S1	F	150	Grass	1,129	1,403	0
Total				1,129	1,403	

[a] Impacts are all listed as stream buffer to avoid double-counting.

[b] Functions would return to pre-impact performance within one growing season of impact.

[c] Functions would return but will take longer than a year.

4.3.1 Permanent Buffer Impacts

The proposed project will permanently impact 1,129 square feet of critical area buffer. These permanent buffer impacts are all composed of grass in an existing lawn area, except for one red alder tree that would be removed. Permanent impacts include installation of a permanent grasspave access road to the new well location, as well as the proposed water storage tank and treatment/booster building. The grasspave road will be pervious and will still allow infiltration of precipitation, but will be comprised of approximately 50 percent paver material, so this is counted as partial permanent impact to the buffer. These impacts will have negligible impacts to the buffer functions listed above. The work will not be closer to the stream than other existing disturbances, although still within the buffer. Human activity will not increase significantly. Light pollution will not increase. **Figure 9** and **Figure 10** provide photographs of the proposed buffer impact area.

4.3.2 Temporary Buffer Impacts

The proposed project will temporarily impact 1,403 square feet of critical area buffer. These impacts are based on the areas around the access road and structures that will be disturbed during construction, as well as the areas needed for installation of the water lines. Buffer functions are affected by clearing, grading, and construction access. Limited buffer function provided by existing grass habitat will be replaced and enhanced quickly by post-construction restoration actions.

4.3.3 Indirect Buffer Impacts

The proposed project will have no indirect impacts to buffer.

4.4 Impacts to Wildlife and Habitat Connectivity

Minimal to no impacts to wildlife and habitat connectivity are anticipated because no new roadway or travel lanes will be created. Therefore, no new barriers to connectivity are expected beyond existing conditions. Permanent and temporary impacts are limited to lawn areas in close proximity to existing human disturbance (Park office and maintenance area).

4.5 Impervious Surface Impacts

SCC 30.62A.320(1)(c) states that no NEIS are allowed within the buffer of streams, wetlands, lakes, or marine waters; and that the total effective impervious surfaces shall be limited to 10 percent within 300 feet of any streams or lakes containing salmonids, wetlands containing salmonids, or marine waters containing salmonids. NEIS can include rooftops, roads, sidewalks, and parking areas. Stormwater runoff from these areas is often drained via pipes to a detention pond.

The project will add approximately 618 square feet of NEIS within critical area buffers. This area is from the water storage tank, roof of the new treatment building, and surrounding gravel pad, none of which is pollution-generating. However, existing drainage patterns would be retained. Currently, there is approximately 7 percent of NEIS within 300 feet of the adjacent stream in the vicinity of the study area. The proposed project would increase this by approximately 0.01 percent. Runoff from the new NEIS will infiltrate in the surrounding buffer, as the existing NEIS does now. Overall, for the entire project, water quality will improve because of improved stormwater treatment facilities. Proposed new impervious surface for the project as a whole is approximately 1.35 acres. Most of this impervious surface (1.33 acres) comes from the new proposed parking lot, gravel trail, and concrete sidewalk, all of which are outside critical area buffers. The water system expansion will only create 0.02 acre of new impervious surface.

The proposed stormwater infrastructure improvements include stormwater conveyance, treatment, and subsurface infiltration. The proposed stormwater design involves treating the water quality flow with a hydrodynamic separator and infiltrating all flows up to the 50-year recurrence interval using sub-surface

chamber infiltration systems. The hydrodynamic separator will protect the infiltration gallery from incoming pollutants and provide a single point for maintenance access. An emergency overflow pathway is being utilized for flows that exceed the capacity of the infiltration gallery. These high flows will be conveyed through an existing ditch to a small stream located to the west of the property, in conformance with the existing flow regime. All facilities were designed using the Western Washington Hydrology Model (WWHM). The design will replace the existing infiltration pond with two subsurface infiltration basins made up of multiple arch-shaped polypropylene chambers (Ex: SC-740 Stormtech System). New stormwater infrastructure includes stormwater manholes, catch basins, flow control structure, and approximately 420 linear feet of 12-inch stormwater main.

Figure 9. Buffer Impact Photograph 1

Figure 10. Buffer Impact Photograph 2

5. Mitigation Plan

The mitigation strategy described in this chapter involves avoidance, minimization of impacts, and compensatory mitigation for unavoidable impacts to critical areas and buffers. The proposed project work avoids all impacts to wetlands and streams. Mitigation for temporary and permanent wetland and stream buffer impacts are addressed.

5.1 Mitigation Proposal Summary

In compliance with SCC 30.62A.310(3)(b), compensatory mitigation is required for this project due to unavoidable impacts to regulated critical area buffers. In compliance with SCC 30.62.550(2)(b), mitigation for temporary impacts for this project will occur on-site through restoration. Mitigation for permanent buffer impacts will be accomplished by using on site buffer enhancement.

5.2 Regulatory Requirements

Washington Department of Fish and Wildlife

The WDFW protects freshwater and marine habitats using the agency's authority to provide approvals for construction projects that use, divert, obstruct, or change the natural bed or flow of state waters. The Hydraulic Project Approval (HPA) permit is authorized through Chapter 77.55 Revised Code of Washington (RCW) and administered through rules in Chapter 220-110 WAC. The WDFW requires avoiding impacts, rectifying unavoidable impacts, and compensating for remaining impacts, WAC 220-660-070.

Snohomish County Critical Area Regulations

Development activities, actions requiring project permits, and clearing are required to be consistent with SCC Chapter 30.62A. This chapter provides for mitigation to address impacts to wetlands, streams, lakes, marine waters, and PAA for critical species (SCC 30.62A.150). Also, SCC 30.62A.160 addresses permanent identification, protection and recording of mitigation areas, which includes criteria for critical area signage.

5.3 Mitigation Sequencing

Snohomish County requires that mitigation efforts follow this prescribed sequence:

- Avoiding impacts altogether by not taking certain action or parts of an action.
- Minimizing impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps to avoid or reduce impacts.
- Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
- Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- Compensating for the impact by replacing, enhancing, or providing substitute resources or environments.
- Monitoring the impact and taking appropriate corrective measures.

5.3.1 Avoidance and Minimization

State Parks made all reasonable efforts to avoid and minimize impacts to wetlands, FWHCA, and buffers in accordance with SCC 30.62A310(3)(a) (see BMPs section 1.5) through project design and implementation. Total buffer avoidance was not possible due to constraints associated with location of the proposed well location and treatment building. Impacts were minimized through location of the new facilities in previously disturbed areas lacking significant native vegetation. The remainder of the project is located outside of critical areas. Also, the project includes improved water quality treatment facilities which will improve downstream water quality. Compensatory stream buffer mitigation will replace all

critical area functions lost as a result of these unavoidable impacts. In addition, State Parks made significant efforts to minimize impacts to significant trees throughout the study area.

5.3.2 Mitigation Strategy

Wetland Mitigation

The proposed project avoids wetland impacts therefore no wetland mitigation is required.

Critical Species and Primary Association Area Mitigation

No impacts to critical species and their PAA will occur, therefore no mitigation is proposed. Replacement of trees will occur according to Snohomish County tree canopy code (SCC 30.25) regulations (not critical areas). Construction or maintenance of public or private road network elements, and public or private utilities including utility easements not related to development, are exempt from County tree canopy requirements.

Buffer Mitigation

Buffer mitigation for permanent impact is proposed to be met through use of on-site buffer restoration and enhancement. Temporary buffer impacts associated with construction will be mitigated onsite with the restoration of the temporary impacts once construction is completed. Temporary impact areas will be restored to enhanced native plant vegetative conditions than the existing lawn.

Habitat Connectivity

No impacts to habitat connectivity are expected for the project that is located in a previously disturbed area of the Park with high levels of development and human activity.

5.3.3 Mitigation Results

The results of applying the recommended critical area buffer mitigation ratios for concurrent buffer creation and enhancement are shown in **Table 8.**

Table 8. Summary of Buffer Mitigation

Vegetation Type	Permanent Impact Area (SF)	Temporary Impact Area (SF) [f]	Recommended Ratio (Creation/ Enhancement)[a]	Proposed Mitigation		
				Creation [b]	Additional Buffer [c, d]	Enhancement [e]
Mature Forest	0	0	6:1 / 12:1	0	0	0
Forest	0	0	3:1 / 6:1	0		0
Shrub	0	0	2:1 / 4:1	0		0
Herbaceous	1,129	1,403	1.5:1 / 3:1	0		4,291
Total	1,129	1,403				4,291

[a] Required ratio according to SCC30.62A.320(3).

[b] Includes removing impervious surfaces within the buffer such as roads, buildings, etc.

[c] Includes adding buffer with the same or better vegetation type.

[d] Includes adding buffer with buffer vegetation that is lower than what was impacted, but that will be enhanced with plantings

[e] Includes enhancing existing areas or bank credit.

[f] Temporary buffer impacts will be restored at the impact location.

5.4 Buffer Mitigation

Compensatory mitigation for permanent buffer impacts will be restoration and enhancement of the buffer between the proposed work and the adjacent critical areas as well as areas on the north side of the proposed well and treatment building (**Figure 11**). The 1,129 square feet of herbaceous buffer impact will be mitigated at more than a 3:1 ratio (approximately 3.8:1) with 4,291 square feet of buffer enhancement. The impacts, ratios, and buffer mitigation numbers are show in **Table 8**.

5.5 Temporary Buffer Restoration Mitigation

Temporary buffer impacts (1,403 square feet) will be restored on site using a mix of grass and native shrub plantings once construction is completed. Soils will be prepared if needed to alleviate compaction and ensure there is suitable mulch on the soil surface. Vegetation in the temporary impact areas is characterized by grass (**Figure 9** and **Figure 10**). Mitigation will count as buffer enhancement since the vegetation structure and diversity will be improved from current grass lawn conditions. Approximately 897 square feet of temporary impact will be restored in kind at a 1:1 ratio. The remaining 506 square feet would be mitigated by a minimum 3:1 buffer enhancement ratio.

5.6 Monitoring and Maintenance

The proposed mitigation area will need to be monitored and maintained according to criteria described in SCC 30.62A.150.

5.6.1 Performance Standards

The proposed buffer restoration and enhancement areas will be monitored for five years to demonstrate that the intended goals and objectives are being met. Performance measures and performance standards describe specific on-site characteristics that indicate a function is being provided. Performance results are used to guide adaptive management of the mitigation site and to evaluate compliance with regulatory permits requirements. Contingency plans describe what actions can be taken to correct site deficiencies.

Adaptive management can be used to improve mitigation success. Adaptive management involves learning from monitoring and implementing management activities, such as implementing parts of the site management or contingency plans. Information from monitoring is used to direct subsequent site management activities. As part of the adaptive management process, mid-course corrections may necessitate a change in vision for the site if nature takes its course and things turn out differently than planned. A change in vision may require renegotiation with regulators for a new set of performance standards.

The performance standards described below provide benchmarks for measuring achievement of the goals and objectives of the mitigation sites. Mitigation activities are intended to meet these performance standards within the specified time frame. The mitigation site will be deemed successful after achieving the proposed performance standards described in **Table 9**. A baseline evaluation should be conducted and will represent a baseline of conditions after mitigation is implemented (i.e., construction is completed). Results of annual monitoring will be compared with these standards.

Table 9. Summary of Performance Standards

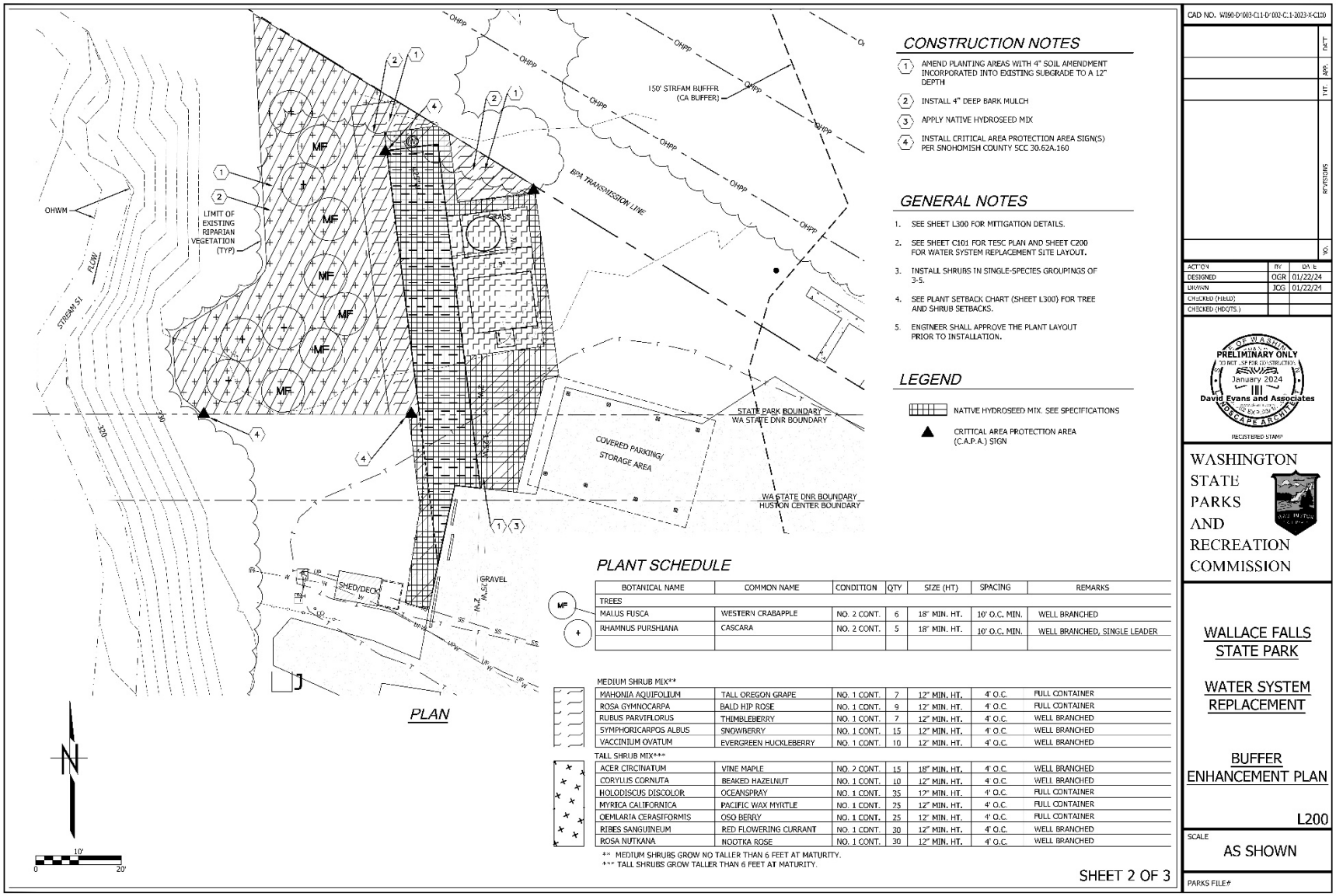
Performance Standards	Monitoring Methods	Monitoring Intervals
1. Survival of all installed native trees and shrubs in all enhancement areas will be 80 percent one year after installation. If 80 percent survival is not achieved, plants will be replaced.	Total count, transects, or similar method.	Year 1
2. Buffer Plant Cover. Annual monitoring for cover of all installed plants. Volunteer native plants in mitigation area will be included. Year 2 – 40 percent Year 3 – 50 percent Year 5 – 80 percent	Percent cover of installed plants shall be measured by an approved monitoring technique such as line intercept method and/or sample plots.	All Years
3. No more than 20% cover of non-native or other invasives, including Himalayan blackberry (*Rubus armeniacus*), evergreen blackberry (*Rubus laciniatus*), Scot's broom (*Cytisus scoparius*), and thistles (*Cirsium arvense* and *C. vulgare*).	Percent cover of non-native or invasive species shall be measured by an approved monitoring technique such as line intercept method and/or sample plots. If Japanese knotweed (*Polygonum cuspidatum*), purple loosestrife (*Lythrum salicaria*), and English ivy (*Hedera helix*) are observed at the mitigation site, maintenance actions will occur immediately to remove these aggressive non-native species.	All Years

5.6.2 Monitoring and Maintenance

The mitigation site will be monitored for a minimum of five years. The site should be evaluated for baseline conditions the spring or early summer following plant installation to evaluate survival rates and document the presence of non-native invasive species. A baseline monitoring report should document post construction conditions and characteristics. As built, baseline and monitoring reports will be submitted to the County for review and comment. Monitoring reports will be completed by December of each monitoring year. Mitigation success will be measured by the attainment of performance standards. The actual monitoring methods used to monitor the site will be determined and documented in annual monitoring reports.

Maintenance within the enhancement areas will be performed annually as directed by the County or the County's representative. Maintenance tasks include replacement of failed plantings, temporary irrigation, trash removal, repair and replacement of signs and fences, and invasive plant removal. If during the monitoring period it becomes evident that invasive species are impeding establishment of desirable native plants, measures will be implemented to control nuisance species. A progressively aggressive approach will be used to control nuisance species. Control measures will first include hand cutting and removal. If this hand removal is unsuccessful, herbicides may be used. Herbicides will be applied in such a way to avoid spray or drift from entering the adjacent wetlands and stream. Given the close proximity of the dense blackberry areas under the powerlines, managing that species will likely be a continuing challenge.

Figure 11. Proposed Buffer Mitigation Planting Plan



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Appendix A. Design Plans

WASHINGTON STATE PARKS & RECREATION COMMISSION

MARK O. BROWN, CHAIR

SOPHIA DANENBERG — LAURIE CONNELLY

MICHAEL LATIMER — KEN BOUNDS

ALI RAAD — HOLLY WILLIAMS

DIANA DUPUIS, DIRECTOR

APPROVED FOR CONSTRUCTION

REGION MANAGER *date*

CAPITAL PROGRAM MANAGER *date*

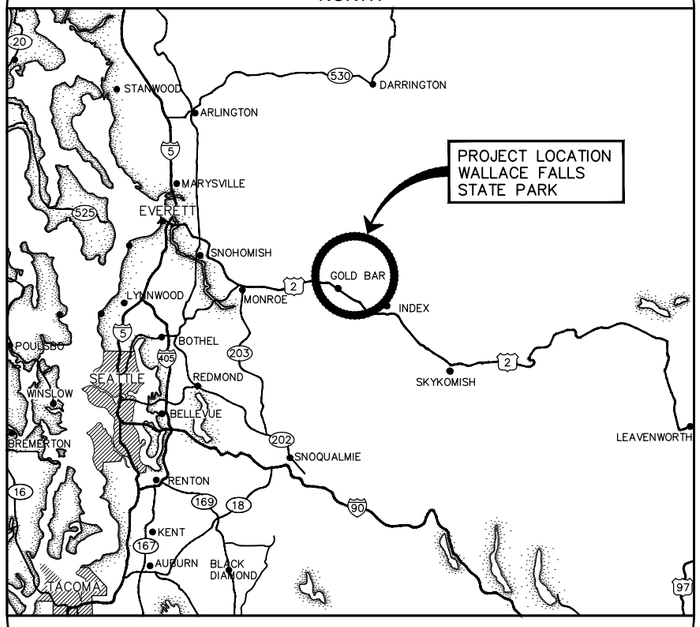
Area Manager: SHAWN TOBIN

WALLACE FALLS STATE PARK

PARKING EXPANSION AND WATER SYSTEM REPLACEMENT

VICINITY MAP

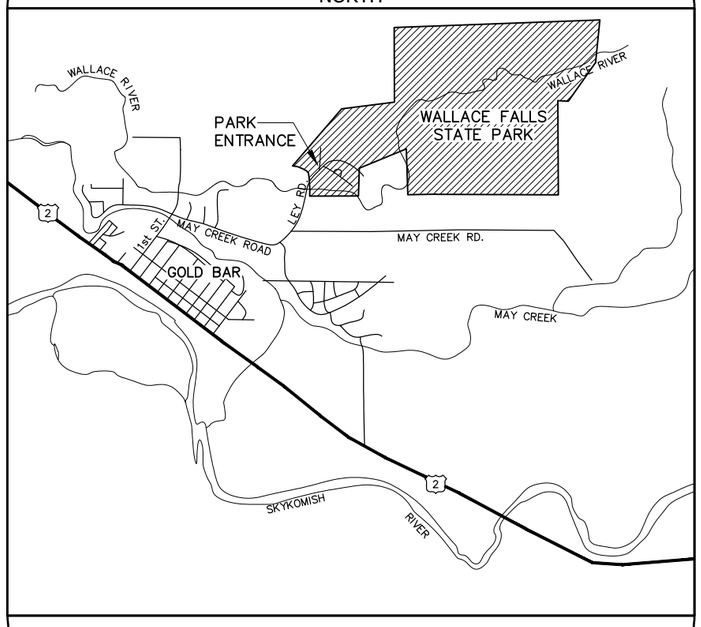
NORTH



LATITUDE: 47°52'2.90"N & LONGITUDE: 121°40'44.95"W

PROJECT LOCATION

NORTH



14503 WALLACE LAKE RD SULTAN WA 98294
SEC-32, 33 T-28-N R-09-E
SNOHOMISH COUNTY TAX PARCEL NUMBER 28093200400100

INDEX

CAD#: W090-D4003-C11-D4002-C11-2023 PARKING EXPANSION AND WATER SYSTEM REPLACEMENT

PROJECT TEAM

OWNER: STATE OF WASHINGTON
PARKS AND RECREATION COMMISSION
1111 ISRAEL ROAD SOUTHWEST
POST OFFICE BOX 42650
OLYMPIA, WASHINGTON 98504-2650

OWNER'S REPRESENTATVE: www.parks.wa.gov

WASHINGTON STATE PARKS AND RECREATION COMMISSION
220 NORTH WALNUT STREET
BURLINGTON WA 98233

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CONSTRUCTION PROJECT ADMINISTRATOR
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SHEET X OF X

CAD NO. W090-D4003-C11-D4002-C11-2023-X-G101

NO.	REVISIONS	INT.	APP.	DATE

ACTION	BY	DATE
DESIGNED	HKP	03/31/23
DRAWN	DKH	03/31/23
CHECKED (FIELD)		
CHECKED (HDQTS.)		

REGISTERED STAMP

WASHINGTON STATE PARKS AND RECREATION COMMISSION

WALLACE FALLS STATE PARK

PARKING EXPANSION AND WATER SYSTEM REPLACEMENT

PROJECT TEAM

G101

SCALE
NONE

PARKS FILE#

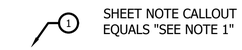
LEGEND

	EXISTING	PROPOSED
EDGE OF ASPHALT		
TRAIL		
GRAVEL		
CONCRETE		
FENCING		
UNDERGROUND WATER LINE	W W W	4"W
ALTERNATIVE UNDERGROUND WATER LINE		4"W
UNDERGROUND SANITARY SEWER LINE	SS SS SS	
UNDERGROUND SEPTIC LINE		
UNDERGROUND POWER LINE	UP UP UP	
UNDERGROUND COMMUNICATIONS TV LINE	T T T	
OVERHEAD POWER LINE	OHPP	
BUILDING/STRUCTURE LINE		
BUILDING EVE LINE		
EDGE OF STREAM		
SWALE		
PROPERTY LINE		
CONTOUR MINOR		
CONTOUR MAJOR	310	
TOE OF SLOPE	TOE TOE	
TOP OF SLOPE	TOP TOP	
EDGE OF TREES/SHRUBS		
BPA SETBACK		
CRITICAL AREA BUFFER		
WELL HEAD SANITARY CONTROL AREA		
WELL		W
FIRE HYDRANT		
WATER VALVE	WV	
WATER METER	WM	
HOSE BIB		
CATCH BASIN		
ROOF DRAIN	RD	
SANITARY CLEANOUT	CO	

	EXISTING	PROPOSED
JUNCTION BOX	J	
POWER TRANSFORMER	PBX	
POWER JUNCTION BOX		
TELEPHONE JUNCTION BOX		
FLAG POLE	FLAG	
BOLLARDS		
MAIL BOX	MAILBOX	
PAY BOX	PAY BOX	
STORM CULVERT		
ENVIRONMENTAL PROBE		
DHA SURVEY CONTROL (HUB AND TACK)		
DHA SURVEY CONTROL (REBAR AND CAP)		
WETLAND FLAG		
SIGN		
BBQ	BBQ	
FIRE PIT	FIRERING	
SUBSURFACE TEST PIT	TP-3	
HANDICAPPED PARKING		
CONIFEROUS TREE		
DECIDUOUS TREE		

811 Know what's below. Call before you dig.

SHEET SYMBOLS



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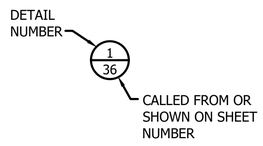

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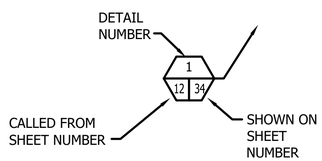

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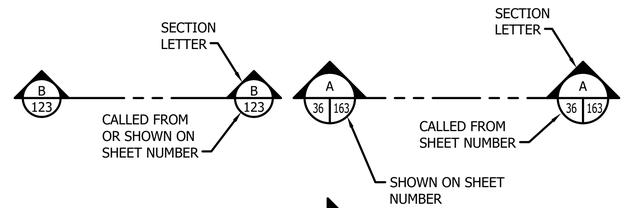

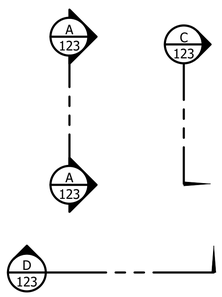

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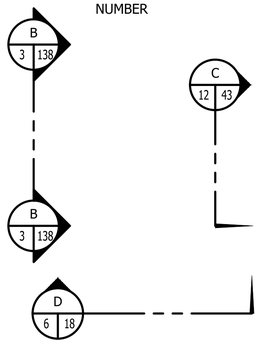

3 PART SECTION CALLOUTS

CALLOUTS

SHEET X OF X

CAD NO. W090-D4003-C11-D4002-C11-2023-X-G102

NO.	REVISIONS	INT.	APP.	DATE

ACTION	BY	DATE
DESIGNED	HKP	03/31/23
DRAWN	DKH	03/31/23
CHECKED (FIELD)		
CHECKED (HDQTS.)		

PRELIMINARY ONLY
DO NOT USE FOR CONSTRUCTION
March 2023
Consor
www.consoreng.com

REGISTERED STAMP

WASHINGTON STATE PARKS AND RECREATION COMMISSION

WALLACE FALLS STATE PARK

PARKING EXPANSION AND WATER SYSTEM REPLACEMENT

GENERAL LEGEND

G102

SCALE
NONE

PARKS FILE#

@	AT
A	ALDER TREE
AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY & TRANSPORTATION OFFICIALS
AB	ANCHOR BOLT
ABAN(D)	ABANDON(ED)
ABS	ACRYLONITRILE BUTADIENE STYRENE
ABV	ABOVE / ALCOHOL BY VOLUME
AC	ASPHALTIC CONCRETE
ACP	ASPHALTIC CONCRETE PAVING
ADJ	ADJUSTABLE
ADJC	ADJACENT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHR	ANCHOR
AL	ALUMINUM
ALT	ALTERNATE
AMP	AMPERE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
(AP)	APPROXIMATE
APPROX	APPROXIMATE
APPVD	APPROVED
APWA	AMERICAN PUBLIC WORKS ASSOCIATION
ARCH	ARCHITECTURAL
ARV	AIR RELEASE VALVE
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
ASR	AQUIFER STORAGE & RECOVERY
ASSN	ASSOCIATION
ASSY	ASSEMBLY
ASTM	AMERICAN SOCIETY FOR TESTING & MATERIALS
ATM	ATMOSPHERE
AUTO	AUTOMATIC
AUX	AUXILIARY
AVE	AVENUE
AVG	AVERAGE
AWWA	AMERICAN WATER WORKS ASSOCIATION
B&S	BELL & SPIGOT
BC	BOLT CIRCLE
BD	BOARD
BETW	BETWEEN
BF	BOTH FACE
BFD	BACKFLOW PREVENTION DEVICE
BFILL	BACKFILL
BFV	BUTTERFLY VALVE
BHP	BRAKE HORSEPOWER
BKGD	BACKGROUND
BLDG	BUILDING
BLK	BLOCK
BLVD	BOULEVARD
BM	BENCHMARK / BEAM
BMP	BEST MANAGEMENT PRACTICES
BO	BLOW-OFF
BOC	BACK OF CURB
BOW	BOTTOM OF WALL
BPA	BONNEVILLE POWER ADMINISTRATION
BS	BOTH SIDES
BSMT	BASEMENT
BTF	BOTTOM FACE
BTU	BRITISH THERMAL UNIT
BV	BALL VALVE
BW	BOTH WAYS
C	CELSIUS / CONIFER TREE
C TO C	CENTER TO CENTER
CA	CRITICAL AREA
CARV	COMBINATION AIR RELEASE VALVE
CATV	CABLE TELEVISION
CB	CATCH BASIN
CCP	CONCRETE CYLINDER PIPE
CCW	COUNTER CLOCKWISE
CFM	CUBIC FEET PER MINUTE
CFS	CUBIC FEET PER SECOND
CHAN	CHANNEL
CHEM	CHEMICAL
CHFR	CHAMFER
CHKV	CHECK VALVE
CI	CAST IRON
CIP	CAST IRON PIPE
CIPC	CAST IN PLACE CONCRETE
CISP	CAST IRON SOIL PIPE
CJ	CONSTRUCTION JOINT
CL OR C/L	CENTER LINE
CL2	CHLORINE
CLG	CEILING
CLJ	CONTROL JOINT
CLR	CLEAR
CLSM	CONTROLLED LOW STRENGTH MATERIAL
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
CND	CONDUIT
CO	CLEANOUT
COL	COLUMN
COMB	COMBINATION
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUOUS / CONTINUATION
CONTR	CONTRACT(OR)
COORD	COORDINATE
COP	COPPER
CORP	CORPORATION
CORR	CORRUGATED
CP	CONTROL POINT
CPLG	COUPLING
CPVC	CHLORINATED POLYVINYL CHLORIDE
CR	CRUSHED ROCK
CS	COMBINED SEWER
CSP	CONCRETE SEWER PIPE
CT	COURT
CTR	CENTER
CU	CUBIC
CULV	CULVERT
CV	CONTROL VALVE
CW	CLOCKWISE / COLD WATER / COTTON WOOD TREE
CY	CUBIC YARDS
CYL	CYLINDER LOCK
D	DRAIN
DC	DIRECT CURRENT
DF	DRAINFIELD
DEA	DAVID EVAN'S AND ASSOCIATES
DEC	DECIDUOUS TREE
DEFL	DEFLECTION
DEQ	DEPARTMENT OF ENVIRONMENTAL QUALITY
DET	DETAIL
DI	DUCTILE IRON
DIA	DIAMETER
DIM	DIMENSION
DIR	DIRECTION
DIST	DISTANCE
DN	DOWN
DNR	DEPARTMENT OF NATURAL RESOURCES
DR	DRIVE
DS	DOWNSPOUT
DWG	DRAWING
DWL	DOWEL
DWV	DRAIN WASTE AND VENT
DWY	DRIVEWAY
(E)	EXISTING
E / ELEC	ELECTRICAL
EA	EACH
ECC	ECCENTRIC
EF	EACH FACE
EL	ELEVATION
ELB	ELBOW
ENCL	ENCLOSURE
EOP	EDGE OF PAVEMENT
EQ	EQUAL
EQL SP	EQUALLY SPACED
EQUIP	EQUIPMENT
ESMT	EASEMENT
EW	EACH WAY
EXC	EXCAVATE
EXIST	EXISTING
EXP	EXPANSION
EXP BT	EXPANSION BOLT
EXP JT	EXPANSION JOINT
EXT	EXTERIOR
F	FAHRENHEIT / FIR TREE
F TO F	FACE TO FACE
FAB	FABRICATE
FB	FLAT BAR
FCA	FLANGED COUPLING ADAPTER
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
FDN	FOUNDATION
FEXT	FIRE EXTINGUISHER
FF	FINISHED FLOOR / FAR FACE
FGL	FIBERGLASS
FH	FIRE HYDRANT
FIN	FINISH(ED)
FIPT	FEMALE IRON PIPE THREAD
FITG	FITTING
FL	FLOOR LINE
FLEX	FLEXIBLE
FLG	FLANGE
FLL	FLOW LINE
FLR	FLOOR
FM	FLOW METER
FO	FIBER OPTIC
FOC	FACE OF CONCRETE
FOF	FACE OF FINISH
FOM	FACE OF MASONRY
FOS	FACE OF STUDS
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FRP	FIBERGLASS REINFORCED PLASTIC
FT	FEET / FOOT
FTG	FOOTING
FUT	FUTURE
FXTR	FIXTURE
G	GAS
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GC	GROOVED COUPLING
GFA	GROOVED FLANGE ADAPTER
GI	GALVANIZED IRON
GIP	GALVANIZED IRON PIPE
GJ	GRIP JOINT
GL	GLASS
GLV	GLOBE VALVE
GND	GROUND
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GPS	GALLONS PER SECOND
GR	GRADE
GR LN	GRADE LINE
GRTG	GRATING
GV	GATE VALVE
GRVL	GRAVEL
GYP	GYPSUM
H	HEMLOCK TREE
HB	HOSE BIBB
HC	HOLLOW CORE
HDPE	HIGH DENSITY POLYETHYLENE
HDR	HEADER
HDWE	HARDWARE
HGR	HANGER
HGT	HEIGHT
HH	HANDHOLD
HM	HOLLOW METAL
HMAC	HOT MIX ASPHALT CONCRETE
HNDRL	HANDRAIL
HOA	HAND-OFF-AUTO
HOR	HAND-OFF-REMOTE
HORIZ	HORIZONTAL
HP	HIGH PRESSURE / HORSEPOWER
HPG	HIGH PRESSURE GAS
HPT	HIGH POINT
HR	HOUR
HSB	HIGH STRENGTH BOLT
HT	HUB / TACK
HV	HOSE VALVE
HVAC	HEATING, VENTILATION, AIR CONDITIONING
HWL	HIGH WATER LINE
HWY	HIGHWAY
HYD	HYDRANT
HYDR	HYDRAULIC
I&C	INSTRUMENTATION & CONTROL
IAW	IN ACCORDANCE WITH
ICV	IRRIGATION CONTROL VALVE
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IF	INSIDE FACE
IMPVT	IMPROVEMENT
IN	INCH
INCC	INCLUDE(D)(ING)
INFL	INFLUENT
INJ	INJECTION
INSTL	INSTALLATION / INSTALL
INSUL	INSULATION
INTER	INTERCEPTOR
INTR	INTERIOR
INV	INVERT
IP	IRON PIPE
IPT	IRON PIPE THREAD
IR	IRON ROD
IRRIG	IRRIGATION
JT	JOINT
JUNC	JUNCTION
KPL	KICK PLATE
KVA	KILOVOLT AMPERE
KW	KILOWATT
KWY	KEYWAY
L	LENGTH
LA	LANDSCAPED AREA
LAB	LABORATORY
LAV	LAVATORY
LB	POUND
LF	LINEAR FOOT
LIN	LINEAL
LN	LANE
LOC	LOCATION
LONG	LONGITUDINAL
LP	LOW PRESSURE
LPT	LOW POINT
LRG	LARGE
LS	LONG SLEEVE / LUMP SUM
LT	LEFT
LVL	LEVEL
LWL	LOW WATER LINE
M	MAPLE TREE
MAN	MANUAL
MAT	MATERIAL
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MCP	MASTER CONTROL PANEL
MECH	MECHANICAL
MET	METAL
MFR	MANUFACTURER
MGD	MILLION GALLONS PER DAY
MH	MANHOLE
MIN	MINIMUM
MIPT	MALE IRON PIPE THREAD
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
MON	MONUMENT / MONOLITHIC
MOT	MOTOR
MP	MILEPOST
MSL	MEAN SEAL LEVEL
MTD	MOUNTED
NA	NOT APPLICABLE
NAVD	NORTH AMERICAN VERTICAL DATUM
NC	NORMALLY CLOSED
NF	NEAR FACE
NIC	NOT IN CONTRACT
NO / NO.	NORMALLY OPEN / NUMBER
NOM	NOMINAL
NORM	NORMAL
NRS	NON-RISING STEM
NTS	NOT TO SCALE
O TO O	OUT TO OUT
OAR	OREGON ADMINISTRATIVE RULES
OC	ON CENTER
OD	OUTSIDE DIAMETER
OF	OVERFLOW / OUTSIDE FACE
OHPP	OVERHEAD POWER
OHWM	ORDINARY HIGH WATER MARK
OPNG	OPENING
OPP	OPPOSITE
ORIG	ORIGINAL
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
OVHD	OVERHEAD
PA	PLANTED AREA
P&ID	PROCESS & INSTRUMENTATION DIAGRAM
PC	POINT OF CURVE
PCC	POINT OF COMPOUND CURVE
PCVC	POINT OF CURVATURE ON VERTICAL CURVE
(P)	PROPOSED/NEW
PE	PLAIN END
PERF	PERFORATED
PERM	PERMANENT
PERP	PERPENDICULAR
PG	PRESSURE GAUGE
PH	PIPE HANGER
PI	POINT OF INTERSECTION
PIVC	POINT OF INTERSECTION ON VERTICAL CURVE
PL OR P/L	PROPERTY LINE / PLATE / PLASTIC
PLBG	PLUMBING
PNL	PANEL
POC	POINT OF CURVATURE
POLY	POLYETHYLENE
PP	POWER POLE / PURPLE PIPE
PRC	POINT OF REVERSE CURVATURE
PRCST	PRECAST
PRD	PER RECORD DRAWING
PREP	PREPARATION
PRESS	PRESSURE
PRKG	PARKING
PROP	PROPERTY
PRV	PRESSURE REDUCING VALVE
PS	PUMP STATION
PSIG	POUNDS PER SQUARE INCH GAUGE
PSL	PIPE SLEEVE
PSPT	PIPE SUPPORT
PT	PRESSURE TANK
PTVC	POINT OF TANGENCY ON VERTICAL CURVE
PTW	PUMP TO WASTE
PV	PLUG VALVE
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
PW	POTABLE WATER
PWR	POWER
QTY	QUANTITY
RAD	RADIUS
RC	REINFORCED CONCRETE
RCC	REBAR / CONTROL CAP
RCP	REINFORCED CONCRETE PIPE
RD	ROAD / ROOF DRAIN
RDCR	REDUCER
REF	REFERENCE
REINF	REINFORCE(D)(ING)(MENT)
REQ'D	REQUIRED
RESTR	RESTRAINED
RFCA	RESTRAINED FLANGE COUPLING ADAPTER
RM	ROOM
RND	ROUND
RO	ROUGH OPENING
R/W	RIGHT-OF-WAY
RPBPD	REDUCED PRESSURE BACKFLOW PREVENTION DEVICE
RPM	REVOLUTIONS PER MINUTE
RR	RAILROAD
RST	REINFORCED STEEL
RT	RIGHT
SALV	SALVAGE
SAN	SANITARY
SC	SOLID CORE
SCHED	SCHEDULE
SD	STORM DRAIN
SDL	SADDLE
SDR	STANDARD DIMENSION RATIO
SECT	SECTION
SHLDR	SHOULDER
SHT	SHEET
SIM	SIMILAR
SLP	SLOPE
SLV	SLEEVE
SOLN	SOLUTION
SP	SOIL PIPE / SEWER PIPE
SPCL	SPECIAL
SPEC(S)	SPECIFICATION(S)
SPG	SPACING
SPL	SPOOL
SPRT	SUPPORT
SQ	SQUARE
SQ FT	SQUARE FOOT
SQ IN	SQUARE INCH
SQ YD	SQUARE YARD
SS	SANITARY SEWER
SST	STAINLESS STEEL
ST	STREET
STA	STATION
STD	STANDARD
STL	STEEL
STOR	STORAGE
STR	STRAIGHT
STRUCT	STRUCTURE / STRUCTURAL
SUBMG	SUBMERGED
SUCT	SUCTION
SV	SOLENOID VALVE
S/W	SIDEWALK
SWD	SIDEWATER DEPTH
SWGR	SWITCH GEAR
SYMM	SYMMETRICAL
SYS	SYSTEM
T OR TEL	TELEPHONE
T&B	TOP & BOTTOM
TAN	TANGENCY
TB	THRUST BLOCK
TBM	TEMPORARY BENCHMARK
TC	TOP OF CONCRETE / TOP OF CURB
TCE	TEMPORARY CONSTRUCTION EASEMENT
TDH	TOTAL DYNAMIC HEAD
TEMP	TEMPERATURE / TEMPORARY
T&G	TONGUE & GROOVE
THK	THICK / THICKNESS
THRD	THREAD (ED)
THRU	THROUGH
TP	TEST PIT / TOP OF PAVEMENT / TURNING POINT
TRANS	TRANSITION
TSP	TRI-SODIUM PHOSPHATE
TST	TOP OF STEEL
TW	TOP OF WALL
TYP	TYPICAL
UG	UNDERGROUND
UH	UNIT HEATER
UN	UNION
UON	UNLESS OTHERWISE NOTED
UP	UNDERGROUND POWER
USGS	UNITED STATES GEOLOGIC SURVEY
V	VENT / VOLT
VAC	VACUUM
VB	VACUUM BREAKER
VBOX	VALVE BOX
VC	VERTICAL CURVE
VERT	VERTICAL
VFD	VARIABLE FREQUENCY DRIVE
VOL	VOLUME
VCP	VITRIFIED CLAY PIPE
VTR	VENT THROUGH ROOF
W	WATER
W/	WITH
W/IN	WITHIN
W/O	WITHOUT
W/W	WALL TO WALL
WA	WASHINGTON
WD	WOOD
WF	WIDE FLANGE
WH	WATER HEATER
WI	WROUGHT IRON
WM	WATER METER
WP	WORKING POINT / WATERPROOFING
WS	WATER SERVICE
WSDOT	WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
WT	WEIGHT
WTP	WATER TREATMENT PLANT
WTRT	WATERTIGHT
WWF	WELDED WIRE FABRIC
WWTF	WASTEWATER TREATMENT FACILITY
WWTP	WASTEWATER TREATMENT PLANT
X SECT	CROSS SECTION
XFMR	TRANSFORMER
YD	YARD DRAIN / YARD
YH	YARD HYDRANT
YR	YEAR
ZN	ZINC

SHEET X OF X

CAD NO. W090-D4003-C11-D4002-C11-2023-X-G103

NO.	REVISIONS	INT.	APP.	DATE

ACTION	BY	DATE
DESIGNED	HKP	03/31/23
DRAWN	DKH	03/31/23
CHECKED (FIELD)		
CHECKED (HDQTS.)		

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REGISTERED STAMP

WASHINGTON STATE PARKS AND RECREATION COMMISSION

WALLACE FALLS STATE PARK

PARKING EXPANSION AND WATER SYSTEM REPLACEMENT

ABBREVIATIONS

G103

SCALE
NONE

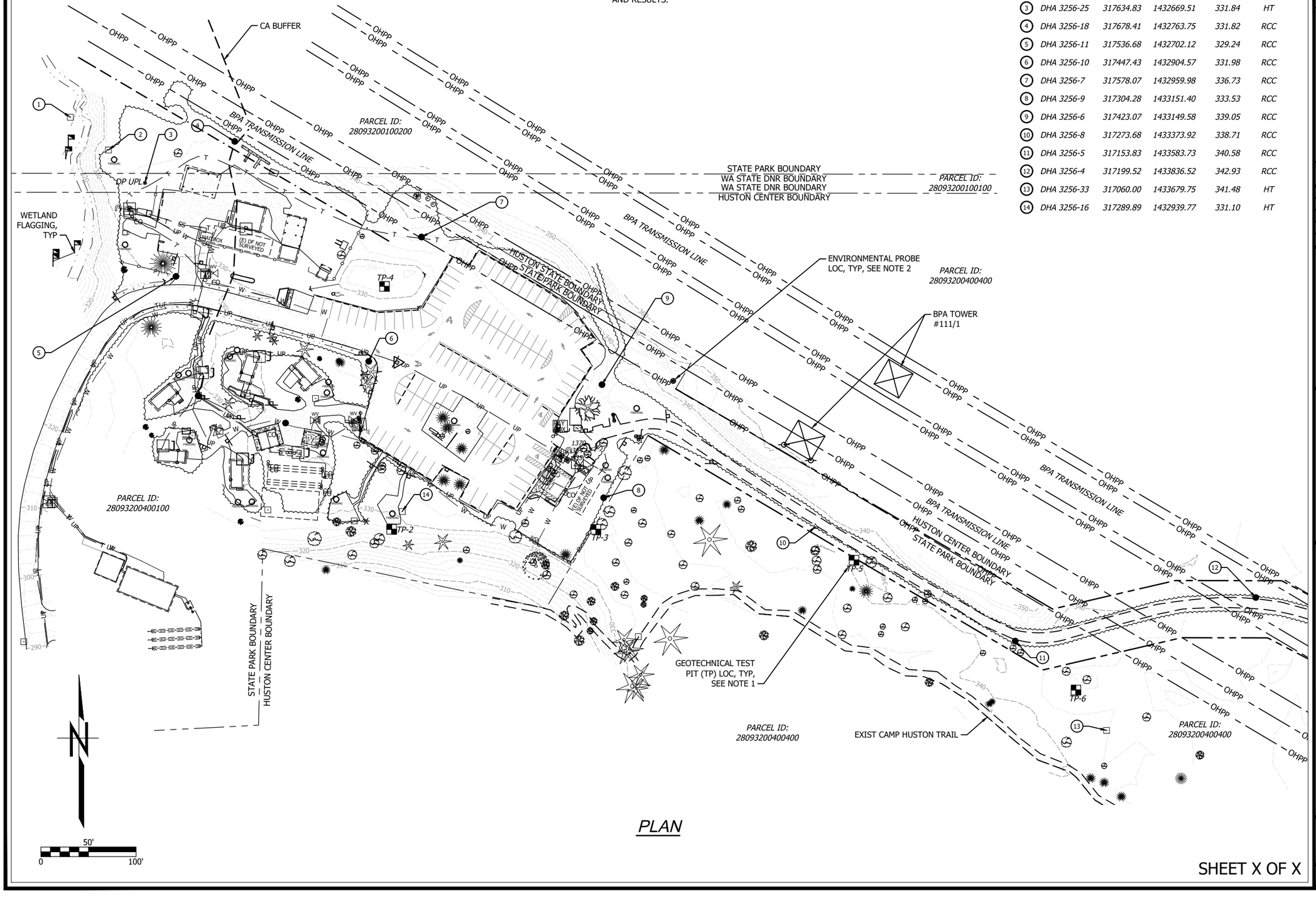
PARKS FILE#

SHEET NOTES:

1. REFERENCE THE GEOTECHNICAL REPORT FOR ADDITIONAL INFORMATION ON TEST PIT LOCATIONS AND RESULTS.
2. REFERENCE THE CRITICAL AREA'S REPORT FOR ADDITIONAL INFORMATION ON PROBE LOCATIONS AND RESULTS.

SITE CONTROL POINTS

	ID	NORTHING	EASTING	EL (NAVD88)	TYPE
1	DHA 3256-31	317703.84	1432591.14	322.81	HT
2	DHA 3256-30	317669.39	1432631.12	332.32	HT
3	DHA 3256-25	317634.83	1432669.51	331.84	HT
4	DHA 3256-18	317678.41	1432763.75	331.82	RCC
5	DHA 3256-11	317536.68	1432702.12	329.24	RCC
6	DHA 3256-10	317447.43	1432904.57	331.98	RCC
7	DHA 3256-7	317578.07	1432959.98	336.73	RCC
8	DHA 3256-9	317304.28	1433151.40	333.53	RCC
9	DHA 3256-6	317423.07	1433149.58	339.05	RCC
10	DHA 3256-8	317273.68	1433373.92	338.71	RCC
11	DHA 3256-5	317153.83	1433583.73	340.58	RCC
12	DHA 3256-4	317199.52	1433836.52	342.93	RCC
13	DHA 3256-33	317060.00	1433679.75	341.48	HT
14	DHA 3256-16	317289.89	1432939.77	331.10	HT



PLAN

SHEET X OF X

CAD NO. W090-D4003-C11-D4002-C11-2023-X-C100

NO.	REVISIONS	INT.	APP.	DATE

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REGISTERED STAMP

WASHINGTON STATE PARKS AND RECREATION COMMISSION

WALLACE FALLS STATE PARK

PARKING EXPANSION AND WATER SYSTEM REPLACEMENT

EXISTING SITE CONDITIONS AND CONTROL POINTS - OVERALL

C100

SCALE
AS SHOWN

PARKS FILE#

CAD NO. W090-D4003-C11-D4002-C11-2023-X-C101

NO.	REVISIONS	INT.	APP.	DATE

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REGISTERED STAMP

WASHINGTON STATE PARKS AND RECREATION COMMISSION

WALLACE FALLS STATE PARK

PARKING EXPANSION AND WATER SYSTEM REPLACEMENT

EXISTING SITE CONDITIONS - WEST

C101

SCALE
AS SHOWN

PARKS FILE#

PARCEL ID: 28093200100200
PARCEL ID: 28093200100100
PARCEL ID: 28093200400400
PARCEL ID: 28093200400100
STATE PARK BOUNDARY
WA STATE DNR BOUNDARY
HUSTON CENTER BOUNDARY
BPA TRANSMISSION LINE
OHPP
ASPHALT ROAD
GRAVEL ROAD
ASPHALT
GRASS
BRUSH
WOODS
GRAVEL
COVERED PARKING/ STORAGE AREA
WOOD SHED
DP UPL
SEPTIC TANK
SHED/DECK
OFFICE BLDG#6
COVERED FIREWOOD/ STORAGE
SHED
TRELLIS
6' WOOD FENCE
GATE
BLDG#8
BLDG#10
SHRUB
SWALE
PA
GARBAGE
STORAGE AREA
CABIN 1
CABIN 2 BLDG#13
CABIN 3 BLDG#14
CABIN 4 BLDG#15
CABIN 5
RAMP
DECK
SEPTIC FIELD (PRD)
SEPTIC DRAINFIELD (PRD)
COVERED SIGN
TRASH ENCLOSURE
PARK STORE BLDG#11
RESTROOMS
SITE 1
SITE 2
TP-1
TP-2
TP-3
TP-4
GARAGE BLDG "A"
RANGER RESIDENCE BLDG#1
MATCHLINE SHEET 7

PLAN

30' 0 60'

SHEET X OF X

CAD NO. W090-D4003-C11-D4002-C11-2023-X-C102

NO.	REVISIONS	INT.	APP.	DATE

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WASHINGTON STATE PARKS AND RECREATION COMMISSION

WALLACE FALLS STATE PARK

PARKING EXPANSION AND WATER SYSTEM REPLACEMENT

EXISTING SITE CONDITIONS - EAST

C102

SCALE
AS SHOWN

PARKS FILE# -

MATCHLINE SHEET 6

STATE PARK BOUNDARY
HUSTON CENTER BOUNDARY

BPA TOWER #111/1

OHPP

TOE

TOP

GRAVEL ROAD

DIRT PATH

BRUSH

WOODS

EXIST CAMP HUSTON TRAIL

TP-5

TP-6

PARCEL ID: 28093200400400

BPA TRANSMISSION LINE

20"A
18"A
24"A
12"HEM
28"HEM
16"A
12"A
18"HEM
20"M
14"A
14"HEM
1-18"A 3-12"A
18"M
22"A
3-18"M
20"HEM
24"CON

340
350

30'
0
60'

PLAN

SHEET X OF X

KEY NOTES

1. SILT FENCE
   PER DET X, SHT X
   FENCE SHOWN IN APPROXIMATE LOCATION, LOCATE FENCE AS NECESSARY TO AVOID PROPOSED CONSTRUCTION
2. CONSTRUCTION EXIT (ENTRANCE)
   PER DET X, SHT X
3. GRAVEL FILTER BERM
   PER DET X, SHT X
4. CONCRETE WASHOUT FACILITY
   CONSTRUCT OR PROVIDE PRE-MANUFACTURED STORAGE BASIN TO WASHOUT CONCRETE TRUCKS. REMOVE WASTE CONCRETE AS NECESSARY TO AVOID OVERTOPPING.
5. INLET PROTECTION
   PER DET X, SHT X
   FURNISH AND INSTALL PROTECTION ON BOTH EXISTING AND PROPOSED STORM DRAIN INLETS

EROSION CONTROL NOTES

1. CONTRACTOR SHALL IDENTIFY DRAINAGE PATHWAYS PRIOR TO BEGINNING CONSTRUCTION AND ENSURE THERE ARE BMPS IN PLACE TO STOP EROSION FROM LEAVING THE SITE.
2. WHERE CONSTRUCTION IS OCCURRING IN AREAS OF ASPHALT PAVEMENT, HAUL TRUCKS SHALL REMAIN ON PAVED SURFACES TO PREVENT COLLECTION OF SEDIMENT ON TIRES AND TRACKOUT FROM THE SITE. IF TRACKOUT IS OCCURRING CONTRACTOR TO PROVIDE A TRACKOUT CONTROL MAT SOLUTION SUCH AS FODS CONSTRUCTION ENTRANCE MUD MAT SYSTEM OR EQUAL.
3. PRESERVE NATURAL VEGETATION ALONG PERIMETER OF THE SITE PER SNOHOMISH COUNTY STORMWATER DESIGN MANUAL (SCSWDM) BMP C101. CONTRACTOR SHALL PROTECT EXISTING VEGETATION ALONG EXISTING SLOPES, PROPERTY LINES, NEAR WATERCOURSES, AND WOODED AREAS. IDENTIFY CONSTRUCTION LIMITS BEFORE BEGINNING WORK AND MARK ACCORDINGLY TO PREVENT VEGETATION REMOVAL OR EARTH DISTURBANCE BEYOND THE PROJECT AREA.
4. PROVIDE BOTH TEMPORARY (DISTURBED AREAS THAT WILL BE UNWORKED FOR MORE THAN 30 DAYS) AND PERMANENT SEEDING (SCSWDM C120) AND MULCH COVER (SCSWDM C121) ON ALL DISTURBED AREAS TO BE VEGETATED. IRRIGATE AS NECESSARY BETWEEN JULY 1 AND AUG 30.

DEMO LEGEND

AREA TO BE DEMOLISHED

LINEAR FEATURE TO BE DEMOLISHED

TREE TO BE DEMOLISHED
NOT ALL TREES MAY BE SHOWN, IF ADDITIONAL TREES ARE REQUIRED TO BE REMOVED TO PERFORM WORK, CONTRACTOR IS TO COORDINATE WITH WSP

PROPOSED WELL SITE AND TREATMENT BLDG

BPA TRANSMISSION LINE

PARCEL ID: 28093200100200

PARCEL ID: 28093200100100

PARCEL ID: 28093200400400

STATE PARK BOUNDARY
WA STATE DNR BOUNDARY
WA STATE DNR BOUNDARY
HUSTON CENTER BOUNDARY

REMOVE ALL (E) PAINT STRIPES AND ARROWS, TYP

HUSTON STATE BOUNDARY
STATE PARK BOUNDARY

PROPOSED IMPROVEMENT FOOTPRINT

(E) DF NOT SURVEYED

100'

REMOVE ALL WHEEL STOPS, TYP
CAREFULLY STORE ONSITE, STOPS TO BE REUSE AS INDICATED ON SITE PLANS OR AS DIRECTED BY WSP

STATE PARK BOUNDARY
HUSTON CENTER BOUNDARY

50'
0
100'

PLAN

SHEET X OF X

CAD NO. W090-D4003-C11-D4002-C11-2023-X-C103

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REGISTERED STAMP

WASHINGTON STATE PARKS AND RECREATION COMMISSION

WALLACE FALLS STATE PARK

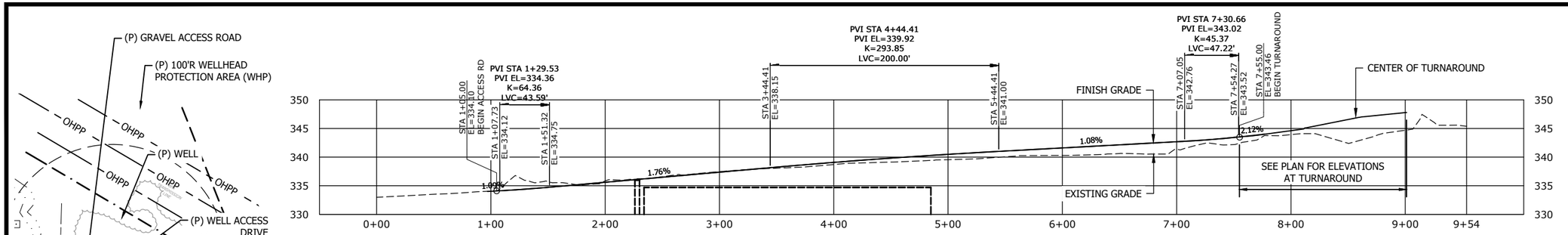
PARKING EXPANSION AND WATER SYSTEM REPLACEMENT

DEMO & TESC PLAN

C103

SCALE
AS SHOWN

PARKS FILE#



LOOP ROAD PROFILE

SCALE: 1" = 50' H, 1" = 10' V

(P) GRAVEL ACCESS ROAD
(P) 100'R WELLHEAD PROTECTION AREA (WHP)
(P) WELL
(P) WELL ACCESS DRIVE
(P) INFILTRATION BASIN STORMTECH SC-740 OR EQUAL 200 CHAMBERS
(P) ASPHALT PAVEMENT, TYP
(P) LANDSCAPE ISLAND, TYP
(P) PARKING LOT STRIPING, TYP
(E) ASPHALT PAVEMENT, TYP RETAIN AND PROTECT
(P) ROCKERY OR BLOCK RETAINING WALL, TYP
50' BPA TOWER OFFSET, TYP
(E) BPA TOWER #111/2
150' CRITICAL AREA SETBACK
BEGIN LOOP ACCESS ROAD ALIGNMENT
N317473.00
E1433032.90
0+00
S56°48'13"E 103.48'
R=295.91'
Δ=9°41'34"
L=100.12'
2+00
3+00
4+00
5+00
6+00
S59°10'22"E 632.59'
R=150.00'
Δ=27°37'37"
L=632.59'
S86°57'59"E 632.59'
MATCHLINE SHEET 6
MATCHLINE SHEET 7
MATCHLINE SHEET 9
MATCHLINE SHEET 10
MATCHLINE SEE SHEET C-6
(P) INFILTRATION BASIN #2 STORMTECH SC-740 OR EQUAL 100 CHAMBERS
(P) LOOP ROAD ℄
SEE PROFILE THIS SHT
SEE TYPICAL SECTION SHT C202
(P) ALT WELL SITE
(P) GATE PER DET X, SHT X
(P) ASPHALT PAVEMENT
(P) GRAVEL PEDESTRIAN PATH
(E) CAMP HOUSTON TRAIL
(P) SOLAR POWERED KIOSK AND E3 BULLETIN BOARD
(P) COMFORT STATION CXT DOUBLE CASCADIAN
END LOOP ACCESS ROAD ALIGNMENT
STA 9+11.18
N317116.17
E1433851.20
6' MAX SPACING, TYP
(P) BOULDERS
50'
0
100'

PLAN

SHEET X OF X

CAD NO. W090-D4003-C11-D4002-C11-2023-X-C200

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WASHINGTON STATE PARKS AND RECREATION COMMISSION

WALLACE FALLS STATE PARK

PARKING EXPANSION AND WATER SYSTEM REPLACEMENT

SITE PLAN & PROFILE OVERALL

C200

SCALE
AS SHOWN

PARKS FILE#

CAD NO. W090-D4003-C11-D4002-C11-2023-X-C201

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WASHINGTON STATE PARKS AND RECREATION COMMISSION

WALLACE FALLS STATE PARK

PARKING EXPANSION AND WATER SYSTEM REPLACEMENT

SITE & GRADING PLAN WEST

C201

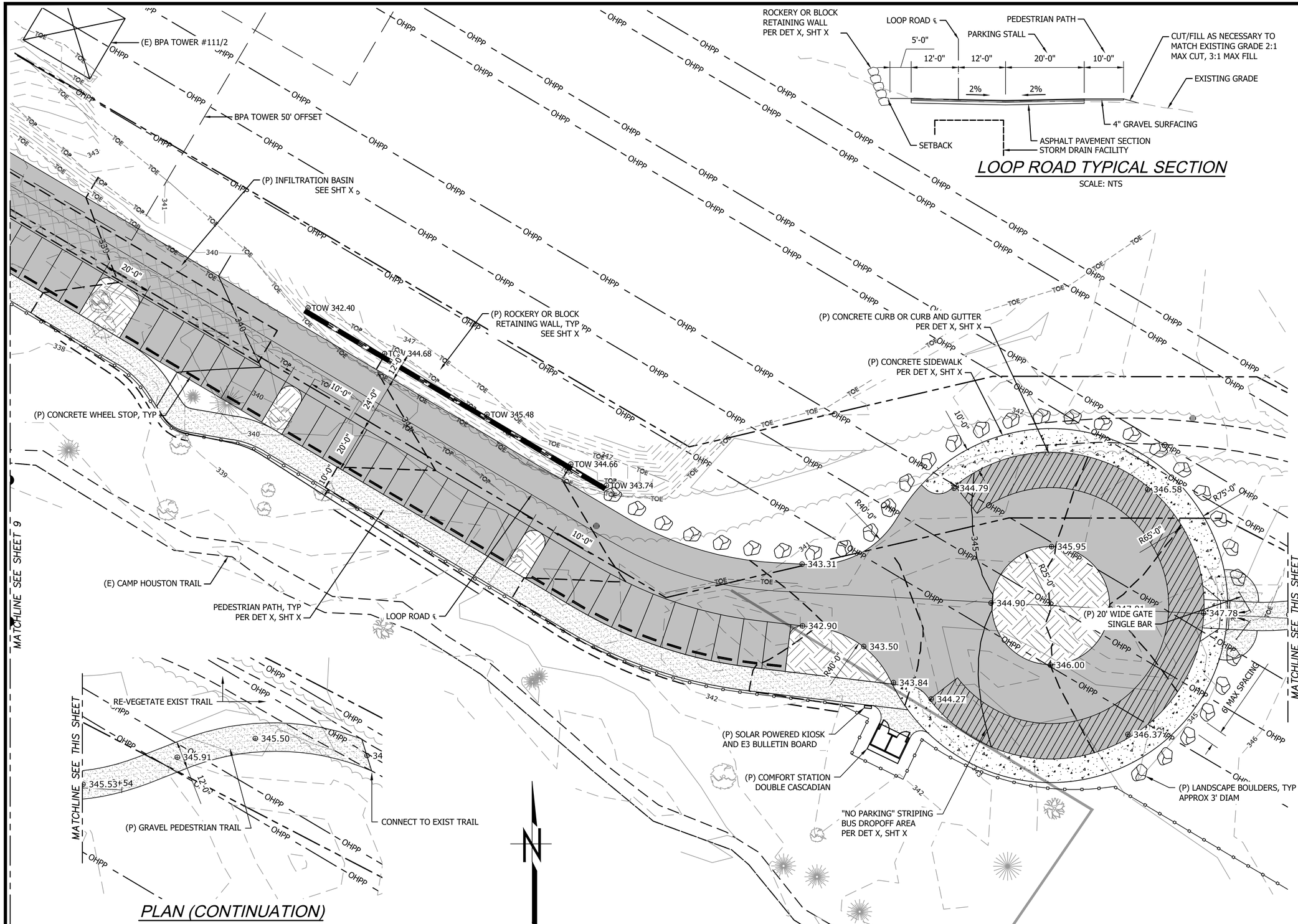
SCALE
AS SHOWN

PARKS FILE#

TOW 343.14
334.99
TOW 343.23
TOW 338.23
TOW 340.64
335.24
335.22
TOW 333.40
TOW 339.02
333.05
333.77
335.54
335.07
TOW 338.14
333.27
336.34
336.02
330.86
331.65
TOW 338.99
336.82
336.54
331.14
TOW 345.55
336.80
336.74
331.90
332.07
TOW 345.70
337.06
TOW 341.05
335.64
335.74
TOW 336.08
334.92
335.11
334.17
334.69
336.17
335.89
(P) ROCKERY OR BLOCK RETAINING WALL, TYP SEE SHT X
(P) 48" STORM DRAIN MANHOLE SEE SHT X
GEOTECHNICAL TEST PIT (TP) LOCATION, TYP, SEE NOTE 1
(P) INFILTRATION BASIN SEE SHT X
(P) PARALLEL PARKING, TYP
SAWCUT (E) ASPHALT TO FORM (P) LANDSCAPE ISLAND, TYP ALL ISLANDS PER DET X, SHT X
(E) STORM DRAIN OVERFLOW
(P) ROCKERY OR BLOCK RETAINING WALL, TYP SEE SHT X
NO PARKING STRIPING PER DET X, SHT X
HYDRODYNAMIC SEPERATOR SEE SHT X
8"ABS STAKE OUTFALL NOT FOUND TO NORTH IE 330.44
BPA TOWER 50' OFFSET
(P) INFILTRATION BASIN SEE SHT X
MATCHLINE SHEET 6
MATCHLINE SHEET 7
MATCHLINE SEE SHEET 10
(P) HYDRODYNAMIC SEPERATOR SEE SHT X
(P) GRAVEL PEDESTRIAN PATH PER DET X, SHT X
(P) CONCRETE WHEEL STOP, TYP
(P) ASPHALT PATCH PER DET X, SHT X
ACCESSIBLE PARKING, TYP PER DET X, SHT X
(P) ASPHALT PATCH PER DET X, SHT X
(P) ADA VAN ACCESSIBLE PARKING PER DET X, SHT X
SEPTIC TANK
PAY BOX
FLAGPOLE
FIRE HYDRANT
1370 @ 334.15 635
R22'-6"
R26'-9"
R4'-6"
R25'-5"
R5'-0"
OHPP
TOP
TOE
0 20' 40'

PLAN

SHEET X OF X



PLAN (CONTINUATION)

PLAN

LOOP ROAD TYPICAL SECTION

SCALE: NTS

CAD NO. W090-D4003-C11-D4002-C11-2023-X-C202

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WALLACE FALLS STATE PARK

PARKING EXPANSION AND WATER SYSTEM REPLACEMENT

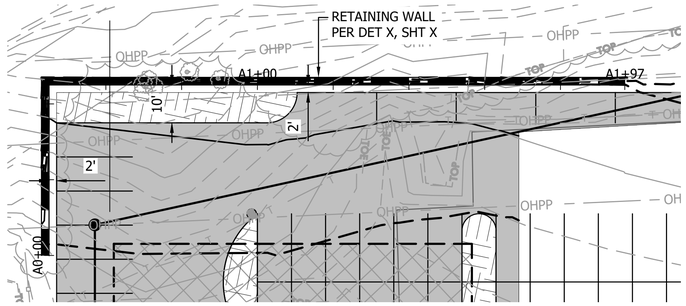
SITE & GRADING PLAN EAST

C202

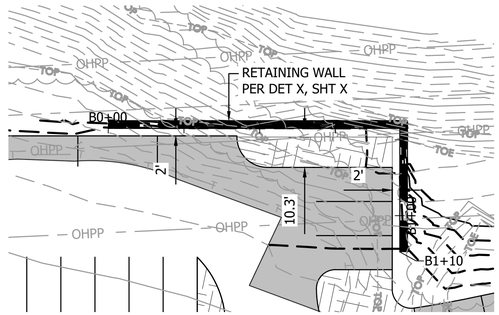
SCALE
AS SHOWN

PARKS FILE#

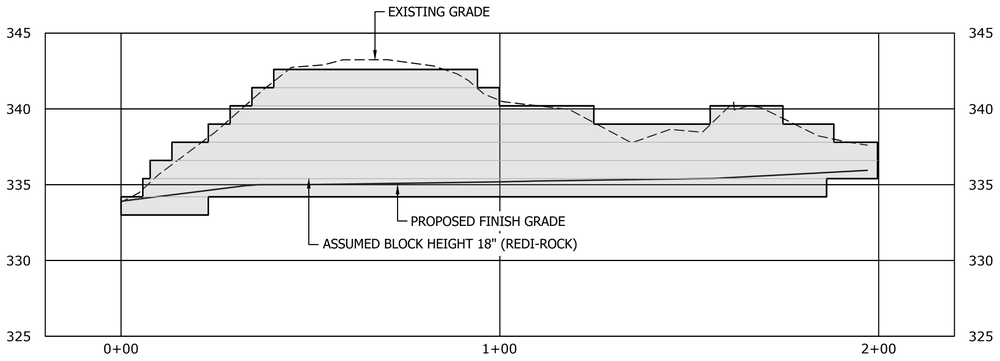
SHEET X OF X



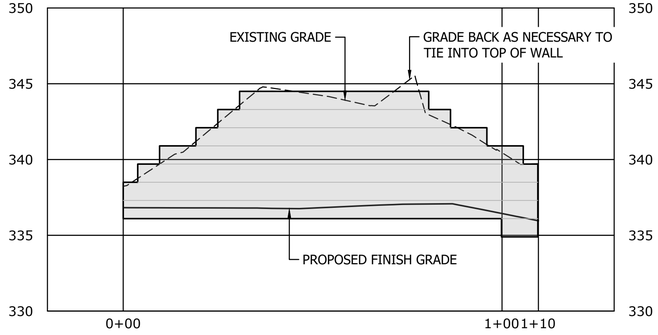
WALL A PLAN



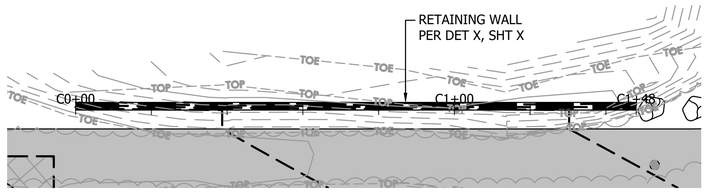
WALL B PLAN



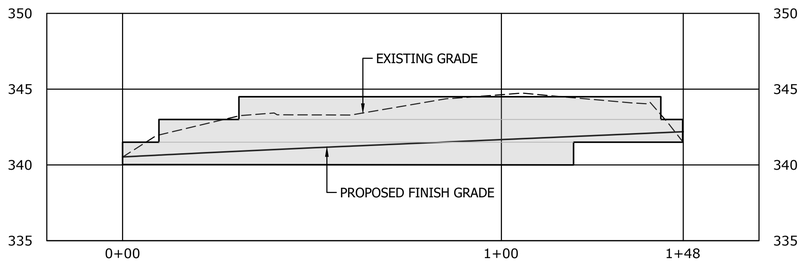
WALL A PROFILE



WALL B PROFILE



WALL C PLAN



WALL C PROFILE

GRAVITY BLOCK RETAINING WALL

1. TOP OF WALL ELEVATIONS ARE BASED ON EXISTING GRADE AT THE TIME OF THE SURVEY. DUE TO THE THICK VEGETATION WHEN THE DATA WAS COLLECTED THE ACTUAL GRADE MAY VARY, WHICH MAY RESULT IN AN ADDITIONAL ROW. CONTRACTOR SHALL FIELD VERIFY GRADE TO CONFIRM FINAL WALL HEIGHT.
2. ACTUAL STEPS IN WALL, BOTH TOP WALL AND FOUNDATION BLOCKS MAY VARY BASED ON BOTH THE EXISTING AND PROPOSED GRADES. ADJUST AS REQUIRED TO PROVIDE THE NECESSARY BLOCK EMBEDMENT AT THE BOTTOM OF WALL AND TO MATCH THE EXISTING GRADE AT THE TOP OF WALL.
3. ALL WALLS REQUIRE A BUILDING PERMIT. CONTRACTOR SHALL PROVIDE STAMPED DESIGNS BY A LICENSED ENGINEER IN THE STATE OF WASHINGTON FOR EACH WALL BASED ON THE SELECTED BLOCK AND SHALL SUBMIT TO THE COUNTY FOR THOSE PERMITS.
4. TOP OF ALL WALLS SHALL HAVE A FLAT SURFACED BLOCK (NO KEYS).
5. ALL WALLS SHALL HAVE A PERFORATED PIPE AT THE BASE OF THE WALL THAT SHALL DRAIN TO DAYLIGHT. PROVIDE ADEQUATE DRAINS AS RECOMMENDED BY THE BLOCK MANUFACTURER.

PLAN/PROFILE HORIZONTAL SCALE 0 20' 40'

PROFILE VERTICAL SCALE 0 5' 10'

SHEET X OF X

CAD NO. W090-D4003-C11-D4002-C11-2023-X-C203

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REGISTERED STAMP

WASHINGTON STATE PARKS AND RECREATION COMMISSION

WALLACE FALLS STATE PARK

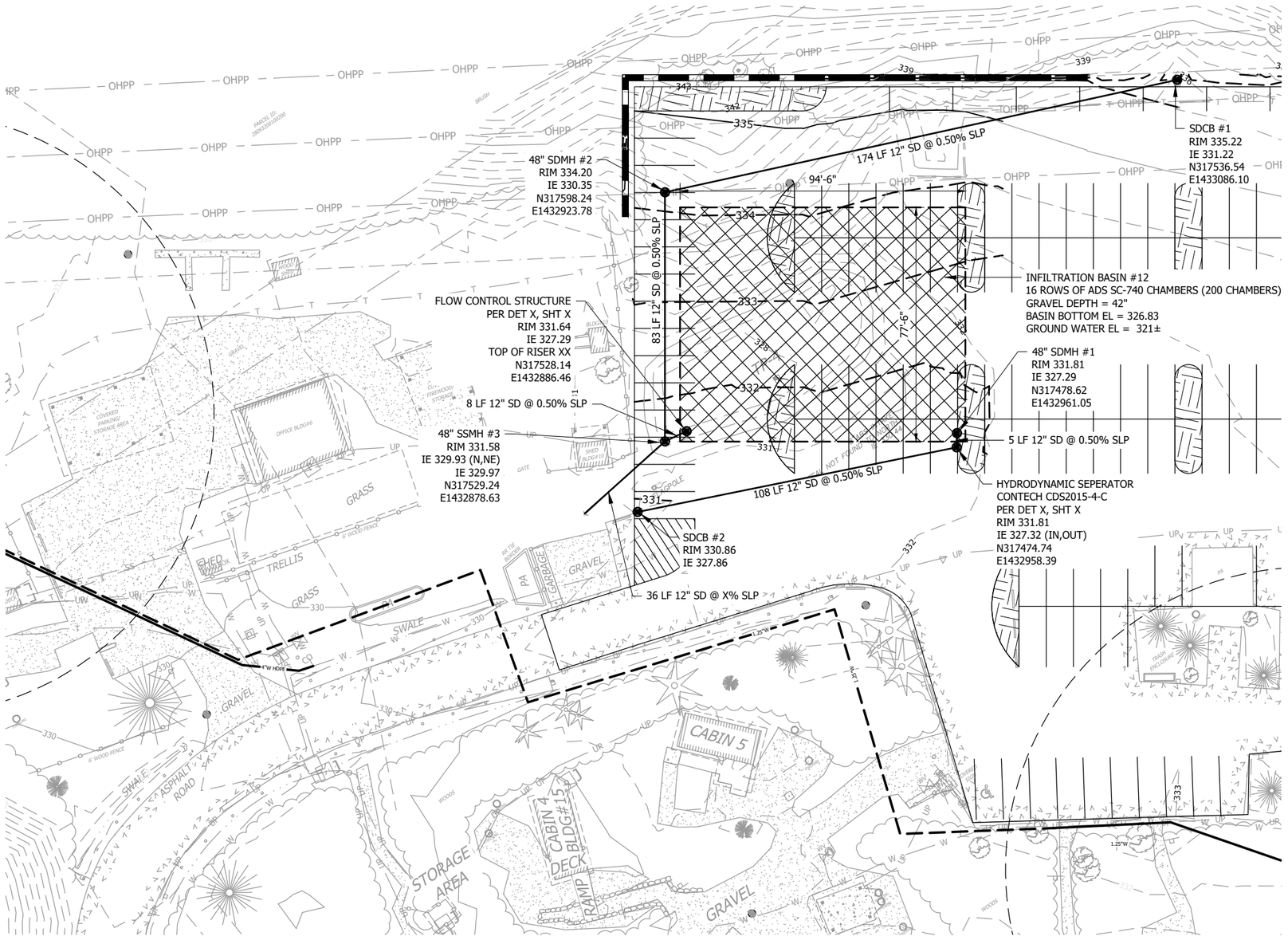
PARKING EXPANSION AND WATER SYSTEM REPLACEMENT

RETAINING WALL PLAN & PROFILES

C203

SCALE
AS SHOWN

PARKS FILE#



WEST DRAINAGE BASIN

20' 0 40'

SHEET X OF X

CAD NO. W090-D4003-C11-D4002-C11-2023-X-C301

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WALLACE FALLS STATE PARK

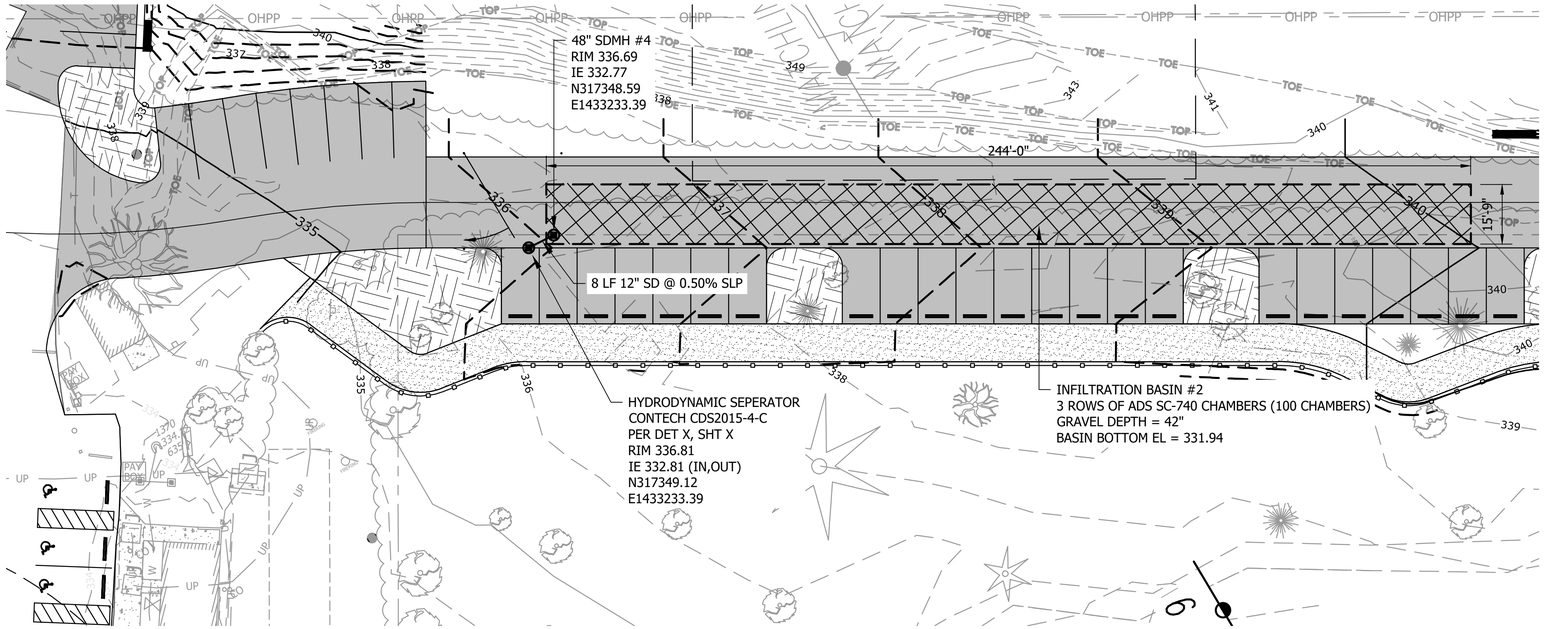
PARKING EXPANSION AND WATER SYSTEM REPLACEMENT

DRAINAGE BASIN WEST

C301

SCALE
AS SHOWN

PARKS FILE#



EAST DRAINAGE BASIN

MATCHLINE SEE THIS SHEET

SHEET X OF X

CAD NO. W090-D4003-C11-D4002-C11-2023-X-C302

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REGISTERED STAMP

WASHINGTON STATE PARKS AND RECREATION COMMISSION

WALLACE FALLS STATE PARK

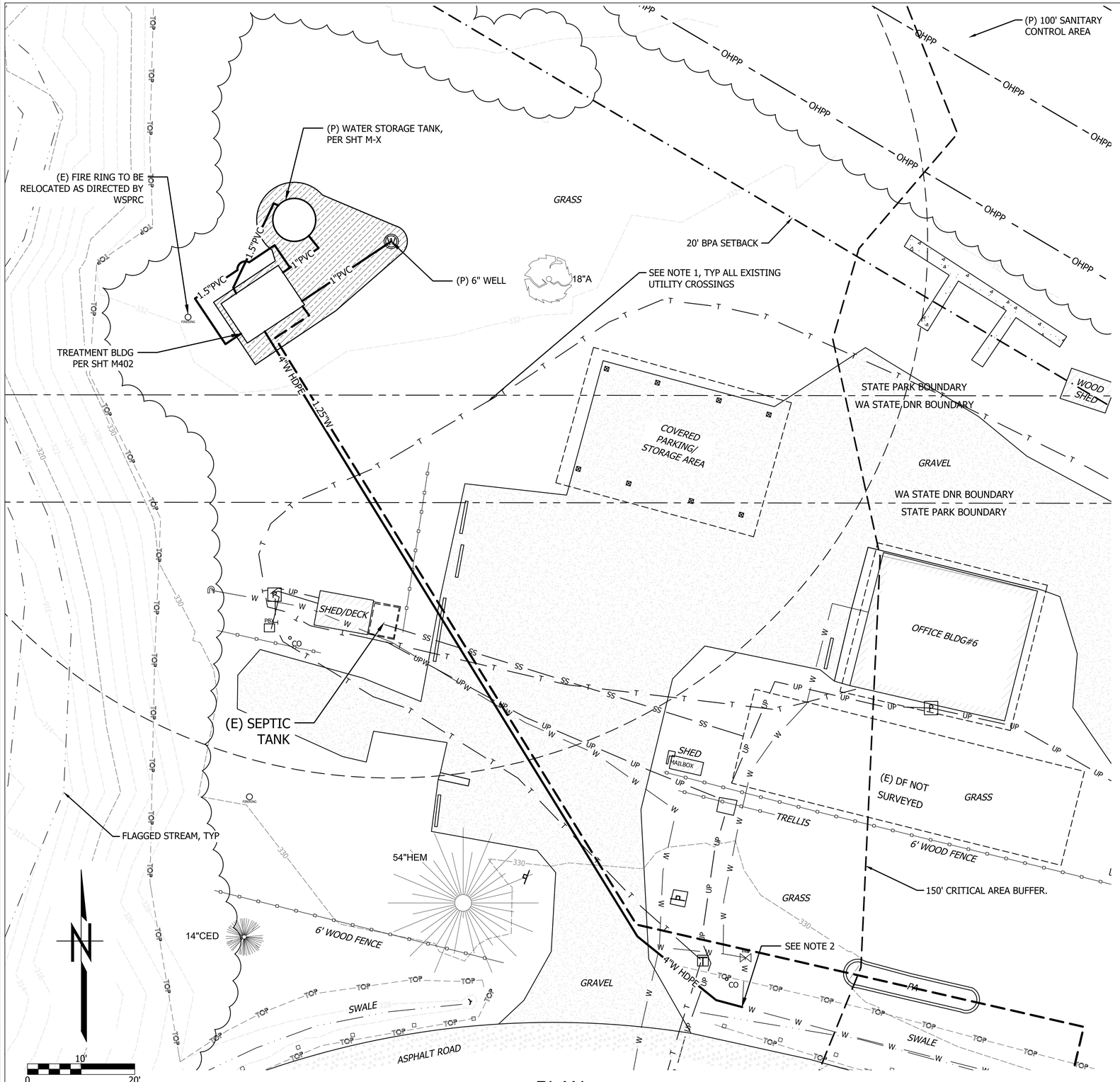
PARKING EXPANSION AND WATER SYSTEM REPLACEMENT

DRAINAGE BASIN EAST

C302

SCALE
AS SHOWN

PARKS FILE#



PLAN

SHEET NOTES:

1. RETAIN AND PROTECT EXISTING UTILITIES.
2. TIE-IN TO EXISTING WATERLINE WILL REQUIRE WATER SYSTEM SHUTDOWN SEQUENCINGS TO BE COORDINATED WITH PARKS. PROVIDE TWO-WEEK NOTICE TO PARKS. CONNECTION DETAIL TO BE DEVELOPED DURING 90% DESIGN SUBMITTAL.

CAD NO. W090-D4003-C11-D4002-C11-2023-X-C401

NO.	REVISIONS	INT.	APP.	DATE

ACTION	BY	DATE
DESIGNED	HKP	03/31/23
DRAWN	DKH	03/31/23
CHECKED (FIELD)		
CHECKED (HDQTS.)		

PRELIMINARY ONLY
DO NOT USE FOR CONSTRUCTION
February 2023
Nelson Consor
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REGISTERED STAMP

WASHINGTON STATE PARKS AND RECREATION COMMISSION

WALLACE FALLS STATE PARK

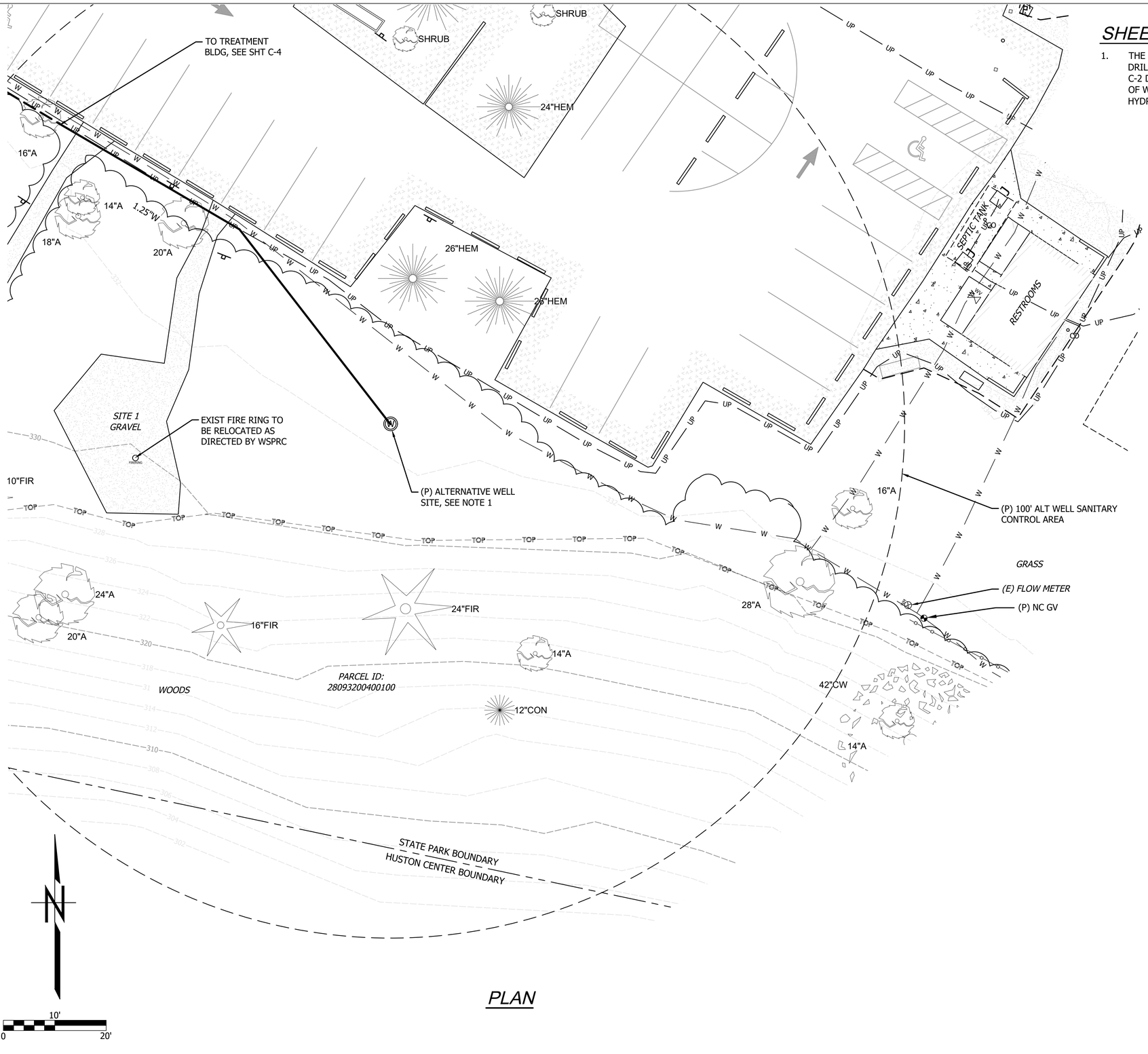
PARKING EXPANSION AND WATER SYSTEM REPLACEMENT

SITE PLAN - TREATMENT BUILDING & WELL
C401

SCALE
AS SHOWN

PARKS FILE#

SHEET X OF X



PLAN

SHEET NOTES:

1. THE ALTERNATIVE WELL SITE WILL ONLY BE DRILLED IF THE PROPOSED WELL SITE SHOWN ON C-2 DOES NOT PRODUCE A SUFFICIENT QUANTITY OF WATER AS DIRECTED BY WSPRC AND/OR HYDROGEOLOGIST.

SHEET X OF X

CAD NO. W090-D4003-C11-D4002-C11-2023-X-C402

NO.	REVISIONS	INT.	APP.	DATE

ACTION	BY	DATE
DESIGNED	HKP	03/31/23
DRAWN	DKH	03/31/23
CHECKED (FIELD)		
CHECKED (HDQTS.)		

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REGISTERED STAMP

WASHINGTON STATE PARKS AND RECREATION COMMISSION

WALLACE FALLS STATE PARK

PARKING EXPANSION AND WATER SYSTEM REPLACEMENT

SITE PLAN - WELL ALTERNATIVE

C402

SCALE
AS SHOWN

PARKS FILE#

Advanced Drainage Systems, Inc.

SiteAssist®
FOR STORMTECH INSTALLATION INSTRUCTIONS VISIT OUR APP

SC-740 STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH SC-740.
2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
6. CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
7. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 550 LBS/FT/%, THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418, AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
8. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
   - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
   - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
   - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF THE SC-740 SYSTEM

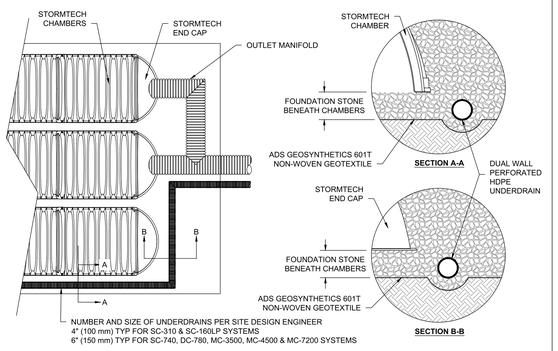
1. STORMTECH SC-740 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH SC-740 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
   - STONESHOOTER LOCATED OFF THE CHAMBER BED.
   - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
   - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM - 6" (150 mm) SPACING BETWEEN THE CHAMBER ROWS.
7. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE 3/4-2" (20-50 mm).
8. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
9. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

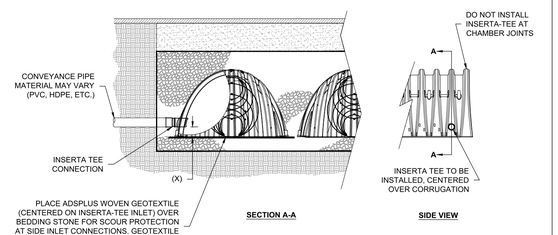
1. STORMTECH SC-740 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
2. THE USE OF CONSTRUCTION EQUIPMENT OVER SC-740 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO RUBBER TIRED LOADERS, DUMP TRUCKS, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
   - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
3. FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO THE CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.



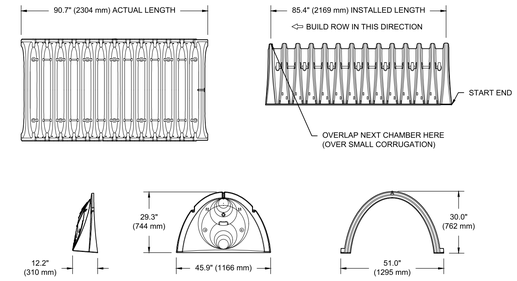
5 UNDERDRAIN DETAIL



CHAMBER	MAX DIAMETER OF INSERTA TEE	HEIGHT FROM BASE OF CHAMBER (X)
SC-310	6" (150 mm)	4" (100 mm)
SC-740	10" (250 mm)	4" (100 mm)
DC-780	10" (250 mm)	4" (100 mm)
MC-3500	12" (300 mm)	6" (150 mm)
MC-4500	12" (300 mm)	8" (200 mm)
MC-7200	12" (300 mm)	8" (200 mm)
INSERTA TEE FITTINGS AVAILABLE FOR SDR 26, SDR 35, SCH 40 IPS GASKETED & SOLVENT WELD, N-12, HP STORM, C-900 OR DUCTILE IRON		

NOTES:
- PART NUMBERS WILL VARY BASED ON INLET PIPE MATERIALS. CONTACT STORMTECH FOR MORE INFORMATION.
- CONTACT ADS ENGINEERING SERVICES IF INSERTA TEE INLET MUST BE RAISED AS NOT ALL INVERTS ARE POSSIBLE.

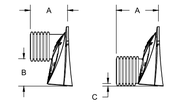
6 INSERTA-TEE SIDE INLET DETAIL



NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	51.0" X 30.0" X 85.4"	(1295 mm X 762 mm X 2169 mm)
CHAMBER STORAGE	45.9 CUBIC FEET	(1.30 m³)
MINIMUM INSTALLED STORAGE*	74.9 CUBIC FEET	(2.12 m³)
WEIGHT	75.0 lbs.	(33.6 kg)

*ASSUMES 6" (152 mm) STONE ABOVE, BELOW, AND BETWEEN CHAMBERS



PRE-FAB STUB AT BOTTOM OF END CAP WITH FLAMP END WITH "BR".
PRE-FAB STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
PRE-FAB STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
PRE-CORED END CAPS END WITH "PC"

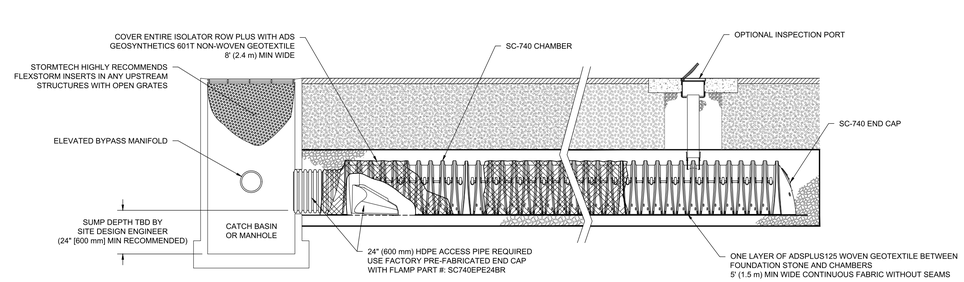
PART #	STUB	A	B	C
SC740EPE06T / SC740EPE06TPC	6" (150 mm)	10.9" (277 mm)	18.5" (470 mm)	---
SC740EPE06B / SC740EPE06BPC			---	0.5" (13 mm)
SC740EPE08T /SC740EPE08TPC	8" (200 mm)	12.2" (310 mm)	16.5" (419 mm)	---
SC740EPE08B / SC740EPE08BPC			---	0.6" (15 mm)
SC740EPE10T / SC740EPE10TPC	10" (250 mm)	13.4" (340 mm)	14.5" (368 mm)	---
SC740EPE10B / SC740EPE10BPC			---	0.7" (18 mm)
SC740EPE12T / SC740EPE12TPC	12" (300 mm)	14.7" (373 mm)	12.5" (318 mm)	---
SC740EPE12B / SC740EPE12BPC			---	1.2" (30 mm)
SC740EPE15T / SC740EPE15TPC	15" (375 mm)	18.4" (467 mm)	9.0" (229 mm)	---
SC740EPE15B / SC740EPE15BPC			---	1.3" (33 mm)
SC740EPE18T / SC740EPE18TPC	18" (450 mm)	19.7" (500 mm)	5.0" (127 mm)	---
SC740EPE18B / SC740EPE18BPC			---	1.6" (41 mm)
SC740EPE24B*	24" (600 mm)	18.5" (470 mm)	---	0.1" (3 mm)
SC740EPE24BR*	24" (600 mm)	18.5" (470 mm)	---	0.1" (3 mm)

ALL STUBS, EXCEPT FOR THE SC740EPE24B/SC740EPE24BR ARE PLACED AT BOTTOM OF END CAP SUCH THAT THE OUTSIDE DIAMETER OF THE STUB IS FLUSH WITH THE BOTTOM OF THE END CAP. FOR ADDITIONAL INFORMATION CONTACT STORMTECH AT 1-888-892-2694.

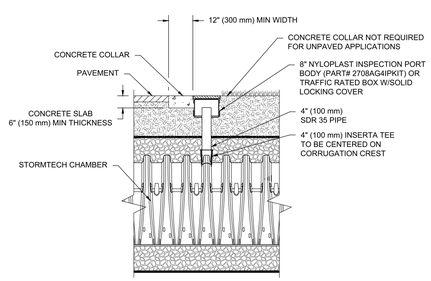
* FOR THE SC740EPE24B/SC740EPE24BR THE 24" (600 mm) STUB LIES BELOW THE BOTTOM OF THE END CAP APPROXIMATELY 1.75" (44 mm). BACKFILL MATERIAL SHOULD BE REMOVED FROM BELOW THE N-12 STUB SO THAT THE FITTING SITS LEVEL.

NOTE: ALL DIMENSIONS ARE NOMINAL

2 SC-740 TECHNICAL SPECIFICATIONS



3 SC-740 ISOLATOR ROW PLUS DETAIL



NOTE:
INSPECTION PORTS MAY BE CONNECTED THROUGH ANY CHAMBER CORRUGATION CREST.

4 4" PVC INSPECTION PORT DETAIL (SC SERIES CHAMBER)

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 3. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR PLUS ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45° (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

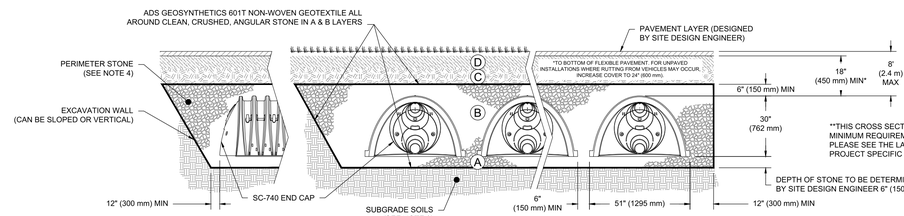
NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

ACCEPTABLE FILL MATERIALS: STORMTECH SC-740 CHAMBER SYSTEMS

	MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



NOTES:

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2. SC-740 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 550 LBS/FT/%. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

1 SC-740 CROSS SECTION DETAIL

DRAWN: | DATE:
REVIEWED: | PROJECT NO:
REV: | NOT TO SCALE

SC-740 STANDARD DETAILS

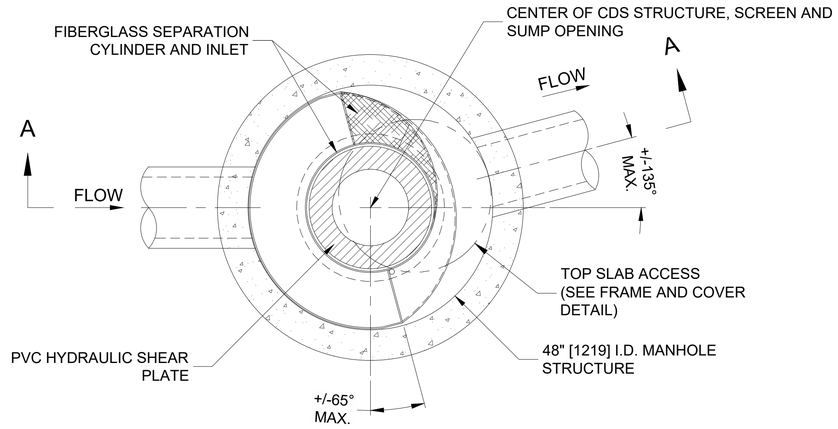
StormTech® Chamber System
888-892-2694 | WWW.STORMTECH.COM

4640 TRUEMAN BLVD
HILLIARD, OH 43026

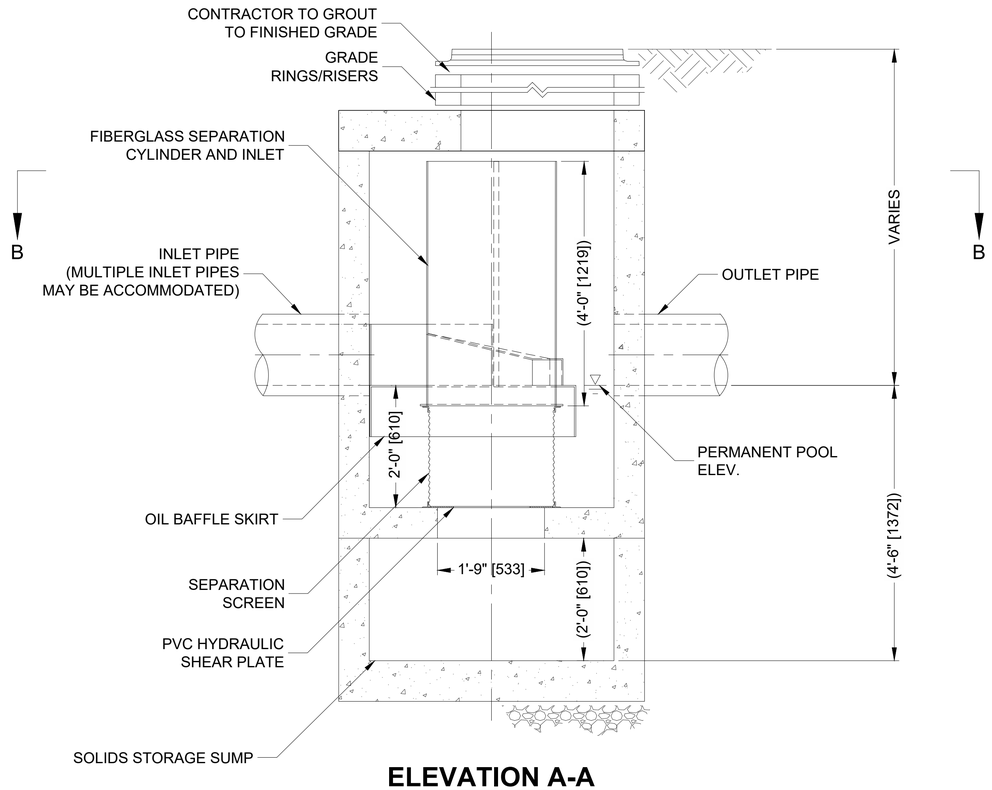
Advanced Drainage Systems, Inc.

SHEET

SHEET C500



PLAN VIEW B-B
NOT TO SCALE.



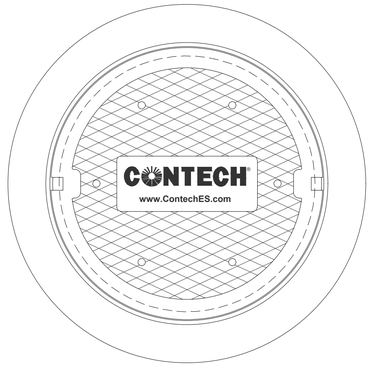
ELEVATION A-A
NOT TO SCALE.

CDS2015-4-C DESIGN NOTES

CDS2015-4-C RATED TREATMENT CAPACITY IS 0.7 CFS [19.8 L/s], OR PER LOCAL REGULATIONS. IF THE SITE CONDITIONS EXCEED MAXIMUM HYDRAULIC CAPACITY, AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.

CDS2015-4-C STANDARD CONFIGURATION IS SHOWN.

FOR NJDEP PROJECTS, PLEASE CONTACT YOUR LOCAL CONTECH REPRESENTATIVE FOR APPROVED CONFIGURATIONS.



FRAME AND COVER
(DIAMETER VARIES)
NOT TO SCALE

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID			
WATER QUALITY FLOW RATE (CFS OR L/s)			*
PEAK FLOW RATE (CFS OR L/s)			*
RETURN PERIOD OF PEAK FLOW (YRS)			*
SCREEN APERTURE (2400 OR 4700)			*
PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE 1	*	*	*
INLET PIPE 2	*	*	*
OUTLET PIPE	*	*	*
RIM ELEVATION			*

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	*	*

NOTES/SPECIAL REQUIREMENTS:

* PER ENGINEER OF RECORD

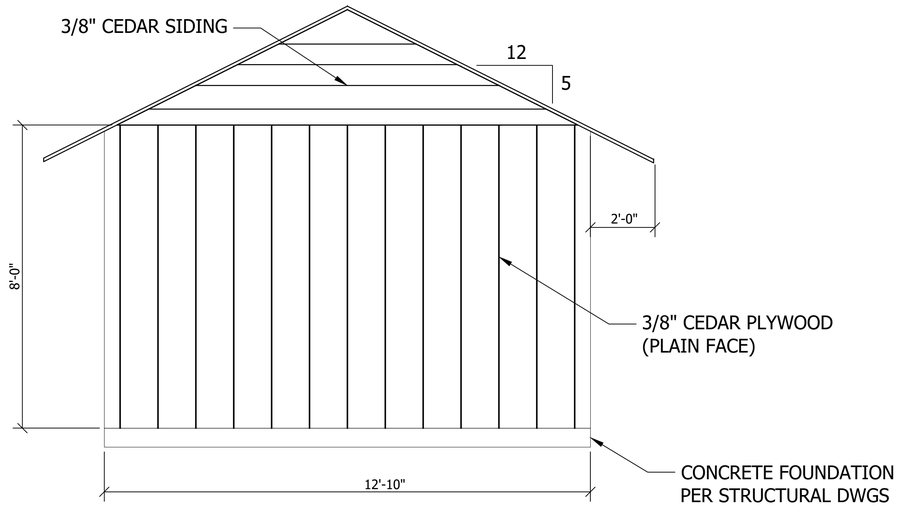
GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
3. CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 2', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO..
5. IF REQUIRED, PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.
6. CDS STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-478 AND AASHTO LOAD FACTOR DESIGN METHOD.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE.
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET AND OUTLET PIPE(S). MATCH PIPE INVERTS WITH ELEVATIONS SHOWN. ALL PIPE CENTERLINES TO MATCH PIPE OPENING CENTERLINES.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

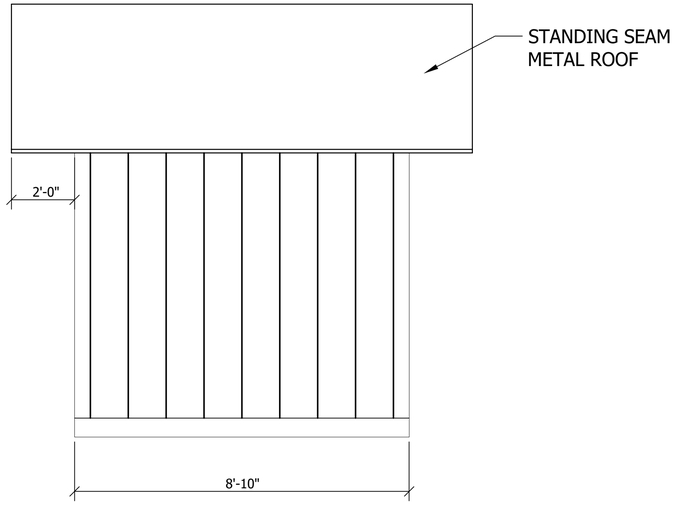
CONTECH ENGINEERED SOLUTIONS LLC
www.contechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CDS2015-4-C
ONLINE CDS
STANDARD DETAIL

SHEET C501



NORTHWEST ELEVATION



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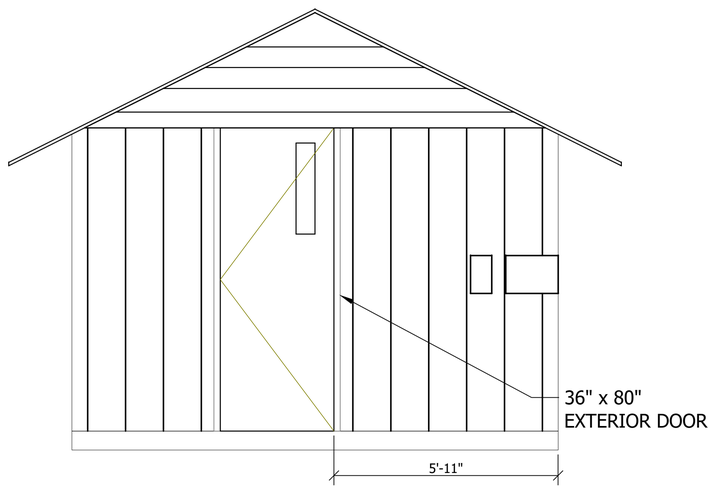
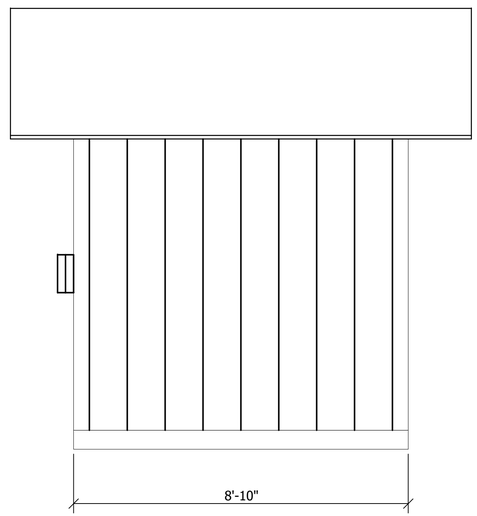


SOUTHEAST ELEVATION



SOUTHEAST ELEVATION

6"
0 1'

SHEET 15 OF X

CAD NO. W090-D4003-C11-D4002-C11-2023-##-###

NO.	REVISIONS	INT.	APP.	DATE

ACTION	BY	DATE
DESIGNED	HKP	03/31/23
DRAWN	RC	03/31/23
CHECKED (FIELD)		
CHECKED (HDQTS.)		

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PROJECT ENGINEER

WASHINGTON STATE PARKS AND RECREATION COMMISSION

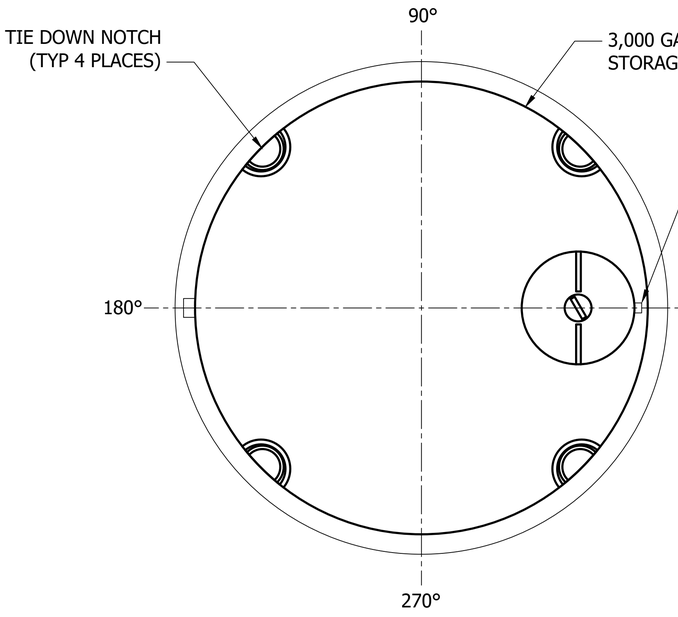
WALLACE FALLS STATE PARK

PARKING EXPANSION AND WATER SYSTEM REPLACEMENT

TREATMENT BUILDING EXTERIOR ELEVATIONS
A400

SCALE
AS SHOWN

PARKS FILE#



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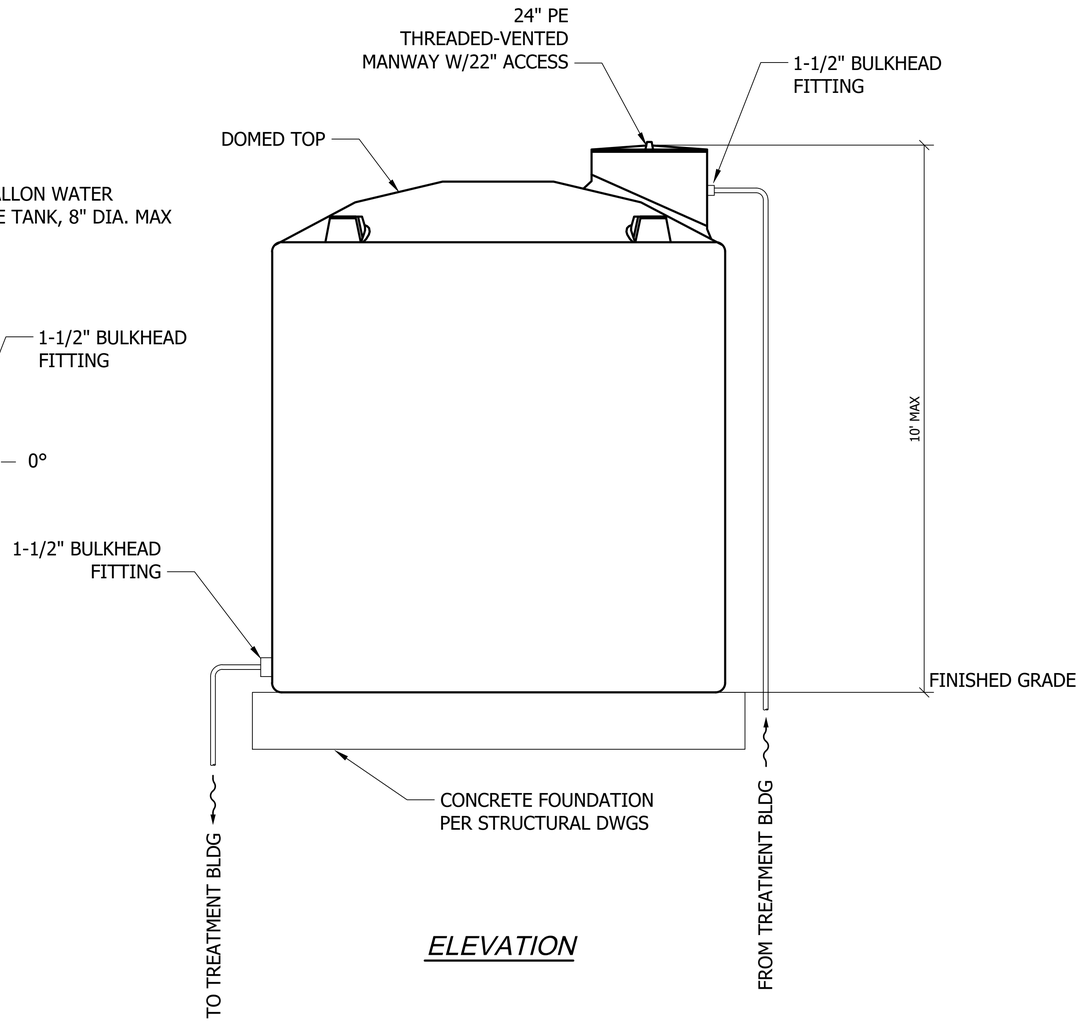

ELEVATION

1'
0 2'

SHEET 16 OF X

CAD NO. W090-D4003-C11-D4002-C11-2023-##-###

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WALLACE FALLS STATE PARK

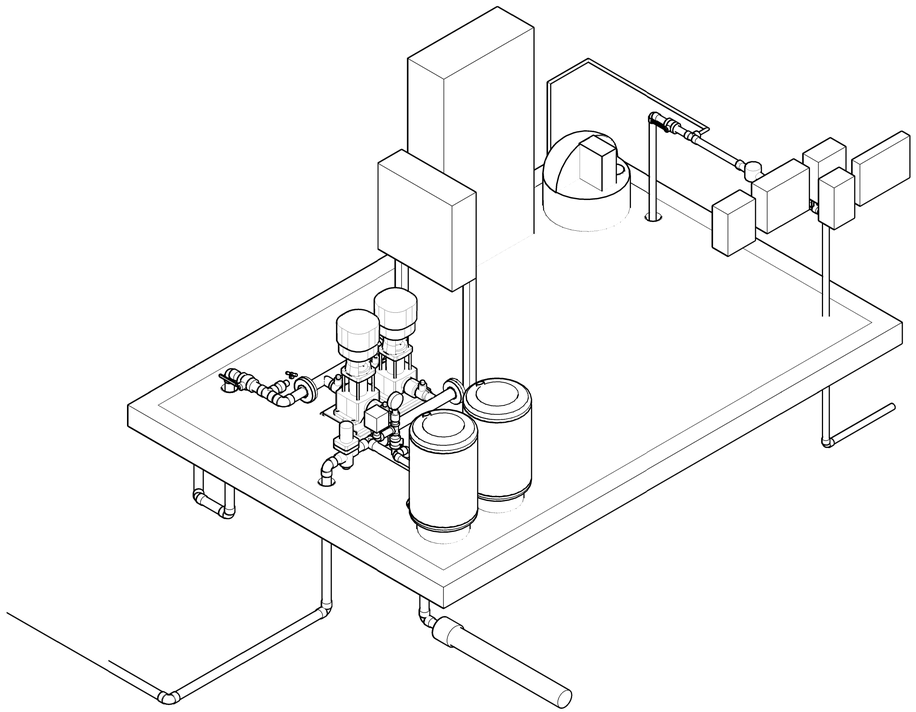
PARKING EXPANSION AND WATER SYSTEM REPLACEMENT

STORAGE TANK PLAN, SECTION, AND DETAILS

M400

SCALE
AS SHOWN

PARKS FILE#



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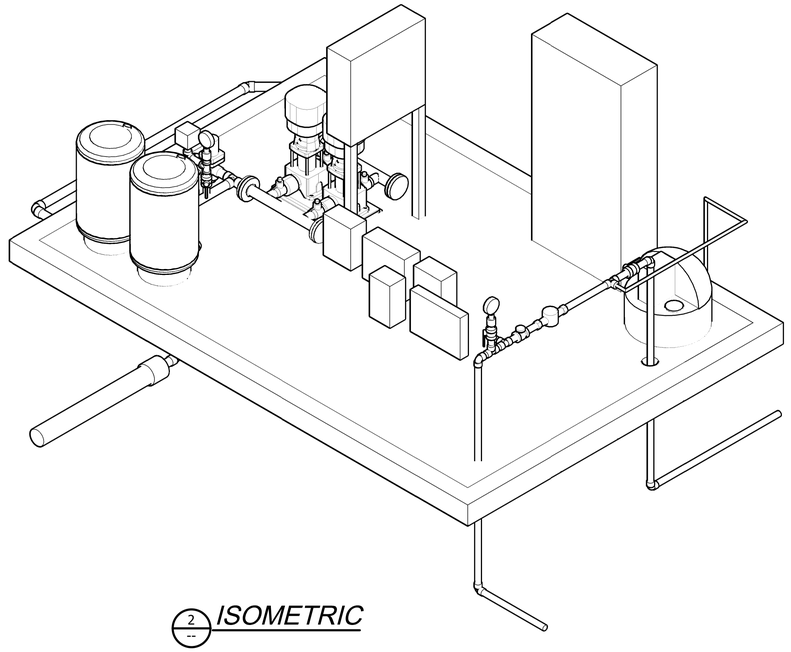

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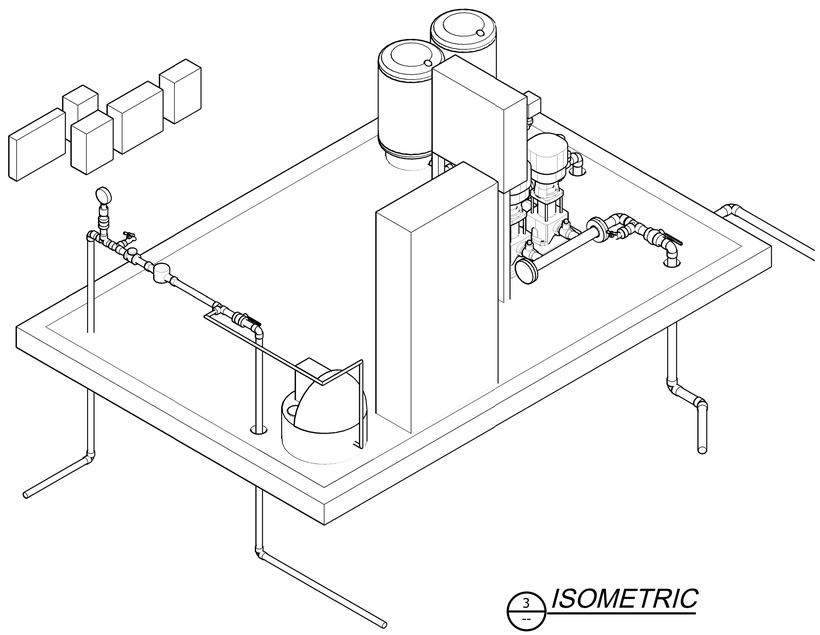

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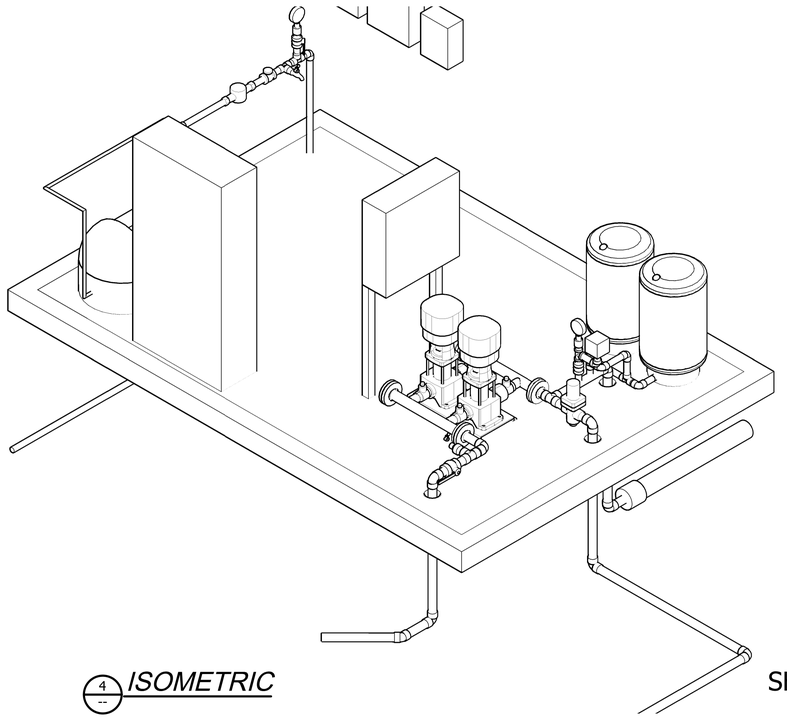

4 -- ISOMETRIC

SHEET 17 OF XX

CAD NO. W090-D4003-C11-D4002-C11-2023-##-###

NO.	REVISIONS	INT.	APP.	DATE

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WASHINGTON STATE PARKS AND RECREATION COMMISSION

WALLACE FALLS STATE PARK

PARKING EXPANSION AND WATER SYSTEM REPLACEMENT

TREATMENT BUILDING MECHANICAL PERSPECTIVE

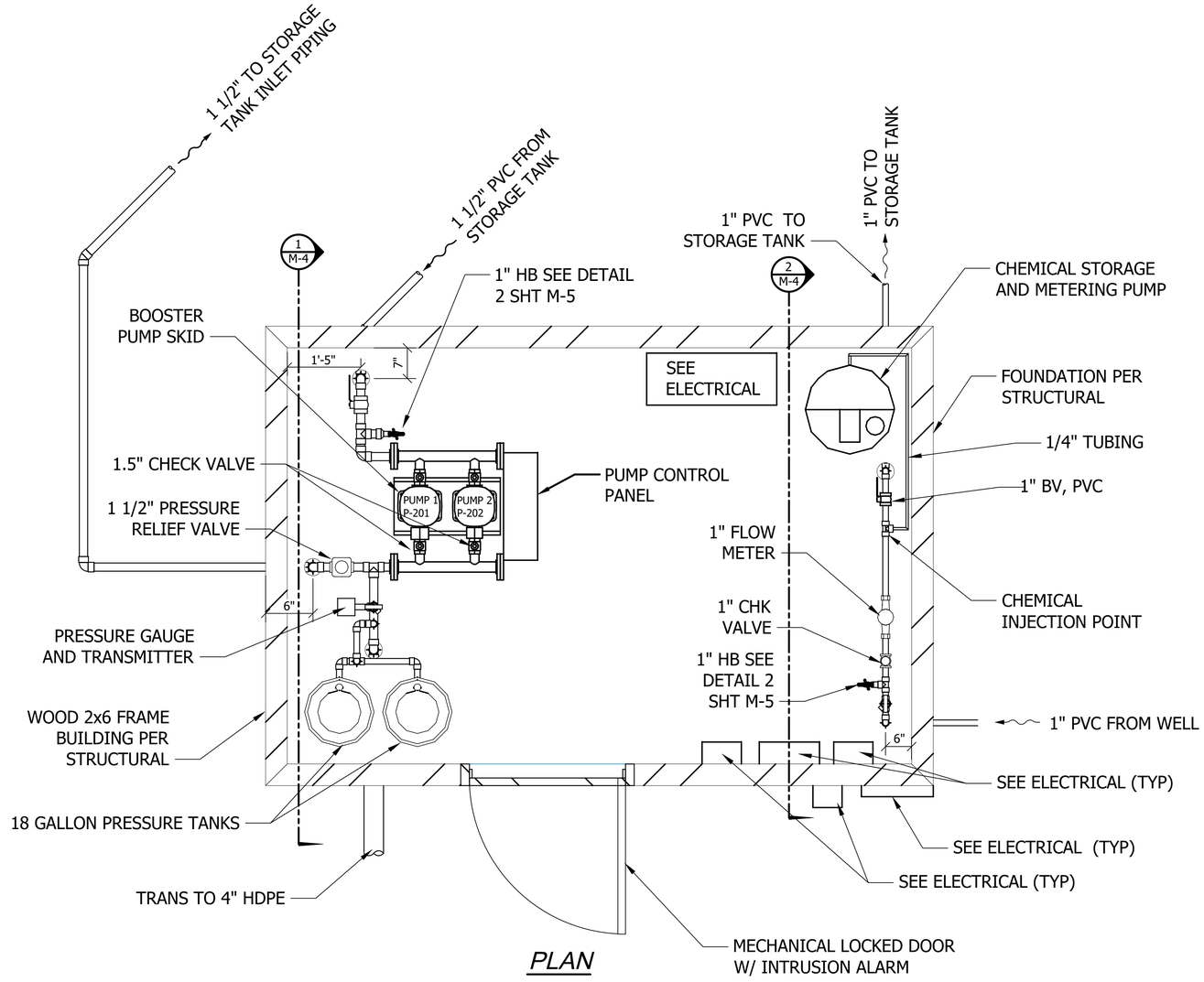
M401

SCALE
AS SHOWN

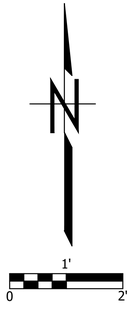
PARKS FILE#

SHEET NOTES:

1. ALL PIPING SHALL BE SCH 80 PVC UNLESS OTHERWISE NOTED.
2. DRAWING SCHEMATIC, LAYOUT MAY VARY IF INTENT IS MET. MISCELLANEOUS ELBOWS AND FITTINGS MAY BE ADDED TO AID INSTALLATION.
3. ALL WATERLINE ELBOWS, TEE, BUSHING, AND COUPLINGS SHALL BE SOLVENT WELD OR THREADED SCHEDULE 80 PVC. ALL TRANSITIONS IN WATERLINE SIZE FOR WATERLINE 2" AND SMALLER SHALL BE ACCOMPLISHED BY BUSHING OR BELL ADAPTERS.



PLAN



SHEET ## OF XX

CAD NO. W090-D4003-C11-D4002-C11-2023-##-###

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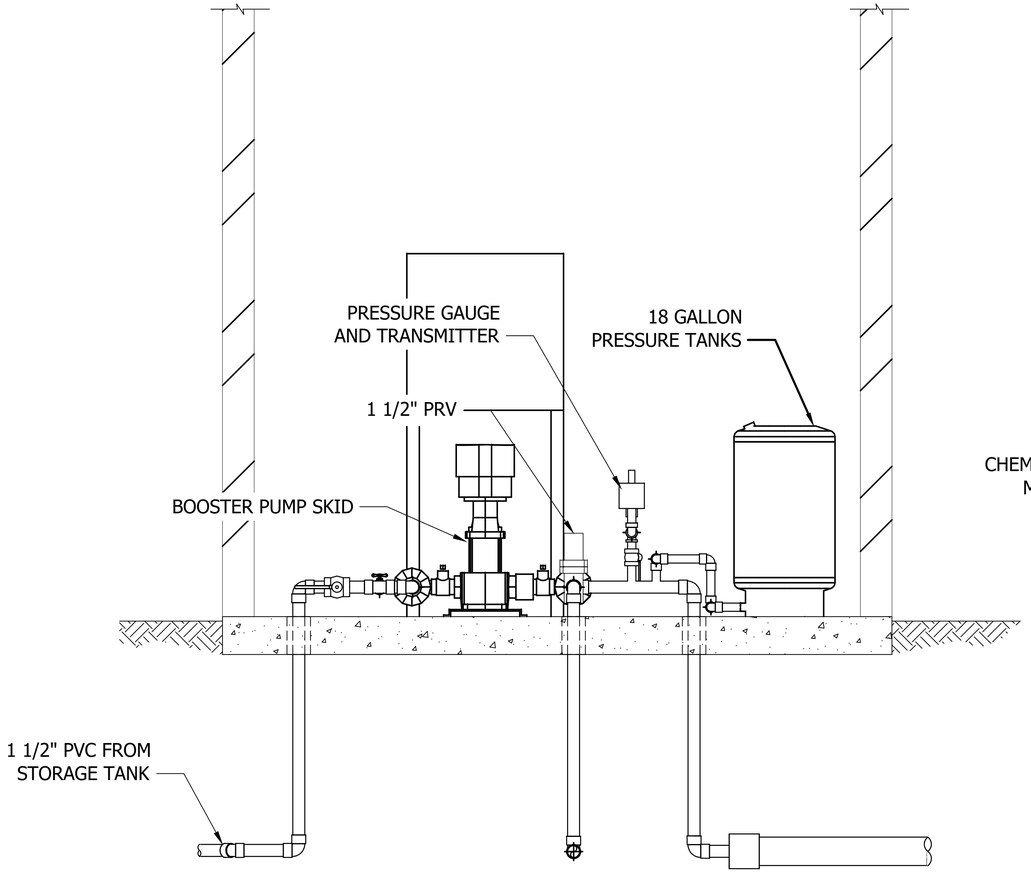
WALLACE FALLS STATE PARK

PARKING EXPANSION AND WATER SYSTEM REPLACEMENT

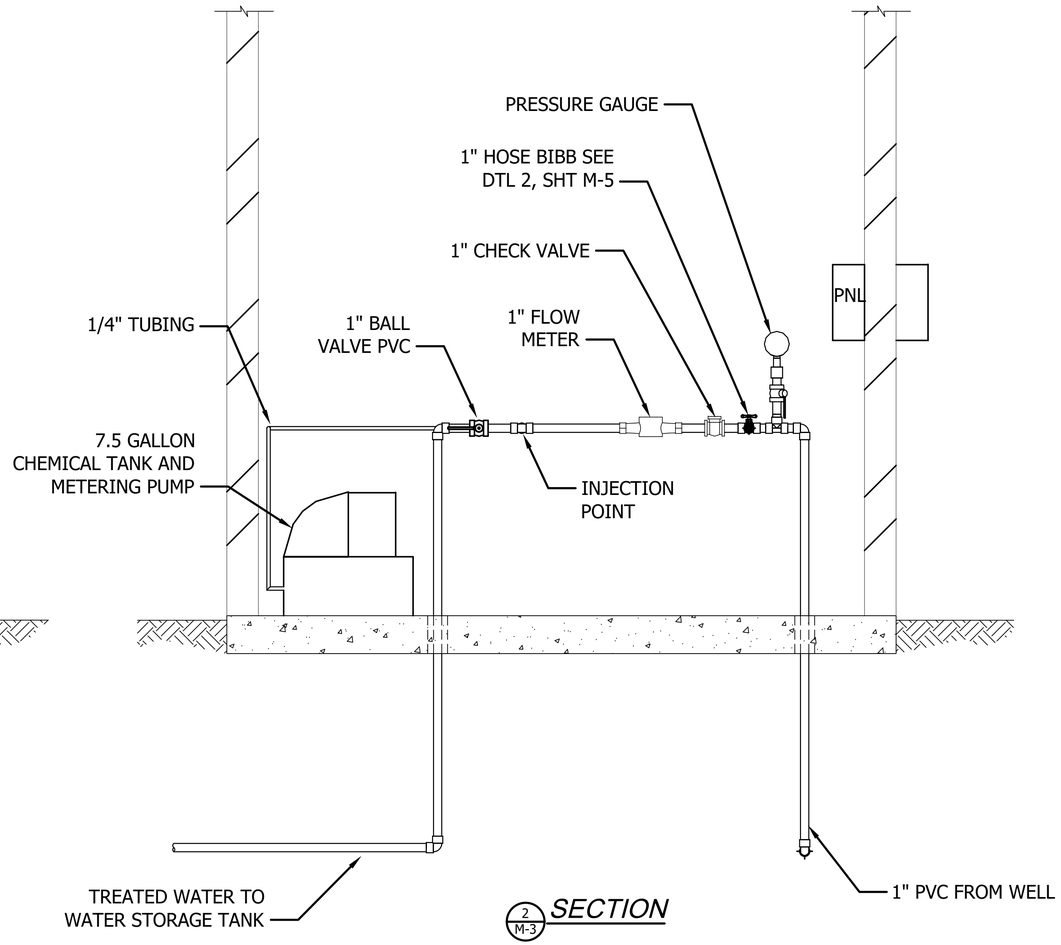
TREATMENT BUILIDNG MECHANICAL FLOOR PLAN M402

SCALE
AS SHOWN

PARKS FILE#



1 M-3 SECTION



2 M-3 SECTION

1'
0 2'

SHEET ## OF XX

CAD NO. W090-D4003-C11-D4002-C11-2023-##-###

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PROJECT ENGINEER

WASHINGTON STATE PARKS AND RECREATION COMMISSION

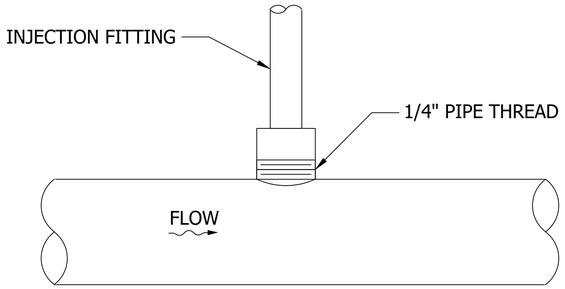
WALLACE FALLS STATE PARK

PARKING EXPANSION AND WATER SYSTEM REPLACEMENT

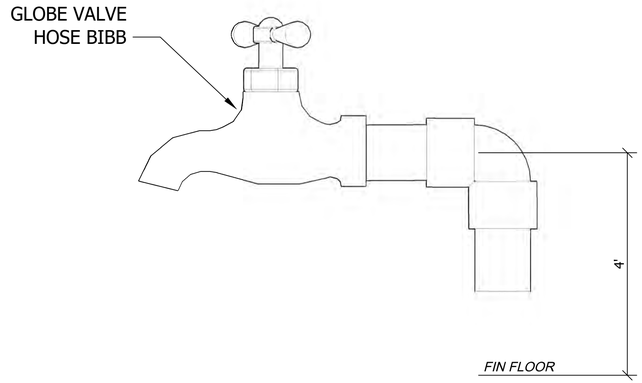
TREATMENT BUILDING MECHANICAL SECTIONS M403

SCALE
AS SHOWN

PARKS FILE#



1 -- CHEMICAL INJECTOR DETAIL



2 M-3 SAMPLE TAP DETAIL

SHEET ## OF XX

CAD NO. W090-D4003-C11-D4002-C11-2023-##-###

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PROJECT ENGINEER

WASHINGTON STATE PARKS AND RECREATION COMMISSION

WALLACE FALLS STATE PARK

PARKING EXPANSION AND WATER SYSTEM REPLACEMENT

TREATMENT BUILDING MECHANICAL DETAILS

M404

SCALE
AS SHOWN

PARKS FILE#

STRUCTURAL NOTES

(THESE NOTES ARE TYPICAL UNLESS NOTED OR DETAILED OTHERWISE ON DRAWINGS)

NAILS, BOLTS, AND METAL CONNECTORS FOR WOOD

ALL NAILS SHALL CONFORM TO THE STANDARDS SET FORTH BY THE NATIONAL DESIGN STANDARDS (NDS) FOR WOOD CONSTRUCTION, LATEST EDITION. NAILING NOT SPECIFIED SHALL BE PER IBC TABLE 2304.10.1 NAILING SCHEDULE. ALL NAILS CALLED OUT ON PLANS SHALL BE COMMON NAILS UNLESS NOTED OTHERWISE AND SHALL MEET OR EXCEED THE FOLLOWING MINIMUM GUIDELINES:

NAIL	SHANK Ø	MIN LENGTH
8d COMMON	0.131"Ø	2 1/2" SHANK
10d COMMON	0.148"Ø	3" SHANK
12d COMMON	0.148"Ø	3 1/4" SHANK
16d COMMON	0.162"Ø	3 1/2" SHANK

10d BOX NAILS MAY BE SUBSTITUTED FOR 8d COMMON NAILS WITH NO CHANGE IN NAIL SPACING. FRAMING MEMBERS MAY BE NAILED WITH 16d SINKERS (0.148"Ø x 3 1/4"), BUT ONLY 16d COMMON NAILS SHALL BE USED WHERE 16d NAILS ARE INDICATED IN THIS DRAWING SET. ENGINEER MAY APPROVE OTHER NAILS IF NAIL LABELS ARE SUBMITTED TO ENGINEER PRIOR TO START OF CONSTRUCTION.

ALL BOLTS IN WOOD MEMBERS SHALL CONFORM TO ASTM A307. PROVIDE WASHERS UNDER THE HEADS AND NUTS OF ALL BOLTS AND LAG SCREWS BEARING ON WOOD. LEAD HOLES FOR LAG BOLTS SHALL BE BORED FOR THE SHANK AND THREADED PORTIONS PER NDS 12.1.4.2.

CONNECTORS CALLED OUT BY LETTERS AND NUMBERS SHALL BE "STRONG-TIE" BY SIMPSON COMPANY, CATALOG TO BE THE LATEST EDITION, OR ENGINEER APPROVED EQUAL. CONNECTORS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND WITH THE NUMBER AND SIZE OF FASTENERS AS SPECIFIED BY THE MANUFACTURER. WHERE CONNECTOR STRAPS CONNECT TWO MEMBERS, PLACE ONE-HALF OF THE NAILS, SCREWS, OR BOLTS IN EACH MEMBER.

INSTALL SOLID BLOCKING AT ALL BEARING POINTS. ALL SHIMS SHALL BE SEASONED, DRIED, AND THE SAME GRADE (MINIMUM) AS MEMBERS CONNECTED.

GALVANIZATION

UNLESS NOTED OTHERWISE, STEEL CONNECTORS IN CONTACT WITH TREATED WOOD SHALL BE GALVANIZED ACCORDING TO THE FOLLOWING TABLE:

GALVANIZATION	UNTREATED WOOD	CCA-C	SBX	ACQ-C ACQ-D	CBA-A CA-B	OTHER BORATE	ACZA	OTHER PT WOOD
G90	X	X	X					
G185	X	X	X	X	X	X		
HDG	X	X	X	X	X	X		
STT300	X	X	X	X	X	X	X	X

G90 = 0.90 OZ. OF ZINC PER SQUARE FOOT OF AREA
G185 = 1.85 OZ. OF ZINC PER SQUARE FOOT OF AREA
HDG = HOT DIP GALVANIZED
SST300 = TYPE 316L STAINLESS STEEL

RATED SHEATHING

RATED SHEATHING SHALL BE GRADE C-D INT-APA WITH EXTERIOR GLUE OR OSB SHEATHING WITH EXTERIOR GLUE IN CONFORMANCE WITH IBC STANDARD 2303.1.5.

PRE-MANUFACTURED WOOD TRUSSES

WOOD TRUSSES SHALL BE SIZED AND DETAILED TO FIT DIMENSIONS AND LOADS INDICATED ON THE PLANS. ALL DESIGN SHALL BE IN ACCORDANCE WITH THE ALLOWABLE VALUES AND SECTION PROPERTIES ASSIGNED BY THE BUILDING CODE. SUBMIT SHOP DRAWINGS FOR ENGINEER REVIEW PRIOR TO FABRICATION. CALCULATIONS AND SHOP DRAWINGS SHALL BE SIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN THE SAME STATE AS THE PROJECT. TRUSS DESIGN AND SHOP DRAWINGS SHALL BE IN CONFORMANCE WITH IBC 2303.4

PROVIDE TEMPORARY BRACING UNTIL SHEATHING AND PERMANENT BRACING IS INSTALLED. MANUFACTURER SHALL PROVIDE ALL SPECIALTY ITEMS REQUIRED FOR A COMPLETE INSTALLATION OF JOISTS. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

FOR TOP CHORD DESIGN LIVE LOADS, REFER TO THE DESIGN LOAD SECTION. IN ADDITION TO ROOF LOADING LISTED IN THE DESIGN LOAD SECTION, ROOF TRUSSES SHALL BE DESIGNED FOR A BOTTOM CHORD LIVE LOAD OF 10 PSF. TOP AND BOTTOM CHORD LIVE LOAD DO NOT NEED TO BE DESIGNED FOR SIMULTANEOUSLY.

IN ADDITION TO THEIR SELF WEIGHT, ROOF TRUSSES SHALL BE DESIGNED FOR A TOP CHORD DEAD LOAD OF 5 PSF AND A BOTTOM CHORD DEAD LOAD OF 10 PSF ACTING SIMULTANEOUSLY. SEE MECHANICAL DRAWINGS FOR LOADS AND OPENINGS NOT SHOWN ON THE STRUCTURAL DRAWINGS. DEFLECTIONS SHALL NOT EXCEED L/360 FOR LIVE LOADS, OR L/240 FOR TOTAL LOADS.

TYPICAL FRAMING NOTES

1. BEARING WALL FRAMING

2x STUDS @ 16" OC FOR ALL SHEAR AND/OR BEARING WALLS UNO.

2. WALL BASE PLATE ON CONCRETE

WALL PLATES BEARING ON CONCRETE SHALL BE PRESSURE-TREATED. FOR ALL EXTERIOR WALLS, BOLT PLATES OR SILLS TO CONCRETE STEM WALLS OR THICKENED SLAB FOOTINGS WITH 5/8 INCH DIAMETER ANCHOR BOLTS WITH 7 INCH MINIMUM EMBEDMENT. PLACE AT 5'-0" OC MAXIMUM AND USE MINIMUM OF TWO ANCHOR BOLTS PER SILL AND PLACE ONE WITHIN 12 INCHES OF END OF PLATES, TYPICAL UNLESS NOTED OR DETAILED OTHERWISE. AT ALL SILL PLATE ANCHOR BOLTS, CONTRACTOR SHALL INSTALL 1/4" x 3" x 3" FLAT PLATE WASHERS.

3. ROOF AND FLOOR FRAMING

PROVIDE 1 1/2" FULL DEPTH BLOCKING FOR TRUSSES AND RAFTERS AT ALL SUPPORTS.

4. DIAPHRAGM NAILING

ALL SHEAR WALLS, FLOOR AND ROOF DIAPHRAGM NAILINGS SHALL BE AS CALLED OUT ON THE PLANS. EXTERIOR WALLS SHALL BE SHEATHED AND NAILED TO SUPPORTING FRAMING WITH 8d NAILS AT 6" OC AT ALL PANEL EDGES AND 12" OC AT ALL INTERMEDIATE SUPPORTS.

THE USE OF NAIL GUNS WILL BE APPROVED IF NAILING INTO THE DIAPHRAGMS CAN BE INSTALLED FLUSH WITH FACE OF SHEATHING. NAIL PENETRATIONS GREATER THAN 1/16" ARE NOT ACCEPTABLE.

5. ALLOWABLE STUD AND PLATE PENETRATIONS

CUTTING AND/OR NOTCHING OF WOOD STUDS OR PLATES SHALL NOT EXCEED 25% OF THE STUD/PLATE WIDTH IN EXTERIOR AND BEARING WALLS AND SHALL NOT EXCEED 40% OF THE STUD/PLATE WIDTH IN ANY NON-BEARING PARTITIONS. BORED HOLE DIAMETER IS LIMITED TO 40% OF STUD/PLATE WIDTH IN ANY STUD AND MAY BE 60% IN NONBEARING PARTITIONS OR IF STUD IS DOUBLED. MAINTAIN 5/8" MINIMUM EDGE DISTANCE FROM HOLE EDGE.

6. GYPSUM WALLBOARD NAILING

ALL GYPSUM WALLBOARD SHALL BE NAILED TO ALL STUDS AND TOP AND BOTTOM PLATES WITH 6d COOLER NAILS OR NO. 13 GAUGE x 1 5/8" @ 7" OC (5d COOLER NAILS FOR 1/2 INCH GYPSUM SHEATHING). TYPICAL UNLESS NOTED OTHERWISE. INSTALLATION OF GWB SHALL BE SUCH THAT JOINTS ARE STAGGERED ON EACH SIDE OF A SINGLE WALL.

GENERAL

STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH CIVIL, ELECTRICAL, AND MECHANICAL DRAWINGS FOR BIDDING AND CONSTRUCTION. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS FOR COMPATIBILITY BEFORE PROCEEDING. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING.

CONTRACTOR TO SEE CIVIL, ELECTRICAL AND MECHANICAL DRAWINGS FOR SIZE AND LOCATION OF PIPE, VENT, DUCT AND OTHER OPENINGS AND DETAILS NOT SHOWN ON THESE DRAWINGS.

CONTRACTOR SHALL BE RESPONSIBLE FOR ERECTION STABILITY AND TEMPORARY SHORING AS NECESSARY UNTIL PERMANENT SUPPORT AND STIFFENING ARE INSTALLED.

CONTRACTOR-INITIATED CHANGES SHALL BE SUBMITTED IN WRITING TO THE STRUCTURAL ENGINEER FOR APPROVAL PRIOR TO FABRICATION OR CONSTRUCTION. CHANGES SHOWN ON SHOP DRAWINGS ONLY WILL NOT SATISFY THIS REQUIREMENT.

DRAWINGS INDICATE GENERAL AND TYPICAL DETAILS OF CONSTRUCTION. WHERE CONDITIONS ARE NOT SPECIFICALLY INDICATED BUT ARE OF A SIMILAR CHARACTER TO DETAILS SHOWN, SIMILAR DETAILS OF CONSTRUCTION SHALL BE USED, SUBJECT TO REVIEW AND APPROVAL BY THE STRUCTURAL ENGINEER.

LEGEND

DEFINITION	SYMBOL	DEFINITION	SYMBOL
DIRECTION OF FRAMING		NATIVE SOIL	
EXTENT OF FRAMING		GRANULAR FILL	
COLUMNS		STRUCTURAL STEEL	
COLUMN BEARING ON BEAM	(A)	RATED SHEATHING	
BEAM CONTINUOUS OVER SUPPORT	(B)	SHEAR WALL (SEE SCHEDULE)	SWX
CONCRETE WALL		COLUMN MARK (SEE SCHEDULE)	C#
BEARING STUD WALL		FOOTING MARK (SEE SCHEDULE)	FX
NON-BEARING STUD WALL		HOLDOWN MARK (SEE SCHEDULE)	HX
BEARING STUD SHEAR WALL		HANGER MARK (SEE SCHEDULE)	X
NON-BEARING STUD SHEAR WALL		FLAG NOTE (SEE PLAN NOTES)	X
CMU WALL		STEEL MOMENT FRAME CONN.	

ABBREVIATIONS

(A)	ABOVE	HORIZ	HORIZONTAL
AB	ANCHOR BOLT	KP	KING POST
ALT	ALTERNATE	KSI	KIPS PER SQUARE INCH
ARCH	ARCHITECT	MECH	MECHANICAL
(B)	BELOW	MF	MOMENT FRAME
BLKG	BLOCKING	NS	NEAR SIDE
BM	BEAM	OC	ON CENTER
BOT	BOTTOM	OPP	OPPOSITE
BTWN	BETWEEN	PL	PLATE
CJP	COMPLETE JOINT PENETRATION	PLCS	PLACES
CLR	CLEAR	PSI	POUNDS PER SQUARE INCH
CMU	CONCRETE MASONRY UNIT	PSF	POUNDS PER SQUARE FOOT
COL	COLUMN	P/T	POST TENSIONED
CONC	CONCRETE	PT	PRESSURE TREATED
CONN	CONNECTION	REINF	REINFORCING
CONT	CONTINUOUS	REQ'D	REQUIRED
DBL	DOUBLE	SCHED	SCHEDULE
DET	DETAIL	SIM	SIMILAR
DIM	DIMENSION	SOG	SLAB ON GRADE
EA	EACH	STD	STANDARD
ELEV	ELEVATION	SW	SHEAR WALL
EXIST	EXISTING	TOC	TOP OF CONCRETE
EXP	EXPANSION	TOS	TOP OF STEEL
FLR	FLOOR	TOW	TOP OF WALL
FDN	FOUNDATION	TYP	TYPICAL
FTG	FOOTING	UNO	UNLESS NOTED OTHERWISE
FS	FAR SIDE	VFY	VERIFY
FH	FULL HEIGHT	VIF	VERIFY IN FIELD
GLB	GLUE-LAMINATED BEAM	VERT	VERTICAL

CAD NO. W090-D4003-C11-D4002-C11-2023-X-S401

NO.	REVISIONS	INT.	APP.	DATE

ACTION	BY	DATE
DESIGNED	ERH	03/29/23
DRAWN	JEG	03/29/23
CHECKED (FIELD)		
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PRELIMINARY
NOT FOR CONSTRUCTION
JOSEPH G. GALUSZKA STATE OF WASHINGTON STRUCTURAL ENGINEER PROFESSIONAL ENGINEER
03/29/23

REGISTERED STAMP

WASHINGTON STATE PARKS AND RECREATION COMMISSION

WALLACE FALLS STATE PARK

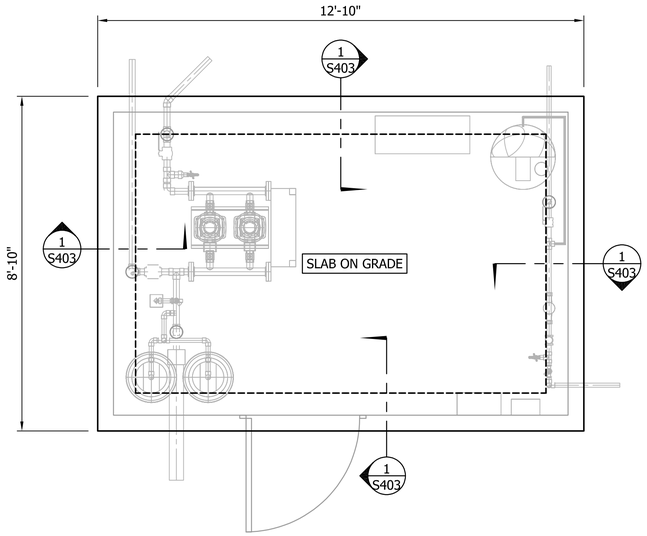
PARKING EXPANSION AND WATER SYSTEM REPLACEMENT

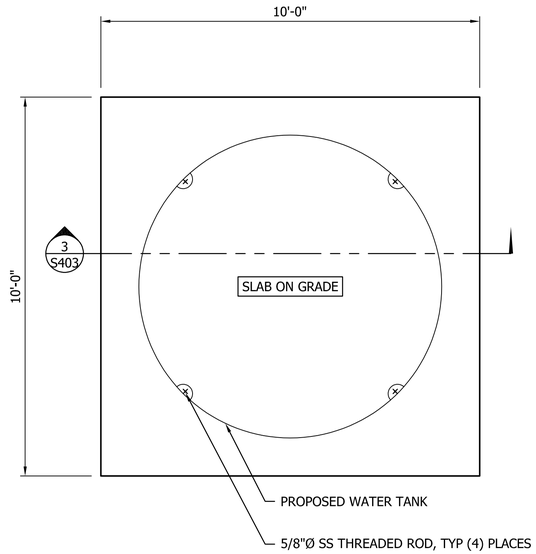
STRUCTURAL NOTES

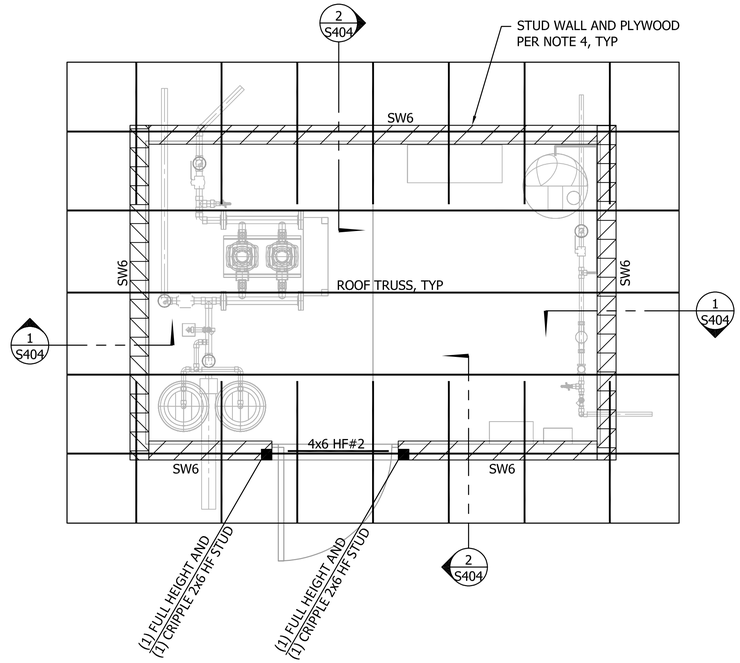
S401

SCALE
AS SHOWN

PARKS FILE#







1 - BUILDING FOUNDATION PLAN

2'
0 4'

FOUNDATION PLAN NOTES:

1. EXTERIOR FOOTINGS SHALL BEAR A MIN OF 1'-6" BELOW ADJACENT GRADE.
2. FOOTINGS AND SLAB ON GRADE SHALL BEAR ON FIRM NATIVE SOIL OR COMPACTED STRUCTURAL FILL.
3. WHERE SLAB ON GRADE IS INDICATED, SLAB SHALL BE 5" THICK W/ #4 REINF @ 12" OC EA WAY, CENTERED. SLAB SHALL BE POURED OVER A 10 MIL VAPOR BARRIER OVER 6" OF 5/8" CRUSHED ROCK.
4. REFER TO SHEET S403 FOR FOUNDATION DETAILS.
5. PLACE ALL REINFORCEMENT PER THE STRUCTURAL NOTES AND FOUNDATION DETAILS. REFER TO SHEET S400 FOR ADDITIONAL CONCRETE DETAILING REQUIREMENTS.
6. CONTRACTOR SHALL VERIFY ALL DIMENSIONS, WALL LOCATIONS, AND CONCRETE ROUGH OPENINGS WITH THE DESIGN TEAM DRAWINGS AND NOTIFY ALL PARTIES OF ANY DISCREPANCIES.
7. REFER TO DETAIL 2/S403 FOR PENETRATIONS THROUGH FOUNDATION SLAB.

2 - TANK FOUNDATION PLAN

2'
0 4'

3 - BUILDING ROOF FRAMING PLAN

4'
0 8'

TYPICAL ROOF FRAMING PLAN NOTES:

1. WALLS SHOWN ON ROOF FRAMING PLAN ARE WALLS BELOW ROOF FRAMING.
2. ROOF SHEATHING SHALL BE 1/2" PI 40/20 WITH 8d COMMON NAILS SPACED AT 6" OC AT ALL DIAPHRAGM BOUNDARIES, PANEL EDGES, SHEAR WALLS, AND BLOCKING INDICATED ON PLANS. NAILING AT INTERMEDIATE FRAMING SHALL BE 8d COMMON NAILS @ 12" OC. REFER TO DETAIL 4/S403 FOR ROOF PLYWOOD LAYOUT.
3. REFER TO SHEET S404 FOR TYPICAL ROOF FRAMING DETAILS.
4. ALL STUD WALLS SHALL BE 2x6 HF STUD GRADE AND SPACED AT 16" OC. ALL WALLS (INDICATED AS SW6 ON PLAN) SHALL BE SHEATHED W/ 1/2" APA RATED PLYWOOD. PROVIDE 8d NAILS AT 6" OC AT ALL PANEL EDGES AND 12" OC AT INTERMEDIATE FRAMING. ALL EDGES OF PLYWOOD SHALL BE BLOCKED.
5. REFER TO DETAIL 5/S403 FOR TYPICAL BUILT-UP STUD/POST DETAIL.
6. REFER TO DETAIL 6/S403 FOR TYPICAL HEADER OVER DOORWAY.

SHEET X OF X

CAD NO. W090-D4003-C11-D4002-C11-2023-X-S402

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STATE OF WASHINGTON
STRUCTURAL ENGINEER
PROFESSIONAL ENGINEER
03/29/23

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WASHINGTON STATE PARKS AND RECREATION COMMISSION

WALLACE FALLS STATE PARK

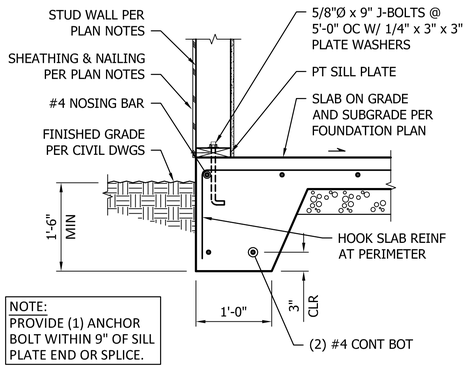
PARKING EXPANSION AND WATER SYSTEM REPLACEMENT

STRUCTURAL PLANS

S402

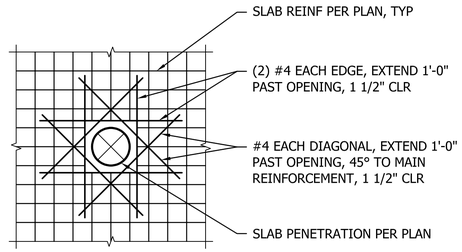
SCALE
AS SHOWN

PARKS FILE#



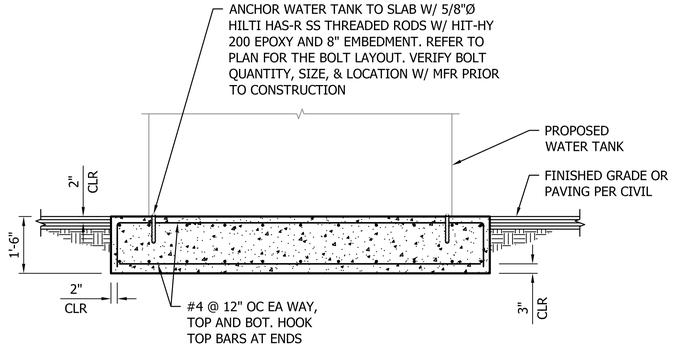
1 S402 THICKENED EDGE FOOTING

1' 0 2'



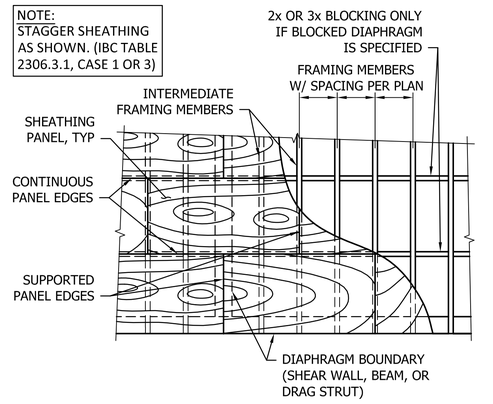
2 S402 CONCRETE SLAB PENETRATION REINFORCING

1' 0 2'



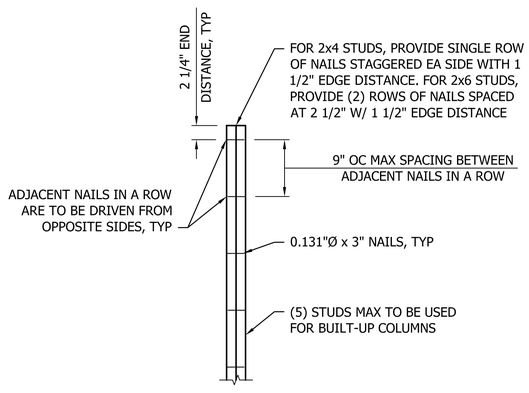
3 S402 WATER TANK SUPPORT SLAB

2' 0 4'



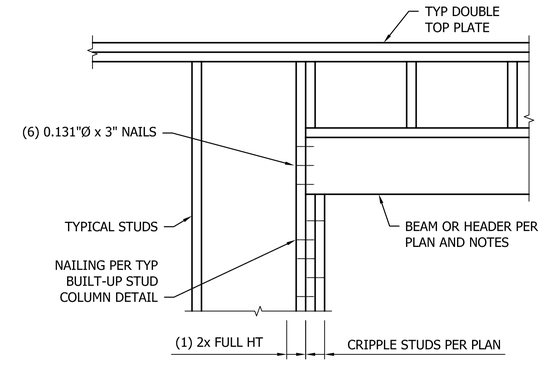
4 S402 TYPICAL ROOF SHEATHING DETAIL

1' 0 2'



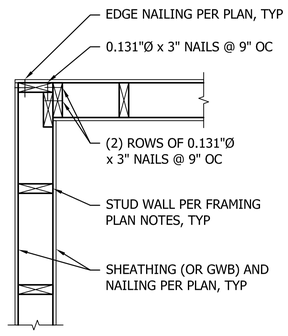
5 S402 TYPICAL BUILT-UP STUD COLUMN DETAIL

1' 0 2'



6 S402 TYPICAL HEADER DETAIL

1' 0 2'



7 S402 TYPICAL WALL CORNER DETAIL

1' 0 2'

SHEET X OF X

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JOSEPH G. GALUSZKA STATE OF WASHINGTON STRUCTURAL ENGINEER PROFESSIONAL ENGINEER 05/29/23

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WASHINGTON STATE PARKS AND RECREATION COMMISSION

WALLACE FALLS STATE PARK

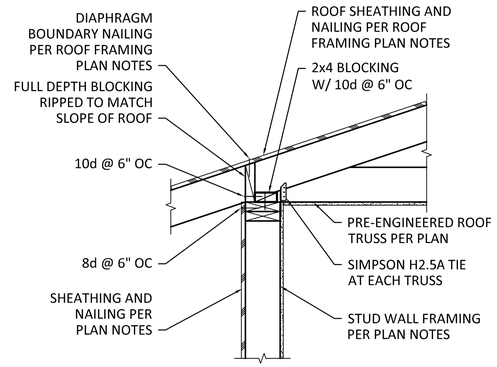
PARKING EXPANSION AND WATER SYSTEM REPLACEMENT

FOUNDATION AND FRAMING DETAILS

S403

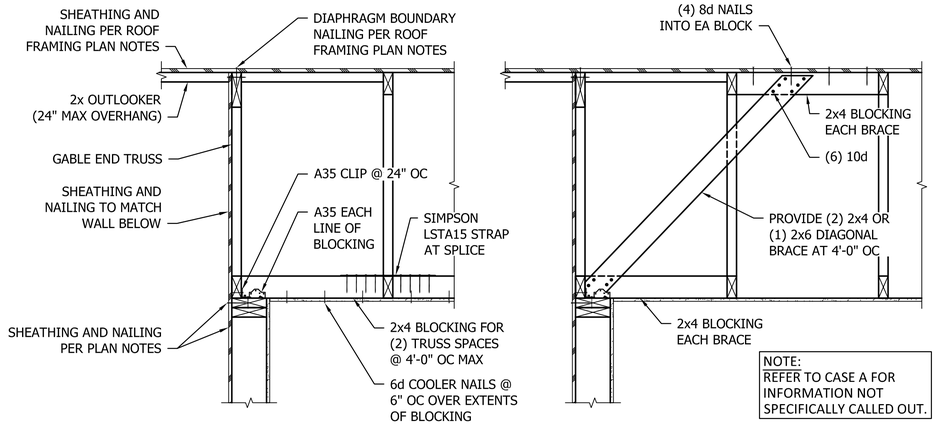
SCALE AS SHOWN

PARKS FILE#



1 S402 **TYPICAL TRUSS SUPPORT DETAIL**

1' 0 2'



OPTION A. BLOCKING AND STRAPS

OPTION B. BRACING

2 S402 **TYPICAL GABLE END SECTION**

1' 0 2'

SHEET X OF X

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JOSEPH G. GALUSZKA STATE OF WASHINGTON STRUCTURAL ENGINEER PROFESSIONAL ENGINEER 03/29/23

REGISTERED STAMP

WASHINGTON STATE PARKS AND RECREATION COMMISSION

WALLACE FALLS STATE PARK

PARKING EXPANSION AND WATER SYSTEM REPLACEMENT

ROOF FRAMING DETAILS

S404

SCALE
AS SHOWN

PARKS FILE#

GENERAL NOTES:

1. ALL MATERIALS AND INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE LATEST NATIONAL ELECTRICAL CODE. ALL MATERIALS SHALL BE NEW AND LISTED BY THE UNDERWRITERS' LABORATORY INC. (UL). ALL ELECTRICAL WORK SHALL BE INSTALLED IN A SAFE AND FUNCTIONAL MANNER.
2. REFER TO THE ELECTRICAL CIRCUIT SCHEDULE FOR CIRCUIT IDENTIFICATIONS, ROUTING, CONDUCTOR SIZES, ETC.
3. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH OTHER DISCIPLINES AS REQUIRED TO MITIGATE INTERFERENCES.
4. CONDUIT MATERIAL SHOWN ON ELECTRICAL PLANS ARE SPECIFIC FOR THE LOCATION WHERE THE CONDUIT STARTS. CONTRACTOR IS RESPONSIBLE FOR TRANSITIONING TO APPROVED CONDUIT MATERIAL BASED ON LOCATION AND IN ACCORDANCE TO ELECTRICAL SPECIFICATIONS.

ABBREVIATIONS

a	CIRCUIT BREAKER AUX. CONTACT, CLOSED WHEN BREAKER IS CLOSED AMMETER,
A	AMPERES
AC	ALTERNATING CURRENT
A/D	ANALOG TO DIGITAL
AF	AMPERE FRAME
AIC	AMPERES INTERRUPTING CAPACITY
ALT	ALTERNATOR
A/M	AUTO/MANUAL CONTROLLER
ANN	ANNUNCIATOR
AS	AMMETER SWITCH
ASD	ADJUSTABLE SPEED DRIVE
AT	AMPERE TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AWG	AMERICAN WIRE GAGE
b	CIRCUIT BREAKER AUX. CONTACT, CLOSED WHEN BREAKER IS OPEN
BCG	BARE COPPER GROUND
C	CONDUIT, CONTACTOR
CAP	CAPACITOR
CB	CIRCUIT BREAKER
CC	CONTROL CABLE, CLOSING COIL
CHH	COMMUNICATION HANDHOLE
CL	CHLORINE
CKT	CIRCUIT
CMH	COMMUNICATION MANHOLE
CO	CONDUIT ONLY
COMM	COMMUNICATION
CON	CONTACTOR
COND	CONDUCTOR
CONT	CONTINUED, CONTINUATION
CPT	CONTROL POWER TRANSFORMER
CP	CONTROL PANEL
CR	CONTROL RELAY
CS	CONTROL SWITCH
CT	CURRENT TRANSFORMER
CWP	COLD WATER PIPE
DC	DIRECT CURRENT
DIAG	DIAGRAM
DISC	DISCONNECT
DISTR	DISTRIBUTION
DP	DISTRIBUTION PANEL
DPDT	DOUBLE POLE, DOUBLE THROW
DPST	DOUBLE POLE, SINGLE THROW
EXST	EXISTING
EF	EXHAUST FAN
EHH	ELECTRICAL HANDHOLE
ELEM	ELEMENTARY
EMERG	EMERGENCY
EFFL	EFFLUENT
EQ	EQUAL
EQUIP	EQUIPMENT
ETM	ELAPSED TIME METER
FACP	FIRE ALARM CONTROL PANEL
FIN FL	FINISHED FLOOR
FLEX	FLEXIBLE
FLUOR	FLUORESCENT
FO	FIBER OPTIC
FREQ	FREQUENCY
FU	FUSE
FUT	FUTURE
FVNR	FULL VOLTAGE, NON REVERSING
FVR	FULL VOLTAGE, REVERSING
FWD	FORWARD
GA	GAUGE
GEN	GENERATOR
GFI	GROUND FAULT INTERRUPTER
GRS	GALVANIZED RIGID STEEL
H_2O_2	HYDROGEN PEROXIDE
HMI	HUMAN MACHINE INTERFACE
HOA	HAND-OFF-AUTOMATIC
HOR	HAND-OFF-REMOTE
HORZ	HORIZONTAL
HPS	HIGH PRESSURE SODIUM
HTR	HEATER
HV	HIGH VOLTAGE
HZ	HERTZ (CYCLES PER SECOND)
IND LT	INDICATING LIGHT
INCAND	INCANDESCENT
I/O	INPUT/OUTPUT
JB	JUNCTION BOX
KA	KILOAMPERES
KCMIL	THOUSANDS OF CIRCULAR MILS
KV	KILOVOLTS
KVA	KILOVOLT AMPERES
KVAR	KILOVOLT AMPERES REACTIVE
KVARH	KILOVOLT AMPERES REACTIVE HOURS
KW	KILOWATTS
KWH	KILOWATT HOURS
LCP	LIGHTING CONTROL PANEL
LP	LIGHTING PANEL
LPS	LOW PRESSURE SODIUM
LTG	LIGHTING
LT(S)	LIGHT(S)
(M)	MODIFIED
Ma	MILLIAMPERES
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MOV	MOTOR OPERATED VALVE
MS	MOTOR STARTER
MTD	MOUNTED
MTG	MOUNTING
MTS	MANUAL TRANSFER SWITCH
(N)	NEW
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURER'S ASSOC.
NEUT	NEUTRAL
NO	NORMALLY OPEN
NTS	NUMBER NOT TO SCALE
OVHD	OVERHEAD
OL	THERMAL OVERLOAD RELAY
OT	OVER TEMPERATURE
PB	PULLBOX, PUSHBUTTON
PD	POSITIVE DISPLACEMENT
PE	PHOTOELECTRIC
PEC	PHOTOELECTRIC CELL
PF	POWER FACTOR
pH	MEASURE OF ACIDITY OR ALKALINITY
PH	PHASE
PLC	PROGRAMMABLE LOGIC CONTROLLER
PM	POWER MONITOR
PNL	PANEL
PNLBD	PANELBOARD
PRI	PRIMARY
PS	PRESSURE SWITCH
PSI	POUNDS PER SQUARE INCH
PWR	POWER
(RL)	RELOCATE
(RLD)	RELOCATED
RCPT	RECEPTACLE
RCT	REPEAT CYCLE TIMER
RPM	REVOLUTIONS PER MINUTE
RT	RESET TIMER
SCR	SILICON CONTROLLED RECTIFIER
SD	SMOKE DETECTOR
SDBC	SOFT-DRAWN BARE COPPER
SEC	SECONDS, SECONDARY
SECT	SECTION
SF	SUPPLY FAN
SHH	SIGNAL HANDHOLE
SIG	SIGNAL
SN	SOLID NEUTRAL
SPEC	SPECIFICATIONS
SPD	SURGE PROTECTIVE DEVICE
SPDT	SINGLE POLE, DOUBLE THROW
SS	STAINLESS STEEL, SOLID STATE
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
SYNC	SYNCHRONIZING
TB	TERMINAL BOX, TERMINAL BOARD
TC	TELEPHONE CABINET
TEMP	TEMPERATURE
TP	TWISTED PAIR UNSHIELDED
TSP	TWISTED SHIELDED PAIR
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
UH	UNIT HEATER
UV	ULTRA VIOLET
V	VOLTS
VA	VOLT-AMPERES
VFD	VARIABLE FREQUENCY DRIVE
VAR	VOLT AMPERES REACTIVE
VERT	VERTICAL
VH	VAR-HOUR
VS	VOLTMETER SWITCH
W	WIRE, WATTS
WHM	WATTHOUR METER
WHDM	WATTHOUR DEMAND METER
WP	WEATHERPROOF
WTRT	WATERTIGHT
WTP	WATER TREATMENT PLANT

ELECTRICAL PLAN SYMBOLS

- METERBASE W/UTILITY METER
- DISCONNECT RECEPTACLE AND PLUG
- MOTOR CONNECTION, HORSEPOWER INDICATED
- JUNCTION BOX
- DISCONNECT SWITCH, AMPERAGE RATING SHOWN (20A / 30A)
- FUSED DISCONNECT SWITCH, SWITCH AND FUSE RATING SHOWN 60/40 = 60A SWITCH WITH 40A FUSE (F, 60/40)
- WIFI ACCESS POINT
- TRANSFORMER (T)
- THERMOSTAT (T)
- VAULT (V)
- SURGE PROTECTIVE DEVICE (SPD)
- PHASE MONITOR RELAY (PMR)
- SINGLE POINT GROUND
- EOL - END OF LINE RESISTOR
- CONDUIT UP
- CONDUIT DOWN
- CONDUIT UP FROM UNDERGROUND RACEWAY
- CONDUIT STUB
- FLEXIBLE CONDUIT OR MFR CONDUIT
- SURFACE RACEWAY
- UNDERGROUND RACEWAY
- HOME RUN, ELECTRICAL PANEL DESTINATION SHOWN (XXX)
- POWER POLE WITH GUY WIRE
- CONDUIT SEAL
- CURRENT TRANSFORMER
- LINE OR LOAD REACTOR, IMPEDENCE SHOWN

MISCELLANEOUS SYMBOLS

- METERBASE W/UTILITY METER (M)
- DISCONNECT RECEPTACLE AND PLUG
- SPECIAL EQUIPMENT CONNECTION AS SHOWN
- MOTOR CONNECTION, HORSEPOWER INDICATED

CONTROL DIAGRAM SYMBOLS

- PANEL WIRING
- FIELD WIRING
- TWISTED SHIELDED PAIR
- SHIELD WIRING
- TWISTED SHIELDED TRIAD
- SHIELD WIRING
- CONNECTING LINES
- NON-CONNECTING LINES
- FUSE, SIZE SHOWN (5A)
- THERMAL MAGNETIC CIRCUIT BREAKER
- MAGNETIC ONLY CIRCUIT BREAKER (MOTOR CIRCUITS ONLY) CONTINUOUS CURRENT RATING AND TRIP SETTINGS SHOWN (30AC 150AT)
- FUSED TERMINAL BLOCK FUSE SIZE SHOWN (XXA, XXX)
- CONTROL PANEL TERMINAL BLOCK
- COMPONENT TERMINAL BLOCK
- HORN
- BATTERY
- RECEPTACLE
- HEATER
- IP CAMERA (PTZ OR OTHER)
- TIME DELAY RELAY (TDR)
- PHASE MONITOR RELAY (PMR)
- ALTERNATOR RELAY (ALT)
- 120V CONTROL RELAY, DPDT MINIMUM (CR5)
- 24VDC CONTROL RELAY, DPDT MINIMUM (CR5)
- RELAY CONTACT - NO, NC
- PUSHBUTTON OR SWITCH CONTACT BLOCK - NO, NC
- THREE POSITION SELECTOR SWITCH (OFF / HAND / AUTO)
- TWO POSITION SELECTOR SWITCH
- PUSH-TO-TEST LED PILOT LIGHT
- INDICATOR LIGHT W - WHITE A - AMBER R - RED G - GREEN
- FLOAT SWITCH - NO, NC
- TEMPERATURE SWITCH - NO, NC
- LIMIT SWITCH - NO, NC
- TIME DELAY CONTACTS, NORMALLY OPEN TIMED CLOSED NORMALLY CLOSED TIMED OPEN
- FLOW SWITCH - NO, NC
- PRESSURE SWITCH - NO, NC
- MOTOR STARTER, SIZE SHOWN (2)
- VARIABLE FREQUENCY DRIVE
- LINE OR LOAD REACTOR, IMPEDENCE SHOWN
- SURGE PROTECTIVE DEVICE (SPD)
- CURRENT TRANSFORMER
- GROUND ROD
- GROUND ROD TEST WELL
- AUTOMATIC TRANSFER SWITCH
- DOUBLE THROW SWITCH
- GROUND CONNECTION PER NEC ARTICLE 250
- 120V CONTROL RELAY, DPDT MINIMUM (CR)
- 24VDC CONTROL RELAY, DPDT MINIMUM (CR)
- RELAY CONTACT - NO, NC
- PUSHBUTTON OR SWITCH CONTACT BLOCK - NO, NC
- THREE POSITION SWITCH (OFF / HAND / AUTO)
- TWO POSITION SWITCH, KEYED (ON / OFF)
- PUSH-TO-TEST LED PILOT LIGHT (R)
- FLOAT SWITCH - NO, NC
- TEMPERATURE SWITCH - NO, NC
- LIMIT SWITCH - NO, NC
- TIME DELAY CONTACTS, NORMALLY OPEN TIMED CLOSED NORMALLY CLOSED TIMED OPEN
- ELAPSED TIME METER (ETM)
- COUNTER (CNT)

NOTE: NOT ALL SYMBOLS OR ABBREVIATIONS USED.

GROUNDING PLAN SYMBOLS

- GROUND ROD
- GROUND TEST WELL
- GROUND CONNECTION TO EQUIPMENT DETAIL CALLOUT SHOWN ON PLAN DWG.
- GROUND CONNECTION, DETAIL CALLOUT SHOWN ON PLAN DWG.
- GROUND CONNECTION TO REBAR. DETAIL CALLOUT SHOWN ON PLAN DWG.
- BELOW GRADE #4/0 AWG BARE COPPER FOR MAIN PLANT GROUND
- BELOW GRADE #2/0 AWG INSULATED COPPER FOR GROUND TAP.
- ABOVE GRADE #2/0 AWG INSULATED GROUND TAP

LIGHTING PLAN SYMBOLS

- SURFACE MOUNTED LED LUMINAIRE *
- RECESSED MOUNTED LED LUMINAIRE *
- WALL MOUNTED LED LUMINAIRE
- BATTERY BACKED WALL MOUNTED LED LUMINAIRE
- WALL SWITCH STANDARD TOGGLE, DESIGNATOR 3 = 3-WAY D = DIMMER T = TIMER
- DUPLEX, QUADPLEX RECEPTACLE, W/DESIGNATOR GFI = GROUND FAULT INTERRUPTING WP = WEATHERPROOF +48 = HEIGHT AFF.
- EXIT SIGN - WALL MOUNTED
- EXIT SIGN - 2 SIDED CEILING MOUNTED
- PHOTOCELL (PC)
- MOTION SENSOR (M)
- FLOOD LIGHT

GENERAL SYMBOLS

KEY NOTES:

1. USE THIS FOR KEY NOTES.
2. DOUBLE SPACE FOR SUBSEQUENT NOTES.

GENERAL NOTES:

1. USE THIS FOR GENERAL NOTES.
2. CONTINUE FOR SUBSEQUENT NOTES.
3. SHOULD AUTOMATICALLY NUMBER DOWNWARD.

ONE-LINE DIAGRAM

SCALE: NONE

1 / -

Industrial Systems INC
12119 NE 99th Street
Suite #2090
Vancouver, Washington 98682
Phone: (360) 718-7267
Fax: (360) 952-8958
e-mail: is@industrialsystems-inc.com
OR CCB #196597 WA #INDUSSI880K9
AK #1018436
PROJECT#: 22.37.01

SHEET X OF XX

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WALLACE FALLS STATE PARK

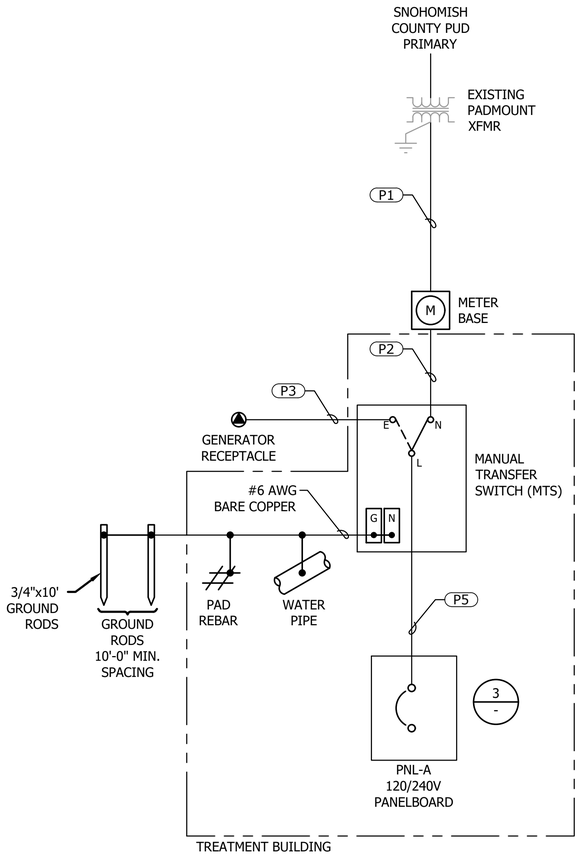
PARKING EXPANSION AND WATER SYSTEM REPLACEMENT

ELECTRICAL NOTE, SYMBOLS AND LEGEND

E400

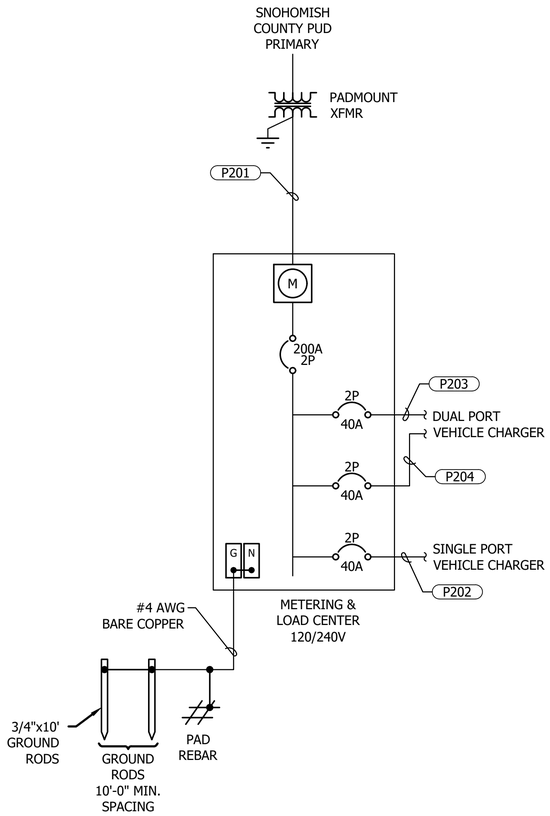
SCALE
AS SHOWN

PARKS FILE#



WELL/TREATMENT ONE-LINE DIAGRAM (1)

SCALE: NONE



VEHICLE CHARGING ONE-LINE DIAGRAM (2)

SCALE: NONE

CONDUCTOR SIZES ARE BASED ON COPPER CONDUCTORS.
MULTIPLE CIRCUITS RUN IN COMMON CONDUITS ARE SHOWN ON PLANS AND SUPERSEDE THE BASIC CONDUIT SIZE SHOWN.

RACEWAY SIZES ARE IN INCHES WITH QUANTITIES IN EXCESS OF (1) SHOWN IN ADJACENT PARENTHESIS.
P = POWER CONDUCTORS; G = GROUND CONDUCTORS; N = FOR NEUTRAL CONDUCTORS; C = CONTROL CONDUCTORS;
SP = SPARE CONDUCTORS; TSP = TWISTED SHIELDED PAIR.

CIRCUIT NUMBER	FROM	TO	CONDUCTORS	RACEWAY	NOTES
P1	PUD TRANSFORMER (EXISTING)	METER BASE	(2) 3 AWG, P (1) 3 AWG, N (1) 6 AWG, G	2"	COORDINATE WITH PUD
P2	METER BASE	MANUAL TRANSFER SWITCH (MTS)	(2) 3 AWG, P (1) 3 AWG, N (1) 6 AWG, G	1.25"	
P3	MANUAL TRANSFER SWITCH (MTS)	GENERATOR RECEPTACLE	(2) 3 AWG, P (1) 3 AWG, N (1) 6 AWG, G	1"	
P4	MANUAL TRANSFER SWITCH (MTS)	PNL-A	(2) 3 AWG, P (1) 3 AWG, N (1) 6 AWG, G	1"	
P5	PNL-A	INTERIOR BUILDING LIGHTING	(1) 12 AWG, P (1) 12 AWG, N (1) 12 AWG, G	3/4"	
P6	PNL-A	EXTERIOR BUILDING LIGHTING	(1) 12 AWG, P (1) 12 AWG, N (1) 12 AWG, G	3/4"	
P7	PNL-A	CONTROL PANEL	(1) 12 AWG, P (1) 12 AWG, N (1) 12 AWG, G	3/4"	
P8	PNL-A	BOOSTER PUMP SKID	(1) 12 AWG, P (1) 12 AWG, N (1) 12 AWG, G	3/4"	
P9	PNL-A	BUILDING CONVENIENCE RECEPTACLE	(1) 12 AWG, P (1) 12 AWG, N (1) 12 AWG, G	3/4"	
P10	PNL-A	CHEMICAL PUMP RECEPTACLE	(1) 12 AWG, P (1) 12 AWG, N (1) 12 AWG, G	3/4"	
P11	PNL-A	FLOW TRANSMITTER	(1) 12 AWG, P (1) 12 AWG, N (1) 12 AWG, G	3/4"	
P12	PNL-A	BUILDING EXHAUST FAN	(1) 12 AWG, P (1) 12 AWG, N (1) 12 AWG, G	3/4"	
P13	PNL-A	BUILDING UNIT HEATER	(1) 12 AWG, P (1) 12 AWG, N (1) 12 AWG, G	3/4"	
P14	PNL-A	WELL PUMP CONTROL BOX	(1) 12 AWG, P (1) 12 AWG, N (1) 12 AWG, G	3/4"	
P14A	WELL PUMP CONTROL BOX	WELL PUMP	(1) 12 AWG, P (1) 12 AWG, N (1) 12 AWG, G	1"	INCREASE WIRE SIZE FOR ALTERNATE WELL LOCATION.
C1	CONTROL PANEL	WELL LEVEL TRANSDUCER JUNCTION BOX	(1) 18 AWG, TSP		
C2	CONTROL PANEL	WELL INTRUSION SWITCH	(2) 14 AWG, C (1) 14 AWG, G		
C3	CONTROL PANEL	WELL FLOW TRANSMITTER	(1) 18 AWG, TSP (2) 14 AWG, C (1) 14 AWG, G	3/4"	
C4	CONTROL PANEL	SYSTEM PRESSURE TRANSMITTER	(1) 18 AWG, TSP	3/4"	
C5	CONTROL PANEL	TANK LSLL LEVEL FLOAT	(2) 14 AWG, C (1) 14 AWG, G	3/4"	
C6	CONTROL PANEL	TANK LSL LEVEL FLOAT	(2) 14 AWG, C (1) 14 AWG, G	3/4"	
C7	CONTROL PANEL	TANK LSH LEVEL FLOAT	(2) 14 AWG, C (1) 14 AWG, G	3/4"	
C8	CONTROL PANEL	TANK LSHH LEVEL FLOAT	(2) 14 AWG, C (1) 14 AWG, G	3/4"	
C9	CONTROL PANEL	BUILDING INTRUSION SWITCH	(2) 14 AWG, C (1) 14 AWG, G	3/4"	
C10	CONTROL PANEL	BOOSTER SKID PANEL	(6) 14 AWG, C (1) 18 AWG, TSP (4) 14 AWG, SP	1"	
C11	CONTROL PANEL	WELL PUMP CONTROL BOX	(4) 14 AWG, C (1) 14 AWG, G	3/4"	RUN COMMAND; RUN CONFIRM
C12	CONTROL PANEL	AUTODIALER (IN OFFICE BLDG)	(9) 14 AWG, C (5) 14 AWG, SP (1) 14 AWG, G	2"	
C13	CONTROL PANEL	CHEMICAL METERING PUMP	(2) 14 AWG, C (1) 18 AWG, TSP (1) 14 AWG, G	1"	
N1	OFFICE BUILDING	STORE	PULL STRING	2"	FOR FIBER

P201	PUD TRANSFORMER	METER/MAIN (200A SERVICE)	(2) 3/0 AWG, P (1) 3/0 AWG, N (1) 4 AWG, G	2"	COORDINATE WITH PUD
P202	METER/MAIN	SINGLE PORT VEHICLE CHARGING STATION	(2) 8 AWG, P (1) 10 AWG, G	1"	
P203	METER/MAIN	DUAL PORT VEHICLE CHARGING STATION	(2) 8 AWG, P (1) 10 AWG, G	1"	
P204	METER/MAIN	DUAL PORT VEHICLE CHARGING STATION	(2) 8 AWG, P (1) 10 AWG, G	1"	

CIRCUIT SCHEDULE (4)

SCALE: NONE

PANEL: PNL-A	VOLTAGE: 240/120, 1PH, 3WIRE	MOUNTING: SURFACE
LOCATION: TREATMENT/BOOSTER BLDG	BUS: 100A COPPER	AIC: 10,000
FEEDER: MAIN BREAKER	MAIN: 100A	

CKT NO	CIRCUIT DESCRIPTION	BREAKER POLES	BREAKER AMPS	VA	PHASE	LOAD VA	BREAKER POLES	BREAKER AMPS	CIRCUIT DESCRIPTION	CKT NO
1	INTERIOR LIGHTING	1	20	200	A	200	1	20	EXTERIOR LIGHTING	2
3	CONTROL PANEL	1	20	500	B	1000	2	20	BOOSTER PUMP SKID	4
5	CONVENIENCE RECEPTACLE	1	20	180	A		-	-		6
7	CHEMICAL PUMP RECEPTACLE	1	15	205	B	100	1	15	FLOW TRANSMITTER	8
9	WELL PUMP	1	20	1200	A		1	15	SPARE	10
11	SPARE	1	15		B		1	15	SPARE	12

LOAD PER PHASE

PHASE A	1.8	KVA
PHASE B	1.8	KVA
TOTAL LOAD	3.6	KVA
TOTAL AMPS	15	AMPS

PNL-A PANEL SCHEDULE (3)

SCALE: NONE

CAD NO. W090-D4003-C11-D4002-C11-2023-X-E401

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WASHINGTON STATE PARKS AND RECREATION COMMISSION

WALLACE FALLS STATE PARK

PARKING EXPANSION AND WATER SYSTEM REPLACEMENT

ELECTRICAL ONE-LINE DIAGRAM & SCHEDULES

E401

SCALE
AS SHOWN

PARKS FILE#

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AK #1018436
PROJECT#: 22.37.01

SHEET X OF XX

SEE E403 FOR AREA PLAN

OFFICE (EXISTING)

FIBER HANDHOLE

STATE PARK BOUNDARY

HUSTON CENTER BOUNDARY

2" CONDUIT FOR FUTURE FIBER

N1 1

STORE (EXISTING)

EXISTING PUD JBOX & TRANSFORMER

HUSTON CENTER BOUNDARY

STATE PARK BOUNDARY

DUAL PORT CHARGING STATION 2

1" C — P203 P204

SINGLE PORT CHARGING STATION 2

P202

METER/MAIN 3

P201

MATCHLINE SHEET 7

STATE PARK BOUNDARY

HUSTON CENTER BOUNDARY

30' 0 60'

KEY NOTES

1. USE SWEEPING 90° THROUGHOUT CONDUIT RUN.
2. TYPE 2 ELECTRIC VEHICLE CHARGING STATIONS, BOLLARD MOUNT ON CONCRETE FOUNDATION.
3. INSTALL 120/240V 200A METERED SERVICE PEDESTAL WITH 200A DISTRIBUTION PANEL.

ELECTRICAL SITE PLAN

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PROJECT#: 22.37.01

SHEET X OF XX

CAD NO. W090-D4003-C11-D4002-C11-2023-X-E402

NO.	REVISIONS	INT.	APP.	DATE

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WALLACE FALLS STATE PARK

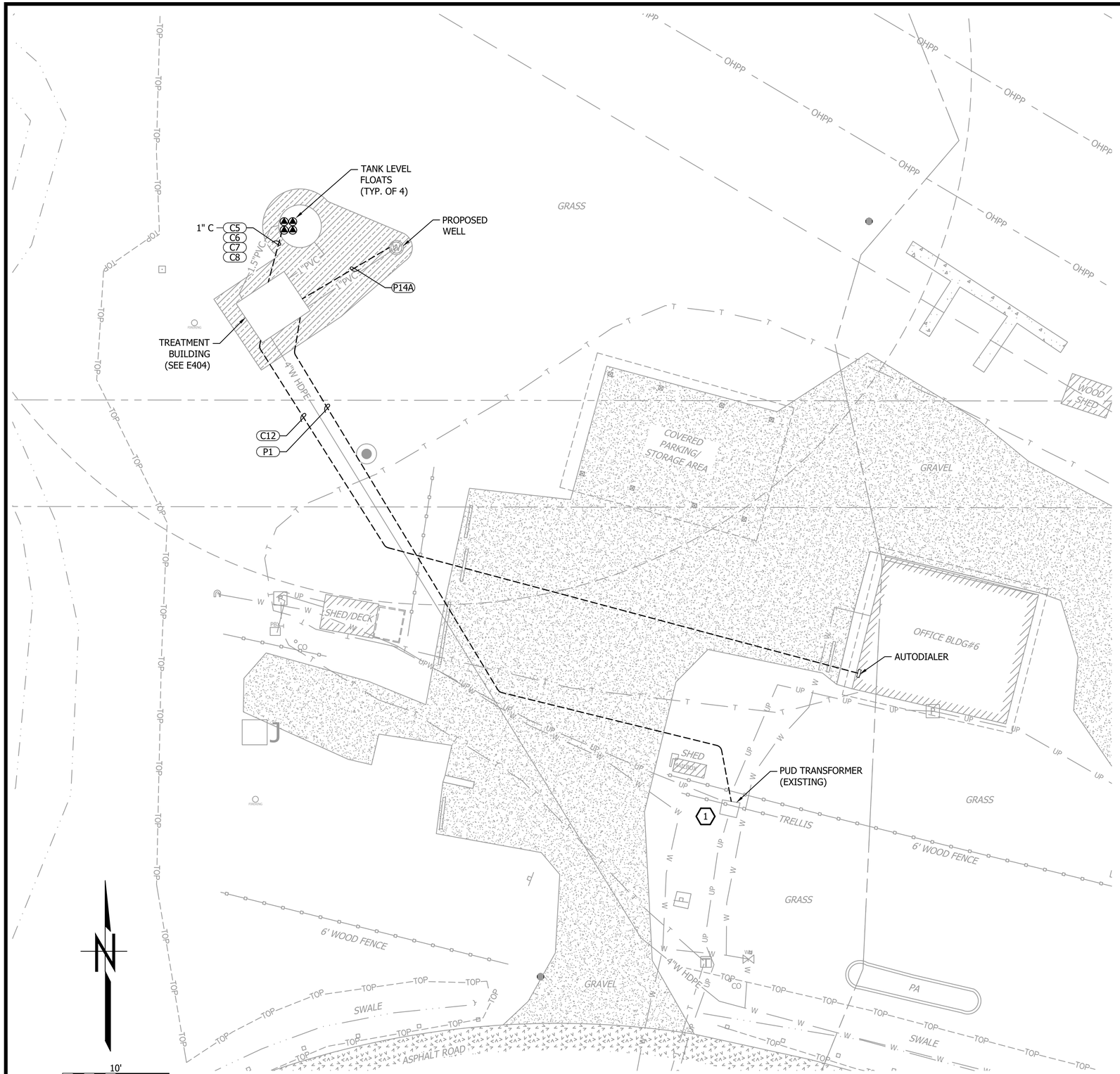
PARKING EXPANSION AND WATER SYSTEM REPLACEMENT

ELECTRICAL SITE PLAN

E402

SCALE
AS SHOWN

PARKS FILE#



PLAN

KEY NOTES

1. CONTRACTOR SHALL RUN CONDUIT AND WIRE UP TO EXISTING PUD TRANSFORMER. COORDINATE CONNECTION WITH PUD.

CAD NO. W090-D4003-C11-D4002-C11-2023-X-E403

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WALLACE FALLS STATE PARK

PARKING EXPANSION AND WATER SYSTEM REPLACEMENT

ELECTRICAL AREA PLAN

E403

SCALE
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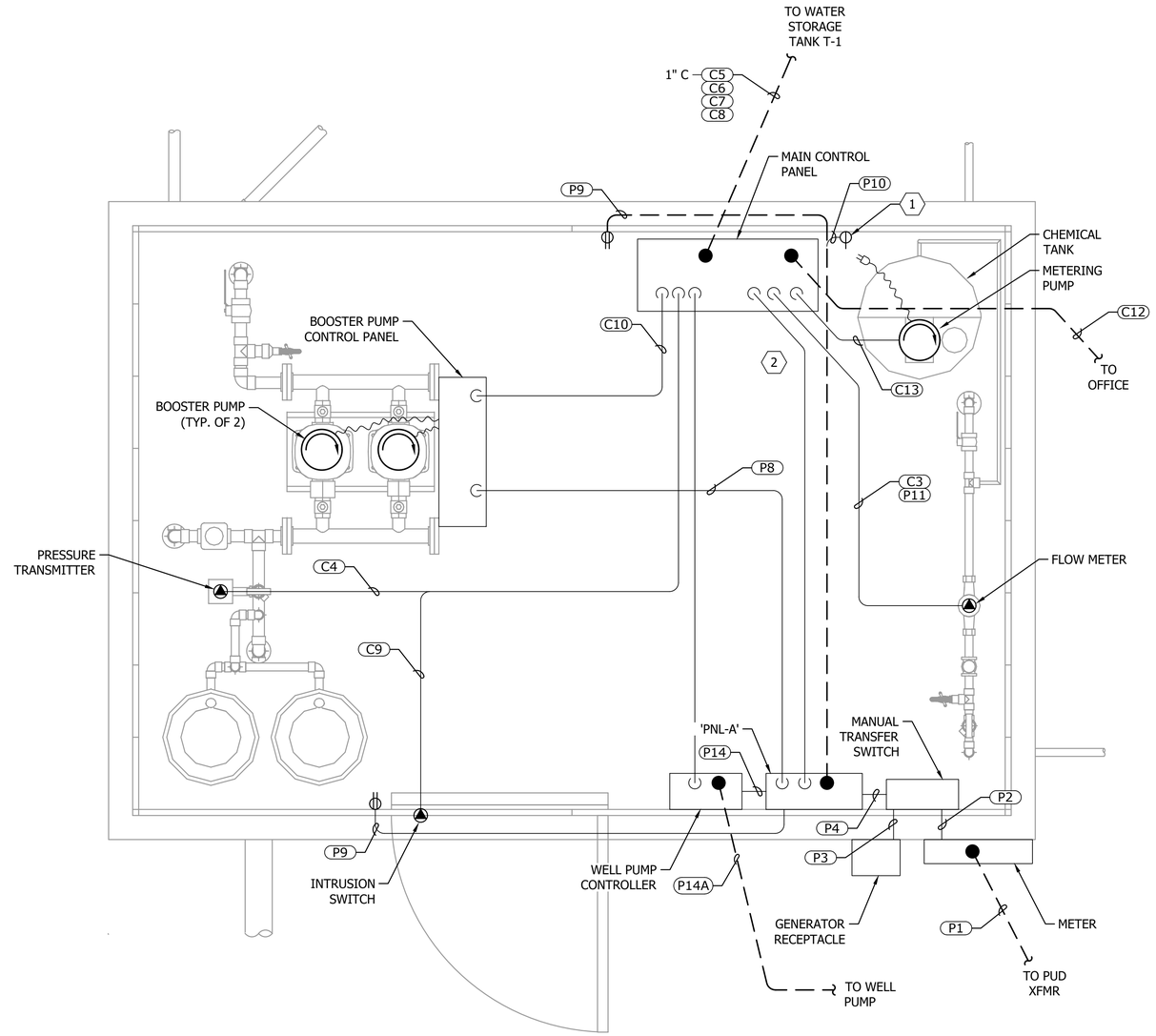
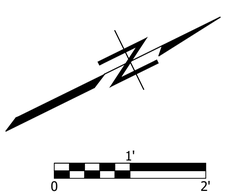
SHEET X OF XX

KEY NOTES

1. DEDICATED SIMPLEX RECEPTACLES FOR CHEMICAL EQUIPMENT.
2. ALL CONDUITS WITHIN 5 FT OF METERING PUMP AND CHEMICAL TANK SHALL BE PGRS.





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WALLACE FALLS STATE PARK

PARKING EXPANSION AND WATER SYSTEM REPLACEMENT

TREATMENT BUILDING ELECTRICAL PLAN

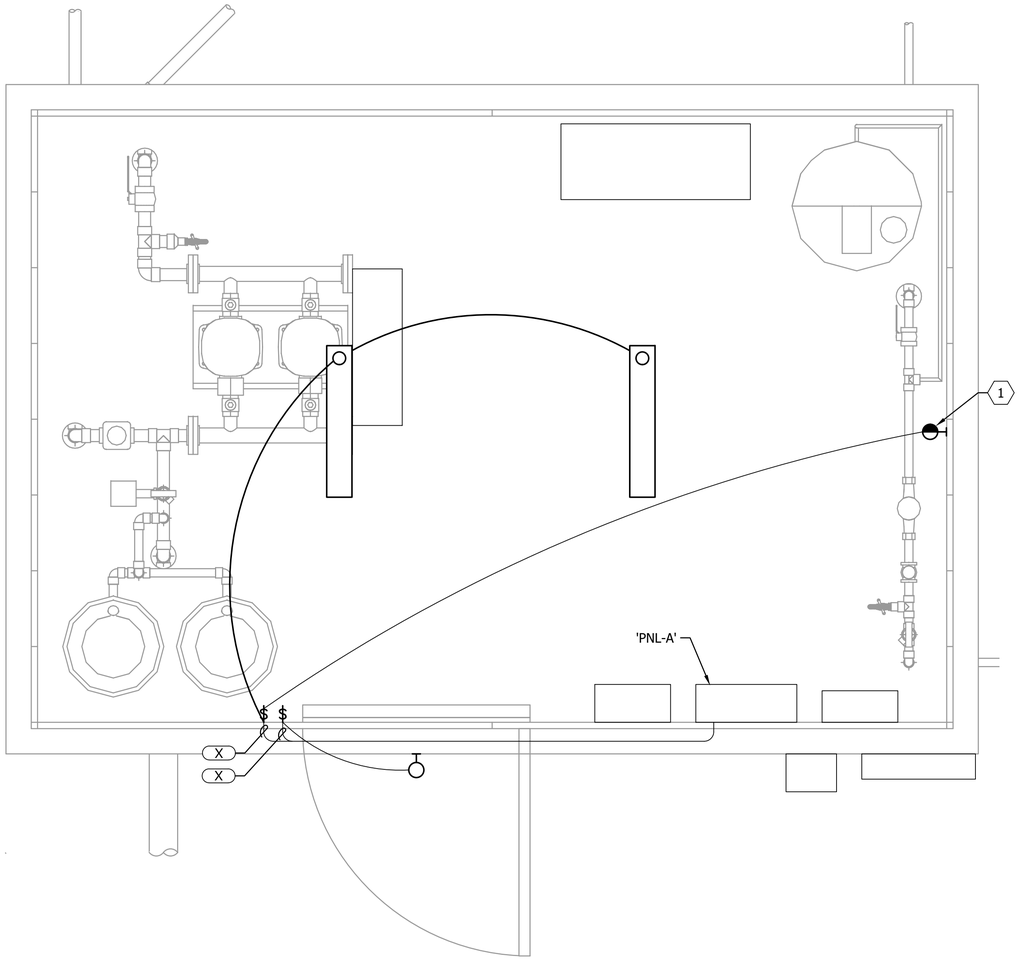
E404

SCALE
AS SHOWN

PARKS FILE#

KEY NOTES

1. ROUTE UN-SWITCHED POWER CIRCUIT TO BATTERY BACKED LUMINAIRE.



LUMINAIRE SCHEDULE				
DEVICE/LOCATION/USE	DESCRIPTION	VOLTS	WATTS	SUGGESTED MANUFACTURER & CATALOG NUMBER
BUILDING INTERIOR LIGHT	4064 LUMEN LED LUMINAIRE FEM SERIES 48"	120V	23.8	LITHONIA FEM L48 4000LM IMAFL MD MVOLT GZ10 40K 80CRI OR EQUAL
WALL MOUNT LUMINAIRE LED TYPE INTERIOR/EXTERIOR	640 LUMEN LED LUMINAIRE FOR EMERGENCY LIGHTING	120V	3.15	LITHONIA ELM4L LED OR EQUAL
WALL MOUNT LUMINAIRE LED TYPE INTERIOR/EXTERIOR	WDGE2 LED WITH P1 - PERFORMANCE PACKAGE, 4000K, 80CRI, VISUAL COMFORT WIDE OPTIC	120V	9.8	WDGE2 LED P1 40K 80CRI VW OR EQUAL

1' 0 2'

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WALLACE FALLS STATE PARK

PARKING EXPANSION AND WATER SYSTEM REPLACEMENT

TREATMENT BUILDING LIGHTING PLAN

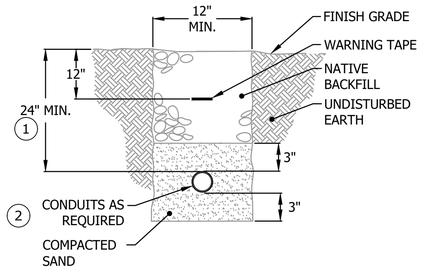
E405

SCALE
AS SHOWN

PARKS FILE#

DETAIL NOTES

1. VERIFY TRENCH DEPTH AND COVERING FOR INCOMING SERVICE CONDUIT WITH LOCAL UTLITY.
2. COORDINATE WITH CIVIL DISCIPLINE FOR INTERSECTING PIPES.

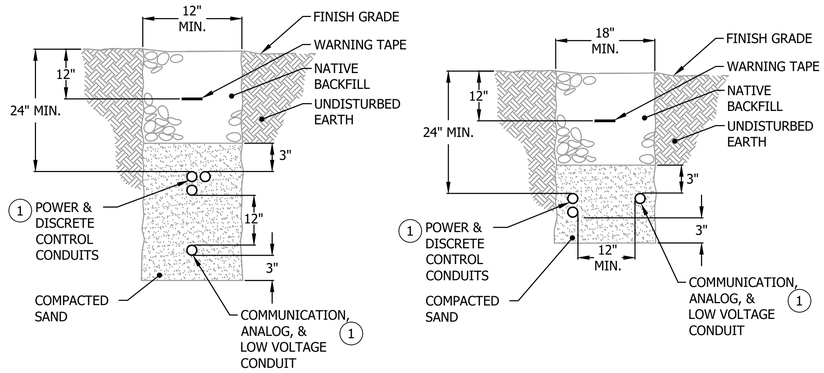


TYP. CONDUIT TRENCH — 1 / -

SCALE: NONE

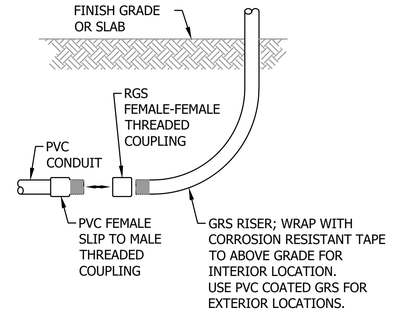
DETAIL NOTES

1. COORDINATE WITH CIVIL DISCIPLINE FOR INTERSECTING PIPES.



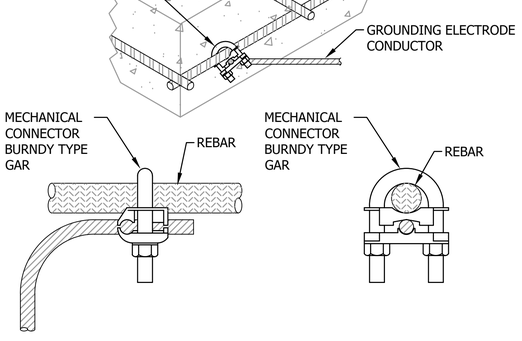
MIXED CONDUIT TRENCES — 2 / -

SCALE: NONE



CONDUIT TRANSITION — 3 / -

SCALE: NONE



REBAR GROUNDING — 4 / -

SCALE: NONE

CAD NO. W090-D4003-C11-D4002-C11-2023-X-E408

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WASHINGTON STATE PARKS AND RECREATION COMMISSION

WALLACE FALLS STATE PARK

PARKING EXPANSION AND WATER SYSTEM REPLACEMENT

ELECTRICAL DETAILS

E408

SCALE
AS SHOWN

PARKS FILE#

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SHEET X OF XX

GENERAL INSTRUMENT SYMBOLS

LOCATION/ACCESSIBILITY	DISCRETE INSTRUMENTS	SHARED DISPLAY AND CONTROL (DCS)	PLC	DISCRETE HARDWARE INTERLOCK
FIELD MOUNTED 1. FIELD OR LOCALLY MOUNTED. 2. ACCESSIBLE TO AN OPERATOR AT DEVICE.	○	▢	◇	◇
PRIMARY LOCATION NORMALLY ACCESSIBLE TO AN OPERATOR 1. CENTRAL OR MAIN CONTROL ROOM. 2. FRONT OF MAIN PANEL OR CONSOLE MOUNTED. 3. VISIBLE ON VIDEO DISPLAY. 4. ACCESSIBLE TO AN OPERATOR AT DEVICE OR CONSOLE.	⊖	▢	◇	
PRIMARY LOCATION NORMALLY INACCESSIBLE TO AN OPERATOR 1. CENTRAL OR MAIN CONTROL ROOM. 2. REAR OF PANEL OR CABINET MOUNTED. 3. NOT VISIBLE ON VIDEO DISPLAY. 4. NOT NORMALLY ACCESSIBLE TO AN OPERATOR AT DEVICE OR CONSOLE.	⊖	▢	◇	
AUXILIARY LOCATION NORMALLY ACCESSIBLE TO AN OPERATOR 1. SECONDARY OR LOCAL CONTROL ROOM. 2. FIELD OR LOCAL CONTROL PANEL. 3. FRONT OF SECONDARY OR LOCAL PANEL MOUNTED. 4. VISIBLE ON VIDEO DISPLAY. 5. ACCESSIBLE TO AN OPERATOR AT DEVICE OR CONSOLE.	⊖	▢	◇	
AUXILIARY LOCATION NORMALLY INACCESSIBLE TO AN OPERATOR 1. SECONDARY OR LOCAL CONTROL ROOM. 2. FIELD OR LOCAL CONTROL PANEL. 3. REAR OF SECONDARY OR LOCAL PANEL OR CABINET MOUNTED. 4. NOT VISIBLE ON VIDEO DISPLAY. 5. NOT NORMALLY ACCESSIBLE TO AN OPERATOR AT DEVICE OR CONSOLE.	⊖	▢	◇	

PIPING LINE SYMBOLS

PRIMARY (AG & UG)

SECONDARY / UTILITY (AG & UG)

FUTURE OR EXISTING ON NEW P&IDs

JACKETED OR DOUBLE CONTAINMENT

INSTRUMENT IDENTIFICATION LETTERS

	FIRST LETTER		SUCCEEDING LETTERS		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, FLAME, COMBUSTION		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
C	USER'S CHOICE (TYPICALLY CONDUCTIVITY - ELECTRICAL)			CONTROL, COMMAND	CLOSED
D	USER'S CHOICE (TYPICALLY DENSITY OR SPECIFIC GRAVITY)	DIFFERENTIAL			DIVERT
E	VOLTAGE		SENSOR (PRIMARY ELEMENT)		
F	FLOW RATE	RATIO (FRACTION)			
G	USER'S CHOICE OR GAUGING (DIMENSIONAL)		GLASS, VIEWING DEVICE		
H	HAND				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW
M	USER'S CHOICE (TYPICALLY MOISTURE OR HUMIDITY)	MOMENTARY			MIDDLE, INTERMEDIATE
N	USER'S CHOICE		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
O	USER'S CHOICE		ORIFICE, RESTRICTION		OPEN
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q	QUANTITY OR HEAT DUTY	INTEGRATE, TOTALIZE			
R	RADIATION		RECORD		
S	SPEED, FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	THROUGH
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER, LOUVER	
W	WEIGHT, FORCE, TORQUE		WELL		
X	UNCLASSIFIED	X AXIS	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE OR PRESENCE	Y AXIS		RELAY, COMPUTE, CONVERT	
Z	POSITION, DIMENSION	Z AXIS		DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT	

ABBREVIATIONS

AG	ABOVE GROUND
ATM	ATMOSPHERE
BYP	BYPASS
CC	CHEMICAL CLEANOUT
CL	CENTERLINE
CO	CLEANOUT
CONN	CONNECTION
CVLS	CHECK VALVE LIMIT SWITCH
CTR	CENTER
DCS	DISTRIBUTED CONTROL SYSTEM
DES	DESIGN
DIA	DIAMETER
DP	DESIGN PRESSURE
D/P	DIFFERENTIAL PRESSURE
DRN	DRAIN
DT	DESIGN TEMPERATURE
DWG	DRAWING
(E)	EXISTING
EL	ELEVATION
ESD	EMERGENCY SHUTDOWN
FOF	FACE OF FLANGE
(F)	FURNISHED
FC	FAIL CLOSED
FI	FAIL INDETERMINATE
FL	FAIL LOCKED (LAST POSITION)
FLG	FLANGE
FO	FAIL OPEN
FP	FULL PORT
FV	FULL VACUUM
GO	GEAR OPERATED
GR	GRADE
HC	HOSE CONNECTION
HDR	HEADER
HH	HAND HOLE
HOA	HAND/OFF/AUTOMATIC
HP	HIGH PRESSURE
HPT	HIGH POINT
IAS	INSTRUMENT AIR SUPPLY
LC	LOCKED CLOSED
LCP	LOCAL CONTROL PANEL
LO	LOCKED OPEN
LP	LOW PRESSURE
LPT	LOW POINT
MTL	MATERIAL
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MCP	MAIN CONTROL PANEL
MIN	MINIMUM
MOV	MOTOR OPERATED VALVE
MW	MANWAY
NC	NORMALLY CLOSED
NNF	NORMALLY NO FLOW
NO	NORMALLY OPEN
NOZ	NOZZLE
O/C	OPEN/CLOSE
O/O	ON/OFF
OIT	OPERATOR INTERFACE TERMINAL
OP	OUTPUT
OVHD	OVERHEAD
PLC	PROGRAMMABLE LOGIC CONTROLLER
PRESS	PRESSURE
PV	PROCESS VARIABLE
(R)	RELOCATED
REQD	REQUIRED
RIO	REMOTE I/O PANEL
RTD	RESISTANCE TEMPERATURE DETECTOR
SC	SAMPLE CONNECTION
SCADA	SUPERVISORY CONTROL AND DATA ACQUISITION
SCH	SCHEDULE
SD	SHUTDOWN
SG	SPECIFIC GRAVITY
SIS	SAFETY INSTRUMENTED SYSTEM
SO	STEAM OUT
SP	SET POINT
SS	STAINLESS STEEL S/S or START/STOP
STD	STANDARD
T/C	THERMOCOUPLE
TDH	TOTAL DIFFERENTIAL HEAD
TEMP	TEMPERATURE
THRD	THREADED
TSO	TIGHT SHUT-OFF
TYP	TYPICAL
UG	UNDERGROUND
VNT	VENT
VAC	VACUUM
VB	VORTEX BREAKER
VFD	VARIABLE FREQUENCY DRIVE
W/	WITH
W/O	WITHOUT

INSTRUMENT LINE SYMBOLS

INSTRUMENT SUPPLY OR CONNECTION TO PROCESS

PNEUMATIC SIGNAL

ELECTRIC SIGNAL (ANALOG)

ELECTRIC SIGNAL (DISCRETE)

HYDRAULIC SIGNAL

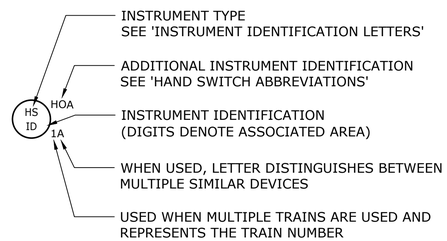
CAPILLARY TUBE

ELECTROMAGNETIC, SONIC, OPTICAL, OR NUCLEAR SIGNAL

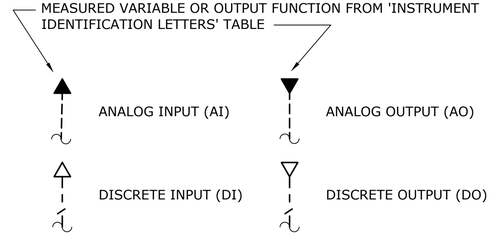
SOFTWARE OR DATA LINK

MECHANICAL LINK

TYPICAL INSTRUMENT TAG NUMBERS & DESIGNATION



INPUT / OUTPUT SIGNALS



HAND SWITCH ABBREVIATIONS

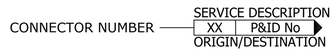
AO = AUTO/OFF
AM = AUTO/MANUAL
CM = COMPUTER/MANUAL
CL = COMPUTER LOCAL
ES = EMERGENCY STOP
FR = FORWARD/REVERSE
FOR = FORWARD/OFF/REVERSE
FS = FAST/SLOW
FOS = FAST/OFF/SLOW
HA = HAND/AUTO
HIM = HUMAN INTERFACE MODULE
HOA = HAND/OFF/AUTOMATIC
LLS = LEAD/LAG/STANDBY
LOC = LOCAL/OFF/COMPUTER
LOR = LOCAL/OFF/REMOTE
LOS = LOCKOUT/STOP
LA = LOCAL/AUTO
LR = LOCAL/REMOTE
OC = OPEN/CLOSE
OCA = OPEN/CLOSE/AUTO
OO = ON/OFF
OOA = ON/OFF/AUTO
OSC = OPEN/STOP/CLOSE
RES = RESET
RF = RUN/FAULT
RSL = RAISE/STOP/LOWER
SS = START/STOP
SOR = START/OFF/RESET
V/B = VFD/BYPASS

FLOW STREAM IDENTIFIERS

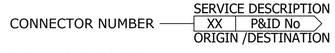
ABE = AERATION BASIN EFFLUENT
BD = BASIN DRAIN
CS = COMBINED SLUDGE
CAS = CAUSTIC SODA
DR = DRAIN
DS = DIGESTER SOLIDS
FBW = FILTER BACKWASH
FE = FINAL EFFLUENT
GR = GRIT
ICE = INTERMEDIATE CLARIFIER EFFLUENT
LPA = LOW PRESSURE AIR
ML = MIXED LIQUOR
NPW = NON POTABLE WATER
PE = PRIMARY EFFLUENT
PI = PRIMARY INFLUENT
PLE = PLANT EFFLUENT
PS = PRIMARY SLUDGE
RAS = RETURN ACTIVATED SLUDGE
RS = RAW SEWAGE
SSL = SECONDARY SLUDGE
SCM = SCUM
SSCM = SECONDARY SCUM
SCRN = SCREENINGS
SE = SECONDARY EFFLUENT
TE = TERTIARY EFFLUENT
TWAS = THICKENED WASTE ACTIVATED SLUDGE
UW = UTILITY WATER
WAS = WASTE ACTIVATED SLUDGE

OFF-PAGE CONNECTORS AND TIE-IN SYMBOL

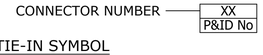
A. OFF-PLOT CONNECTOR



B. PRIMARY/SECONDARY LINES AND INSTRUMENT SIGNAL CONNECTOR

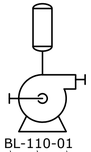


C. UTILITY CONNECTOR



D. TIE-IN SYMBOL

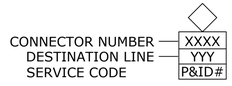
TYPICAL EQUIPMENT TAG NUMBERS & DESIGNATION



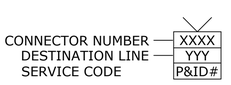
AER = AERATOR
BIN = BIN
BL = BLOWER
CEL = CELL
CLA = CLARIFIER
CLS = CLASSIFIER
CND = CONDENSATE TRAP
CON = CONVEYOR
CMP = COMPRESSOR
DIF = DIFFUSER
DIG = DIGESTER
DIS = DISINFECTION UNIT
FED = FEEDER
FLT = FILTER
HEX = HEAT EXCHANGER
MIX = MIXER
PMP = PUMP
PRS = PRESS
SCN = SCREEN
SDG = SLIDE GATE
SL = SLUICE GATE
SMP = SUMP
THK = THICKENER
TNK = TANK
WEL = WET WELL

DRAIN CONNECTORS

CLOSED DRAIN



OPEN DRAIN



CLOSED DRAIN (NO P&ID)

OPEN DRAIN (NO P&ID)

Industrial Systems INC
12119 NE 99th Street
Suite #2090
Vancouver, Washington 98682
Phone: (360) 718-7267
Fax: (360) 952-8958
e-mail: is@industrialsystems-inc.com
OR CCB #196597 WA #INDUSSI880K9
AK #1018436
PROJECT#: 22.37.01

SHEET X OF XX

CAD NO. W090-D4003-C11-D4002-C11-2023-X-I400

	DATE
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WASHINGTON STATE PARKS AND RECREATION COMMISSION

WALLACE FALLS STATE PARK

PARKING EXPANSION AND WATER SYSTEM REPLACEMENT

P&ID LEGEND-1

I400

SCALE
AS SHOWN

PARKS FILE#

PRIMARY ELEMENT SYMBOLS

- XX — GENERAL SYMBOL IN-LINE ELEMENT XX = FS, FG, FE, FT
- FIT / XXXX — IN-LINE FLOW ELEMENT WITH INTEGRAL INDICATING TRANSMITTER XXXX = MASS, CORIOLIS, THERMAL, INT. ORIFICE ...
- FIT / FE / XXXX — IN-LINE FLOW ELEMENT WITH SEPARATE INDICATING TRANSMITTER XXXX = MASS, CORIOLIS, THERMAL...
- ORIFICE
- M — MAGNETIC
- TURBINE OR PROPELLER
- ULTRASONIC
- VORTEX
- PITOT TUBE
- AVERAGING PITOT TUBE
- FLOW NOZZLE
- VENTURI
- WEDGE METER
- LE — RADAR (NON-CONTACT)
- LE — ULTRASONIC LEVEL SENSOR
- LE — RADAR (GUIDED)
- LS* — FLOAT SWITCH; FLOAT SWITCH * = L/LL/H/HH
- FS* — FLOW SWITCH * = H/L
- FG — FLOW GLASS
- FLOW CONDITIONING DEVICES (e.g., STRAIGHTENING VANES)
- FO — RESTRICTION ORIFICE
- AE X — ANALYZER ELEMENT; X INDICATES TYPE: pH = HYDROGEN POTENTIAL; DO = DISSOLVED OXYGEN; H2S = HYDROGEN SULFIDE; LEL = LOWER EXPLOSIVE LIMIT; O2 = OXYGEN; ORP = OXYGEN REDUCTION POTENTIAL; TUR = TURBIDITY
- ROTAMETER
- FI — ROTAMETER WITH INTEGRAL VALVE (SHOWN WITH OPTIONAL INTEGRAL VALVE)
- FLUME
- WEIR
- POSITIVE DISPLACEMENT
- ORIFICE IN QUICK CHANGE FITTING
- TARGET

VALVE SYMBOLS (N.C. WHEN SHADED)

- GATE VALVE
- CHECK VALVE
- STOP CHECK VALVE
- GLOBE VALVE
- BUTTERFLY VALVE
- NEEDLE VALVE
- BALL VALVE
- BALANCING VALVE
- AIR RELEASE VALVE
- PLUG VALVE
- DIAPHRAGM VALVE
- 3-WAY VALVE
- 4-WAY VALVE
- PINCH VALVE
- ANGLE VALVE
- KNIFE VALVE
- SLUICE OR SLIDE GATE

PIPING FITTINGS

- FLANGE
- WELDED CONNECTION
- CONCENTRIC REDUCER
- ECCENTRIC REDUCER
- SPACER
- BLANK
- OPEN FIGURE 8 BLIND
- CLOSED FIGURE 8 BLIND
- PLUG
- BLIND FLANGE
- HOSE CONNECTION
- CAP

PIPING SPECIALTY ITEMS

- Y-TYPE STRAINER
- CONE STRAINER
- T-TYPE STRAINER
- DUPLEX STRAINER
- BASKET STRAINER
- TEMPORARY STRAINER
- FILTER
- D — DETONATION ARRESTOR
- F — FLAME ARRESTOR
- T — STEAM TRAP
- EXHAUST HEAD
- S — IN-LINE SILENCER
- S — VENT SILENCER
- MECHANICAL COUPLING
- EJECTOR
- RS — REMOVABLE SPOOL
- DS — DESUPERHEATER
- FLEXIBLE HOSE
- EXPANSION JOINT
- DAMPER
- BREATHER
- VENT COVER
- IN-LINE MIXER
- DIVERTER VALVE
- ROTARY VALVE
- EXCESS FLOW VALVE
- PULSATION DAMPENER
- INJECTION SPOOL

- HORIZONTAL CENTRIFUGAL PUMP
- VERTICAL INLINE PUMP
- SUBMERSIBLE PUMP
- PROPELLER PUMP
- PROGRESSIVE CAVITY PUMP
- POSITIVE DISPLACEMENT PUMP
- LIQUID RING VACUUM PUMP
- VERTICAL CAN PUMP

SELF-ACTUATED DEVICES

- RUPTURE DISC - PRESSURE RELIEF SAFETY HEAD FOR PRESSURE RELIEF (EXPLOSION PANEL)
- RUPTURE DISC - VACUUM RELIEF SAFETY HEAD FOR VACUUM RELIEF (EXPLOSION PANEL)
- PRESSURE RELIEF - SAFETY VALVE
- VACUUM RELIEF VALVE
- PRESSURE AND VACUUM RELIEF VALVE CONSERVATION VENT
- P — PILOT OPERATED RELIEF VALVE WITH REMOTE SENSOR (USE APPROPRIATE RELIEF VALVE SYMBOL)
- PRESSURE REDUCING REGULATOR (SELF-CONTAINED)
- BACK PRESSURE REGULATOR (SELF-CONTAINED)
- BACK PRESSURE REGULATOR W/ EXTERNAL TAP
- PRESSURE REDUCING REGULATOR W/ EXTERNAL TAP
- DIFFERENTIAL PRESSURE REDUCING REGULATOR
- TEMPERATURE REGULATOR FILLED SYSTEM TYPE

PROCESS EQUIPMENT

- DOME ROOF TANK
- CLOSED TOP TANK
- HYDROPNEUMATIC TANK
- OPEN TOP TANK / WET WELL/ CHANNEL

CONTROL VALVE ACTUATOR SYMBOLS

- MANUAL OPERATOR
- DIAPHRAGM
- PRESSURE BALANCED DIAPHRAGM
- HANDWHEEL WITH ACTUATOR
- CYLINDER - PISTON
- M — MOTOR OPERATED - CONSTANT SPEED
- E/P — ELECTRO-PNEUMATIC
- S — SINGLE SOLENOID
- S R — SINGLE SOLENOID - MANUAL RESET
- S R — SINGLE SOLENOID - REMOTE RESET

MISCELLANEOUS INSTRUMENT SYMBOLS

- CHEMICAL SEAL- DIAPHRAGM
- LEVEL SENSOR — ANNULAR SEAL
- X — PILOT LIGHT OR GAUGE GLASS ILLUMINATOR; X INDICATES COLOR: R = RED, B = BLUE, G = GREEN, A = AMBER, W = WHITE
- DUAL FUNCTION OR INSTRUMENTS SHARING COMMON HOUSING
- I — UNDEFINED INTERLOCK LOGIC

Industrial Systems INC
12119 NE 99th Street
Suite #2090
Vancouver, Washington 98682
Phone: (360) 718-7267
Fax: (360) 952-8958
e-mail: is@industrialsystems-inc.com
OR CCB #196597 WA #INDUSSI880K9
AK #1018436
PROJECT#: 22.37.01

SHEET X OF XX

CAD NO. W090-D4003-C11-D4002-C11-2023-X-I401

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WALLACE FALLS STATE PARK

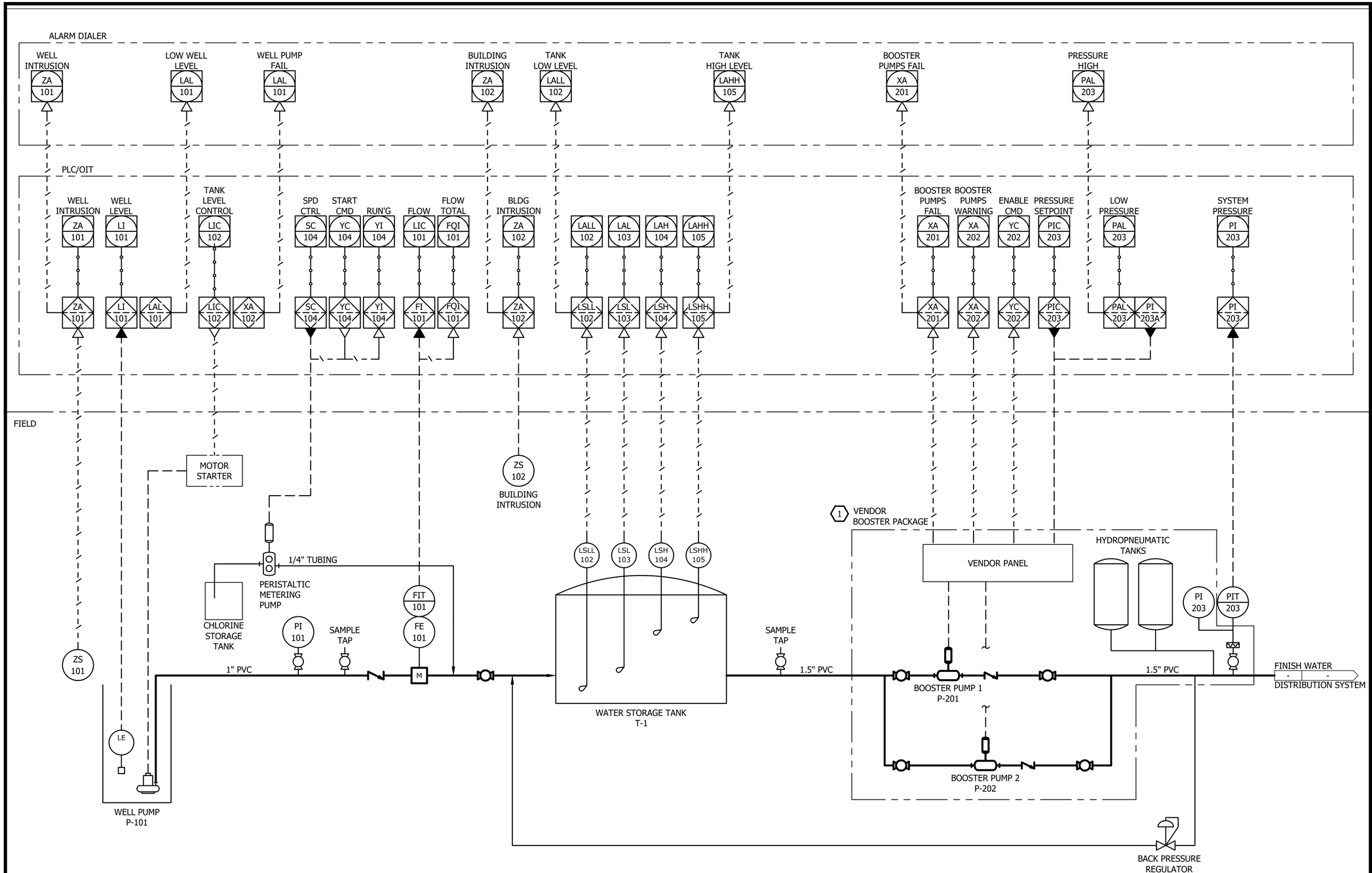
PARKING EXPANSION AND WATER SYSTEM REPLACEMENT

P&ID LEGEND-2

I401

SCALE: AS SHOWN

PARKS FILE#



KEY NOTES

1 NOT ALL PIPING IS INCLUDED WITH VENDOR BOOSTER PACKAGE.

Industrial Systems INC
12119 NE 99th Street
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e-mail: is@industrialsystems-inc.com
OR CCB #196597 WA #INDUSSI880K9
AK #1018436
PROJECT#: 22.37.01

SHEET X OF XX

CAD NO. W090-D4003-C11-D4002-C11-2023-X-I402

NO.	REVISIONS	INT.	APP.	DATE

ACTION	BY	DATE
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WALLACE FALLS STATE PARK

PARKING EXPANSION AND WATER SYSTEM REPLACEMENT

P&ID

I402

SCALE
AS SHOWN

PARKS FILE#

WASHINGTON STATE PARKS & RECREATION COMMISSION

MARK O. BROWN, CHAIR

SOPHIA DANENBERG — LAURIE CONNELLY

MICHAEL LATIMER — KEN BOUNDS

ALI RAAD — HOLLY WILLIAMS

DIANA DUPUIS, DIRECTOR

APPROVED FOR CONSTRUCTION

REGION MANAGER *date*

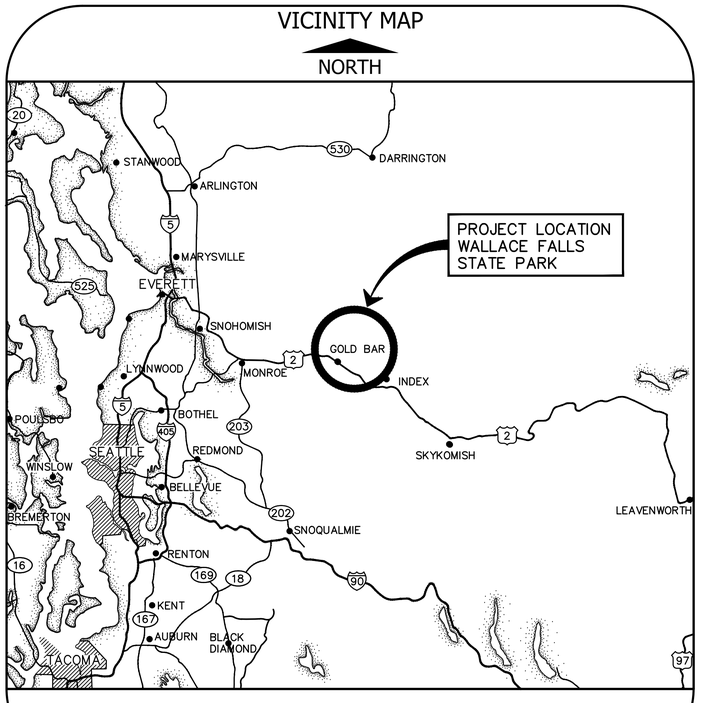
CAPITAL PROGRAM MANAGER *date*

Area Manager: SHAWN TOBIN

WALLACE FALLS STATE PARK

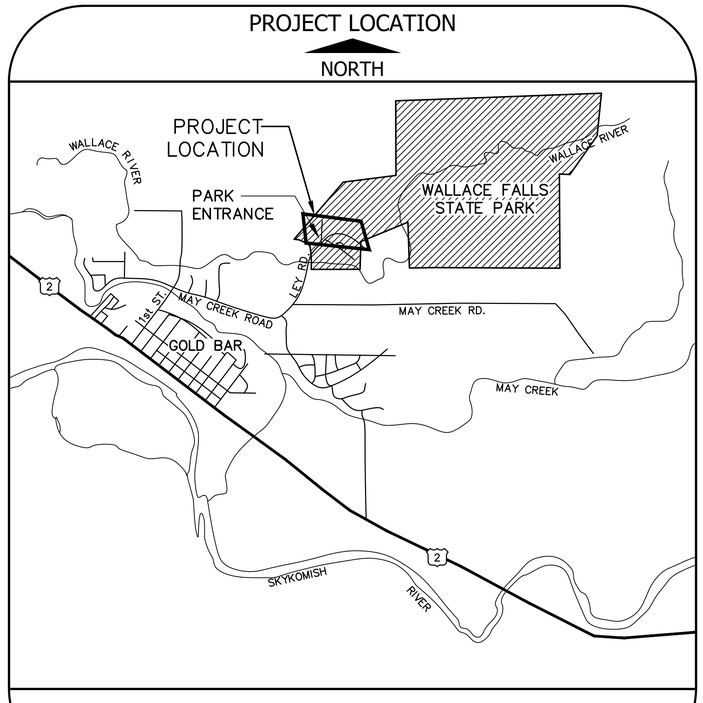
WATER SYSTEM REPLACEMENT

VICINITY MAP



LATITUDE: 47°52'2.90"N & LONGITUDE: 121°40'44.95"W

PROJECT LOCATION



14503 WALLACE LAKE RD SULTAN WA 98294
SEC-32, 33 T-28-N R-09-E
SNOHOMISH COUNTY TAX PARCEL NUMBER 28093200400100

INDEX

SHEET	DESCRIPTION	
1	G100	COVER SHEET
2	G101	PROJECT TEAM
3	G102	GENERAL LEGEND
4	G103	ABBREVIATIONS
5	C100	EXISTING SITE CONDITIONS AND CONTROL POINTS
6	C101	TESC AND SITE PLAN
7	C102	TESC DETAILS
8	C200	SITE LAYOUT AND HORIZONTAL CONTROL
9	C201	SITE PLAN - WELL ALTERNATIVE
10	C202	CIVIL DETAILS
11	C300	WELL PROFILE
12	A400	TREATMENT BUILDING EXTERIOR ELEVATIONS
13	A401	TREATMENT BUILDING ARCHITECTURAL DETAILS
14	S400	STRUCTURAL NOTES
15	S401	STRUCTURAL NOTES
16	S402	STRUCTURAL PLANS
17	S403	FOUNDATION DETAILS
18	S404	WOOD FRAMING DETAILS
19	M400	STORAGE TANK PLAN, SECTION, AND DETAILS
20	M401	TREATMENT BUILDING MECHANICAL FLOOR PLAN
21	M402	TREATMENT BUILDING MECHANICAL SECTIONS
22	M403	TREATMENT BUILDING MECHANICAL PERSPECTIVE
23	M404	TREATMENT BUILDING MECHANICAL DETAILS
24	E400	ELECTRICAL NOTE, SYMBOLS, AND LEGEND
25	E401	ELECTRICAL ONE-LINE DIAGRAM & SCHEDULES
26	E402	ELECTRICAL SITE PLAN
27	E403	ELECTRICAL AREA PLAN
28	E404	TREATMENT BUILDING ELECTRICAL PLAN
29	E405	TREATMENT BUILDING LIGHTING PLAN
30	E406	WELL CONTROL PANEL LAYOUT
31	E407	WELL CONTROL POWER DISTRIBUTION AND NETWORK DIAGRAM
32	E408	WELL CONTROL PANEL INPUT AND OUTPUT WIRING
33	E409	WELL CONTROL PANEL INPUT AND OUTPUT WIRING
34	E410	WELL CONTROL PANEL INPUT AND OUTPUT WIRING
35	E411	ELECTRICAL DETAILS
36	I400	P&ID LEGEND - 1
37	I401	P&ID LEGEND - 2
38	I402	P&ID
39-41	L100-L300	MITIGATION PLAN AND DETAILS

CAD#: W090-D4003-C11-D4002-C11-2023 WATER SYSTEM REPLACEMENT

PROJECT TEAM

OWNER: STATE OF WASHINGTON
PARKS AND RECREATION COMMISSION
1111 ISRAEL ROAD SOUTHWEST
POST OFFICE BOX 42650
OLYMPIA, WASHINGTON 98504-2650
www.parks.wa.gov

OWNER'S REPRESENTATVE:

WASHINGTON STATE PARKS AND RECREATION COMMISSION
220 NORTH WALNUT STREET
BURLINGTON WA 98233

SHEILA RANGANATH, P.E.
CONSTRUCTION PROJECT ADMINISTRATOR
TELEPHONE: (360) 707-1943
sheila.ranganath@parks.wa.gov

PROJECT ENGINEERING CONSULTANTS

PROJECT LEAD: consor

CONSOR ENGINEERS
421 WEST RIVERSIDE
SUITE #762
SPOKANE, WA 99201
www.consoreng.com

PRESTON LOVE, PE
PROJECT MANAGER
TELEPHONE: (509) 321-0340
preston.love@consoreng.com

CIVIL ENGINEER: consor

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SPOKANE, WA 99201
www.consoreng.com

HEATHER K. PINA, PE
CIVIL ENGINEER
TELEPHONE: (509) 321-0340
heather.pina@consoreng.com

LAND SURVEYOR: DHA Surveyors

DHA SURVEYORS
16928 WOODINVILLE-REDMOND ROAD
SUITE #N-107
WOODINVILLE, WA 98072

DOUG HARTMAN, PLS
SURVEYOR
TELEPHONE: (425) 483-5355
doug@dhasurveyors.com

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12119 NE 99TH STREET
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554 WEST BAKERVIEW ROAD
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CG ENGINEERING
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WASHINGTON STATE PARKS AND RECREATION COMMISSION

WALLACE FALLS STATE PARK

WATER SYSTEM REPLACEMENT

PROJECT TEAM

G101

SCALE
NONE

PARKS FILE#

LEGEND

	EXISTING	PROPOSED
EDGE OF ASPHALT		
TRAIL		
GRAVEL		
CONCRETE		
FENCING		
UNDERGROUND WATER LINE	W W W	4"W
ALTERNATIVE UNDERGROUND WATER LINE		4"W
UNDERGROUND SANITARY SEWER LINE	SS SS SS	
UNDERGROUND SEPTIC LINE		
UNDERGROUND POWER LINE	UP UP UP	
UNDERGROUND COMMUNICATIONS TV LINE	T T T	
OVERHEAD POWER LINE	OHPP	
BUILDING/STRUCTURE LINE		
BUILDING EVE LINE		
EDGE OF STREAM		
SWALE		
PROPERTY LINE		
CONTOUR MINOR		
CONTOUR MAJOR	310	
TOE OF SLOPE	TOE	TOE
TOP OF SLOPE	TOP	TOP
EDGE OF TREES/SHRUBS		
BPA SETBACK		
CRITICAL AREA BUFFER		
WELL HEAD SANITARY CONTROL AREA		
WELL		W
FIRE HYDRANT	WV	
WATER VALVE	WM	
WATER METER		
HOSE BIB		
CATCH BASIN		
ROOF DRAIN	RD	
SANITARY CLEANOUT	CO	
HI VISIBILITY SEDIMENT FENCING		X X X
GRASS PAVE		

811 Know what's below. Call before you dig.

	EXISTING	PROPOSED
JUNCTION BOX		
POWER TRANSFORMER	PBX	
POWER JUNCTION BOX		
TELEPHONE JUNCTION BOX		
FLAG POLE	FLAG	
BOLLARDS		
MAIL BOX	MAILBOX	
PAY BOX	PAY BOX	
STORM CULVERT		
ENVIRONMENTAL PROBE		
DHA SURVEY CONTROL (HUB AND TACK)		
DHA SURVEY CONTROL (REBAR AND CAP)		
WETLAND FLAG		
SIGN		
BBQ	BBQ	
FIRE PIT	FIRERING	
SUBSURFACE TEST PIT	TP-3	
HANDICAPPED PARKING		
CONIFEROUS TREE		
DECIDUOUS TREE		
DRAINAGE ARROW		

CALLOUTS

SHEET NOTE CALLOUT

1 — SHEET NOTE CALLOUT EQUALS "SEE NOTE 1"

2 PART DETAIL CALLOUT

DETAIL NUMBER: 1 / 36 — CALLED FROM OR SHOWN ON SHEET NUMBER

3 PART DETAIL CALLOUT

DETAIL NUMBER: 1 / 12 | 34 — CALLED FROM SHEET NUMBER; SHOWN ON SHEET NUMBER

SHEET SYMBOLS

2 PART SECTION CALLOUTS

SECTION LETTER: B / 123 — CALLED FROM OR SHOWN ON SHEET NUMBER

SECTION LETTER: A / 36 | 163 — CALLED FROM SHEET NUMBER; SHOWN ON SHEET NUMBER

A / 123 — C / 123 — A / 123 — D / 123

3 PART SECTION CALLOUTS

B / 3 | 138 — C / 12 | 43 — B / 3 | 138 — D / 6 | 18

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WASHINGTON STATE PARKS AND RECREATION COMMISSION

WALLACE FALLS STATE PARK

WATER SYSTEM REPLACEMENT

GENERAL LEGEND

G102

SCALE: NONE

PARKS FILE#

@	AT
A	ALDER TREE
AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY & TRANSPORTATION OFFICIALS
AB	ANCHOR BOLT
ABAN(D)	ABANDON(ED)
ABS	ACRYLONITRILE BUTADIENE STYRENE
ABV	ABOVE / ALCOHOL BY VOLUME
AC	ASPHALTIC CONCRETE
ACP	ASPHALTIC CONCRETE PAVING
ADJ	ADJUSTABLE
ADJC	ADJACENT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHR	ANCHOR
AL	ALUMINUM
ALT	ALTERNATE
AMP	AMPERE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
(AP)	APPROXIMATE
APPROX	APPROXIMATE
APPVD	APPROVED
APWA	AMERICAN PUBLIC WORKS ASSOCIATION
ARCH	ARCHITECTURAL
ARV	AIR RELEASE VALVE
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
ASR	AQUIFER STORAGE & RECOVERY
ASSN	ASSOCIATION
ASSY	ASSEMBLY
ASTM	AMERICAN SOCIETY FOR TESTING & MATERIALS
ATM	ATMOSPHERE
AUTO	AUTOMATIC
AUX	AUXILIARY
AVE	AVENUE
AVG	AVERAGE
AWWA	AMERICAN WATER WORKS ASSOCIATION
B&S	BELL & SPIGOT
BC	BOLT CIRCLE
BD	BOARD
BETW	BETWEEN
BF	BOTH FACE
BFD	BACKFLOW PREVENTION DEVICE
BFILL	BACKFILL
BFV	BUTTERFLY VALVE
BHP	BRAKE HORSEPOWER
BKGD	BACKGROUND
BLDG	BUILDING
BLK	BLOCK
BLVD	BOULEVARD
BM	BENCHMARK / BEAM
BMP	BEST MANAGEMENT PRACTICES
BO	BLOW-OFF
BOC	BACK OF CURB
BOW	BOTTOM OF WALL
BPA	BONNEVILLE POWER ADMINISTRATION
BS	BOTH SIDES
BSMT	BASEMENT
BTF	BOTTOM FACE
BTU	BRITISH THERMAL UNIT
BV	BALL VALVE
BW	BOTH WAYS
C	CELSIUS / CONIFER TREE
C TO C	CENTER TO CENTER
CA	CRITICAL AREA
CARV	COMBINATION AIR RELEASE VALVE
CATV	CABLE TELEVISION
CB	CATCH BASIN
CCP	CONCRETE CYLINDER PIPE
CCW	COUNTER CLOCKWISE
CFM	CUBIC FEET PER MINUTE
CFS	CUBIC FEET PER SECOND
CHAN	CHANNEL
CHEM	CHEMICAL
CHFR	CHAMFER
CHKV	CHECK VALVE
CI	CAST IRON
CIP	CAST IRON PIPE
CIPC	CAST IN PLACE CONCRETE
CISP	CAST IRON SOIL PIPE
CJ	CONSTRUCTION JOINT
CL OR C/L	CENTER LINE
CL2	CHLORINE
CLG	CEILING
CLJ	CONTROL JOINT
CLR	CLEAR
CLSM	CONTROLLED LOW STRENGTH MATERIAL
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
CND	CONDUIT
CO	CLEANOUT
COL	COLUMN
COMB	COMBINATION
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUOUS / CONTINUATION
CONTR	CONTRACT(OR)
COORD	COORDINATE
COP	COPPER
CORP	CORPORATION
CORR	CORRUGATED
CP	CONTROL POINT
CPLG	COUPLING
CPVC	CHLORINATED POLYVINYL CHLORIDE
CR	CRUSHED ROCK
CS	COMBINED SEWER
CSBC	CRUSHED SURFACING BASE COURSE
CSTC	CRUSHED SURFACING TOP COURSE
CSP	CONCRETE SEWER PIPE
CT	COURT
CTR	CENTER
CU	CUBIC
CULV	CULVERT
CV	CONTROL VALVE
CW	CLOCKWISE / COLD WATER / COTTON WOOD TREE
CY	CUBIC YARDS
CYL	CYLINDER LOCK
D	DRAIN
DC	DIRECT CURRENT
DF	DRAINFIELD
DEA	DAVID EVAN'S AND ASSOCIATES
DEC	DECIDUOUS TREE
DEFL	DEFLECTION
DEQ	DEPARTMENT OF ENVIRONMENTAL QUALITY
DET	DETAIL
DI	DUCTILE IRON
DIA	DIAMETER
DIM	DIMENSION
DIR	DIRECTION
DIST	DISTANCE
DN	DOWN
DNR	DEPARTMENT OF NATURAL RESOURCES
DR	DRIVE
DS	DOWNSPOUT
DWG	DRAWING
DWL	DOWEL
DWV	DRAIN WASTE AND VENT
DWY	DRIVEWAY
(E)	EXISTING
E / ELEC	ELECTRICAL
EA	EACH
ECC	ECCENTRIC
EF	EACH FACE
EL	ELEVATION
ELB	ELBOW
ENCL	ENCLOSURE
EOP	EDGE OF PAVEMENT
EQ	EQUAL
EQL SP	EQUALLY SPACED
EQUIP	EQUIPMENT
ESMT	EASEMENT
EW	EACH WAY
EXC	EXCAVATE
EXIST	EXISTING
EXP	EXPANSION
EXP BT	EXPANSION BOLT
EXP JT	EXPANSION JOINT
EXT	EXTERIOR
F	FAHRENHEIT / FIR TREE
F TO F	FACE TO FACE
FAB	FABRICATE
FB	FLAT BAR
FCA	FLANGED COUPLING ADAPTER
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
FDN	FOUNDATION
FEXT	FIRE EXTINGUISHER
FF	FINISHED FLOOR / FAR FACE
FGL	FIBERGLASS
FH	FIRE HYDRANT
FIN	FINISH(ED)
FIPT	FEMALE IRON PIPE THREAD
FITG	FITTING
FL	FLOOR LINE
FLEX	FLEXIBLE
FLG	FLANGE
FLL	FLOW LINE
FLR	FLOOR
FM	FLOW METER
FO	FIBER OPTIC
FOC	FACE OF CONCRETE
FOF	FACE OF FINISH
FOM	FACE OF MASONRY
FOS	FACE OF STUDS
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FRP	FIBERGLASS REINFORCED PLASTIC
FT	FEET / FOOT
FTG	FOOTING
FUT	FUTURE
FXTR	FIXTURE
G	GAS
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GC	GROOVED COUPLING
GFA	GROOVED FLANGE ADAPTER
GI	GALVANIZED IRON
GIP	GALVANIZED IRON PIPE
GJ	GRIP JOINT
GL	GLASS
GLV	GLOBE VALVE
GND	GROUND
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GPS	GALLONS PER SECOND
GR	GRADE
GR LN	GRADE LINE
GRTG	GRATING
GV	GATE VALVE
GRVL	GRAVEL
GYP	GYPSUM
H	HEMLOCK TREE
HB	HOSE BIBB
HC	HOLLOW CORE
HDPE	HIGH DENSITY POLYETHYLENE
HDR	HEADER
HDWE	HARDWARE
HGR	HANGER
HGT	HEIGHT
HH	HANDHOLD
HM	HOLLOW METAL
HMAC	HOT MIX ASPHALT CONCRETE
HNDRL	HANDRAIL
HOA	HAND-OFF-AUTO
HOR	HAND-OFF-REMOTE
HORIZ	HORIZONTAL
HP	HIGH PRESSURE / HORSEPOWER
HPG	HIGH PRESSURE GAS
HPT	HIGH POINT
HR	HOUR
HSB	HIGH STRENGTH BOLT
HT	HUB / TACK
HV	HOSE VALVE
HVAC	HEATING, VENTILATION, AIR CONDITIONING
HWL	HIGH WATER LINE
HWY	HIGHWAY
HYD	HYDRANT
HYDR	HYDRAULIC
I&C	INSTRUMENTATION & CONTROL
IAW	IN ACCORDANCE WITH
ICV	IRRIGATION CONTROL VALVE
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IF	INSIDE FACE
IMPVT	IMPROVEMENT
IN	INCH
INCC	INCLUDE(D)(ING)
INFL	INFLUENT
INJ	INJECTION
INSTL	INSTALLATION / INSTALL
INSUL	INSULATION
INTER	INTERCEPTOR
INTR	INTERIOR
INV	INVERT
IP	IRON PIPE
IPT	IRON PIPE THREAD
IR	IRON ROD
IRRIG	IRRIGATION
JT	JOINT
JUNC	JUNCTION
KPL	KICK PLATE
KVA	KILOVOLT AMPERE
KW	KILOWATT
KWY	KEYWAY
L	LENGTH
LA	LANDSCAPED AREA
LAB	LABORATORY
LAV	LAVATORY
LB	POUND
LF	LINEAR FOOT
LIN	LINEAL
LN	LANE
LOC	LOCATION
LONG	LONGITUDINAL
LP	LOW PRESSURE
LPT	LOW POINT
LRG	LARGE
LS	LONG SLEEVE / LUMP SUM
LT	LEFT
LVL	LEVEL
LWL	LOW WATER LINE
M	MAPLE TREE
MAN	MANUAL
MAT	MATERIAL
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MCP	MASTER CONTROL PANEL
MECH	MECHANICAL
MET	METAL
MFR	MANUFACTURER
MGD	MILLION GALLONS PER DAY
MH	MANHOLE
MIN	MINIMUM
MIPT	MALE IRON PIPE THREAD
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
MON	MONUMENT / MONOLITHIC
MOT	MOTOR
MP	MILEPOST
MSL	MEAN SEAL LEVEL
MTD	MOUNTED
NA	NOT APPLICABLE
NAVD	NORTH AMERICAN VERTICAL DATUM
NC	NORMALLY CLOSED
NF	NEAR FACE
NIC	NOT IN CONTRACT
NO / NO.	NORMALLY OPEN / NUMBER
NOM	NOMINAL
NORM	NORMAL
NRS	NON-RISING STEM
NTS	NOT TO SCALE
O TO O	OUT TO OUT
OAR	OREGON ADMINISTRATIVE RULES
OC	ON CENTER
OD	OUTSIDE DIAMETER
OF	OVERFLOW / OUTSIDE FACE
OHPP	OVERHEAD POWER
OHWM	ORDINARY HIGH WATER MARK
OPNG	OPENING
OPP	OPPOSITE
ORIG	ORIGINAL
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
OVHD	OVERHEAD
PA	PLANTED AREA
P&ID	PROCESS & INSTRUMENTATION DIAGRAM
PC	POINT OF CURVE
PCC	POINT OF COMPOUND CURVE
PCVC	POINT OF CURVATURE ON VERTICAL CURVE
(P)	PROPOSED/NEW
PE	PLAIN END
PERF	PERFORATED
PERM	PERMANENT
PERP	PERPENDICULAR
PG	PRESSURE GAUGE
PH	PIPE HANGER
PI	POINT OF INTERSECTION
PIVC	POINT OF INTERSECTION ON VERTICAL CURVE
PL OR P/L	PROPERTY LINE / PLATE / PLASTIC
PLBG	PLUMBING
PNL	PANEL
POC	POINT OF CURVATURE
POLY	POLYETHYLENE
PP	POWER POLE / PURPLE PIPE
PRC	POINT OF REVERSE CURVATURE
PRCST	PRECAST
PRD	PER RECORD DRAWING
PREP	PREPARATION
PRESS	PRESSURE
PRKG	PARKING
PROP	PROPERTY
PRV	PRESSURE REDUCING VALVE
PS	PUMP STATION
PSIG	POUNDS PER SQUARE INCH GAUGE
PSL	PIPE SLEEVE
PSPT	PIPE SUPPORT
PT	PRESSURE TANK
PTVC	POINT OF TANGENCY ON VERTICAL CURVE
PTW	PUMP TO WASTE
PV	PLUG VALVE
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
PW	POTABLE WATER
PWR	POWER
QTY	QUANTITY
RAD	RADIUS
RC	REINFORCED CONCRETE
RCC	REBAR / CONTROL CAP
RCP	REINFORCED CONCRETE PIPE
RD	ROAD / ROOF DRAIN
RDCR	REDUCER
REF	REFERENCE
REINF	REINFORCE(D)(ING)(MENT)
REQ'D	REQUIRED
RESTR	RESTRAINED
RFCA	RESTRAINED FLANGE COUPLING ADAPTER
RM	ROOM
RND	ROUND
RO	ROUGH OPENING
R/W	RIGHT-OF-WAY
RPBPD	REDUCED PRESSURE BACKFLOW PREVENTION DEVICE
RPM	REVOLUTIONS PER MINUTE
RR	RAILROAD
RST	REINFORCED STEEL
RT	RIGHT
SALV	SALVAGE
SAN	SANITARY
SC	SOLID CORE
SCDM	SNOHOMISH COUNTY DRAINAGE MANUAL
SCHED	SCHEDULE
SD	STORM DRAIN
SDL	SADDLE
SDR	STANDARD DIMENSION RATIO
SECT	SECTION
SHLDR	SHOULDER
SHT	SHEET
SIM	SIMILAR
SLP	SLOPE
SLV	SLEEVE
SOLN	SOLUTION
SP	SOIL PIPE / SEWER PIPE
SPCL	SPECIAL
SPEC(S)	SPECIFICATION(S)
SPG	SPACING
SPL	SPOOL
SPRT	SUPPORT
SQ	SQUARE
SQ FT	SQUARE FOOT
SQ IN	SQUARE INCH
SQ YD	SQUARE YARD
SS	SANITARY SEWER
SST	STAINLESS STEEL
ST	STREET
STA	STATION
STD	STANDARD
STL	STEEL
STOR	STORAGE
STR	STRAIGHT
STRUCT	STRUCTURE / STRUCTURAL
SUBMG	SUBMERGED
SUCT	SUCTION
SV	SOLENOID VALVE
S/W	SIDEWALK
SWD	SIDEWATER DEPTH
SWGR	SWITCH GEAR
SYMM	SYMMETRICAL
SYS	SYSTEM
T OR TEL	TELEPHONE
T&B	TOP & BOTTOM
TAN	TANGENCY
TB	THRUST BLOCK
TBM	TEMPORARY BENCHMARK
TC	TOP OF CONCRETE / TOP OF CURB
TCE	TEMPORARY CONSTRUCTION EASEMENT
TDH	TOTAL DYNAMIC HEAD
TESC	TEMPORARY EROSION AND SEDIMENT CONTROL
TEMP	TEMPERATURE / TEMPORARY
T&G	TONGUE & GROOVE
THK	THICK / THICKNESS
THRD	THREAD (ED)
THRU	THROUGH
TP	TEST PIT / TOP OF PAVEMENT / TURNING POINT
TRANS	TRANSITION
TSP	TRI-SODIUM PHOSPHATE
TST	TOP OF STEEL
TW	TOP OF WALL
TYP	TYPICAL
UG	UNDERGROUND
UH	UNIT HEATER
UN	UNION
UON	UNLESS OTHERWISE NOTED
UP	UNDERGROUND POWER
USGS	UNITED STATES GEOLOGIC SURVEY
V	VENT / VOLT
VAC	VACUUM
VB	VACUUM BREAKER
VBOX	VALVE BOX
VC	VERTICAL CURVE
VERT	VERTICAL
VFD	VARIABLE FREQUENCY DRIVE
VOL	VOLUME
VCP	VITRIFIED CLAY PIPE
VTR	VENT THROUGH ROOF
W	WATER
W/	WITH
W/IN	WITHIN
W/O	WITHOUT
W/W	WALL TO WALL
WA	WASHINGTON
WD	WOOD
WF	WIDE FLANGE
WH	WATER HEATER
WI	WROUGHT IRON
WM	WATER METER
WP	WORKING POINT / WATERPROOFING
WS	WATER SERVICE
WSDOT	WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
WT	WEIGHT
WTP	WATER TREATMENT PLANT
WTRT	WATERTIGHT
WWF	WELDED WIRE FABRIC
WWTF	WASTEWATER TREATMENT FACILITY
WWTP	WASTEWATER TREATMENT PLANT
X SECT	CROSS SECTION
XFMR	TRANSFORMER
YD	YARD DRAIN / YARD
YH	YARD HYDRANT
YR	YEAR
ZN	ZINC

CAD NO. W090-D4003-C11-D4002-C11-2023-4-G103

REVISIONS	DATE	APP.	INT.

NO.	ACTION	BY	DATE
	DESIGNED	HKP	08/31/23
	DRAWN	DKH	08/31/23
	CHECKED (FIELD)		
	CHECKED (HDQTS.)		

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REGISTERED STAMP

WASHINGTON STATE PARKS AND RECREATION COMMISSION

WALLACE FALLS STATE PARK

WATER SYSTEM REPLACEMENT

ABBREVIATIONS

G103

SCALE
NONE

PARKS FILE#

SHEET NOTES:

1. REFERENCE THE GEOTECHNICAL REPORT FOR ADDITIONAL INFORMATION ON TEST PIT LOCATIONS AND RESULTS. TP-1 NOT SHOWN.
2. REFERENCE THE CRITICAL AREA'S REPORT FOR ADDITIONAL INFORMATION ON PROBE LOCATIONS AND RESULTS.

SITE CONTROL POINTS

	ID	NORTHING	EASTING	EL (NAVD88)	TYPE
1	DHA 3256-31	317703.84	1432591.14	322.81	HT
2	DHA 3256-30	317669.39	1432631.12	332.32	HT
3	DHA 3256-25	317634.83	1432669.51	331.84	HT
4	DHA 3256-18	317678.41	1432763.75	331.82	RCC
5	DHA 3256-11	317536.68	1432702.12	329.24	RCC
6	DHA 3256-10	317447.43	1432904.57	331.98	RCC
7	DHA 3256-7	317578.07	1432959.98	336.73	RCC
8	DHA 3256-9	317304.28	1433151.40	333.53	RCC
9	DHA 3256-6	317423.07	1433149.58	339.05	RCC

150' STREAM BUFFER (CA BUFFER)

BPA TRANSMISSION LINE

STATE PARK BOUNDARY
WA STATE DNR BOUNDARY

WA STATE DNR BOUNDARY
HUSTON CENTER BOUNDARY

HUSTON STATE BOUNDARY
STATE PARK BOUNDARY

WETLAND FLAGGING, TYP, SEE NOTE 2

DP UPL

(E) DF NOT SURVEYED

TP-4

PARCEL ID: 28093200400100

PARCEL ID: 28093200400400

ENVIRONMENTAL PROBE LOC, TYP, SEE NOTE 2

EXIST PARK TRAIL

TP-2

TP-3

GEOTECHNICAL TEST PIT (TP) LOC, TYP SEE NOTE 1

STATE PARK BOUNDARY
HUSTON CENTER BOUNDARY

N

0 30' 60'

PLAN

SHEET 5 OF 41

CAD NO. W090-D4003-C11-D4002-C11-2023-5-C100

NO.	REVISIONS	INT.	APP.	DATE

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WASHINGTON STATE PARKS AND RECREATION COMMISSION

WALLACE FALLS STATE PARK

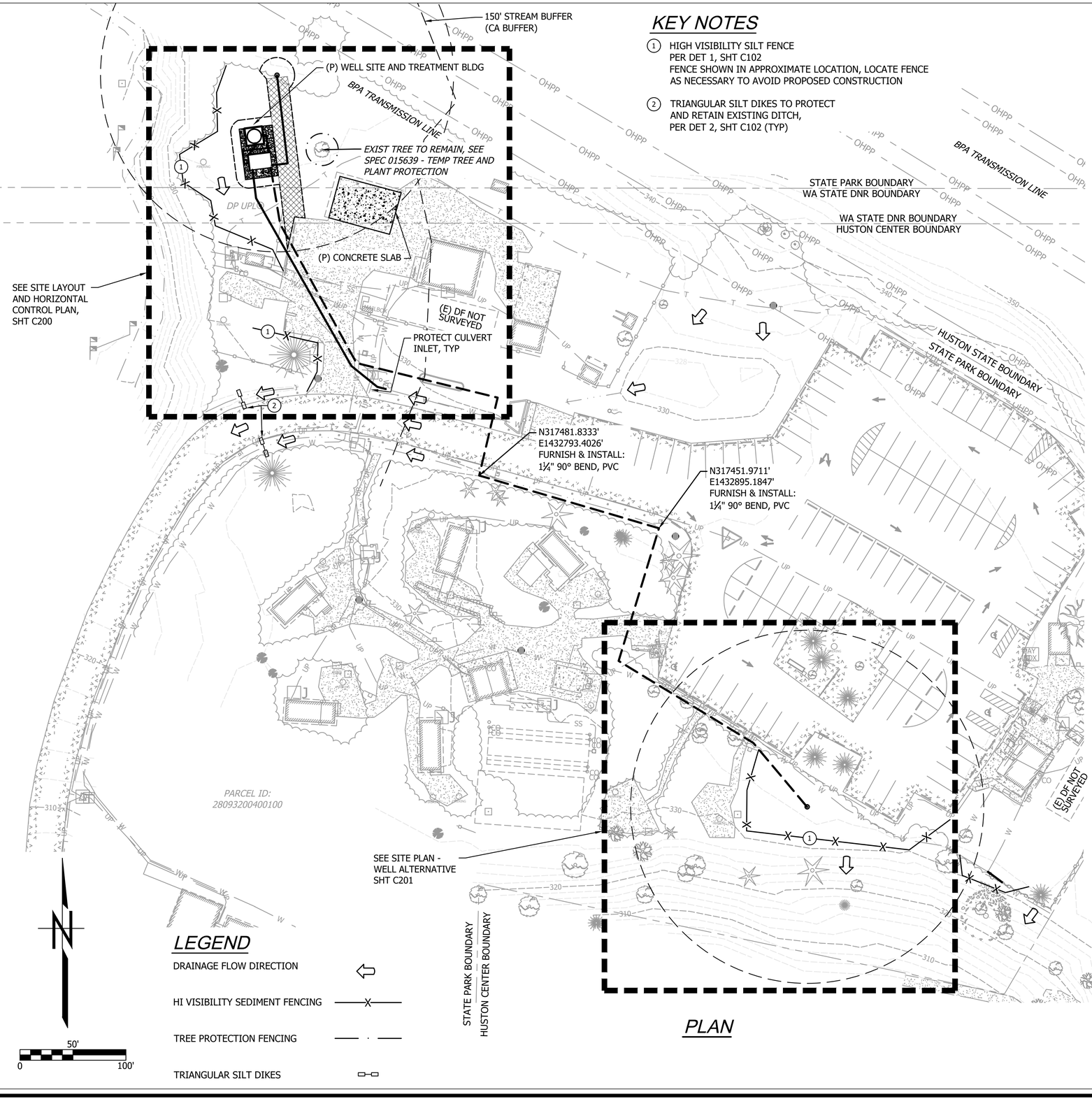
WATER SYSTEM REPLACEMENT

EXISTING SITE CONDITIONS AND CONTROL POINTS

C100

SCALE
AS SHOWN

PARKS FILE#



KEY NOTES

1. HIGH VISIBILITY SILT FENCE PER DET 1, SHT C102
   FENCE SHOWN IN APPROXIMATE LOCATION, LOCATE FENCE AS NECESSARY TO AVOID PROPOSED CONSTRUCTION
2. TRIANGULAR SILT DIKES TO PROTECT AND RETAIN EXISTING DITCH, PER DET 2, SHT C102 (TYP)

LEGEND

- DRAINAGE FLOW DIRECTION
- HI VISIBILITY SEDIMENT FENCING
- TREE PROTECTION FENCING
- TRIANGULAR SILT DIKES

50' 0 100'

PLAN

EROSION CONTROL NOTES

1. CONTRACTOR SHALL CONFIRM DRAINAGE PATHWAYS PRIOR TO BEGINNING CONSTRUCTION.
2. TO REDUCE THE RISK TO ADJACENT CRITICAL AREAS AND MINIMIZE THE POTENTIAL FOR ADVERSE EFFECT TO THE ENVIRONMENT THE CONTRACTOR SHALL INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING BMPS.
3. PRESERVE NATURAL VEGETATION ALONG PERIMETER OF THE SITE PER SCDM BMP C101. CONTRACTOR SHALL PROTECT EXISTING VEGETATION ALONG EXISTING SLOPES, PROPERTY LINES, NEAR WATERCOURSES, AND WOODED AREAS. IDENTIFY CONSTRUCTION LIMITS BEFORE BEGINNING WORK AND MARK ACCORDINGLY TO PREVENT VEGETATION REMOVAL OR EARTH DISTURBANCE BEYOND THE PROJECT AREA.
4. PROVIDE BOTH TEMPORARY (DISTURBED AREAS THAT WILL BE UNWORKED FOR MORE THAN 30 DAYS) AND PERMANENT SEEDING PER SPECIFICATION 32 92 00, TURF AND GRASSES.
5. INSTALL HIGH VISIBILITY SILT FENCE AT THE OUTSIDE EDGES OF PROJECT PRIOR TO ANY GRADING.
6. INSTALL SILT DIKES TO CONTAIN SEDIMENT.
7. INSTALL TEMPORARY SEDIMENT CONTROL DEVICES, SUCH AS SEDIMENT MATS, FILTER BAGS, EROSION BLANKETS, SEDIMENT TRAPS, STAKED SEDIMENT BARRIERS, WATER BLADDER DAMS, AND/OR "DIRT BAGS" AS NECESSARY.
8. REVEGETATE DISTURBED AREAS UPON PROJECT COMPLETION PER THE MITIGATION SUMMARY PLAN, SHEET L100.
9. LOCATE STAGING AREAS IN AREAS THAT WILL PREVENT THE POTENTIAL CONTAMINATION OF ANY WETLAND OR WATERBODY.
10. SERVICE AND REFUEL VEHICLES A MIN. OF 150 FT FROM THE STREAM AND WETLANDS TO REDUCE POTENTIAL SPILLS OF PETROLEUM AND HYDRAULIC FLUIDS IN SENSITIVE AREAS. ADDITIONALLY, DRIP PANS WILL BE FITTED WITH ABSORBENT PADS AND PLACED UNDER ALL EQUIPMENT BEING FUELED.
11. INSPECT ALL VEHICLES DAILY OPERATING WITHIN 100 FT OF ANY STREAM OR WATERBODY FOR FLUID LEAKS BEFORE LEAVING THE VEHICLE STAGING AREA. ANY LEAKS DETECTED WILL BE REPAIRED BEFORE THE VEHICLE RESUMES OPERATION. WHEN NOT IN USE, ALL VEHICLES WILL BE STORED IN THE VEHICLE STAGING AREA AS PRACTICABLE.
12. INSPECT OTHER VEHICLES THAT MAY BE STORED IN PLACE, SUCH AS CRANES, DAILY FOR FLUID LEAKS.
13. IMPLEMENT SPILL CONTROL AND EMERGENCY RESPONSE PLANS FOR FUELING, CONCRETE ACTIVITY, AND STAGING AREAS. THE SPILL CONTROL/PREVENTION PLAN WILL INCLUDE THE FOLLOWING ITEMS: NOTIFICATION PROCEDURES; SPECIFIC CLEANUP AND DISPOSAL INSTRUCTIONS FOR DIFFERENT PRODUCTS; QUICK RESPONSE CONTAINMENT AND CLEANUP MEASURES THAT WILL BE AVAILABLE ON SITE; AND EMPLOYEE TRAINING FOR SPILL CONTAINMENT. THESE PLANS WILL SATISFY ALL PERTINENT REQUIREMENTS SET FORTH BY FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS.
14. NO WET OR CURING CONCRETE, INCLUDING WASHOUT OF EQUIPMENT, SHALL ENTER PROJECT WATERS. A CONTAINMENT TARP WILL BE USED TO ISOLATE ANY RUNOFF FROM ACTIVITIES INVOLVING WET OR CURING CONCRETE ACTIVITIES.
15. NO MATERIAL SHALL BE PLACED OR DISCHARGED INTO PROJECT AREA WETLANDS OR STREAMS.
16. SURFACE WATER SHALL NOT BE DIRECTED TOWARDS THE TOP OF SLOPES OR ONTO SLOPES.
17. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE REQUIREMENTS OF SNOHOMISH COUNTY.

CAD NO. W090-D4003-C11-D4002-C11-2023-6-C101

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WALLACE FALLS STATE PARK

WATER SYSTEM REPLACEMENT

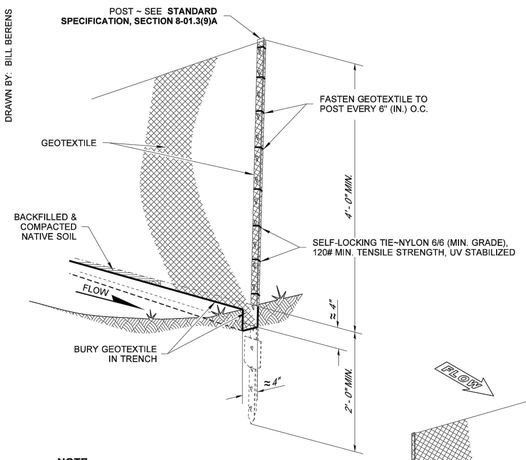
TESC AND SITE PLAN

C101

SCALE
AS SHOWN

PARKS FILE#

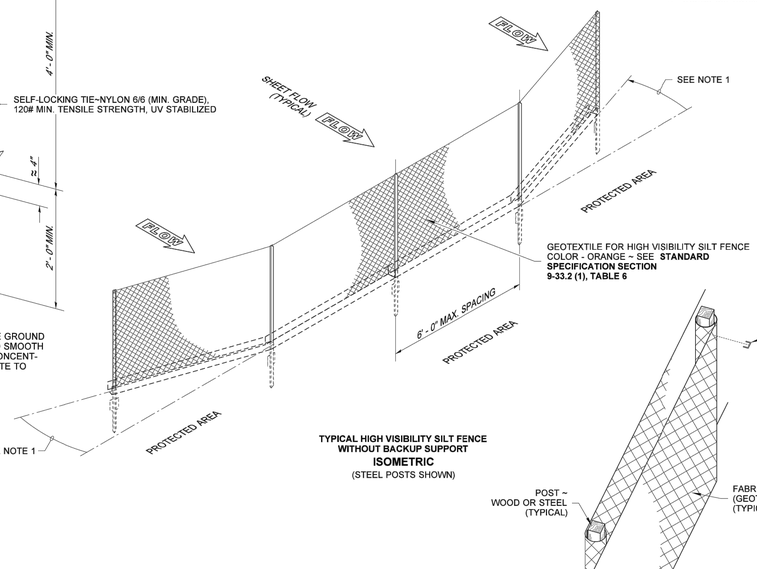
DRAWN BY: BILL BERENS



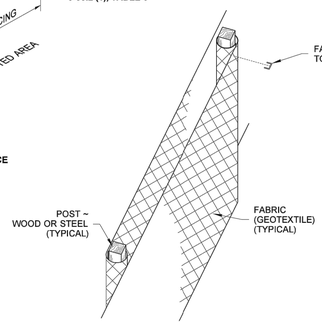
NOTE

DURING EXCAVATION, MINIMIZE DISTURBING THE GROUND AROUND TRENCH AS MUCH AS IS FEASIBLE, AND SMOOTH SURFACE FOLLOWING EXCAVATION TO AVOID CONCENT-RATING FLOWS. COMPACTION MUST BE ADEQUATE TO PREVENT UNDERCUTTING FLOWS.

TYPICAL INSTALLATION DETAIL
(STEEL POSTS SHOWN)



TYPICAL HIGH VISIBILITY SILT FENCE WITHOUT BACKUP SUPPORT
ISOMETRIC
(STEEL POSTS SHOWN)



SPLICED FENCE SECTIONS SHALL BE CLOSE ENOUGH TOGETHER TO PREVENT SILT LADEN WATER FROM ESCAPING THROUGH THE FENCE AT THE OVERLAP. JOINING SECTIONS SHALL NOT BE PLACED IN LOW SPOTS OR IN SUMP LOCATIONS.

SPLICE DETAIL
(WOOD POSTS SHOWN)

NOTES

1. Angle Terminal end uphill 24" (in) to 48" (in) to prevent flow around fence (Typical).
2. Perform maintenance in accordance with **Standard Specification, Sections 8-01.3(9)A and 8-01.3(15)**.
3. Splices shall never be placed in low spots or sump locations. If splices are located in low or sump areas, the fence may need to be reinstalled unless the Project Engineer approves the installation.
4. Install silt fencing parallel to mapped contour lines.

STATE OF WASHINGTON · JULI DEE HARTWIG · NO. 1422 EXP. 06/21/2021 · LANDSCAPE ARCHITECT

Hartwig, Juli
Jun 4 2019 10:48 AM
coreign

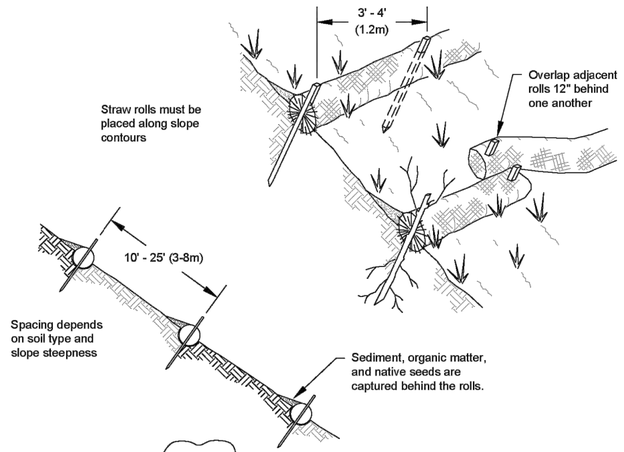
HIGH VISIBILITY SILT FENCE

STANDARD PLAN I-30.17-01

SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION
Roark, Steve
Jun 12 2019 7:42 AM
coreign
STATE DESIGN ENGINEER
Washington State Department of Transportation

1 C101 *HIGH VISIBILITY SILT FENCE DETAIL*



NOTE:
1. Straw roll installation requires the placement and secure staking of the roll in a trench, 3" - 5" (75-125mm) deep, dug on contour. Runoff must not be allowed to run under or around roll.

NOT TO SCALE

DEPARTMENT OF ECOLOGY
State of Washington

Wattles

Revised December 2016

2 C101 *SILT DIKE (WATTLE) DETAIL*

CAD NO. W090-D4003-C11-D4002-C11-2023-7-C102

NO.	REVISIONS	INT.	APP.	DATE

ACTION	BY	DATE
DESIGNED	HKP	08/31/23
DRAWN	DKH	08/31/23
CHECKED (FIELD)		
CHECKED (HDQTS.)		

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August 2023
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REGISTERED STAMP

WASHINGTON STATE PARKS AND RECREATION COMMISSION

WALLACE FALLS STATE PARK

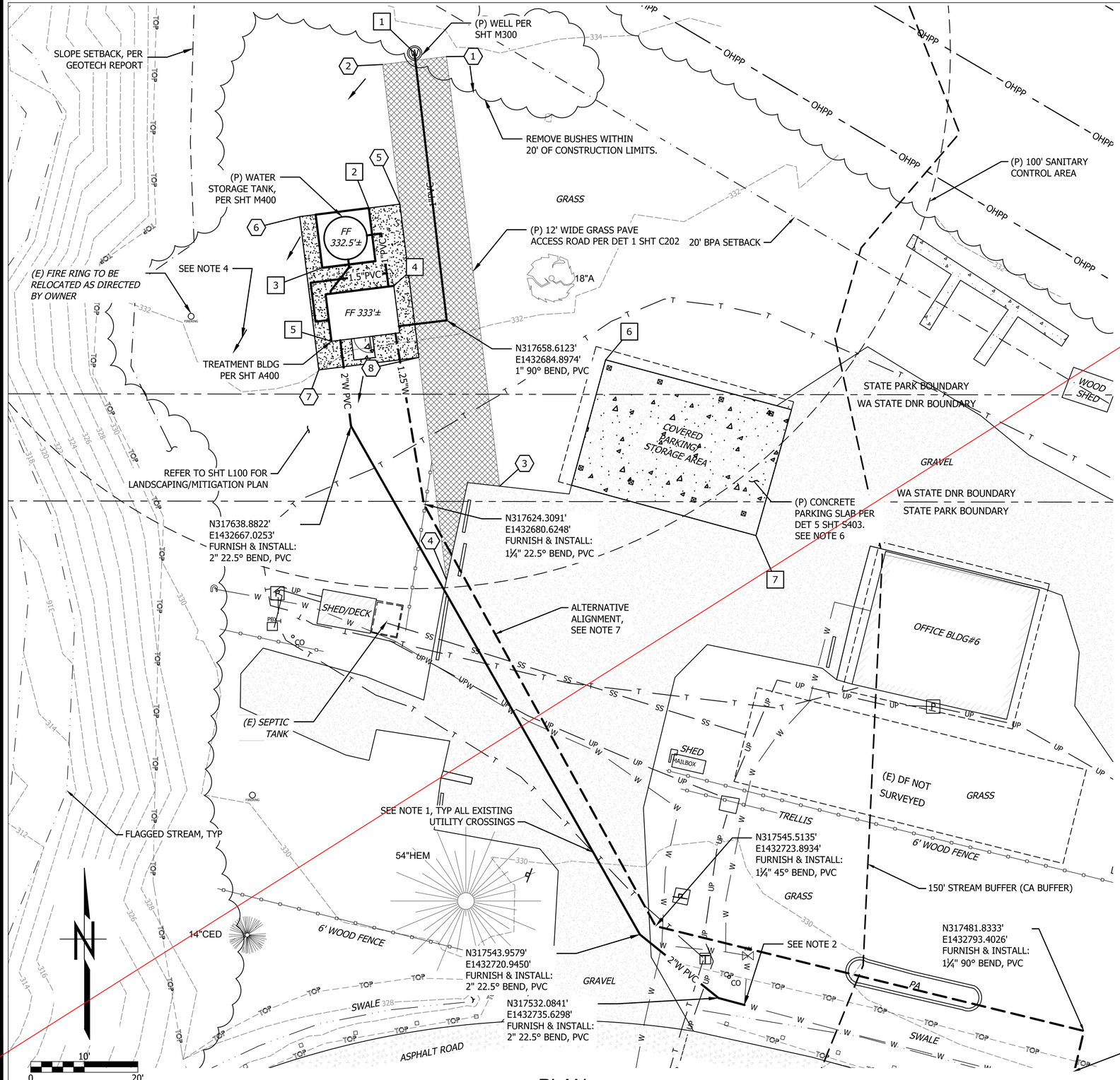
WATER SYSTEM REPLACEMENT

TESC DETAILS

C102

SCALE
AS SHOWN

PARKS FILE#



PLAN

SHEET NOTES:

1. RETAIN AND PROTECT EXISTING UTILITIES.
2. TIE-IN TO EXISTING WATERLINE WILL REQUIRE WATER SYSTEM SHUTDOWN SEQUENCINGS TO BE COORDINATED WITH PARKS. PROVIDE TWO-WEEK NOTICE TO PARKS IN ADVANCE OF SHUTDOWN.
3. REFER TO TESC PLAN, SHEET C101 FOR EROSION AND CONTROL REQUIREMENTS.
4. FINAL GRADING OF SITE SHALL MAINTAIN DRAINAGE TO THE SOUTH, AS SHOWN. ADDITIONALLY, SLOPE FINISHED GRADE AWAY FROM STRUCTURES AND REMOVE ANY LOW AREAS.
5. CONTRACTOR SHALL POTHOLE AND VERIFY LOCATIONS, SIZES, AND DEPTHS OF EXISTING UTILITIES.
6. EXISTING COVERED PARKING STRUCTURE TO BE RETAINED AND PROTECTED.
7. INSTALLATION OF THE ALTERNATIVE WATERLINE IS A CONTINGENCY BID ITEM/TASK AND WILL ONLY OCCUR IF DIRECTED BY THE OWNER.
8. REFERENCE SITE ELECTRICAL FOR POWER AND OTHER ELECTRICAL MODIFICATIONS.

FACILITY LAYOUT POINTS

PT NO.	Description	Northing	Easting
1	WELL CENTER POINT	317708.53	1432678.90
2	NE CORNER OF STORAGE TANK PAD	317679.59	1432670.35
3	SW CORNER OF STORAGE TANK PAD	317668.43	1432661.67
4	NE CORNER OF TREATMENT BLDG PAD	317665.06	1432675.02
5	SW CORNER OF TREATMENT BLDG PAD	317654.71	1432663.38
6	NW CORNER OF PARKING STRUCTURE CONC SLAB	317651.25	1432714.55
7	SW CORNER OF PARKING STRUCTURE CONC SLAB	317618.44	1432742.61

GRAVEL AND GRASSPAVE LAYOUT POINTS

PT NO.	Description	Northing	Easting
1	GRASSPAVE CORNER	317707.87	1432684.83
2	GRASSPAVE CORNER	317706.40	1432672.93
3	GRASSPAVE CORNER	317627.65	1432694.77
4	GRASSPAVE CORNER	317610.15	1432684.85
5	GRAVEL CORNER	317680.31	1432676.14
6	GRAVEL CORNER	317677.99	1432657.45
7	GRAVEL CORNER	317649.37	1432661.02
8	GRAVEL CORNER	317651.70	1432679.70

CAD NO. W090-D4003-C11-D4002-C11-2023-8-C200

NO.	REVISIONS	INT.	APP.	DATE

ACTION	BY	DATE
DESIGNED	HKP	08/31/23
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CHECKED (FIELD)		
CHECKED (HDQTS.)		

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WASHINGTON STATE PARKS AND RECREATION COMMISSION

WALLACE FALLS STATE PARK

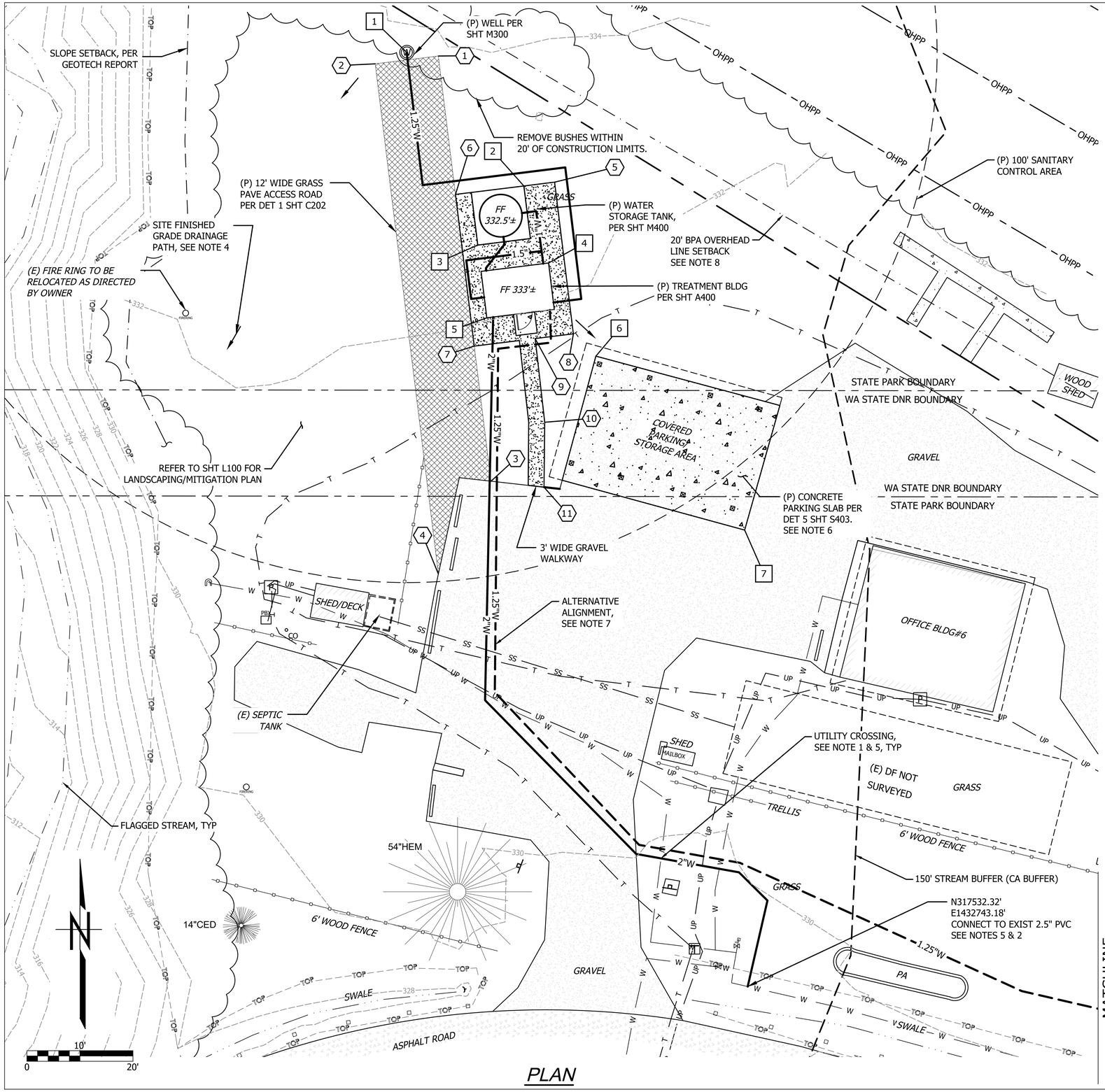
WATER SYSTEM REPLACEMENT

SITE LAYOUT AND HORIZONTAL CONTROL PLAN

C200

SCALE
AS SHOWN

PARKS FILE#



PLAN

SHEET NOTES:

1. RETAIN AND PROTECT EXISTING UTILITIES.
2. TIE-IN TO EXISTING WATERLINE WILL REQUIRE WATER SYSTEM SHUTDOWN SEQUENCINGS TO BE COORDINATED WITH PARKS. PROVIDE TWO-WEEK NOTICE TO PARKS IN ADVANCE OF SHUTDOWN.
3. REFER TO TESC PLAN, SHEET C101 FOR EROSION AND CONTROL REQUIREMENTS.
4. FINAL GRADING OF SITE SHALL MAINTAIN DRAINAGE TO THE SOUTH AND MATCH EXISTING GRADE, AS SHOWN. ADDITIONALLY, SLOPE FINISHED GRADE AWAY FROM STRUCTURES AND REMOVE ANY LOW AREAS.
5. CONTRACTOR SHALL POTHOLE AND VERIFY LOCATIONS, SIZES, AND DEPTHS OF EXISTING UTILITIES.
6. EXISTING COVERED PARKING STRUCTURE TO BE RETAINED AND PROTECTED.
7. INSTALLATION OF THE ALTERNATIVE WATERLINE IS A CONTINGENCY BID ITEM/TASK AND WILL ONLY OCCUR IF DIRECTED BY THE OWNER.
8. CONSTRUCTION EQUIPMENT SHALL BE OUTSIDE OF BPA OVERHEAD LINE 20' SETBACK.

FACILITY LAYOUT POINTS

PT NO.	Description	Northing	Easting
1	WELL CENTER POINT	317708.53	1432678.90
2	NE CORNER OF STORAGE TANK PAD	317683.35	1432700.97
3	SW CORNER OF STORAGE TANK PAD	317672.20	1432692.28
4	NE CORNER OF TREATMENT BLDG PAD	317668.81	1432705.63
5	SW CORNER OF TREATMENT BLDG PAD	317658.47	1432693.98
6	NW CORNER OF PARKING STRUCTURE CONC SLAB	317651.25	1432714.55
7	SW CORNER OF PARKING STRUCTURE CONC SLAB	317618.44	1432742.61

GRAVEL AND GRASSPAVE LAYOUT POINTS

PT NO.	Description	Northing	Easting
1	GRASSPAVE CORNER	317707.87	1432684.83
2	GRASSPAVE CORNER	317706.40	1432672.93
3	GRASSPAVE CORNER	317627.65	1432694.77
4	GRASSPAVE CORNER	317610.15	1432684.85
5	GRAVEL CORNER	317681.75	1432688.07
6	GRAVEL CORNER	317684.07	1432706.76
7	GRAVEL CORNER	317655.46	1432710.30
8	GRAVEL CORNER	317653.14	1432691.61
9	GRAVEL WALKWAY CORNER	317654.56	1432703.10
10	GRAVEL WALKWAY CORNER	317638.78	1432704.90
11	GRAVEL WALKWAY CORNER	317626.53	1432704.77

THIS SHEET SUPERSEDES THE PREVIOUS SHEET 8 OF 41

SHEET 9 OF 43

CAD NO. W090-D4003-C11-D4002-C11-2023-9-C201

NO.	REVISIONS	INT.	APP.	DATE

ACTION	BY	DATE
DESIGNED	HKP	08/31/23
DRAWN	DKH	08/31/23
CHECKED (FIELD)		
CHECKED (HDQTS.)		

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REGISTERED STAMP

WASHINGTON STATE PARKS AND RECREATION COMMISSION

WALLACE FALLS STATE PARK

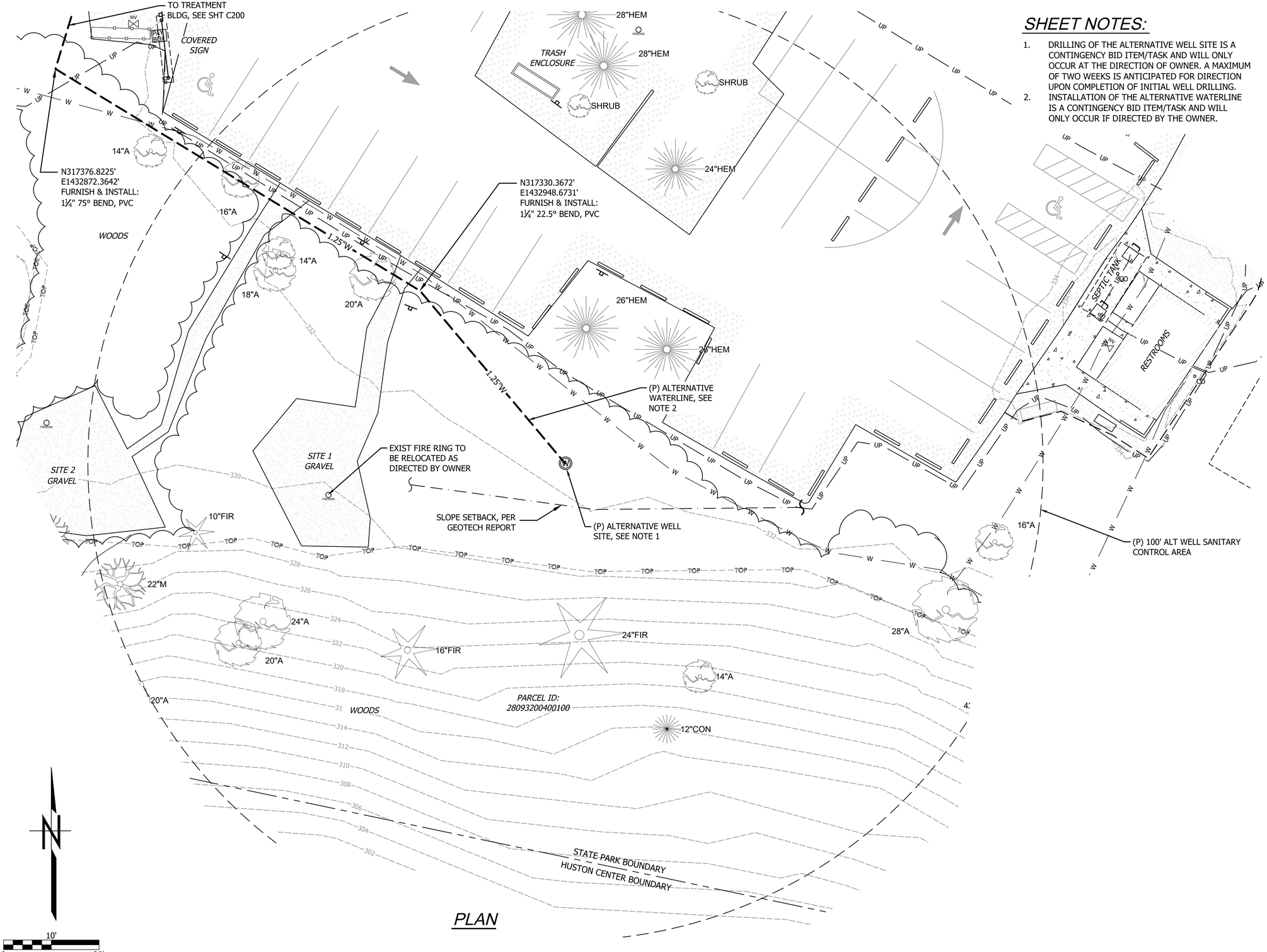
WATER SYSTEM REPLACEMENT

SITE PLAN - AREA A

C201

SCALE
AS SHOWN

PARKS FILE#



PLAN

SHEET NOTES:

1. DRILLING OF THE ALTERNATIVE WELL SITE IS A CONTINGENCY BID ITEM/TASK AND WILL ONLY OCCUR AT THE DIRECTION OF OWNER. A MAXIMUM OF TWO WEEKS IS ANTICIPATED FOR DIRECTION UPON COMPLETION OF INITIAL WELL DRILLING.
2. INSTALLATION OF THE ALTERNATIVE WATERLINE IS A CONTINGENCY BID ITEM/TASK AND WILL ONLY OCCUR IF DIRECTED BY THE OWNER.

SHEET 9 OF 41

CAD NO. W090-D4003-C11-D4002-C11-2023-9-C201

NO.	REVISIONS	INT.	APP.	DATE

ACTION	BY	DATE
DESIGNED	HKP	08/31/23
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REGISTERED STAMP

WASHINGTON STATE PARKS AND RECREATION COMMISSION

WALLACE FALLS STATE PARK

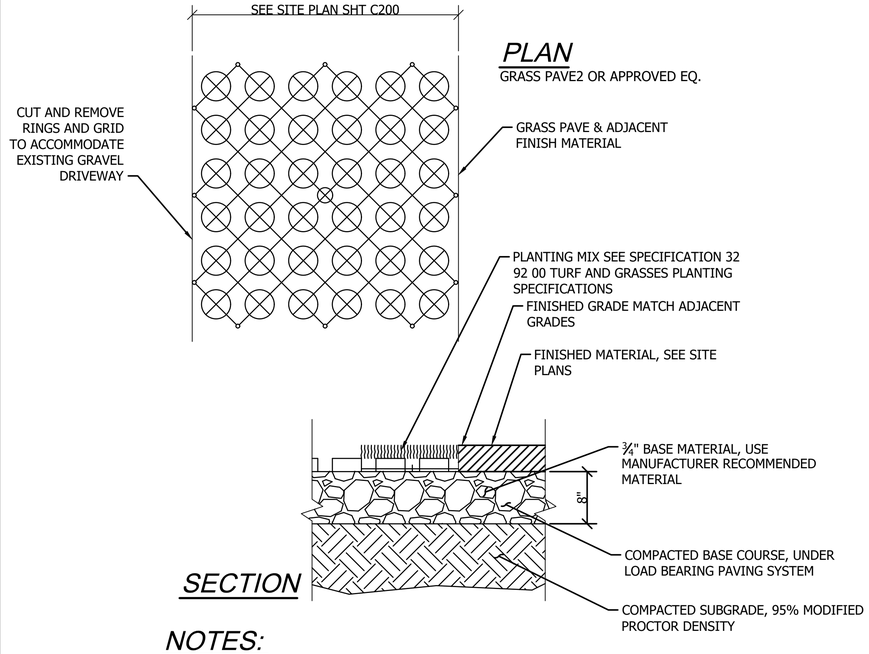
WATER SYSTEM REPLACEMENT

SITE PLAN - WELL ALTERNATIVE

C201

SCALE
AS SHOWN

PARKS FILE#



NOTES:

1. PLACE GRASS PAVING SYSTEM AS SHOWN ON PLANS, COORDINATE LOCATION WITH EXISTING TREES AND OTHER MISC. SITE FEATURES AS NECESSARY.
2. MINIMIZE EXCAVATION AND PLACEMENT OF COMPACTED BASE MATERIAL WHEN WORKING WITHIN EXISTING TREE ROOT ZONE. MIN. 6' RADIUS FROM EDGE OF TRUNK. IN THIS LOCATION PLACE GRAVE PAVE OVER LIGHTLY EXCAVATED NATIVE SOIL.

1 / - GRASS PAVE

SHEET 10 OF 41

CAD NO. W090-D4003-C11-D4002-C11-2023-10-C202

NO.	REVISIONS	INT.	APP.	DATE

ACTION	BY	DATE
DESIGNED	HKP	08/31/23
DRAWN	DKH	08/31/23
CHECKED (FIELD)		
CHECKED (HDQTS.)		

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REGISTERED STAMP

WASHINGTON STATE PARKS AND RECREATION COMMISSION

WALLACE FALLS STATE PARK

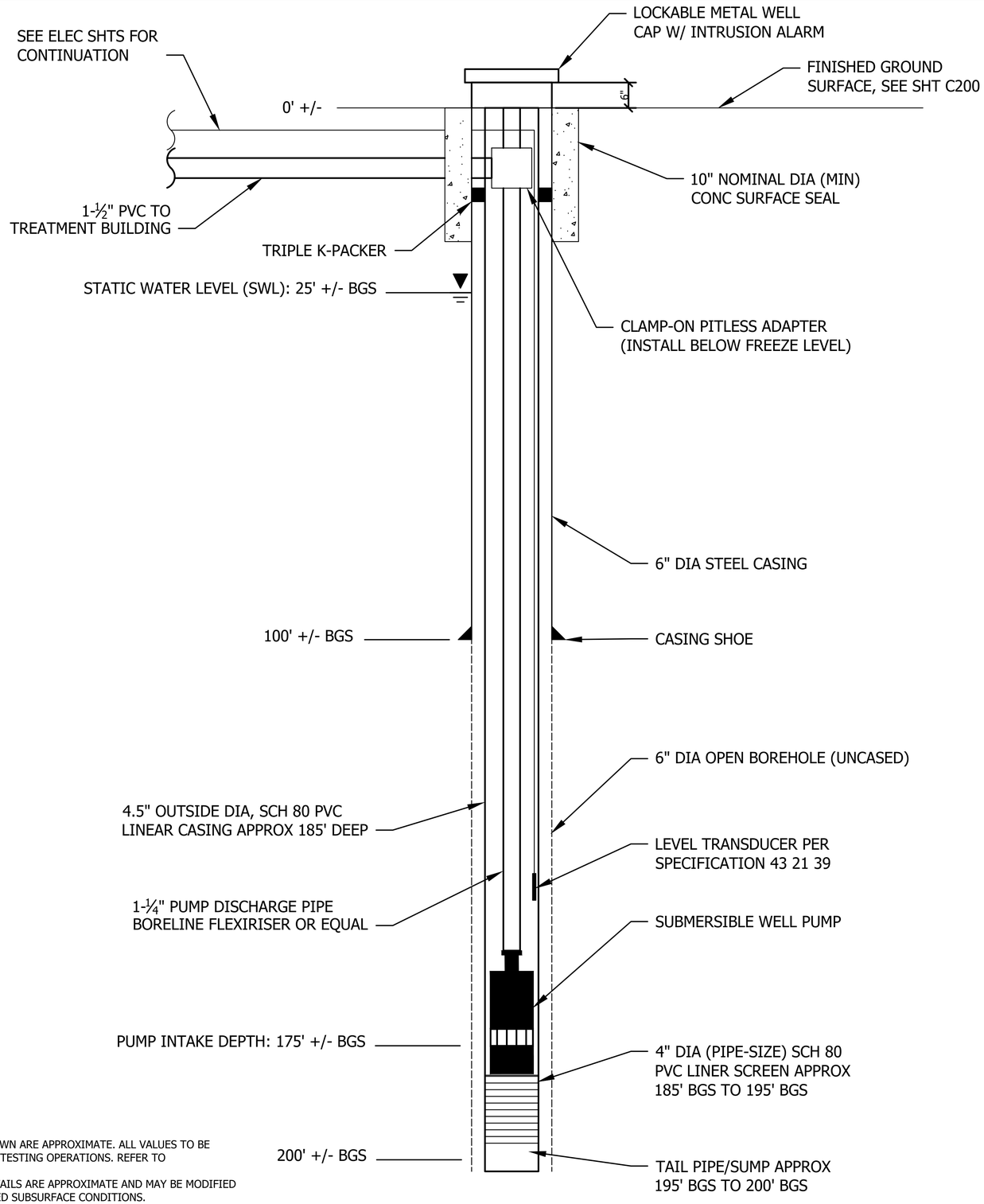
WATER SYSTEM REPLACEMENT

CIVIL DETAILS

C202

SCALE
AS SHOWN

PARKS FILE#



NOTES:

1. THE LOCATIONS OF THE FEATURES SHOWN ARE APPROXIMATE. ALL VALUES TO BE CONFIRMED AS PART OF DRILLING AND TESTING OPERATIONS. REFER TO SPECIFICATION 33 21 00.
2. WELL CONSTRUCTION DEPTHS AND DETAILS ARE APPROXIMATE AND MAY BE MODIFIED BY THE OWNER BASED ON ENCOUNTERED SUBSURFACE CONDITIONS.

CAD NO. W090-D4003-C11-D4002-C11-2023-11-M300

NO.	REVISIONS	INT.	APP.	DATE

ACTION	BY	DATE
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DRAWN	DKH	08/31/23
CHECKED (FIELD)		
CHECKED (HDQTS.)		

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REGISTERED STAMP

WASHINGTON STATE PARKS AND RECREATION COMMISSION

WALLACE FALLS STATE PARK

WATER SYSTEM REPLACEMENT

WELL PROFILE

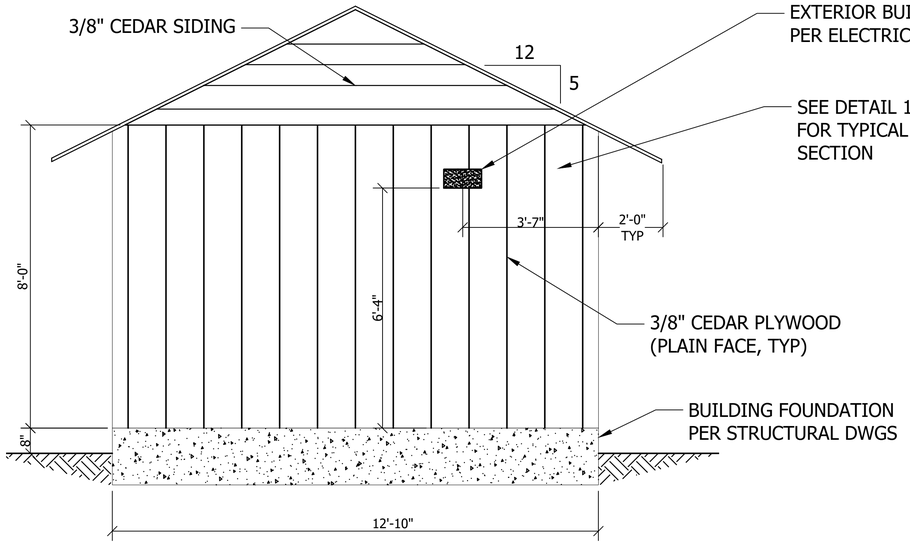
M300

SCALE
AS SHOWN

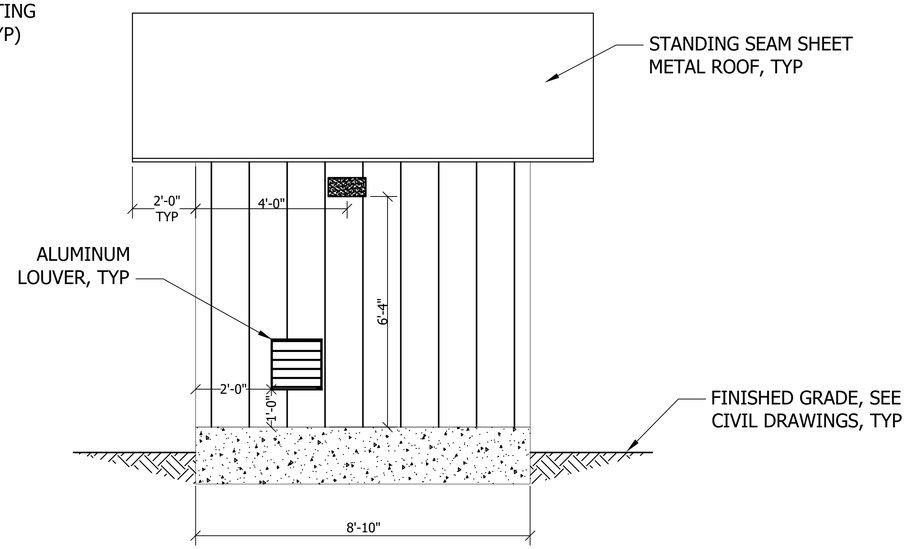
PARKS FILE#

NOTES

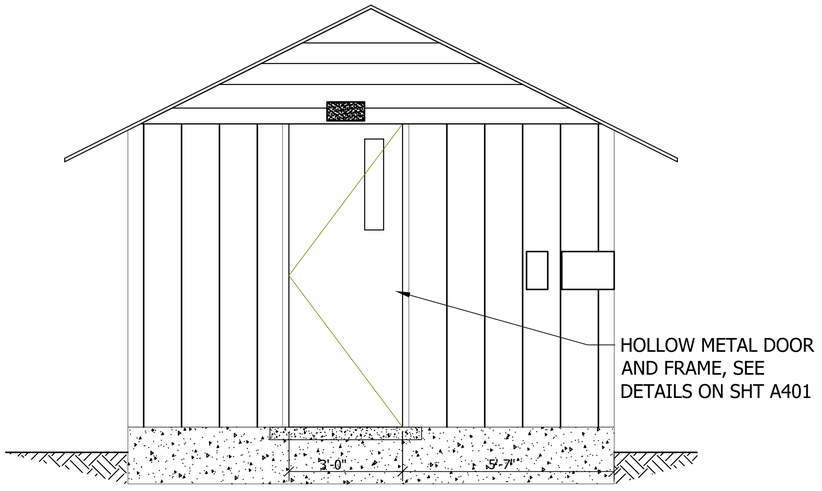
1. REFER TO SHEET M401 FOR MECHANICAL



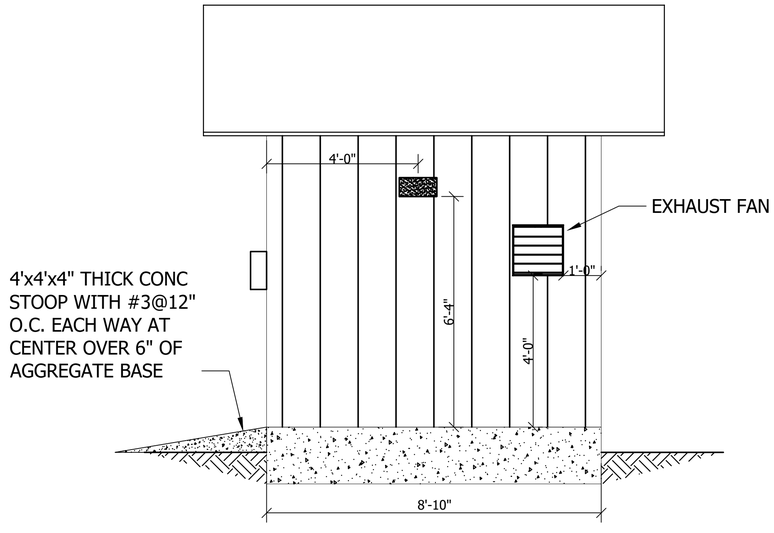
NORTH ELEVATION



WEST ELEVATION



SOUTH ELEVATION



EAST ELEVATION

1' 0 2'

SHEET 12 OF 41

CAD NO. W090-D4003-C11-D4002-C11-2023-##-###

NO.	REVISIONS	INT.	APP.	DATE

ACTION	BY	DATE
DESIGNED	HKP	08/31/23
DRAWN	RC	08/31/23
CHECKED (FIELD)		
CHECKED (HDQTS.)		

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PROJECT ENGINEER

WASHINGTON STATE PARKS AND RECREATION COMMISSION

WALLACE FALLS STATE PARK

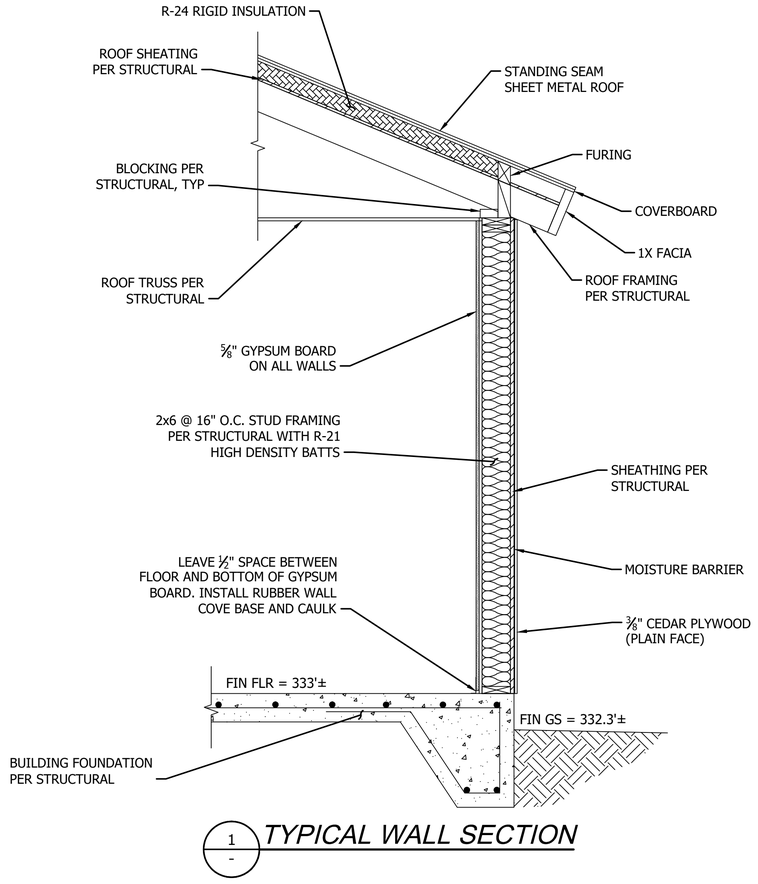
WATER SYSTEM REPLACEMENT

TREATMENT BUILDING EXTERIOR ELEVATIONS

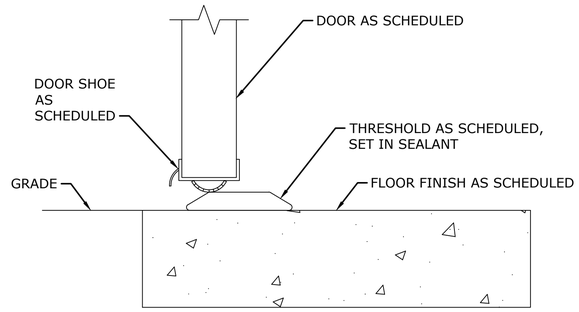
A400

SCALE
AS SHOWN

PARKS FILE#



1 - TYPICAL WALL SECTION



2 - DOOR SILL

NOTES:

1. PAINTING PER SPECIFICATION XX

CAD NO. W090-D4003-C11-D4002-C11-2023-##-###

NO.	REVISIONS	INT.	APP.	DATE

ACTION	BY	DATE
DESIGNED	HKP	03/31/23
DRAWN	RC	03/31/23
CHECKED (FIELD)		
CHECKED (HDQTS.)		

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PROJECT ENGINEER

WASHINGTON STATE PARKS AND RECREATION COMMISSION

WALLACE FALLS STATE PARK

WATER SYSTEM REPLACEMENT

TREATMENT BUILDING ARCHITECURAL DETAILS

A401

SCALE
AS SHOWN

PARKS FILE#

STRUCTURAL NOTES

(THESE NOTES ARE TYPICAL UNLESS NOTED OR DETAILED OTHERWISE ON DRAWINGS)

CODE

ALL MATERIALS, WORKMANSHIP, DESIGN, AND CONSTRUCTION SHALL CONFORM TO THE DRAWINGS, SPECIFICATIONS, AND THE INTERNATIONAL BUILDING CODE (IBC), 2018 EDITION. SPECIFICATIONS AND STANDARDS WHERE REFERENCED ON THE DRAWINGS ARE TO BE THE LATEST EDITION.

DESIGN LOADS

DEAD LOADS:

ROOF	15 PSF

LIVE LOADS:

ROOF (SNOW LOAD)	30 PSF (RISK CAT IV)

EARTHQUAKE LOADS:

EQUIVALENT LATERAL FORCE PROCEDURE PER ASCE 7-16 SECTION 12.8.

SITE CLASS	D
SHORT PERIOD SPECTRAL RESPONSE ACCEL (S_S)	0.965
ONE SECOND SPECTRAL RESPONSE ACCEL (S_1)	0.339
SHORT PERIOD DESIGN SPECTRAL RESPONSE ACCEL (S_{DS})	0.772
ONE SECOND DESIGN SPECTRAL RESPONSE ACCEL (S_{D1})	0.443
RISK CATEGORY	IV
SEISMIC IMPORTANCE FACTOR (I_E)	1.5
SEISMIC DESIGN CATEGORY	D
BASIC SEISMIC FORCE-RESISTING-SYSTEM	LIGHT-FRAMED SHEAR WALLS
RESPONSE MODIFICATION FACTOR, (R)	6.5
REDUNDANCY FACTOR (p)	1.3
SEISMIC RESPONSE COEFFICIENT (C_S)	0.178

W = TOTAL SEISMIC DEAD LOAD AS DEFINED PER ASCE 7-16 SECTION 12.7.2.

BASE SHEAR (V), $V = C_S W = \frac{S_{DS}}{R/I} W$

WIND LOADS:

BASIC WIND SPEED (3 SECOND GUST)	109 MPH
EXPOSURE	B
K_{ZT}	1.0

STATEMENT OF SPECIAL INSPECTIONS

SPECIAL INSPECTIONS ARE REQUIRED AS INDICATED IN THE FOLLOWING TABLE. THE CONTRACTOR SHALL SUBMIT A WRITTEN STATEMENT OF RESPONSIBILITY TO THE BUILDING OFFICIAL AND OWNER PRIOR TO COMMENCEMENT OF WORK IN ACCORDANCE WITH SECTION 1704.4 OF THE IBC.

FREQUENCY AND DISTRIBUTION OF REPORTS - INSPECTION REPORTS SHALL BE PROVIDED FOR EACH DAY ON SITE BY SPECIAL INSPECTOR. REPORTS SHALL BE DISTRIBUTED TO THE CONTRACTOR, ENGINEER AND BUILDING OFFICIAL.

SPECIAL INSPECTION

OPERATION	CONT	PERIODIC	REMARKS
SOILS			
FOUNDATION BEARING CAPACITY VERIFICATION		X	
CONCRETE			
REINFORCING PLACEMENT		X	
ANCHOR BOLTS		X	
HOLDOWN PLACEMENT		X	
CONCRETE TEST SPECIMENS	X		
CONCRETE PLACEMENT	X		

NOTE:
ALL ITEMS MARKED WITH AN "X" SHALL BE INSPECTED IN ACCORDANCE WITH IBC CHAPTER 17. SPECIAL INSPECTION SHALL BE PERFORMED BY A QUALIFIED TESTING AGENCY. THE STRUCTURAL ENGINEER, AND BUILDING OFFICIAL SHALL BE FURNISHED WITH COPIES OF ALL RESULTS. ANY INSPECTION FAILING TO MEET THE PROJECT SPECIFICATIONS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE DESIGN TEAM.

SHOP DRAWINGS

SHOP DRAWINGS FOR THE FOLLOWING ITEMS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW PRIOR TO FABRICATION:

1. REINFORCING STEEL
2. CONCRETE MIX DESIGN
3. PREMANUFACTURED WOOD TRUSSES

SHOP DRAWINGS SHALL BE REVIEWED, REVISED AS REQUIRED FOR FIELD CONDITIONS, AND DATE STAMPED BY THE CONTRACTOR PRIOR TO REVIEW BY THE ENGINEER. CONTRACTOR SHALL PROVIDE (3) SETS OF SHOP DRAWINGS FOR ENGINEER'S REVIEW. ALLOW TWO WEEKS FOR SHOP DRAWING APPROVAL BY ENGINEER.

ENGINEER'S SHOP DRAWING REVIEW IS FOR GENERAL CONFORMANCE WITH THE DESIGN CONCEPT AND CONTRACT DOCUMENTS. MARKINGS OR COMMENTS SHALL NOT BE CONSTRUED AS RELIEVING THE CONTRACTOR FROM COMPLIANCE WITH THE PROJECT PLANS AND SPECIFICATIONS. THE CONTRACTOR REMAINS RESPONSIBLE FOR DETAILS AND ACCURACY, FOR CONFORMING AND CORRELATING ALL QUANTITIES AND DIMENSIONS, FOR SELECTING FABRICATION PROCESSES, FOR TECHNIQUES OF ASSEMBLY, AND FOR PERFORMING THE WORK IN A SAFE MANNER.

ENGINEER'S SHOP DRAWING REVIEW OF STRUCTURAL COMPONENTS DESIGNED BY OTHERS IS FOR LOADS IMPOSED ON THE BASIC STRUCTURE. THE COMPONENT DESIGNER IS RESPONSIBLE FOR CODE CONFORMANCE AND ALL CONNECTIONS TO THE BASIC STRUCTURE. SHOP DRAWINGS SHALL INDICATE MAGNITUDE AND DIRECTION OF THE LOADS IMPOSED ON THE BASIC STRUCTURE AND SHALL BE STAMPED & SIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN THE SAME STATE AS THE PROJECT.

FABRICATION SHALL BEGIN ONLY AFTER SHOP DRAWINGS BEARING THE STAMP AND SIGNATURE OF THE ENGINEER OF RECORD, AND CONTRACTOR HAVE BEEN RECEIVED.

DEFERRED APPROVAL ITEMS

SUBMITTAL DOCUMENTS FOR DEFERRED SUBMITTAL ITEMS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD WHO SHALL REVIEW THEM AND INDICATE THAT THE DEFERRED SUBMITTAL DOCUMENTS HAVE BEEN REVIEWED AND THAT THEY HAVE BEEN FOUND TO BE IN GENERAL CONFORMANCE WITH THE DESIGN OF THE BUILDING. THE DEFERRED SUBMITTAL ITEMS SHALL NOT BE INSTALLED UNTIL THEIR DESIGN AND SUBMITTAL DOCUMENTS HAVE BEEN APPROVED BY THE BUILDING OFFICIAL. DEFERRED SUBMITTALS SHALL BE STAMPED AND SIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN THE SAME STATE AS THE PROJECT.

1. PREMANUFACTURED WOOD TRUSSES

FOUNDATIONS: SPREAD FOOTINGS

SOILS REPORT: REPORT NOT AVAILABLE AT TIME OF DESIGN

ALLOWABLE SOIL PRESSURE: 1500 PSF (ASSUMED)

FOOTINGS SHALL BEAR ON FIRM UNDISTURBED EARTH OR 12" OF COMPACTED STRUCTURAL FILL AND AT LEAST 18" BELOW ADJACENT EXTERIOR GRADE. ANY FOOTING ELEVATIONS SHOWN IN THE DRAWINGS REPRESENT MINIMUM DEPTHS AND ARE FOR BIDDING ONLY. ACTUAL FOOTING ELEVATIONS ARE SUBJECT TO SITE CONDITIONS AND MUST THEREFORE BE ESTABLISHED BY THE CONTRACTOR. FOOTINGS SHALL BE CENTERED BELOW COLUMNS OR WALLS ABOVE, UNLESS NOTED OTHERWISE.

CONCRETE

ALL CONCRETE SHALL BE MIXED, PROPORTIONED, CONVEYED, AND PLACED IN ACCORDANCE WITH CHAPTER 26 OF ACI 318 AND THE AMERICAN CONCRETE INSTITUTE'S SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS (ACI 301).

ALL CONCRETE SHALL BE STONE-AGGREGATE CONCRETE HAVING A UNIT WEIGHT OF APPROXIMATELY 150 POUNDS PER CUBIC FOOT.

CONCRETE STRENGTHS AT 28 DAYS (f'c) AND MIX CRITERIA SHALL BE AS FOLLOWS:

TYPE OF CONSTRUCTION	f'c	MAXIMUM WATER/CEMENT RATIO	MIN CEMENT CONTENT PER CUBIC YARD	MAXIMUM SHRINKAGE STRAIN
SLABS ON GRADE	4000 PSI	0.50	5 1/2 SACK	N/A
FOOTINGS	4000 PSI	0.50	5 1/2 SACK	N/A

THE MINIMUM AMOUNT OF CEMENT LISTED ABOVE MAY BE CHANGED IF A CONCRETE PERFORMANCE MIX IS SUBMITTED TO THE ENGINEER AND THE BUILDING DEPARTMENT FOR APPROVAL TWO WEEKS PRIOR TO PLACING ANY CONCRETE. THE PERFORMANCE MIX SHALL INCLUDE THE AMOUNTS OF CEMENT, FINE AND COARSE AGGREGATE, WATER, AND ADMIXTURES AS WELL AS THE WATER-CEMENT RATIO, SLUMP, CONCRETE YIELD, AND SUBSTANTIATING STRENGTH DATA IN ACCORDANCE WITH CHAPTER 26 OF ACI 318.

ALL CONCRETE EXPOSED TO WEATHER OR TO FREEZING TEMPERATURES SHALL BE AIR-ENTRAINED IN ACCORDANCE WITH ACI 318 TABLE 19.3.3.1 FOR MODERATE EXPOSURE CLASS F1.

REINFORCING STEEL

REINFORCING STEEL SHALL BE DEFORMED BILLET STEEL CONFORMING TO ASTM A615, AND SHALL BE GRADE 60 (Fy = 60,000 PSI), UNLESS NOTED OTHERWISE. GRADE 60 REINFORCING BARS INDICATED ON DRAWINGS TO BE WELDED SHALL CONFORM TO ASTM A706. REINFORCING COMPLYING WITH ASTM A615 MAY BE WELDED IF MATERIAL PROPERTY REPORTS INDICATING CONFORMANCE WITH WELDING PROCEDURES SPECIFIED IN AWS D1.4 ARE SUBMITTED.

REINFORCING STEEL SHALL BE DETAILED INCLUDING HOOKS AND BENDS IN ACCORDANCE WITH ACI SP-66 AND ACI 318, LATEST EDITIONS. UNLESS OTHERWISE NOTED, REINFORCING SPLICE LENGTHS AND DEVELOPMENT LENGTHS SHALL BE PER SCHEDULE.

REINFORCING SHALL BE PLACED AND ADEQUATELY SUPPORTED PRIOR TO PLACING CONCRETE. WET-SETTING EMBEDDED ITEMS IS NOT ALLOWED WITHOUT PRIOR ENGINEER APPROVAL. BARS PARTIALLY EMBEDDED IN HARDENED CONCRETE SHALL NOT BE FIELD BENT UNLESS SO DETAILED OR APPROVED BY THE STRUCTURAL ENGINEER. REFER TO CHAPTER 25 OF ACI 318 FOR OTHER REINFORCING STEEL REQUIREMENTS.

MINIMUM LAPS AND EMBEDMENT

UNLESS OTHERWISE NOTED, REINFORCING SPLICE LENGTHS AND DEVELOPMENT LENGTHS SHALL BE AS TABULATED BELOW:

f'c = 4000 PSI						
BAR SIZE	DEVELOPMENT LENGTH			LAP SPLICE		
	TENSION		COMPRESSION	TENSION		COMPRESSION
	TOP BARS	OTHER BARS	ALL BARS	TOP BARS	OTHER BARS	ALL BARS
#3	19	15	8	24	19	12
#4	25	19	10	33	25	15
#5	31	24	12	41	31	19
#6	37	29	15	49	37	23
#7	54	42	17	71	54	27
#8	62	48	19	81	62	30

NOTES:
1. ALL LENGTHS ARE IN INCHES.
2. ALL LAP SPLICES ARE CLASS B.
3. "TOP BARS" ARE HORIZONTAL REINFORCEMENT PLACED SUCH THAT MORE THAN 12 INCHES OF CONCRETE IS CAST IN THE MEMBER BELOW THE BAR.

CONCRETE COVER ON REINFORCING

CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 3"

CONCRETE EXPOSED TO EARTH AND WEATHER:
- #6 BARS AND LARGER: 2"
- #5 BARS AND SMALLER: 1 1/2"

CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
- SLABS, WALLS AND JOISTS: 3/4"
- COLUMN TIES OR SPIRALS AND BEAM STIRRUPS: 1 1/2"

CONCRETE GENERAL NOTES

PROVIDE CORNER BARS TO MATCH THE HORIZONTAL REINFORCING WITH TENSION LAP SPLICE AT EACH SIDE PER TABLE, OR BEND ONE SIDE OVER TO PROVIDE TENSION LAP.

ALL CONSTRUCTION JOINTS SHALL BE THOROUGHLY CLEANED AND PROPERLY PREPARED IMMEDIATELY PRIOR TO POURING OF CONCRETE. DOWEL STEEL SHALL BE THE SAME SIZE AND SPACING AS MAIN REINFORCING DETAILED BEYOND JOINT.

BARS PARTIALLY EMBEDDED IN HARDENED CONCRETE SHALL NOT BE FIELD BENT UNLESS SO DETAILED OR APPROVED BY THE STRUCTURAL ENGINEER.

LUMBER

ALL GRADES SPECIFIED ARE MINIMUM GRADES REQUIRED. ALL LUMBER SHALL BE IN ACCORDANCE WITH WWPA GRADING RULES, KILN-DRIED TO MC 19 AND OF THE FOLLOWING MINIMUM STANDARDS:

SIZE CLASSIFICATION	SPECIES	GRADE	Fb (PSI)	Fc (PSI)
SLEEPERS	DOUG-FIR	STUD	700	-
LIGHT FRAMING (STUDS)	HEM-FIR	STUD	675	800
2x JOISTS AND PLANKS	HEM-FIR	#2	850	-
PLATES AND BLOCKING	HEM-FIR	#2	850	-
6x AND LARGER BEAMS AND STRINGERS	DOUG-FIR	#2	875	-
4x AND SMALLER BEAMS AND STRINGERS	HEM-FIR	#2	850	-
ALL POSTS AND TIMBERS	DOUG-FIR	#1	1200	1000

REFER TO PLAN NOTES, SCHEDULES, AND DETAILS FOR MORE SPECIFIC LUMBER SIZE AND GRADE REQUIREMENTS.

UNLESS NOTED OTHERWISE IN THE PLANS, ALL WOOD AND WOOD-BASED MEMBERS EXPOSED TO WEATHER OR IN CONTACT WITH CONCRETE, MASONRY, OR WITHIN 8" OF SOIL SHALL BE PRESERVATIVE-TREATED BY VACUUM-PRESSURE IMPREGNATION IN ACCORDANCE WITH AWPA STANDARD U1.

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SCALE
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PARKS FILE#

STRUCTURAL NOTES

(THESE NOTES ARE TYPICAL UNLESS NOTED OR DETAILED OTHERWISE ON DRAWINGS)

NAILS, BOLTS, AND METAL CONNECTORS FOR WOOD

ALL NAILS SHALL CONFORM TO THE STANDARDS SET FORTH BY THE NATIONAL DESIGN STANDARDS (NDS) FOR WOOD CONSTRUCTION, LATEST EDITION. NAILING NOT SPECIFIED SHALL BE PER IBC TABLE 2304.10.1 NAILING SCHEDULE. ALL NAILS CALLED OUT ON PLANS SHALL BE COMMON NAILS UNLESS NOTED OTHERWISE AND SHALL MEET OR EXCEED THE FOLLOWING MINIMUM GUIDELINES:

NAIL	SHANK Ø	MIN LENGTH
8d COMMON	0.131"Ø	2 1/2" SHANK
10d COMMON	0.148"Ø	3" SHANK
12d COMMON	0.148"Ø	3 1/4" SHANK
16d COMMON	0.162"Ø	3 1/2" SHANK

10d BOX NAILS MAY BE SUBSTITUTED FOR 8d COMMON NAILS WITH NO CHANGE IN NAIL SPACING. FRAMING MEMBERS MAY BE NAILED WITH 16d SINKERS (0.148"Ø x 3 1/4"), BUT ONLY 16d COMMON NAILS SHALL BE USED WHERE 16d NAILS ARE INDICATED IN THIS DRAWING SET. ENGINEER MAY APPROVE OTHER NAILS IF NAIL LABELS ARE SUBMITTED TO ENGINEER PRIOR TO START OF CONSTRUCTION.

ALL BOLTS IN WOOD MEMBERS SHALL CONFORM TO ASTM A307. PROVIDE WASHERS UNDER THE HEADS AND NUTS OF ALL BOLTS AND LAG SCREWS BEARING ON WOOD. LEAD HOLES FOR LAG BOLTS SHALL BE BORED FOR THE SHANK AND THREADED PORTIONS PER NDS 12.1.4.2.

CONNECTORS CALLED OUT BY LETTERS AND NUMBERS SHALL BE "STRONG-TIE" BY SIMPSON COMPANY, CATALOG TO BE THE LATEST EDITION, OR ENGINEER APPROVED EQUAL. CONNECTORS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND WITH THE NUMBER AND SIZE OF FASTENERS AS SPECIFIED BY THE MANUFACTURER. WHERE CONNECTOR STRAPS CONNECT TWO MEMBERS, PLACE ONE-HALF OF THE NAILS, SCREWS, OR BOLTS IN EACH MEMBER.

INSTALL SOLID BLOCKING AT ALL BEARING POINTS. ALL SHIMS SHALL BE SEASONED, DRIED, AND THE SAME GRADE (MINIMUM) AS MEMBERS CONNECTED.

GALVANIZATION

UNLESS NOTED OTHERWISE, STEEL CONNECTORS IN CONTACT WITH TREATED WOOD SHALL BE GALVANIZED ACCORDING TO THE FOLLOWING TABLE:

GALVANIZATION	UNTREATED WOOD	CCA-C	SBX	ACQ-C ACQ-D	CBA-A CA-B	OTHER BORATE	ACZA	OTHER PT WOOD
G90	X	X	X					
G185	X	X	X	X	X	X		
HDG	X	X	X	X	X	X		
STT300	X	X	X	X	X	X	X	X

G90 = 0.90 OZ. OF ZINC PER SQUARE FOOT OF AREA
G185 = 1.85 OZ. OF ZINC PER SQUARE FOOT OF AREA
HDG = HOT DIP GALVANIZED
SST300 = TYPE 316L STAINLESS STEEL

RATED SHEATHING

RATED SHEATHING SHALL BE GRADE C-D INT-APA WITH EXTERIOR GLUE OR OSB SHEATHING WITH EXTERIOR GLUE IN CONFORMANCE WITH IBC STANDARD 2303.1.5.

PRE-MANUFACTURED WOOD TRUSSES

WOOD TRUSSES SHALL BE SIZED AND DETAILED TO FIT DIMENSIONS AND LOADS INDICATED ON THE PLANS. ALL DESIGN SHALL BE IN ACCORDANCE WITH THE ALLOWABLE VALUES AND SECTION PROPERTIES ASSIGNED BY THE BUILDING CODE. SUBMIT SHOP DRAWINGS FOR ENGINEER REVIEW PRIOR TO FABRICATION. CALCULATIONS AND SHOP DRAWINGS SHALL BE SIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN THE SAME STATE AS THE PROJECT. TRUSS DESIGN AND SHOP DRAWINGS SHALL BE IN CONFORMANCE WITH IBC 2303.4

PROVIDE TEMPORARY BRACING UNTIL SHEATHING AND PERMANENT BRACING IS INSTALLED. MANUFACTURER SHALL PROVIDE ALL SPECIALTY ITEMS REQUIRED FOR A COMPLETE INSTALLATION OF JOISTS. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

FOR TOP CHORD DESIGN LIVE LOADS, REFER TO THE DESIGN LOAD SECTION. IN ADDITION TO ROOF LOADING LISTED IN THE DESIGN LOAD SECTION, ROOF TRUSSES SHALL BE DESIGNED FOR A BOTTOM CHORD LIVE LOAD OF 10 PSF. TOP AND BOTTOM CHORD LIVE LOAD DO NOT NEED TO BE DESIGNED FOR SIMULTANEOUSLY.

IN ADDITION TO THEIR SELF WEIGHT, ROOF TRUSSES SHALL BE DESIGNED FOR A TOP CHORD DEAD LOAD OF 5 PSF AND A BOTTOM CHORD DEAD LOAD OF 10 PSF ACTING SIMULTANEOUSLY. SEE MECHANICAL DRAWINGS FOR LOADS AND OPENINGS NOT SHOWN ON THE STRUCTURAL DRAWINGS. DEFLECTIONS SHALL NOT EXCEED L/360 FOR LIVE LOADS, OR L/240 FOR TOTAL LOADS.

TYPICAL FRAMING NOTES

1. BEARING WALL FRAMING

2x STUDS @ 16" OC FOR ALL SHEAR AND/OR BEARING WALLS UNO.

2. WALL BASE PLATE ON CONCRETE

WALL PLATES BEARING ON CONCRETE SHALL BE PRESSURE-TREATED. FOR ALL EXTERIOR WALLS, BOLT PLATES OR SILLS TO CONCRETE STEM WALLS OR THICKENED SLAB FOOTINGS WITH 5/8 INCH DIAMETER ANCHOR BOLTS WITH 7 INCH MINIMUM EMBEDMENT. PLACE AT 5'-0" OC MAXIMUM AND USE MINIMUM OF TWO ANCHOR BOLTS PER SILL AND PLACE ONE WITHIN 12 INCHES OF END OF PLATES, TYPICAL UNLESS NOTED OR DETAILED OTHERWISE. AT ALL SILL PLATE ANCHOR BOLTS, CONTRACTOR SHALL INSTALL 1/4" x 3" x 3" FLAT PLATE WASHERS.

3. ROOF AND FLOOR FRAMING

PROVIDE 1 1/2" FULL DEPTH BLOCKING FOR TRUSSES AND RAFTERS AT ALL SUPPORTS.

4. DIAPHRAGM NAILING

ALL SHEAR WALLS, FLOOR AND ROOF DIAPHRAGM NAILINGS SHALL BE AS CALLED OUT ON THE PLANS. EXTERIOR WALLS SHALL BE SHEATHED AND NAILED TO SUPPORTING FRAMING WITH 8d NAILS AT 6" OC AT ALL PANEL EDGES AND 12" OC AT ALL INTERMEDIATE SUPPORTS.

THE USE OF NAIL GUNS WILL BE APPROVED IF NAILING INTO THE DIAPHRAGMS CAN BE INSTALLED FLUSH WITH FACE OF SHEATHING. NAIL PENETRATIONS GREATER THAN 1/16" ARE NOT ACCEPTABLE.

5. ALLOWABLE STUD AND PLATE PENETRATIONS

CUTTING AND/OR NOTCHING OF WOOD STUDS OR PLATES SHALL NOT EXCEED 25% OF THE STUD/PLATE WIDTH IN EXTERIOR AND BEARING WALLS AND SHALL NOT EXCEED 40% OF THE STUD/PLATE WIDTH IN ANY NON-BEARING PARTITIONS. BORED HOLE DIAMETER IS LIMITED TO 40% OF STUD/PLATE WIDTH IN ANY STUD AND MAY BE 60% IN NONBEARING PARTITIONS OR IF STUD IS DOUBLED. MAINTAIN 5/8" MINIMUM EDGE DISTANCE FROM HOLE EDGE.

6. GYPSUM WALLBOARD NAILING

ALL GYPSUM WALLBOARD SHALL BE NAILED TO ALL STUDS AND TOP AND BOTTOM PLATES WITH 6d COOLER NAILS OR NO. 13 GAUGE x 1 5/8" @ 7" OC (5d COOLER NAILS FOR 1/2 INCH GYPSUM SHEATHING). TYPICAL UNLESS NOTED OTHERWISE. INSTALLATION OF GWB SHALL BE SUCH THAT JOINTS ARE STAGGERED ON EACH SIDE OF A SINGLE WALL.

GENERAL

STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH CIVIL, ELECTRICAL, AND MECHANICAL DRAWINGS FOR BIDDING AND CONSTRUCTION. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS FOR COMPATIBILITY BEFORE PROCEEDING. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING.

CONTRACTOR TO SEE CIVIL, ELECTRICAL AND MECHANICAL DRAWINGS FOR SIZE AND LOCATION OF PIPE, VENT, DUCT AND OTHER OPENINGS AND DETAILS NOT SHOWN ON THESE DRAWINGS.

CONTRACTOR SHALL BE RESPONSIBLE FOR ERECTION STABILITY AND TEMPORARY SHORING AS NECESSARY UNTIL PERMANENT SUPPORT AND STIFFENING ARE INSTALLED.

CONTRACTOR-INITIATED CHANGES SHALL BE SUBMITTED IN WRITING TO THE STRUCTURAL ENGINEER FOR APPROVAL PRIOR TO FABRICATION OR CONSTRUCTION. CHANGES SHOWN ON SHOP DRAWINGS ONLY WILL NOT SATISFY THIS REQUIREMENT.

DRAWINGS INDICATE GENERAL AND TYPICAL DETAILS OF CONSTRUCTION. WHERE CONDITIONS ARE NOT SPECIFICALLY INDICATED BUT ARE OF A SIMILAR CHARACTER TO DETAILS SHOWN, SIMILAR DETAILS OF CONSTRUCTION SHALL BE USED, SUBJECT TO REVIEW AND APPROVAL BY THE STRUCTURAL ENGINEER.

LEGEND

DEFINITION	SYMBOL	DEFINITION	SYMBOL
DIRECTION OF FRAMING		NATIVE SOIL	
EXTENT OF FRAMING		GRANULAR FILL	
COLUMNS		STRUCTURAL STEEL	
COLUMN BEARING ON BEAM	(A)	RATED SHEATHING	
BEAM CONTINUOUS OVER SUPPORT	(B)	SHEAR WALL (SEE SCHEDULE)	SWX
CONCRETE WALL		COLUMN MARK (SEE SCHEDULE)	C#
BEARING STUD WALL		FOOTING MARK (SEE SCHEDULE)	FX
NON-BEARING STUD WALL		HOLDOWN MARK (SEE SCHEDULE)	HX
BEARING STUD SHEAR WALL		HANGER MARK (SEE SCHEDULE)	X
NON-BEARING STUD SHEAR WALL		FLAG NOTE (SEE PLAN NOTES)	X
CMU WALL		STEEL MOMENT FRAME CONN.	

ABBREVIATIONS			
(A)	ABOVE	HORIZ	HORIZONTAL
AB	ANCHOR BOLT	KP	KING POST
ALT	ALTERNATE	KSI	KIPS PER SQUARE INCH
ARCH	ARCHITECT	MECH	MECHANICAL
(B)	BELOW	MF	MOMENT FRAME
BLKG	BLOCKING	NS	NEAR SIDE
BM	BEAM	OC	ON CENTER
BOT	BOTTOM	OPP	OPPOSITE
BTWN	BETWEEN	PL	PLATE
CJP	COMPLETE JOINT PENETRATION	PLCS	PLACES
CLR	CLEAR	PSI	POUNDS PER SQUARE INCH
CMU	CONCRETE MASONRY UNIT	PSF	POUNDS PER SQUARE FOOT
COL	COLUMN	P/T	POST TENSIONED
CONC	CONCRETE	PT	PRESSURE TREATED
CONN	CONNECTION	REINF	REINFORCING
CONT	CONTINUOUS	REQ'D	REQUIRED
DBL	DOUBLE	SCHED	SCHEDULE
DET	DETAIL	SIM	SIMILAR
DIM	DIMENSION	SOG	SLAB ON GRADE
EA	EACH	STD	STANDARD
ELEV	ELEVATION	SW	SHEAR WALL
EXIST	EXISTING	TOC	TOP OF CONCRETE
EXP	EXPANSION	TOS	TOP OF STEEL
FLR	FLOOR	TOW	TOP OF WALL
FDN	FOUNDATION	TYP	TYPICAL
FTG	FOOTING	UNO	UNLESS NOTED OTHERWISE
FS	FAR SIDE	VFY	VERIFY
FH	FULL HEIGHT	VIF	VERIFY IN FIELD
GLB	GLUE-LAMINATED BEAM	VERT	VERTICAL

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WALLACE FALLS STATE PARK

PARKING EXPANSION AND WATER SYSTEM REPLACEMENT

STRUCTURAL NOTES

S401

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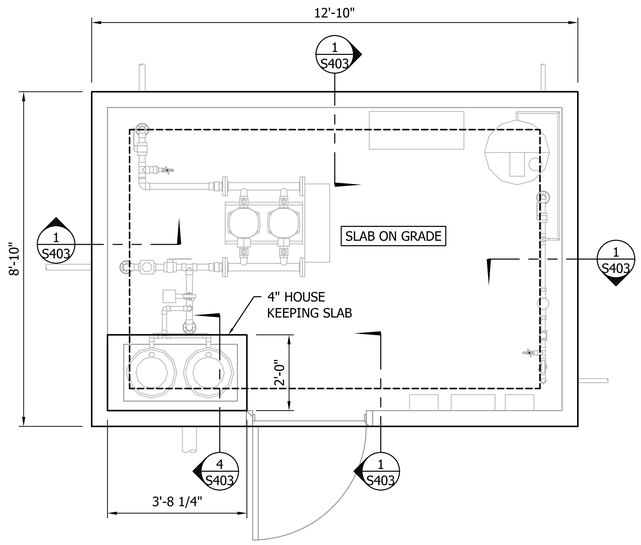

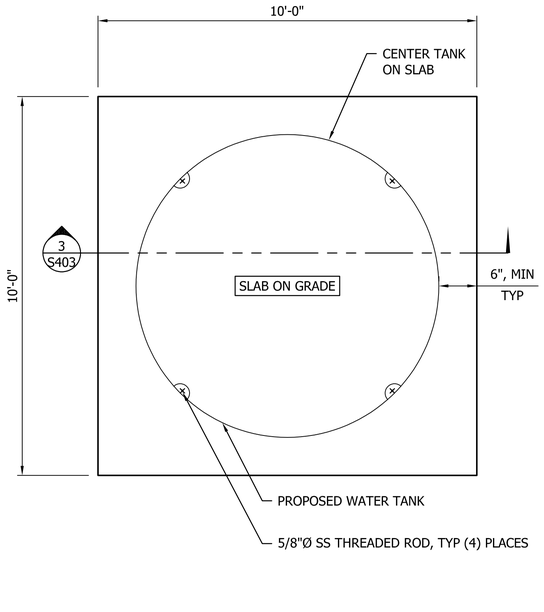

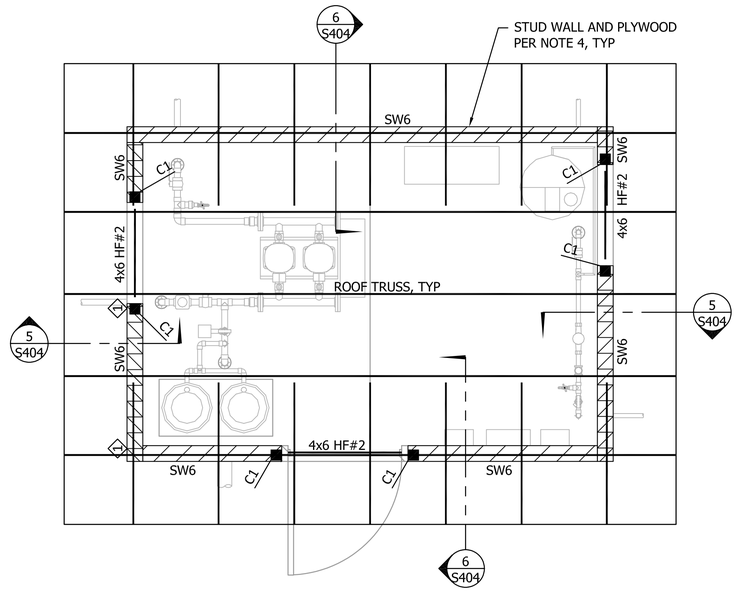

C1 = (1) FULL HEIGHT AND
(1) CRIPPLE 2x6 HF STUD

1 BUILDING FOUNDATION PLAN

1 - 2' 0 4'

FOUNDATION PLAN NOTES:

1. EXTERIOR FOOTINGS SHALL BEAR A MIN OF 1'-6" BELOW ADJACENT GRADE.
2. FOOTINGS AND SLAB ON GRADE SHALL BEAR ON FIRM NATIVE SOIL OR COMPACTED STRUCTURAL FILL.
3. WHERE SLAB ON GRADE IS INDICATED, SLAB SHALL BE 5" THICK W/ #4 REINF @ 15" OC EA WAY, CENTERED. SLAB SHALL BE POURED OVER A 10 MIL VAPOR BARRIER OVER 6" OF 5/8" CRUSHED ROCK (OVER NATIVE SOIL OR COMPACTED STRUCTURAL FILL.)
4. REFER TO SHEET S403 FOR FOUNDATION DETAILS.
5. PLACE ALL REINFORCEMENT PER THE STRUCTURAL NOTES AND FOUNDATION DETAILS. REFER TO SHEET S400 FOR ADDITIONAL CONCRETE DETAILING REQUIREMENTS.
6. CONTRACTOR SHALL VERIFY ALL DIMENSIONS, WALL LOCATIONS, AND CONCRETE ROUGH OPENINGS WITH THE DESIGN TEAM DRAWINGS AND NOTIFY ALL PARTIES OF ANY DISCREPANCIES.
7. REFER TO DETAIL 2/S403 FOR PENETRATIONS THROUGH FOUNDATION SLAB.

2 TANK FOUNDATION PLAN

2 - 2' 0 4'

3 BUILDING ROOF FRAMING PLAN

3 - 2' 0 4'

TYPICAL ROOF FRAMING PLAN NOTES:

1. WALLS SHOWN ON ROOF FRAMING PLAN ARE WALLS BELOW ROOF FRAMING. HOLDOWNS SHALL BE PLACED AT THE BASE OF THE WALLS SHOWN.
2. ROOF SHEATHING SHALL BE 1/2" PI 40/20 WITH 8d COMMON NAILS SPACED AT 6" OC AT ALL DIAPHRAGM BOUNDARIES, PANEL EDGES, SHEAR WALLS, AND BLOCKING INDICATED ON PLANS. NAILING AT INTERMEDIATE FRAMING SHALL BE 8d COMMON NAILS @ 12" OC. REFER TO DETAIL 1/S404 FOR ROOF PLYWOOD LAYOUT.
3. REFER TO SHEET S404 FOR TYPICAL ROOF FRAMING DETAILS.
4. ALL STUD WALLS SHALL BE 2x6 HF STUD GRADE AND SPACED AT 16" OC. ALL WALLS (INDICATED AS SW6 ON PLAN) SHALL BE SHEATHED W/ 1/2" APA RATED PLYWOOD. PROVIDE 8d NAILS AT 6" OC AT ALL PANEL EDGES AND 12" OC AT INTERMEDIATE FRAMING. ALL EDGES OF PLYWOOD SHALL BE BLOCKED.
5. REFER TO DETAIL 2/S404 FOR TYPICAL BUILT-UP STUD/POST DETAIL.
6. REFER TO DETAIL 3/S404 FOR TYPICAL HEADER OVER DOORWAY AND LOUVERS.
7. UNLESS NOTED OTHERWISE, HEADERS AT ALL EXTERIOR WALLS SHALL BE 4x6 HF#2 WHERE MAXIMUM SPAN = 5'-6".
8. ◈ INDICATES HOLDOWN. HOLDOWNS SHALL BE SIMPSON STRONG-TIE HDU2 WITH (6) SDS 1/4" x 2 1/2" SCREWS AND 5/8"Ø. EMBED ANCHOR BOLT INTO THICKENED SLAB FOOTING PER DETAIL 6/S403.

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STRUCTURAL PLANS

S402

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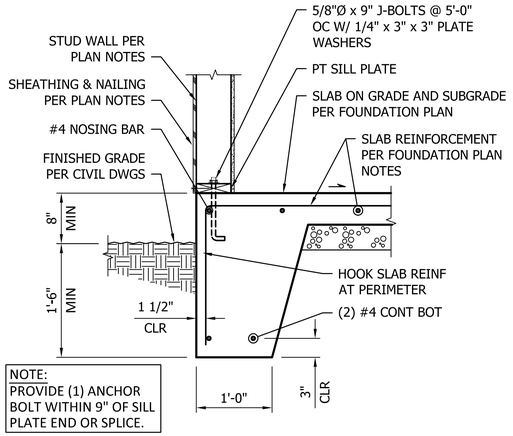
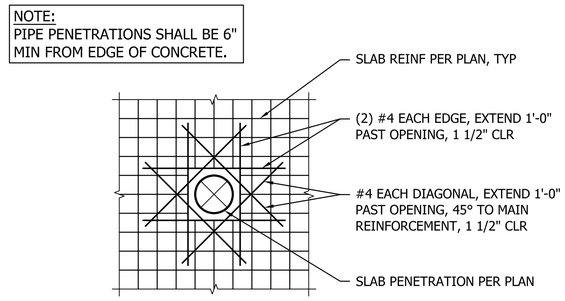


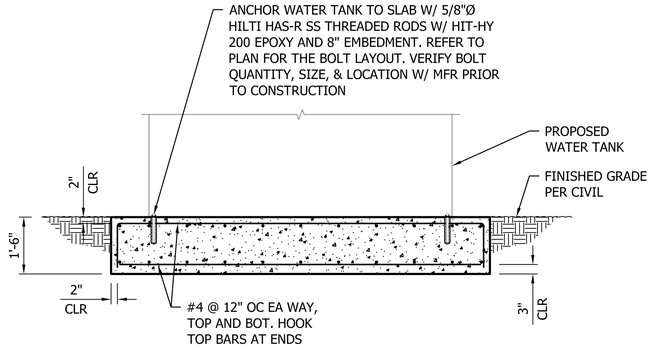
1 S402 THICKENED EDGE FOOTING

1' 0 2'



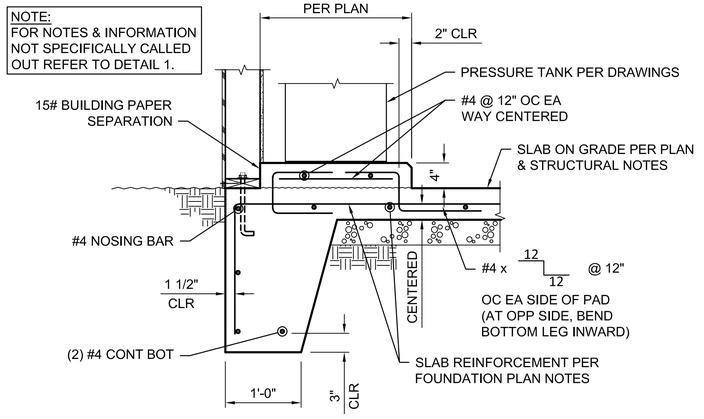
2 S402 CONCRETE SLAB PENETRATION REINFORCING

1' 0 2'



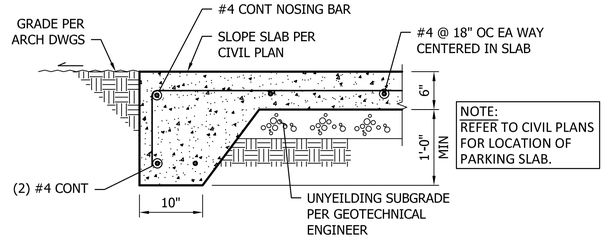
3 S402 WATER TANK SUPPORT SLAB

2' 0 4'



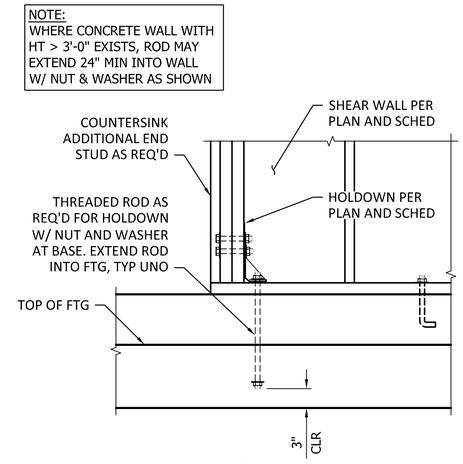
4 S402 PRESSURE TANK HOUSEKEEPING PAD

1' 0 2'



5 S402 COVERED PARKING SLAB

1' 0 2'



6 S402 HOLDOWN DETAIL

1' 0 2'

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FOUNDATION DETAILS

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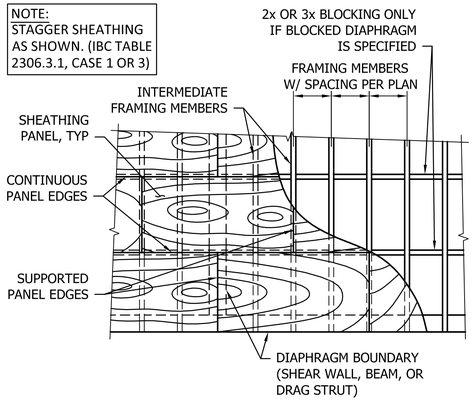
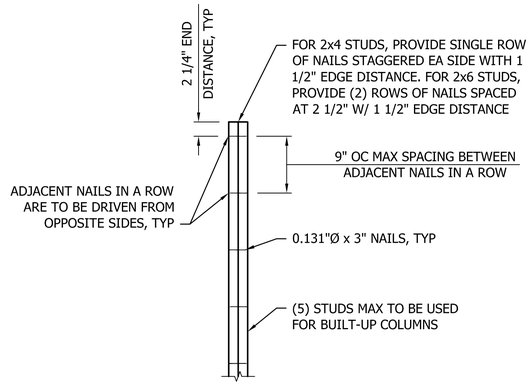


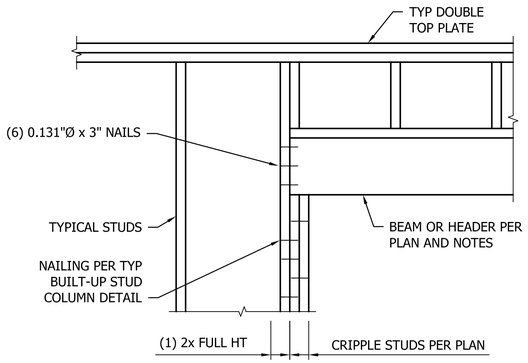
1 S402 TYPICAL ROOF SHEATHING DETAIL

1' 0 2'



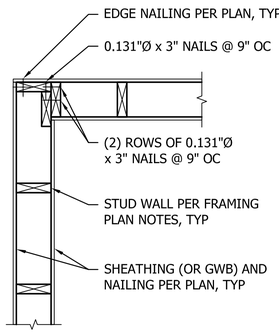
2 S402 TYPICAL BUILT-UP STUD COLUMN DETAIL

1' 0 2'



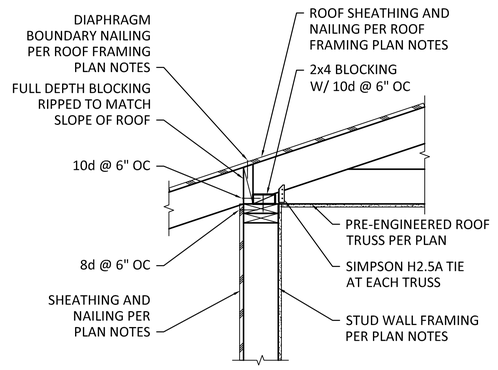
3 S402 TYPICAL HEADER DETAIL

1' 0 2'



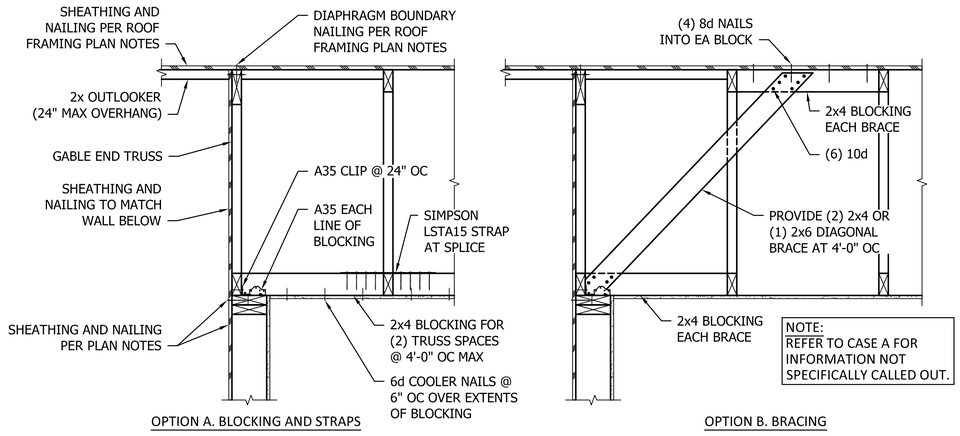
4 S402 TYPICAL WALL CORNER DETAIL

1' 0 2'



5 S402 TYPICAL TRUSS SUPPORT DETAIL

1' 0 2'



6 S402 TYPICAL GABLE END SECTION

1' 0 2'

CAD NO. W090-D4003-C11-D4002-C11-2023-X-S404

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JOSEPH G. GALUSZKA — STATE OF WASHINGTON — 20051 — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER
07/13/23

REGISTERED STAMP

WASHINGTON STATE PARKS AND RECREATION COMMISSION

WALLACE FALLS STATE PARK

PARKING EXPANSION AND WATER SYSTEM REPLACEMENT

WOOD FRAMING DETAILS

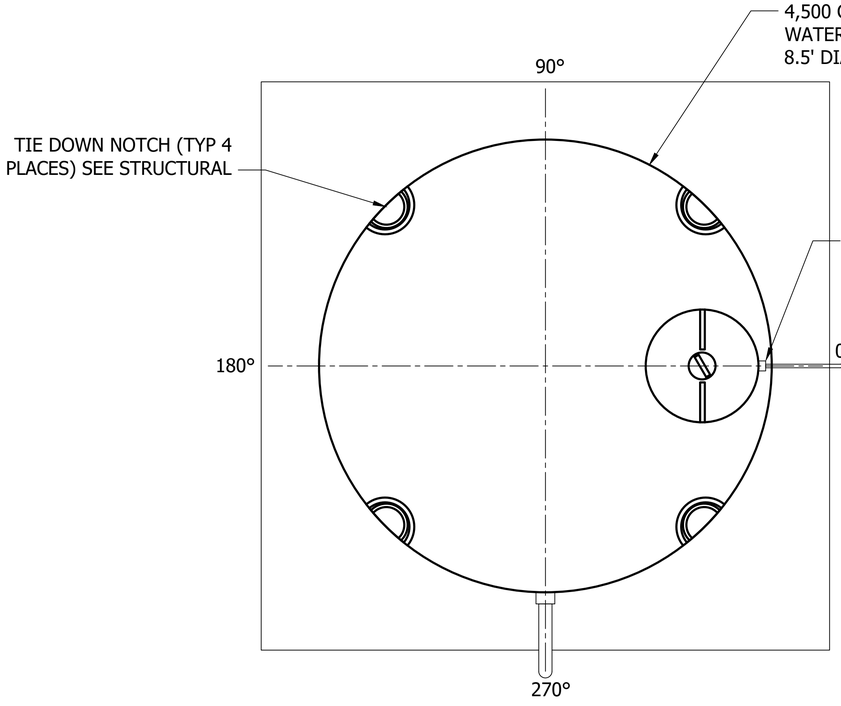
S404

SCALE
AS SHOWN

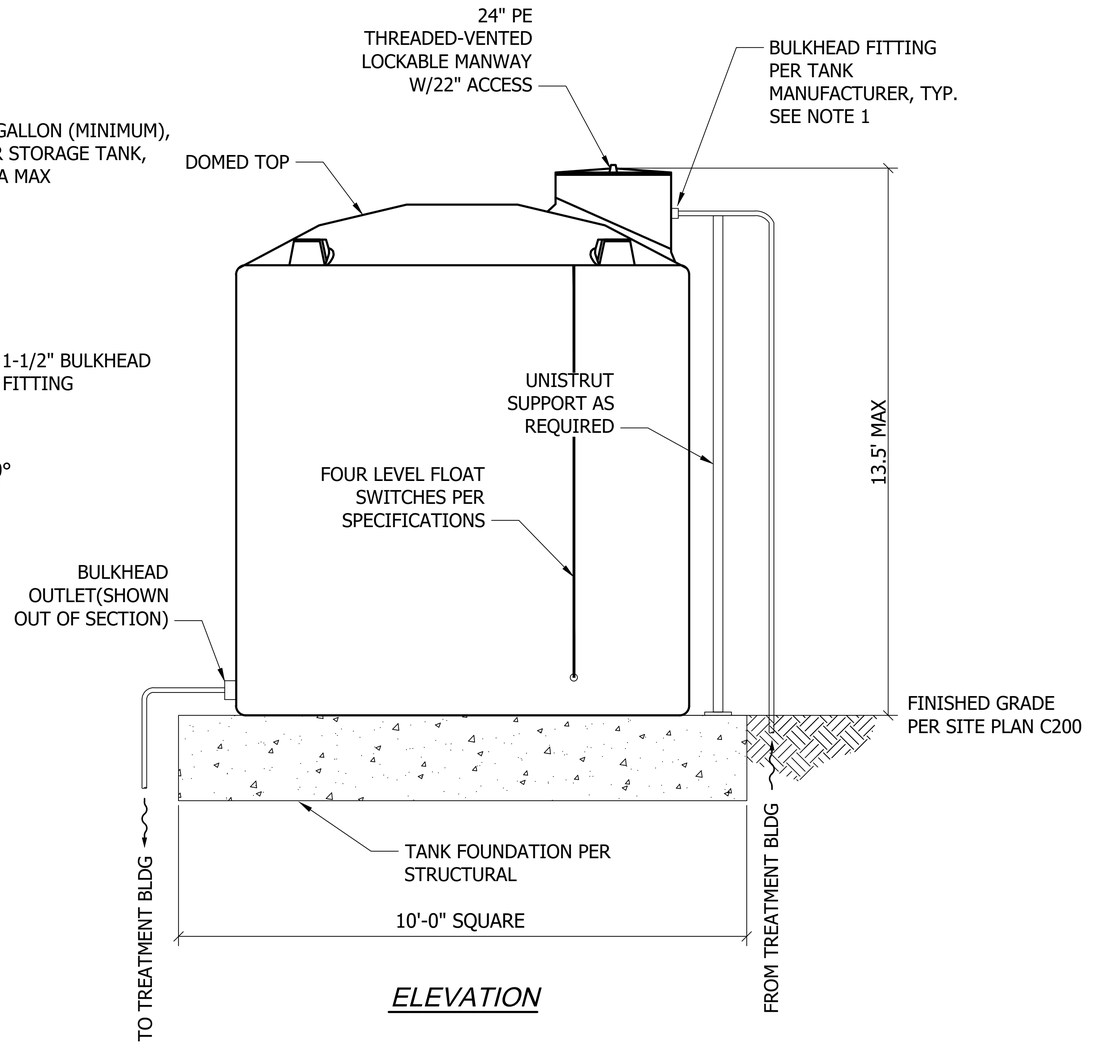
PARKS FILE#

SHEET NOTES:

1. REDUCER MAY BE REQUIRED FROKM BULKHEAD TO MATCH PIPE DIAMETERS SHOWN.



PLAN



ELEVATION

1' 0 2'

SHEET 19 OF 41

CAD NO. W090-D4003-C11-D4002-C11-2023-##-###

NO.	REVISIONS	INT.	APP.	DATE

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WALLACE FALLS STATE PARK

WATER SYSTEM REPLACEMENT

STORAGE TANK PLAN, SECTION, AND DETAILS

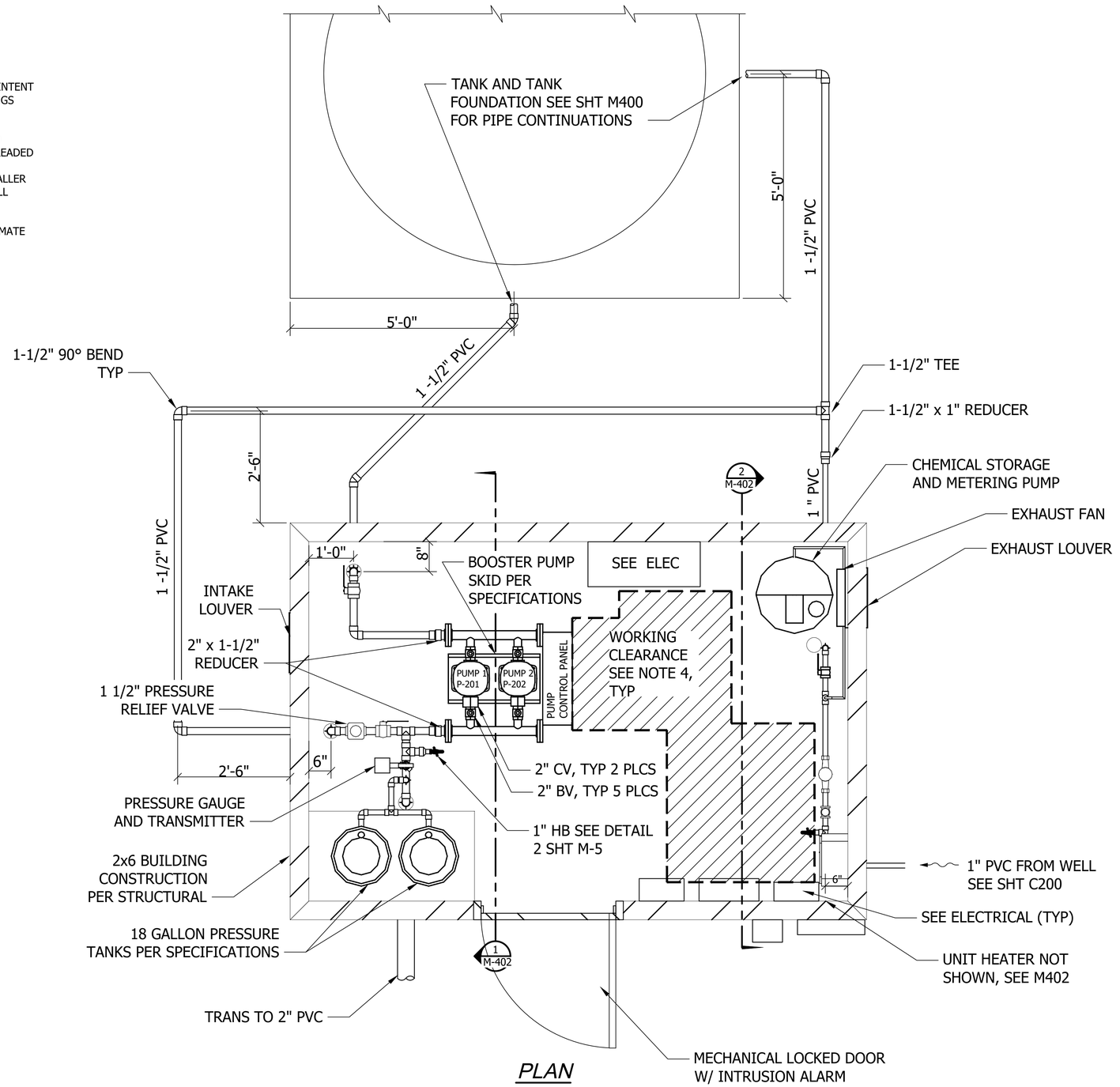
M400

SCALE
AS SHOWN

PARKS FILE#

SHEET NOTES:

1. ALL PIPING SHALL BE SCH 80 PVC UNLESS OTHERWISE NOTED.
2. DRAWING SCHEMATIC, LAYOUT MAY VARY IF INTENT IS MET. MISCELLANEOUS ELBOWS AND FITTINGS MAY BE ADDED TO AID INSTALLATION.
3. ALL WATERLINE ELBOWS, TEE, BUSHING, AND COUPLINGS SHALL BE SOLVENT WELD OR THREADED SCHEDULE 80 PVC. ALL TRANSITIONS IN WATERLINE SIZE FOR WATERLINE 2" AND SMALLER SHALL BE ACCOMPLISHED BY BUSHING OR BELL ADAPTERS.
4. WORKING CLEARANCES SHOWN ARE APPROXIMATE AND FOR REFERENCE ONLY



PLAN

SHEET 20 OF 41

CAD NO. W090-D4003-C11-D4002-C11-2023-##-###

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WALLACE FALLS STATE PARK

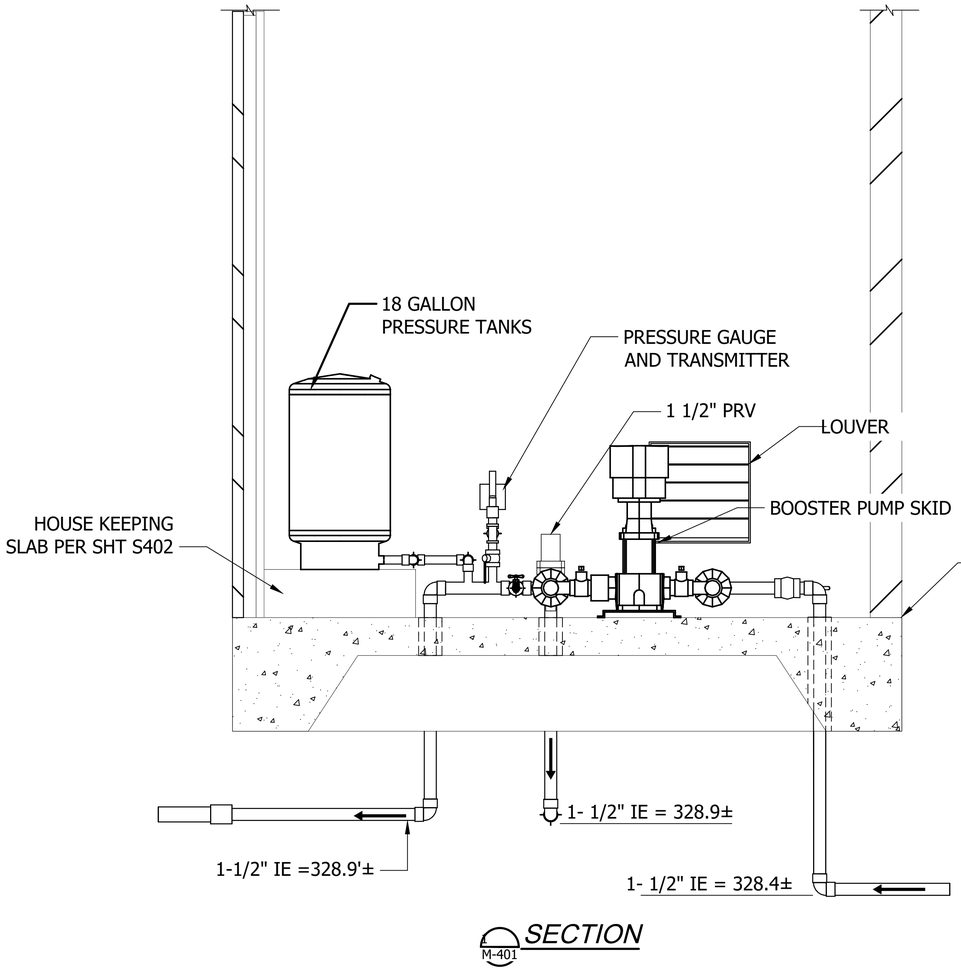
WATER SYSTEM REPLACEMENT

TREATMENT BUILDING MECHANICAL FLOOR PLAN

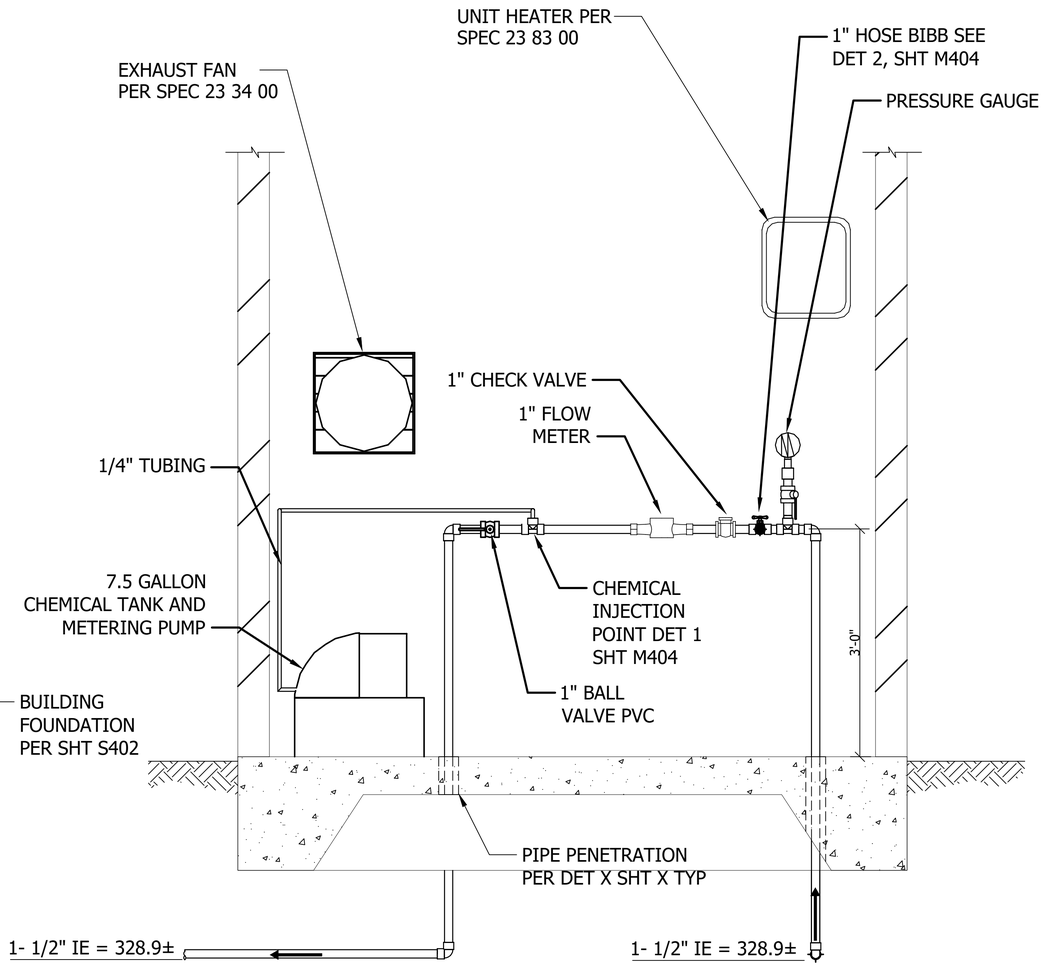
M401

SCALE
AS SHOWN

PARKS FILE#



SECTION
1
M-401



SECTION
2
M-401

1'
0
2'

SHEET 21 OF 41

CAD NO. W090-D4003-C11-D4002-C11-2023-##-###

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WASHINGTON STATE PARKS AND RECREATION COMMISSION

WALLACE FALLS STATE PARK

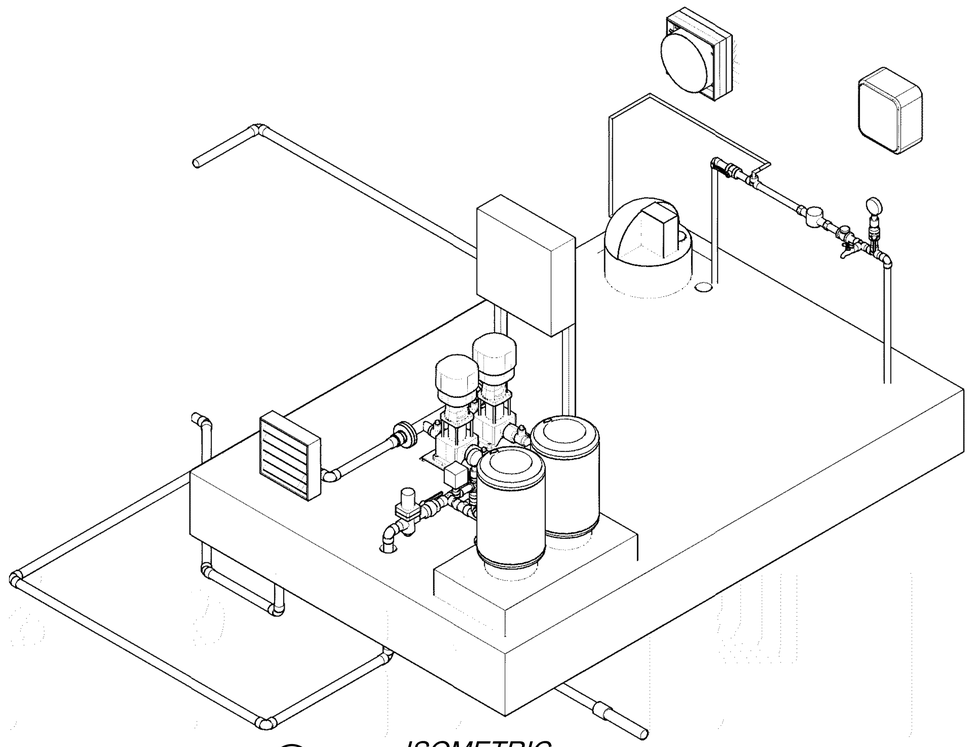
WATER SYSTEM REPLACEMENT

TREATMENT BUILDING MECHANICAL SECTIONS

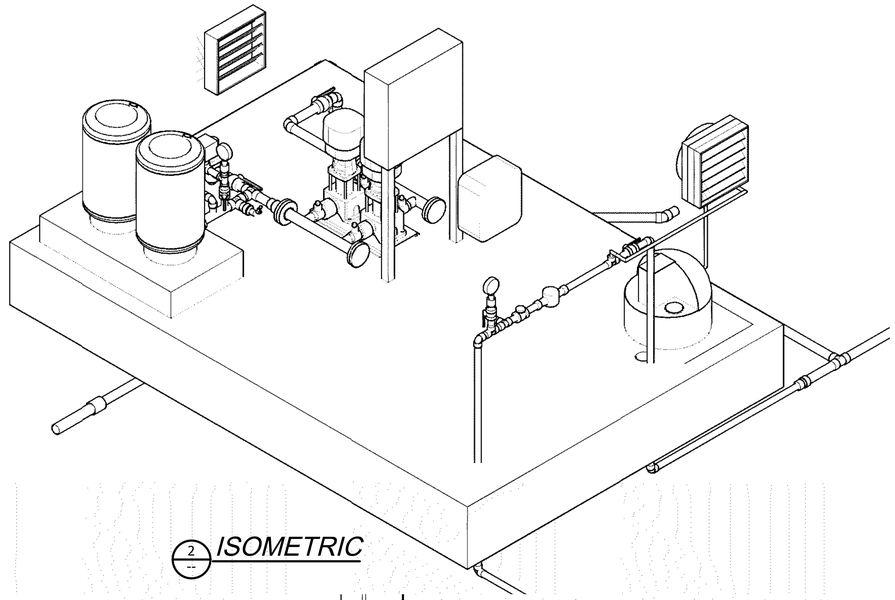
M402

SCALE
AS SHOWN

PARKS FILE#



1 -- ISOMETRIC



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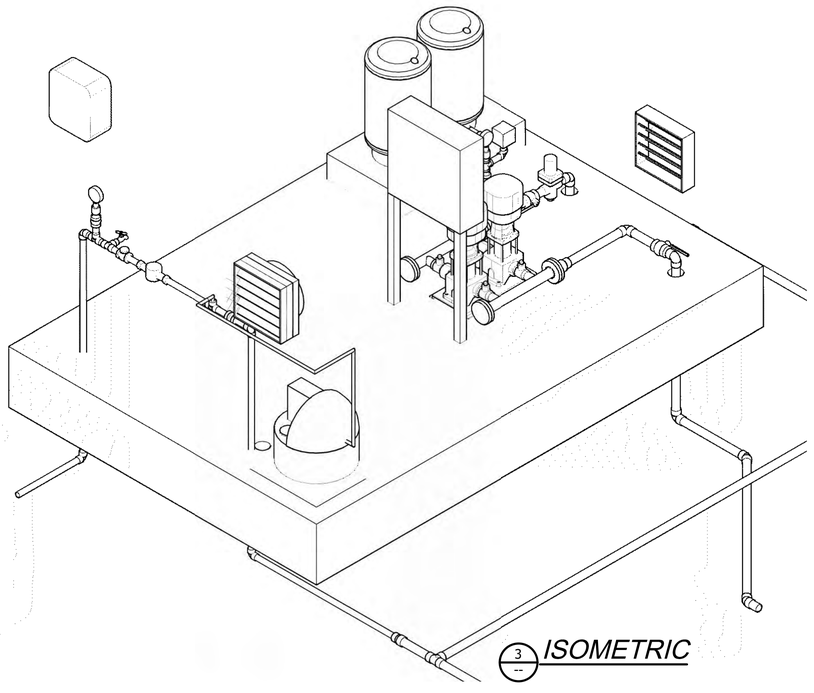
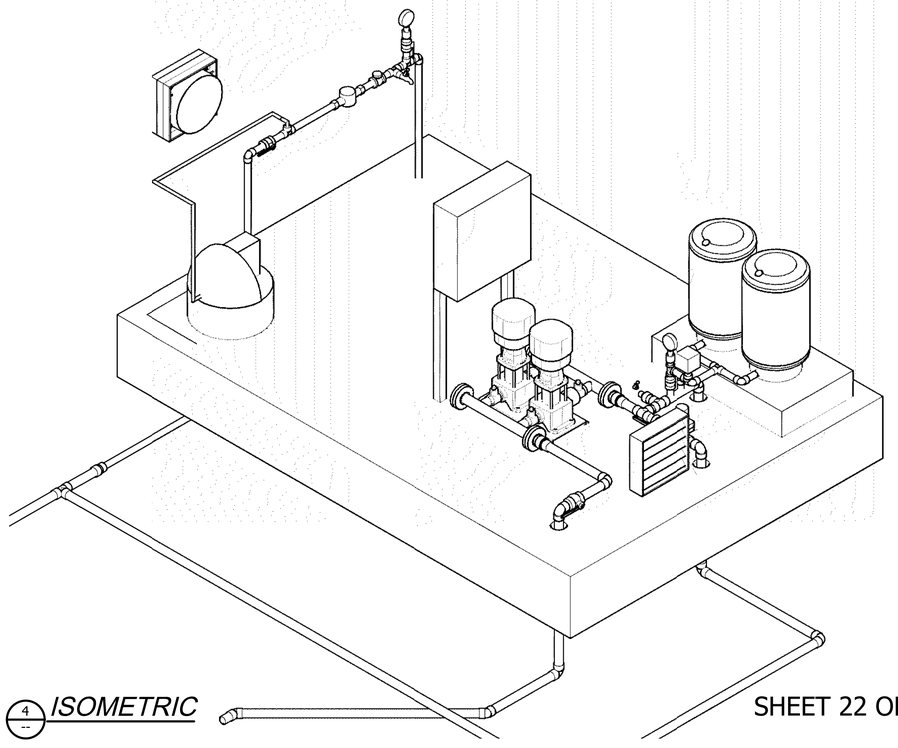


3 -- ISOMETRIC



4 -- ISOMETRIC

SHEET 22 OF 41

CAD NO. W090-D4003-C11-D4002-C11-2023-##-###

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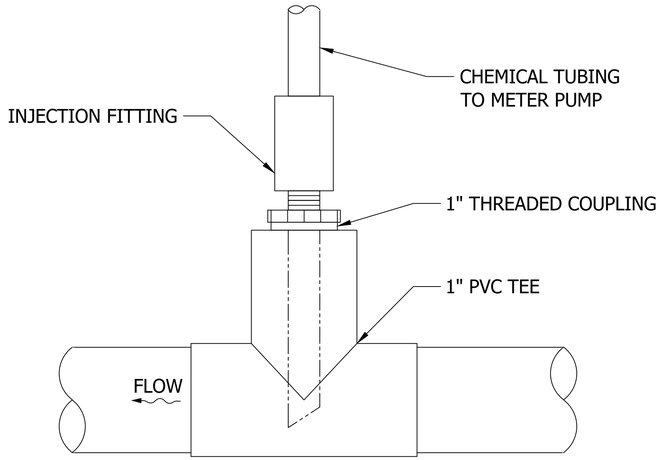
WATER SYSTEM REPLACEMENT

TREATMENT BUILDING MECHANICAL PERSPECTIVE

M403

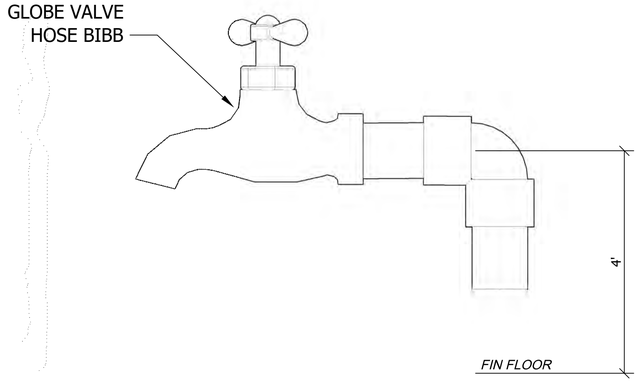
SCALE
AS SHOWN

PARKS FILE#



NOTE: DETAIL SHOWN FOR CLARITY.
CONTRACTOR TO CONFIRM REQUIRED
INJECTION FITTING CONNECTION WITH
MANUFACTURER.

CHEMICAL INJECTOR DETAIL



SAMPLE TAP DETAIL

SHEET 23 OF 42

CAD NO. W090-D4003-C11-D4002-C11-2023-##-###

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WALLACE FALLS STATE PARK

WATER SYSTEM REPLACEMENT

TREATMENT BUILDING MECHANICAL DETAILS

M404

SCALE
AS SHOWN

PARKS FILE#

ABBREVIATIONS

a	CIRCUIT BREAKER AUX. CONTACT, CLOSED WHEN BREAKER IS CLOSED AMMETER,
A	AMPERES
AC	ALTERNATING CURRENT
A/D	ANALOG TO DIGITAL
AF	AMPERE FRAME
AIC	AMPERES INTERRUPTING CAPACITY
ALT	ALTERNATOR
A/M	AUTO/MANUAL CONTROLLER
ANN	ANNUNCIATOR
AS	AMMETER SWITCH
ASD	ADJUSTABLE SPEED DRIVE
AT	AMPERE TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AWG	AMERICAN WIRE GAGE
b	CIRCUIT BREAKER
	AUX. CONTACT, CLOSED WHEN BREAKER IS OPEN
BCG	BARE COPPER GROUND
C	CONDUIT, CONTACTOR
CAP	CAPACITOR
CB	CIRCUIT BREAKER
CC	CONTROL CABLE, CLOSING COIL
CHH	COMMUNICATION HANDHOLE
CL	CHLORINE
CKT	CIRCUIT
CMH	COMMUNICATION MANHOLE
CO	CONDUIT ONLY
COMM	COMMUNICATION
CON	CONTACTOR
COND	CONDUCTOR
CONT	CONTINUED, CONTINUATION
CPT	CONTROL POWER TRANSFORMER
CP	CONTROL PANEL
CR	CONTROL RELAY
CS	CONTROL SWITCH
CT	CURRENT TRANSFORMER
CWP	COLD WATER PIPE
DC	DIRECT CURRENT
DIAG	DIAGRAM
DISC	DISCONNECT
DISTR	DISTRIBUTION
DP	DISTRIBUTION PANEL
DPDT	DOUBLE POLE, DOUBLE THROW
DPST	DOUBLE POLE, SINGLE THROW
EXST	EXISTING
EF	EXHAUST FAN
EHH	ELECTRICAL HANDHOLE
ELEM	ELEMENTARY
EMERG	EMERGENCY
EFFL	EFFLUENT
EQ	EQUAL
EQUIP	EQUIPMENT
ETM	ELAPSED TIME METER
FACP	FIRE ALARM CONTROL PANEL
FIN FL	FINISHED FLOOR
FLEX	FLEXIBLE
FLUOR	FLUORESCENT
FO	FIBER OPTIC
FREQ	FREQUENCY
FU	FUSE
FUT	FUTURE
FVNR	FULL VOLTAGE, NON REVERSING
FVR	FULL VOLTAGE, REVERSING
FWD	FORWARD
GA	GAUGE
GEN	GENERATOR
GFI	GROUND FAULT INTERRUPTER
GRS	GALVANIZED RIGID STEEL
H_2O_2	HYDROGEN PEROXIDE
HMI	HUMAN MACHINE INTERFACE
HOA	HAND-OFF-AUTOMATIC
HOR	HAND-OFF-REMOTE
HORZ	HORIZONTAL
HPS	HIGH PRESSURE SODIUM
HTR	HEATER
HV	HIGH VOLTAGE
HZ	HERTZ (CYCLES PER SECOND)
IND LT	INDICATING LIGHT
INCAND	INCANDESCENT
I/O	INPUT/OUTPUT
JB	JUNCTION BOX
KA	KILOAMPERES
KCMIL	THOUSANDS OF CIRCULAR MILS
KV	KILOVOLTS
KVA	KILOVOLT AMPERES
KVAR	KILOVOLT AMPERES REACTIVE
KVARH	KILOVOLT AMPERES REACTIVE HOURS
KW	KILOWATTS
KWH	KILOWATT HOURS
LCP	LIGHTING CONTROL PANEL
LP	LIGHTING PANEL
LPS	LOW PRESSURE SODIUM
LTG	LIGHTING
LT(S)	LIGHT(S)
(M)	MODIFIED
Ma	MILLIAMPERES
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MOV	MOTOR OPERATED VALVE
MS	MOTOR STARTER
MTD	MOUNTED
MTG	MOUNTING
MTS	MANUAL TRANSFER SWITCH
(N)	NEW
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURER'S ASSOC.
NEUT	NEUTRAL
NO	NORMALLY OPEN
NTS	NUMBER NOT TO SCALE
OVHD	OVERHEAD
OL	THERMAL OVERLOAD RELAY
OT	OVER TEMPERATURE
PB	PULLBOX, PUSHBUTTON
PD	POSITIVE DISPLACEMENT
PE	PHOTOELECTRIC
PEC	PHOTOELECTRIC CELL
PF	POWER FACTOR
pH	MEASURE OF ACIDITY OR ALKALINITY
PH	PHASE
PLC	PROGRAMMABLE LOGIC CONTROLLER
PM	POWER MONITOR
PNL	PANEL
PNLBD	PANELBOARD
PRI	PRIMARY
PS	PRESSURE SWITCH
PSI	POUNDS PER SQUARE INCH
PWR	POWER
(RL)	RELOCATE
(RLD)	RELOCATED
RCPT	RECEPTACLE
RCT	REPEAT CYCLE TIMER
RPM	REVOLUTIONS PER MINUTE
RT	RESET TIMER
SCR	SILICON CONTROLLED RECTIFIER
SD	SMOKE DETECTOR
SDBC	SOFT-DRAWN BARE COPPER
SEC	SECONDS, SECONDARY
SECT	SECTION
SF	SUPPLY FAN
SHH	SIGNAL HANDHOLE
SIG	SIGNAL
SN	SOLID NEUTRAL
SPEC	SPECIFICATIONS
SPD	SURGE PROTECTIVE DEVICE
SPDT	SINGLE POLE, DOUBLE THROW
SS	STAINLESS STEEL, SOLID STATE
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
SYNC	SYNCHRONIZING
TB	TERMINAL BOX, TERMINAL BOARD
TC	TELEPHONE CABINET
TEMP	TEMPERATURE
TP	TWISTED PAIR UNSHIELDED
TSP	TWISTED SHIELDED PAIR
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
UH	UNIT HEATER
UV	ULTRA VIOLET
V	VOLTS
VA	VOLT-AMPERES
VFD	VARIABLE FREQUENCY DRIVE
VAR	VOLT AMPERES REACTIVE
VERT	VERTICAL
VH	VAR-HOUR
VS	VOLTMETER SWITCH
W	WIRE, WATTS
WHM	WATTHOUR METER
WHDM	WATTHOUR DEMAND METER
WP	WEATHERPROOF
WTRT	WATERTIGHT
WTP	WATER TREATMENT PLANT

GENERAL NOTES:

1. ALL MATERIALS AND INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE LATEST NATIONAL ELECTRICAL CODE. ALL MATERIALS SHALL BE NEW AND LISTED BY THE UNDERWRITERS' LABORATORY INC. (UL). ALL ELECTRICAL WORK SHALL BE INSTALLED IN A SAFE AND FUNCTIONAL MANNER.
2. REFER TO THE ELECTRICAL CIRCUIT SCHEDULE FOR CIRCUIT IDENTIFICATIONS, ROUTING, CONDUCTOR SIZES, ETC.
3. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH OTHER DISCIPLINES AS REQUIRED TO MITIGATE INTERFERENCES.
4. CONDUIT MATERIAL SHOWN ON ELECTRICAL PLANS ARE SPECIFIC FOR THE LOCATION WHERE THE CONDUIT STARTS. CONTRACTOR IS RESPONSIBLE FOR TRANSITIONING TO APPROVED CONDUIT MATERIAL BASED ON LOCATION AND IN ACCORDANCE TO ELECTRICAL SPECIFICATIONS.

LIGHTING PLAN SYMBOLS

- SURFACE MOUNTED LED LUMINAIRE *
- RECESSED MOUNTED LED LUMINAIRE *
- WALL MOUNTED LED LUMINAIRE
- BATTERY BACKED WALL MOUNTED LED LUMINAIRE
- $ $3 — WALL SWITCH STANDARD TOGGLE, DESIGNATOR
  3 = 3-WAY
  D = DIMMER
  T = TIMER
- GFI — DUPLEX, QUADPLEX RECEPTACLE, W/DESIGNATOR
  GFI = GROUND FAULT INTERRUPTING
  WP = WEATHERPROOF
  +48 = HEIGHT AFF.
- EXIT SIGN - WALL MOUNTED
- EXIT SIGN - 2 SIDED CEILING MOUNTED
- PC — PHOTOCELL
- M — MOTION SENSOR
- FLOOD LIGHT

GENERAL SYMBOLS

- 1 — DRAWING NOTE
- P1 — ELECTRICAL CIRCUIT IDENTIFICATION
- P1 P2 / C1 C2 — MULTIPLE ELECTRICAL CIRCUITS, SEPARATE CONDUITS
- 1"C — P1 P2 / P3 P4 — MULTIPLE ELECTRICAL CIRCUITS, COMMON CONDUIT (SIZE SHOWN)

NOTE: NOT ALL SYMBOLS OR ABBREVIATIONS USED.

CONTROL DIAGRAM SYMBOLS

- PANEL WIRING
- FIELD WIRING
- TWISTED SHIELDED PAIR
- SHIELD WIRING
- CONNECTING LINES
- NON-CONNECTING LINES
- 5A — FUSE, SIZE SHOWN
- THERMAL MAGNETIC CIRCUIT BREAKER
- 30AC 150AT — MAGNETIC ONLY CIRCUIT BREAKER (MOTOR CIRCUITS ONLY) CONTINUOUS CURRENT RATING AND TRIP SETTINGS SHOWN
- XXA XXX — FUSED TERMINAL BLOCK FUSE SIZE SHOWN
- CONTROL PANEL TERMINAL BLOCK
- COMPONENT TERMINAL BLOCK
- RECEPTACLE
- VARIABLE FREQUENCY DRIVE
- 2 — MOTOR STARTER, SIZE SHOWN
- SPD — SURGE PROTECTIVE DEVICE
- CURRENT TRANSFORMER
- AUTOMATIC TRANSFER SWITCH
- DOUBLE THROW SWITCH
- GROUND CONNECTION PER NEC ARTICLE 250
- CR — 120V CONTROL RELAY, DPDT MINIMUM
- CR — 24VDC CONTROL RELAY, DPDT MINIMUM
- RELAY CONTACT - NO, NC
- PUSHBUTTON OR SWITCH CONTACT BLOCK - NO, NC
- OFF / HAND / AUTO — THREE POSITION SWITCH
- ON / OFF — TWO POSITION SWITCH
- R R — PUSH-TO-TEST LED PILOT LIGHT
- FLOAT SWITCH - NO, NC
- TEMPERATURE SWITCH - NO, NC
- LIMIT SWITCH - NO, NC
- TIME DELAY CONTACTS, NORMALLY OPEN TIMED CLOSED NORMALLY CLOSED TIMED OPEN

ELECTRICAL PLAN SYMBOLS

- M — METERBASE W/UTILITY METER
- DISCONNECT RECEPTACLE AND PLUG
- HP — MOTOR CONNECTION, HORSEPOWER INDICATED
- J — JUNCTION BOX
- J 20A 30A — DISCONNECT SWITCH, AMPERAGE RATING SHOWN
- F J 60/40 — FUSED DISCONNECT SWITCH, SWITCH AND FUSE RATING SHOWN
  60/40 = 60A SWITCH WITH 40A FUSE
- WIFI ACCESS POINT
- T — TRANSFORMER
- T — THERMOSTAT
- V — VAULT
- SPD — SURGE PROTECTIVE DEVICE
- PMR — PHASE MONITOR RELAY
- SINGLE POINT GROUND
- EOL - END OF LINE RESISTOR
- CONDUIT UP
- CONDUIT DOWN
- CONDUIT UP FROM UNDERGROUND RACEWAY
- CONDUIT STUB
- FLEXIBLE CONDUIT OR MFR CONDUIT
- SURFACE RACEWAY
- UNDERGROUND RACEWAY
- XXX — HOME RUN, ELECTRICAL PANEL DESTINATION SHOWN
- CONDUIT SEAL
- CURRENT TRANSFORMER
- LINE OR LOAD REACTOR, IMPEDENCE SHOWN
- STANDBY GENERATOR

Industrial Systems INC
12119 NE 99th Street
Suite #2090
Vancouver, Washington 98682
Phone: (360) 718-7267
Fax: (360) 952-8958
e-mail: is@industrialsystems-inc.com
OR CCB #196597 WA #INDUSSI880K9
AK #1018436
PROJECT#: 22.37.01

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DRAWN	AAB	3/27/23
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EL EZRA W. MSU
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JULY 2023
57964
REGISTERED PROFESSIONAL ENGINEER

REGISTERED STAMP

WASHINGTON STATE PARKS AND RECREATION COMMISSION

WALLACE FALLS STATE PARK

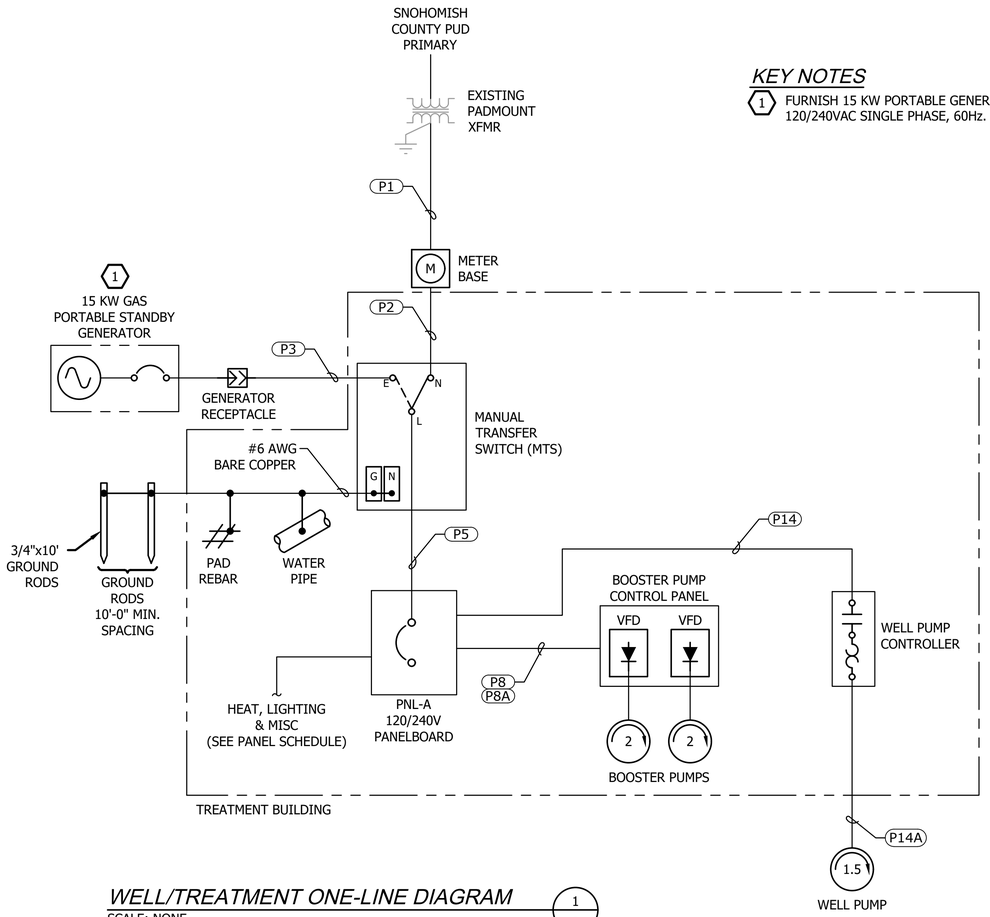
WATER SYSTEM REPLACEMENT

ELECTRICAL NOTES, SYMBOLS AND LEGEND

E400

SCALE
AS SHOWN

PARKS FILE#



WELL/TREATMENT ONE-LINE DIAGRAM

1

SCALE: NONE

KEY NOTES

1. FURNISH 15 KW PORTABLE GENERATOR, 120/240VAC SINGLE PHASE, 60Hz.

PANEL: PNL-A	VOLTAGE: 240/120, 1PH, 3WIRE	MOUNTING: SURFACE
LOCATION: TREATMENT/BOOSTER BLDG	BUS: 100A COPPER	AIC: 10,000
FEEDER: MAIN BREAKER	MAIN: 100A	

CKT NO	CIRCUIT DESCRIPTION	BREAKER POLES	BREAKER AMPS	VA	PHASE	LOAD VA	BREAKER POLES	BREAKER AMPS	CIRCUIT DESCRIPTION	CKT NO
1	INTERIOR LIGHTING	1	20	50	A	40	1	20	EXTERIOR LIGHTING	2
3	CONTROL PANEL	1	20	500	B	2900	2	30	BOOSTER PUMP SKID, PUMP PWR	4
5	CONVENIENCE RECEPTACLE	1	20	180	A	2900	-	-		6
7	CHEMICAL PUMP RECEPTACLE	1	15	205	B	200	1	20	BOOSTER PUMP SKID, CONTROL PWR	8
9	WELL PUMP	1	20	1200	A	200	1	20	EXHAUST FAN	10
11	SPARE	1	20		B	2500	2	20	UNIT HEATER	12
13	SPARE	1	20		A	2500	-	-	-	14
15	SPARE	1	15		B					16
17					A					18
19					B					20
21					A					22
23					B					24

LOAD PER PHASE

PHASE A	7.1	KVA
PHASE B	6.3	KVA
TOTAL LOAD	13.4	KVA
TOTAL AMPS	56	AMPS

PNL-A PANEL SCHEDULE

2

SCALE: NONE

CONDUCTOR SIZES ARE BASED ON COPPER CONDUCTORS.
MULTIPLE CIRCUITS RUN IN COMMON CONDUITS ARE SHOWN ON PLANS AND SUPERSEDE THE BASIC CONDUIT SIZE SHOWN.

RACEWAY SIZES ARE IN INCHES WITH QUANTITIES IN EXCESS OF (1) SHOWN IN ADJACENT PARENTHESIS.
P = POWER CONDUCTORS; G = GROUND CONDUCTORS; N = FOR NEUTRAL CONDUCTORS; C = CONTROL CONDUCTORS;
SP = SPARE CONDUCTORS; TSP = TWISTED SHIELDED PAIR.

CIRCUIT NUMBER	FROM	TO	CONDUCTORS	RACEWAY	NOTES
P1	PUD TRANSFORMER (EXISTING)	METER BASE	(2) 3 AWG, P (1) 3 AWG, N (1) 6 AWG, G	2"	COORDINATE WITH PUD
P2	METER BASE	MANUAL TRANSFER SWITCH (MTS)	(2) 3 AWG, P (1) 3 AWG, N (1) 6 AWG, G	1.25"	
P3	MANUAL TRANSFER SWITCH (MTS)	GENERATOR RECEPTACLE	(2) 3 AWG, P (1) 3 AWG, N (1) 6 AWG, G	1"	
P4	MANUAL TRANSFER SWITCH (MTS)	PNL-A	(2) 3 AWG, P (1) 3 AWG, N (1) 6 AWG, G	1"	
P5	PNL-A	INTERIOR BUILDING LIGHTING	(1) 12 AWG, P (1) 12 AWG, N (1) 12 AWG, G	3/4"	
P6	PNL-A	EXTERIOR BUILDING LIGHTING	(1) 12 AWG, P (1) 12 AWG, N (1) 12 AWG, G	3/4"	
P7	PNL-A	CONTROL PANEL	(1) 12 AWG, P (1) 12 AWG, N (1) 12 AWG, G	3/4"	
P8	PNL-A	BOOSTER PUMP SKID	(2) 10 AWG, P (1) 10 AWG, G	3/4"	PUMP POWER
P8A	PNL-A	BOOSTER PUMP SKID	(1) 12 AWG, P (1) 12 AWG, N (1) 12 AWG, G	3/4"	SKID CONTROL POWER
P9	PNL-A	BUILDING CONVENIENCE RECEPTACLE	(1) 12 AWG, P (1) 12 AWG, N (1) 12 AWG, G	3/4"	
P10	PNL-A	CHEMICAL PUMP RECEPTACLE	(1) 12 AWG, P (1) 12 AWG, N (1) 12 AWG, G	3/4"	
P11	PNL-A	FLOW TRANSMITTER	(1) 12 AWG, P (1) 12 AWG, N (1) 12 AWG, G	3/4"	
P12	PNL-A	BUILDING EXHAUST FAN	(1) 12 AWG, P (1) 12 AWG, N (1) 12 AWG, G	3/4"	
P13	PNL-A	BUILDING UNIT HEATER	(2) 10 AWG, P (1) 10 AWG, G	3/4"	
P14	PNL-A	WELL PUMP CONTROL BOX	(1) 12 AWG, P (1) 12 AWG, N (1) 12 AWG, G	3/4"	
P14A	WELL PUMP CONTROL BOX	WELL PUMP	(1) 12 AWG, P (1) 12 AWG, N (1) 12 AWG, G	1"	INCREASE WIRE SIZE FOR ALTERNATE WELL LOCATION.
C1	CONTROL PANEL	WELL LEVEL TRANSDUCER JUNCTION BOX	(1) 18 AWG, TSP		
C2	CONTROL PANEL	WELL INTRUSION SWITCH	(2) 14 AWG, C (1) 14 AWG, G		
C3	CONTROL PANEL	WELL FLOW TRANSMITTER	(1) 18 AWG, TSP (2) 14 AWG, C (1) 14 AWG, G	3/4"	
C4	CONTROL PANEL	SYSTEM PRESSURE TRANSMITTER	(1) 18 AWG, TSP	3/4"	
C5	CONTROL PANEL	TANK LSLL LEVEL FLOAT	(2) 14 AWG, C (1) 14 AWG, G	3/4"	
C6	CONTROL PANEL	TANK LSL LEVEL FLOAT	(2) 14 AWG, C (1) 14 AWG, G	3/4"	
C7	CONTROL PANEL	TANK LSH LEVEL FLOAT	(2) 14 AWG, C (1) 14 AWG, G	3/4"	
C8	CONTROL PANEL	TANK LSHH LEVEL FLOAT	(2) 14 AWG, C (1) 14 AWG, G	3/4"	
C9	CONTROL PANEL	BUILDING INTRUSION SWITCH	(2) 14 AWG, C (1) 14 AWG, G	3/4"	
C10	CONTROL PANEL	BOOSTER SKID PANEL	(6) 14 AWG, C (1) 18 AWG, TSP (4) 14 AWG, SP	1"	
C11	CONTROL PANEL	WELL PUMP CONTROL BOX	(4) 14 AWG, C (1) 14 AWG, G	3/4"	RUN COMMAND; RUN CONFIRM
C12	CONTROL PANEL	AUTODIALER (IN OFFICE BLDG)	(9) 14 AWG, C (5) 14 AWG, SP (1) 14 AWG, G	2"	
C13	CONTROL PANEL	CHEMICAL METERING PUMP	(2) 14 AWG, C (1) 18 AWG, TSP (1) 14 AWG, G	1"	
C14	CONTROL PANEL	BUILDING FLOOD SWITCH	(2) 14 AWG, C (1) 14 AWG, G	3/4"	
C15	CONTROL PANEL	SMOKE DETECTOR	(4) 14 AWG, C (1) 14 AWG, G	3/4"	24VDC AND CONTROL
N1	CONTROL PANEL	OFFICE BUILDING	CAT 6	1"	

CIRCUIT SCHEDULE

3

SCALE: NONE

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AK #1018436
PROJECT#: 22.37.01

CAD NO. W090-D4003-C11-D4002-C11-2023-X-E401

NO.	REVISIONS	INT.	APP.	DATE

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DESIGNED	MEW	3/27/23
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REGISTERED STAMP

WASHINGTON STATE PARKS AND RECREATION COMMISSION

WALLACE FALLS STATE PARK

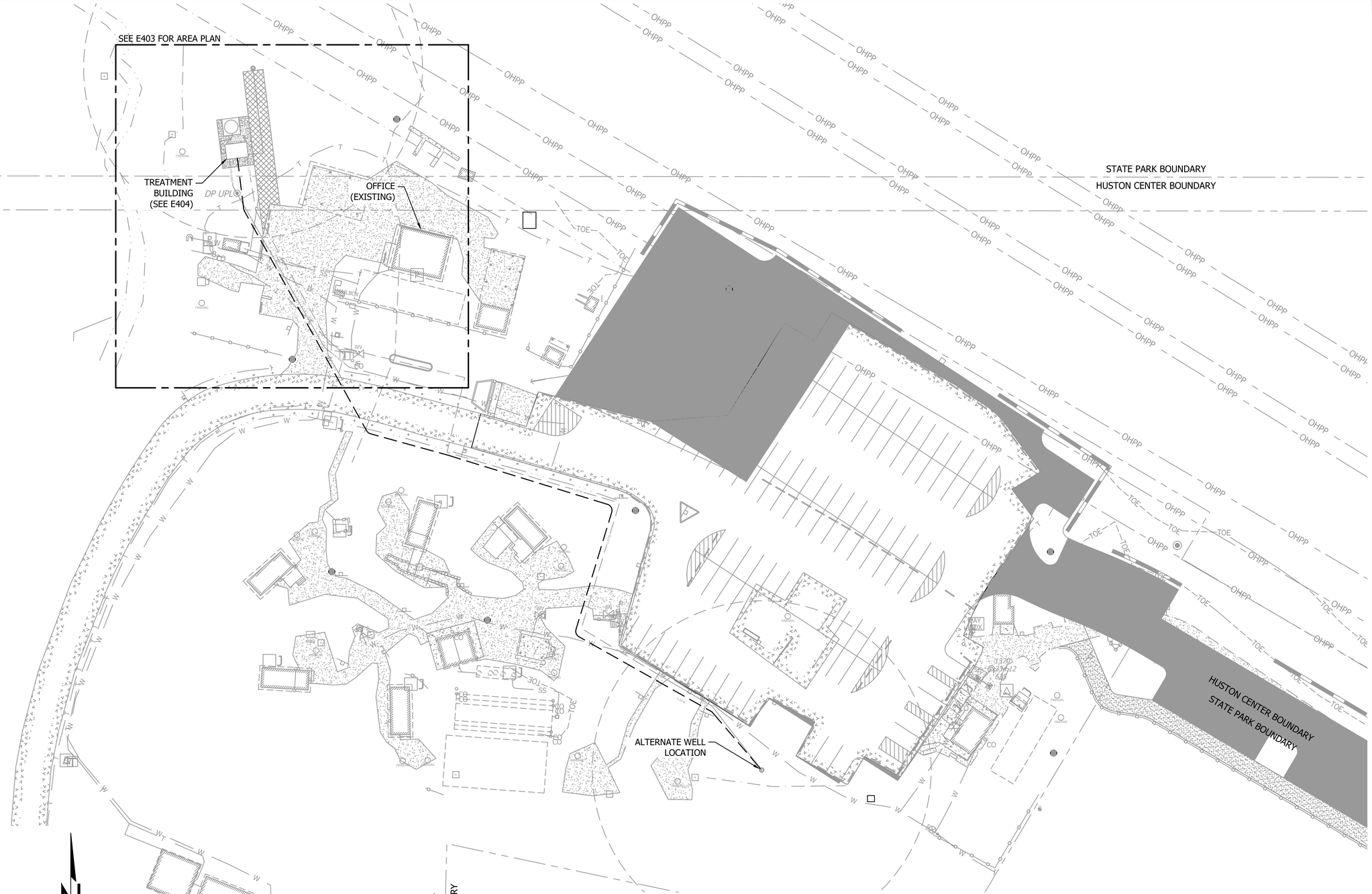
WATER SYSTEM REPLACEMENT

ELECTRICAL ONE-LINE DIAGRAM & SCHEDULES

E401

SCALE
AS SHOWN

PARKS FILE#



STATE PARK BOUNDARY
HUSTON CENTER BOUNDARY

ELECTRICAL SITE PLAN

CAD NO. W090-D4003-C11-D4002-C11-2023-X-E402

NO.	REVISIONS	INT.	APP.	DATE

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WALLACE FALLS STATE PARK

WATER SYSTEM REPLACEMENT

ELECTRICAL SITE PLAN

E402

SCALE
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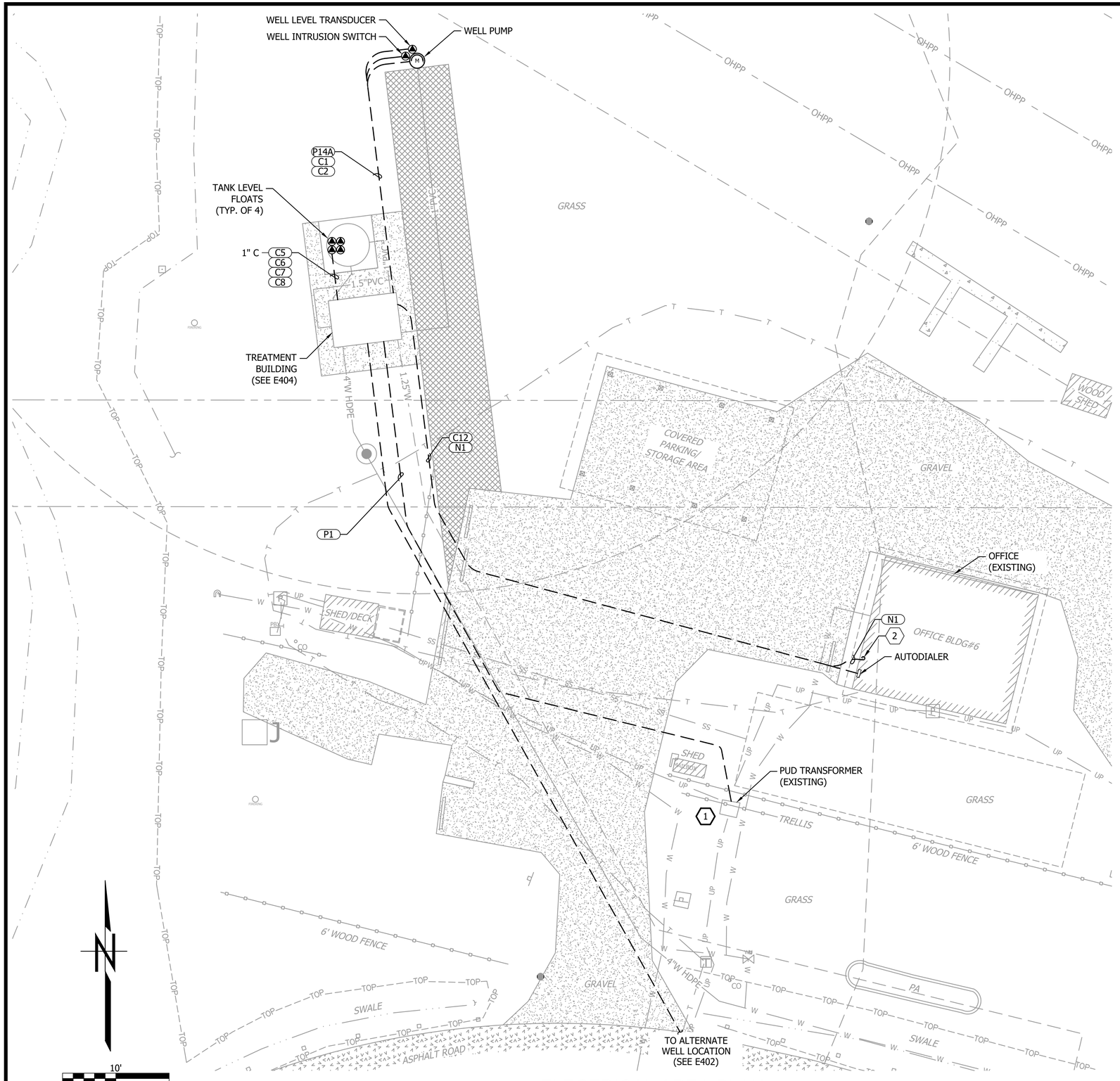

KEY NOTES

1. CONTRACTOR SHALL RUN CONDUIT AND WIRE UP TO EXISTING PUD TRANSFORMER. COORDINATE CONNECTION WITH PUD.
2. CAT6 CABLE SHALL HAVE MINIMUM OF 15 EXTRA FEET TO ALLOW FOR FUTURE CONNECTION IN OFFICE BUILDING. COIL UP ADDITIONAL CABLE IN OFFICE BUILDING.

ELECTRICAL AREA PLAN

SHEET 27 OF 41

CAD NO. W090-D4003-C11-D4002-C11-2023-X-E403

NO.	REVISIONS	INT.	APP.	DATE

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WATER SYSTEM REPLACEMENT

ELECTRICAL AREA PLAN

E403

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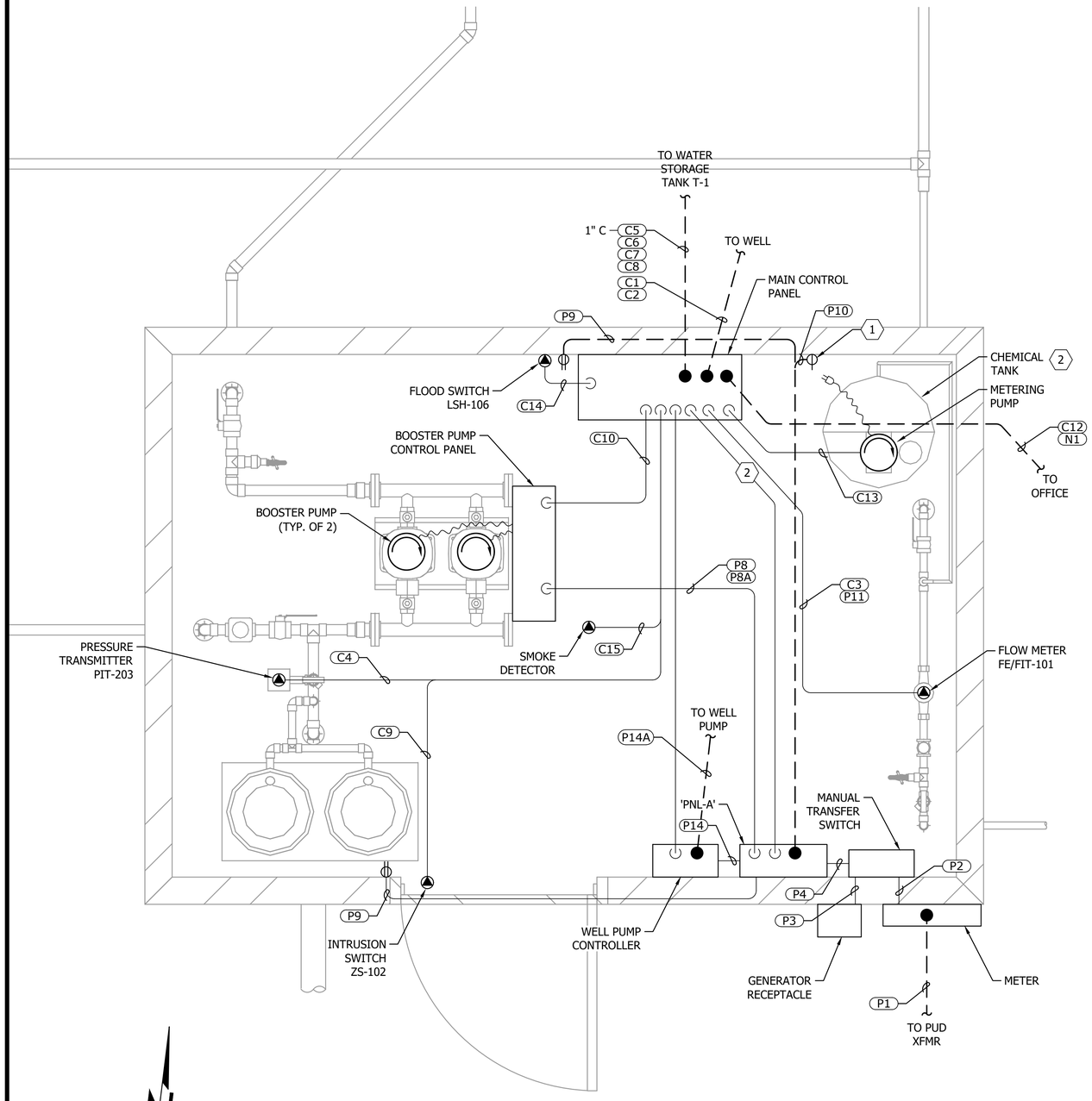

1'
0
2'

ELECTRICAL BUILDING PLAN

KEY NOTES

1. DEDICATED SIMPLEX RECEPTACLES FOR CHEMICAL EQUIPMENT.
2. ALL CONDUITS WITHIN 5 FT OF METERING PUMP AND CHEMICAL TANK SHALL BE PGRS.

CAD NO. W090-D4003-C11-D4002-C11-2023-X-E404

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WATER SYSTEM REPLACEMENT

TREATMENT BUILDING ELECTRICAL PLAN

E404

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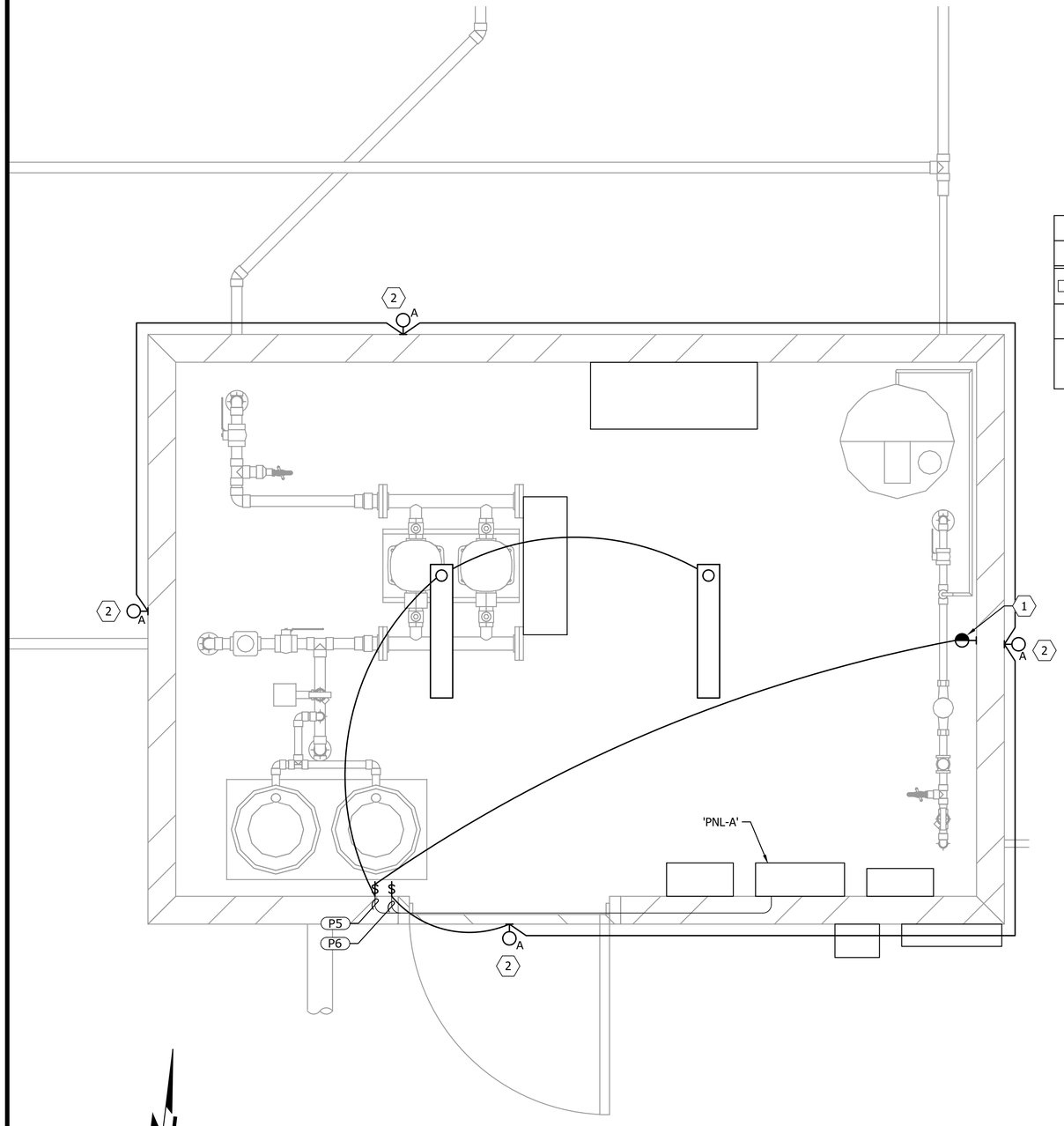

KEY NOTES

1. ROUTE UN-SWITCHED POWER CIRCUIT TO BATTERY BACKED LUMINAIRE.
2. EXTERIOR LIGHTS SHALL INCLUDE MOTION SENSOR AND PHTOCELL CONTROLS.

LUMINAIRE SCHEDULE

DEVICE/LOCATION/USE	DESCRIPTION	VOLTS	WATTS	SUGGESTED MANUFACTURER & CATALOG NUMBER
BUILDING INTERIOR LIGHT	4064 LUMEN LED LUMINAIRE FEM SERIES 48"	120V	23.8	LITHONIA FEM L48 4000LM IMAFL MD MVOLT GZ10 40K 80CRI OR EQUAL
WALL MOUNT LUMINAIRE LED TYPE INTERIOR/EXTERIOR	640 LUMEN LED LUMINAIRE FOR EMERGENCY LIGHTING	120V	3.15	LITHONIA ELM4L LED OR EQUAL
A WALL MOUNT LUMINAIRE LED TYPE INTERIOR/EXTERIOR	WDGE2 LED WITH P1 - PERFORMANCE PACKAGE, 4000K, 80CRI, VISUAL COMFORT WIDE OPTIC, PHOTOCELL, MOTION SENSOR	120V	10	LITHONIA WDGE2 LED P1 40K 80CRI VW OR EQUAL W/PHOTOCELL AND MOTION CONTROL OPTIONS

N

1'
0 2'

LIGHTING PLAN

CAD NO. W090-D4003-C11-D4002-C11-2023-X-E405

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WALLACE FALLS STATE PARK

WATER SYSTEM REPLACEMENT

TREATMENT BUILDING LIGHTING PLAN

E405

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PROJECT#: 22.37.01

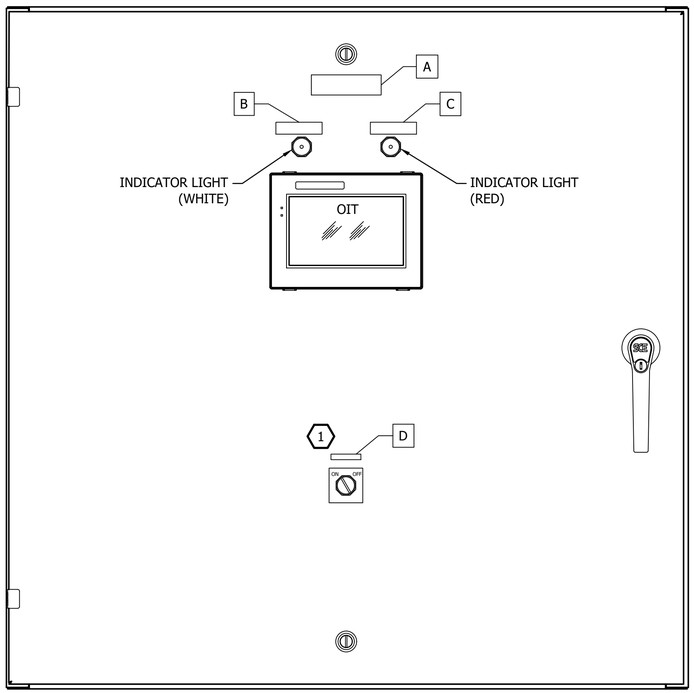
KEY NOTES

1. ON/OFF SWITCH FOR ACTIVATING BUILDING INTRUSION ALARM. DO NOT LABEL SWITCH OTHER THAN "ON/OFF".

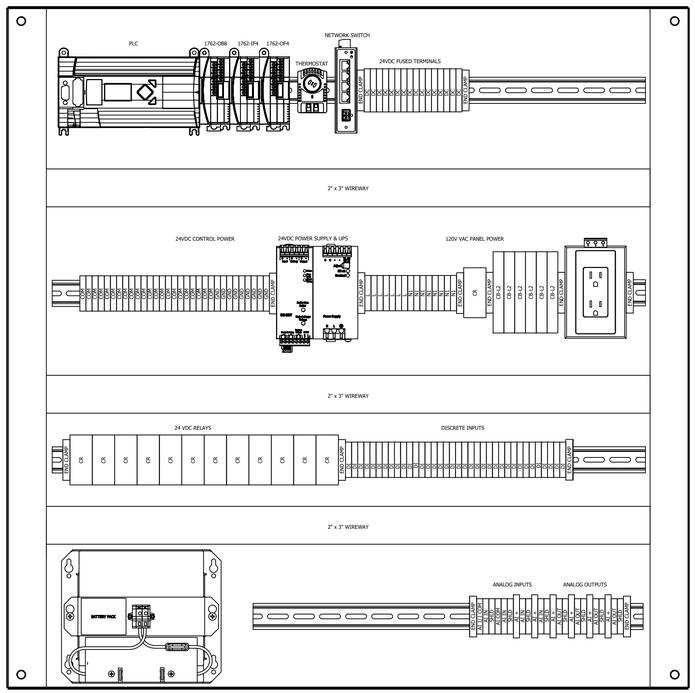
GENERAL NOTES:

1. PANEL LAYOUT IS CONCEPTUAL AND FINALIZED LAYOUT SHALL BE PROVIDED BY MANUFACTURER PER UL-508 REQUIREMENTS.
2. ENCLOSURE SHALL BE STAINLESS STEEL, NEMA 4, MINIMUM 36" X 36" X 10".

ITEM	NAMEPLATE SCHEDULE
A	MAIN CONTROL PANEL
B	AC POWER OK
C	GENERAL ALARM
D	ON/OFF



PANEL LAYOUT
SCALE: 3" = 1'-0"
1 / -



SUB-PANEL LAYOUT
SCALE: 3" = 1'-0"
2 / -

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CAD NO. W090-D4003-C11-D4002-C11-2023-X-E406

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WALLACE FALLS STATE PARK

WATER SYSTEM REPLACEMENT

WELL CONTROL PANEL LAYOUT

E406

SCALE
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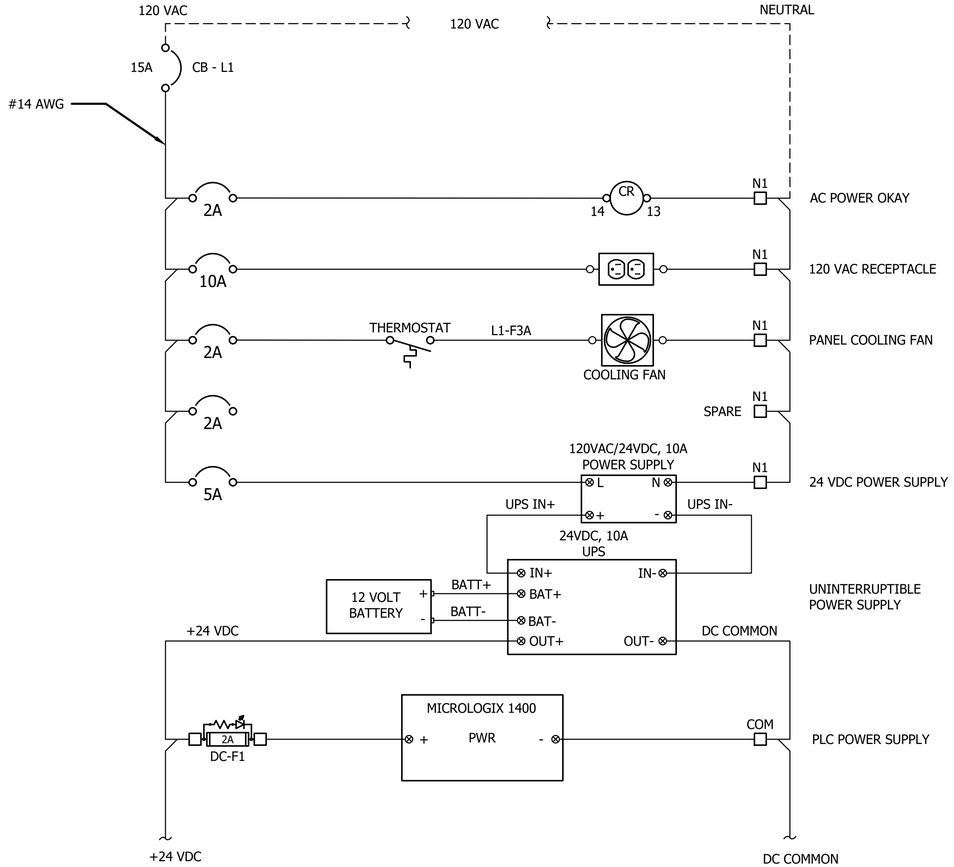
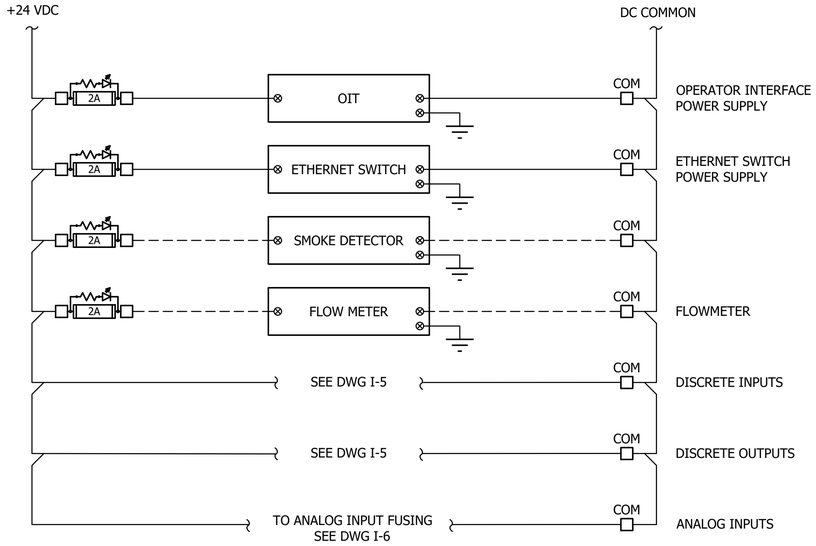
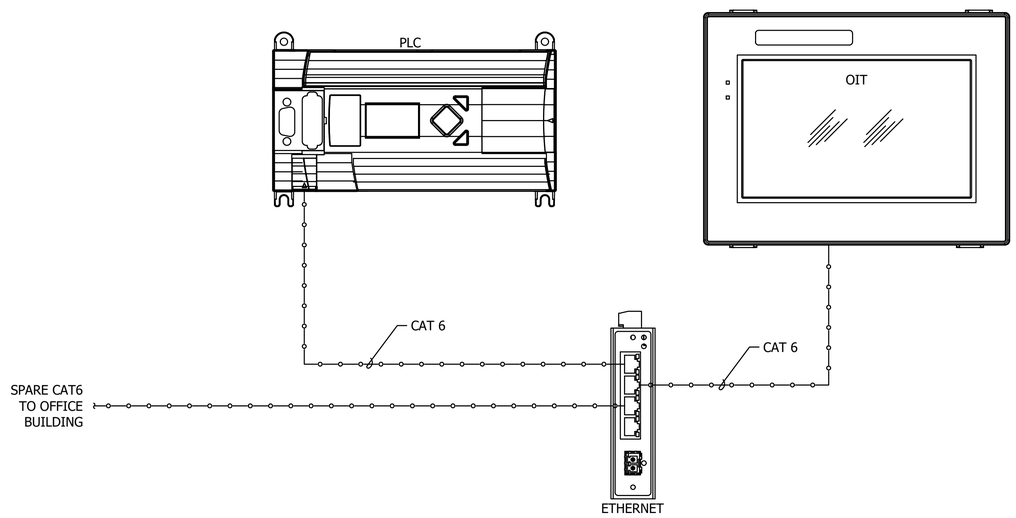
PARKS FILE#



POWER DISTRIBUTION DIAGRAM — 1

SCALE: NONE





NETWORK DIAGRAM — 2

SCALE: NONE

CAD NO. W090-D4003-C11-D4002-C11-2023-X-E407

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WALLACE FALLS STATE PARK

WATER SYSTEM REPLACEMENT

WELL CONTROL POWER DISTRIBUTION AND NETWORK DIAGRAM E407

SCALE
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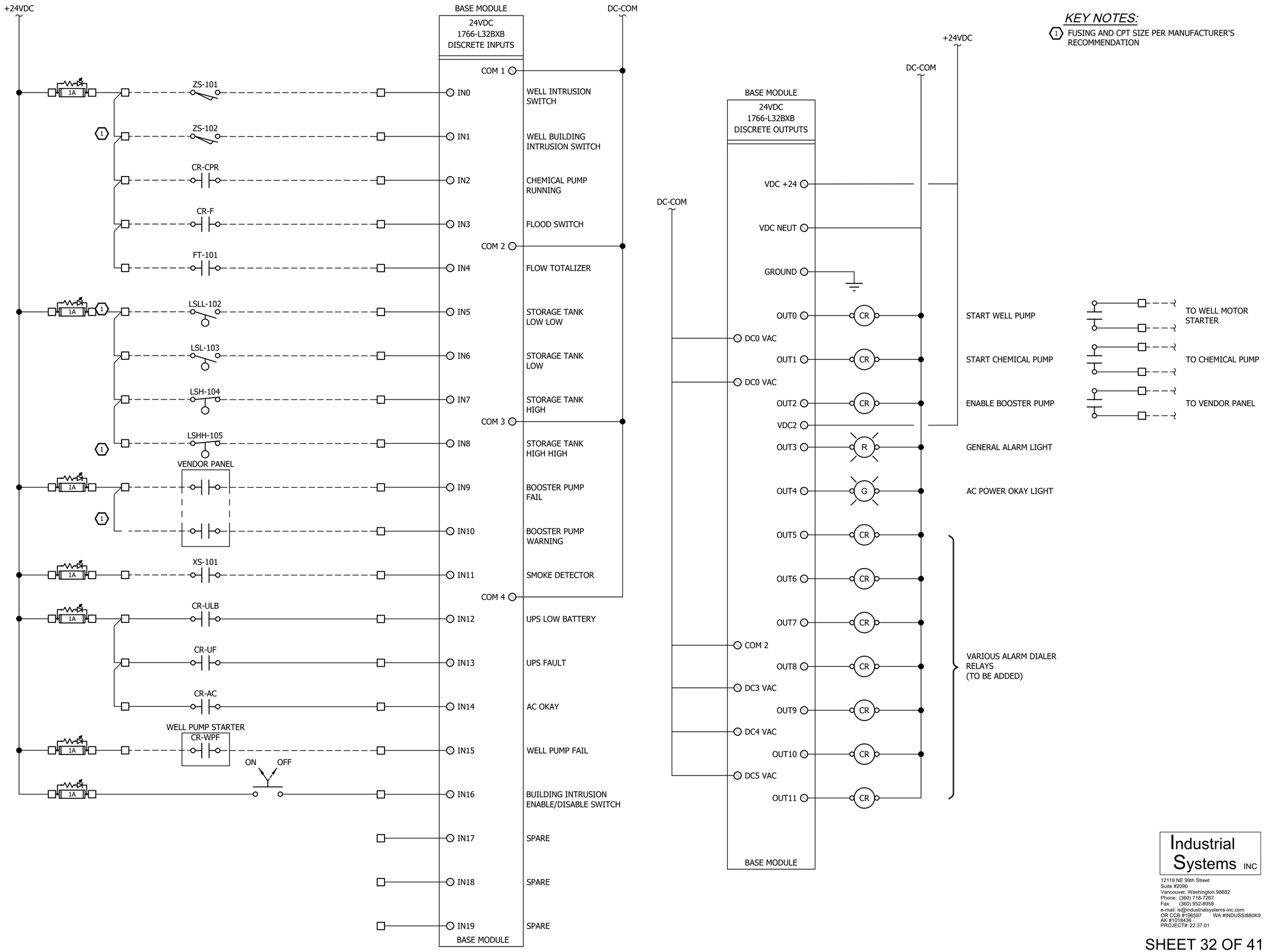

KEY NOTES:

1. FUSING AND CPT SIZE PER MANUFACTURER'S RECOMMENDATION

CAD NO. W090-D4003-C11-D4002-C11-2023-X-E408

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WALLACE FALLS STATE PARK

WATER SYSTEM REPLACEMENT

WELL CONTROL PANEL INPUT AND OUTPUT WIRING

E408

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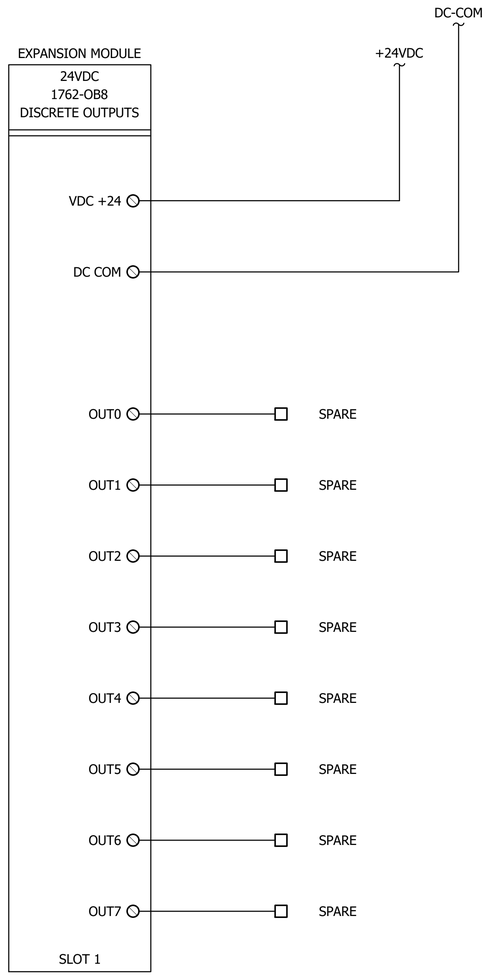

CAD NO. W090-D4003-C11-D4002-C11-2023-X-E409

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WALLACE FALLS STATE PARK

WATER SYSTEM REPLACEMENT

WELL CONTROL PANEL INPUT AND OUTPUT WIRING

E409

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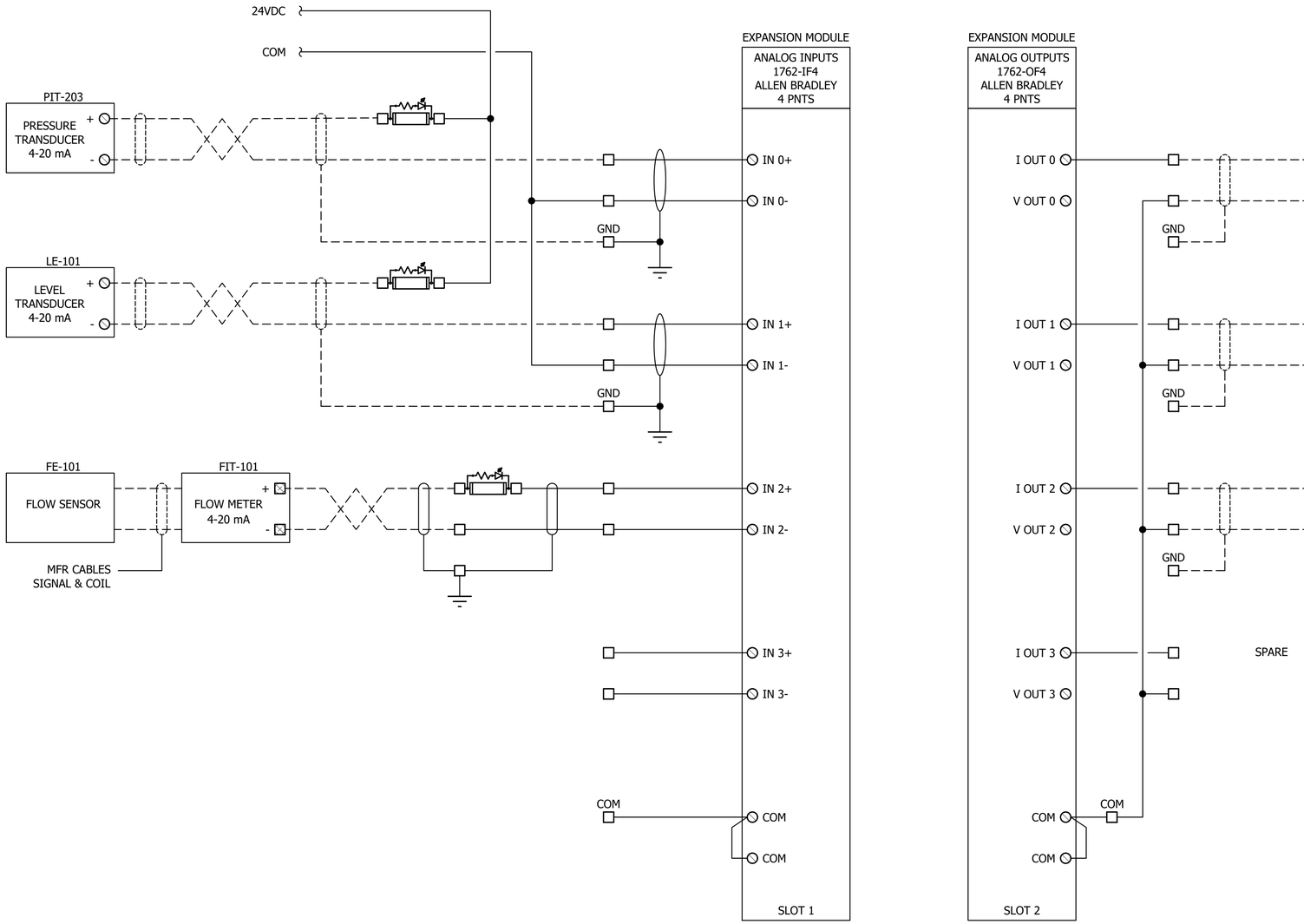

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WATER SYSTEM REPLACEMENT

WELL CONTROL PANEL INPUT AND OUTPUT WIRING

E410

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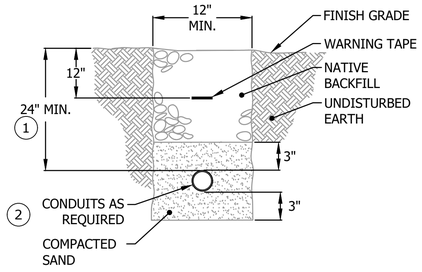
DETAIL NOTES

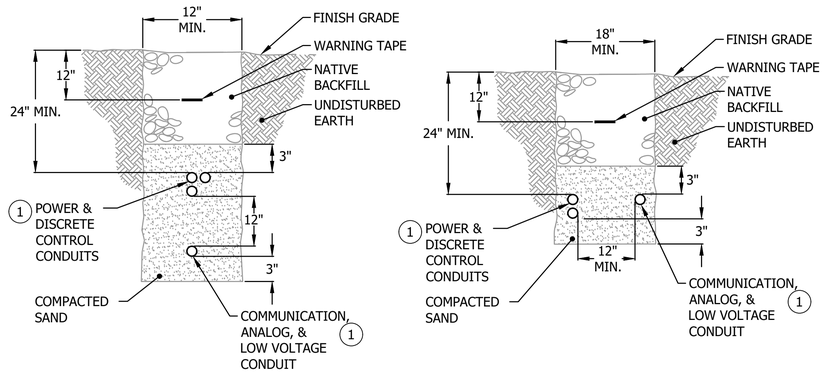
1. VERIFY TRENCH DEPTH AND COVERING FOR INCOMING SERVICE CONDUIT WITH LOCAL UTLITY.
2. COORDINATE WITH CIVIL DISCIPLINE FOR INTERSECTING PIPES.



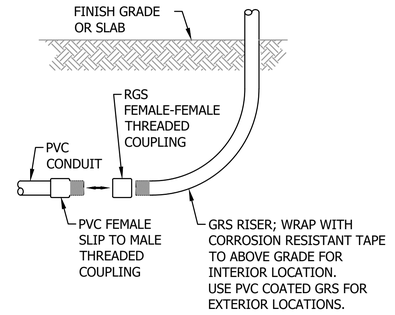
TYP. CONDUIT TRENCH 1
SCALE: NONE

DETAIL NOTES

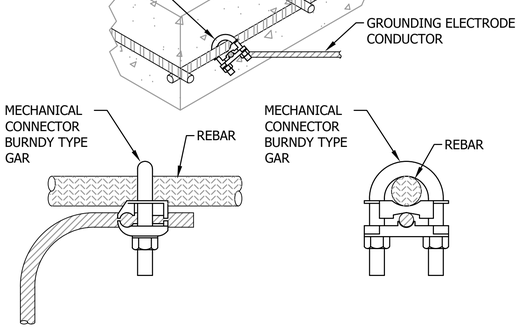
1. COORDINATE WITH CIVIL DISCIPLINE FOR INTERSECTING PIPES.



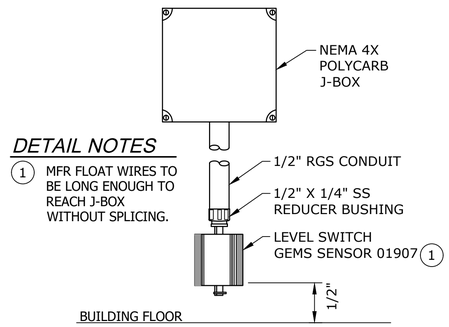
MIXED CONDUIT TRENCES 2
SCALE: NONE



CONDUIT TRANSITION 3
SCALE: NONE



REBAR GROUNDING 4
SCALE: NONE



DETAIL NOTES

1. MFR FLOAT WIRES TO BE LONG ENOUGH TO REACH J-BOX WITHOUT SPLICING.

FLOOD SWITCH DETAIL 5
SCALE: NONE

CAD NO. W090-D4003-C11-D4002-C11-2023-X-E411

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WALLACE FALLS STATE PARK

WATER SYSTEM REPLACEMENT

ELECTRICAL DETAILS

E411

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OR CCB #196597 WA #INDUSSI880K9
AK #1018436
PROJECT#: 22.37.01

GENERAL INSTRUMENT SYMBOLS

LOCATION/ACCESSIBILITY	DISCRETE INSTRUMENTS	SHARED DISPLAY AND CONTROL (DCS)	PLC	DISCRETE HARDWARE INTERLOCK
FIELD MOUNTED 1. FIELD OR LOCALLY MOUNTED. 2. ACCESSIBLE TO AN OPERATOR AT DEVICE.	○	▢	◇	◇
PRIMARY LOCATION NORMALLY ACCESSIBLE TO AN OPERATOR 1. CENTRAL OR MAIN CONTROL ROOM. 2. FRONT OF MAIN PANEL OR CONSOLE MOUNTED. 3. VISIBLE ON VIDEO DISPLAY. 4. ACCESSIBLE TO AN OPERATOR AT DEVICE OR CONSOLE.	○	▢	◇	
PRIMARY LOCATION NORMALLY INACCESSIBLE TO AN OPERATOR 1. CENTRAL OR MAIN CONTROL ROOM. 2. REAR OF PANEL OR CABINET MOUNTED. 3. NOT VISIBLE ON VIDEO DISPLAY. 4. NOT NORMALLY ACCESSIBLE TO AN OPERATOR AT DEVICE OR CONSOLE.	○	▢	◇	
AUXILIARY LOCATION NORMALLY ACCESSIBLE TO AN OPERATOR 1. SECONDARY OR LOCAL CONTROL ROOM. 2. FIELD OR LOCAL CONTROL PANEL. 3. FRONT OF SECONDARY OR LOCAL PANEL MOUNTED. 4. VISIBLE ON VIDEO DISPLAY. 5. ACCESSIBLE TO AN OPERATOR AT DEVICE OR CONSOLE.	○	▢	◇	
AUXILIARY LOCATION NORMALLY INACCESSIBLE TO AN OPERATOR 1. SECONDARY OR LOCAL CONTROL ROOM. 2. FIELD OR LOCAL CONTROL PANEL. 3. REAR OF SECONDARY OR LOCAL PANEL OR CABINET MOUNTED. 4. NOT VISIBLE ON VIDEO DISPLAY. 5. NOT NORMALLY ACCESSIBLE TO AN OPERATOR AT DEVICE OR CONSOLE.	○	▢	◇	

INSTRUMENT IDENTIFICATION LETTERS

	FIRST LETTER		SUCCEEDING LETTERS		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, FLAME, COMBUSTION		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
C	USER'S CHOICE (TYPICALLY CONDUCTIVITY - ELECTRICAL)			CONTROL, COMMAND	CLOSED
D	USER'S CHOICE (TYPICALLY DENSITY OR SPECIFIC GRAVITY)	DIFFERENTIAL			DIVERT
E	VOLTAGE		SENSOR (PRIMARY ELEMENT)		
F	FLOW RATE	RATIO (FRACTION)			
G	USER'S CHOICE OR GAUGING (DIMENSIONAL)		GLASS, VIEWING DEVICE		
H	HAND				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW
M	USER'S CHOICE (TYPICALLY MOISTURE OR HUMIDITY)	MOMENTARY			MIDDLE, INTERMEDIATE
N	USER'S CHOICE		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
O	USER'S CHOICE		ORIFICE, RESTRICTION		OPEN
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q	QUANTITY OR HEAT DUTY	INTEGRATE, TOTALIZE			
R	RADIATION		RECORD		
S	SPEED, FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	THROUGH
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER, LOUVER	
W	WEIGHT, FORCE, TORQUE		WELL		
X	UNCLASSIFIED	X AXIS	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE OR PRESENCE	Y AXIS		RELAY, COMPUTE, CONVERT	
Z	POSITION, DIMENSION	Z AXIS		DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT	

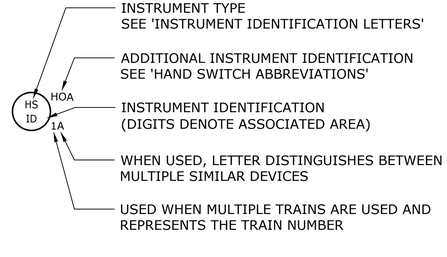
ABBREVIATIONS

AG	ABOVE GROUND
ATM	ATMOSPHERE
BYP	BYPASS
CC	CHEMICAL CLEANOUT
CL	CENTERLINE
CO	CLEANOUT
CONN	CONNECTION
CVLS	CHECK VALVE LIMIT SWITCH
CTR	CENTER
DCS	DISTRIBUTED CONTROL SYSTEM
DES	DESIGN
DIA	DIAMETER
DP	DESIGN PRESSURE
D/P	DIFFERENTIAL PRESSURE
DRN	DRAIN
DT	DESIGN TEMPERATURE
DWG	DRAWING
(E)	EXISTING
EL	ELEVATION
ESD	EMERGENCY SHUTDOWN
FOF	FACE OF FLANGE
(F)	FURNISHED
FC	FAIL CLOSED
FI	FAIL INDETERMINATE
FL	FAIL LOCKED (LAST POSITION)
FLG	FLANGE
FO	FAIL OPEN
FP	FULL PORT
FV	FULL VACUUM
GO	GEAR OPERATED
GR	GRADE
HC	HOSE CONNECTION
HDR	HEADER
HH	HAND HOLE
HOA	HAND/OFF/AUTOMATIC
HP	HIGH PRESSURE
HPT	HIGH POINT
IAS	INSTRUMENT AIR SUPPLY
LC	LOCKED CLOSED
LCP	LOCAL CONTROL PANEL
LO	LOCKED OPEN
LP	LOW PRESSURE
LPT	LOW POINT
MTL	MATERIAL
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MCP	MAIN CONTROL PANEL
MIN	MINIMUM
MOV	MOTOR OPERATED VALVE
MW	MANWAY
NC	NORMALLY CLOSED
NNF	NORMALLY NO FLOW
NO	NORMALLY OPEN
NOZ	NOZZLE
O/C	OPEN/CLOSE
O/O	ON/OFF
OIT	OPERATOR INTERFACE TERMINAL
OP	OUTPUT
OVHD	OVERHEAD
PLC	PROGRAMMABLE LOGIC CONTROLLER
PRESS	PRESSURE
PV	PROCESS VARIABLE
(R)	RELOCATED
REQD	REQUIRED
RIO	REMOTE I/O PANEL
RTD	RESISTANCE TEMPERATURE DETECTOR
SC	SAMPLE CONNECTION
SCADA	SUPERVISORY CONTROL AND DATA ACQUISITION
SCH	SCHEDULE
SD	SHUTDOWN
SG	SPECIFIC GRAVITY
SIS	SAFETY INSTRUMENTED SYSTEM
SO	STEAM OUT
SP	SET POINT
SS	STAINLESS STEEL S/S or START/STOP
STD	STANDARD
T/C	THERMOCOUPLE
TDH	TOTAL DIFFERENTIAL HEAD
TEMP	TEMPERATURE
THRD	THREADED
TSO	TIGHT SHUT-OFF
TYP	TYPICAL
UG	UNDERGROUND
VNT	VENT
VAC	VACUUM
VB	VORTEX BREAKER
VFD	VARIABLE FREQUENCY DRIVE
W/	WITH
W/O	WITHOUT

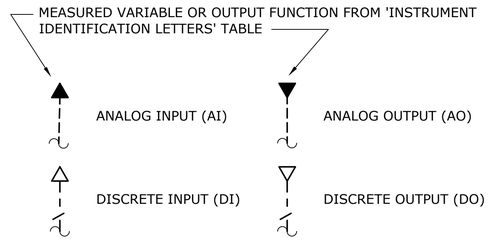
INSTRUMENT LINE SYMBOLS

- INSTRUMENT SUPPLY OR CONNECTION TO PROCESS
- PNEUMATIC SIGNAL
- ELECTRIC SIGNAL (ANALOG)
- ELECTRIC SIGNAL (DISCRETE)
- HYDRAULIC SIGNAL
- CAPILLARY TUBE
- ELECTROMAGNETIC, SONIC, OPTICAL, OR NUCLEAR SIGNAL
- SOFTWARE OR DATA LINK
- MECHANICAL LINK

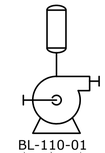
TYPICAL INSTRUMENT TAG NUMBERS & DESIGNATION



INPUT / OUTPUT SIGNALS



TYPICAL EQUIPMENT TAG NUMBERS & DESIGNATION



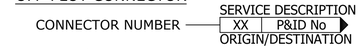
AER = AERATOR
BIN = BIN
BL = BLOWER
CEL = CELL
CLA = CLARIFIER
CLS = CLASSIFIER
CND = CONDENSATE TRAP
CON = CONVEYOR
CMP = COMPRESSOR
DIF = DIFFUSER
DIG = DIGESTER
DIS = DISINFECTION UNIT
FED = FEEDER
FLT = FILTER
HEX = HEAT EXCHANGER
MIX = MIXER
PMP = PUMP
PRS = PRESS
SCN = SCREEN
SDG = SLIDE GATE
SL = SLUICE GATE
SMP = SUMP
THK = THICKENER
TNK = TANK
WEL = WET WELL

FLOW STREAM IDENTIFIERS

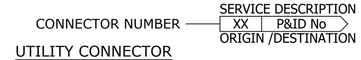
ABE = AERATION BASIN EFFLUENT
BD = BASIN DRAIN
CS = COMBINED SLUDGE
CAS = CAUSTIC SODA
DR = DRAIN
DS = DIGESTER SOLIDS
FBW = FILTER BACKWASH
FE = FINAL EFFLUENT
GR = GRIT
ICE = INTERMEDIATE CLARIFIER EFFLUENT
LPA = LOW PRESSURE AIR
ML = MIXED LIQUOR
NPW = NON POTABLE WATER
PE = PRIMARY EFFLUENT
PI = PRIMARY INFLUENT
PLE = PLANT EFFLUENT
PS = PRIMARY SLUDGE
RAS = RETURN ACTIVATED SLUDGE
RS = RAW SEWAGE
SSL = SECONDARY SLUDGE
SCM = SCUM
SSCM = SECONDARY SCUM
SCRN = SCREENINGS
SE = SECONDARY EFFLUENT
TE = TERTIARY EFFLUENT
TWAS = THICKENED WASTE ACTIVATED SLUDGE
UW = UTILITY WATER
WAS = WASTE ACTIVATED SLUDGE

OFF-PAGE CONNECTORS AND TIE-IN SYMBOL

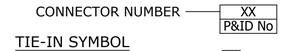
A. OFF-PLOT CONNECTOR



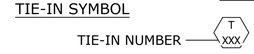
B. PRIMARY/SECONDARY LINES AND INSTRUMENT SIGNAL CONNECTOR



C. UTILITY CONNECTOR



D. TIE-IN SYMBOL



PIPING LINE SYMBOLS

- PRIMARY (AG & UG)
- SECONDARY / UTILITY (AG & UG)
- FUTURE OR EXISTING ON NEW P&IDs
- JACKETED OR DOUBLE CONTAINMENT

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AK #1018436
PROJECT#: 22.37.01

CAD NO. W090-D4003-C11-D4002-C11-2023-X-I400

NO.	REVISIONS	INT.	APP.	DATE

ACTION	BY	DATE
DESIGNED	MEW	3/27/23
DRAWN	AAB	3/27/23
CHECKED (FIELD)		
CHECKED (HDQTS.)		

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JULY 2023
57964
REGISTERED PROFESSIONAL ENGINEER
EL EZRA W
REGISTERED STAMP

WASHINGTON STATE PARKS AND RECREATION COMMISSION

WALLACE FALLS STATE PARK

WATER SYSTEM REPLACEMENT

P&ID LEGEND-1

I400

SCALE
AS SHOWN

PARKS FILE#

PRIMARY ELEMENT SYMBOLS

- XX — GENERAL SYMBOL IN-LINE ELEMENT XX = FS, FG, FE, FT
- FIT / XXXX — IN-LINE FLOW ELEMENT WITH INTEGRAL INDICATING TRANSMITTER XXXX = MASS, CORIOLIS, THERMAL, INT. ORIFICE ...
- FIT / FE / XXXX — IN-LINE FLOW ELEMENT WITH SEPARATE INDICATING TRANSMITTER XXXX = MASS, CORIOLIS, THERMAL...
- ORIFICE
- M — MAGNETIC
- TURBINE OR PROPELLER
- ULTRASONIC
- VORTEX
- PITOT TUBE
- AVERAGING PITOT TUBE
- FLOW NOZZLE
- VENTURI
- WEDGE METER
- LE — RADAR (NON-CONTACT)
- LE — ULTRASONIC LEVEL SENSOR
- LE — RADAR (GUIDED)
- LS* — FLOAT SWITCH; FLOAT SWITCH * = L/LL/H/HH
- FS* — FLOW SWITCH * = H/L
- FG — FLOW GLASS
- FLOW CONDITIONING DEVICES (e.g., STRAIGHTENING VANES)
- FO — RESTRICTION ORIFICE
- AE X — ANALYZER ELEMENT; X INDICATES TYPE: pH = HYDROGEN POTENTIAL; DO = DISSOLVED OXYGEN; H2S = HYDROGEN SULFIDE; LEL = LOWER EXPLOSIVE LIMIT; O2 = OXYGEN; ORP = OXYGEN REDUCTION POTENTIAL; TUR = TURBIDITY
- ROTAMETER
- FI — ROTAMETER WITH INTEGRAL VALVE (SHOWN WITH OPTIONAL INTEGRAL VALVE)
- FLUME
- WEIR
- POSITIVE DISPLACEMENT
- ORIFICE IN QUICK CHANGE FITTING
- TARGET

VALVE SYMBOLS (N.C. WHEN SHADED)

- GATE VALVE
- CHECK VALVE
- STOP CHECK VALVE
- GLOBE VALVE
- BUTTERFLY VALVE
- NEEDLE VALVE
- BALL VALVE
- BALANCING VALVE
- AIR RELEASE VALVE
- PLUG VALVE
- DIAPHRAGM VALVE
- 3-WAY VALVE
- 4-WAY VALVE
- PINCH VALVE
- ANGLE VALVE
- KNIFE VALVE
- SLUICE OR SLIDE GATE

PIPING FITTINGS

- FLANGE
- WELDED CONNECTION
- CONCENTRIC REDUCER
- ECCENTRIC REDUCER
- SPACER
- BLANK
- OPEN FIGURE 8 BLIND
- CLOSED FIGURE 8 BLIND
- PLUG
- BLIND FLANGE
- HOSE CONNECTION
- CAP

PIPING SPECIALTY ITEMS

- Y-TYPE STRAINER
- CONE STRAINER
- T-TYPE STRAINER
- DUPLEX STRAINER
- BASKET STRAINER
- TEMPORARY STRAINER
- FILTER
- D — DETONATION ARRESTOR
- F — FLAME ARRESTOR
- T — STEAM TRAP
- EXHAUST HEAD
- S — IN-LINE SILENCER
- S — VENT SILENCER
- MECHANICAL COUPLING
- EJECTOR
- RS — REMOVABLE SPOOL
- DS — DESUPERHEATER
- FLEXIBLE HOSE
- EXPANSION JOINT
- DAMPER
- BREATHER
- VENT COVER
- IN-LINE MIXER
- DIVERTER VALVE
- ROTARY VALVE
- EXCESS FLOW VALVE
- PULSATION DAMPENER
- INJECTION SPOOL

- HORIZONTAL CENTRIFUGAL PUMP
- VERTICAL INLINE PUMP
- SUBMERSIBLE PUMP
- PROPELLER PUMP
- PROGRESSIVE CAVITY PUMP
- POSITIVE DISPLACEMENT PUMP
- LIQUID RING VACUUM PUMP
- VERTICAL CAN PUMP

SELF-ACTUATED DEVICES

- RUPTURE DISC - PRESSURE RELIEF SAFETY HEAD FOR PRESSURE RELIEF (EXPLOSION PANEL)
- RUPTURE DISC - VACUUM RELIEF SAFETY HEAD FOR VACUUM RELIEF (EXPLOSION PANEL)
- PRESSURE RELIEF - SAFETY VALVE
- VACUUM RELIEF VALVE
- PRESSURE AND VACUUM RELIEF VALVE CONSERVATION VENT
- P — PILOT OPERATED RELIEF VALVE WITH REMOTE SENSOR (USE APPROPRIATE RELIEF VALVE SYMBOL)
- PRESSURE REDUCING REGULATOR (SELF-CONTAINED)
- BACK PRESSURE REGULATOR (SELF-CONTAINED)
- BACK PRESSURE REGULATOR W/ EXTERNAL TAP
- PRESSURE REDUCING REGULATOR W/ EXTERNAL TAP
- DIFFERENTIAL PRESSURE REDUCING REGULATOR
- TEMPERATURE REGULATOR FILLED SYSTEM TYPE

PROCESS EQUIPMENT

- DOME ROOF TANK
- CLOSED TOP TANK
- HYDROPNEUMATIC TANK
- OPEN TOP TANK / WET WELL/ CHANNEL

CONTROL VALVE ACTUATOR SYMBOLS

- MANUAL OPERATOR
- DIAPHRAGM
- PRESSURE BALANCED DIAPHRAGM
- HANDWHEEL WITH ACTUATOR
- CYLINDER - PISTON
- M — MOTOR OPERATED - CONSTANT SPEED
- E/P — ELECTRO-PNEUMATIC
- S — SINGLE SOLENOID
- S R — SINGLE SOLENOID - MANUAL RESET
- S R — SINGLE SOLENOID - REMOTE RESET

MISCELLANEOUS INSTRUMENT SYMBOLS

- CHEMICAL SEAL- DIAPHRAGM
- LEVEL SENSOR — ANNULAR SEAL
- X — PILOT LIGHT OR GAUGE GLASS ILLUMINATOR; X INDICATES COLOR: R = RED, B = BLUE, G = GREEN, A = AMBER, W = WHITE
- DUAL FUNCTION OR INSTRUMENTS SHARING COMMON HOUSING
- I — UNDEFINED INTERLOCK LOGIC

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AK #1018436
PROJECT#: 22.37.01

CAD NO. W090-D4003-C11-D4002-C11-2023-X-I401

NO.	REVISIONS	INT.	APP.	DATE

ACTION	BY	DATE
DESIGNED	MEW	3/27/23
DRAWN	AAB	3/27/23
CHECKED (FIELD)		
CHECKED (HDQTS.)		

EL EZRA W. MS
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JULY 2023
57964
REGISTERED PROFESSIONAL ENGINEER

REGISTERED STAMP

WASHINGTON STATE PARKS AND RECREATION COMMISSION

WALLACE FALLS STATE PARK

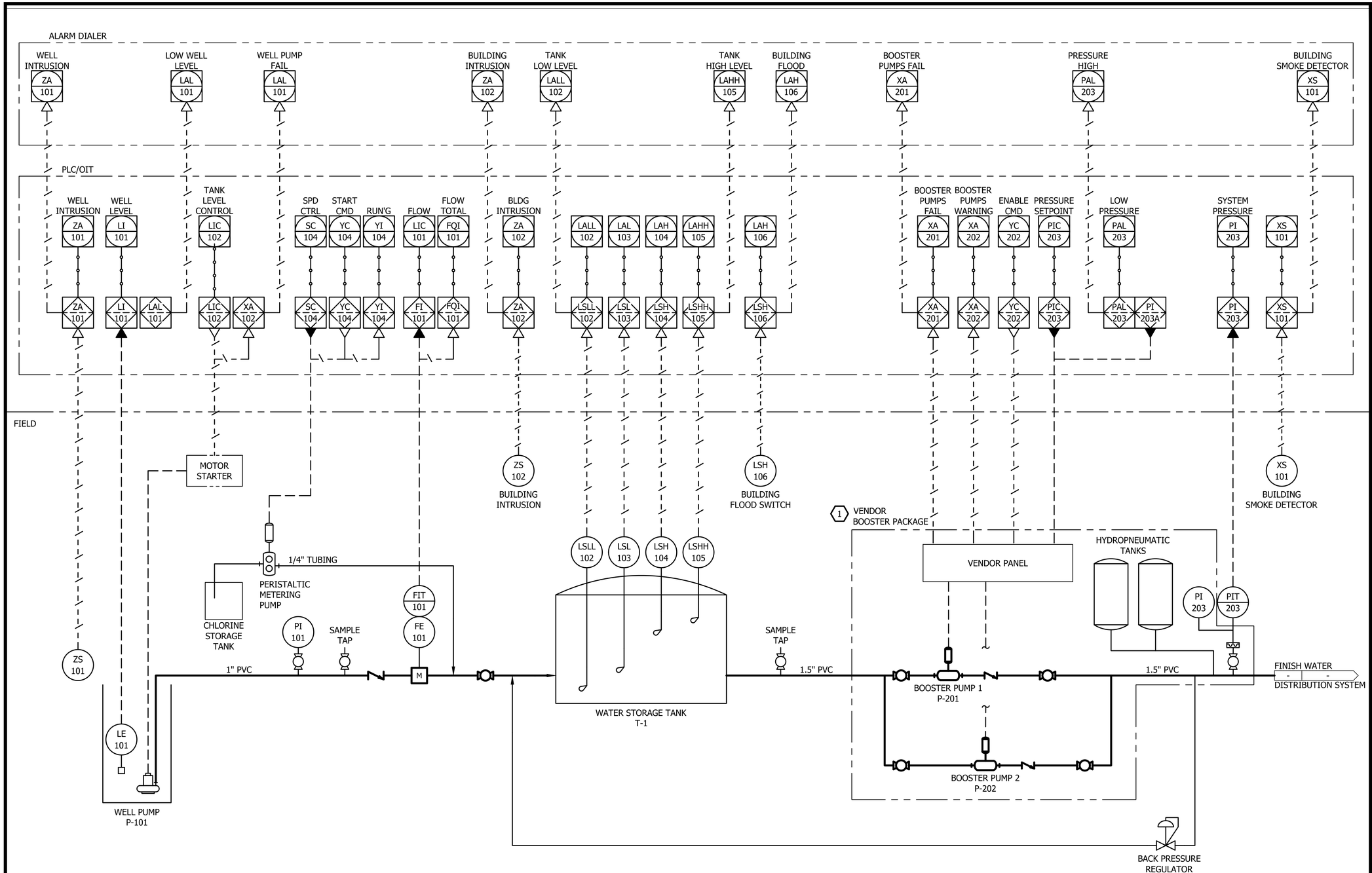
WATER SYSTEM REPLACEMENT

P&ID LEGEND-2

I401

SCALE
AS SHOWN

PARKS FILE#



KEY NOTES

1 NOT ALL PIPING IS INCLUDED WITH VENDOR BOOSTER PACKAGE.

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CAD NO. W090-D4003-C11-D4002-C11-2023-X-I402

NO.	REVISIONS	INT.	APP.	DATE

ACTION	BY	DATE
DESIGNED	MEW	3/27/23
DRAWN	AAB	3/27/23
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WASHINGTON STATE PARKS AND RECREATION COMMISSION

WALLACE FALLS STATE PARK

WATER SYSTEM REPLACEMENT

P&ID

I402

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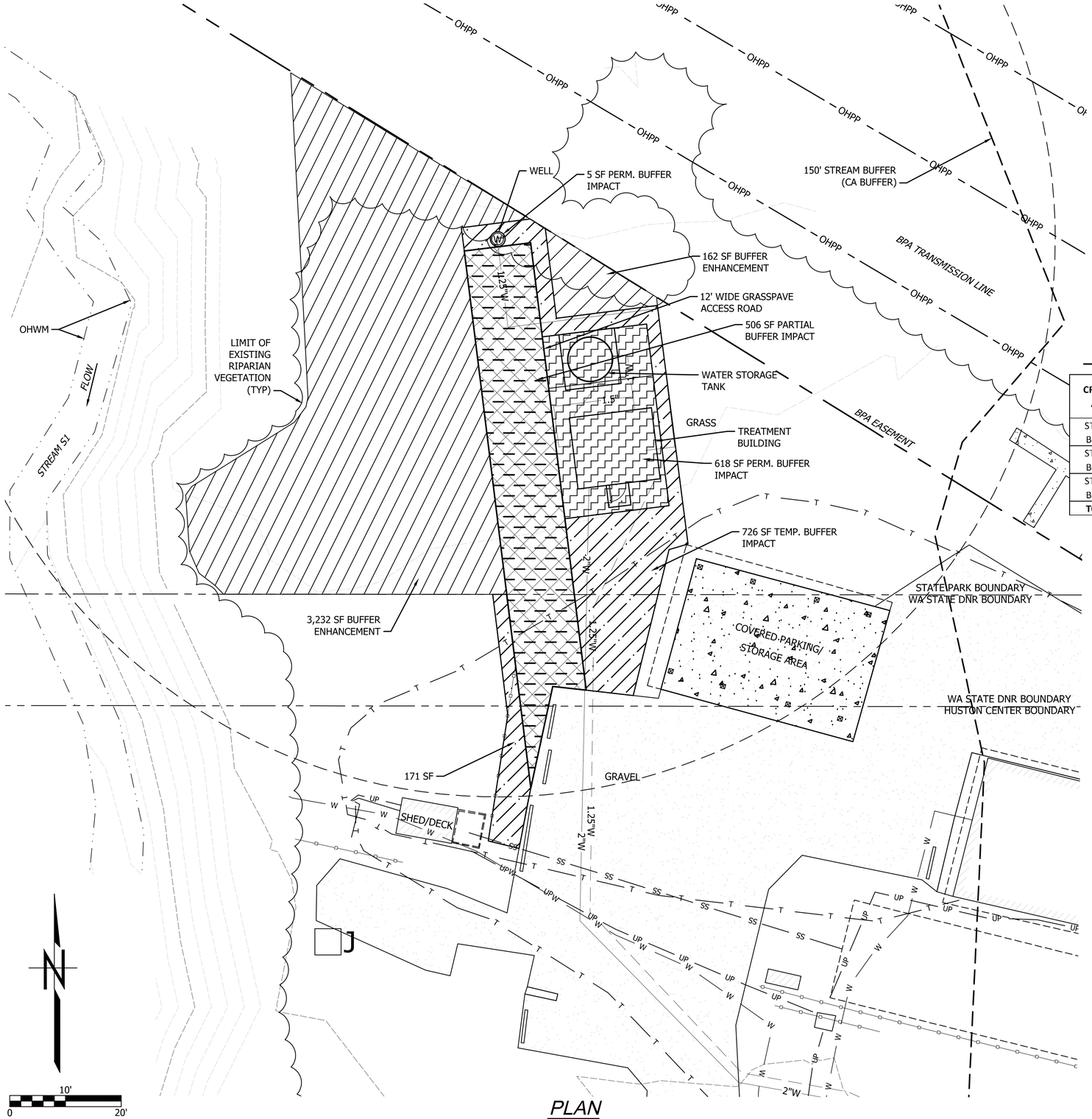

PLAN

MITIGATION SUMMARY NOTES:

1) THE INTENT OF THE MITIGATION PLAN IS TO MITIGATE 1,129 SF OF PERMANENT BUFFER IMPACTS TO A TYPE F STREAM AT A 3:1 MIN. MITIGATION RATIO PER SCC30.62A.320(3), BY PROVIDING 3,394 SF OF BUFFER ENHANCEMENT .

2) 623 SF OF PERMANENT BUFFER IMPACT FROM WELL HEAD, TREATMENT BUILDING, SAND TORAGE TANK AREA AND 506 SF FROM ACCESS DRIVE WILL BE MITIGATED WITH BUFFER ENHANCEMENT. THIS INCLUDES REPLACING LOW FUNCTIONING LAWN BUFFER AREAS WITH NATIVE TREES AND SHRUBS THAT WILL IMPROVE VEGETATION STRUCTURE AND DIVERSITY.

3) 897 SF OF TEMPORARY BUFFER IMPACTS FROM CONSTRUCTION ACCESS AND 506 SF OF PARTIAL BUFFER IMPACTS FROM GRASSPAVE ACCESS ROAD WILL BE RESTORED IN-KIND WITH NATIVE GRASS SEED.

STREAM BUFFER IMPACT AND MITIGATION SUMMARY

CRITICAL AREA	IMPACT TYPE	PERM. IMPACT (SF)	TEMP. IMPACT (SF)	MITIGATION TYPE	RATIO	AREA SF REQ'D	AREA SF PROVIDED
STREAM BUFFER	TEMPORARY	NA	897	RESTORATION (IN-KIND)	1 to 1	897	897
STREAM BUFFER	PARTIAL	506	506	BUFFER ENHANCEMENT	3 to 1	1,518	3,394
STREAM BUFFER	PERMANENT	623	0	BUFFER ENHANCEMENT	3 to 1	1,869	
TOTALS		**1,129**	**1,403**			**4,284**	**4,291**

LEGEND

- PERMANENT BUFFER IMPACTS
- PARTIAL BUFFER IMPACTS
- TEMPORARY BUFFER IMPACTS - RESTORE IN-KIND
- BUFFER ENHANCEMENT FOR PERMANENT BUFFER IMPACTS

GENERAL NOTES

1. SEE SHEET L200 FOR BUFFER ENHANCEMENT PLANTING PLAN AND SHEET L300 FOR PLANTING DETAILS.

SHEET 1 OF 3

CAD NO. W090-D4003-C11-D4002-C11-2023-X-C100

NO.	REVISIONS	INT.	APP.	DATE

ACTION	BY	DATE
DESIGNED	OGR	01/22/24
DRAWN	JCG	01/22/24
CHECKED (FIELD)		
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Dawn Evans and Associates
08/23 EXP. 03/17/2025

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WASHINGTON STATE PARKS AND RECREATION COMMISSION

WALLACE FALLS STATE PARK

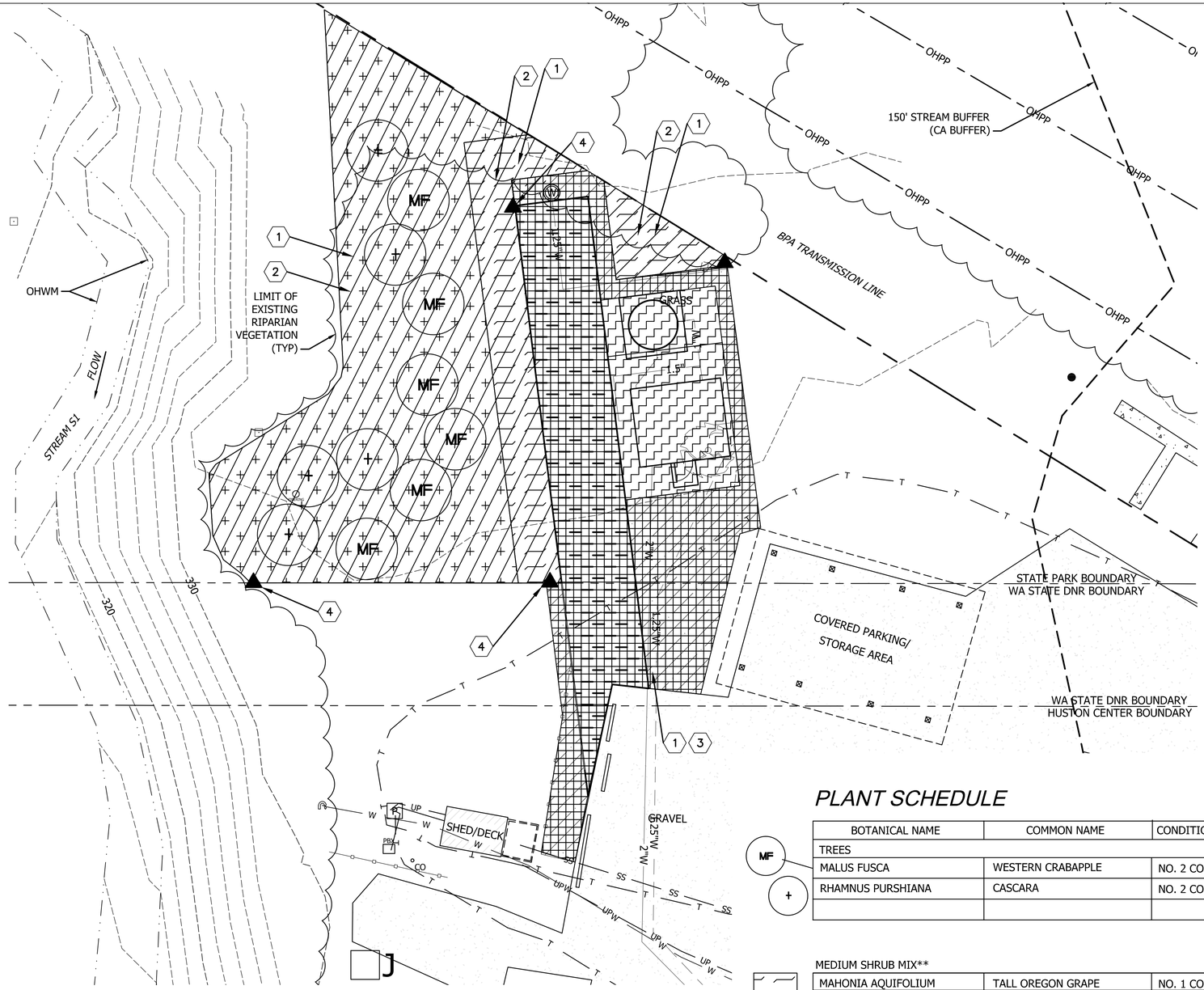
WATER SYSTEM REPLACEMENT

MITIGATION SUMMARY PLAN

L100

SCALE
AS SHOWN

PARKS FILE#



PLAN

CONSTRUCTION NOTES

1. AMEND PLANTING AREAS WITH 4" SOIL AMENDMENT INCORPORATED INTO EXISTING SUBGRADE TO A 12" DEPTH
2. INSTALL 4" DEEP BARK MULCH
3. APPLY NATIVE HYDROSEED MIX
4. INSTALL CRITICAL AREA PROTECTION AREA SIGN(S) PER SNOHOMISH COUNTY SCC 30.62A.160

GENERAL NOTES

1. SEE SHEET L300 FOR MITIGATION DETAILS.
2. SEE SHEET C101 FOR TESC PLAN AND SHEET C200 FOR WATER SYSTEM REPLACEMENT SITE LAYOUT.
3. INSTALL SHRUBS IN SINGLE-SPECIES GROUPINGS OF 3-5.
4. SEE PLANT SETBACK CHART (SHEET L300) FOR TREE AND SHRUB SETBACKS.
5. ENGINEER SHALL APPROVE THE PLANT LAYOUT PRIOR TO INSTALLATION.

LEGEND

NATIVE HYDROSEED MIX. SEE SPECIFICATIONS

CRITICAL AREA PROTECTION AREA (C.A.P.A.) SIGN

PLANT SCHEDULE

BOTANICAL NAME	COMMON NAME	CONDITION	QTY	SIZE (HT)	SPACING	REMARKS
TREES						
MALUS FUSCA	WESTERN CRABAPPLE	NO. 2 CONT.	6	18" MIN. HT.	10' O.C. MIN.	WELL BRANCHED
RHAMNUS PURSHIANA	CASCARA	NO. 2 CONT.	5	18" MIN. HT.	10' O.C. MIN.	WELL BRANCHED, SINGLE LEADER
MEDIUM SHRUB MIX**						
MAHONIA AQUIFOLIUM	TALL OREGON GRAPE	NO. 1 CONT.	7	12" MIN. HT.	4' O.C.	FULL CONTAINER
ROSA GYMNOCARPA	BALD HIP ROSE	NO. 1 CONT.	9	12" MIN. HT.	4' O.C.	FULL CONTAINER
RUBUS PARVIFLORUS	THIMBLEBERRY	NO. 1 CONT.	7	12" MIN. HT.	4' O.C.	WELL BRANCHED
SYMPHORICARPOS ALBUS	SNOWBERRY	NO. 1 CONT.	15	12" MIN. HT.	4' O.C.	WELL BRANCHED
VACCINIUM OVATUM	EVERGREEN HUCKLEBERRY	NO. 1 CONT.	10	12" MIN. HT.	4' O.C.	WELL BRANCHED
TALL SHRUB MIX***						
ACER CIRCINATUM	VINE MAPLE	NO. 2 CONT.	15	18" MIN. HT.	4' O.C.	WELL BRANCHED
CORYLUS CORNUTA	BEAKED HAZELNUT	NO. 1 CONT.	10	12" MIN. HT.	4' O.C.	WELL BRANCHED
HOLODISCUS DISCOLOR	OCEANSPRAY	NO. 1 CONT.	35	12" MIN. HT.	4' O.C.	FULL CONTAINER
MYRICA CALIFORNICA	PACIFIC WAX MYRTLE	NO. 1 CONT.	25	12" MIN. HT.	4' O.C.	FULL CONTAINER
OEMLARIA CERASIFORMIS	OSO BERRY	NO. 1 CONT.	25	12" MIN. HT.	4' O.C.	FULL CONTAINER
RIBES SANGUINEUM	RED FLOWERING CURRANT	NO. 1 CONT.	30	12" MIN. HT.	4' O.C.	WELL BRANCHED
ROSA NUTKANA	NOOTKA ROSE	NO. 1 CONT.	30	12" MIN. HT.	4' O.C.	WELL BRANCHED

** MEDIUM SHRUBS GROW NO TALLER THAN 6 FEET AT MATURITY.
*** TALL SHRUBS GROW TALLER THAN 6 FEET AT MATURITY.

CAD NO. W090-D4003-C11-D4002-C11-2023-X-C100

NO.	REVISIONS	INT.	APP.	DATE

ACTION	BY	DATE
DESIGNED	OGR	01/22/24
DRAWN	JCG	01/22/24
CHECKED (FIELD)		
CHECKED (HDQTS.)		

STATE OF WASHINGTON
PRELIMINARY ONLY
DO NOT USE FOR CONSTRUCTION
January 2024
David Evans and Associates
www.deainc.com
EXP. 03/11
LANDSCAPE ARCHITECT

REGISTERED STAMP

WASHINGTON STATE PARKS AND RECREATION COMMISSION

WALLACE FALLS STATE PARK

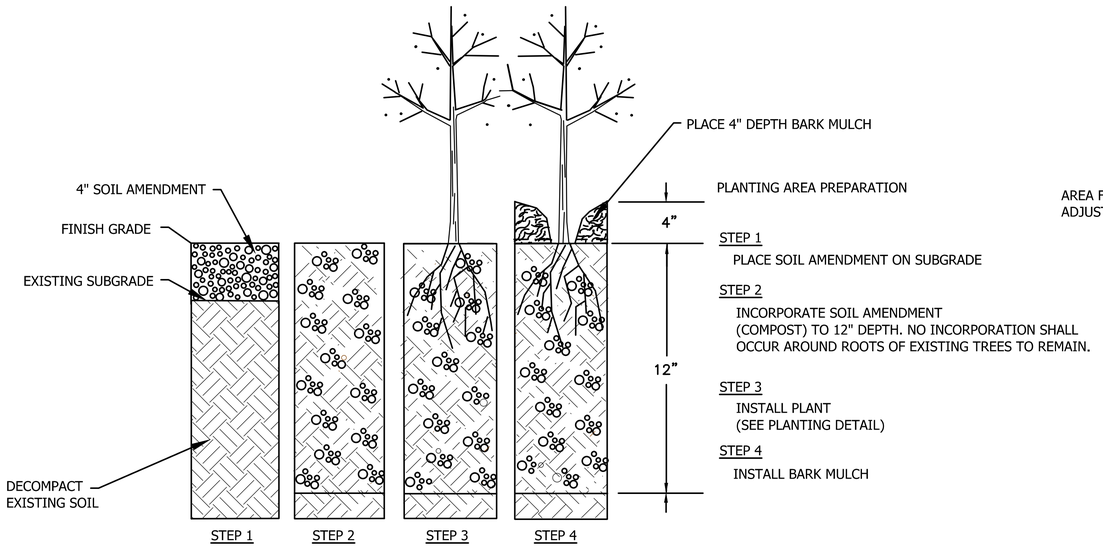
WATER SYSTEM REPLACEMENT

BUFFER ENHANCEMENT PLAN

L200

SCALE
AS SHOWN

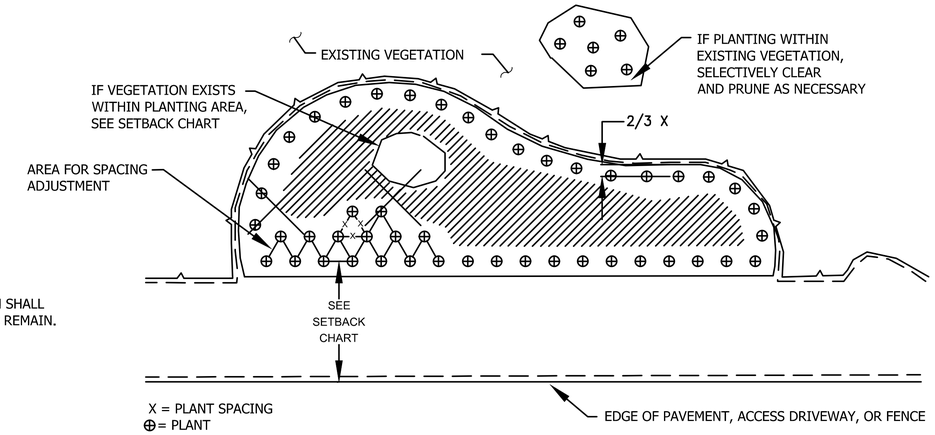
PARKS FILE#



SENSITIVE AREA SOIL PREPARATION

1 / -

NOT TO SCALE



PLANTING AREA LAYOUT AND SETBACK

2 / -

NOT TO SCALE

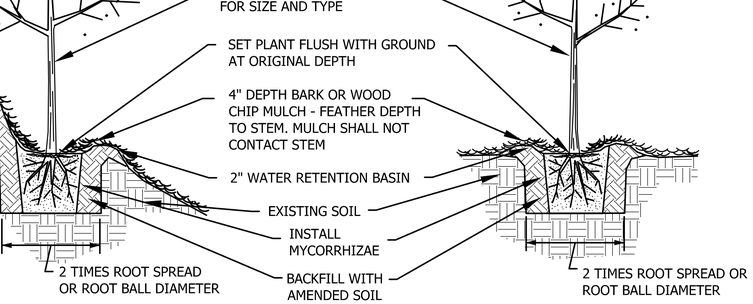
SETBACKS APPLY UNLESS OTHERWISE ADJUSTED BY ENGINEER DURING PLANT STAKING OR LAYOUT. DISTANCES BELOW ARE TO THE STEM OR TRUNK OF THE PLANT BEING INSTALLED.

	MEDIUM SHRUB **	TALL SHRUB ***	TREE
EDGE OF ROADWAY	2.5'	10'	15'
FENCE	2.5'	5'	10'
EXISTING TREE TRUNK	5'	10'	15'
EXISTING VEGETATION MASS	2.7'	2.7'	10'
OVERHEAD POWER	-	-	20'
ACCESS DRIVEWAY	3'	8'	15'

** MEDIUM SHRUBS GROW NO TALLER THAN 6 FEET AT MATURITY.
*** TALL SHRUBS GROW TALLER THAN 6 FEET AT MATURITY.

PLANT MATERIAL SETBACK CHART

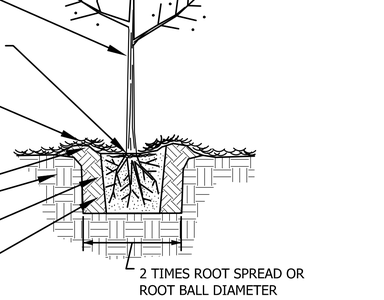
5 / -



TREE AND SHRUB PLANTING ON SLOPE

3 / -

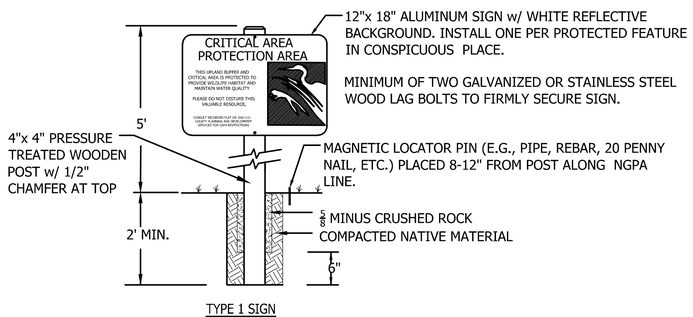
NOT TO SCALE



TREE AND SHRUB PLANTING

4 / -

NOT TO SCALE



TYPE 1 SIGN

NOTES:

1. SIGNS SHALL BE PLACED AS SHOWN ON PLAN. MINIMUM PLACEMENT SHALL INCLUDE SIGNS AT A MAXIMUM OF 100 FEET ALONG BOUNDARY OR THE C.A.P.A.
2. SIGN PLACEMENT SHALL BE SUBJECT TO THE APPROVAL OF SNOHOMISH COUNTY.

CRITICAL AREA PROTECTION AREA SIGN

6 / -

CAD NO. W090-D4003-C11-D4002-C11-2023-X-C100

NO.	REVISIONS	INT.	APP.	DATE

ACTION	BY	DATE
DESIGNED	OGR	09/15/23
DRAWN	JCG	09/15/23
CHECKED (FIELD)		
CHECKED (HDQTS.)		

STATE OF WASHINGTON · LANDSCAPE ARCHITECT · EXP. 03/12/2024

PRELIMINARY ONLY
NOT FOR CONSTRUCTION

Dawn Evans and Associates
www.dawnevans.com

REGISTERED STAMP

WASHINGTON STATE PARKS AND RECREATION COMMISSION

WALLACE FALLS STATE PARK

WATER SYSTEM REPLACEMENT

MITIGATION DETAILS

L300

SCALE
AS SHOWN

PARKS FILE#

Appendix B. Wetland Data Forms

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Wallace Falls State Park Improvements | City/County: Gold Bar/Snohomish | Sampling Date: 11/16/2022

Applicant/Owner: WA State Parks | State: WA | Sampling Point: W1-DP-1

Investigator(s): Gray Rand, Rick Pratt | Section, Township, Range: Section 32 Township 28 North Range 09 East

Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): concave | Slope (%): 2

Subregion (LRR): A | Lat: 47.8677 | Long: -121.6800 | Datum: NAD83HARN

Soil Map Unit Name: Tokul-Winston gravelly loams, 25 to 65 percent slopes | NWI Classification: PSS

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	( ) No	**Is the Sampled Area within a Wetland?**	(●) Yes ( ) No
Hydric Soil Present?	(●) Yes	( ) No		
Wetland Hydrology Present?	(●) Yes	( ) No		

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30ft x 30ft)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status
1. *Thuja plicata*	80	Y	88.9	FAC
2. *Pseudotsuga menziesii*	10	N	11.1	FACU
3.				
4.				
	90	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15ft x 15ft)				
1. *Rubus spectabilis*	30	Y	100.0	FAC
2.				
3.				
4.				
5.				
	30	= Total Cover		
Herb Stratum (Plot size: 5ft x 5ft)				
1. *Athyrium cyclosorum*	20	Y	100.0	FAC
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
	20	= Total Cover		
Woody Vine Stratum (Plot size:)				
1.				
2.				
		= Total Cover		

% Bare Ground in Herb Stratum 50

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	130	x 3 =	390
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	140 (A)		430 (B)

Prevalence Index = B/A = 3.071

Hydrophytic Vegetation Indicators:

- [ ] 1 - Rapid Test for Hydrophytic Vegetation
- [✓] 2 - Dominance Test is >50%
- [ ] 3 - Prevalence Index is ≤3.0[1]
- [ ] 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] 5 - Wetland Non-Vascular Plants[1]
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? (●) Yes ( ) No

Remarks:

*Douglas-fir (Pseudotsuga menziesii) and western red cedar (Thuja plicata) are rooted at or just outside the wetland boundary.

SOIL

Sampling Point: W1-DP-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-15	10YR 2/1	100					Muck	
15-24	2.5YR 3/2	95					Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☑ Loamy Mucky Mineral (F1) (except MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? ◉ Yes ○ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? ○ Yes ◉ No Depth (inches):

Water Table Present? ○ Yes ◉ No Depth (inches):

Saturation Present? (includes capillary fringe) ◉ Yes ○ No Depth (inches): 8

Wetland Hydrology Present? ◉ Yes ○ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland is a small fringe wetland adjacent to the stream that receives groundwater expression.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Wallace Falls State Park Improvements | City/County: Gold Bar/Snohomish | Sampling Date: 11/16/2022

Applicant/Owner: WA State Parks | State: WA | Sampling Point: W1-DP-2- Upland

Investigator(s): Gray Rand, Rick Pratt | Section, Township, Range: Section 32 Township 28 North Range 09 East

Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): concave | Slope (%): 5

Subregion (LRR): A | Lat: 47.8677 | Long: -121.6800 | Datum: NAD83HARN

Soil Map Unit Name: Tokul-Winston gravelly loams, 25 to 65 percent slopes | NWI Classification: upland

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	(●) No	**Is the Sampled Area within a Wetland?**	( ) Yes (●) No
Hydric Soil Present?	( ) Yes	(●) No		
Wetland Hydrology Present?	( ) Yes	(●) No		

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30ft x 30ft)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status
1. *Thuja plicata*	80	Y	80.0	FAC
2. *Pseudotsuga menziesii*	20	Y	20.0	FACU
3.				
4.				
	100	= Total Cover		
Sapling/Shrub Stratum (Plot size:)				
1.				
2.				
3.				
4.				
5.				
	= Total Cover			
Herb Stratum (Plot size: 5ft x 5ft)				
1. *Polystichum munitum*	40	Y	100.0	FACU
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
	40	= Total Cover		
Woody Vine Stratum (Plot size:)				
1.				
2.				
	= Total Cover			

% Bare Ground in Herb Stratum 55

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	80	x 3 =	240
FACU species	60	x 4 =	240
UPL species	0	x 5 =	0
Column Totals:	140 (A)		480 (B)

Prevalence Index = B/A = 3.429

Hydrophytic Vegetation Indicators:

- [ ] 1 - Rapid Test for Hydrophytic Vegetation
- [ ] 2 - Dominance Test is >50%
- [ ] 3 - Prevalence Index is ≤3.0[1]
- [ ] 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] 5 - Wetland Non-Vascular Plants[1]
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? ( ) Yes (●) No

Remarks:

SOIL

Sampling Point: W1-DP-2- Upland

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 3/3						Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? ○ Yes ◉ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? ○ Yes ◉ No Depth (inches): _____

Water Table Present? ○ Yes ◉ No Depth (inches): _____

Saturation Present? (includes capillary fringe) ○ Yes ◉ No Depth (inches): _____

Wetland Hydrology Present? ○ Yes ◉ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Data Plot located upslope of the upper edge of wetland.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Wallace Falls State Park Improvements | City/County: Gold Bar/Snohomish | Sampling Date: 11/16/2022

Applicant/Owner: WA State Parks | State: WA | Sampling Point: W2-DP-1

Investigator(s): Gray Rand, Rick Pratt | Section, Township, Range: Section 32 Township 28 North Range 09 East

Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): convex | Slope (%): 2

Subregion (LRR): A | Lat: 47.8677 | Long: -121.6800 | Datum: NAD83HARN

Soil Map Unit Name: Tokul-Winston gravelly loams, 25 to 65 percent slopes | NWI Classification: PSS

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	( ) No	**Is the Sampled Area within a Wetland?**	(●) Yes ( ) No
Hydric Soil Present?	(●) Yes	( ) No		
Wetland Hydrology Present?	(●) Yes	( ) No		

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30ft x 30ft)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status
1. *Thuja plicata*	*90		#######	FAC
2.				
3.				
4.				
	= Total Cover			
Sapling/Shrub Stratum (Plot size: 15ft x 15ft)				
1. *Rubus spectabilis*	30	**Y**	100.0	FAC
2.				
3.				
4.				
5.				
	30 = Total Cover			
Herb Stratum (Plot size: 5ft x 5ft)				
1. *Athyrium cyclosorum*	30	**Y**	60.0	FAC
2. *Equisetum telmateia*	5	N	10.0	FACW
3. *Polystichum munitum*	15	**Y**	30.0	FACU
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
	50 = Total Cover			
Woody Vine Stratum (Plot size:)				
1.				
2.				
	= Total Cover			

% Bare Ground in Herb Stratum 40

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	60	x 3 =	180
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column Totals:	80 (A)		250 (B)

Prevalence Index = B/A = 3.125

Hydrophytic Vegetation Indicators:

- [ ] 1 - Rapid Test for Hydrophytic Vegetation
- [x] 2 - Dominance Test is >50%
- [ ] 3 - Prevalence Index is ≤3.0[1]
- [ ] 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] 5 - Wetland Non-Vascular Plants[1]
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? (●) Yes ( ) No

Remarks:

*western red cedar (Thuja plicata) is not rooted in the wetland but adjacent upland buffer.

SOIL

Sampling Point: W2-DP-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 2/1	100					Mucky Mineral	
10-13	2.5YR 3/2	100					Mucky Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☑ Loamy Mucky Mineral (F1) (except MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? ◉ Yes ○ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? ○ Yes ◉ No Depth (inches):

Water Table Present? ○ Yes ◉ No Depth (inches):

Saturation Present? (includes capillary fringe) ◉ Yes ○ No Depth (inches): 10

Wetland Hydrology Present? ◉ Yes ○ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland is a low area and bottom of side slope along the Creek. There is a moderate slope upslope from the wetland.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Wallace Falls State Park Improvements | City/County: Gold Bar/Snohomish | Sampling Date: 11/16/2022

Applicant/Owner: WA State Parks | State: WA | Sampling Point: W2-DP-2

Investigator(s): Gray Rand, Rick Pratt | Section, Township, Range: Section 32 Township 28 North Range 09 East

Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): convex | Slope (%): 0

Subregion (LRR): A | Lat: 47.8677 | Long: -121.6800 | Datum: NAD83HARN

Soil Map Unit Name: Tokul-Winston gravelly loams, 25 to 65 percent slopes | NWI Classification: upland

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	(●) No	**Is the Sampled Area within a Wetland?**	( ) Yes (●) No
Hydric Soil Present?	( ) Yes	(●) No		
Wetland Hydrology Present?	( ) Yes	(●) No		

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30ft x 30ft)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status
1. *Thuja plicata*	80	Y	80.0	FAC
2. *Tsuga heterophylla*	20	Y	20.0	FACU
3.				
4.				
	100	= Total Cover		
Sapling/Shrub Stratum (Plot size:)				
1.				
2.				
3.				
4.				
5.				
	= Total Cover			
Herb Stratum (Plot size: 5ft x 5ft)				
1. *Polystichum munitum*	60	Y	100.0	FACU
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
	60	= Total Cover		
Woody Vine Stratum (Plot size:)				
1.				
2.				
	= Total Cover			

% Bare Ground in Herb Stratum 40

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	80	x 3 =	240
FACU species	80	x 4 =	320
UPL species	0	x 5 =	0
Column Totals:	160 (A)		560 (B)

Prevalence Index = B/A = 3.500

Hydrophytic Vegetation Indicators:

- [ ] 1 - Rapid Test for Hydrophytic Vegetation
- [ ] 2 - Dominance Test is >50%
- [ ] 3 - Prevalence Index is ≤3.0[1]
- [ ] 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] 5 - Wetland Non-Vascular Plants[1]
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? ( ) Yes (●) No

Remarks:
Bare ground covered in thick duff layer.

SOIL

Sampling Point: W2-DP-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-15	10YR 3/3						Loam	
15	10YR 3/3						Gravelly Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? ○ Yes ◉ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? ○ Yes ◉ No Depth (inches): _____

Water Table Present? ○ Yes ◉ No Depth (inches): _____

Saturation Present? (includes capillary fringe) ○ Yes ◉ No Depth (inches): _____

Wetland Hydrology Present? ○ Yes ◉ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Data Plot located upslope of the upper edge of wetland.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Wallace Falls State Park Improvements | City/County: Gold Bar/Snohomish | Sampling Date: 11/16/2022

Applicant/Owner: WA State Parks | State: WA | Sampling Point: Upland-DP-1

Investigator(s): Gray Rand, Rick Pratt | Section, Township, Range: Section 32 Township 28 North Range 09 East

Landform (hillslope, terrace, etc.): terrace | Local relief (concave, convex, none): | Slope (%):

Subregion (LRR): A | Lat: 47.8676 | Long: -121.6797 | Datum: NAD83HARN

Soil Map Unit Name: Tokul-Winston gravelly loams, 25 to 65 percent slopes | NWI Classification: upland

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	( ) No	**Is the Sampled Area within a Wetland?**	( ) Yes (●) No
Hydric Soil Present?	( ) Yes	(●) No		
Wetland Hydrology Present?	( ) Yes	(●) No		

Remarks:
Investigated as a potential wetland because of the FAC plants. Soil was assessed throughout the FAC vegetation and soils did not confirm hydric soils. There were no indications of wetland hydrology.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status
Tree Stratum (Plot size:)				
1.				
2.				
3.				
4.				
	= Total Cover			
Sapling/Shrub Stratum (Plot size:)				
1.				
2.				
3.				
4.				
5.				
	= Total Cover			
Herb Stratum (Plot size: 5ft x 5ft)				
1. *Ranunculus repens*	70	**Y**	70.0	FAC
2. *Poa pratensis*	20	**Y**	20.0	FAC
3. *grass sp.*	10	N	10.0	#N/A
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
	100 = Total Cover			
Woody Vine Stratum (Plot size:)				
1.				
2.				
	= Total Cover			

% Bare Ground in Herb Stratum

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	90	x 3 =	270
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	90 (A)		270 (B)

Prevalence Index = B/A = 3.000

Hydrophytic Vegetation Indicators:

- [ ] 1 - Rapid Test for Hydrophytic Vegetation
- [x] 2 - Dominance Test is >50%
- [x] 3 - Prevalence Index is ≤3.0[1]
- [ ] 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] 5 - Wetland Non-Vascular Plants[1]
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? (●) Yes ( ) No

Remarks:

SOIL

Sampling Point: Upland-DP-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR	3/4	100						Loam	
8-11	10YR	3/6	100						Silt Loam	
11-20	10YR	5/3	100						Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? ○ Yes ◉ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? ○ Yes ◉ No Depth (inches): _____

Water Table Present? ○ Yes ◉ No Depth (inches): _____

Saturation Present? (includes capillary fringe) ○ Yes ◉ No Depth (inches): _____

Wetland Hydrology Present? ○ Yes ◉ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Data plot is out of the stream ravine in a mowed grass area adjacent to the Park residence.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Wallace Falls State Park Improvements | City/County: Gold Bar/Snohomish | Sampling Date: 11/16/2022

Applicant/Owner: WA State Parks | State: WA | Sampling Point: Upland-DP-2

Investigator(s): Gray Rand, Rick Pratt | Section, Township, Range: Section 32 Township 28 North Range 09 East

Landform (hillslope, terrace, etc.): terrace | Local relief (concave, convex, none): | Slope (%):

Subregion (LRR): A | Lat: 47.8676 | Long: -121.6797 | Datum: NAD83HARN

Soil Map Unit Name: Tokul-Winston gravelly loams, 25 to 65 percent slopes | NWI Classification: upland

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	( ) No	**Is the Sampled Area within a Wetland?**	( ) Yes (●) No
Hydric Soil Present?	( ) Yes	(●) No		
Wetland Hydrology Present?	( ) Yes	(●) No		

Remarks:
Investigated as a potential PFO area with FAC plants east of the restroom building. Soil was assessed to not have hydric soils or any indications of wetland hydrology.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status
1. *Alnus rubra*	50	Y	100.0	FAC
2.				
3.				
4.				
	50	= Total Cover		
Sapling/Shrub Stratum (Plot size:)				
1. *Rubus armeniacus*	80	Y	80.0	FAC
2. *Rubus spectabilis*	10	N	10.0	FAC
3. *Vaccinium parvifolium*	10	N	10.0	FACU
4.				
5.				
	100	= Total Cover		
Herb Stratum (Plot size: 5ft x 5ft)				
1. *Athyrium cyclosorum*	5	Y	25.0	FAC
2. *Polystichum munitum*	5	Y	25.0	FACU
3. *Rubus ursinus*	10	Y	50.0	FACU
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
	20	= Total Cover		
Woody Vine Stratum (Plot size:)				
1.				
2.				
		= Total Cover		

% Bare Ground in Herb Stratum

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	145	x 3 =	435
FACU species	25	x 4 =	100
UPL species	0	x 5 =	0
Column Totals:	170 (A)		535 (B)

Prevalence Index = B/A = 3.147

Hydrophytic Vegetation Indicators:

- [ ] 1 - Rapid Test for Hydrophytic Vegetation
- [✓] 2 - Dominance Test is >50%
- [ ] 3 - Prevalence Index is ≤3.0[1]
- [ ] 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] 5 - Wetland Non-Vascular Plants[1]
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? (●) Yes ( ) No

Remarks:
Additionally the following plants were in the vicinity: bigleaf maple (Acer macrophyllum), Douglas-fir (Pseudotsuga menziesii), western hemlock (Tsuga heterophylla), English holly (Ilex aquifolium), and red elderberry (Sambucus racemosa).

SOIL

Sampling Point: Upland-DP-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/2	100					Loam	
2-18	10YR 4/3	100					Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? ○ Yes ◉ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? ○ Yes ◉ No Depth (inches): _____

Water Table Present? ○ Yes ◉ No Depth (inches): _____

Saturation Present? (includes capillary fringe) ○ Yes ◉ No Depth (inches): _____

Wetland Hydrology Present? ○ Yes ◉ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Wallace Falls State Park Improvements | City/County: Gold Bar/Snohomish | Sampling Date: 11/16/2022

Applicant/Owner: WA State Parks | State: WA | Sampling Point: Upland-DP-3

Investigator(s): Gray Rand, Rick Pratt | Section, Township, Range: Section 32 Township 28 North Range 09 East

Landform (hillslope, terrace, etc.): sloping terrace | Local relief (concave, convex, none): concave | Slope (%): 5

Subregion (LRR): A | Lat: 47.8676 | Long: -121.6797 | Datum: NAD83HARN

Soil Map Unit Name: Tokul-Winston gravelly loams, 25 to 65 percent slopes | NWI Classification: upland

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	( ) No	**Is the Sampled Area within a Wetland?**	( ) Yes (●) No
Hydric Soil Present?	( ) Yes	(●) No		
Wetland Hydrology Present?	( ) Yes	(●) No		

Remarks:
Investigated as a potential shrub area on shelf that is likely a access road to a powerline tower. Soil was assessed and was disturbed with several types of soill mixed together.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status
1.				
2.				
3.				
4.				
	= Total Cover			
Sapling/Shrub Stratum (Plot size:)				
1. *Spiraea douglasii*	10	N	14.3	FACW
2. *Rubus armeniacus*	40	**Y**	57.1	FAC
3. *Rubus parviflorus*	20	**Y**	28.6	FACU
4.				
5.				
	70 = Total Cover			
Herb Stratum (Plot size: 5ft x 5ft)				
1. *Phalaris arundinacea*	50	**Y**	90.9	FACW
2. *Polystichum munitum*	5	N	9.1	FACU
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
	55 = Total Cover			
Woody Vine Stratum (Plot size:)				
1.				
2.				
	= Total Cover			

% Bare Ground in Herb Stratum

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	60	x 2 =	120
FAC species	40	x 3 =	120
FACU species	25	x 4 =	100
UPL species	0	x 5 =	0
Column Totals:	125 (A)		340 (B)

Prevalence Index = B/A = 2.720

Hydrophytic Vegetation Indicators:

- [ ] 1 - Rapid Test for Hydrophytic Vegetation
- [✓] 2 - Dominance Test is >50%
- [✓] 3 - Prevalence Index is ≤3.0[1]
- [ ] 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] 5 - Wetland Non-Vascular Plants[1]
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? (●) Yes ( ) No

Remarks:

SOIL

Sampling Point: Upland-DP-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2	100					Silt Loam	
8+	10YR 4/3	100					dense gravelly ma	Access road to powerline tower

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? ○ Yes ◉ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? ○ Yes ◉ No Depth (inches): _____

Water Table Present? ○ Yes ◉ No Depth (inches): _____

Saturation Present? (includes capillary fringe) ○ Yes ◉ No Depth (inches): _____

Wetland Hydrology Present? ○ Yes ◉ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Appendix C. Wetland Rating Forms

Wetland name or number W1 and W2

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wallace Falls SP - Wetl. W1 and W2 Date of site visit: _____

Rated by R. Pratt Trained by Ecology? X Yes ___No Date of training 2014

HGM Class used for rating Riverine Wetland has multiple HGM classes? X Y ____N

NOTE: **Form is not complete without the figures requested** *(figures can be combined)*.

Source of base aerial photo/map Google

OVERALL WETLAND CATEGORY III (based on functions X or special characteristics___)

1. Category of wetland based on FUNCTIONS

_____**Category I** – Total score = 23 - 27

_____**Category II** – Total score = 20 - 22

19 **Category III** – Total score = 16 - 19

_____**Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	Circle the appropriate ratings			
Site Potential	H M [L]	H [M] L	H M [L]	
Landscape Potential	H [M] L	H [M] L	[H] M L	
Value	H [M] L	[H] M L	[H] M L	**TOTAL**
Score Based on Ratings	5	7	7	19

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	**I II**
Wetland of High Conservation Value	**I**
Bog	**I**
Mature Forest	**I**
Old Growth Forest	**I**
Coastal Lagoon	**I II**
Interdunal	**I II III IV**
None of the above	

Wetland name or number W1 and W2

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 (*can be added to map of hydroperiods)*	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	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	1
Hydroperiods	H 1.2	1
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	R 2.4	1
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	1
Width of unit vs. width of stream *(can be added to another figure)*	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	4
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	2
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	3
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 *(can be added to another figure)*	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 **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to figure above)*	S 4.1	
Boundary of 150 ft buffer (can be added to another figure)	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 W1 and W2

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 W1 and W2

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.

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 W1 and W2

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 > 3/4 area of wetland — points = 8 Depressions cover > ½ area of wetland — points = 4 Depressions present but cover < ½ area of wetland — points = 2 No depressions present — points = 0	0
R 1.2. Structure of plants in the wetland (areas with >90% cover at person height, **not** Cowardin classes) Trees or shrubs > 2/3 area of the wetland — points = 8 Trees or shrubs > 1/3 area of the wetland — points = 6 Herbaceous plants (> 6 in high) > 2/3 area of the wetland — points = 6 Herbaceous plants (> 6 in high) > 1/3 area of the wetland — points = 3 Trees, shrubs, and ungrazed herbaceous < 1/3 area of the wetland — points = 0	3
Total for R 1 — Add the points in the boxes above	3

Rating of Site Potential If score is: ___**12-16 = H** ___**6-11 = M** X **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	0
R 2.2. Does the contributing basin to the wetland include a UGA or incorporated area? Yes = 1 No = 0	0
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? powerline right of way is more than 10% Yes = 1 No = 0	1
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	2

Rating of Landscape Potential If score is: ___**3-6 = H** X **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? (*answer YES if there is a TMDL for the drainage in which the unit is found*) 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 W1 and W2

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: *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).* If the ratio is more than 20 points = 9 If the ratio is 10-20 points = 6 If the ratio is 5-<10 points = 4 If the ratio is 1-<5 points = 2 If the ratio is < 1 points = 1	2
R 4.2. Characteristics of plants that slow down water velocities during floods: *Treat large woody debris as forest or shrub. Choose the points appropriate for the best description (polygons need to have >90% cover at person height. These are NOT Cowardin classes).* Forest or shrub for > $^1/_3$ area OR emergent plants > $^2/_3$ area points = 7 Forest or shrub for > $^1/_{10}$ area OR emergent plants > $^1/_3$ area points = 4 Plants do not meet above criteria 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** X **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	1
R 5.2. Does the up-gradient watershed include a UGA or incorporated area?	Yes = 1 No = 0	0
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** X **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? *Choose the description that best fits the site*. 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) points = 2 Surface flooding problems are in a sub-basin farther down-gradient points = 1 No flooding problems anywhere downstream points = 0	2
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	2

Rating of Value If score is: X **2-4 = H** ___ **1 = M** ___ **0 = L** *Record the rating on the first page*

Wetland name or number W1 and W2

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
_X_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

0

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
_X_Seasonally flooded or inundated	3 types present: points = 2
____Occasionally flooded or inundated	2 types present: points = 1
_X_Saturated only	1 type present: points = 0
_X_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**

2

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.

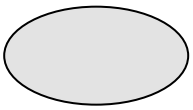
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

If you counted: > 19 species	points = 2
5 - 19 species	points = 1
< 5 species	points = 0

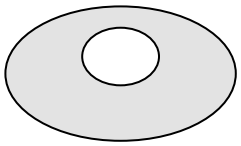
1

H 1.4. Interspersion of habitats

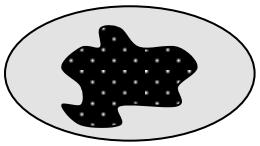
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*

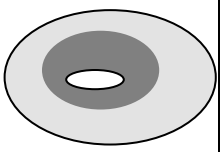


None = 0 points



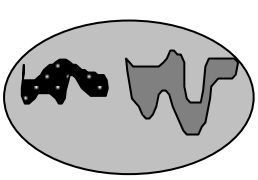
Low = 1 point

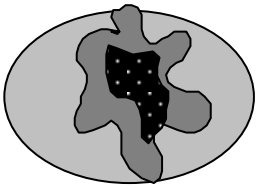


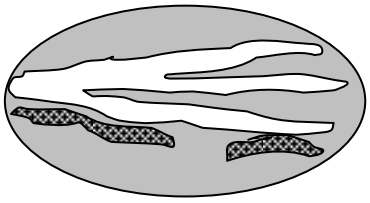


Moderate = 2 points

All three diagrams in this row are **HIGH** = 3points







1

Wetland name or number W1 and W2

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* X Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). ___ Standing snags (dbh > 4 in) within the wetland ___ Undercut banks are present for at least 6.6 ft (2 m) **and/or** 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) ___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed)* ___ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* X Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	2
Total for H 1 Add the points in the boxes above	6

Rating of Site Potential If score is: ___ **15-18 = H** ___ **7-14 = M** X **0-6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 66 % undisturbed habitat ___ + [(% moderate and low intensity land uses)/2] ___ = 66 % If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon points = 3 20-33% of 1 km Polygon points = 2 10-19% of 1 km Polygon points = 1 < 10% of 1 km Polygon points = 0 Wetlands are adjacent to the powerline ROW and trails for Wallace Fall State Park that my have dogs. It is assumed that assessing areas near paths as moderate impact would not change the rating category. ~505ac Adj. Hab. with 770ac 1km polygon = 66%	3
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 75 % undisturbed habitat ___ + [(% moderate and low intensity land uses)/2] ___ = 75 % Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10-50% and in 1-3 patches points = 2 Undisturbed habitat 10-50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0 ~576ac Adj. Hab. with 770ac 1km polygon = 75%	3
H 2.3. Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (- 2) ≤ 50% of 1 km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	6

Rating of Landscape Potential If score is: X **4-6 = H** ___ **1-3 = M** ___ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.* Site meets ANY of the following criteria: points = 2 — It has 3 or more priority habitats within 100 m (see next page) — It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) — It is mapped as a location for an individual WDFW priority species — It is a Wetland of High Conservation Value as determined by the Department of Natural Resources — 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 Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1 Site does not meet any of the criteria above points = 0	2

Rating of Value If score is: X **2 = H** ___ **1 = M** ___ **0 = L** *Record the rating on the first page*

Wetland name or number W1 and W2

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.

X **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*).

X **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*).

X **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.

X **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 W1 and W2

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt Yes –Go to **SC 1.1** No= **Not an estuarine wetland**	
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? Yes = **Category I** No - Go to **SC 1.2**	**Cat. I**
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? — 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 *Spartina*, see page 25) — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. Yes = **Category I** No = **Category II**	**Cat. I** **Cat. II**
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? Yes **–** Go to **SC 2.2** No – Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? Yes **= Category I** No **= Not a WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf Yes **– Contact WNHP/WDNR and go to SC 2.4** No **= Not a WHCV** 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? Yes **= Category I** No **= Not a WHCV**	**Cat. I**
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** 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? Yes – Go to **SC 3.3** No – Go to **SC 3.2** 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? Yes – Go to **SC 3.3** No = **Is not a bog** 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? Yes = **Is a Category I bog** No – Go to **SC 3.4** **NOTE:** 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. SC 3.4. Is an area with peats or mucks forested (> 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? Yes = **Is a Category I bog** No **= Is not a bog**	**Cat. I**

Wetland name or number W1 and W2

SC 4.0. Forested Wetlands Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.*** — **Old-growth forests** (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. — **Mature forests** (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). Yes = **Category I** ~~No = **Not a forested wetland for this section**~~	**Cat. I**
SC 5.0. Wetlands in Coastal Lagoons Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? — 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 — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)* Yes – Go to **SC 5.1** ~~No = **Not a wetland in a coastal lagoon**~~ SC 5.1. Does the wetland meet all of the following three conditions? — 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). — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2) Yes = **Category I** No = **Category II**	**Cat. I** **Cat. II**
SC 6.0. Interdunal Wetlands Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.*** In practical terms that means the following geographic areas: — Long Beach Peninsula: Lands west of SR 103 — Grayland-Westport: Lands west of SR 105 — Ocean Shores-Copalis: Lands west of SR 115 and SR 109 Yes – Go to **SC 6.1** ~~No = **not an interdunal wetland for rating**~~ 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)? Yes = **Category I** No – Go to **SC 6.2** SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? Yes = **Category II** No – Go to **SC 6.3** 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? Yes = **Category III** No = **Category IV**	**Cat I** **Cat. II** **Cat. III** **Cat. IV**
Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	

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Wetland Rating System Figures:

Wetland Name: W1 and W2

Figure 1. Detail of Cowardin Classes for Wetland W1 above and W2 below. Red outline is the wetland and yellow is 150-foot boundary. Hydroperiods are seasonal flooding indicated by blue (remaining area is saturated), and permanently flowing stream. Wetland Cover is PSS with upland over canopy of trees. The outlet for wetlands is the interface of the wetland with the stream.

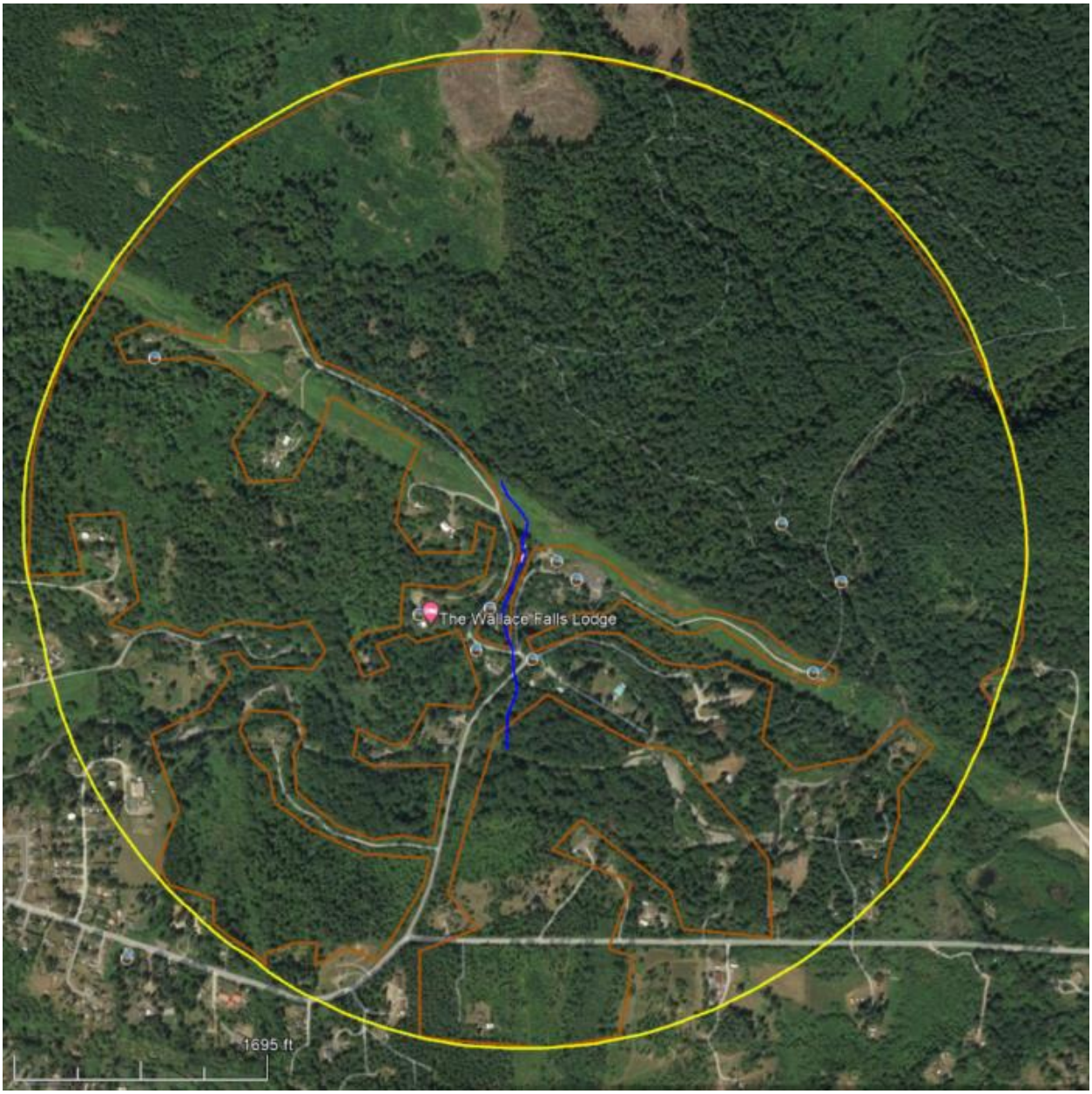


Figure 2. 1 km view (wetlands are tiny and not visible while yellow outer outline is 1 km polygon). Brown lines are habitat polygons. Adjacent accessible habitat polygon total 505 acres, while the remaining area while the other undisturbed habitat totals 71 acres. The 1 km polygon is 770 acres. Percent undisturbed adjacent habitat is 66 percent. Undisturbed habitat is 75 percent.

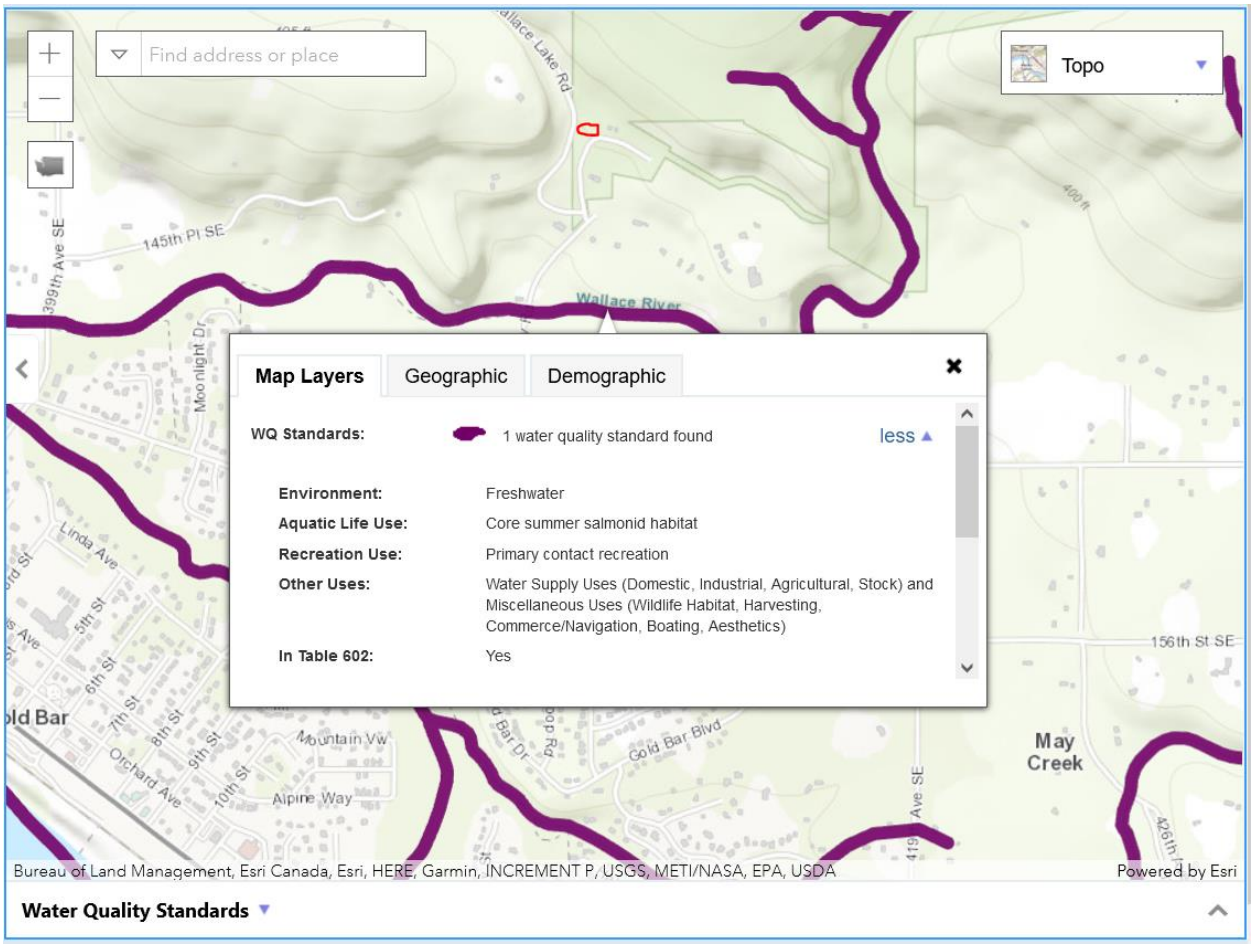


Figure 3. Water Quality Standards show above. There are no mapped TMDL in the near the project. Data per Washington Department of Ecology. Wetlands located in the red circle.

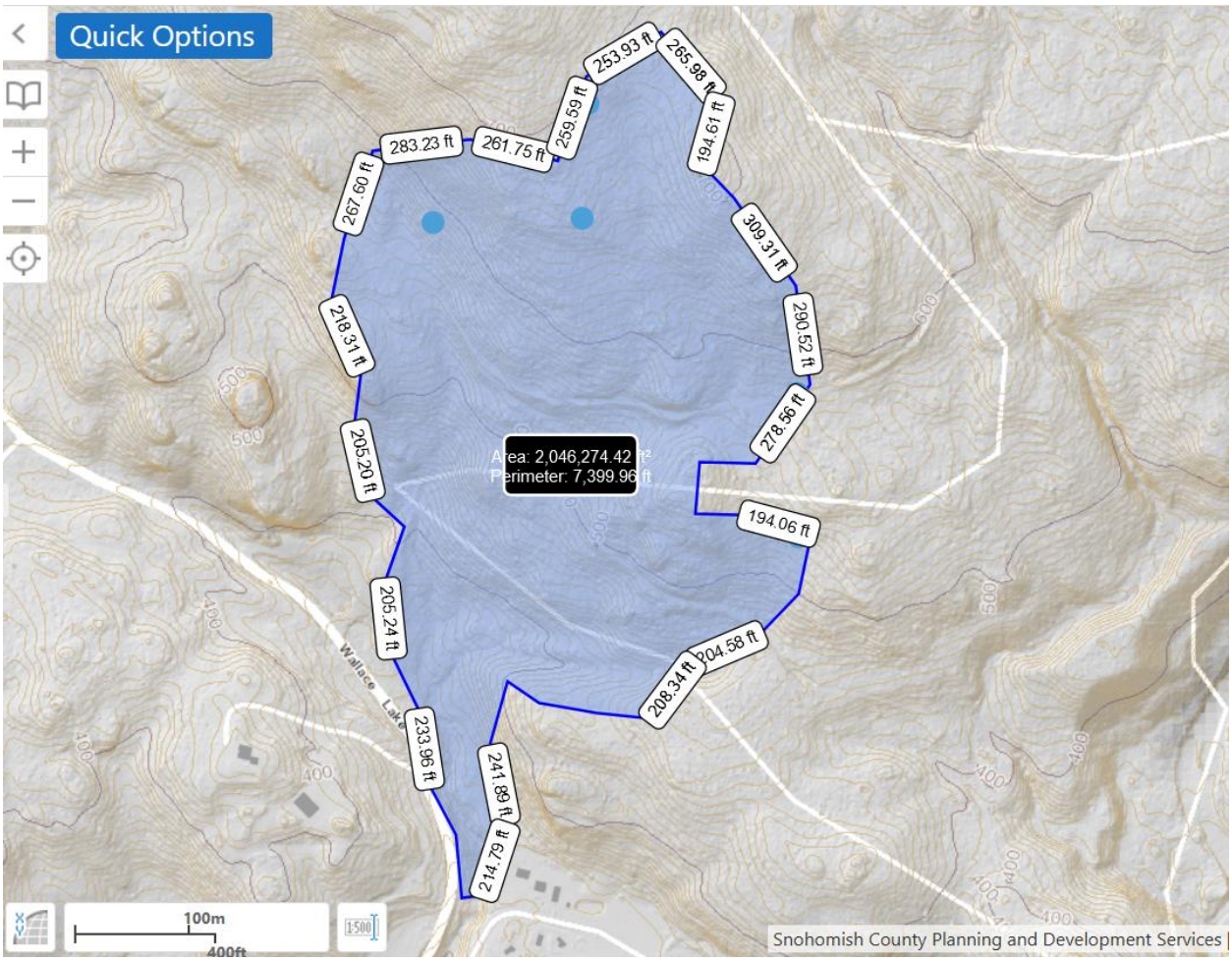


Figure 4. Contributing Basin is approximately 47 acres.

Appendix D. Photographs

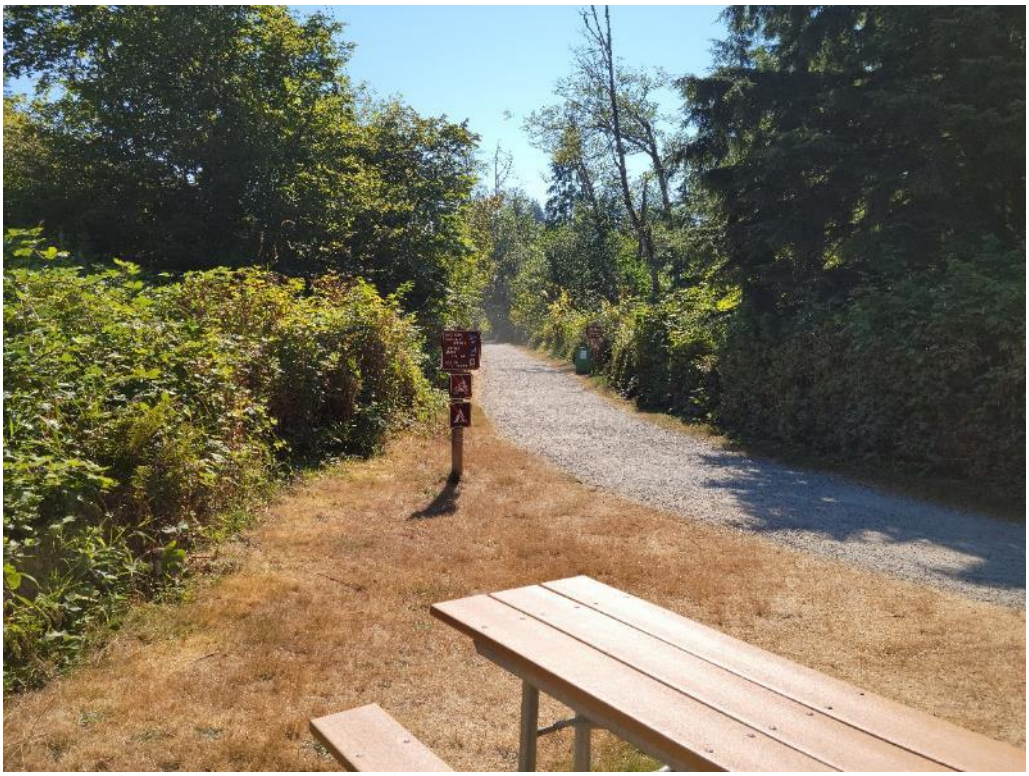


PHOTO 1

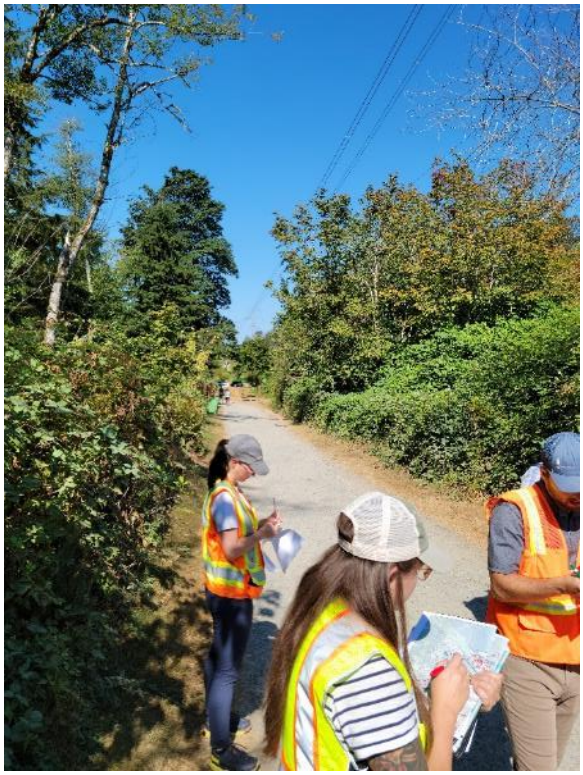


PHOTO 2

1. View looking east at existing trail. 2. View looking west along existing trail.	***Site Photographs***

PHOTO 3

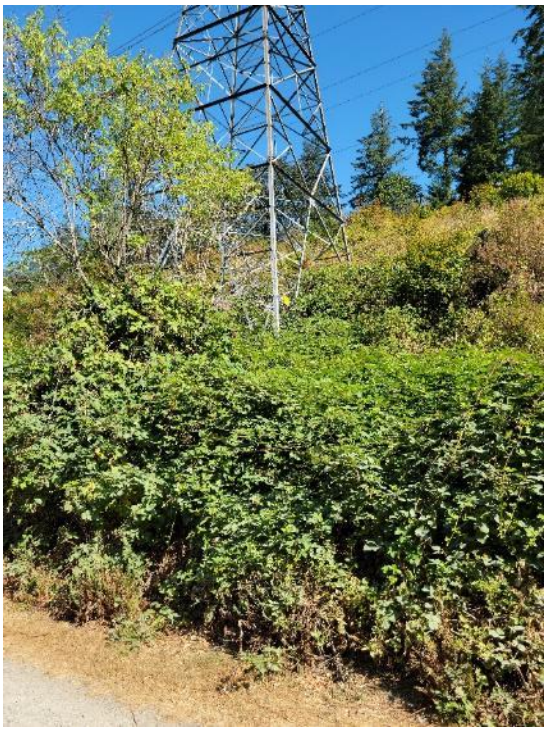
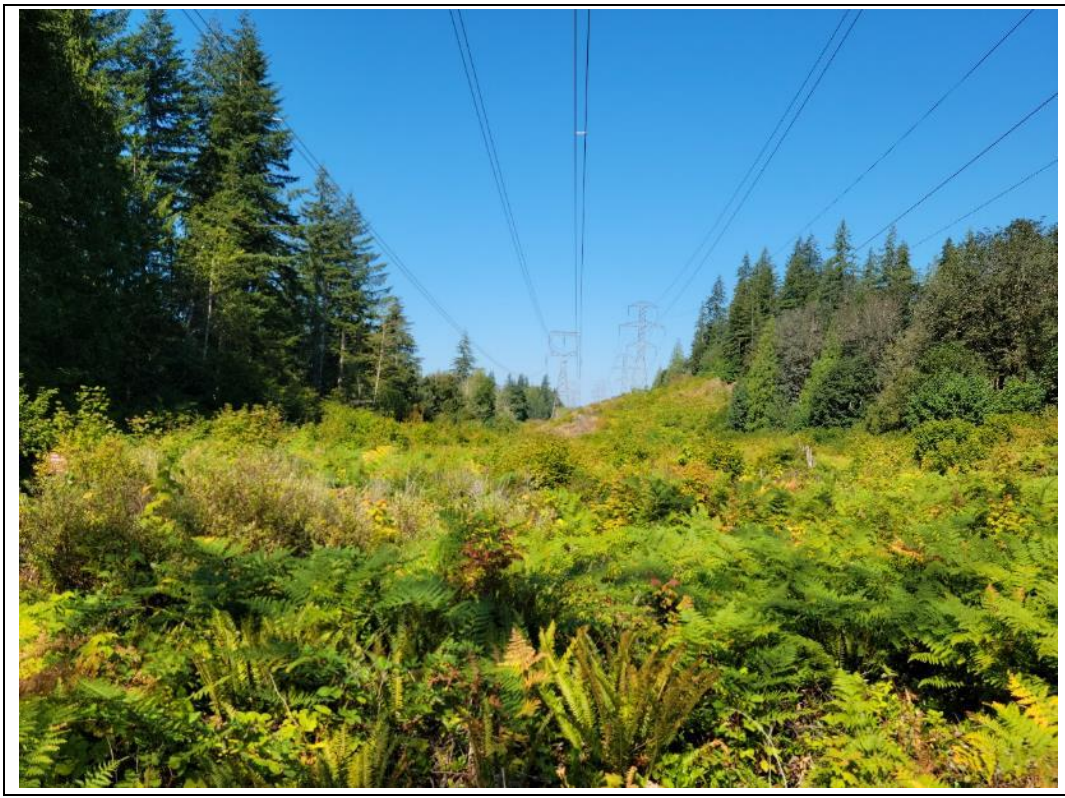


PHOTO 4



3. View looking at slope north of trail and below transmission towers. 4. View looking west at location of roundabout under transmission line	***Site Photographs***

PHOTO 5

PHOTO 6

5. View looking at existing stormwater pond and area west of existing parking lot. 6. View looking at existing park facilities within stream buffer	***Site Photographs***

PHOTO 7

PHOTO 8

7. View looking at existing park facilities within stream buffer 8. View looking at location of new well and associated structures	***Site Photographs***

PHOTO 9

PHOTO 10

9. View looking at Wetland W1 10. View looking upstream at Stream S1	***Site Photographs***

PHOTO 11

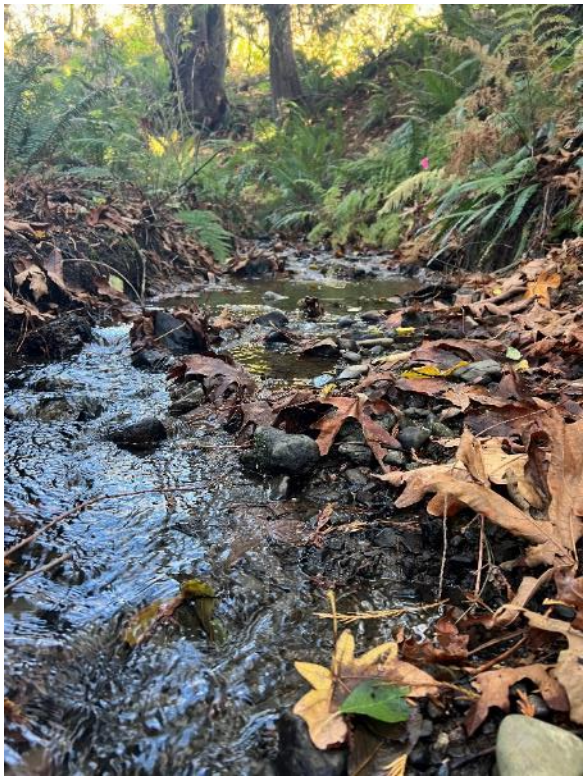
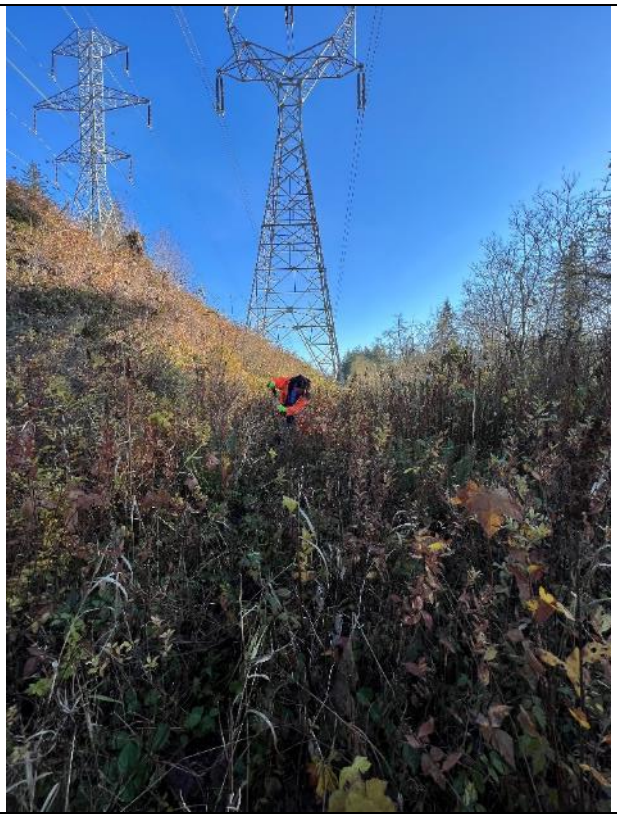


PHOTO 12



11. Close up view of Stream S1 12. View looking east at powerline and upland data plot location.	***Site Photographs***

PHOTO 13

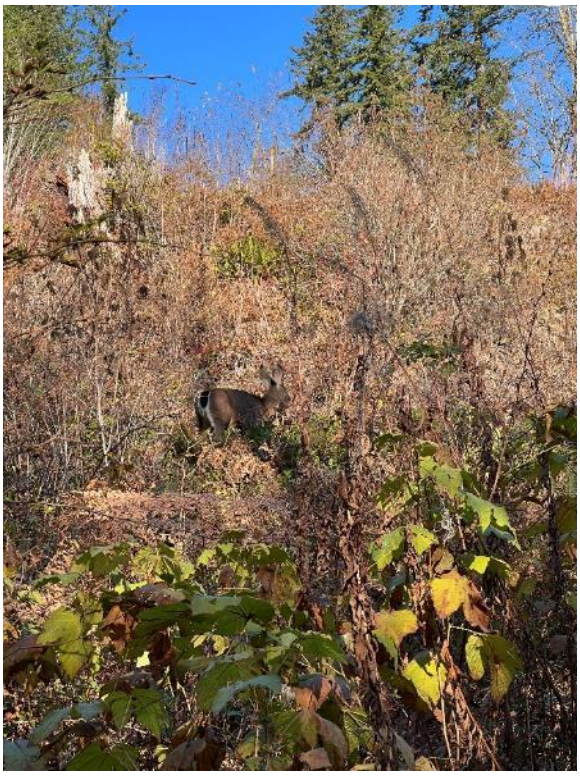


PHOTO 14

13. View looking east at existing parking lot. 14. Black-tailed deer foraging under powerlines.	***Site Photographs***

PHOTO 15

PHOTO 16

15. View looking downstream at Stream S1. Note steep slope on left bank. 16. View looking at Wetland W2 in foreground.	***Site Photographs***

PHOTO 17

PHOTO 18

17. View looking at forest habitat south of trail where additional parking is proposed. 18. View looking at parking lot from powerline	***Site Photographs***

Appendix E. Listed Species Data

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Washington Fish And Wildlife Office
510 Desmond Drive Se, Suite 102
Lacey, WA 98503-1263
Phone: (360) 753-9440 Fax: (360) 753-9405

In Reply Refer To:
Project Code: 2023-0042426
Project Name: Wallace Fall State Park

February 07, 2023

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/birds/policies-and-regulations.php.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Washington Fish And Wildlife Office
510 Desmond Drive Se, Suite 102
Lacey, WA 98503-1263
(360) 753-9440

Project Summary

Project Code: 2023-0042426
Project Name: Wallace Fall State Park
Project Type: Recreation - Maintenance / Modification
Project Description: Added parking, facilities, and well.
Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@47.8721204,-121.67204435328131,14z

Counties: Snohomish County, Washington

Endangered Species Act Species

There is a total of 6 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Gray Wolf *Canis lupus* Population: U.S.A.: All of AL, AR, CA, CO, CT, DE, FL, GA, IA, IN, IL, KS, KY, LA, MA, MD, ME, MI, MO, MS, NC, ND, NE, NH, NJ, NV, NY, OH, OK, PA, RI, SC, SD, TN, TX, VA, VT, WI, and WV; and portions of AZ, NM, OR, UT, and WA. Mexico. There is **final** critical habitat for this species. Species profile: https://ecos.fws.gov/ecp/species/4488	Endangered
North American Wolverine *Gulo gulo luscus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5123	Proposed Threatened

Birds

NAME	STATUS
Marbled Murrelet *Brachyramphus marmoratus* Population: U.S.A. (CA, OR, WA) There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/4467	Threatened
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Fishes

NAME	STATUS
Bull Trout *Salvelinus confluentus*	Threatened

Population: U.S.A., conterminous, lower 48 states
There is **final** critical habitat for this species. Your location overlaps the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/8212

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus*	Candidate

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/9743

Critical habitats

There are 2 critical habitats wholly or partially within your project area under this office's jurisdiction.

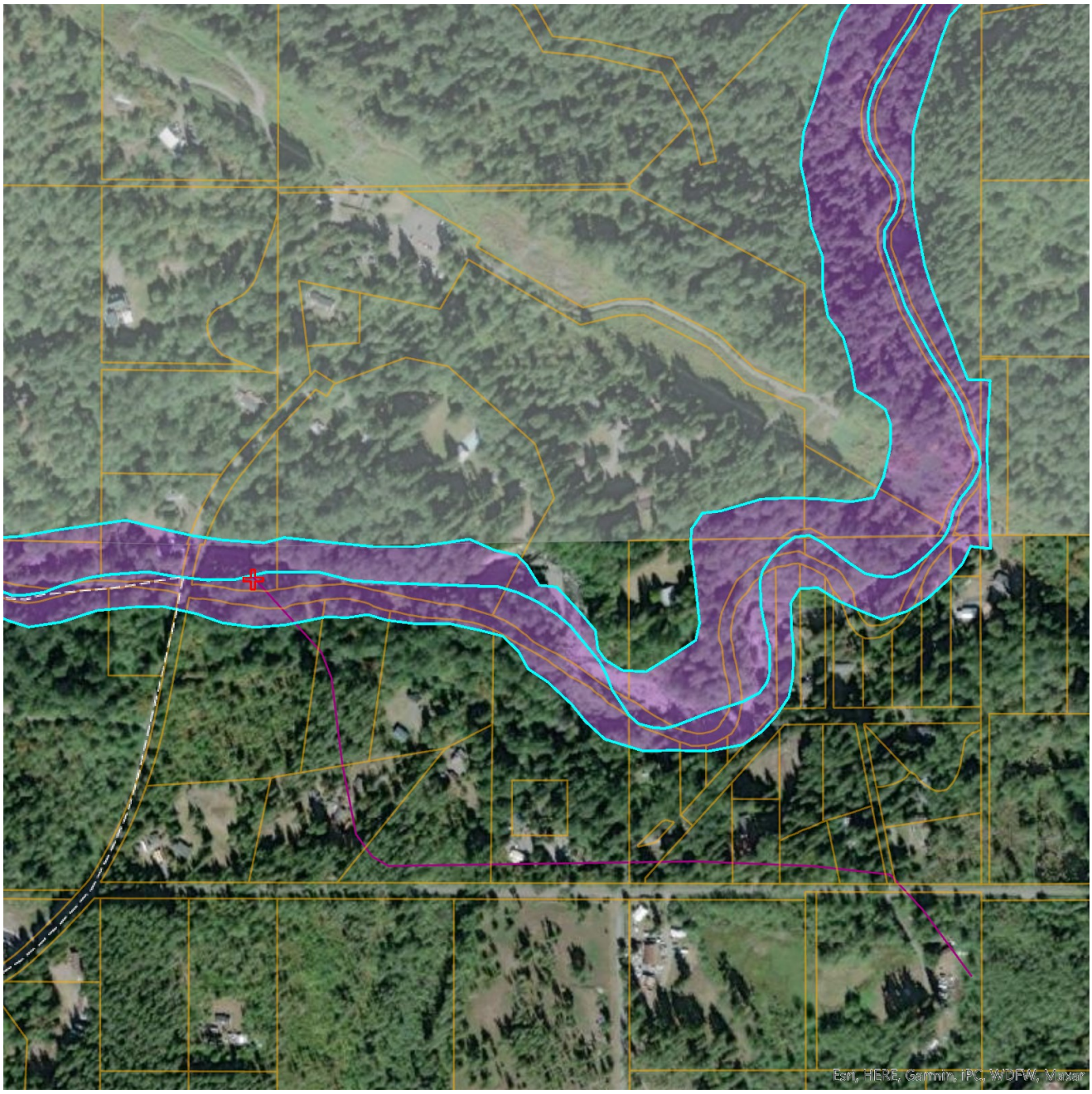
NAME	STATUS
Bull Trout *Salvelinus confluentus*	Final
https://ecos.fws.gov/ecp/species/8212#crithab	
Marbled Murrelet *Brachyramphus marmoratus*	Final
https://ecos.fws.gov/ecp/species/4467#crithab	

IPaC User Contact Information

Agency: Washington State Parks
Name: Richard Pratt
Address: 14432 SE Eastgate Way, Suite 400
City: Bellevue
State: WA
Zip: 98007
Email rpratt@deainc.com
Phone: 2069387870

WDFW Priority Habitats and Species Data

Priority Habitats and Species on the Web



Report Date: 02/06/2023

PHS Species/Habitats Overview:

Occurence Name	Federal Status	State Status	Sensitive Location
Steelhead	Threatened	N/A	No
Summer Steelhead	N/A	N/A	No
Dolly Varden/ Bull Trout	N/A	N/A	No
Bull Trout	Threatened	N/A	No
Fall Chinook	N/A	N/A	No
Pink Salmon Odd Year	N/A	N/A	No
Chinook	Threatened	N/A	No
Fall Chum	N/A	N/A	No
Chum	Not Warranted	N/A	No
Coho	N/A	N/A	No
Resident Coastal Cutthroat	N/A	N/A	No
Pink	Not Warranted	N/A	No
Rainbow Trout	N/A	N/A	No
Cutthroat	Not Warranted	N/A	No
Summer Chinook	N/A	N/A	No
Winter Steelhead	N/A	N/A	No
Coho	Candidate	N/A	No
Harlequin duck	N/A	N/A	No

PHS Species/Habitats Details:

Steelhead	
Scientific Name	*Oncorhynchus mykiss*
Priority Area	Occurrence
Site Name	Wallace River
Accuracy	NA
Notes	LLID: 1217938478591, Stock Name: Snohomish/Skykomish Winter Steelhead, Run: Winter, Status: Depressed
Source Record	6117
Source Dataset	SASI
Source Name	Not Given
Source Entity	WDFW Fish Program
Federal Status	Threatened
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Summer Steelhead	
Scientific Name	*Oncorhynchus mykiss*
Priority Area	Occurrence/Migration
Site Name	Wallace River
Accuracy	NA
Notes	LLID: 1217938478591, Fish Name: Steelhead Trout, Run Time: Summer, Life History: Anadromous
Source Record	17945
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	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Dolly Varden/ Bull Trout	
Scientific Name	*Salvelinus malma/S. confluentus*
Priority Area	Breeding Area
Site Name	Wallace River
Accuracy	NA
Notes	LLID: 1217938478591, Fish Name: Bull Trout, Run Time: Unknown or not Applicable, Life History: Unknown
Source Record	17939
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	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Bull Trout	
Scientific Name	*Salvelinus malma/S. confluentus*
Priority Area	Occurrence
Site Name	Wallace River
Accuracy	NA
Notes	LLID: 1217938478591, Stock Name: Skykomish Bull Trout, Run: Unspecified, Status: Healthy
Source Record	8108
Source Dataset	SASI
Source Name	Not Given
Source Entity	WDFW Fish Program
Federal Status	Threatened
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Fall Chinook	
Scientific Name	*Oncorhynchus tshawytscha*
Priority Area	Breeding Area
Site Name	Wallace River
Accuracy	NA
Notes	LLID: 1217938478591, Fish Name: Chinook Salmon, Run Time: Fall, Life History: Anadromous
Source Record	17930
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	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Pink Salmon Odd Year	
Scientific Name	*Oncorhynchus gorbuscha*
Priority Area	Breeding Area
Site Name	Wallace River
Accuracy	NA
Notes	LLID: 1217938478591, Fish Name: Pink Salmon, Run Time: Odd Year, Life History: Anadromous
Source Record	17942
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	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Chinook	
Scientific Name	*Oncorhynchus tshawytscha*
Priority Area	Occurrence
Site Name	Wallace River
Accuracy	NA
Notes	LLID: 1217938478591, Stock Name: Skykomish Chinook, Run: Sum/Fall, Status: Depressed
Source Record	1106
Source Dataset	SASI
Source Name	Not Given
Source Entity	WDFW Fish Program
Federal Status	Threatened
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Fall Chum	
Scientific Name	*Oncorhynchus keta*
Priority Area	Breeding Area
Site Name	Wallace River
Accuracy	NA
Notes	LLID: 1217938478591, Fish Name: Chum Salmon, Run Time: Fall, Life History: Anadromous
Source Record	17932
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	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Chum	
Scientific Name	*Oncorhynchus keta*
Priority Area	Occurrence
Site Name	Wallace River
Accuracy	NA
Notes	LLID: 1217938478591, Stock Name: Wallace Fall Chum, Run: Fall, Status: Healthy
Source Record	2132
Source Dataset	SASI
Source Name	Not Given
Source Entity	WDFW Fish Program
Federal Status	Not Warranted
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Coho	
Scientific Name	*Oncorhynchus kisutch*
Priority Area	Breeding Area
Site Name	Wallace River
Accuracy	NA
Notes	LLID: 1217938478591, Fish Name: Coho Salmon, Run Time: Unknown or not Applicable, Life History: Anadromous
Source Record	17936
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	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Resident Coastal Cutthroat	
Scientific Name	*Oncorhynchus clarki*
Priority Area	Occurrence/Migration
Site Name	Wallace River
Accuracy	NA
Notes	LLID: 1217938478591, Fish Name: Cutthroat Trout, Run Time: Unknown or not Applicable, Life History: Unknown
Source Record	17928
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	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Pink	
Scientific Name	*Oncorhynchus gorbuscha*
Priority Area	Occurrence
Site Name	Wallace River
Accuracy	NA
Notes	LLID: 1217938478591, Stock Name: Snohomish Odd-Year Pink, Run: Odd-Year, Status: Healthy
Source Record	4455
Source Dataset	SASI
Source Name	Not Given
Source Entity	WDFW Fish Program
Federal Status	Not Warranted
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Rainbow Trout	
Scientific Name	*Oncorhynchus mykiss*
Priority Area	Occurrence/Migration
Site Name	Wallace River
Accuracy	NA
Notes	LLID: 1217938478591, Fish Name: Rainbow Trout, Run Time: Unknown or not Applicable, Life History: Unknown
Source Record	17944
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	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Cutthroat	
Scientific Name	*Oncorhynchus clarki*
Priority Area	Occurrence
Site Name	Wallace River
Accuracy	NA
Notes	LLID: 1217938478591, Stock Name: Snohomish Coastal Cutthroat, Run: Unspecified, Status: Unknown
Source Record	7360
Source Dataset	SASI
Source Name	Not Given
Source Entity	WDFW Fish Program
Federal Status	Not Warranted
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Summer Chinook	
Scientific Name	*Oncorhynchus tshawytscha*
Priority Area	Occurrence/Migration
Site Name	Wallace River
Accuracy	NA
Notes	LLID: 1217938478591, Fish Name: Chinook Salmon, Run Time: Summer, Life History: Anadromous
Source Record	17934
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	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Winter Steelhead	
Scientific Name	*Oncorhynchus mykiss*
Priority Area	Breeding Area
Site Name	Wallace River
Accuracy	NA
Notes	LLID: 1217938478591, Fish Name: Steelhead Trout, Run Time: Winter, Life History: Anadromous
Source Record	17947
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	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Coho	
Scientific Name	*Oncorhynchus kisutch*
Priority Area	Occurrence
Site Name	Wallace River
Accuracy	NA
Notes	LLID: 1217938478591, Stock Name: Skykomish Coho, Run: Unspecified, Status: Healthy
Source Record	3090
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	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Harlequin duck	
Scientific Name	*Histrionicus histrionicus*
Priority Area	Breeding Area
Site Name	WALLACE RIVER
Accuracy	1/4 mile (Quarter Section)
Notes	HARLEQUIN BREEDING AREAS
Source Record	901484
Source Dataset	PHSREGION
Source Name	MEEK, MELANIE
Source Entity	WA Dept. of Fish and Wildlife
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS LISTED OCCURRENCE
Sensitive	N
SGCN	Y
Display Resolution	AS MAPPED
ManagementRecommendations	http://wdfw.wa.gov/publications/pub.php?id=00026
Geometry Type	Polygons

Appendix F. Proposed Project Habitat Impacts

Wallace Falls Water System Replacement and Parking Lot Expansion

Appendix F

Proposed Project Habitat Impacts - West Half

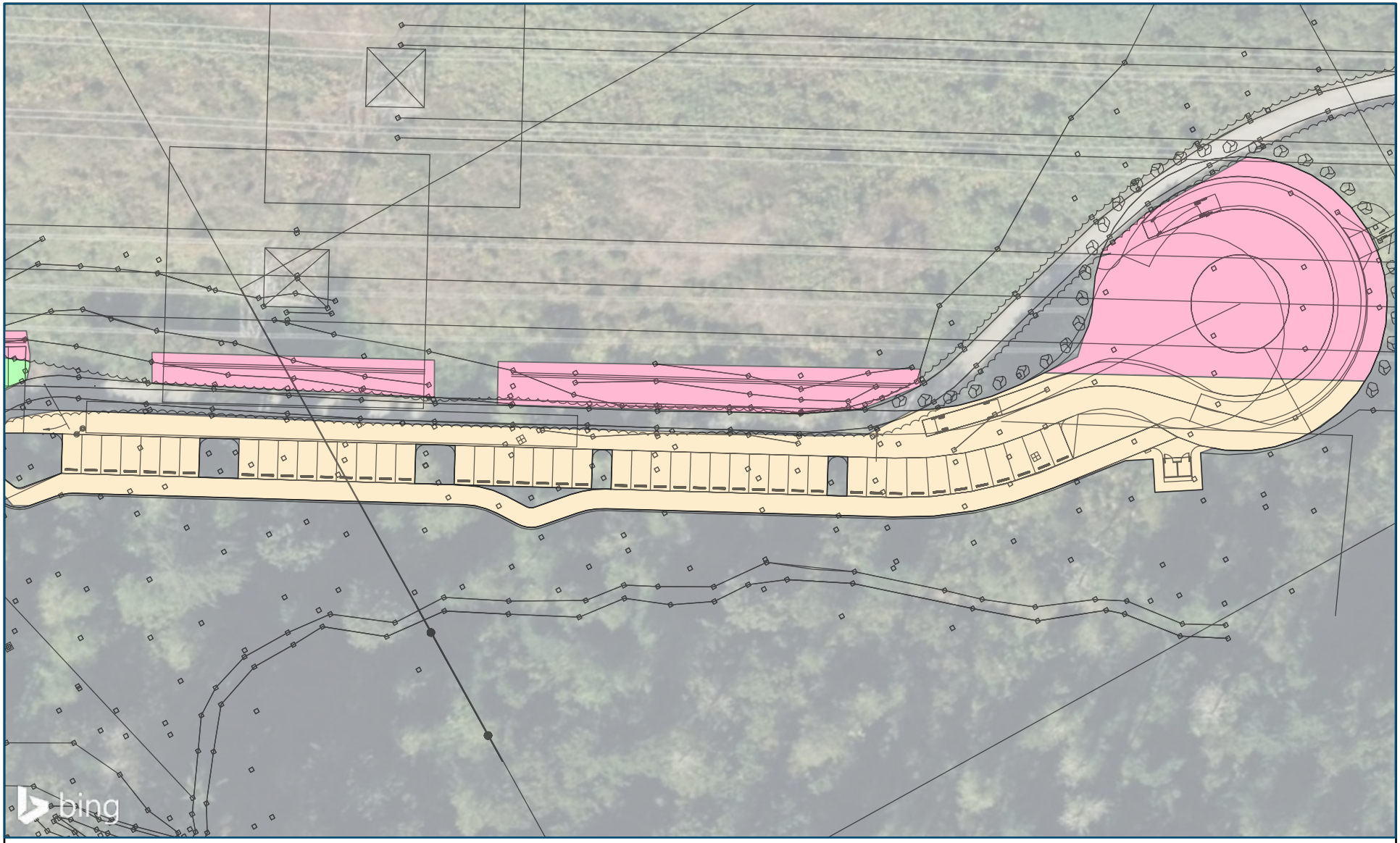
N

0 50 100 Feet

Planting Plan

- Forest (27,500 sq ft)
- Grass (18,500 sq ft)
- Shrubs (26,000 sq ft)

Path: P:\W\WPRC00000007\0600INFO\GS\WPRC0007.aprx



Wallace Falls Water System Replacement and Parking Lot Expansion

Appendix F

Proposed Project Habitat Impacts - East Half

N

0 50 100 Feet

Planting Plan

- Forest (27,500 sq ft)
- Grass (18,500 sq ft)
- Shrubs (26,000 sq ft)

Path: P:\W\WPRC00000007\0600INFO\GS\WPRC0007.aprx

Geotechnical Engineering Services

Wallace Falls Water System Improvements
Wallace Falls State Park
Gold Bar, Washington

for
Washington State Parks and Recreation Commission

January 23, 2023

GeoEngineers
Earth Science + Technology

Geotechnical Engineering Services

Wallace Falls Water System Improvements
Wallace Falls State Park
Gold Bar, Washington

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January 23, 2023

GeoEngineers

554 West Bakerview Road
Bellingham, Washington 98226
360.647.1510

Geotechnical Engineering Services

Wallace Falls Water System Improvements
Wallace Falls State Park
Gold Bar, Washington

File No. 2935-074-00

January 23, 2023

Prepared for:

Washington State Parks and Recreation Commission
c/o Consor, Inc.
421 W Riverside Avenue Ste 762
Spokane, Washington 98201

Attention: Preston Love, PE

Prepared by:

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554 West Bakerview Road
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Senior Principal

AF2:AJH:JRG:leh:mce

Table of Contents

LIST OF FIGURES

APPENDICES

1.0 INTRODUCTION

This report presents the results of our geotechnical engineering services in support of the proposed Wallace Falls Park Water Systems Improvement project located in Gold Bar, Washington. The site is located at Wallace Falls State Park in Gold Bar, Washington.

Figure 1, Vicinity Map, shows the site in relation to existing regional features. The configuration of the proposed trailhead parking area and related facilities is shown on the Site Plan, Figure 2. Site and nearby terrain features are shown on the LiDAR Topographic Map, Figure 3. This figure also identifies steep slopes as classified by Snohomish County Critical Areas Ordinance (CAO).

1.1. Project Description

As currently envisioned, the project will add parking areas and upgrade the existing water system for Wallace Falls State Park. Improvements are planned to include potential expansion of the existing parking lot, fencing, new groundwater well source with associated access/maintenance road, a water storage tank and a water treatment building. The new water system will be designed by Consor, Inc. (Consor). A site plan showing specific locations of the new facilities was not available at the time of this report.

Our understanding of the location of the proposed project elements is summarized below.

- Well and Water Treatment Building – There are two alternative locations currently, Alt A and Alt B, with Alt A the preferred location near the northwest portion of the site in the Rangers residence area.
- Parking Expansion – Parking expansion is planned for the existing stormwater pond area and along the first 600 feet of the existing trail and proposed loop road.
- Parking Infiltration Areas – We understand that the proposed infiltration areas are to be located at the existing stormwater pond area and along a portion of the proposed loop road.
- Retaining Walls – We understand that retaining walls may be needed along the northern edge of the parking expansion at the existing stormwater pond area for grade transitions. Locations, heights and offsets from property line are not available at this time.
- Comfort Station – A new CXT vault toilet will be installed near the parking turnaround along the existing trail.

1.2. Purpose and Scope

The purpose of our services is to provide geotechnical design information to the project team to facilitate planning and design for the project. Our scope of services included review of available existing geotechnical information, review of in-house files and geotechnical reports in the project vicinity, a brief site reconnaissance of the project area, completing test pits and providing a geotechnical report addressing applicability of County CAO related to geohazards and geotechnical recommendations. We performed our scope of services in general accordance with the "Exhibit A Scope of Work Outline" and authorized via Task Order 22-3529 between the State of Washington Parks and Recreation Commission and GeoEngineers dated August 6, 2022.

2.0 FIELD EXPLORATIONS AND LABORATORY TESTING

2.1. Field Explorations

Subsurface conditions for the proposed water supply and related facilities were evaluated by excavating six test pits (TP-1 through TP-6) to depths ranging from 7¼ to 9 feet below existing site grades on November 16, 2022. The approximate locations of the test pits are shown in Figure 2. Appendix A includes logs of the test pits and details of the subsurface exploration program.

2.2. Laboratory Testing

Soil samples obtained from the test pits were transported to our Bellingham geotechnical laboratory and evaluated to confirm or modify field classifications, as well as to evaluate engineering properties of the soil types encountered. Representative samples were selected for laboratory testing consisting of moisture content tests, percent fines tests, sieve analyses and Atterberg limits. The tests were performed using test methods of ASTM International (ASTM) or other applicable procedures. Appendix B includes a brief discussion of the laboratory test procedures and test results.

3.0 SITE DESCRIPTION

3.1. Geologic Conditions

We reviewed the United States Geological Survey (USGS) map titled "Surficial Geologic Map of the Skykomish and Snoqualmie Rivers Area, Snohomish and King Counties, Washington" (Booth 1990). Our review indicates the surficial soils at the site consist primarily of recessional outwash and glacial till of the Vashon Stade of the Fraser glaciation and exposed bedrock. The outwash consists of stratified sand and gravel and well bedded silty sand to silty clay deposited by meltwater from a receding glacier. The glacial till consists of compact silty sand to sandy silt or clay with gravel deposited by a glacier. The bedrock in the area consists of a pre-tertiary mélange of metamorphic rocks including argillite, phyllite, graywacke, chert, greenstone, marble, amphibolite, metatonalite and metagabbro.

The combined outwash, till, and bedrock deposits also underlie the sloping areas south of the site, with older alluvial sand and gravel deposited by the Wallace River, mapped south of the site.

3.2. Surface Conditions

The site is located within an upland area along the north side of Wallace River northeast of Gold Bar, Washington, as shown in Figure 1 (Vicinity Map). The site is within Section 32 of Township 28 N, Range 9E. Figure 2 (Site Plan) shows the site and planned parking areas in more detail with our test pit locations. Regional terrain features around the site are shown in Figure 3 (LiDAR Topographic Map).

The site is bounded by the Huston Center property to the north and south and by undeveloped properties to the east and west. A Bonneville Power Administration power transmission line corridor runs through the site just north of the existing parking area (Figure 2). Wallace River flows east and south of the site. A small creek runs just west of the parking area. There is an existing asphalt-paved parking lot with a small, manicured lawn picnic area. An existing bathroom facility is located east of the parking area. A gravel surfaced trail heads east from the parking lot along the transmission line corridor and turns north to Wallace Falls. A small stormwater pond is located at the northwest corner of the parking area. The park ranger office is located west of the stormwater pond.

The site and nearby topography are shown in Figure 3. The ground surface along the south and west edges of the upland area is roughly Elevation 330 feet, while the Wallace River is at roughly Elevation 230 feet, south of the site. The elevation varies from approximately 340 feet at the north end of the parking area to 230 feet along the south end. (Elevations in this report refer to NAVD 88 datum). The resulting elevation difference between the river and the plateau is roughly 100 feet.

Steep slopes located south of the existing parking lot, west of the proposed treatment building area and north of the proposed parking area are generally inclined at about 35 to 45 percent, which means these slopes classify and landslide hazards by County CAO as discussed in Section 3.6.2 of this report. As discussed in the following section, we did not observe any evidence of shallow or deep seated slope instability.

3.2.1. Geologic Reconnaissance and Steep Slopes

We completed a geologic reconnaissance of steep slope areas north and south of the project site on November 16, 2022. The steep slopes located directly south of the existing parking area are associated with the north side of Wallace River. Slope heights were estimated using the USGS topographic survey map for the Gold Bar 7½ minute quadrangle and LiDAR data (Figure 3). Slope inclinations were estimated using a clinometer in the field. The slope heights and inclinations should be considered approximate.

The slopes west of the proposed treatment building site at Alt A (existing ranger office) are about 10 to 20 feet in height above the existing creek and are generally inclined at approximately 40 to 42 percent. The slopes northeast of Alt A are about 60 feet in height and are generally inclined at about 45 to 60 percent. The slopes south of the proposed treatment building site at Alt B are about 40 feet in height and are generally inclined at about 36 to 42 percent. The horizontal distance between the top of adjacent slopes and the proposed Alt A treatment building site is about 60 feet from the top of slope above the creek and approximately 50 feet to the toe of the slope to the northeast. The slope above Alt A consists of bedrock. The slopes below Alt A and Alt B are heavily forested with deciduous and evergreen trees and underbrush. The rock slope above Alt A /existing parking area is located within the BPA power transmission easement and therefore is cleared of trees, with some brush, blackberry brambles and a few stumps. There are locally steeper slopes throughout the park. We did not observe groundwater seepage or indications of shallow or deep seated slope instability along the slopes near Alt A or Alt B.

We reviewed LiDAR imagery of these slopes and historical aerial photographs from 1989 to 2022 and did not observe indications of deep seated slope instability. However, the imagery shows areas of shallow slope failures along the Wallace River mapped to the east and south of the site in the Washington State Department of Natural Resources (DNR) landslide inventory map.

3.3. Soil Survey (NRCS) Units

The United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS), formerly the Soil Conservation Service, has mapped soil units within Snohomish County according to various criteria. Mapped soils within the project site include Ragnar fine sandy loam, 0 to 8 percent slopes and Tokul-Ogarty-Rock outcrop complex, 0 to 25 percent slopes, over the majority of the site.

The Ragnar fine sandy loam is a very deep and well-drained soil described as being formed on glacial outwash plains. The Tokul-Ogarty-Rock outcrop complex is a moderately deep, moderately well drained soil described as forming in glacial till and volcanic ash. It has a moderate hazard of water erosion.

A third NRCS map unit, the Tokul-Winston gravelly loam, 25 to 65 percent slopes, occurs along the Wallace River and the slopes south of the site. The Tokul-Winston soils are formed on glacial till and outwash soils and have a high hazard of water erosion due to slope inclination.

3.4. Subsurface Soil Conditions

Based on our test pit explorations completed within the proposed improvement area, the subsurface conditions generally consist of surficial layers of sod or forest duff, topsoil, weathered horizon, alluvium and/or recessional glacial outwash, as discussed below.

- **SOD:** A thin layer of sod was observed in TP-1 and TP-4, which were completed in lawn areas. The sod layer was 2 inches thick in TP-1 and 3 to 4 inches thick in TP-4.
- **Forest Duff and Topsoil:** Test pits TP-2, TP-3, TP-5, and TP-6 encountered forest duff and topsoil at the ground surface extending to depths ranging from 6 inches in TP-2 and TP-3, to 15 to 18 inches in TP-5, and TP-6. Approximately 6 inches of topsoil was observed below the sod layer in TP-1.
- **Weathered Horizon:** The surficial soils are underlain by a weathered horizon in each test pit, except for TP-4 and TP-6, where the weathered horizon was likely removed during construction of the existing stormwater pond. The weathered horizon generally consisted of loose silty fine to medium sand and/or sandy silt with significant iron staining. This unit was observed to extend to depths of 2, 1½, 3½, and 2½ feet below ground surface (bgs), respectively.
- **Alluvium:** Alluvium associated with the creek that runs west of the parking area was encountered in TP-1 underlying the weathered horizon at 2 feet bgs. The alluvium encountered generally consisted of loose silty fine sand with clay to stiff sandy silt with clay. This unit extended to a depth of 7½ feet bgs.
- **Recessional Outwash Deposits:** Medium dense recessional glacial outwash deposits were encountered in all test pits below the weathered zone or alluvium, except for TP-4 and TP-6 where it was observed below the sod. Soils in this unit includes loose to dense fine to coarse sand with gravel and variable silt and/or fine to coarse gravel with sand with varying amounts of silt, and cobbles. The glacial outwash was encountered at depths of 7½, 1½, 3½, ¼, 2½, and 4 feet bgs, respectively. All test pits were terminated in this unit.

3.5. Groundwater Conditions

Groundwater seepage was only observed in test pit TP-4. We observed groundwater seepage at approximately 7 feet below the existing ground surface. TP-4 was completed in the stormwater pond and therefore was completed at a lower elevation relative to the surrounding site grades.

We expect seasonally perched groundwater will develop in the weathered horizon overlying the silty soils at the site in response to seasonal changes in precipitation.

Groundwater conditions observed during excavation are presented on the test pit logs. Groundwater conditions observed represent a short term condition and may or may not be representative of the long term groundwater conditions at the site. Groundwater conditions should be expected to vary as a function of season, precipitation, creek or river levels and other factors.

3.6. Geologic Hazards

Chapter 30.62B of the Snohomish County Code (SCC) contains regulations that apply to development in geologically hazardous areas, including erosion, landslide, seismic, mine, volcanic and tsunami hazard areas within the county. Definitions for these hazard areas are given in SCC Sections 30.91A through 30.91Z. The proposed park improvements are within or near erosion, landslide, and seismic hazard areas, as described below.

3.6.1. Erosion Hazards

Section 30.91E.160 of the SCC defines erosion hazard areas as follows:

"Erosion hazard areas means:

(1) Areas containing soils which are at high risk from water erosion according to the mapped description units of the United States Department of Agriculture Natural Resources Conservation Service (NRCS), formerly the Soil Conservation Service, National Soil Classification System,

(2) Channel migration zones; and

(3) The shorelines of water bodies subject to wind and wave erosion."

The site is mapped within an erosion hazard area, as indicated by the Snohomish County Landslide, Erosion, and Volcanic Hazards map, 2007. The Tokul-Ogarty-Rock outcrop complex is mapped at the site and the Tokul-Winston gravelly loam occurs along the river east and south of the site. As noted above in "Soil Survey (NRCS) Units," the Tokul-Ogarty-Rock outcrop complex and Tokul-Winston gravelly loam are described by the NRCS as having moderate and high erosion potential, respectively.

3.6.2. Landslide Hazards

Section 30.91L.040 of the SCC defines landslide hazard areas as follows:

"Landslide hazard areas means areas potentially subject to mass earth movement based on a combination of geologic, topographic, and hydrologic factors, with a vertical rise of 10 feet or more. These include the following:

(1) Areas of historic landslides as evidenced by landslide deposits, avalanche tracks, and areas susceptible to basal undercutting by streams, rivers or waves;

(2) Areas with slopes steeper than 33 percent which intersect geologic contacts with a relatively permeable sediment overlying a relatively impermeable sediment or bedrock, and which contain springs or ground water seeps;

(3) Areas located in a canyon or an active alluvial fan, susceptible to inundation by debris flows or catastrophic flooding.

For subsections (1), (2) and (3) of this section, the landslide hazard area also includes lands within a distance from the top of the slope equal to the height of the slope or within a distance of the toe of the slope equal to two times the height of the slope. The director may expand the boundary of a landslide hazard area pursuant to SCC 30.62B.390."

Qualifying Landslide Hazard Area: Figure 3 indicates landslide hazard areas mapped by Snohomish County based on the definition in SCC 30.91L.040. The slopes to the south of the existing parking area (proposed Alt B treatment building) and the slope above the proposed new parking area are included within a mapped landslide hazard area.

Discussion Regarding Subsection (1): Based on review of the DNR "Detailed Landslide Inventory of portions of Gold Bar, Wallace Lake quadrangle(s), Snohomish County, WA", there are no mapped landslide areas within the areas of proposed improvements. Our review of LiDAR imagery suggests that localized areas of shallow slides have occurred along the Wallace River. Review of historical air photos from 1989 to 2022 indicate no obvious features related to deep seated landsliding at the site.

Discussion Regarding Subsection (2): Areas with slopes steeper than 33 percent do occur within the proposed improvements areas. Slopes steeper than 33 percent occur to the north, west, and south of the proposed improvements. The proposed improvements will require a setback from crest or base of slopes per code requirements. We recommend a minimum setback of 7 feet (H/3 for descending slope) from the slopes to the west of Alt A and a 30 foot (H/2 for ascending slope) setback from the ascending slope to the north. We recommend a 13 foot (H/3 for descending slope) setback from the top of the slopes below Alt B.

Discussion Regarding Subsection (3): The site does not occur within a canyon or an active alluvial fan. We observed no indications of shallow or deep seated slope instability along the slopes during our geologic reconnaissance. As discussed in the "Conclusions" section, it is our opinion that construction of the proposed improvements will not result in an increased instability of the surrounding site area provided design and construction measures follow best management practices (BMPs) and the SCC regarding earthwork, site preparation, erosion and drainage mitigation measures.

3.6.3. Seismic Hazards

Section 30.91S.121 of the SCC defines seismic hazard areas as follows:

"Seismic hazard areas means areas that have been determined by the building official to have known or inferred faults, ground rupture potential, liquefaction potential, or seismically induced slope stability, where such information is provided to Snohomish County through any of the following means: geotechnical studies and reports prepared by licensed professionals pursuant to chapter 19.27 RCW, SCC 30.62B.140 of 30.62B350; geotechnical studies and reports prepared by federal, state or local agencies; and geotechnical studies, reports or environmental impact statements prepared through the requirements of the State Environmental Policy Act (SEPA) chapter 43.21C RCW."

According to the USGS Quaternary Faults database, the nearest known Quaternary faults is the Southern Whidbey Island Fault Zone approximately 13 miles west of the site. The Washington State DNR data base indicates the nearest active fault is 6 miles west of the site. Based on this information, the likelihood of ground surface fault rupture within the site is low.

Based on the geologic units mapped at the site and our field observations, it is our opinion that the potential for liquefaction is low.

It is our opinion that deep seated landsliding resulting from a strong earthquake is unlikely around the site, based on our observations of slope conditions and site geology. However, shallow slides could possibly occur along the slopes during a strong earthquake.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1. Summary of Key Geotechnical Issues

Based on the results of our geologic reconnaissance and subsurface exploration program, geotechnical laboratory testing, analyses, and experience with similar projects, we conclude the geologic and geotechnical conditions are suitable for the proposed water system and parking improvements project. The key geotechnical issues for the project include the following:

- The steep slopes located to the north, south and west of the site meet the criteria for landslide hazard areas in the SCC. We did not observe groundwater seepage or indications of shallow or deep-seated slope instability of the nearby slopes. The proposed improvements will require a setback from crest or base of slopes per code requirements. We recommend a minimum setback of 7 feet (H/3 for descending slope) from the slopes to the west of Alt A and a 30-foot (H/2 for ascending slope) setback from the ascending slope to the north. We recommend a 13-foot (H/3 for descending slope) setback from the top of the slopes below Alt B. It is our opinion the construction of the proposed improvements will not result in an increased instability in the surrounding area, provided design and construction measures follow BMPs and the SCC regarding earthwork, site preparation, erosion and drainage mitigation measures.
- The weathered horizon and some of the upper recessional outwash deposits encountered in the explorations contain a moderate percentage of fines and are moisture sensitive. We expect operation of equipment on these soils will not be difficult when the soils are at their optimum moisture content; however, most of these upper soils appear to have a natural moisture content well above optimum such that trafficability could be difficult and create disturbance without careful planning. Some of the on-site soils may be used as structural fill during dry weather conditions (typically June through September) provided the material is properly moisture conditioned. Site preparation and earthwork should be completed during the drier months to reduce costs associated with these activities. Imported gravel borrow should be used as structural fill during wet weather conditions and during the wet season (typically October through May).
- Effective erosion and sedimentation control must be implemented during construction so that potential impacts to adjacent areas are reduced. The erosion and sediment control measures used for this project should be in accordance with the requirements of Snohomish County.
- Excavations for the parking areas and water system structures may encounter shallow perched groundwater zones within the native soils during the wet winter and spring months. We expect groundwater seepage can be handled by excavating interceptor trenches and diverting flow and/or installing sumps and pumps and discharging to an appropriate erosion control facility.
- The new treatment building, CXT vault toilet, and retaining walls may be supported on shallow foundations or slab-on-grade bearing on competent native soils or on a minimum of 12 inches of compacted structural fill placed over approved subgrade. An allowable soil bearing pressure of 2,000 pounds per square foot (psf) can be used in design of shallow footings bearing on recompacted inorganic weathered horizon or recessional outwash or structural fill placed as recommended in this report. Subgrade soils that cannot be firmly compacted should be removed and replaced with up to 24 inches (total below bottom of footing) of compacted structural fill. All loose or otherwise disturbed soils should be removed from below foundations.

- Slabs-on-grade should be underlain by at least 12 inches of compacted structural fill for uniform support. Subgrade soils that cannot be firmly compacted should be removed and replaced with up to 24 inches (total below bottom of slab) of compacted structural fill.
- Retaining walls for grade transition areas may be constructed if needed, provided they are embedded a sufficient depth, are adequately drained, and are designed for the anticipated loading conditions. Retaining walls may consist of segmental block, gravity block, and cast-in-place concrete cantilever walls.

These geotechnical issues and other considerations are discussed further and recommendations pertaining to geotechnical aspects of the project are presented in the following sections.

4.2. Geologic Hazard Areas Evaluation

SCC Section 30.62B.140 lists geotechnical report requirements for any development activity occurring in geologically hazard areas. We have provided minimum setbacks from slopes that qualify as landslide hazard areas.

Detailed geotechnical requirements outlined in SCC Sections 30.62B.140 and 30.62B.340 are provided in Appendix C along with our response to each requirement. Based on our response to each requirement, it is our opinion that the site can be developed as planned provided design and construction follows BMPs, the SCC and our recommendations.

4.3. Seismic Design Considerations

4.3.1. Seismicity and Seismic Design Information

The site is located within the Puget Sound region, which is seismically active. Local design practice in Puget Sound and local building codes include the possible effect of a very large subduction earthquake and local known faults in the design of structures. As previously described, we conclude that the site is not considered to be at risk of surface rupture.

4.3.2. International Building Code Seismic Design Information

The 2018 International Building Code (IBC) is the current building code. The 2018 IBC references the 2016 Minimum Design Loads for Buildings and Other Structures (American Society of Civil Engineers [ASCE] 7-16). We recommend that the site be classified as Site Class D – Stiff Soil Profile. Based on the site class and site mapped spectral acceleration, we anticipate the new structure will be designed in accordance with Exception 2 of Section 11.4.8 in ASCE 7-16. For Site Class D with S_1 greater than or equal to 0.2g, Exception 2 allows the structural designer to use ground motions based on the site class and mapped spectral acceleration rather than completing a site-specific response analysis. Our recommended seismic design parameters for Exception 2 are presented in Table 1 below. If requested, GeoEngineers can complete a site-specific seismic response analysis, which might provide reduced seismic demands from the parameters in Table 1.

TABLE 1. SPECTRAL RESPONSE ACCELERATIONS (SRAs)

SRA and Site Coefficients	Short Period	1 Second Period
Mapped SRA	S_S = 0.965	S_1 = 0.339
Site Coefficients	F_a = 1.114	F_v = 1.961
Max. Considered Earthquake SRA	S_{MS} = 1.075	S_{M1} = 0.665
Design SRA	S_{DS} = 0.717	S_{D1} = 0.443

Note:
Soil Profile Type D Description: Stiff Soil Profile (15<N<50).

4.3.3. Liquefaction Potential

Liquefaction is a phenomenon where soils experience a rapid loss of internal strength as a consequence of strong ground shaking. Ground settlement, lateral spreading, and/or sand boils may result from liquefaction. Structures supported on liquefied soils could suffer foundation settlement or lateral movement that could be severely damaging to the structures. Conditions favorable to liquefaction occur in loose to medium dense, clean to moderately silty sand that is below the groundwater level. Dense soils/bedrock or soils that exhibit cohesion are generally considered not to be susceptible to liquefaction.

Based on our test pits at this site, and our understanding of the depositional environment and compositional matrix of the recessional outwash, our preliminary estimate is that the site has a low potential for liquefaction during the design level earthquake. In our opinion, the site liquefaction potential does not require mitigation when evaluating foundation and structure design.

4.4. Foundation Support

Shallow foundations are planned for the proposed water treatment building. Foundations should be designed and constructed based on the following recommendations.

4.4.1. Footing Subgrade Preparation

Isolated or continuous spread footings founded on native inorganic weathered horizon and recessional outwash sand, or structural fill over approved subgrade soils, will provide adequate bearing support for the proposed lightly loaded single story structures. Because of the alluvial soils encountered in TP-1 and variable weathered horizon encountered in TP-2, TP-3, and TP-5, we recommend a minimum of 12-inches of compacted structural fill below footings to provide more uniform support of the foundation. We recommend that the footing subgrade and any structural fill placed below the footings be thoroughly compacted to a uniformly dense condition to at least 95 percent of the maximum dry density (MDD) in accordance with ASTM D 1557 and a firm condition prior to construction. If the subgrade cannot be adequately compacted, we recommend a maximum 2 foot overexcavation and replacement with structural fill unless otherwise recommended by the geotechnical engineer.

The structural fill should extend 1 foot beyond the edges of the footings or a minimum lateral distance equivalent to one-half the depth below the footings, whichever is greater. Structural fill should be compacted as described in the subsequent sections.

4.4.2. Allowable Bearing Pressure

We recommend that continuous wall footings and interior isolated spread footings have minimum widths of 18 and 24 inches, respectively. The exterior footings should be founded a minimum of 18 inches below

the lowest adjacent grade for frost protection. We recommend that the footings founded as described above be designed using a maximum allowable soil bearing pressure of 2,000 psf for dead plus live loads. The allowable soil bearing pressure may be increased by up to one-third for wind loads. The allowable soil bearing pressure may be increased by one-third for transient loads (seismic or wind). We recommend that the condition of all footing excavations be observed by a representative from our firm prior to placement of structural fill or concrete to confirm that the bearing soils are undisturbed and are consistent with our recommendations contained within this report.

4.4.3. Settlement

We estimate that the total settlement of spread footings founded on recessional outwash or structural fill prepared in accordance with our assumptions and recommendations will be on the order of ¾-inch with differential settlement limited to less than about ½-inch over 50 feet. The settlement will occur rapidly as loads are applied. Additional settlement may occur during or following a seismic event as discussed previously.

4.4.4. Lateral Resistance

Frictional resistance may be evaluated using 0.4 for the coefficient of base friction against footings and the floor slab. The allowable passive resistance on the face of subgrade walls and footings may be computed using an equivalent fluid density of 270 pounds per cubic foot (pcf) provided all soil extending out from the face of the foundation element for a distance at least equal to two and one-half times the height of the element consists of level structural fill compacted to at least 90 percent of the MDD. The above coefficient of friction and passive equivalent fluid density values include a factor of safety of about 1.5.

4.5. Slab-on-Grade Support

We anticipate that the floor of the proposed water treatment structure will consist of a concrete slab-on-grade; if a prefabricated structure is used, it could be a contiguous slab-on-grade with thickened edges for perimeter footings. We recommend that the slab be supported on a minimum of 12 inches of compacted structural fill over firm subgrade. If constructed at present site grades, the existing sod and topsoil should be removed. The slab subgrade should consist of suitable undisturbed weathered horizon and/or recessional outwash, with a minimum of 12-inches of structural fill over approved subgrade. Subgrade soils that cannot be firmly compacted should be removed and replaced with up to 24 inches of compacted structural fill.

All interior concrete slabs-on-grade should be supported on a minimum 4-inch-thick capillary break layer of crushed gravel, which may be included in the 12 inches of structural fill as described above and prepared in accordance with the subgrade preparation recommendations in Section 4.9 of this report. The capillary break material should consist of 1- or ¾-inch minus crushed rock with less than 3 percent fines and uniformly compacted in accordance with subsequent recommendations. A suitable Washington State Department of Transportation (WSDOT) Standard Specification for Bridge and Municipal Construction (hereinafter referred to as the WSDOT Standard Specifications) would be 9-03.1(4)C Grading No. 67. Any exterior slabs-on-grade may be supported on the same material or similar thickness of crushed surfacing base course (CSBC) in accordance with WSDOT Standard Specification would be 9-03.9(3).

Where moisture content in the slab is critical (i.e., if tile or carpeting is glued to the slab), we recommend a vapor barrier be placed between the floor slab and the base course. The vapor barrier should be in accordance with the architect's plans and specifications.

4.5.1. Construction Considerations

Immediately prior to placing concrete, all debris and loose soils that have accumulated in the excavations during forming and steel placement must be removed. Debris or loose soils not removed from the excavations will result in increased settlement.

We recommend all completed footing and slab excavations be observed by a representative of our firm prior to placing crushed rock, reinforcing steel, and structural concrete. Our representative will confirm the bearing surface has been prepared in a manner consistent with our recommendations and that the subsurface conditions are as expected.

4.6. Below-Grade Vaults

The following recommendations should be used for the design of below-grade vaults for this project. We anticipate that the base of the CXT vault toilet will be 6 to 8 feet below existing grades. We expect that medium dense native soils will be exposed at the bottom of vault excavations.

4.6.1. Foundation Support

The vaults may be supported on shallow foundations in accordance with recommendations provided in Section 4.4. If desired, the vaults can be supported on a crushed rock leveling pad. The crushed rock should be tamped or otherwise compacted to the extent practicable.

4.6.2. Lateral Earth Pressures

We recommend that vaults be designed for an equivalent fluid density of 55 pcf for a level ground surface behind the vault. Surcharge and seismic pressures should be added as described below.

Consideration should also be given to designing the below-grade walls for seismic earth pressures. Seismic earth pressures should be determined using a rectangular distribution of 8H in psf, where H is the wall height.

If vehicles can approach the tops of vault walls a lateral distance equal to one-half the height of the wall, or if materials will be stockpiled within this distance adjacent to the vault, a surcharge should be added to the wall pressure. For parking areas, the traffic surcharge can be approximated using a lateral surcharge of 55 psf on the vault wall. For truck parking areas and access driveway areas, a lateral surcharge of 110 psf on the vault wall should be used. Other surcharge loads should be considered on a case-by-case basis.

The soil pressure available to resist lateral loads is a function of the frictional resistance against the vault base and the passive resistance that can develop on the face of below-grade elements of the structure as those elements move horizontally into the soil. For a vault foundation bearing on compacted crushed rock prepared as recommended in this report, an allowable coefficient of sliding friction is 0.4 between concrete and the compacted crushed rock. The allowable passive resistance on the face of embedded foundation elements may be computed using an equivalent fluid density of 300 pcf, provided the soil is medium dense native soil or structural fill compacted to at least 90 percent of the MDD in accordance with ASTM D 1557.

4.6.3. Construction Considerations

In order to prevent overstressing the concrete retaining walls and causing bulging or rotation, we recommend that the structural fill placed against the back of the wall be compacted within the range of

90 to 92 percent of the MDD estimated in accordance with ASTM D 1557. Backfill should be placed after the concrete has had sufficient time to cure and develop the necessary strength.

4.7. Utility Trenches

Trench excavation, pipe bedding, and trench backfilling should be completed using the general procedures described in the 2023 WSDOT Standard Specifications, or Snohomish County requirements, or as specified by the project civil engineer.

Utility trench backfill should consist of structural fill and should be placed in lifts of 12 inches or less (loose thickness) when using heavy compaction equipment, and 6 inches or less when using hand compaction equipment, such that adequate compaction can be achieved throughout the lift. Each lift must be compacted prior to placing the subsequent lift. Prior to compaction, the backfill should be moisture conditioned to within 2 percent of the optimum moisture content. The backfill should be compacted in accordance with the criteria discussed in the "Structural Fill" section.

4.8. Pavement Design Considerations

We do not have specific design parameters (traffic data) to develop pavement sections. The owner can choose the pavement section based on the available capital budget for the project and desired pavement performance. We recommend the site preparation be completed in accordance with Section 4.8 "Site Preparation and Earthwork" of this report. We expect that the native inorganic soils will provide suitable subgrade support with an adequate gravel base. The existing gravel base should be proof-rolled if near optimum moisture content, and any unsuitable or yielding soils should be removed or remediated prior to placing gravel base. If the subgrade is significantly over-optimum such that rutting could occur, we recommend evaluation by a geotechnical engineer and placement of a thickened gravel base section. We recommend that the pavement section consist of gravel base (clean import meets this purpose), a layer of crushed rock, and hot-mix asphalt (HMA) pavement. The pavement materials should be in conformance with the most recent version of the WSDOT Standard Specifications. We suggest the following typical pavement sections:

4.8.1. Automobile Parking Areas

- 2½ to 3 inches of HMA, Class ½-inch, PR 64-22 per the WSDOT Standard Specifications 5-04 and 9-03.8, or Class B asphalt from previous specifications
- 3 to 4 inches of CSBC WSDOT Standard Specifications 9-03.9(3)
- 8 inches of gravel base, as needed based on thickness and/or proof-roll of existing fill
- Geotextile fabric should be included for areas with subgrades with higher silt content, such as TP-5. Geotextile should consist of fabric for separation and strength such as Mirafi HP 270 or equivalent.

4.8.2. Access Roads, Truck Routes, and Loading Areas

- 3 to 4 inches of HMA
- 4 to 6 inches of CSBC
- 12 to 18 inches of gravel base, as needed based on thickness and/or proof-roll of existing fill

The pavement sections recommended above are based on our experience for similar site use.

4.8.3. Portland Cement Concrete Pavement

Portland cement concrete (PCC) sections should be considered for loading dock aprons, trash dumpster areas and where other concentrated heavy loads may occur. We recommend these pavements consist of at least 6 inches of PCC over 6 inches of CSBC, and 12 inches of gravel base (native soils will be adequate for this layer). A thicker concrete section may be needed based on the actual traffic loads. If the concrete pavement will have doweled joints, we recommend the concrete thickness be increased by an amount equal to the diameter of the dowels. The base course and subgrade should be compacted to at least 95 percent MDD.

We recommend PCC pavements incorporate construction joints and/or crack control joints spaced maximum distances of 12 feet apart, center-to-center, in both the longitudinal and transverse directions. Crack control joints may be created by placing an insert or groove into the fresh concrete surface during finishing, or by sawcutting the concrete after it has initially set-up. We recommend the depth of the crack control joints be approximately ¼ the thickness of the concrete; or about 1½ inches deep for the recommended concrete thickness of 6 inches. We also recommend the crack control joints be sealed with an appropriate sealant to help restrict water infiltration into the joints.

Where PCC is considered for walking trails or sidewalks, we recommend at least 4 inches of PCC over 4 inches of CSBC over approved subgrade or structural fill.

4.8.1. Gravel Trail Section

Where new gravel trail is needed along the new parking area, we recommend the trail consist of at least 3 inches of 5/8-inch- or ½-inch-minus crushed surfacing top course (CSTC) or limestone over 6 inches of CSBC, The subgrade should consist of approved native or structural fill. All layers should be compacted to 95 percent compaction per ASTM D 1557.

4.9. Retaining Walls

We understand retaining walls may be constructed at grade transitions around the parking areas. Segmental block, gravity block, and cast-in-place concrete cantilever walls are suitable options for this project. Total heights of these walls are not known at this time.

A variety of architectural finishes are available for the segmental block and gravity wall facing elements (e.g., Keystone, Lock-block, Ultra-block, SierraScape®, Allen Block, etc.). Segmental block and gravity block walls exceeding about 4 feet in height will likely need to have a backfill zone reinforced with layers of geosynthetic reinforcement materials. The backfill in the reinforced zone should consist of imported Gravel Borrow and an adequate drainage layer should be incorporated.

An overview of preliminary design and construction considerations is provided in the following sections. Final design parameters can be provided for segmental block, gravity block, reinforced fill, and cast-in-place concrete cantilever walls once the wall types are selected.

4.9.1. Wall Subgrade Preparation

The walls should be embedded at least 12 inches into suitable bearing soils. Wall footing subgrades should be prepared as described in the “Subgrade Preparation” section of this report. If soft, loose, organic, or otherwise unsuitable soils are encountered at the wall subgrade level they should be removed and replaced with structural fill to a depth of 2 feet unless otherwise determined by a geotechnical engineer.

The structural fill zone should extend horizontally beyond the edge of the wall facing units (front and back) by the depth of the excavation.

4.9.2. Preliminary Design Considerations

4.9.2.1. Segmental Block and Gravity Walls

Engineering design is typically not required for segmental block walls (sometimes referred to as structural earth walls (SEW) or mechanically stabilized earth (MSE) walls) with heights of 4 feet or less. Exceptions are if a slope is located above the wall.

For preliminary design purposes, the length of reinforcing materials for MSE walls is typically 70 to 90 percent of the wall height. The length generally depends on the soil type used for backfilling, backslope conditions, seismic design, and the competency of the foundation soils.

Construction of these walls will require a foundation width approximately equal to 70 to 90 percent of the wall height. For MSE walls, imported gravel borrow is commonly used in the reinforcement zone. We recommend the walls be designed using imported gravel borrow in the reinforcement zone in accordance with 2023 WSDOT Standard Specification 9-03.14(1), Gravel Borrow.

Gravity walls without soil reinforcement such as crib walls, gabions, Lock-block, Redi-rock, unreinforced Ultra Block walls, and bin walls may also be considered. These wall systems act as gravity retaining structures. Construction of these wall types requires a base width approximately equal to half of the wall height. These wall types usually have a face batter of about 1H:4V (horizontal to vertical).

Since the segmental block or gravity wall facing type is currently undetermined, we did not complete a preliminary design for unreinforced or MSE walls. GeoEngineers can design these walls for the project, including developing plans and specifications. If the walls are designed by the contractor or by others, we recommend GeoEngineers review the design submittal prior to construction.

4.9.2.2. Cast-in-Place Concrete Cantilever Walls

For conventional concrete retaining walls that are free to yield at the top at least 0.1 percent of the height of the wall, soil pressures will be less than if movement is limited by such factors as wall stiffness or bracing. Assuming the walls are backfilled, and drainage is provided as outlined below, we recommend yielding walls supporting horizontal backfill be designed using an equivalent fluid density of 35 pcf (triangular distribution), while non-yielding walls supporting horizontal backfill be designed using an equivalent fluid density of 55 pcf (triangular distribution).

For seismic loading conditions acting on retaining walls, a rectangular earth pressure equal to 8H psf, where H is the height of the wall, should be added to the active/at-rest pressures presented above. Other surcharge loading should be applied where appropriate. Traffic surcharges should be incorporated by using a rectangular earth pressure of 70 psf. Other surcharge loads, such as from foundations, construction equipment or construction staging areas, should be considered on a case-by-case basis.

The above soil pressures assume wall drains will be installed to prevent the buildup of hydrostatic pressure behind the walls, as discussed below. Wall subgrade preparation, allowable bearing pressure, and lateral resistance for retaining walls should follow the recommendations provided in the “Foundation Support” section of this report. We estimate post-construction total and differential settlement of the walls founded as recommended above will be less than ¾ inch and ½ inch, respectively.

Care should be taken by the contractor during wall backfilling to avoid overstressing the wall. Zones of wall backfill not supporting structural elements should be compacted to 92 percent of the MDD. Compaction to at least 95 percent MDD will be needed in the upper 2 feet and at least 92 percent below 2 feet where the backfill supports the parking areas.

Heavy compaction equipment should not be operated within 5 feet of below-grade walls or retaining structures to avoid overstressing the walls. Hand operated equipment should be used in this zone. In addition, the contractor should keep all heavy construction equipment away from the top of retaining walls a distance equal to half the wall height, or at least 5 feet, whichever is greater.

4.9.3. Groundwater and Drainage

Wall drainage can be achieved by using free draining material with perforated pipes to discharge the collected water. The zone of wall drainage material should be at least 12 inches wide and should extend from the base of the wall to within 1 foot of the ground surface.

The wall drainage material should consist of Gravel Backfill for Drains in the 2023 WSDOT Standard Specifications Section 9-03.12(4) and be covered with at least 12 inches of less permeable material, such as silty on-site soils that are properly moisture conditioned and compacted. A geotextile separator should be placed between the drainage material and adjacent wall backfill, and horizontally beneath the overlying less permeable soil.

If the walls will exceed 4 feet in height, a 4-inch-diameter perforated drain pipe should be installed within the free-draining material at the base of the wall. We recommend using either heavy-wall solid pipe (SDR-35 polyvinyl chloride [PVC]) or rigid corrugated polyethylene pipe (ADS N-12, or equal). We recommend against using flexible tubing for the wall drain pipe. The pipes should discharge into a storm water collection system. The pipe installations should include a cleanout riser with cover located at the upper end of each pipe run.

4.10. Stormwater Infiltration Considerations

Stormwater management for the proposed site improvements will consist of infiltration ponds or systems such as StormTech chambers with overflow drains to stormwater system. We understand that the proposed improvements will be located near TP-4 (existing stormwater pond area) and TP-5 along the existing trail. If infiltration is planned for other areas, we should be consulted regarding feasibility and infiltration rate. GeoEngineers determined the infiltration rate at the site by completing one small-scale pilot infiltration test (PIT) based on guidance from the Washington Department of Ecology's 2019 *Stormwater Management Manual for Western Washington* (2019 SMMWW) and *Snohomish County Drainage Manual* (2021). The pilot infiltration test (PIT) method is briefly described in the following report sections and in greater detail in Appendix B.

Pilot infiltration test TP/PIT-4 was completed in the recessional outwash unit at depths of 2.8 feet bgs. Plots of the infiltration data collected during the test are presented in Figure B-3.

4.10.1. Design Infiltration Rates

The grain size analysis method uses the equation presented in the "Soil Grain Size Analysis Method" (Massman equation) in Volume V, Chapter 5.4 of the 2019 SMMWW to correlate grain size characteristics with a short-term vertical hydraulic conductivity or infiltration rate. Based on SMMWW guidelines, the

Massman equation is only suitable for soils unconsolidated by glacial advance. This method requires determining the grain sizes for which 10, 60, and 90 percent of the sample is finer (D_{10}, D_{60}, and D_{90}, respectively) and the percent fines (%F) in the soil sample. These grain size parameters are used in the equation to estimate the saturated vertical hydraulic conductivity of the soil and determine an estimated short-term infiltration rate.

We completed grain size analyses on two representative samples of typical recessional outwash deposits collected in TP-4 at 2¼ and 4 feet bgs and one collected from TP-5 at 3 feet bgs, and one collected from TP-6 at 2 feet bgs. The results of the grain size analyses are presented in Figures B-1 and B-2.

Table 2 summarizes the measured short-term infiltration rate based on both the grain size analysis method and PIT results. Long-term infiltration rates were calculated for both grain size analysis and PIT methods using correction factors from Table V-5.1 of the 2019 SMMWW based on predicted soil variability, type of test method used, and potential for long-term clogging. Based on site explorations and characterization, we recommend a correction factor for site variability (CF_v) of 0.33. The correction factor for the small-scale PIT test method (CF_t) is 0.5 and the CF_t for grain size analysis method is 0.4 in accordance with SMMWW guidance. The correction factor for influent control (CF_m) is 0.9, also in accordance with SMMWW. The resulting total composite correction factor (CF_T) is CF_v x CF_t CF_m corresponding to 0.12 for grain size method and 0.15 for small-scale PIT method.

TABLE 2. LABORATORY AND INFILTRATION RATE SUMMARY

Exploration Number	Sample Depth (feet)	USCS Symbol	Short-term Rate Based on Grain Size Results[1] (in/hr)	Short-term Rate Based on PIT Results[2] (in/hr)	Long-term Rate Based on Grain Size Results[1] and CF=0.12[4] (in/hr)	Long-term Rate Based on Grain Size and PIT Results[3,5] and CF=0.15[2] (in/hr)
TP-4 (PIT)	2.2	SP	63.9	10	7.59	1.5
TP-4 (PIT)_	4	SP	51.52	-	6.12	-
TP-5	3	SM	5.75	-	0.68	-
TP-6	2	GP-GM	37.62	-	4.47	-

Notes:

[1] 2019 SMMWW Volume V, Chapter 5.4

[2] Based on 2019 SMMWW Small-Scale Pilot Infiltration Test guidelines (Chapter V-5.4)

[3] PIT Method CF_T based on following correction values: CF_v=0.33, CF_t=0.5, CF_m=0.9 (2019 SMMWW Table V-5.1)

[4] Grain Site Method CF_T based on following correction values: CF_v=0.33, CF_t=0.4, CF_m=0.9 (2019 SMMWW Table V-5.1)

in/hr = inches per hour

Based on our review of the grain size curves and our experience with small scale pilot infiltration testing in similar materials within the recessional outwash unit, it is our conclusion that the grain size correlation method often significantly overestimates the expected vertical infiltration rate for this project site. We anticipate that the infiltration systems will be founded in the recessional outwash deposits that were encountered to depths of 2 feet below adjacent grades at the base of the existing stormwater pond. The shallow PIT completed in this sand layer in TP-4 estimated a short-term infiltration rate of 10 in/hr, which is less than the 37.62 to 63.9 in/hr estimated using the 2019 SMMWW manual based on grain size correlations.

Based on our previous experience with projects in the area, and typical infiltration rates for similar sand materials, we anticipate that the actual infiltration rate is most represented by results of the PIT. Accordingly, we recommend long-term design infiltration rates of 1.5 in/hr for the undisturbed recessional outwash soils for this site where upper topsoil and weathered horizon soils have been removed and is suitable for design where adequate separation from the groundwater table is available to limit the effects of groundwater mounding.

Groundwater was observed at 7 feet below existing grade (approximately Elevation 321 feet) at the bottom of the existing stormwater pond. This does not likely represent the seasonal high groundwater. The civil engineer should evaluate that the minimum separation requirements and offsets to existing infrastructure can be achieved.

4.11. Site Preparation and Earthwork

Based on the subsurface soil conditions encountered in the test pits, we expect the soils at the site may be excavated using conventional heavy duty construction equipment. The materials we encountered include forest duff, topsoil, minimal alluvium, and recessional outwash deposits.

The outwash deposits contained cobbles and although not encountered in our explorations, boulders may be encountered during excavation. Accordingly, the contractor should be prepared to address cobbles and boulders.

The upper site soils contain a moderate percentage of fines (particles passing the U.S. Standard No. 200 sieve) and are moisture-sensitive and susceptible to disturbance, especially when wet. Ideally, earthwork should be undertaken during extended periods of dry weather (June through September) when the surficial soils will be less susceptible to disturbance and provide better support for construction equipment. Dry weather construction will help reduce earthwork costs and increase the potential for reusing the outwash deposits as structural fill.

Trafficability on the site is expected to be difficult regardless of weather conditions due to weathered zone with high moisture content. However, the site soils will be susceptible to disturbance from construction equipment during wet weather conditions and pumping and rutting of the exposed soils under equipment loads will likely occur.

4.11.1. Clearing and Stripping

Construction of the parking areas and buildings will require and stripping of the forest duff and topsoil. Areas to be developed or graded should be cleared of surface and subsurface deleterious matter including logging slash, shrubs, trees, stumps, and roots. Graded areas should be stripped of organic materials and topsoil to the full depth of the root zone. Based on our explorations and site observations, we estimate stripping depths will be on the order of 6 inches in the sod/manicured lawn areas and up to 18 inches in undeveloped areas to remove forest duff and topsoil. Greater stripping depths might be needed in more densely vegetated areas.

The stripped organic soils can be stockpiled and used later for landscaping purposes or may be spread over disturbed areas adjacent to the parking area following completion of grading. If spread out, the organic strippings should be placed in a layer less than 1 foot thick, should not be placed on slopes greater than 3H:1V and should be track-rolled to a uniformly compacted condition. Materials that cannot be used for

landscaping or protection of disturbed areas should be removed from the project site or transported to a location approved by Parks.

4.11.2. Sedimentation and Erosion Control

In our opinion, the erosion potential of the on-site soils within the project limits is low. The erosion potential of soils in nearby steep slope areas is high.

Construction activities including clearing, stripping, and grading will expose soils to the erosional effects of wind and water. The amount and potential impacts of erosion are partly related to the time of year construction occurs. Wet weather construction will increase the amount and extent of erosion and potential sedimentation.

Effective methods of erosion control at construction sites include implementing efficient surface water management, limiting the size of disturbed areas, and providing erosion resistant slope covers. Erosion and sedimentation control measures should include proper channeling of surface water runoff into lined diversion ditches that incorporate energy dissipaters, and use of straw bales and geotextile silt fences, as appropriate. Surface water must not be directed toward the top of slopes or onto slopes.

Management of surface water runoff during construction is the responsibility of the contractor. Grading must be completed in a manner that avoids concentrated runoff onto fill areas, cut or fill slopes, natural slopes, or other erosion-sensitive areas.

Erosion and sedimentation control measures may be implemented by using a combination of interceptor swales, straw bale barriers, silt fences and straw mulch for temporary erosion protection of exposed soils. All disturbed areas should be finish graded and seeded as soon as practicable to reduce the risk of erosion. Erosion and sedimentation control measures should be installed and maintained in accordance with the requirements of Snohomish County.

4.11.3. Subgrade Preparation

Prior to placing fill, parking area surfacing materials, or crushed rock base layers for on-grade slabs, subgrade areas should be evaluated by proof-rolling or probing to identify zones of soft or pumping soils.

Proof-rolling can be completed using a piece of heavy tire-mounted equipment such as a loaded dump truck as long as the subgrade soils are not silty and not significantly over the optimum moisture content. During wet weather or on wet subgrade soils, the exposed subgrade areas should not be proof-rolled but instead be probed to determine the extent of soft soils. If zones of soft or pumping soils are identified, they should be removed and replaced with structural fill.

In areas where fine grained, soft, or pumping soils are encountered, it may be possible to limit the depth of overexcavation by placing a woven geotextile fabric such as Mirafi HP270 (or similar material) on the overexcavated subgrade.

Once approved, the subgrade areas should be recompacted to a firm and unyielding condition, if possible. The degree of compaction that can be achieved will depend on when construction is performed. If the work is performed during dry weather conditions, we recommend all subgrade areas be recompacted to at least 95 percent of the MDD obtained using the ASTM D 1557 test procedure (modified Proctor). If the work is

performed during wet weather conditions, it may not be possible to recompact the subgrade to 95 percent of the MDD. In this case, we recommend the subgrade be compacted to the extent possible without causing undue weaving or pumping of the subgrade soils. The geotechnical engineer should evaluate the subgrade to recommend additional excavation if warranted based on the required thickness of overlying fill or if a structure is planned in the area.

4.11.4. Structural Fill

All fill, whether on-site soils or imported fill for support of foundations, utility slabs, parking areas and as backfill for retaining walls or in utility trenches should meet the criteria for structural fill presented below. Structural fill soils should be free of organic matter, debris, man-made contaminants, and other deleterious materials, with no individual particles larger than 6 inches in greatest dimension. The suitability of soil for use as structural fill depends on its gradation and moisture content.

4.11.4.1. Fill Criteria

Fill material used under foundations, slabs, and parking areas, used to construct embankments, or to backfill retaining walls and utility trenches is classified as structural fill for the purposes of this report. Recommended structural fill material quality varies depending upon its use as described below:

- Structural fill placed to construct parking areas, foundations and slabs, embankments, retaining wall and utility trench backfill, and against foundations should consist of Gravel Borrow as described in Section 9-03.14(1) of the 2023 WSDOT Standard Specifications, with the additional restriction that the fines content be limited to no more than 5 percent, especially if the work occurs in wet weather or during the wet season (October through May). If earthwork occurs during the normally dry months (June through September) on-site soils may be used as structural fill provided they are properly moisture conditioned, free of cobbles and boulders, and can be compacted to the specified compaction criteria. It may be possible to use portions of the on-site soils during wet weather for areas requiring only 90 percent compaction provided the soils do not contain excessive fines content; however, we recommend gravel borrow be specified for planning/bidding purposes.
- Structural fill placed as wall drainage material and around subsurface drains should consist of Gravel Backfill for Drains conforming to Section 9-03.12(4) of the 2018 WSDOT Standard Specifications.
- Structural fill placed as crushed surfacing in the parking areas should conform to Section 9-03.9(3) of the 2023 WSDOT Standard Specifications with the added restriction it contain no more than 5 percent passing the U.S. No. 200 sieve. A coarser gradation (limiting the ⅜-inch fraction to less than about 10 percent) can be considered for surface longevity but will result in decreased trafficability.

We recommend the suitability of structural fill soil from proposed borrow sources be evaluated by a representative of our firm before the earthwork contractor begins transporting the soil to the site.

4.11.4.2. Reuse of On-site Soils

Most of the existing near surface soils contain a moderate percentage of fines and will be sensitive to changes in moisture content and difficult to handle and compact during wet weather. The native recessional outwash encountered below surficial weathered zones has a lower fines content and moisture content closer to optimum. During the normally dry season (June through September), we anticipate the on-site soils will be suitable for use as structural fill provided they can be properly moisture conditioned to within about 2 percent of the optimum moisture content. Cobbles and boulders should be removed to meet the structural fill content requirements.

The contractor should plan to cover stockpiles of on-site soil with plastic sheeting in the event of inclement weather. The reuse of on-site soils is highly dependent on the weather conditions, and the protection and handling methods.

4.11.4.3. Fill Placement and Compaction Criteria

Structural fill should be mechanically compacted to a firm, non-yielding condition. Structural fill should be placed in loose lifts not exceeding 12 inches in thickness if using heavy compactors and 6 inches if using hand operated compaction equipment. The actual lift thickness will be dependent on the structural fill material used and the type and size of compaction equipment. Each lift should be moisture conditioned to within 2 percent of the optimum moisture content and compacted to the specified density before placing subsequent lifts. Structural fill should be compacted to the following criteria:

- All fill placed under the proposed structures should be placed as structural fill compacted to at least 95 percent of the MDD obtained using the ASTM D 1557 test method.
- Structural fill placed behind retaining walls, foundations and vault walls should be compacted to between 90 to 92 percent of the MDD estimated using ASTM D 1557. Care should be taken when compacting fill near the face of retaining walls to avoid over-compaction and, hence overstressing the walls. Hand operated compactors should be used within 5 feet behind the wall. The upper 2 feet of fill below parking area subgrade level should also be compacted to at least 95 percent of the MDD. The contractor should keep all heavy construction equipment away from the top of retaining walls a horizontal distance equal to half the height of the wall, or at least 5 feet, whichever is greater.
- Structural fill to form permanent fill slopes should be compacted to at least 90 percent of the MDD.
- Structural fill in parking and hardscape areas, including utility trench backfill, should be compacted to at least 90 percent of the MDD, except that the upper 2 feet of fill below final subgrade level should be compacted to at least 95 percent of the MDD.
- Structural fill placed as crushed surfacing within parking, pavement or trail areas should be compacted to 95 percent of the MDD.

An adequate number of in-place moisture and density tests should be performed during the placement and compaction of structural fill to evaluate whether the specified degree of compaction is being achieved.

4.11.4.4. Weather Considerations

Disturbance of near surface soils should be expected, especially if earthwork is completed during periods of wet weather and in areas of shallow groundwater. During dry weather, the soils will: (1) be less susceptible to disturbance; (2) provide better support for construction equipment; and (3) be more likely to meet the required compaction criteria.

The wet weather season generally begins in October and continues through May in western Washington; however, periods of wet weather may occur during any month of the year. For earthwork activities during wet weather, we recommend the following steps be taken:

- The ground surface in and around the work area should be sloped so that surface water is directed away from the work area. The ground surface should be graded so that areas of ponded water do not develop to the extent practical, and measures should be implemented to remove surface water from excavations and the work area.

- Surface water must not be directed toward slopes.
- Earthwork activities should not take place during periods of moderate to heavy precipitation.
- Slopes with exposed soils should be covered with plastic sheeting.
- The contractor should take necessary measures to prevent on-site soils and soils to be used as fill from becoming wet or unstable. These measures may include the use of plastic sheeting, removing pooled water with sumps with pumps, and grading. The site soils should not be left uncompacted and exposed to moisture. Sealing the surficial soils by rolling with a smooth-drum roller prior to periods of precipitation will help reduce the extent to which these soils become wet or unstable.
- The contractor should cover all soil stockpiles to be used as structural fill with plastic sheeting.
- Construction traffic should be restricted to specific areas of the site, preferably areas surfaced with working pad materials not susceptible to wet weather disturbance.
- Construction activities should be scheduled so the length of time soils are left exposed to moisture is reduced to the extent practical.
- A working pad or localized haul roads will be appropriate to protect the subgrade during wet conditions. Our experience suggests the working pad layer should be about 12 to 18 inches thick and should consist of 1½-inch minus clean crushed gravel with negligible sand or silt. The working pad layer may be placed in one lift and should be compacted to at least 95 percent of the MDD obtained using ASTM D 1557. A woven geotextile separation fabric should be placed over the subgrade soil prior to placing the gravel layer in high traffic areas to help prevent subgrade deterioration.

4.12. Temporary and Permanent Slopes

4.12.1. Temporary Cut Slopes

For planning purposes, temporary unsupported cut slopes may be inclined at 1½H:1V in the medium dense native soils. This inclination may need to be flattened by the contractor if significant caving/sloughing or groundwater seepage occurs. For open cuts at the site, we recommend that:

- No traffic, construction equipment, stockpiles, or building supplies be allowed at the top of cut slopes within a distance of at least 5 feet from the top of the cut;
- The excavation not encroach on a 1H:1V influence line projected down from the edges of nearby or planned foundation elements;
- Exposed soil along the slope be protected from surface erosion using waterproof tarps or plastic sheeting;
- Construction activities be scheduled so that the length of time the temporary cut is left open is reduced to the extent practicable;
- Erosion control measures be implemented as appropriate such that runoff from the site is reduced to the extent practicable;
- Surface water be diverted away from the excavation; and
- The general condition of the slopes be observed periodically by GeoEngineers to confirm adequate stability.

4.12.2. Permanent Cut and Fill Slopes

We recommend permanent cut or fill slopes be constructed at inclinations of 2H:1V or flatter and be blended into existing slopes with smooth transitions. To achieve uniform compaction, we recommend fill slopes be overbuilt slightly and subsequently cut back to expose well compacted fill.

To reduce erosion, newly constructed slopes and disturbed existing slopes should be planted or hydroseeded shortly after completion of grading. Until the vegetation is established, some sloughing and raveling of the slopes should be expected. This may necessitate localized repairs and reseeding. Temporary covering, such as biodegradable erosion control blankets (American Excelsior Curlex 1 or North American Green SC150) could be used to protect the longer slope lengths where necessary.

4.13. Recommended Additional Geotechnical Services

Throughout this report, recommendations are provided where we consider additional geotechnical services to be appropriate. These additional services are summarized below:

- GeoEngineers should be retained to review the project plans and specifications when complete to confirm our design recommendations have been implemented as intended.
- During construction, GeoEngineers should observe stripping and grading, observe and evaluate the suitability of subgrades for parking and structure areas, observe removal of unsuitable soils, observe and test structural backfill and wall backfill, observe installation of subsurface drainage measures, and provide a summary letter of our construction observation services. The purposes of GeoEngineers' construction phase services are to confirm the subsurface conditions are consistent with those observed in the explorations, to provide recommendations for design changes should the conditions revealed during the work differ from those anticipated, and to evaluate whether or not earthwork and foundation installation activities are completed in accordance with our recommendations.

5.0 LIMITATIONS

We have prepared this report for the Washington State Parks, Consor, and other members of the project team for use in design of the proposed Wallace Falls State Park Water System Improvements project near Gold Bar, Washington.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted practices in the field of geotechnical engineering in this area at the time this report was prepared. No warranty or other conditions, express or implied, should be understood.

Any electronic form, facsimile or hard copy of the original document (email, text, table and/or figure), if provided, and any attachments are only a copy of the original document. The original document is stored by GeoEngineers, Inc. and will serve as the official document of record.

Please refer to Appendix D, Report Limitations and Guidelines for Use for additional information pertaining to use of this report.

6.0 REFERENCES

Booth, D.B., 1990, Surficial geologic map of the Skykomish and Snoqualmie Rivers area, Snohomish and King Counties, Washington: U.S. Geologic Survey, Miscellaneous Investigations Series Map I-1745.

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Washington State Department of Transportation, Standard Specifications for Road, Bridge and Municipal Construction, 2023.

FIGURES

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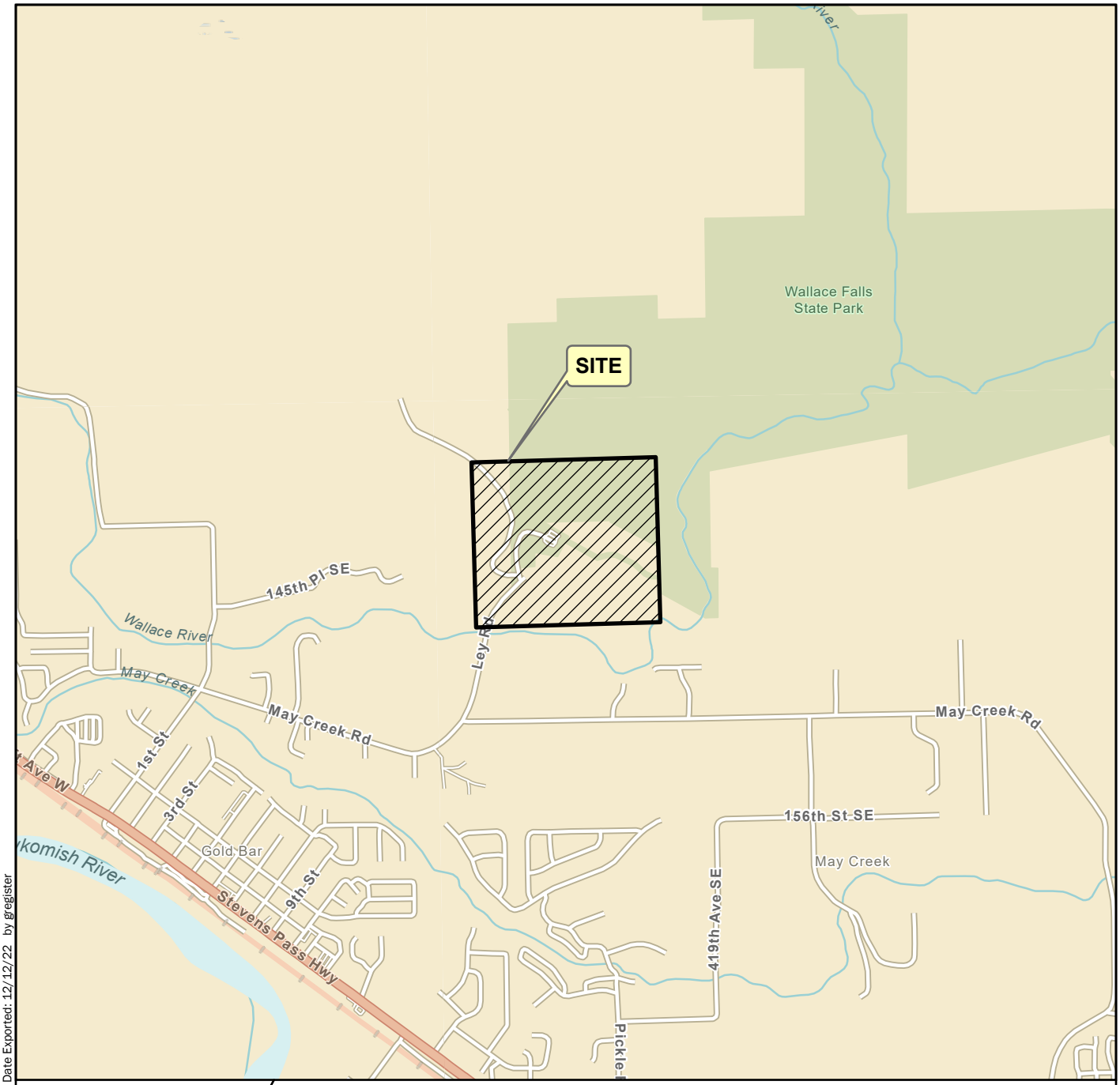

Source(s):
- ESRI

Coordinate System: NAD 1983 UTM Zone 10N

Vicinity Map

Wallace Falls Water System Improvements
Gold Bar, Washington

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Figure 1

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Legend

TP-1 Test Pit by GeoEngineers, Inc., 2022

Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: Background from Washington State Parks and Recreation Commission dated 12/15/2022.

Projection: Washington State Plane, North Zone, NAD83, US Foot

N W E S

120 0 120
Feet

Site Plan

Wallace Falls Water System Improvements
Gold Bar, Washington

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Figure 2

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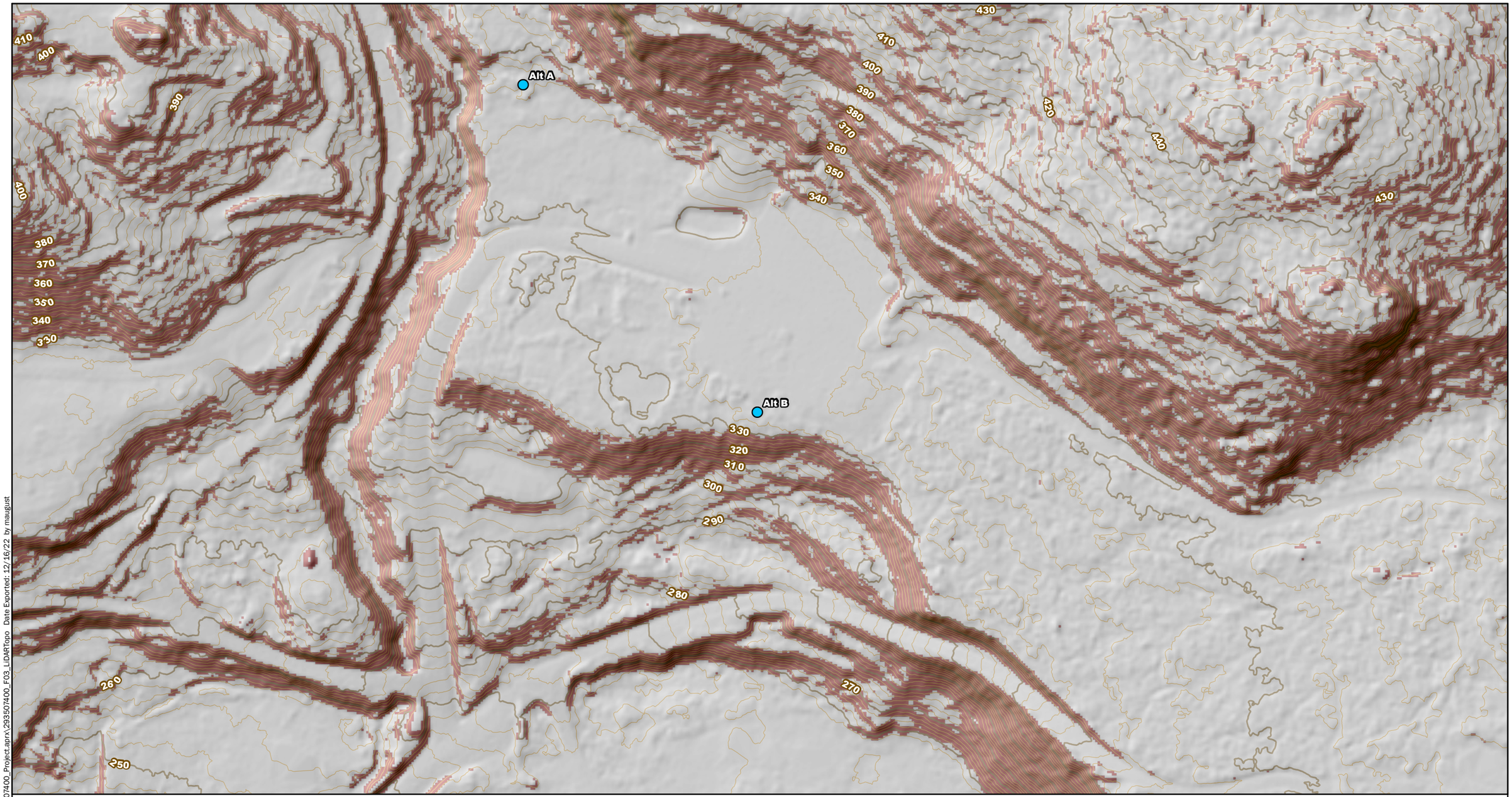

Proposed Well Location

Topographic Contour (10ft)

Steep Slopes (greater than 33 percent)

Source(s): WA DNR LiDAR Portal, Snohomish County.

Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet

N

0 120

Feet

LiDAR Topographic Map

Wallace Falls Water System Improvements
Gold Bar, Washington

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Figure 3

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APPENDICES

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APPENDIX A
Field Explorations

APPENDIX A
FIELD EXPLORATIONS

Subsurface conditions at the site were explored on November 16, 2022, by excavating six test pits (TP-1 through TP-6). The test pits were completed to depths of about 7¼ to 9 feet below the existing ground surface at the approximate locations shown on the Site Plan, Figure 2.

Test pit locations were obtained by the project surveyor. Locations and elevations should be considered accurate to the degree implied by the method used.

Excavations were completed using a track-mounted excavator subcontracted by GeoEngineers. The test pits were continuously observed by a geologist from our firm who located the test pits, evaluated, and classified the soils encountered, obtained representative soil samples, and maintained a detailed log of each test pit. In addition, pertinent information including soil sample depths, stratigraphy and groundwater seepage and caving conditions were recorded.

Soils encountered in the test pits were classified in the field using ASTM International (ASTM) D 2488, the Standard Practice for Classification of Soils, Visual-Manual Procedure, which is summarized in Figure A-1. Logs of the test pits are provided in Figures A-2 through A-7. The logs reflect our interpretation of the field conditions and the results of geotechnical laboratory evaluation and testing of samples. They also indicate the depths at which the soil types or their characteristics change, although the change may actually be gradual. If the change occurred between samples, it was interpreted.

Representative soil samples were obtained from the test pits using a small shovel and directly from the excavator bucket. Relative density of the soils encountered was estimated by probing, observing digging action of the excavator and caving conditions.

The soil samples were logged, sealed in plastic bags and transported to our Bellingham geotechnical laboratory. Field classifications were further evaluated in our laboratory.

Observations of groundwater conditions were made while completing the test pits. The groundwater conditions observed during excavation are presented on the test pit logs. Groundwater conditions observed while completing the test pits represent a short term condition and may or may not be representative of the long term groundwater conditions at the site.

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
MORE THAN 50% RETAINED ON NO. 200 SIEVE	SAND AND SANDY SOILS	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS
				SP	POORLY-GRADED SANDS, GRAVELLY SAND
	MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS, ROCK FLOUR, CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% PASSING NO. 200 SIEVE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS AND SILTS OF MEDIUM TO HIGH PLASTICITY
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: Multiple symbols are used to indicate borderline or dual soil classifications

ADDITIONAL MATERIAL SYMBOLS

SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
	AC	Asphalt Concrete
	CC	Cement Concrete
	CR	Crushed Rock/ Quarry Spalls
	SOD	Sod/Forest Duff
	TS	Topsoil

Groundwater Contact

Measured groundwater level in exploration, well, or piezometer

Measured free product in well or piezometer

Graphic Log Contact

Distinct contact between soil strata

Approximate contact between soil strata

Material Description Contact

Contact between geologic units

Contact between soil of the same geologic unit

Sampler Symbol Descriptions

2.4-inch I.D. split barrel / Dames & Moore (D&M)

Standard Penetration Test (SPT)

Shelby tube

Piston

Direct-Push

Bulk or grab

Continuous Coring

Blowcount is recorded for driven samplers as the number of blows required to advance sampler 12 inches (or distance noted). See exploration log for hammer weight and drop.

"P" indicates sampler pushed using the weight of the drill rig.

"WOH" indicates sampler pushed using the weight of the hammer.

Laboratory / Field Tests

%F	Percent fines
%G	Percent gravel
AL	Atterberg limits
CA	Chemical analysis
CP	Laboratory compaction test
CS	Consolidation test
DD	Dry density
DS	Direct shear
HA	Hydrometer analysis
MC	Moisture content
MD	Moisture content and dry density
Mohs	Mohs hardness scale
OC	Organic content
PM	Permeability or hydraulic conductivity
PI	Plasticity index
PL	Point lead test
PP	Pocket penetrometer
SA	Sieve analysis
TX	Triaxial compression
UC	Unconfined compression
UU	Unconsolidated undrained triaxial compression
VS	Vane shear

Sheen Classification

NS	No Visible Sheen
SS	Slight Sheen
MS	Moderate Sheen
HS	Heavy Sheen

NOTE: The reader must refer to the discussion in the report text and the logs of explorations for a proper understanding of subsurface conditions. Descriptions on the logs apply only at the specific exploration locations and at the time the explorations were made; they are not warranted to be representative of subsurface conditions at other locations or times.

Key to Exploration Logs

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Figure A-1

Date Excavated	11/16/2022	Total Depth (ft)	9	Logged By AF2 Checked By AJH	Excavator Rivers Edge Environmental Equipment Takeuchi TB 235 mini ex	Groundwater not observed Caving not observed
Surface Elevation (ft) Vertical Datum	332 NAVD88	Easting (X) Northing (Y)	1432674 317677	Coordinate System Horizontal Datum	WA State Plane North NAD83 (feet)	

Elevation (feet)	Depth (feet)	SAMPLE: Testing Sample	SAMPLE: Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
			1		SOD/TS	Approximately 2 inches sod, dark brown silty fine to medium sand with organic matter (loose, moist) (topsoil)			
331	1		2 MC		SM	Rust brown and dark brown silty fine to medium sand with occasional organic matter (roots, bark) (loose, moist) (fill/weathered horizon)	34		
330	2		3 %F		SM	Light brown silty fine sand with clay (loose to medium dense, moist) (alluvium)	31	44	
			6 MC				33		
329	3								
328	4		4 MC			Increased clay content with occasional iron staining	25		
327	5				ML	Gray-brown sandy silt with clay and occasional charcoal bits (stiff, moist)			
326	6		5 AL				28		AL (LL = 38, PI = 7)
325	7								
324	8				SM	Gray silty fine to medium sand with gravel (medium dense, moist) (recessional outwash)			
			7						
323	9				GP-GM	Gray fine to coarse sand and gravel with silt (medium dense to dense, moist)			

Notes: See Figure A-1 for explanation of symbols.
The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to ½ foot.
Coordinates Data Source: Horizontal approximated based on Topographic Survey. Vertical approximated based on Aerial Imagery.

Log of Test Pit TP-1

GeoEngineers

Project: Wallace Falls Water System Improvements
Project Location: Gold Bar, Washington
Project Number: 2935-074-00

Figure A-2
Sheet 1 of 1

Date Excavated	11/16/2022	Total Depth (ft)	7.25	Logged By AF2 Checked By AJH	Excavator Rivers Edge Environmental Equipment Takeuchi TB 235 mini ex	Groundwater not observed See "Remarks" section for caving observed
Surface Elevation (ft) Vertical Datum	329 NAVD88	Easting (X) Northing (Y)	1432926 317281	Coordinate System Horizontal Datum	WA State Plane North NAD83 (feet)	

Elevation (feet)	Depth (feet)	SAMPLE: Testing Sample	SAMPLE: Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
			1 MC		TS	Dark brown silty fine sand with organic matter (wood, twigs, roots) (loose, moist) (forest duff/topsoil)	64		
					SM	Rust brown silty fine to medium sand with occasional organic matter (loose to medium dense, moist) (weathered horizon)			
328	1		2 MC				32		
327	2		3 %F		SP-SM	Light brown fine to medium sand with silt and gravel (dense, moist) (recessional outwash)	12	13	Minor caving observed below 2 feet
326	3								
325	4		4		SP	Gray medium to coarse sand with gravel (medium dense, moist)			
324	5								
					SP	Gray fine to coarse sand with gravel (medium dense, moist)			
323	6		5 MC				6		
322	7		6			With occasional cobbles up to 5 inches and increased gravel			

Notes: See Figure A-1 for explanation of symbols.
The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to ½ foot.
Coordinates Data Source: Horizontal approximated based on Topographic Survey. Vertical approximated based on Aerial Imagery.

Log of Test Pit TP-2

GeoEngineers

Project: Wallace Falls Water System Improvements
Project Location: Gold Bar, Washington
Project Number: 2935-074-00

Figure A-3
Sheet 1 of 1

Date Excavated	11/16/2022	Total Depth (ft)	8	Logged By AF2 Checked By AJH	Excavator Rivers Edge Environmental Equipment Takeuchi TB 235 mini ex	Groundwater not observed Caving not observed
Surface Elevation (ft) Vertical Datum	332 NAVD88	Easting (X) Northing (Y)	1433113 317256	Coordinate System Horizontal Datum	WA State Plane North NAD83 (feet)	

Elevation (feet)	Depth (feet)	SAMPLE: Testing Sample	SAMPLE: Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
331	1		1		TS	Dark brown silty fine to medium sand with gravel and organic matter (wood, rootlets) (loose, moist) (topsoil/forest duff)			
			2 MC		SM/ML	Brown with iron staining silty fine to medium sand with occasional gravel, minor ash layer and organic matter (roots to 2 feet, partially decomposed wood, approximately 3 inches thick) (loose, moist) (weathered horizon)	22		
330	2								
329	3								
328	4		3 %F		SP	Gray fine to medium sand with trace silt and gravel (loose to medium dense, moist) (recessional outwash) Grades fine to coarse	5	3	
327	5		4		SM/ML	Gray-brown silty fine sand to sandy silt with occasional clay layers (loose/medium stiff, moist)			
326	6		5 MC				25		
325	7		6		SP	Gray-brown fine to medium sand with gravel (medium dense, moist)			
			7						
324	8								

Notes: See Figure A-1 for explanation of symbols.
The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to ½ foot.
Coordinates Data Source: Horizontal approximated based on Topographic Survey. Vertical approximated based on Aerial Imagery.

Log of Test Pit TP-3

GeoEngineers

Project: Wallace Falls Water System Improvements
Project Location: Gold Bar, Washington
Project Number: 2935-074-00

Figure A-4
Sheet 1 of 1

Date Excavated 11/16/2022	Total Depth (ft) 8	Logged By AF2 Checked By AJH	Excavator Rivers Edge Environmental Equipment Takeuchi TB 235 mini ex	See "Remarks" section for groundwater observed See "Remarks" section for caving observed	
Surface Elevation (ft) 328 Vertical Datum NAVD88		Easting (X) 1432917 Northing (Y) 317530		Coordinate System WA State Plane North Horizontal Datum NAD83 (feet)	

Elevation (feet)	Depth (feet)	SAMPLE: Testing Sample	SAMPLE: Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
327	1		1 MC		SOD	Approximately 3 to 4 inch sod layer over a thin layer of pitrun (fill)			
					SC/CL	Light brown clayey fine sand to sandy clay (medium dense/stiff, moist) (recessional outwash)	37		
326	2		2 SA		SP	Brown with iron staining fine to coarse sand with gravel and trace silt (medium dense to dense, moist)	5	3	Moderate caving observed below 2 feet
325	3								
324	4		3 SA			Becomes sand with gravel and trace silt	8	5	
323	5				GP-GM	Brown fine to coarse gravel with silt and sand (medium dense to dense, moist)			
322	6		4 MC				7		
321	7		5						Groundwater seepage at 7 feet Severe caving observed at 7 feet
320	8								

Notes: See Figure A-1 for explanation of symbols.
The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to ½ foot.
Coordinates Data Source: Horizontal approximated based on Topographic Survey. Vertical approximated based on Aerial Imagery.

Log of Test Pit TP-4

GeoEngineers

Project: Wallace Falls Water System Improvements
Project Location: Gold Bar, Washington
Project Number: 2935-074-00

Figure A-5
Sheet 1 of 1

Date Excavated 11/16/2022	Total Depth (ft) 7.25	Logged By AF2 Checked By AJH	Excavator Rivers Edge Environmental Equipment Takeuchi TB 235 mini ex	Groundwater not observed See "Remarks" section for caving observed	
Surface Elevation (ft) 340 Vertical Datum NAVD88		Easting (X) 1433405 Northing (Y) 317245		Coordinate System WA State Plane North Horizontal Datum NAD83 (feet)	

Elevation (feet)	Depth (feet)	SAMPLE: Testing Sample	SAMPLE: Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
339	1		1 MC		TS	Dark brown silty fine sand with gravel and organic matter (roots) (loose, moist) (topsoil/forest duff)	58		
338	2		2 MC		SM	Brown with iron staining silty fine to medium sand with gravel (loose to medium dense, moist) (weathered horizon)	25		
337	3		3 SA		SM	Light brown silty fine sand (medium dense, moist) (recessional outwash)	19	35	Minor caving observed below 3 feet
336	4								
335	5				GP-GM	Brown to gray fine to coarse gravel with silt and sand (medium dense, moist)			
334	6		4						
333	7		5			Decreased gravel size at 7 feet			

Notes: See Figure A-1 for explanation of symbols.
The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to ½ foot.
Coordinates Data Source: Horizontal approximated based on Topographic Survey. Vertical approximated based on Aerial Imagery.

Log of Test Pit TP-5

GeoEngineers

Project: Wallace Falls Water System Improvements
Project Location: Gold Bar, Washington
Project Number: 2935-074-00

Figure A-6
Sheet 1 of 1

Date Excavated 11/16/2022	Total Depth (ft) 8	Logged By AF2 Checked By AJH	Excavator Rivers Edge Environmental Equipment Takeuchi TB 235 mini ex	Groundwater not observed See "Remarks" section for caving observed	
Surface Elevation (ft) 344 Vertical Datum NAVD88		Easting (X) 1433662 Northing (Y) 317106		Coordinate System WA State Plane North Horizontal Datum NAD83 (feet)	

Elevation (feet)	Depth (feet)	SAMPLE: Testing Sample	SAMPLE: Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
343	1		1 MC		TS	Dark brown silty fine to coarse sand with gravel and organic matter (roots, twigs) (loose, moist) (topsoil/forest duff)	26		
342	2		2 SA		GP-GM	Brown with significant iron staining fine to coarse gravel with cobble (6-inch-diameter), sand and silt (loose to medium dense, moist) (recessional outwash)	13	6	Moderate caving observed below 2 feet
341	3								
340	4		3 SA		GP	Brown with iron staining fine to coarse gravel with sand and trace silt (loose, moist)	3	2	
339	5				SP/GP	Gray-brown fine to coarse sand and gravel with cobble (dense, moist)			
338	6		4						
337	7				GP	Brown fine to coarse gravel with sand (medium dense to dense, moist)			
336	8		5						

Notes: See Figure A-1 for explanation of symbols.
The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to ½ foot.
Coordinates Data Source: Horizontal approximated based on Topographic Survey. Vertical approximated based on Aerial Imagery.

Log of Test Pit TP-6

GeoEngineers

Project: Wallace Falls Water System Improvements
Project Location: Gold Bar, Washington
Project Number: 2935-074-00

Figure A-7
Sheet 1 of 1

APPENDIX B
Laboratory Testing and PIT

APPENDIX B
LABORATORY TESTING AND PIT

Soil samples obtained from the test pits were transported to our Redmond geotechnical laboratory and evaluated to confirm or modify field classifications, as well as to evaluate engineering properties of the soils. Representative samples were selected for laboratory testing that included moisture content tests, percent fines tests, sieve analyses, and hydrometer analyses. We conducted the tests using test methods of ASTM International (ASTM) or other applicable procedures.

Soil Classifications

Soil samples obtained from the test pits were visually classified in the field and/or in our laboratory using a system based on the Unified Soil Classification System (USCS) and ASTM classification methods. ASTM Test Method D 2488 was used to visually classify the soil samples, while ASTM D 2487 was used to classify the soils based on laboratory test results. These classification procedures are incorporated in the test pit logs included in Appendix A.

Moisture Content Tests

Moisture content tests were conducted using the ASTM D 2216 test method for several samples obtained from the test pits. The results of these tests are presented on the test pit logs (Appendix A) at the respective sample depths.

Percent Fines Tests

Tests to evaluate the percent fines (particles passing the No. 200 sieve) were completed on select soil samples using ASTM D 1140. The wet sieve method was used to determine the percentage of soil particles larger than the U.S. No. 200 sieve opening. The results of the percent fines tests are presented on the test pit logs (Appendix A) at the depths at which the samples were obtained.

Sieve Analysis

Sieve analyses were completed on a sample for TP-4 at the same elevation that we completed the pilot infiltration test (PIT) and at TP-6. The analyses were conducted using the ASTM D 6913 test method. The wet sieve analysis method was used to determine the percentage of soil particles larger than the U.S. No. 200 mesh sieve. The results of the sieve analyses were plotted, classified using the USCS, and presented on Figures B-1 and B-2.

Atterberg Limits Testing

Atterberg limits tests were performed on one select fine-grained soil samples. The test was used to classify the soils as well as to evaluate index properties. The liquid limit and the plastic limit were estimated through a procedure performed in general accordance with ASTM D 4318. The results of the Atterberg limits tests are summarized in Figure B-3.

Pilot Infiltration Testing

One small-scale pilot infiltration test (PIT) was completed at the site at the location of TP/PIT-4. The approximate location of the PIT is shown in Figure 2 and a description of the PIT procedures is included below.

The PIT was conducted using small scale PIT test procedure that generally meets current procedures set forth by the Washington State Department of Ecology (Ecology) and Snohomish County Drainage Manual. The infiltration rate is determined by determining infiltration rate after an adequate soaking period.

PIT Test Procedure

The PIT was completed on November 16, 2022. The PIT was completed at depths of about 2.8 feet below ground surface (bgs) and had plan dimensions of about 10 square feet at the base of the excavation.

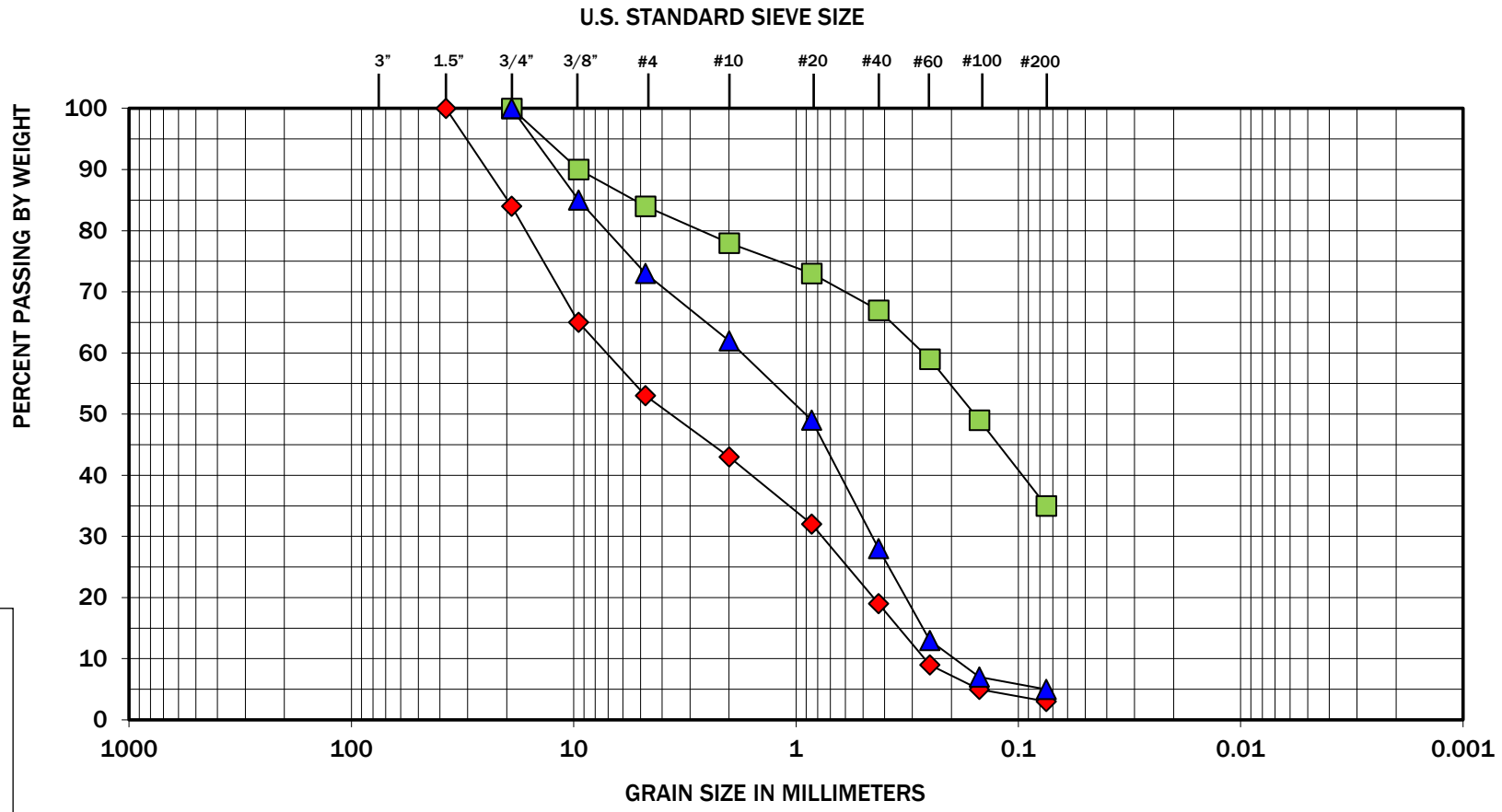
A graduated wood stake (yard stick) was driven into the floor of the PITs as a visual reference for monitoring water levels during testing. The water source and hose were provided by Parks via a nearby spigot. The hose was placed in a diffuser within the test pit to reduce the potential for erosion caused by flowing water in the test hole.

The PIT was filled to an initial water level (approximately 24 inches above the bottom of the excavation, filling took approximately 5 hours).

The changing water level was measured visually using the yard stick. The rate of change of the water level was recorded approximately every 5 to 10 minutes after each hour of the test. The overall testing process took 6 hours.

PIT Test Results

PIT results are presented graphically in Figure B-4. These figures display plots of the change in initial hydraulic conductivity rate ($K_{sat\text{-}initial}$) calculated during each reading interval of the draw-down stage of the test. The trend in the short-term infiltration rates indicates a general convergence to single value estimates in the last stages of the tests which generally produced the lowest values. The lowest $K_{sat\text{-}initial}$ rate observed during testing was approximately 10 inches per hour (in/hr) for TP/PIT-4.



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Symbol	Boring Number	Depth (feet)	Moisture (%)	Soil Description
◆	TP-4	2.2	5	Poorly graded sand with gravel (SP)
■	TP-4	3	19	Silty sand with gravel (SM)
▲	TP-4	4	8	Poorly graded gravel with silt (GP-GM)

The grain size analysis results were obtained in general accordance with ASTM D 6913. GeoEngineers 17425 NE Union Hill Road Ste 250, Redmond, WA 98052

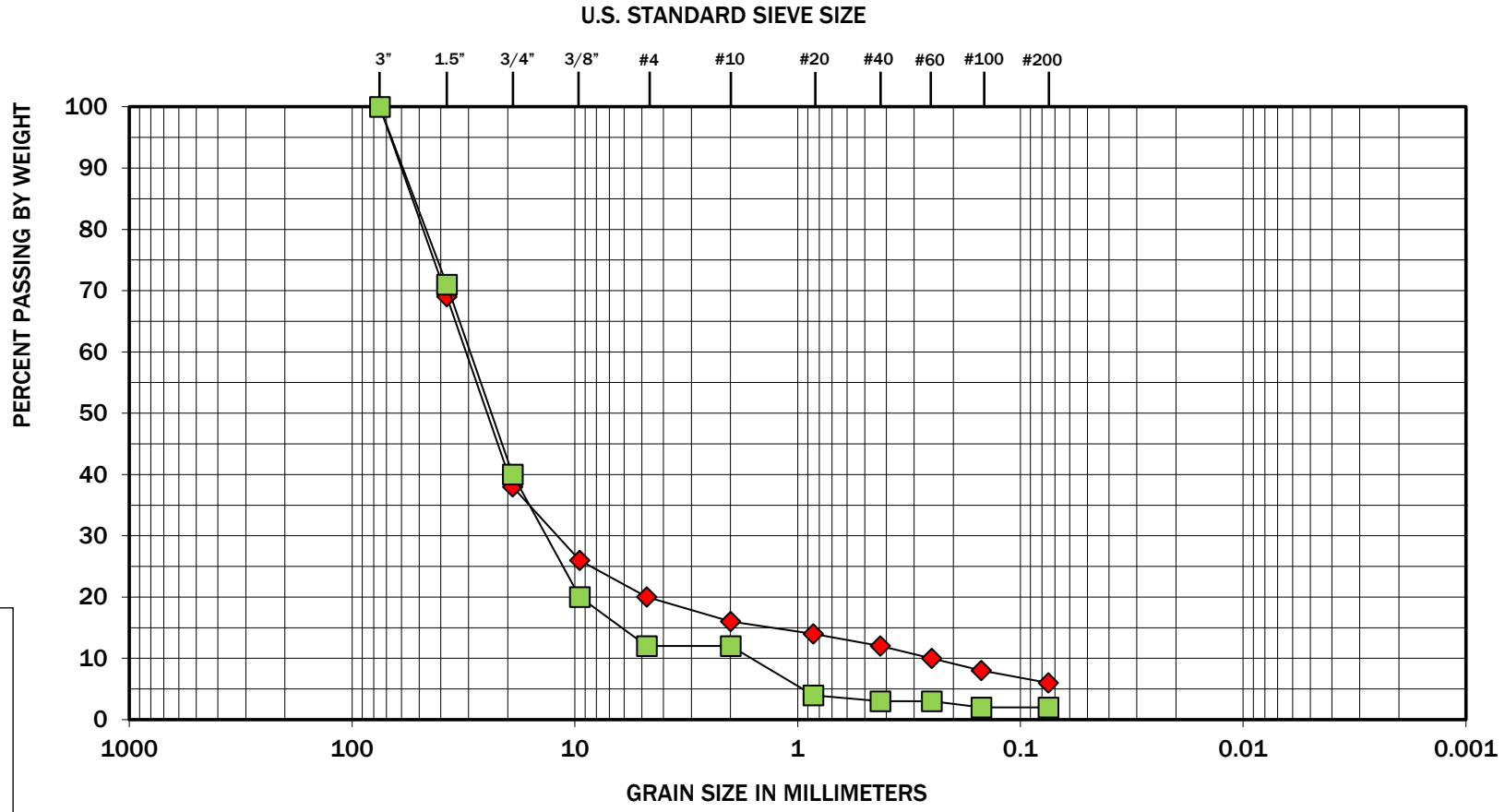
Sieve Analysis Results

Wallace Falls Water System Improvements

Gold Bar, Washington

GeoEngineers

Figure B-1



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Symbol	Boring Number	Depth (feet)	Moisture (%)	Soil Description
◆	TP-6	2	13	Poorly graded gravel with silt (GP-GM)
■	TP-6	4	3	Poorly graded gravel (GP)

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The grain size analysis results were obtained in general accordance with ASTM D 6913. GeoEngineers 17425 NE Union Hill Road Ste 250, Redmond, WA 98052

GeoEngineers

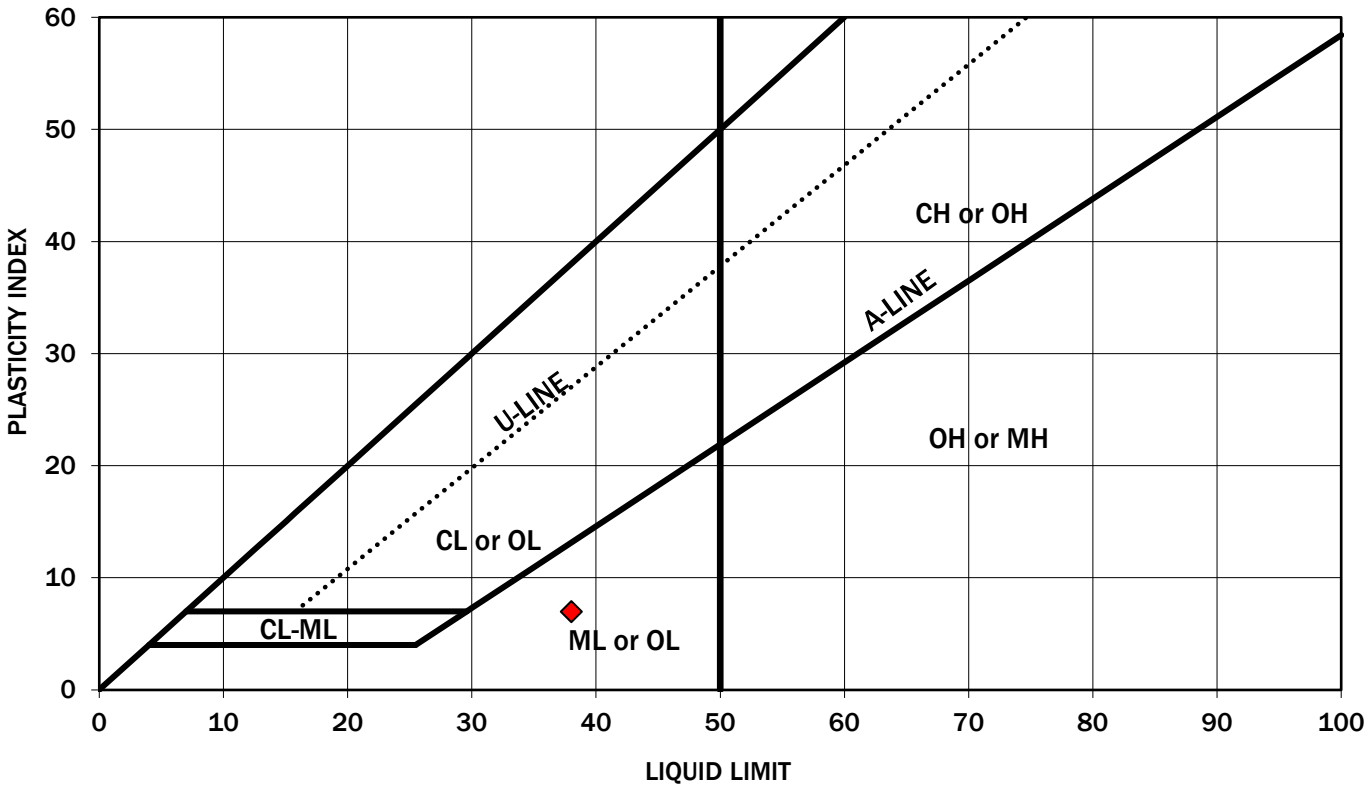
Figure B-2

Wallace Falls Water System Improvements

Gold Bar, Washington

Sieve Analysis Results

PLASTICITY CHART



Symbol	Boring Number	Depth (feet)	Moisture Content (%)	Liquid Limit (%)	Plasticity Index (%)	Soil Description
◆	TP-1	6.0	28.4	38	7.0	Silt with sand (ML or OL)

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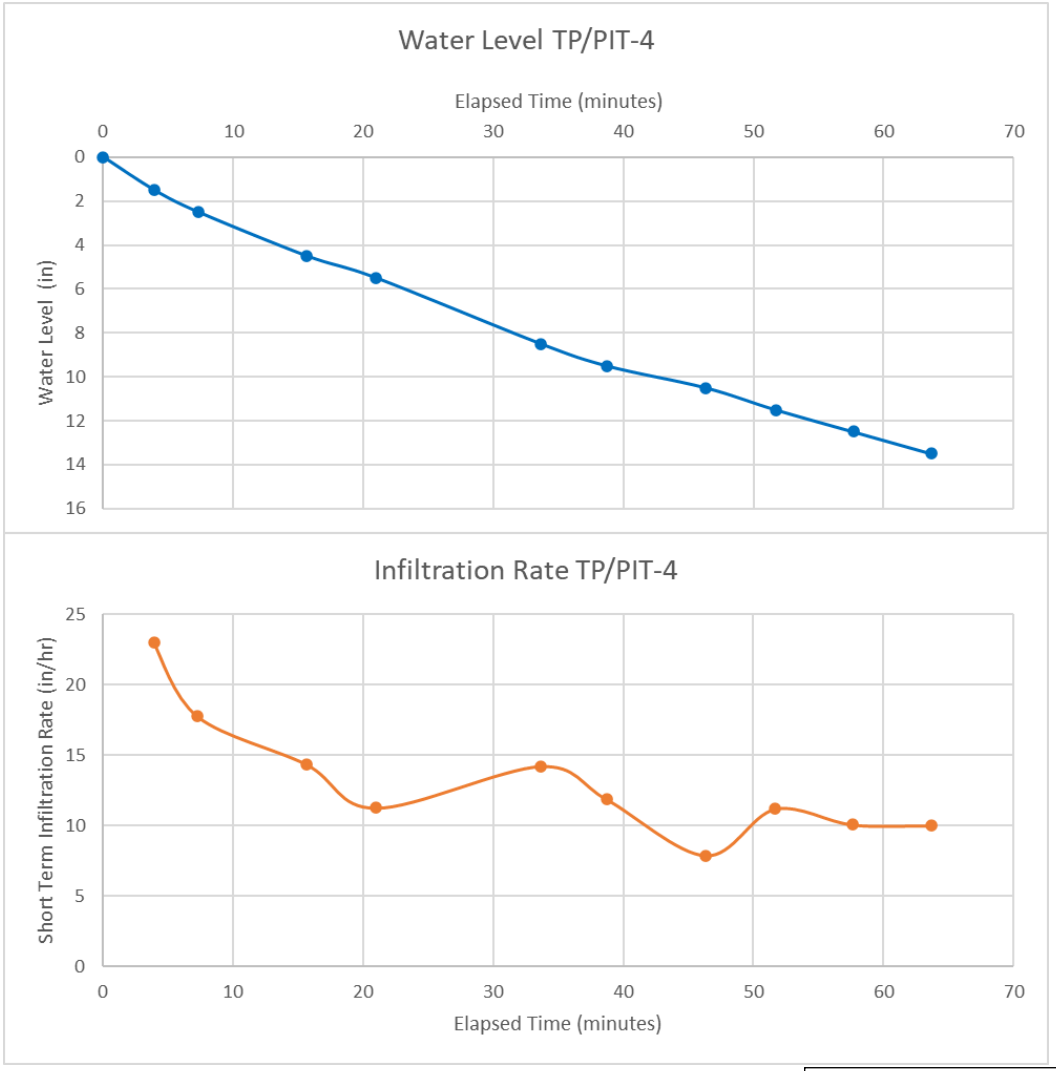
Atterberg Limits Test Results

Wallace Falls Water System Improvements
Gold Bar, Washington

GeoEngineers

Figure B-3

2935-074-00 Date Exported: 01/23/23



PIT Test Results

Wallace Falls Water System Improvements
Gold Bar, Washington

GeoEngineers

Figure B-4

2935-074-00 Date Exported: 1/23/2023

APPENDIX C
Snohomish County Code
Geologic Hazard Requirements and Responses

APPENDIX C
SNOHOMISH COUNTY CODE GEOLOGIC HAZARD REQUIREMENTS AND RESPONSES

SCC Section 30.62B.140, Geotechnical Report Requirements

(1) A geotechnical report will be required for any development activity, action requiring a project permit or clearing proposed within:

(a) An erosion hazard area;

(b) A landslide hazard area;

(c) Two hundred feet of a mine hazard area; or

(d) Two hundred feet of any faults.

Response: The site is mapped within an erosion hazard area, as indicated by the Snohomish County Landslide, Erosion, and Volcanic Hazards map, 2007. The Tokul-Ogarty-Rock outcrop complex is mapped at the site and the Tokul-Winston gravelly loam occurs along the river east and south of the site. The Tokul-Ogarty-Rock outcrop complex and Tokul-Winston gravelly loam are described by the United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) as having moderate and high erosion potential, respectively. The project will be designed with erosion control measures that meet Snohomish County Code, best management practices (BMPs), and recommendations in this geotechnical report.

The slopes to the south and west of the proposed treatment building/Alt A (and south of Alt B) and the slope above the proposed new parking area are included within a mapped landslide hazard area. We did not observe groundwater seepage or indications of shallow or deep seated slope instability of the adjacent ravine slopes. It is our opinion construction of the proposed parking area will not result in an increased instability in the surrounding area provided design and construction measures follow BMPs and the Snohomish County code regarding earthwork, site preparation, erosion, and drainage mitigation measures.

No underground mines are known to exist in or within 200 feet of the proposed parking areas.

No faults have been identified within the site vicinity.

(2) The geotechnical report shall be prepared, stamped, and signed by a licensed engineer or geologist.

Response: This report has been reviewed, signed, and stamped by J. Robert Gordon, Senior Principal, who is licensed as a civil engineer in the State of Washington.

...and contain the following information relevant to the geologically hazardous area:

(a) The topography at contour intervals of five feet unless the underlying project permit requires a lesser interval;

Response: The surface topography shown on Figure 3 includes contour intervals at 2 feet. We understand Consor, Inc. will prepare topographic site plans during final design showing the proposed improvement areas in more detail.

(b) Significant geologic contacts, landslides or downslope soil movement on and within 200 feet of the site;

Response: Geologic and subsurface soil conditions are discussed above under "Site Conditions". We did not observe indications of landslides or downslope movement on or within 200 feet of the site.

(c) A channel migration zone study when required pursuant to SCC 30.62B.330(2);

Response: Not applicable, as the proposed improvement areas are over 1,000 feet west and north of the Wallace River.

(d) Impervious surfaces, wells, drain fields, drain field reserve areas, roads, easements, and utilities on the site;

Response: We understand the proposed parking area will contain asphalt surfacing, and appropriate site drainage design with potential infiltration facilities. A new well is planned at the site, likely to be placed within the vicinity of TP-1.

A known drain field is located east of the existing bathroom facility, public roads, or easements are shown in Figure 2, Site Plan. Underground utilities at the site include a water line that runs along the southern border of the existing parking lot and is shown in Figure 2.

(e) The location or evidence of any springs, seeps, or other surface expressions of groundwater;

Response: No springs, seeps or other surface expressions of groundwater were observed in steep slope areas during our site reconnaissance and field exploration activities summarized above. However, shallow groundwater seepage was observed in TP-4 during the time they were open. Groundwater was not observed in the remaining test pits.

(f) The location or evidence of any surface waters;

Response: Wallace River flows in a north-south direction and bends to east-west direction just east of the project site. West of the site, a small creek flows from northeast to southwest.

(g) Identification of all existing fill areas;

Response: There are no known fill areas within the project site.

(h) The location and extent of all proposed development activity;

Response: The proposed improvement areas and related features are described above in the "Project Description" section of this report.

(i) A discussion of the geological condition of the site including:

(i) a description of the soils in accordance with the Natural Resource Conservation Service indicating the potential for erosion;

Response: A description of mapped soils in the project area and their erosion potential is given in the "Geologic Conditions" and "Soil Survey (NRCS) Units" section of this report.

(ii) engineering properties of the soils, sediments, and rocks on the subject property and adjacent properties and their effect on the stability of the slope;

Response: The recessional outwash deposits are loose to dense, coarse grained and contain cobbles and likely occasional boulders, resulting in moderately high internal angles of friction that contribute to stability of the slopes. Engineering soil properties are summarized in Appendix B, Laboratory Testing, and recommended soil parameters are presented in appropriate sections of this report (retaining walls, shallow foundations, infiltration considerations, etc.).

(iii) a description of the slope in percent gradient;

Response: Slope gradients within and adjacent to the project site are described in the "Surface Conditions" section of this report.

(iv) the location or evidence of seismic faults and soil conditions indicating the potential for liquefaction; and

Response: There are no mapped surface faults within 6 miles of the project site. Based on the subsurface soil and groundwater conditions encountered in our explorations, the site soils have a low potential for liquefaction.

(v) a hazard analysis and finding of risks associated with geologic hazards and the potential impacts to public safety, the hazard area and the subject property;

Response: Based on our review of geologic information, LiDAR data, historical aerial photographs, and our geologic reconnaissance, we conclude there is a low risk of landslides that would affect the project site.

The removal of stumps, roots, and surficial soils and construction of engineered fills and site facilities will not significantly impact the site stability, in our opinion.

(j) The proposed method of drainage and locations of all existing and proposed surface and subsurface drainage facilities and patterns, and the locations and methods of erosion control;

Response: All graded areas within the project site will be sloped to drain to facilities designed by the civil engineer in accordance with county standards.

A temporary erosion and sediment control plan and permanent landscaping plans will also be prepared by the project team.

(k) The extent and type of vegetative cover;

Response: Existing vegetation currently consists of manicured lawn, heavy brush, blackberry brambles and/or small to large evergreen trees.

(l) A vegetation management and restoration plan prepared by persons experienced in vegetation management and restoration plans such as botanists, landscape architects and certified arborist, or other means for maintaining long-term stability of slopes;

Response: Vegetation within portions of the project site will be restored in accordance with landscaping plans to be prepared by the project team.

(m) Analysis of erosion rates, slope recession rates and potential impacts to existing or proposed development from wave cutting, stream meandering, or other erosional forces to determine the recommended solution for bank or shoreline stabilization or flood protection in conformance with SCC 30.62B.320(2);

Response: This requirement does not apply to the proposed improvements area project based on the proximity to the adjacent river and streams.

(n) Analysis of soil borings when the geology of an area is uncertain; and

Response: Subsurface soil and groundwater conditions encountered in our test pit explorations are summarized in the "Subsurface Conditions" section and in Appendix A of this report.

(o) Any other information determined by the department to be necessary to determine compliance with this chapter including but not limited to use of LIDAR, technical reports, studies or documents related to geologic hazards and models for estimating how far landslide materials will travel.

Response: We reviewed publicly available geologic maps, LiDAR data, and historical aerial photographs to supplement our field reconnaissance observations and test pit data.

(3) The geotechnical report shall include a summary or abstract of the report for the property where the development activity is proposed. The abstract shall at a minimum include the type of hazard, extent of the hazard, hazard analyses and geologic conditions.

Response: A summary of the geologic hazards associated with the property development activity is presented in the "Geologic Hazards" section of this report.

SCC 30.62B.340, Development In Landslide Hazard Areas

Section 30.62B.340, Landslide Hazard Areas, of the Snohomish County Code (SCC) may allow development activities, actions requiring project permits and clearing in landslide hazard areas as stated in the following:

(1) Development activities, actions requiring project permits and clearing shall not be allowed in landslide hazard areas as defined in SCC 30.91L.040 unless a deviation is granted by the director when the applicant demonstrates the following criteria are met:

The following list provides our responses to the specific criteria stated in SCC 30.62B.340:

There is no alternate location for the structure on the subject property.

Response: The project site is located on the upland area above Wallace River. The well system areas were located to avoid surrounding creeks, wetlands, and landslide hazard areas. We recommend a minimum setback of 7 feet (H/3 for descending slope) from the slopes to the west of Alt A and a 30 (H/2 for ascending slope) feet setback from the ascending slope to the north. We recommend a 13 foot (H/3 for descending slope) setback from the top of the slopes below Alt B.

(a) A geotechnical report demonstrates that building within a landslide hazardous area:

(i) will provide protection commensurate to being located outside of the landslide hazard area; and

(ii) the proposal meets the requirements of SCC 30.62B.320.

Response: Based on our observations and evaluation, the proposed project will not increase the risk of landslide occurrence in downslope or upslope areas. The requirements of SCC 30.62B.320 and our responses are provided at the end of this appendix.

(2) In addition to the requirements in SCC 30.62B.320 the following standards and requirements apply to development activities, actions requiring project permits and clearing in landslide hazard areas:

(a) Vegetation shall not be removed from a landslide hazard area, except for hazardous trees based on review by a qualified arborist or as otherwise provided for in a vegetation management and restoration plan;

Response: Vegetation will not be removed within the existing landslide hazard areas. Provided site drainage design incorporates grading to direct runoff away from the slope, and includes discharge of facilities or infiltration at least 200 feet away from the slope, it is our opinion that the proposed improvements will not result in a decrease in slope stability of the steep slopes.

(b) The factor of safety for landslide occurrences shall not be decreased below the limits of 1.5 for static conditions or 1.1 for dynamic conditions. Analysis of dynamic conditions shall be based on horizontal acceleration as established by the current version of the International Building Code.

Response: We did not complete numerical slope stability analyses as the nature of project will not impact nor decrease the existing overall stability of nearby steep slopes. Removal of surficial debris and redirecting surface drainage to an engineered discharge will improve slope stability to a small degree, in our opinion.

(c) Tiered piles or piers shall be used for structural foundations where possible to conform to existing topography;

Response: Not applicable, as the treatment building structures planned for the new well location will be located on relatively level surfacing and are small single story facilities to be founded on shallow foundations.

(d) *Retaining walls that allow for maintenance of existing natural slopes shall be used wherever possible instead of graded artificial slopes.*

Response: We understand retaining walls may be constructed at grade transitions around the parking areas. Segmental block, gravity block, and cast-in-place concrete cantilever walls are suitable options for this project. The specific types, locations and heights have not been determined.

(e) *Provided there is no practical alternative, utility lines and pipes may be constructed in landslide hazard areas under the following conditions:*

(i) the line or pipe shall be located above ground and properly anchored or designed so that it will continue to function in the event of an underlying slide; and

(ii) stormwater conveyance systems shall be designed with high density polyethylene pipe with fuse-welded joints, or similar product that is technically equivalent; or

(iii) alternatively, utilities may be bored below landslide hazard areas provided they are located beneath the depth of potential slope failure.

Response: An overflow drain is planned within the proposed improvement areas but not along nearby steep slopes.

(f) *Point source discharge of stormwater may be allowed in landslide hazard areas under the following conditions:*

(i) the stormwater is conveyed via continuous storm pipe downslope to a point where it does not increase risk to landslide hazard areas or other properties downstream from the discharge;

(ii) the stormwater is discharged at flow durations matching predeveloped conditions with adequate energy dissipation into existing channels; or

(iii) discharge upslope of the landslide hazard area may only occur if:

(A) it is dispersed onto a low-gradient undisturbed setback adequate to infiltrate all surface and stormwater runoff; and

(B) the discharge will not decrease the stability of the slope.

Response: Infiltration of storm water will likely be implemented in the northwestern part of the existing parking area (near TP-4) and near TP-6 and located at least 200 feet away from the top of steep descending slopes.

SCC 30.62B.320, General Standards and Requirements for Erosion and landslide hazard areas

(a) *Any development activity, action requiring a project permit or clearing occurring in an erosion or landslide hazard area:*

(b) *Shall be designed to:*

Comply with the requirements in an approved geotechnical report when required pursuant to SCC 30.62B.140;

Response: The conclusions and recommendations in this report are intended to limit impacts of erosion and landslide hazards near the site. Measures to address these hazards include implementation of properly designed temporary erosion and sediment control and landscaping plans, earthwork and subgrade preparation, and site drainage design.

(i) Utilize best management practices (BMPs) adopted by the department pursuant to chapter 30.63A SCC and all known and available reasonable technology (AKART) appropriate for compliance with this chapter;

Response: Appropriate BMPs and erosion/drainage mitigation measures will be implemented during project construction to avoid significant adverse impacts related to erosion and slope stability.

(ii) Prevent collection, concentration or discharge of stormwater or groundwater within an erosion or landslide hazard area, except as otherwise provided in this chapter;

Response: Earthwork, erosion control, and site drainage will be designed and construction to reduce site erosion per Snohomish County standards.

(iii) Minimize impervious surfaces and retain vegetation to minimize risk of erosion or landslide hazards;

Response: Site civil design will comply with county standards to mitigate the risk of erosion and landslide hazards.

(a) [Any development activity…] Shall not:

(i) result in increased risk of property damage, death or injury;

Response: In our opinion, the proposed construction will not have a negative impact on site conditions with respect to erosion control and debris removal.

(ii) cause or increase erosion or landslide hazard risk;

Response: The implementation of BMPs will serve to avoid adverse erosion related impacts. The site improvements will serve to reduce site instability by controlling site drainage.

(iii) increase surface water discharge, sedimentation, slope instability, erosion or landslide potential to adjacent or downstream and down-drift properties beyond pre-development conditions;

Response: All graded areas will be sloped to drain and route sediment to a properly designed discharge away from the top of adjacent slopes. The proposed infiltration facility should be located more than 200 feet away from the top of existing slopes.

APPENDIX D
Report Limitations and Guidelines for Use

APPENDIX D
REPORT LIMITATIONS AND GUIDELINES FOR USE[1]

This appendix provides information to help you manage your risks with respect to the use of this report.

Read These Provisions Closely

It is important to recognize that the geoscience practices (geotechnical engineering, geology and environmental science) rely on professional judgment and opinion to a greater extent than other engineering and natural science disciplines, where more precise and/or readily observable data may exist. To help clients better understand how this difference pertains to our services, GeoEngineers includes the following explanatory "limitations" provisions in its reports. Please confer with GeoEngineers if you need to know more how these "Report Limitations and Guidelines for Use" apply to your project or site.

Geotechnical Services are Performed for Specific Purposes, Persons and Projects

This report has been prepared for the Washington State Department of Natural Resources, Consor, Inc., and other members of the design team for the project specifically identified in the report. The information contained herein is not applicable to other sites or projects.

GeoEngineers structures its services to meet the specific needs of its clients. No party other than the party to whom this report is addressed may rely on the product of our services unless we agree to such reliance in advance and in writing. Within the limitations of the agreed scope of services for the Project, and its schedule and budget, our services have been executed in accordance with our Agreement with the Client dated August 6, 2022 and generally accepted geotechnical practices in this area at the time this report was prepared. We do not authorize, and will not be responsible for, the use of this report for any purposes or projects other than those identified in the report.

A Geotechnical Engineering or Geologic Report is Based on A Unique Set of Project-Specific Factors

This report has been prepared for the proposed Wallace Falls Park Water Systems Improvement project near Gold Bar, Washington. GeoEngineers considered a number of unique, project-specific factors when establishing the scope of services for this project and report. Unless GeoEngineers specifically indicates otherwise, do not rely on this report if it was:

- Not prepared for you,
- Not prepared for your project,
- Not prepared for the specific site explored, or
- Completed before important project changes were made.

For example, changes that can affect the applicability of this report include those that affect:

- The function of the proposed features and structures;
- Elevation, configuration, location, orientation or weight of the proposed features and structures;

[1] Developed based on material provided by GBA, GeoProfessional Business Association; www.geoprofessional.org.

- Composition of the design team; or
- Project ownership.

If changes occur after the date of this report, GeoEngineers cannot be responsible for any consequences of such changes in relation to this report unless we have been given the opportunity to review our interpretations and recommendations. Based on that review, we can provide written modifications or confirmation, as appropriate.

Environmental Concerns Are Not Covered

Unless environmental services were specifically included in our scope of services, this report does not provide any environmental findings, conclusions, or recommendations, including but not limited to, the likelihood of encountering underground storage tanks or regulated contaminants.

Subsurface Conditions Can Change

This geotechnical or geologic 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 man-made events such as construction on or adjacent to the site, new information or technology that becomes available subsequent to the report date, or by natural events such as floods, earthquakes, slope instability or groundwater fluctuations. If more than a few months have passed since issuance of our report or work product, or if any of the described events may have occurred, please contact GeoEngineers before applying this report for its intended purpose so that we may evaluate whether changed conditions affect the continued reliability or applicability of our conclusions and recommendations.

Geotechnical and Geologic Findings Are Professional Opinions

Our interpretations of subsurface conditions are based on field observations from widely spaced sampling locations at the site. Site exploration identifies the specific subsurface conditions only at those points where subsurface tests are conducted or samples are taken. GeoEngineers reviewed field and laboratory data and then applied its professional judgment to render an informed opinion about subsurface conditions at other locations. Actual subsurface conditions may differ, sometimes significantly, from the opinions presented in this report. Our report, conclusions and interpretations are not a warranty of the actual subsurface conditions.

Geotechnical Engineering Report Recommendations Are Not Final

We have developed our preliminary recommendations based on data gathered from subsurface exploration(s). These explorations sample just a small percentage of a site to create a snapshot of the subsurface conditions elsewhere on the site. Such sampling on its own cannot provide a complete and accurate view of subsurface conditions for the entire site. Therefore, the recommendations included in this report are preliminary and should not be considered final. GeoEngineers' recommendations can be finalized only by observing actual subsurface conditions revealed during construction. GeoEngineers cannot assume responsibility or liability for the recommendations in this report if we do not perform construction observation.

We recommend you allow sufficient monitoring, testing and consultation during construction by GeoEngineers to confirm the conditions encountered are consistent with those indicated by the explorations, to provide recommendations for design changes if the conditions revealed during the work differ from those anticipated, and to evaluate whether earthwork activities are completed in accordance

with our recommendations. Retaining GeoEngineers for construction observation for this project is the most effective means of managing the risks associated with unanticipated conditions. If another party performs field observation and confirms our expectations, the other party must take full responsibility for both the observations and recommendations. Please note, however, that another party would lack our project-specific knowledge and resources.

A Geotechnical Engineering or Geologic Report Could Be Subject to Misinterpretation

Misinterpretation of this report by members of the design team or by contractors can result in costly problems. GeoEngineers can help reduce the risks of misinterpretation by conferring with appropriate members of the design team after submitting the report, reviewing pertinent elements of the design team's plans and specifications, participating in pre-bid and preconstruction conferences, and providing construction observation.

Do Not Redraw the Exploration Logs

Geotechnical engineers and geologists prepare final exploration logs based upon their interpretation of field logs and laboratory data. The logs included in a geotechnical engineering or geologic report should never be redrawn for inclusion in architectural or other design drawings. Photographic or electronic reproduction is acceptable but separating logs from the report can create a risk of misinterpretation.

Give Contractors a Complete Report and Guidance

To help reduce the risk of problems associated with unanticipated subsurface conditions, GeoEngineers recommends giving contractors the complete geotechnical engineering or geologic report, including these "Report Limitations and Guidelines for Use." When providing the report, you should preface it with a clearly written letter of transmittal that:

- Advises contractors that the report was not prepared for purposes of bid development and that its accuracy is limited; and
- Encourages contractors to confer with GeoEngineers and/or to conduct additional study to obtain the specific types of information they need or prefer.

Contractors Are Responsible for Site Safety on Their Own Construction Projects

Our geotechnical recommendations are not intended to direct the contractor's procedures, methods, schedule or management of the work site. The contractor is solely responsible for job site safety and for managing construction operations to minimize risks to on-site personnel and adjacent properties.

Biological Pollutants

GeoEngineers' Scope of Services specifically excludes the investigation, detection, prevention or assessment of the presence of Biological Pollutants. Accordingly, this report does not include any interpretations, recommendations, findings or conclusions regarding the detecting, assessing, preventing or abating of Biological Pollutants, and no conclusions or inferences should be drawn regarding Biological Pollutants as they may relate to this project. The term "Biological Pollutants" includes, but is not limited to, molds, fungi, spores, bacteria and viruses, and/or any of their byproducts.

A Client who desires these specialized services is advised to obtain them from a consultant who offers services in this specialized field.

GeoEngineers

SECTION 010000 – GENERAL REQUIREMENTS

PART 1 - GENERAL

1.1 SPECIAL NOTICE

A. Snohomish County Land Disturbing Activity (LDA) permit has not been finalized. Therefore, all land disturbing work must be deferred until the LDA permit is received by the Owner.

B. No overhead equipment or materials can come within 25ft of any overhead BPA energized conductor without the use of a qualified BPA Safety Watcher. It is the responsibility of the Contractor to coordinate with BPA for a qualified BPA Safety watcher.

1.2 DESCRIPTION OF WORK

A. This project includes the drilling, construction, development, and testing of one up to two (2) wells and other related miscellaneous items. One (1) of the two (2) wells and associated items is considered an alternative bid item. Major items included in the base bid (but not limited to) are:
   1. Drilling and installing temporary and permanent well casing.
   2. Drilling open borehole
   3. Installing well linear blank, tailpipe, and linear screen.
   4. Well development and testing
   5. Alternative/Contingency well drilling, construction, development, and testing
   6. Other related miscellaneous items.

1.3 TIME FOR COMPLETION OF PROJECT

A. Substantially complete project in accordance with the drawings and specifications within 90 calendar days from date on Notice to Proceed letter. Final completion in accordance with Contract Documents within 15 calendar days from substantial completion date.

1.4 HOURS OF WORK

A. Work hours are between 9 a.m. and 7 p.m. Monday through Friday, excluding national holidays. Any required work that requires work outside of the work hours should be coordinated and confirmed with the Owner a minimum of 96 hours prior to the start of the proposed work.

1.5 LIQUIDATED DAMAGES

A. If Contractor fails to complete Contract within stipulated time, an assessment of $700 per day will be made against Contractor for each additional day required to complete contract, unless an extension of time was granted through Change Order. This assessment is to cover Commission's liquidated damages and is not to be construed as a penalty.

B. Contract authorizes the Washington State Parks and Recreation Commission to deduct liquidated damages from money due at completion of contract.

1.6 PRE-CONSTRUCTION CONFERENCE

A. Following notification of award to Contractor, the date for an on-site pre-construction conference will be set. Do not commence Work prior to conference or until written clearance has been obtained from Project Representative.

B. Furnish Project Representative with following:

1. Complete list of sub-contractors, including business address, telephone numbers, items of Work, and registration numbers. List is to be updated during contract life.
2. Name and contact information of Contractor's staff who is in charge and responsible for site safety and will be on site at all times.
3. A Site-Specific Safety Plan that is in compliance with the Department of Labor and Industries and 000011 – General Conditions specifically for this project.
4. A progress schedule in accordance with General Conditions.
5. A detailed cost breakdown for lump sum bid items. Furnish a fair evaluation of actual cost of each items of Work listed. This will be used in processing Contractor's requests for partial payment. Submittal of breakdown does not affect the Contract terms.

C. Project Representative will supply a list of hazardous products that could be encountered on Project. Appropriate Safety Data Sheet (SDS) will be on file at park.

1.7 SITE ACCESS

A. General: Contractor shall have limited use of Project site for construction operations as indicated on Drawings and as indicated by requirements of this Section. The Park will be open to the Public during construction, contractor must plan their work accordingly.

B. Use of Site: Do not disturb portions of Project site beyond areas in which the Work is indicated.
1. Driveways, Walkways and Entrances: Keep driveways, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
    a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
    b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

1.8 WORK BY OWNER OR OTHERS

A. If Owner-awarded contracts interfere with each other due to work being performed at the same time or at the same Site, Owner will determine the sequence of work under all contracts according to "Work Sequence" and "Contractor's Use of Site" Articles in this Section.

B. Coordinate Work with utilities of Owner and public or private agencies.

1.9 WORK SEQUENCE

A. Construct Work in phases during construction period. Coordinate construction schedule and operations with Project Representative:
   1. Phase 1: Well Drilling and Testing – Base Bid Location.
   2. Phase 2 (Contingency): Well Drilling and Testing – Alternative Location.

B. The Contractor shall develop, maintain, and be solely responsible for the sequencing plan including all aspects of the project, complete, in accordance with all project work and operational parameters.

1.10 PROGRESS CLEANING

A. Remove rubbish and debris from park property daily unless otherwise directed do not allow accumulation. Store materials that cannot be removed daily only in areas specified by the Project Representative.

B. Maintain worksites in a neat and orderly condition.

C. Cleanup operations are incidental to the Contract and no extra compensation will be made.

1.11 WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT)

A. **None** of WSDOT General Requirements, measurement or payment provisions apply.

1.12 UTILITY MONUMENTS

A. Contractor is responsible for installing monuments in accordance with drawings and at locations designated by Project Representative to permanently mark utilities installed on Project. Install monuments in trenches during backfilling operations.

1.13 AS-BUILT DRAWINGS

A. Keep a clean set of full-sized drawings at job site to use to identify changes.

1.14 PROJECT CONDITIONS

A. Hazardous Materials: It is unknown whether hazardous materials will be encountered in the Work.

   1. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Project Representative and Owner. Owner will remove hazardous materials under a separate contract.

1.15 PROJECT SIGN

A. Provide the following temporary sign. Sign location is shown on drawings or determined by Project Representative. Upon Project completion, remove sign and restore area to original condition.

1.16 PROJECT SIGN LETTERING

TITLE OF PROJECT:	WELL DRILLING, CONSTRUCTION, DEVELOPMENT, AND TESTING
NAME OF FACILITY:	WALLACE FALLS STATE PARK
NAME OF CONTRACTOR:	(Place Contractor's Name here)
ADDRESS OF CONTRACTOR:	(Place Contractor's Address here)
FUNDING TITLE NUMBER 1:	STATE BUILDING CONSTRUCTION ACCOUNT
FUNDING TITLE NUMBER 2:	(LEAVE BLANK FOR THIS PROJECT)

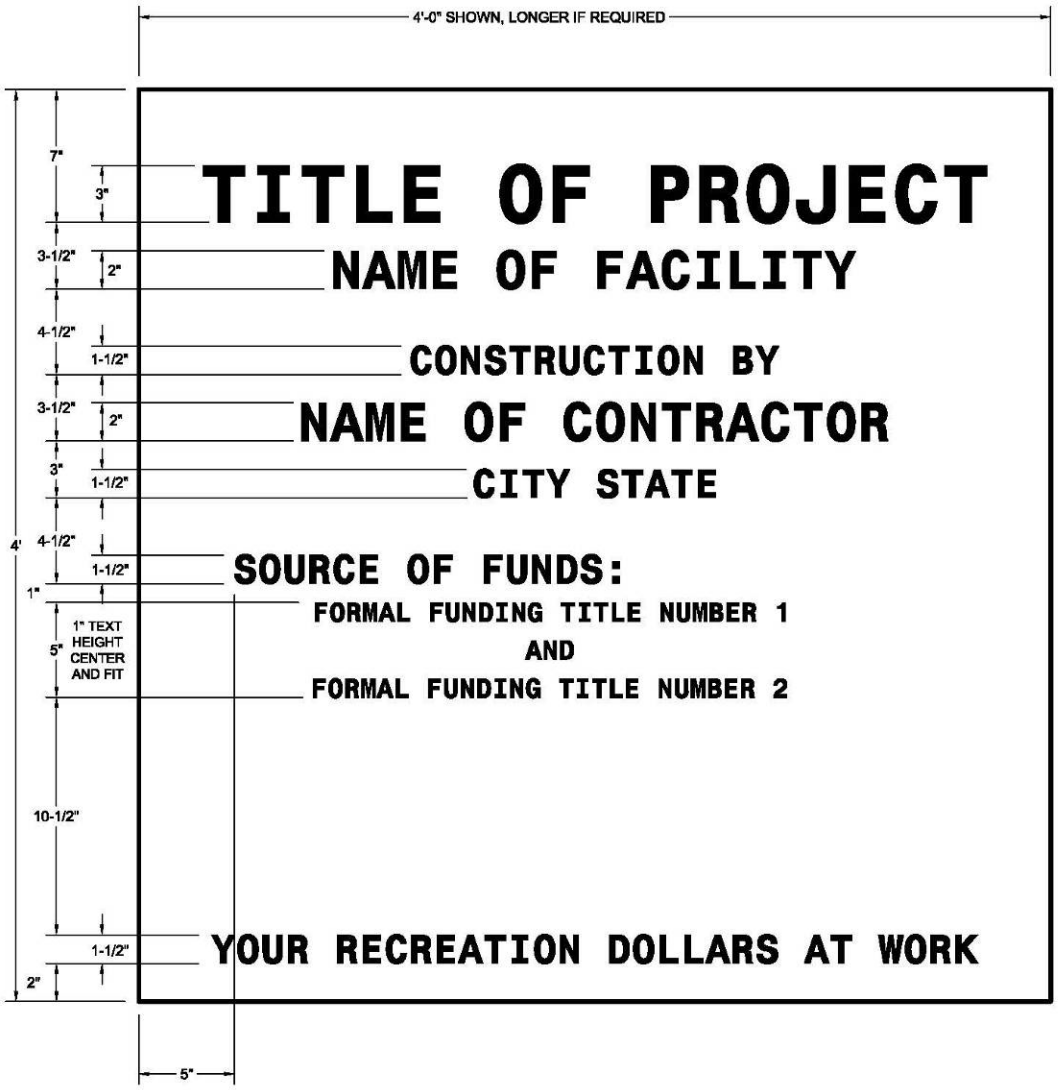
1.17 PARTNERSHIP IN THE CONTRACT

A. As partners in this contract, both Contractor and Commission recognize the value of a successful Project. Both parties recognize, besides the tangible benefits to Contractor and the Commission, the citizens of Washington State and visitors to Washington State Parks will benefit immensely from the successful completion of a quality Project.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

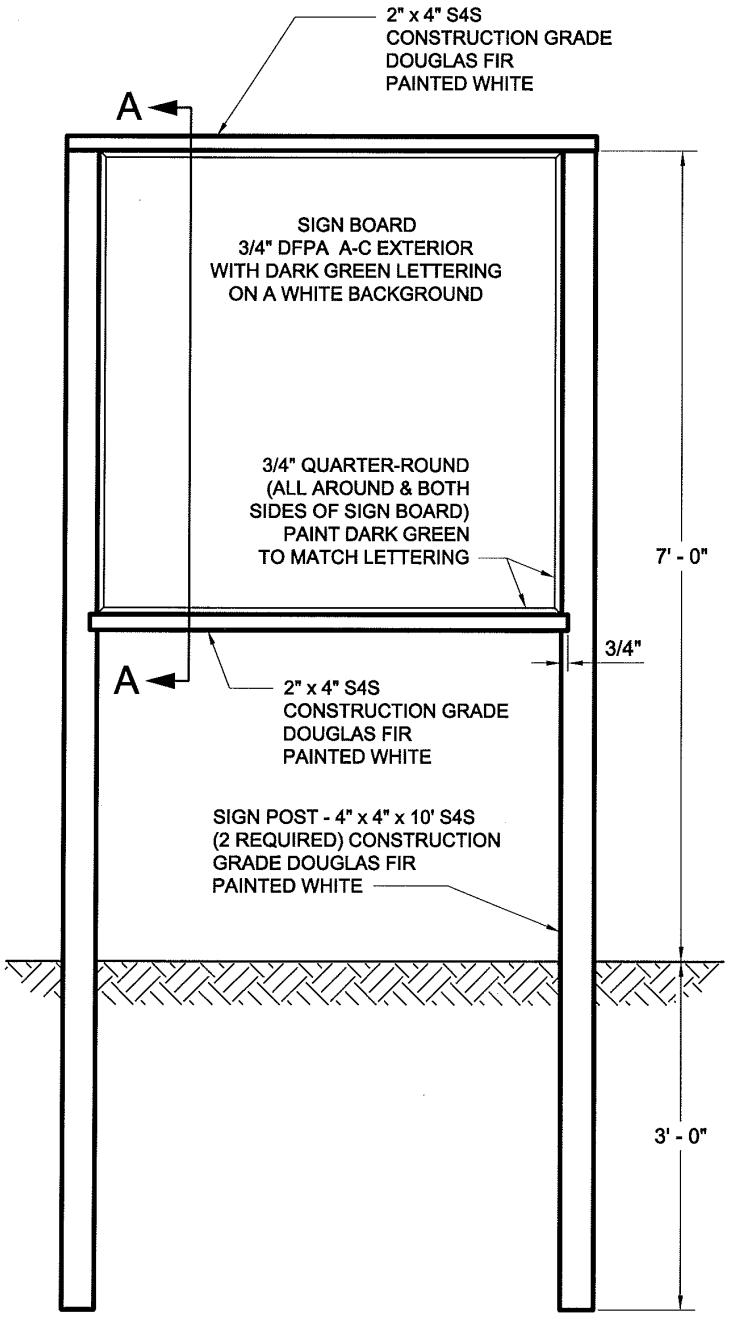
PROJECT SIGN DETAIL

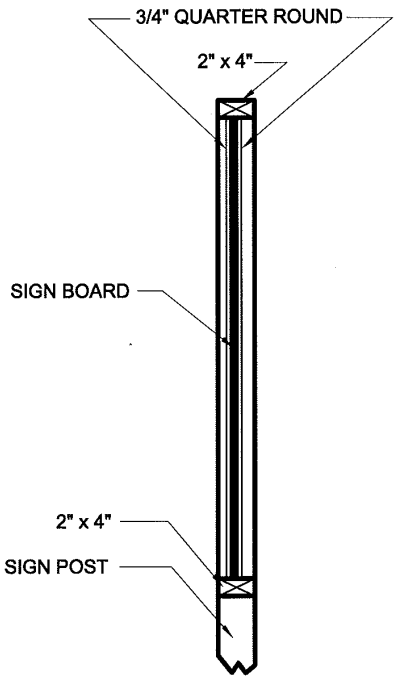


LAY OUT SIGN TO FIT ON A PORTION OF ONE (1) SHEET OF PLYWOOD. IF PLYWOOD IS THE FINAL SURFACE, PAINT IT WITH TWO (2) OR MORE COATS OF WHITE PAINT TO FORM A SMOOTH, NONABSORBENT SURFACE. PROVIDE DARK GREEN WELL FORMED LETTERS, EVENLY SPACED, NEAT IN APPEARANCE, AND ALIGNED AS SHOWN ABOVE.

WASHINGTON STATE PARKS
PROJECT SIGN DETAIL

PROJECT SIGN DETAIL





SECTION A - A

PLAN

END OF SECTION

SECTION 012200 - UNIT PRICES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for unit prices.

1.2 DEFINITIONS

A. Unit price is a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if estimated quantities of Work required by Contract Documents are increased or decreased.

1.3 PROCEDURES

A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, overhead, and profit. Unit prices do not include Washington sales tax.

B. Measurement and Payment: Refer to Section 3 below and individual Specification Sections for Work that requires establishment of unit prices.

C. Owner reserves the right to reject Contractor's measurement of Work-in-place that involves use of established unit prices and to have Work measured, at Owner's expense, by an independent surveyor acceptable to Contractor. If Contractor’s measurements are greater than three percent (3%) of the actual quantities, Contractor will pay the cost of independent surveyor.

D. List of Unit Prices: A list of unit prices is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 LIST OF UNIT PRICES

A. Unit Price No. UP1 – Drilling Borehole

1. Description: This unit bid item provides for more or less “drilling borehole” than anticipated in the lump sum bid. The anticipated amount of “drilling borehole” is indicated by the project plans and specifications. Only deviations from the project plans and specifications directed by the Engineer will require adjustment (either additive or subtractive) to the contract amount based on the unit price amount. All “drilling borehole” will provide for operating drilling equipment during drilling, sampling of

drilled materials, sample containers, daily reports and containment, removal and disposal of drill cuttings, and water produced during drilling. For base bid assume, 282 LF.

2. Unit of Measurement: Linear Foot: All additive amounts for "drilling borehole" will be a total as measured by installed linear foot. The engineer reserves the right to measure the linear foot installed. All subtractive amounts for "drilling borehole" shall be measured in place by the Engineer.

B. Unit Price No. UP2 – Drilling & Installing Permanent Casing

1. Description: This unit bid item provides for more or less "Drilling & Installing Permanent Casing" than anticipated in the lump sum bid. The anticipated amount of "Drilling & Installing Permanent Casing" is indicated by the project plans and specifications. Only deviations from the project plans and specifications directed by the Engineer will require adjustment (either additive or subtractive) to the contract amount based on the unit price amount. All "Drilling & Installing Permanent Casing" will provide for material, haul, placement, operating drilling equipment, and installing the casing shoe. For base bid assume, 100 LF.
2. Unit of Measurement: Linear Foot: All additive amounts for "Drilling & Installing Permanent Casing" will be a total as measured by installed linear foot. The engineer reserves the right to measure the linear foot installed. All subtractive amounts for "Drilling & Installing Permanent Casing" shall be measured in place by the Engineer.

C. Unit Price No. UP3 – Liner Blank

1. Description: This unit bid item provides for more or less "Liner Blank" than anticipated in the lump sum bid. The anticipated amount of "Liner Blank" is indicated by the project plans and specifications. Only deviations from the project plans and specifications directed by the Engineer will require adjustment (either additive or subtractive) to the contract amount based on the unit price amount. All "Liner Blank" will provide for material, hauling, handling, and installing the blank liner pipe. For base bid assume, 292 LF.
2. Unit of Measurement: Linear Foot: All additive amounts for "Liner Blank" will be a total as measured by installed linear foot. The engineer reserves the right to measure the linear foot installed. All subtractive amounts for "Liner Blank" shall be measured in place by the Engineer.

D. Unit Price No. UP4 – Liner Screen

1. Description: This unit bid item provides for more or less "Liner Screen" than anticipated in the lump sum bid. The anticipated amount of "Liner Screen" is indicated by the project plans and specifications. Only deviations from the project plans and specifications directed by the Engineer will require adjustment (either additive or subtractive) to the contract amount based on the unit price amount. All "Liner Screen" will provide for material, hauling, handling, and installing the liner screen. For base bid assume, 10 LF.
2. Unit of Measurement: Linear Foot: All additive amounts for "Liner Screen" will be a total as measured by installed linear foot. The engineer reserves the right to measure the linear foot installed. All subtractive amounts for "Liner Screen" shall be measured in place by the Engineer.

E. Unit Price No. UP5 – Well Development

1. Description: This unit bid item provides for more "Well Development" than anticipated in the lump sum bid. The anticipated amount of "Well Development" is indicated by the project plans and specifications. Only deviations from the project plans and specifications directed by the Engineer will require adjustment (only additive) to the contract amount

based on the unit price amount. All "Well Development" will provide for equipment and material for well development. For base bid assume, 10 hours.

2. Unit of Measurement: Hour: All additive amounts for "Well Development" will be a total as measured by hour. The engineer reserves the right to measure the hours of well development activities.

F. Unit Price No. UP6 – Test Pump Operation

1. Description: This unit bid item provides for more "Test Pump Operation" than anticipated in the lump sum bid. The anticipated amount of "Test Pump Operation" is indicated by the project plans and specifications. Only deviations from the project plans and specifications directed by the Engineer will require adjustment (only additive) to the contract amount based on the unit price amount. All "Test Pump Operation" will provide for conducting the testing. For base bid assume, 12 hours.
2. Unit of Measurement: Hour: All additive amounts for "Test Pump Operation" will be a total as measured by hour. The engineer reserves the right to measure the hours of well development activities.

END OF SECTION

SECTION 012300 – ALTERNATES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for alternates.

1.2 DEFINITIONS

A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Requirements that may be added to or deducted from the base bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.

1. Alternates described in this Section are part of Work only if accepted by the Commission.
2. The cost or credit for each alternate is the net addition to or deduction from Contract Sum to incorporate alternate into Work. No other adjustments are made to Contract Sum.

1.3 PROCEDURES

A. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.

1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.

B. Execute accepted alternates under the same conditions as other work of Contract.

1.4 REINSTATEMENT OF BID ALTERNATES

A. The Commission reserves the right to reinstate, within sixty (60) calendar days after Notice to Proceed date, any bid alternates not incorporated into the contract, at the stated alternate bid price.

1.5 ORDER OF CONSIDERATION

A. Bid alternates may be selected in any order or combination by the Commission in any order.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

A. **Alternative A1, Well Drilling, Construction, Development, and Testing at Alternative Well Site** – Includes all materials, supplies, equipment, transport, and labor necessary to drill, construction, develop, and test the well at the alternative well location as identified in the project plans. Includes all associated work to provide a complete project as detailed in the plans and specifications.

END OF SECTION

SECTION 013300 – SUBMITTAL PROCEDURES

PART 1 – GENERAL

1.1 WORK IN THIS SECTION

A. General: The types of submittal requirements specified in this Section include Shop Drawings, product data, Samples and miscellaneous Work-related submittals. Specialized submittal requirements are specified in applicable Sections for each unit of Work. Refer to other Division 01 Sections and other Contract documents for requirements of administrative submittals.

B. Definitions: Work-related submittals of this Section are categorized for convenience as follows:

1. Shop Drawings: Specially-prepared technical data for this Project, including Drawings, diagrams, performance curves, data sheets, schedules, templates, patterns, reports, calculations, instructions, measurements and similar information not in standard printed form for general application to several projects.
2. Product Data: Standard printed information on materials, products and systems; not specially-prepared for this Project, other than the designation of selections from among available choices printed therein.
3. Samples: Fabricated and unfabricated physical examples of materials, products and units of Work; both as completed units and as smaller portions of units of Work; either for limited visual inspection or (where indicated) for more detailed testing and analysis.
4. Miscellaneous: Submittals related directly to the Work (non-administrative) include warranties, informational, maintenance agreements, workmanship bonds, Project photographs, survey data and reports, physical Work records, quality testing and certifying reports, copies of industry standards, record drawings, field measurement data, operating and maintenance materials, overrun stock, and similar information, devices and materials applicable to the Work and not processed as Shop Drawings, product data or Samples. See Specification Sections.

1.2 RELATED REQUIREMENTS

A. General Conditions 4.03

B. Section 014000 - Quality Requirements

C. Section 017700 – Closeout Procedures

1.3 GENERAL SUBMITTAL REQUIREMENTS AND PROCEDURES

A. Coordination and Sequencing: Coordinate preparation and processing of submittals with performance of the Work so that Work will not be delayed by submittals. Coordinate and sequence different categories of submittals for same Work, and for interfacing units of Work, so that one will not be delayed for coordination with another.

B. Preparation of Submittals:

1. Provide permanent marking on, or with, each submittal to identify Project, date, Contractor, sub-contractor, submittal name, pertinent drawing(s) and detail number(s), and similar information to distinguish it from other submittals.

2. Transmit each submittal with Project Representative-accepted transmittal form certifying compliance with requirements of Contract Documents.

3. Sequentially number transmittal forms. Mark transmittal forms for resubmittals with original number and sequential alphabetic suffix.

4. Show each Submittal with the following numbering and tracking system:

a. Submittals shall be numbered according to specification section. For example, the first product submittal for Section *332100* would be "*332100*-1". Resubmittals of that submittal would be "*332100*-1.1", followed by "*332100*-1.2", and so on. The second product submittal for that Section would be "*332100-2*".

b. Submittals containing product information from multiple sections of the specifications will not be reviewed. Contractor and/or their supplier shall divide submittals in a manner that meets the numbering and tracking system requirements stated herein.

c. Alternative method of numbering may be used if acceptable to Engineer.

5. Apply Contractor's stamp, signed or initialed, certifying that review, approval, verification of products required, field dimensions, adjacent construction Work, and coordination of information is according to requirements of the Work and Contract Documents.

6. When electronic transmittals of submittals are provided by the Contractor under established protocols described elsewhere in the Contract Documents or as jointly developed by the Owner, Engineer or Project Representative and Contractor, provide electronic submittals in portable document format (PDF) in addition to the source document format (Word, Excel, AutoCAD, etc.). Reviewed submittals will be returned to the Contractor as PDF electronic files.

1.4 SPECIFIC SUBMITTAL REQUIREMENTS

A. General:

1. Except as otherwise indicated in individual Work Sections, comply with requirements specified herein for each indicated category of submittal.

2. Provide and process intermediate submittals, where required between initial and final, similar to initial submittals.
3. Include a transmittal with all submittals.

B. Shop Drawings:

1. General: No claims for extras may be initiated, based on Work shown on Shop Drawings.
2. Where Work of more than one sub-contractor is involved, submit composite Drawings, clearly defining the Work of each separate sub-contractor.
3. No extension of time in respect to the final completion date of building will be granted to Contractor because of failure to have any Shop Drawings submitted in ample time to allow for checking.
4. Verify all dimensions by taking field measurements. Do not begin Work until required submittals have been returned by the Engineer with stamp and initials indicating review. If Work has been done which is contrary to the approved Drawings, it will be corrected at no additional cost to the Commission. Maintain one complete set of shop drawings at the site for use by the Engineer.

C. Product Data:

1. General:

   a. Collect required data into one submittal for each unit of Work or system; and mark each copy to show which choices and options are applicable to Project. Include manufacturer's standard printed recommendations for application and use, compliance with standards, application of labels and seals, notation of field measurements which have been checked, and modify details as required for application into the Work. Include color selection information where necessary.
   b. Do not proceed with installation of materials, products or systems until final copy of applicable product data is in possession of Installer. Maintain one complete set of product data at the site for use by Project Representative.

2. Preparation and Processing: Do not submit product data, or allow its use on the Project, until compliance with requirements of Contract documents has been confirmed by Contractor. Submittal is for information and record, unless otherwise indicated. Initial submittal is final submittal unless returned by Engineer, marked with an "Action" which indicates an observed noncompliance.
3. Submit four (4) copies. Engineer will retain two (2) copies and return two (2) copies to the Contractor.

D. Warranties and Guarantees: In addition to copies desired for Contractor's use, furnish three (3) executed copies, except furnish additional copies where required for maintenance manuals.

E. Survey Data: Refer to other Sections for specific general requirements on property surveys, field measurements, quantitative records of actual Work, damage surveys, photographs and similar data required by individual Work Sections of these specifications. None of specified copies will be returned.

1.5 ENGINEER REVIEW

A. The Engineer's review of submittals and shop drawings is not a check of any dimension or quantity and will not relieve the Contractor from responsibility for errors of any sort in the submittals and shop drawings.

B. Engineer's review will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

C. Engineer's review will not extend to means, methods, techniques, sequences, or procedures of construction or to safety precautions or programs incident thereto.

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

1.6 ACTION ON SUBMITTALS

A. Engineer's Action: Engineer will review each submittal, mark with "Action", and where possible return within two (2) weeks of receipt. Where submittal must be held for coordination, they will be returned to the Contractor within two (2) weeks of receipt for the Contractor to resubmit when it is appropriate.

1. Final Unrestricted Release: Work may proceed, provided it complies with Contract documents, when submittal is returned with marking: "Approved as Submitted".
2. Final-But-Restricted Release: Work may proceed, provided it complies with notations and corrections on submittal and with Contract documents, when submittal is returned with the marking: "Approved as Noted".
3. Returned and Rejected: Do not proceed with Work. Submittal item is not acceptable and may not be used on the Project when noted as "Not Approved".

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 013501 – INADVERTENT DISCOVERIES OF CULTURAL RESOURCES AND HUMAN SKELETAL REMAINS

PART 1 - GENERAL

1.1 PROJECT SPECIFIC REQUIREMENTS

A. . An Inadvertent Discovery Plan will need to be at the work site and followed at all times during excavation.

1.2 EMERGENCY CONTACTS

WSPRC Archaeologists

Jennifer Wilson, Archaeology Program Manager	(360) 787-6511 (cell)
Email: jennifer.wilson@parks.wa.gov	(360) 902-8637 (office)
Shari Silverman, Archaeologist SW Region	(435) 260-9894 (cell)
Email: shari.silverman@parks.wa.gov	(360) 902- 8640 (office)
Kayley Bass, Archaeologist SW Region	(360) 701-1277 (cell)
Emails: kayley.bass@parks.wa.gov	
Sarah DuBois, Archaeologist Eastern Region	(360) 972-5884 (cell)
Email: sarah.dubois@parks.wa.gov	(509) 665-4336 (office)
Ayla Aymond, Archaeologist Eastern Region	(509) 743-8251 (cell)
Email: ayla.aymond@parks.wa.gov	
Sean Stcherbinine, Archaeologist NW Region	(360) 770-1419 (cell)
Email: sean.stcherbinine@parks.wa.gov	
Laura Syvertson, Archaeologist NW Region	(360) 770-0444 (cell)
Email: laura.syvertson@parks.wa.gov	
Maurice Major, Stewardship Archaeologist	(360) 701-6218 (cell)
Email: maurice.major@parks.wa.gov	(360) 902-8503 (office)

WSPRC Curator of Collections/NAGPRA Specialist

Alicia L. Woods, Statewide Curator of Collections & NAGPRA Specialist	(360) 586-0206 (office)

State Physical Anthropologist

Guy Tasa, PhD, Dept. of Archaeology and Historic Preservation	(360) 790-1633 (cell)

Assistant State Physical Anthropologist

Alex Garcia-Putnam, Dept. of Archaeology and Historic Preservation	(360) 890-2633 (cell)

County Coroner/Examiner

Daniel Selove, MD, Snohomish County Medical Examiner's Office	(425) 438-6200 (office)

Area Manager

Shawn Tobin, Area Manager Cascade Foothills Area Manager	425-649-4275 (office)

Region Manager

Heath Yeats, Acting Region Manager, Northwest South	(360) 755-2836 (office)

Local Law Enforcement (if can't get ahold of any park staff)
Snohomish County Sheriff's Office 425-388-6260 (office)

1.3 INADVERTENT DISCOVERIES OF CULTURAL RESOURCES AND HUMAN SKELETAL REMAINS

A. Many of Washington's most important heritage sites reside on lands owned or managed by the Washington State Parks and Recreation Commission (WSPRC). Nearly all Washington State Parks contain one or more important historic buildings, structures, or archaeological sites. For this reason, archaeological surveys and historic building inventories are ordinarily commissioned as a part of background analysis and information gathering for park developments and undertakings. Results of these surveys are used during project planning to ensure every effort is made to avoid impacts to cultural resources. Yet, despite these efforts, there **always** remains some potential for unanticipated discoveries while working in Washington State Parks.

B. All unanticipated discoveries, both cultural resources and human skeletal remains, are subject to all applicable federal and state statues, regulations, and executive orders. For these reasons, the Inadvertent Discovery Plan (IDP) provides useful guidance and instructions for circumstances when cultural resources or human skeletal remains are found. Please carefully read these instructions. If you have any questions, please contact the appropriate WSPRC Area Manager or the WSPRC archaeologist assigned to the undertaking. It is also strongly recommended that anyone conducting ground-disturbing activities watch the training video produced by Washington State Dept of Ecology: Inadvertent Discovery of Cultural Resources or Human Remains: Training for Field Staff. This IDP for cultural resources and human skeletal remains is based on **RCW 27.53**, **RCW 68.50.645, RCW 27.44.055**, and **RCW 68.60.055** and **recommended language** from the Department of Archaeology and Historic Preservation (DAHP).

1.4 INADVERDENT DISCOVERY PLAN FOR CULTURAL RESOURCES

A. If cultural resources are found during a project, activity in the immediate area of the find should be discontinued (**stop**), the area secured (**protect**), and the WSPRC archaeologists notified to assess the find (**notify**). ***When in doubt, assume the material is a cultural resource and implement the IDP outlined below.***

B. **Recognizing Cultural Resources-***Types of Historic/Prehistoric Artifacts and/or Activity Areas That May Be Found*

1. Artifacts- Both historic and prehistoric artifacts may be found exposed in backhoe trenches or back dirt piles.

   a) Prehistoric artifacts may range from finished tools such as stone pestles, arrowheads/projectile points, shell beads, or polished bone tools to small pieces or "flakes" or "chips" of exotic stone such as chert, jasper, or obsidian.
   b) Historic artifacts may include older (more than 50 years) nails, plates/ceramics, bottles, cans, coins, glass insulators, or bricks.

c) Old abandoned industrial materials from farming, logging, railways, lighthouses, and military installations.

2. Activity Area/Cultural Features- While excavating trench lines look for evidence of buried activity areas/cultural features such as old campfire hearths or buried artifacts.

   a) An area of charcoal or very dark stained soil with artifacts or burned rocks may be a fire hearth.
   b) A concentration of shell with or without artifacts may be shell midden deposits.
   c) Modified or stripped trees, often cedar or aspen, or other modified natural features, such as rock drawings or carvings

3. Historic building foundation/structural remains- During excavation, buried historic structures (e.g., privies, building foundations) that are more than 50 years old may be found.
4. Bone- Complete or broken pieces of bones may be discovered exposed in trench walls or in back dirt piles. Bone of recent age is usually transparent or white in color. Older bone is usually found in various shades of brown. Burned bone is usually black or, if heavily burned, bluish-white.

C. STEPS TO TAKE IF A CULTURAL RESOURCE IS FOUND DURING CONSTRUCTION

1. **Stop** if a cultural resource(s) is observed or suspected, all work within the immediate area of the discovery must stop.
2. **Protect** the area from further disturbance. Do not touch, move, or further disturb the exposed materials/artifacts. Create a protected area with temporary fencing, flagging, stakes, or other clear markings that is large enough (30 feet or larger) to protect the discovery location area. The WSPRC archaeologist can help determine the size of the protected area. Do not permit vehicles, equipment, or unauthorized personnel to traverse the discovery site.
3. **Notify** the WSPRC archaeologist. If the area needs to be secured, notify the Park Ranger or Park staff as well.
4. If requested by the WSPRC archaeologist, take photographs with a scale (e.g., pen, coin, etc.) and collect geospatial information of the discovery site to document the initial finds.

D. WHAT NOT TO DO IF A CULTURAL RESOURCE IS FOUND DURING CONSTRUCTION

1. Do not remove any artifacts from the site of the discovery.
2. Do not dig out objects protruding from any trench walls as this may cause further damage to artifacts and/or destroy important contextual information.
3. Do not share any information about the find, including on social media, except as necessary to implement the IDP.

E. WHAT HAPPENS NEXT?

1. The find will be assessed by a professional archaeologist (may be a WSPRC archaeologist or an archaeology consultant).

   a) If the find is not a cultural resource, construction work may resume.
   b) If the find is a cultural resource, the WSPRC archaeologist will contact the DAHP and affected Tribes, as appropriate, to develop a suitable treatment plan for the resource.

2. Construction work may resume in the protected area after the WSPRC archaeologist assigned to the undertaking has determined that the find has been adequately investigated and, if necessary, a treatment plan and monitor are in place to protect any remaining archaeological deposits.

1.5 INADVERDENT DISCOVERY PLAN FOR HUMAN SKELETAL REMAINS

A. Native American burials and historic grave sites are uncommon features on Washington State Park lands. These remains, as well as any associated artifacts or funerary objects, are protected under state law and, if the park is a federal lease, applicable federal law. If you discover human remains (or bones that you believe may be human remains) during construction, please follow these important instructions. It is imperative that reporting and treatment of any human remains found during construction or any ground-disturbing activities are treated with utmost dignity and respect.

B. Steps to Take If Human Skeletal Remains are Found During Construction

1. **Stop** if human skeletal remains observed or suspected, all work within the immediate area of the discovery must stop.
2. **Protect** the area from further disturbance. Do not touch, move, or further disturb the remains. Cover the remains with a tarp or other materials (not soil or rocks) for temporary protection in place and shield them from being photographed. Create a protected area with temporary fencing, flagging, stakes, or other clear markings that is large enough (30 feet or larger) to protect the discovery location area. The WSPRC archaeologist can help determine the size of the protected area. Do not permit vehicles, equipment, or unauthorized personnel to traverse the discovery site.
3. **Notify** law enforcement and the appropriate county medical examiner/coroner as soon as possible. If you are unsure if the remains are human, the physical anthropologist at DAHP may be called. Also notify the Park Ranger, the WSPRC archaeologist, and the WSPRC Curator of Collections/NAGRPA Specialist of the discovery of the remains.
4. If requested by law enforcement, the county coroner/examiner, the DAHP physical anthropologist, or the WSPRC archaeologist, take photographs with a scale (e.g., pen, coin, etc.) and geospatial information of the discovery site to document the initial finds.

C. What Not to Do If Human Skeletal Remains are Found During Construction

1. Do not pick up or remove anything.
2. Do not take any photographs of the remains unless instructed to do so by law enforcement, the county coroner/examiner, the DAHP physical anthropologist, or the WSPRC archaeologist. If pictures are requested, be prepared to photograph them with a scale (e.g., pen, coin, etc.) and collect geospatial information of the remains.
3. Do not call 911 unless you cannot reach law enforcement or the coroner/examiner by other means.
4. Do not share any information about the find, including on social media, except as necessary to implement the IDP.

D. What Happens Next?

1. The county medical examiner/coroner will assume jurisdiction over the human skeletal remains and decide whether those remains are forensic (crime-related) or non-forensic.

a) If forensic, the county medical examiner/coroner will retain jurisdiction over the remains.

b) If non-forensic, the county medical examiner/coroner will report that finding to the DAHP who will then take jurisdiction over the remains. The DAHP will notify any appropriate cemeteries and all affected Tribes of the remains. The State Physical Anthropologist will decide whether the remains are Indian or Non-Indian and report that finding to any appropriate cemeteries and the affected Tribes. The DAHP will then handle all consultation with the affected parties as to the future preservation, excavation, and disposition of the remains.

Note: The WSPRC archaeologist assigned to the undertaking will be coordinating and consulting with the DAHP, affected Tribes, and other groups as necessary. Additionally, WSPRC's Curator of Collections/NAGPRA Specialist should be included on all written and/or verbal correspondence until the remains have been officially transferred from WSPRC's possession to an outside authority. Until the remains are transferred off of WSPRC's property, it is the responsibility of the Curator of Collections/NAGPRA Specialist to document and track the information regarding all human remains and associated funerary objects (including all material from excavation areas/units from which the human remains were removed).

2. Construction work may resume in the protected area after the WSPRC archaeologist assigned to the undertaking has determined that the find has been adequately investigated and, if necessary, a treatment plan and monitor are in place.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
2. Requirements for Contractor to provide quality-assurance and -control services required by Project Representative, Owner, or Authorities Having Jurisdiction are not limited by provisions of this Section.

C. Related Requirements:

1. Divisions 02 through 49 Sections for specific test and inspection requirements.

1.2 DEFINITIONS

A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Project Representative.

C. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to Authorities Having Jurisdiction, to establish product performance and compliance with specified requirements.

D. Source Quality-Control Testing: Tests and inspections that are performed at the source, e.g., plant, mill, factory, or shop.

E. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

F. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

G. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.

1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).

1.3 CONFLICTING REQUIREMENTS

A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Project Representative for a decision before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Project Representative for a decision before proceeding.

1.4 QUANTITY SHEETS/WEIGHT TICKETS

A. For bulk items, supply quantity sheets (load receipts) to account for each load delivered to the jobsite. Deliver quantity sheets to Inspector on job at delivery time. If Inspector is not on job, deliver quantity sheets on a daily basis to place designated by Project Representative.

B. No payment shall be made for materials delivered for which quantity tickets have not been turned into Inspector or delivered to designated place at end of working day. Backdated tickets are not acceptable as a basis for payment, except at Project Representative's discretion.

C. If bid item for material to be delivered to jobsite is stated in TONS, only weight slips from approved scale are acceptable for payment purposes, unless approved in advance by Project Representative.

D. No payment for materials will be made until proper accounting has been made. Final quantity records are approved by Project Representative, with payment at Project Representative's discretion.

1.5 INFORMATIONAL SUBMITTALS

A. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

1.6 REPORTS AND DOCUMENTS

A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, and telephone number of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

B. Manufacturer's Field Reports: Prepare written information documenting tests and inspections specified in other Sections. Include the following:

1. Name, address, and telephone number of representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
4. Results of operational and other tests and a statement of whether observed performance complies with requirements.
5. Other required items indicated in individual Specification Sections.

C. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.7 QUALITY ASSURANCE

A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.

F. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated and with additional qualifications specified in individual Sections; and, where required by Authorities Having Jurisdiction, that is acceptable to authorities.

1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.

G. Manufacturer's Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

1.8 QUALITY CONTROL

A. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.

1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.

2. Notify testing agencies at least 48 hours in advance of time when Work that requires testing or inspecting will be performed.
3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

B. Manufacturer's Field Services: Where indicated, engage a manufacturer's representative to observe and inspect the Work. Manufacturer's representative's services include examination of substrates and conditions, verification of materials, inspection of completed portions of the Work, and submittal of written reports.

C. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.

D. Testing Agency Responsibilities: Cooperate with Project Representative and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Project Representative and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
6. Do not perform any duties of Contractor.

E. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.
5. Preliminary design mix proposed for use for material mixes that require control by testing agency.
6. Security and protection for samples and for testing and inspecting equipment at Project site.

F. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

1.9 SPECIAL TESTS AND INSPECTIONS

A. Special Tests and Inspections: Conducted by a qualified testing agency as required by Authorities Having Jurisdiction, as indicated in individual Specification Sections and as follows:

1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviews the completeness and adequacy of those procedures to perform the Work.
2. Notifying Project Representative and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
3. Submitting a certified written report of each test, inspection, and similar quality-control service to Project Representative with copy to Contractor and to Authorities Having Jurisdiction.
4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.

5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
6. Retesting and reinspecting corrected work.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:

1. Date test or inspection was conducted.
2. Description of the Work tested or inspected.
3. Date test or inspection results were transmitted to Project Representative.
4. Identification of testing agency or special inspector conducting test or inspection.

B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Project Representative's reference during normal working hours.

3.2 REPAIR AND PROTECTION

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION

SECTION 014100 - REGULATORY REQUIREMENTS

PART 1 - GENERAL

1.1 PERMITS, CODES AND REGULATIONS

A. The following permits have been applied for (or are on file) and incorporated into the contract:

1. State Environmental Policy Act
2. Snohomish County Land Disturbing Activity Permit (LDA), Reference No. 1489211, *Pending – Refer to Invitation to Bid*

B. Conform with the requirements of listed permits and additional or other applicable permits, codes, and regulations as may govern Work.

C. Obtain and pay fees for licenses, permits, inspections, and approvals required by laws, ordinances, and rules of appropriate governing or approving agencies necessary for proper completion of Work (other than those listed under item 1.1A. above and Special Inspections called for by the International Building Code).

D. Conform with current applicable codes, regulations and standards, which is the minimum standard of quality for material and workmanship. Provide labor, materials, and equipment necessary for compliance with code requirements or interpretations, although not specifically detailed in the Drawings or specifications. Be familiar with applicable codes and standards prior to bidding.

E. Process through Project Representative, requests to extend, modify, revise, or renew any of the permits (listed in 1.1A above). Furnish requests in writing and include a narrative description and adequate Drawings to clearly describe and depict proposed action. Do not contact regulatory agency with requests for permit extensions, modifications, revisions, or renewals without the prior written consent of Project Representative.

1.2 VARIATIONS WITH CODES, REGULATIONS AND STANDARDS

A. Nothing in the drawings and specifications permits Work not conforming to codes, permits or regulations. Promptly submit written notice to Project Representative of observed variations or discrepancies between the Contract documents and governing codes and regulations.

B. Appropriate modifications to the Contract documents will be made by Change Order to incorporate changes to Work resulting from code and/or regulatory requirements. Contractor assumes responsibility for Work contrary to such requirements if Work proceeds without notice.

C. Contractor is not relieved from complying with requirements of Contract documents which may exceed, but not conflict with requirements of governing codes.

1.3 COORDINATION WITH REGULATORY AGENCIES

A. Coordinate Work with appropriate governing or regulating authorities and agencies.

B. Provide advance notification to proper officials of Project schedule and schedule revisions throughout Project duration, in order to allow proper scheduling of inspection visits at proper stages of Work completion.

C. Regulation coordination is in addition to inspections conducted by Project Representative. Notify Project Representative of scheduled inspections involving outside regulating officials, to allow Project Representative to be present for inspections.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 014200 – REFERENCES

PART 1 - GENERAL

1.1 DEFINITIONS

A. General: Basic Contract definitions are included in the General Conditions of the Contract.

B. "Approved": When used to convey Project Representative's action on Contractor's submittals, applications, and requests, "approved" is limited to Project Representative's duties and responsibilities as stated in the General Conditions of the Contract.

C. "Directed": A command or instruction by Project Representative. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."

D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."

E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

H. "Provide": Furnish and install, complete and ready for the intended use.

I. “Project Engineer”, “Project Architect”, “Engineer”, “Architect”, and “Hydrogeologist” are interchangeable terms.

J. Project Representative and Owners Representative are interchangeable terms.

K. “As-built Drawings”: Drawings done by the Contractor in the field showing changes to the Work.

L. “Record Drawings”: Drawings prepared based on the information on the As-built Drawings.

1.2 GENERAL

A. Applicable standards of the construction industry have the same force and effect (and are made a part of the Contract Documents by reference) as if directly copied or bound herein.

1.3 PUBLICATION DATES

A. Where compliance with an industry standard is required, comply with the standard in effect on Bid Date.

1.4 ABBREVIATIONS AND NAMES

A. The following acronyms or abbreviations, referenced in the Contract documents, are defined to mean the associated name. Applicable standards include, but are not limited to the following:

1.	AASHTO	American Association of State Highway & Transportation Officials
2.	ACI	American Concrete Institute
3.	AGA	American Gas Association
4.	AI	Asphalt Institute
5.	AIA	American Institute of Architects (The)
6.	AISC	American Institute of Steel Construction, Inc.
7.	AISI	American Iron and Steel Institute
8.	AITC	American Institute of Timber Construction
9.	ANSI	American National Standards Institute
10.	APA	Engineered Wood Association (The)
11.	APWA	American Public Works Association
12.	ASME	American Society of Mechanical Engineers
13.	ASTM	American Society for Testing and Materials International
14.	AWPA	American Wood Protection Association
15.	AWS	American Welding Society
16.	AWWA	American Water Works Association
17.	CRSI	Concrete Reinforcing Steel Institute
18.	EPA	Environmental Protection Agency
19.	HPVA	Hardwood Plywood and Veneer Association
20.	IBC	International Building Code
21.	IEEE	Institute of Electrical & Electronics Engineers, Inc. (The)
22.	IES	Illuminating Engineering Society of North America
23.	LPI	Lighting Protection Institute
24.	MCAA	Mechanical Contractors Association of America, Inc.
25.	NIST	National Institute of Standards and Technology
26.	NCMA	National Concrete Masonry Association
27.	NEC	National Electrical Code
28.	NECA	National Electrical Contractors Association, Inc.
29.	NFPA	National Fire Protection Association
30.	NHLA	National Hardwood Lumber Association
31.	NSF	National Sanitation Foundation International
32.	OSHA	Occupational Safety & Health Administration
33.	PCA	Portland Cement Association, (The)
34.	SEPA	State Environmental Policy Act
35.	UL	Underwriters Laboratories, Inc.
36.	UPC	Uniform Plumbing Code
37.	WCLIB	West Coast Lumber Inspection Bureau (Grading Rules)
38.	WRI	Wire Reinforcement Institute
39.	WSDOE or ECY	Washington State Department of Ecology
40.	WSDOH or DOH	Washington State Department of Health

41. WSDOT Washington State Department of Transportation
42. WSPRC Washington State Parks and Recreation Commission
43. WWPA Western Wood Products Association (Grading Rules)

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 50 00 – TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 PROTECTION OF PROPERTY AND EXISTING FACILITIES

A. Provide protections necessary to prevent damage to park property and facilities.

B. Only rubber-tired equipment are permitted to operate on paved park roads.

C. Protect existing trees and other vegetation indicated to be protected and/or remain in place on the Contract Drawings. Refer to Specification 015639 Temporary Tree and Plant Protection for protection requirements.

1.2 ENVIRONMENTAL PROTECTIONS

A. Scope:

1. Provide labor, materials, equipment and perform Work required for protection of environment during and as a result of construction operations under contract.

B. Applicable Regulations:

1. Comply with applicable federal, state and local laws and regulations concerning environmental pollution control and abatement, and specific requirements elsewhere in specifications and drawings to prevent and provide for control of environmental pollution.

C. Protection of Land Resources:

1. Give special attention to the effect of Contractor’s operations upon surroundings. Take special care to maintain natural surroundings undamaged and conduct Work in compliance with following requirements:

    a. When Work is completed, remove storage and other Contractor buildings and facilities, and sites restored to a neat and presentable condition appropriate to surrounding landscape, unless otherwise specified. Remove debris resulting from Contractor's operation.
    b. Store petroleum products, industrial chemicals and similar toxic or volatile materials in durable containers approved by the Authority Having Jurisdiction and located in areas where accidental spillage will not enter water. Store substantial quantities of materials in an area surrounded by containment dikes of sufficient capacity to contain an aggregate capacity of tanks.

D. Protection and Restoration of Property:

1. Preserve public and private property, monuments, power and telephone lines, other utilities, prevention of damage to natural environment, etc., insofar as they may be endangered by Work.

2. When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect or misconduct in execution of Work, or in consequence of non-execution of Contractor, restore, or have restored at Contractor's expense, such property to a condition similar and equal to that existing before such damage or injury was done, by repairing, rebuilding, or otherwise restoring same, or make good damage or injury in some other manner acceptable to Project Representative.

E. Protection of Water Resources:

1. Perform Work not to create conditions injurious to fish or to their habitat, or which would make water unsuitable for private, municipal, or industrial use.
2. Take special measures to prevent chemicals, fuels, oils, grease, bituminous materials, waste washings, herbicides, insecticides, lime, wet concrete, cement, silt or organic or other deleterious material from entering waterways.
3. Dispose of offsite, in a lawful manner conforming to applicable local, state and federal laws wastes, effluents, trash, garbage, oil, grease, chemicals, cement, bitumen, etc., petroleum, and chemical products or wastes containing such products. Furnish Owner with documentation showing compliance with this requirement.
4. Conform to applicable local, state and federal laws for disposal of effluents. Dispose of waters used to wash down equipment in a manner to prevent their entry into a waterway. If waste material is dumped in unauthorized areas, remove material and restore area to condition of adjacent, undisturbed area. If necessary, excavate contaminated ground and disposed of as directed by Project Representative and replace with suitable compacted fill material with surface restored to original condition.

F. Dust Control:

1. Reference Specification 015713 Temporary Erosion and Sediment Control.

G. Temporary Water Pollution/Erosion Controls:

1. Reference Specification 015713 Temporary Erosion and Sediment Control.

H. Emergency Spill Response Notification

1. Under state law, Ecology must be notified when any amount of regulated waste or hazardous material that poses an imminent threat to life, health, or the environment is released to the air, land, or water, or whenever oil is spilled on land or to waters of the state. The spiller is always responsible for reporting a spill. Failure to report a spill in a timely manner may result in enforcement actions. If you are not responsible for a spill, making the initial notification does not make you liable. However, please consult with Ecology's response team before attempting any type of response or cleanup. Also notify Park Manager and Project Representative.
2. If oil or hazardous materials are spilled to state waters, the spiller must notify both federal and state spill response agencies. The federal agency is the National Response Center at 1-800-424-8802. For state notification, call the Washington Emergency Management Division (EMD) at 1-800-258-5990 or 1-800-OILS-911 AND the appropriate Ecology regional office for your county (see numbers below). An Ecology spill responder will normally call reporting party back to gather more information. The agency will then determine its response actions. Also notify Park Manager and Project Representative.

3. Ecology Regional Spill Reporting Numbers:
   a. Northwest Regional Office: (425) 649-7000 (Island, King, Kitsap, San Juan, Skagit, Snohomish, and Whatcom counties)
   TDD: Washington Relay Service 711 or (800) 833-6388.

1.3 PARK TRAFFIC/PEDESTRIAN CONTROLS

A. Properly warn the public of construction equipment and activities, open trenches, and/or other unsafe conditions by providing all necessary warning equipment. Equipment includes warning signs, barricades, fencing, flashing lights and traffic control personnel (flaggers).

B. Conduct operations with the least possible obstruction and inconvenience to the public in accordance with appropriate Section(s) of the WSDOT "Standard Specifications".

1.4 PROTECTION OF WORK

A. Protect Work, materials, and equipment against damage, weather conditions, or other hazards. Equipment, Work or materials found damaged or in other than new condition will be rejected by Project Representative.

1.5 REMOVAL AND REPLACEMENT OF STATE-OWNED ITEMS

A. Should any state-owned items, such as signs, bumper blocks, or related items, interfere with the proper construction process, remove and reinstall such items to the satisfaction of Project Representative.

1.6 USE OF PARK SPACE

A. Only in areas of park that Contract covers and only during active inclusive dates of Contract.

B. Contractor vehicle and equipment parking only as designated by Project Representative.

C. Contractor will be issued temporary parking passes for construction crew, vehicles and equipment, valid for the duration of the contract only.

1.7 ROADWAY CLOSURE

A. Closure of the park is not in the best interest of the general public, only close roads being trenched while conduits, etc., are being installed, and immediately reopened for traffic. Supply necessary barricades, etc., to effectively prevent automotive traffic from entering upon any traveled way while trenches are open, unless other approved appropriate safety measures are taken.

1.8 UTILITIES

A. Existing subsurface utilities on Project are represented on Contract Drawings to the best of the Commission's knowledge. It is Contractor's responsibility to verify existence of utilities and determine exact location and depth. Maintain use of utilities during construction through temporary connections or other measures suitable to Commission. No extra compensation will be made for removal, temporary connections, relocations, or replacement of utilities.

1.9 SERVICE OUTAGES

A. Coordinate and schedule outages for, power, water, and sewer service connections/repairs with Park Manager, so as not to inconvenience park staff or public.

1.10 SANITARY FACILITIES

A. Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of Authorities Having Jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 015639 - TEMPORARY TREE AND PLANT PROTECTION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the administrative and procedural requirements for the protection of trees, shrubs, and plant material not designated for removal. Trees, shrubs, and plant material not designated for removal shall be left in place and protected from damage or injury during construction using full and adequate methods of protection in order to preserve these natural resources, ecological function, and aesthetic character of the park.

1.2 REFERENCES

A. Definitions

1. Arborist Qualifications: An Arborist approved of by the Project Representative or certified by the International Society of Arboriculture (ISA) or Association of Consulting Arborists (ASCA) and licensed in the jurisdiction where project is located.
2. Critical Root Zone (CRZ): The portion of the root system nearest the stem that is critical for the stability and vitality of the tree. The minimum CRZ is a circular area having a radius of one foot for each one inch of trunk diameter defined by measuring the trunk diameter at 4.5 feet above ground level. For example, a tree that has a diameter of 20 inches would have a CRZ with a radius of 20 feet from the base of the tree. This is a MINIMUM CRZ radius for healthy trees; the CRZ often extends beyond the dripline of the tree. A critical root zone defined by 2.5 feet radius for each 1-inch diameter is desirable for old growth, historic, and character trees as designated by the Project Representative.
3. Vegetation Protection Zone (VPZ): A defined area of any size within the project area where existing vegetation (trees, shrubs, or other plant material) is to be protected from construction impacts. The zone may be accomplished by physical barriers or other means (e.g., soil protection layers or treatments).
4. Soil Protection Zone (SPZ): A defined area of any size within the project area where sensitive native soils are to be protected from construction impacts. The zone may be accomplished by physical barriers or other means (e.g., soil protection layers, durable matting, or other treatments as specified by the Project Representative.
5. High Risk Tree: Any tree with a structural defect and/or disease that makes the tree highly prone to failure, and which has a target and may result in personal injury or property damage. A high risk tree is the same as an "Emergency Tree" as defined in WAC 352-28-005 (https://apps.leg.wa.gov/wac/default.aspx?cite=352-28-005)

B. Reference Standards

1. ANSI A300. Specifications for Tree, Shrub, and Other Woody Plant Management including Section 5: Management of Trees and Shrubs During Site Planning, Site Development, and Construction.
2. ANSI Z133-2012. Safety Requirements for Arboricultural Operations.

3. Council of Tree and Landscape Appraisers. (2020). *Guide for Plant Appraisal*, 10th ed. International Society of Arboriculture, Champaign, Illinois.

1.3 SUBMITTALS

A. Certification: From project Arborist, certifying that trees indicated to remain have been protected during construction according to recognized standards and that trees were promptly and properly treated and repaired when damaged.

B. Maintenance Recommendations: From project Arborist, for care and protection of trees affected by construction during and after completing the Work.

1.4 QUALITY ASSURANCE

A. Tree Pruning Standard: Comply with ANSI A300 (Part 1), "Tree, Shrub, and Other Woody Plant Maintenance--Standard Practices (Pruning)."

B. Construction Management Standard: Comply with ANSI A300 (Part 5): Management of Trees and Shrubs During Site Planning, Site Development, and Construction

C. Tree Planting: Comply with ANSI A300 (Part 6) Planting and Transplanting

D. Tree Root Protection and Management: Comply with ANSI A300 (Part 8) - 2013 Root Management Standard

PART 2 - PRODUCTS

2.1 TREE PROTECTION MATERIALS

A. Temporary Fencing

1. Chain link fencing panels 6 feet tall by any length up to 14 feet. Panels must be braced and must be secured to stands and weighted per manufacturers specifications.
2. Continuous molded safety mesh 36 inches wide with clear openings no more than 1-1/2 inches x 2 inches. Orange, 40 grams per square foot, high density polyethylene with U-V inhibitor suitable for above-grade use installed around the circumference of the CRZ.
3. Posts five-foot steel heavy-duty “T” posts, 1-3/8 inches x 1-3/8 inches x 7/64 inches with steel anchor placed at 8’ intervals at or beyond the CRZ.
4. Nylon zip straps having a minimum breaking strength of 150 lbs.

2.2 SOIL AND ROOT PROTECTION

A. Mulch: Ground, shredded bark, or wood and bark chips, or “hog fuel” free from deleterious materials. Or new straw mulch, free from weeds, weed seeds, and foreign materials.

B. Landscape fabric: American Excelsior Stabilenka 140, Celanese Mirafi 140, Propex 45-45, or approved equivalent geotextile.

C. Filter Fabric: Manufacturer's standard, nonwoven, pervious, geotextile fabric of polypropylene, nylon, or polyester fibers.

D. Ground staples: 9 inches x 9 inches wire staples sufficient for holding landscape fabric or filter fabric in place for required time period.

E. Ground protection mats: Construction mats or timber mats, as a temporary road surface of sufficient weight rating for the equipment being operated in the work area.

2.3 TREE TRUNK PROTECTION

A. Where work has been approved to take place within the CRZ, tree trunk protection shall be installed vertically around tree trunk on all sides exposed to construction activity.

B. Common wood 2 inches x 4 inches lumber, 8 feet long, without nails, other hardware, concrete residue, or other material that may be detrimental to plant health.

C. Strapping sufficient to hold 2 x 4's

PART 3 - EXECUTION

3.1 PLANNING AND NOTIFICATION

A. Where existing trees and other vegetation are in the area of work, or where existing trees outside the area of work have a CRZ extending into the area of work, employ methods to minimize adverse impact to the existing trees (including limbs, stems, and roots), understory vegetation and their root systems, and soils. Where VPZ are designated by the Project Representative and/or in project plans, observe protection measures set forth herein. Notify the Project Representative of any construction work within the CRZ of trees at least two (2) working days before the scheduled activity.

3.2 PREPARATION

A. Prior to Construction: Erect tree and plant protection prior to beginning any site work. Protect trees to remain against cutting, breaking, skinning, or compaction of roots; skinning or bruising of bark; breaking of branches and foliage. Review locations, fencing, and other markings of any VPZ and CRZ for trees within the construction area with the Project Representative.

B. Tree Removal: Trees that are scheduled for removal as part of the project should be removed before construction to prevent hazards during construction.

C. Material Storage: Do not store construction materials, debris, or excavated material inside critical root zones or vegetation protection zones.

D. Vehicle and Foot Traffic: Designate access routes within construction area and limitations on equipment and vehicles. Designate parking on existing pavement or away from critical root zones of trees. Tree protection fencing will serve as an exclusion zone within the CRZ except for where plans stipulate work will take place within the CRZ.

3.3 CRITICAL ROOT ZONE AND VEGETATION PROTECTION ZONE DESIGNATION

A. Temporary Fencing: Install temporary fencing around CRZ, VPZ, or SPZ of either chain link or plastic mesh as indicated by Project Representative. Maintain temporary fence during construction and remove only when construction is complete.

1. For plastic mesh, line posts space at eight feet maximum. Set posts vertically to minimum 18 inches depth. Posts may be driven provided method of driving does not damage posts. Ensure that posts do not damage tree roots.
2. Where plastic fence is used, secure plastic fencing to posts with nylon zip-straps, minimum three per post. Draw fence material tight and vertical. Where chain link panels are used join panels with manufacturers clamps that require tool removal.
3. With Project Representative's approval, sections of tree protection fencing may be removed temporarily to allow approved short-term construction activities. Reinstall fencing immediately when construction operations permit.

B. Tree Trunk Protection: Where required tree trunks shall be protected by placing 2 x 4 lumber around the trunk, spaced so that strapping will not come in contact with the tree bark and lumber does not damage branches. Use strapping to hold lumber in place. Secure straps without nailing into or otherwise damaging tree bark.

3.4 SOIL COMPACTION, LOSS, AND DAMAGE WITHIN THE CRITICAL ROOT ZONE

A. Protection against soil compaction within the CRZ may include but will not be limited to the following methods:

1. Application of a minimum 6-inch thick layer of mulch (or wood chips salvaged from clearing and grubbing operations) within the CRZ. Replenish mulch as necessary to maintain a 6-inch depth. Do not place mulch within 6 inches of tree trunks. Where mulch is to be removed following project completion it should be underlayed with a porous geotextile.
2. Ground protection mats, such as: timber or steel planking, construction mats, 1/2 inches thick CDX grade (or better) plywood, or brush for protection of surface roots and vegetation from equipment.
3. Where equipment operating within the CRZ exceeds 12,000 lbs use a 6-inch layer of mulch overlayed with ground protection mats described above.

B. Protection of soils against erosion and loss within the critical root zone of trees may require application of mulch, wood chips, ground protection mats, or landscape fabric at the request of the Project Representative.

C. Noxious Materials: Protect soils from damage caused by runoff or spillage of noxious materials while operating, mixing, placing, or storing construction materials and equipment; this includes washout of concrete mixing vessels, dewatering operations, equipment cleanup, maintenance, and service; ponding, erosion, or excessive wetting may incur a Stop-Work order at the discretion of the Project Representative.

3.5 TRENCHING, DIGGING, TUNNELING, AND GRADING WITHIN THE CRITICAL ROOT ZONE:

A. Disturbance to soils and impacts to roots within the CRZ may require any of, and will not be limited to, the following methods, practices, and restrictions:

1. Maintain existing grade within CRZ of trees unless otherwise directed.

    a. Lowering grades (cutting): Where existing grade is above new finish grade shown around trees, carefully excavate within CRZ to new grade. Document roots exposed in this process with photographs to be shared with project Representative.
    b. Raising grades (filling): Where existing grade is raised within the CRZ to greater than 4 inches above existing grade these roots shall be considered damaged by smothering. Methods to increase air exchange of tree roots within these areas may be required. Examples of such methods may include and will not be limited to:

        1) Application of a 6 inch or thicker layer of large clean aggregate (2 inches by 4 inches or larger) covered with landscape fabric below fill material to maintain large pore space.
        2) Selection of a fill material with high porosity and minimal compressibility, which may include mulch. Compaction will not be required except as required by structural load requirements, to limit soil compaction.

2. Alternative excavation methods that minimize root damage may be required. These may include but are not limited to: hand digging, horizontal boring, use of an air excavation tool, or other methods as otherwise deemed necessary by the Project Representative.

B. Only limited intrusions into tree CRZ zones will be allowed as shown on the plans and with the approval of the Project Representative. Where trenching for utilities or irrigation is required within CRZ's of trees the following may be required:

1. No cutting of roots greater than two inches diameter. Tunnel under or around roots by drilling, auger boring, air excavation, or digging by hand.
2. Where necessary for installation, cut roots with sharp pruning instruments flush with the edge of the trench or tunnel; do not break or chop.
3. Avoid hitting roots with heavy equipment. Roots that are ripped by equipment should be excavated by hand, photographed, kept moist with mulch or burlap layers, and inspected by the Project Representative.
4. Pile excavated soil outside of the CRZ of residual trees and return area to original grade upon completion of work.
5. Cover exposed roots with soil as soon as possible or at the end of each day; the soil compacted to the original firmness only; and, watered when conditions are dry.
6. Tree root pruning or other tree root treatments may be required as directed by the Project Representative.
7. Root painting is not permitted.

3.6 STEM AND BRANCH PRUNING:

A. Any unnecessary cutting, breaking, skinning, or bruising of bark; breaking of branches and foliage; damage or clearing of vegetation in the work area will not be permitted. Where permitted, stem and branch pruning must follow ANSI A300 Standards (including Part 1 and Part 5).

B. Temporarily tie-up of low limbs is permitted where designated by the project representative.

C. All final pruning cuts shall be made in branch tissue close to the trunk or parent limb, without cutting into the branch bark ridge or branch collar and without leaving a stub. Flush cuts to the tree trunk that remove the branch collar are unacceptable. Flush cuts result in a larger wound and expose trunk tissues to the possibility of decay.

D. All significant tree pruning must have prior approval of Project Representative. An approved Arborist may be required, at the Contractors expense, for extensive or technically challenging pruning activities. Such requirements will be made explicit to the Contractor prior to the start of work.

E. Only proper branch pruning techniques will be accepted. Improperly pruned trees could be irreparably damaged and are subject to section 3.7 DAMAGE TO TREES AND TREE REPLACEMENT.

3.7 DAMAGE TO TREES AND TREE REPLACEMENT:

A. Should any tree or vegetation designated to remain be damaged in the course of construction activities immediately notify the Project Representative for inspection and direction for remedy.

B. Remedies for damage will, at the Owner's discretion, require removal and disposal of the damaged tree(s) and be one of the following, at the discretion of the Project Representative.

1. Compensate the Owner in cash or as a credit to the contract for up to the full value of the damaged tree, as appraised by an ISA certified Arborist according to the latest edition of the "Guide for Plant Appraisal".
2. Replace each damaged tree under 6 inches diameter at breast height measurement with one replacement tree of 1-3/4 inches caliper measure. Replace each damaged tree over 6 inches diameter at breast height measurement with one replacement tree of 1-3/4 inches caliper measure for each 6 inches of diameter at breast height measure of the damaged tree. The new trees may or may not be the same species, at the discretion of the Project Representative. Select nursery stock, plant, and maintain as specified in Section 1.4 QUALITY ASSURANCE.

3. For identified old-growth trees specified to remain, the Project Representative may be provided alternative remediation requirements from Parks Stewardship staff above and beyond requirements of 3.7.B.1 and 3.7.B.2.

C. Notify Project Representative in any case where construction called for in the contract documents cannot be completed without damage to trees identified to remain. Approval of the Project Representative is required prior to beginning construction described in the contract documents that might damage a tree designated to remain. Any tree designated to remain which is damaged without Project Representative's written approval, even if damage is necessary to complete the work, will subject the Contractor to remedies described in section 3.7 B above.

END OF SECTION

SECTION 015713 – TEMPORARY EROSION AND SEDIMENT CONTROL

PART 1 - GENERAL

1.1 DESCRIPTION

A. The work in this Section consists of Temporary Erosion and Sediment Control (TESC) planning, installation, inspection, maintenance, and removal by applying Best Management Practices (BMPs) to prevent pollution of air and water, and control, respond to, and dispose of eroded sediment and turbid water during the contracted work. It also includes the development of a Stormwater Pollution Prevention Plan (SWPPP) for all work activities in accordance with the requirements of the permits. All controls covered under this specification are for upland areas.

B. The Contractor is responsible for taking the appropriate preventative erosion control measures and water quality protection systems to ensure compliance with the project regulatory permits and in accordance with WSDOT Standard Specification Section 8-01 - Erosion Control and Water Pollution Control. Temporary erosion and water pollution control measures shall be utilized throughout the duration of the work in accordance with BMPs described in Washington State Department of Ecology (ECY) Stormwater Management Manual for Western Washington, Volume II Construction Stormwater Pollution Prevention.

C. In order to comply with the requirements of this Technical Specification, the Contractor shall review, update as required, and submit a revised TESC and Tree Protection Plan (Contract Drawing C101) that is in accordance with the requirements of the permits. The Contractor is required to have a Certified Erosion and Sediment Control lead on-site for inspection of BMPs. The TESC Plan shall include all documentation requirements to meet the National Pollution Discharge Elimination System (NPDES) Construction Stormwater Permit SWPPP requirements.

D. The Contractor shall perform the following:
   1. Revise and modify the TESC Plan as necessary during the life of the contract.
   2. Install, maintain, and remove all erosion prevention, containment, and countermeasures BMPs during the life of the contract.
   3. Contain, cleanup, and dispose of all sediment and turbid water.
   4. Perform other work shown on the Contract Drawings or as directed by Engineer.
   5. Properly inspect TESC Plan requirements including BMPs as required; facilitate, participate in, and implement directed corrective actions resulting from inspections conducted by others including outside agencies, Owner, and Engineer.
   6. Educate all Contractor and all Subcontractor staff in environmental compliance issues at weekly meetings.

E. This work shall apply to all areas described in the Contract Documents.

F. Work shall be in accordance with these Technical Specifications and as shown on the Contract Drawings.

1.2 RELATED SECTIONS

A. Technical Specification Section 014100 – Regulatory Requirements

B. Technical Specification Section 015000 – Temporary Facilities Controls

1.3 APPLICABLE PUBLICATIONS

A. National Pollutant Discharge Elimination System (NPDES) Construction Stormwater General Permit, and associated Stormwater Pollution Prevention Plan (SWPPP).

B. Washington Administrative Code (WAC) 173-201A, Water Quality Standards of the State of Washington

C. WSDOT – Washington State Department of Transportation, (2022) Standard Specifications for Road, Bridge and Municipal Construction

D. Any conflicts between these Technical Specifications and the project permits will be brought to the attention of Engineer. Nothing whatsoever shall be deemed to authorize violation of the project permits. Contractor to use most recent version of all specified publications,

1.4 ADMINISTRATIVE REQUIREMENTS

A. Failure to install, maintain, and/or remove BMPs shown on the Contract Drawings and specified herein, or by order of Owner's Representative or Engineer; or failure to comply, implement and maintain any provisions and requirements of this Technical Specification; or failure to conduct project operations in accordance with these Technical Specifications and Contract Drawings will result in the suspension of the Contractor's operations by Owner's Representative or Engineer in accordance with General Conditions.

B. Any damages, fines, levies, or judgments incurred as a result of Contractor, Subcontractor, or supplier negligence in complying with the requirements of this Technical Specification will be charged to the Contractor.

C. The Contractor shall be solely responsible for any schedule impacts from damages, fines, levies, judgments, or stop work orders incurred as a result of Contractor, subcontractor, or supplier negligence in complying with the requirements of this Technical Specification. The project schedule will not be changed to accommodate the time lost.

1.5 GENERAL

A. In the event of conflict between these requirements and pollution control laws, rules, or regulations of other Federal, state, or local agencies, the more restrictive laws, rules, or regulations shall apply.

B. The Contractor is wholly responsible for meeting water quality standards. No discharge of water shall be allowed unless otherwise noted and approved by the Owner's Representative or Engineer.

C. The Engineer may require additional temporary measures if it appears that pollution or erosion may result from weather, the nature of the materials, or progress of the work.

D. In the event that TESC measures are required due to the Contractor's negligence, carelessness, or failure to install permanent controls as a part of the work as scheduled, or are ordered by Owner's Representative or Engineer, such work shall be performed by the Contractor at his own expense.

1.6 CONTRACTOR EROSION AND SEDIMENT CONTROL PERSONNEL

A. The Contractor shall designate a sufficient number of qualified employees to be responsible representatives in charge of erosion and sedimentation control so that one representative is onsite at all times when any work activity is taking place. These employees' responsibility will be the oversight of all water and air quality issues. The Contractor shall designate one employee as the Certified Erosion and Sediment Control Lead (CESCL) who shall be responsible for ensuring compliance with all requirements of this Technical Specification. Prior to the construction.

B. The CESCL shall have authority to act on behalf of the Contractor. Duties and responsibilities of the CESCL shall include:
1. Revising, as required, and submitting a TESC Plan for approval by the Engineer.
2. Maintaining a permit file on site at all times that includes the TESC Plan and any associated permits and drawings, as applicable.
3. Directing BMP installation, inspection, maintenance, modification, and removal.
4. Being available 24 hours per day, 7 days per week either in person or by telephone.
5. Updating all TESC drawings with changes made in the field
6. Keeping daily logs.
7. Identifying the points where stormwater runoff, if any, potentially leaves the site, is collected in a surface water conveyance system (i.e., road ditch or storm sewer), and enters receiving waters of the State.
8. If water sheet-flows from the site, identifying the point at which it becomes concentrated in a collection system.
9. Inspecting TESC Plan requirements including BMPs as required to ensure that they are adequate and functioning properly.
10. Facilitating, participating in, and taking corrective actions resulting from inspections performed by outside agencies and Engineer.

1.7 SCHEDULE

A. The TESC Plan schedule shall include:
1. Schedules for accomplishment of temporary and permanent erosion and sediment control work, as applicable for offloading, dewatering, transloading, transporting, placement, and grading of excavated material
2. Proposed method of erosion and dust control on haul roads and a plan for disposal of waste materials.
3. Estimated removal date of all temporary BMPs.
4. Estimated date of final site stabilization.
5. Overall project schedule and weekly "look ahead" schedules.
6. Erosion control work activities consistent with the TESC Plan shall be included in the Contractor's Construction Schedule.

1.8 SUBMITTALS

A. Submittals shall be made in accordance with Technical Specification Section 013300 – Submittal Procedures.

B. Temporary Erosion and Sediment Control Plan: Within seven (7) calendar days after the Contract Award, the Contractor shall submit the Contractor's revised TESC Plan. Failure to approve all or part of any such Plan shall not make the Owner liable to the Contractor for any work delays. The TESC Plan shall, at a minimum, include written descriptions addressing the following:
   1. Site description
   2. BMP installation & maintenance
   3. Contractor erosion and sediment control personnel
   4. Construction phasing & schedule
   5. Site inspection & monitoring
   6. Reporting & record keeping
   7. BMP removal
   8. Emergency response
   9. Staging Areas
   10. Rehandling and stockpile areas
   11. Drainage systems
   12. Haul routes

C. Shop Drawings
   1. Location of the above items; additional excavation areas, natural and constructed drainage systems within the work area and staging areas
   2. Locations of BMPs during each phase of construction and each location of work activities.

D. CESCL Qualifications
   1. The TESC Plan shall include the resume, name, telephone number, fax number, email address, and street address of the designated CESCL.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Contractor shall not clear, grub, grade, or perform any earth disturbing activities, excavated material, or dispose excavated material after Contract Award until all BMP's outlined in the Engineer approved TESC Plan are installed to the satisfaction of the Engineer.

B. Contractor shall have materials on hand, in quantities sufficient to cover all bare soil exposed to rainfall and surface water runoff, divert all flows, contain all sediments, and prevent turbid discharges from the site during all stages of construction. These materials include, but are not limited to, the following:
   1. Reinforced plastic sheeting (minimum 6 mil thickness) so that all areas that are exposed at any given time to rainfall and site water runoff can be covered.
   2. Straw
   3. Drain pipe
   4. Sand bags. Sufficient quantity shall be provided to hold all installed reinforced plastic in place and to prevent wind blowing under the plastic sheeting or water draining under the plastic sheeting.
   5. Filter fabric

6. Hay bales
7. Silt fence

PART 3 - EXECUTION

3.1 GENERAL

A. The TESC Plan shall include installation instructions and details for each BMP used during the life of the project and shall include a description of the maintenance and inspection procedures to be used for the life of the project.

B. BMPs shall be maintained for the life of the project or until removed by order of Owner's Representative or Engineer. BMPs shall be maintained during all suspensions of work and all non-work periods. BMPs shall be maintained and repaired as needed to assure continued performance of their intended function and in accordance with the approved TESC Plan. Sediments removed during BMP maintenance shall be placed away from natural and construction stormwater conveyances and permanently stabilized.

C. At a minimum, the Contractor shall perform the following for all TESC BMPs:
   1. Inspect daily and immediately after any measurable rain event (0.5 inches or greater).
   2. Deficiencies identified during the inspection shall be corrected within 24 hours or as directed by Owner's Representative or Engineer.
   3. Inspect for runoff leaving the site during storms and checking for turbid water.
   4. Inspect for dust during dry periods.
   5. Note repairs or improvements needed, if any, and implement improvements.
   6. Implement additional BMPs, if needed, to address site-specific erosion control.
   7. Inspect streets and surrounding the site for dirt tracking.
   8. Ensure no ponding of water due to formation of snow or ice dams during time periods of snowmelt or rain after snow events.
   9. Report all discharges immediately to Owner's Representative and Engineer.

D. Reports summarizing the scope of inspections, the personnel conducting the inspections, the dates of the inspections, major observations relating to the implementation of the TESC Plan, and actions taken as a result of these inspections shall be prepared and retained as a part of the TESC Plan.

E. All inspection reports shall be kept on-site during the life of the project and be available for review upon request of Owner's Representative or Engineer.

3.2 SILT FENCE AND WATTLES

A. Provide high visibility silt fence and wattles per Contract Drawings.

3.3 SOIL AND CONSTRUCTION DEBRIS STOCKPILES

A. Stockpiles of soils and construction debris, shall be placed within the work site or off site at a location approved by the Owner. At a minimum, stockpiles shall comply with the following:

1. Stockpiles shall be covered with plastic and secured from blowing wind and water runoff when not actively being worked within a 4-hour period of time.
2. Plastic sheeting shall be a minimum thickness of 6 mil.
3. Materials to be stockpiled on pavement shall be placed on plastic and contained within a berm or barrier.
4. Clean stormwater runoff from the plastic covering shall be directed away from bare soil using pipes, sandbags, or other temporary diversion devices.
5. Effluent from stockpiles that contains suspended sediment shall be filtered to remove all suspended sediment prior to discharge from the contained stockpile area.
6. Excavation spoils will be deposited at a Contractor provided location in accordance with the Specifications or as approved by the Owner.

3.4 CONSTRUCTION ROADS, ENTRANCES, AND EXITS

A. Before leaving Project Site, the Contractor shall inspect all trucks and equipment for mud and debris and shall comply with the following, in addition to those requirements in Technical Specification Section 014000 – Quality Requirements
   1. If mud or debris are tracked from the site onto the existing roadway(s), the Contractor shall clean up all tracked debris at the end of each work shift.
   2. Mud and debris shall be removed from pavement by vacuum sweeping and transported to a controlled sediment disposal area.
   3. If the mud and debris are contaminated by fuels, grease, metals, or other pollutants, they shall be disposed of in accordance with permit requirements and State and Federal regulations.
   4. Use of water to wash concrete or asphalt pavement shall be allowed only after sediment has been removed by vacuum sweeping.
   5. There shall be no visible tracking of sediment from any construction activity to a public road or right of way or onto any impervious surface that drains to stormwater conveyances and/or waters of the State of Washington.

B. If the Contractor does not adequately manage the tracking of sediment, the Owner reserves the right to have street cleaning and other work performed at the Contractor's expense.

3.5 DUST CONTROL

A. Visible dust generated from any Contractor activity shall not be allowed.

3.6 EMERGENCY RESPONSE

A. The TESC Plan shall contain information on how the Contractor will control and respond to fugitive dust. At a minimum, the Contractor's employee responsible for, or first noticing, the discharges shall take appropriate immediate action to protect the work area, private property, and the environment. Appropriate action includes, but is not limited to, the following:
   1. Hazard Assessment - Assess the source, extent, and quantity of the discharge.
   2. Securement and Personal Protection - If the discharge cannot be safely and effectively controlled, then immediately notify the CESCL, Engineer, and Owner's Representative. If the discharge can be safely and effectively controlled, proceed immediately with action to protect the work area, private property, and the environment.

3. Containment and Elimination of Source - Contain the discharge with silt fence, pipes, sand bags, or a soil berm down slope from the affected area. Eliminate the source of the discharge by pumping turbid water to a controlled area, building berms, piping clean water away from the area, or other means necessary.
4. Cleanup - When containment is complete, physically and/or chemically treat contained water to remove turbidity, remove sediment, and stabilize on site, or other methods to prevent future discharge.
5. Notification - Immediately report all discharges to Owner's Representative and Engineer.

END OF SECTION

SECTION 016000 – PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 IMPLIED/INCIDENTAL MATERIALS

A. Minor materials required for proper Project completion although not specifically mentioned or shown in Contract documents, are part of materials to be provided by Contractor as a part of Contract and are considered incidental to the total cost of Project. No additional compensation is due to the Contractor for providing such items.

1.2 QUALITY OF MATERIALS

A. Materials are to be new, free from defects, and of quality specified in the drawings and specifications.

B. Select and provide materials to ensure satisfactory operation and rated life in prevailing environmental conditions were installed.

C. Same make and quality throughout the entire job, for each type. Furnish materials of latest standard design products of manufacturers regularly engaged in their production.

1.3 SPECIFIED MATERIALS

A. Drawings and specifications generally reference only one make and model for each item of material or equipment required. This is not intended to be restrictive but indicates the standard of quality, design, and features required.

B. Specified product is the basis of design regarding physical size, strength, and performance. Products named indicate minimum acceptable product and are "or equal" unless noted otherwise.

1.4 SUBSTITUTIONS

A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.

1. Conditions: Project Representative will consider Contractor's request for substitution when the following conditions are satisfied.

a. Requested substitution is consistent with Contract Documents and will produce indicated results.
b. Requested substitution provides sustainable design characteristics that specified product provided.
c. Requested substitution will not adversely affect Contractor's construction schedule.

d. Requested substitution has received necessary approvals of Authorities Having Jurisdiction.
e. Requested substitution is compatible with other portions of Work.
f. Requested substitution has been coordinated with other portions of Work.
g. Requested substitution provides specified warranty.
h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience: Project Representative will consider requests for substitution if received within 15 days after commencement of the Work.

1. Conditions: Project Representative will consider Contractor's request for substitution when the following conditions are satisfied:
   a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Engineer for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
   b. Requested substitution does not require extensive revisions to Contract Documents.
   c. Requested substitution is consistent with Contract Documents and will produce indicated results.
   d. Requested substitution provides sustainable design characteristics that specified product provided
   e. Requested substitution will not adversely affect Contractor's construction schedule.
   f. Requested substitution has received necessary approvals of Authorities Having Jurisdiction.
   g. Requested substitution is compatible with other portions of Work.
   h. Requested substitution has been coordinated with other portions of Work.
   i. Requested substitution provides specified warranty.
   j. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

1.5 SUBSTITUTION OF MATERIALS ("OR EQUAL")

A. Proposed equipment to be considered "or equal" will necessitate written approval by the Engineer prior to substitution.

B. On requests for substitution of materials clearly define and describe proposed substitute.

C. Accompany requests by complete specifications, samples, records of performance, certified test reports, and such other information as the Engineer may request to evaluate the substitute product.

D. Contractor is responsible for a substitute item suiting the installation requirements and for additional costs incurred as a result of substitution.

E. Final decisions regarding quality and suitability of proposed substitutions rests solely with Engineer and will be based on information submitted.

1.6 TECHNICAL DATA

A. Technical data and information contained herein relies entirely on tests and ratings provided by manufacturers who are solely responsible for their accuracy. Project Representative, by use of this information in no way implies that Project Representative has tested or otherwise verified the results of published manufacturer's information.

1.7 DELIVERY, STORAGE AND HANDLING

A. Transport products by methods to avoid product damage. Only deliver products to the site that are undamaged and free from defects.

B. Provide proper equipment and personnel to handle and transport materials/products to the Project sites safely and undamaged.

C. Promptly inspect material to assure that products comply with Contract requirements, quantities are correct, and products are undamaged.

D. Store and/or stockpile materials and products only in areas of park designated and approved by Project Representative prior to delivery.

E. Arrange storage to provide easy access for inspections. Original product labels, certifications, stamps, etc. to be intact and readily visible for inspection purposes.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL (NOT USED)

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 DISPOSAL OF WASTE

A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to Authorities Having Jurisdiction.

1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Waste and debris removed from the worksite and not specified for reuse becomes the responsibility of the Contractor and disposed of off park property in areas authorized by the applicable county and/or state agencies and in accordance with current rules and regulations governing the disposal of solid waste. Disposal fees and sundry charges are paid by the Contractor and are incidental to the contract.

C. Burning: Do not burn waste materials.

D. Disposal: Remove waste materials from Owner's property and legally dispose of them.

END OF SECTION

SECTION 017700 – CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 AS-BUILTS

A. Before final acceptance of Project, furnish Project Representative "As-Builts" which shows as-built locations and dimensions of major items constructed. Include locations and elevations of existing utilities encountered during excavation. Show location of pipes, manholes, buildings, structures, etc. by field measurements consisting of at least two (2) ties to permanent surface objects such as hydrants, buildings, etc.

B. Final payment: No more than 95 percent until As-Built Drawings received. Payment made after receipt and acceptance of drawings by Project Representative. Lack of As-Built Drawings will not be a cause for contract extensions.

1.2 SPECIAL TOOLS

A. Deliver special tools required for maintenance and adjustment of equipment to Project Representative upon completion and before final acceptance of Project.

1.3 SPARE MATERIALS AND PARTS

A. Before final acceptance, deliver spare materials, parts and other similar items to storage locations specified by Project Representative.

1.4 CERTIFICATES AND PERMITS

A. Submit signed original certificates of compliance and final approval from Authorities Having Jurisdiction.

1.5 OUTSTANDING DOCUMENTS

A. Expedite and submit outstanding administrative documents including outstanding cost proposals, Change Orders, etc.

1.6 PRIOR OCCUPANCY

A. Reference General Conditions.

B. Commission has the right to occupy completed portions of Project prior to final acceptance, and such occupation is not an acceptance of Project. Prior to occupancy, Project Representative and Contractor mutually agree to a date for prior occupancy; the area to be occupied; that occupancy is commencing within the requirements of applicable codes and ordinances; that endorsements

from insurance companies, as necessary to maintain full insurance of Project regardless of prior occupancy, have been obtained; and that other necessary provisions are completed.

C. The Project Representative will inspect areas designated for prior occupancy and issue a letter of acceptance or provide a list of deficiencies to be corrected to Contractor. Correct deficiencies prior to date of occupancy.

1.7 SUBSTANTIAL COMPLETION

A. Reference General Conditions.

B. Notify Project Representative in writing a minimum of seven (7) days in advance of the scheduled date of completion. Project Representative will conduct a "pre-final" inspection and formulate a final punchlist of Work items to be completed prior to final inspection. Project Representative will establish the date of substantial completion based on pre-final inspection findings. Following this inspection, Project Representative will either issue notice of substantial completion or advise the Contractor of deficient items which must be corrected prior to issuance of substantial completion.

1.8 DAMAGE TO FACILITIES, ROADS, VEGETATION OR PROPERTY

A. During the course of construction, should any park facility be damaged by the Contractor's actions, operations or neglect, repair any such damages to their original condition, as acceptable to the Project Representative, at no cost to the Commission.

B. Repair, restore or replace any park roads, vegetation or property damaged by the Contractor to the original condition at the time construction began. Repair or replace trees and vegetation indicated to remain, which has been damaged by construction operations, in a manner acceptable to the Project Representative.

1.9 FINAL CLEAN-UP

A. Upon completion of the Work and prior to final inspection and acceptance, clean up the entire construction site and all grounds occupied by the Contractor in connection with the Work.

B. Fine graded, rake clean and smooth all worksites and disturbed areas. Remove from the park rubbish, surplus and discarded materials, falsework, temporary structures, equipment, and debris.

C. Leave all phases of the Project clean and ready for public use prior to final acceptance.

D. Inspect all materials and surfaces for damage, scratches, marring, untreated ends of sawcuts, etc. and repair to original or intended condition.

1.10 FINAL INSPECTION AND ACCEPTANCE

A. Reference General Conditions.

B. Notify Project Representative in writing when Work, including punchlist items, has been completed.

C. Project Representative will schedule and conduct a final inspection to verify that outstanding Work items are complete.

D. Owner will establish the date of final acceptance based on the results of final inspection. Complete/correct any items identified as outstanding during final inspection prior to final acceptance of Project.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 332100 – WATER SUPPLY WELL

PART 1 - GENERAL

1.1 PROJECT OWNER AND REPRESENTATIVE

A. State of Washington Parks and Recreation Commission is hereby referred to as Owner for this Project. The Project Engineer of Record, Consor North America, Inc. (Consor), is a Representative to the Owner and herein referred to as the Engineer. GeoEngineers is a subconsultant to Consor and herein referred to as the Hydrogeologist.

1.2 MINIMUM CONTRACTOR QUALIFICATIONS CRITERIA

A. The Owner has established project-specific supplemental qualifications criteria for the Contractor.
   1. Contractor must have been in the business of drilling and constructing groundwater production wells for a minimum of 5 years.
   2. Contractor must provide resume(s) for the driller(s) who will have primary responsibility for drilling, constructing, and testing the new production well. The driller(s) must be licensed in the State of Washington and have a minimum of 5 years of experience drilling and constructing production wells with well depth(s) of at least 300 feet and nominal well diameter(s) of at least 6 inches. The driller(s) whose resume(s) is (are) provided must be on site while the drilling and well construction work described herein is performed.
   3. Contractor must have completed a minimum of four groundwater production well projects with well depth(s) of at least 300 feet and nominal well diameter(s) of at least 6 inches. Contractor must provide descriptions for a minimum of three similar projects (as defined by the criteria in the previous sentence) if requested by the Owner. Descriptions to include a summary of well construction details, well yield, drilling conditions and project duration.

1.3 SUBMITTALS

A. Minimum Contractor Qualifications documentation as stated in Section 1.2, Minimum Contractor Qualifications.

B. Pre-Mobilization
   1. Before mobilization to the site, the Contractor shall provide the following information to the Owner:
      a. Copy of the Contractor's current well driller license.
      b. Copies of permits, registrations and notifications required by agencies having jurisdiction.
      c. Manufacturer's certification that the steel casing, PVC liner casing, PVC liner screen, and other materials to be used by the Contractor during drilling and well construction conform to the specification requirements.

C. Project Submittals

1. A Drilling Plan, including (at a minimum) a complete description of the Contractor's proposed drilling method(s), drill rig(s) and other major equipment to be provided. The Contractor's equipment must be sufficient to efficiently drill and construct wells of the diameter and depth planned for the production well based on evaluation by the Owner and/or the Hydrogeologist.
2. During drilling, construction and testing of the production well, the Contractor shall prepare and keep complete daily driller's reports. The reports shall be carefully and accurately kept with entries made in sequence so that each can be correlated with the depth of the borehole at the time. The report shall be complete at the end of each shift and open to inspection at all times. For each week (Sunday through Saturday) that the Contractor performs work associated with these specifications, daily driller's reports shall be forwarded to the Hydrogeologist by noon the following Monday.
3. A Well Disinfection Plan, including (at a minimum) a complete description of the Contractor's proposed methods for disinfecting drilling equipment, the production well, and test pumping equipment in accordance with pertinent tribal, federal, state and local requirements and these specifications. The Contractor's Well Disinfection Plan will also describe proposed procedures for disposal of any chlorinated water pumped from the well.
4. Within 30 days of completing the production well, the Contractor shall file a Water Well Report with the Washington State Department of Ecology and furnish a copy of the report to the Owner.

1.4 WELL SCHEMATIC

A. A schematic drawing showing the conceptual design of the production well is presented in the Contract Drawings. The dimensions shown are preliminary and provided to establish a basis for bid development. Actual well design is subject to change by the Hydrogeologist based on actual conditions encountered during drilling.

1.5 DESCRIPTION OF THE WORK

A. The Contractor shall mobilize their equipment onto the production well site designated by the Owner. The Contractor shall be responsible for providing all personnel, equipment and materials appropriate for completing the Work in accordance with these specifications. The Contractor shall be responsible for obtaining necessary permits to perform the Work. All temporary erosion and sediment control measures shall be installed per Specification 015713, Temporary Erosion and Sediment Control before any drilling work occurs. Equipment used to drill, construct, develop and/or test the production well shall be brought to the site in a clean and disinfected state. The Owner and Hydrogeologist are not responsible for damage or vandalism to the Contractor's equipment while at the drilling site.

B. The principal components of the Work to be performed by the Contractor under these specifications are specified below:

   a. Submit a well construction notice of intent to the Washington State Department of Ecology, obtain any additional necessary well drilling permits, and mobilize all required equipment, materials and personnel to the well site. The Contractor should note that the Owner intends to operate the production well under the State of Washington's Water Right Permit Exemption. As such, the Owner does not anticipate that any water right permitting will be necessary to drill, construct, and test the production well.

b. Prepare the site. We anticipate that this will require vegetation removal (including blackberry bushes), construction and restoration of the drill pad, construction of a temporary water and cutting collection pit, and installation of a water discharge management system (at a location selected by the Owner and the Hydrogeologist). However, no road building is anticipated.

c. Drill and install a production well in accordance with WAC 173-160 to a total drilled depth of approximately 200 to 300 feet below ground surface (bgs). The production well is expected to be completed in bedrock, however, subsurface conditions beneath the site are unknown. The Bid Items provided in the Bid Proposal Form of the Contract Documents provide a maximum total well depth of 300 feet for bidding purposes. However, total well depth could be as little as 200 feet at the discretion of the Owner the Contractor will be owed no payment for drilling and/or well construction footage that is bid but not drilled/constructed. Air-rotary, cable tool, or reverse-circulation drilling methods are required for production well drilling operations. The use of other drilling methods will be considered by the Owner if requested by the selected drilling and well construction contractor (herein designated the Contractor). Any drilling methods besides air-rotary, reverse-circulation, or mud-rotary (within the portion of well permanently cased with steel casing) must be proposed by the Contractor in writing and pre-approved by the Owner. Drilling means and methods will be proposed by the Contractor in the Contractor's Drilling Plan, as described in Section 1.3 C.3. of these specifications.

d. Collect formation samples every 5 feet during drilling operations.

e. Install the production well to approximately 200 to 300 feet bgs, depending on subsurface conditions encountered during drilling. During well construction operations, perform the following work:

    i. Furnish, install and remove 10.75-inch outside-diameter (OD) temporary casing to a depth of 18 feet bgs.

    ii. Furnish and install permanent 6.625-inch OD steel casing to a depth of about 100 feet bgs.

    iii. Construct a surface seal to a depth of 18 feet bgs by grouting the annulus between the 6.625 inch OD permanent casing and nominal 10-inch-diameter borehole.

    iv. Sample geologic materials, measure water levels, and estimate water production during drilling.

    v. Complete the production well by installing either a 6-inch-nominal diameter stainless steel screen with a naturally developed filter pack or 4.5-inch OD polyvinyl chloride (PVC) liner with PVC screen. The screen/liner design will be selected by the Owner based on subsurface conditions encountered (e.g., alluvial outwash deposits vs. bedrock). For planning purposes, the Contractor shall assume the use of 4.5-inch OD PVC liner and 10-feet of 4.5-inch OD PVC well screen with a 0.040-inch slot width.

f. Develop the production well to optimize the transmitting capacity of the well screen and achieve the target yield without excessive drawdown. The Contractor shall assume one

hour of development will be required per foot of installed well screen for an assumed total of 10 hours.

g. The desired pumping capacity of the production well is a minimum of 10 gallons per minute (gpm). Furnish and install a test pump capable of discharging at least 10 gpm under anticipated total dynamic head conditions and conduct step-rate and constant-rate pumping tests as described in Section 1.14 of these specifications. Step-rate and constant-rate test pumping shall be limited to periods of dry weather conditions.

h. After completing well development and before test pumping the production well, the Contractor shall disinfect the production well, test pump and pump discharge system in accordance with pertinent federal, state and local requirements.

i. Complete the production well with a 2-foot stick-up, per Section 1.6 A.1, covered with a welded steel plate and access port for the purpose of measuring water levels until the well house is constructed. No bollards are planned unless required by the Owner.

C. If drilling observations and/or test pumping results indicate that the production well is insufficient to achieve project groundwater source objectives, the Owner will decide on a project path forward. This could include wellbore abandonment, production well decommissioning, and/or drilling, construction, and testing of a production well at the alternative well location. At the Owner's discretion, the Owner might elect to conduct the additional decommissioning and/or drilling, construction, and testing work through the alternative (contingency) bid item as, reference Specification 000011-Bid Proposal Form, and 012300-Alternatives for additional information.

1.6 DRILLING, WELL DIAMETER AND DEPTH

A. Drilling Operations

1. Unless otherwise approved, the production well shall be drilled using the methods specified herein and result in a permanent string of 6-inch-nominal-diameter steel casing extending from 2 feet above ground surface to an approximate depth of 100 feet bgs. The well shall be completed as a nominal 6 inch nominal-diameter open borehole or lined open borehole below the permanent casing, extending to a depth of approximately 200 to 300 feet bgs.
2. The 6-inch-nominal-diameter open borehole shall be sufficient in diameter to allow for installation of the 6.625-inch OD permanent casing above a planned depth of 100 feet bgs. Below the bottom of the 6.625-inch OD permanent casing, borehole diameter shall be as close as practical to the inside diameter of the permanent casing.
3. The cased and uncased depths provided in these specifications are estimates. Based on encountered conditions, the Engineer will advise the Contractor of the following required depths: (1) permanent casing depth; (2) surface seal depth; (3) the depth where drilling shall be terminated; and (4) depths of the screened portions of the liner, if installed. The Engineer or Hydrogeologist also will advise the Contractor if any formation stabilizer or filter pack will be required. Under no circumstances shall commingling of water from different aquifers be allowed.
4. The Contractor shall be responsible for costs associated with damage to or loss of downhole equipment during drilling or well construction operations.
5. The Contractor shall use potable water for well drilling and construction activities. If drilling fluids or additives (such as drilling mud, foam, or polymer) other than water are needed, the Contractor shall provide a written request to the Owner's Representative for authorization to use specific fluids and/or additives. The written request shall include

copies of the related Material Safety Data Sheets (MSDS), including documentation that the fluids and/or additives are not a risk to human health. Under no circumstances shall these fluids and/or additives be placed in the well until the Contractor receives authorization from the Owner's Representative for their use. Only those drilling fluids approved by the Washington State Department of Health for potable water-supply wells shall be used.

6. The Contractor shall be responsible for containing drill cuttings and fluids produced during drilling. The containment methods used shall be in accordance with federal, state and local regulatory requirements. Contractor may construct pit(s) for control of drill cuttings as required for drilling. Contractor shall dispose of drill cuttings and drill fluid in such manner as mutually agreed between the Contractor and the Owner. The disposal location will be identified by the Owner within the 400 linear feet of the construction limits as shown on Contract Drawings, Sheet C200. Contractor shall use containment methods specified on the Contract Drawings, Sheet C101 to control undesirable runoff from the site.
7. The Contractor shall provide the Hydrogeologist access to the production well borehole for the purpose of collecting water level measurements. At a minimum, access shall be provided at the beginning and end of each work shift, and during each work break. No additional payment will be accrued by the Contractor for providing this access, including repositioning of any above-ground equipment at the wellhead that will allow the Hydrogeologist to safely lower an electronic water-level meter down the borehole.

1.7 WELL CASING

A. Permanent casing shall be new steel pipe, seamless or welded, in conformance with ASTM International (ASTM) A-53A or A-53B specifications for steel pipe and shall be free of dents, corrosion and defects. The lead sections of each casing string used for the project shall be fitted with casing shoes welded to the casing. The casing shoes shall be compatible with the casing diameter, expected subsurface conditions and depths planned for drilling.

B. The casing diameters specified herein and shown on the Contract Drawings shall be interpreted as the minimum allowable diameter of the well casing (inside or outside diameter as specified). All pipe used for well casing shall be joined by fully penetrating welds. All welds shall be at least equal in thickness and strength to the original casing and meet the requirements of American Water Works Association (AWWA) Standard C-206. It shall be the Contractor's responsibility to verify that the strength of the casing and all welds is sufficient to withstand all installation, casing pullback and grouting operations. The Contractor shall be fully responsible for any breaks or failures of the temporary and permanent casing strings during the course of the work.

C. Temporary surface casing with a minimum 10.75-inch OD and minimum 0.250-inch wall thickness shall be installed from at least 12 inches above ground surface to the final depth of the surface seal. The temporary casing removed from the well shall remain the property of the Contractor.

D. The permanent well casing shall be steel pipe of 6.625-inches OD with a minimum wall thickness of 0.250 inches. Upon reaching the final depths for the temporary and permanent casing and before pulling back the respective casing strings, the Contractor shall cut the casing shoes (the Contractor can omit this requirement at their discretion but assumes responsibility for well damage, compromise to the seal, and/or the inability to complete the well per these specifications as a result of this omission).

E. After the well has been completed and tested for yield, the top of the casing shall be covered with a ¼-inch-thick steel cap plate, welded to the casing to protect the well until the permanent pumping system is installed. A 2-inch-diameter by 2-inch-tall threaded nipple and pipe cap shall be mounted and welded to the center of the top of the well cap to allow the Owner to obtain water-level measurements in the well.

1.8 SURFACE SEAL

A. The Contractor shall provide 24 hours of notice to the Owner's Representative before starting installation of the surface seal. Before beginning the grouting, the Contractor shall pull back the temporary casing approximately 1 foot to confirm that the temporary casing can be extracted. The surface seal, which shall extend from the final depth drilled for the temporary casing to ground surface and be placed in one continuous operation, shall be constructed in accordance with the methods and materials specified in WAC 173-160-221 through WAC 173-160-251. Only clean, potable water shall be used to mix grouts.

B. During sealing, the temporary casing shall be extracted concurrently with grout placement. In no case shall there be less than 2 feet of grout mixture inside the annulus between the permanent casing and bottom of the temporary casing as the seal is constructed. Sealing shall be completed after well construction and testing.

1.9 LINER ASSEMBLY

A. Depending on encountered subsurface conditions, the Engineer might elect to complete the production well with a liner assembly extending from approximately 2 feet above ground surface to the bottom of the well. This section specifies liner assembly details, should the Owner's Representative opt for liner installation.

B. The liner assembly shall consist of blank and screened sections. Blank sections shall consist of new 4.5-inch OD PVC casing with a minimum 0.236 inch wall thickness and shall be free of damage and defects. Screened sections shall consist of new 4.5-inch OD PVC well screen placed opposite significant water-bearing intervals. Liner casing and screen shall meet the requirements of WAC 173-160-201. The bottom of the liner assembly shall have a PVC bottom cap. Reference 000011-Bid Proposal for estimated quantities for the PVC screen and blank PVC liner casing.

C. The Owner's Hydrogeologist will provide the Contractor with the design for the liner assembly (if needed) within 10 calendar days after the Hydrogeologist's receipt of drilling samples. The liner assembly design will include a liner screen slot size and specify the depths where the Contractor shall install liner screen. Depending on the specified liner design, screened portions of the liner assembly may be separated by sections of blank casing. The Contractor shall be responsible for ensuring that the liner and screen strength is appropriate for the column pressures inherent to the well design and placement method. The Contractor shall be fully responsible for breaks or failures of the liner assembly and will replace components as needed, at no additional cost to the Owner.

1.10 FORMATION STABILIZER/FILTER PACK

A. The Hydrogeologist does not expect formation stabilizer or filter pack will be needed in the production well to stabilize the adjacent formation and reduce/eliminate potential production of sediment. However, unstable borehole conditions could be encountered and require modifications to this approach. Required modifications will be determined by the Hydrogeologist after consultation with the Contractor, including a discussion regarding cost impact.

1.11 WELL DEVELOPMENT

A. The Contractor shall provide at least a 48-hour notice to the Hydrogeologist before starting well development in the production well so that the Contractor's activities can be observed by the Hydrogeologist. The screened portions of the liner shall be developed using air-lift, surge-and-bail, and/or pumping techniques until the well produces water that is clear and sediment-free. Upon completion of the development work, the liner shall be cleaned of sediment.

1.12 GEOLOGIC SAMPLING

A. The Contractor shall collect 1-quart-sized representative samples of the geologic units encountered in the borehole. The samples shall be obtained at 5-foot-depth increments starting at 5 feet below ground surface and at changes in strata. Care shall be taken to minimize mixing of drill cuttings so that the collected samples are representative of geologic materials at the base of the borehole at the time of sampling. Costs for sampling shall be incidental to the work and no separate payment will be made.

B. Formation samples, immediately after being placed in containers, shall be labeled clearly by the Contractor, either directly on the container or on a tag attached thereto, using ink, indelible pencil, or other medium that is resistant to moisture and sunlight. The label shall not be readily removable from the container. Each sample shall be clearly labeled with the following information:
   1. Name or number of the well.
   2. Depth interval represented by the sample.
   3. Sequential sample number.
   4. Date taken.
   5. Time taken.

C. The Contractor shall be responsible for the safe storage of formation samples until such times as they are accepted by the Hydrogeologist. Time, place and mode of delivery shall be as directed by the Hydrogeologist. The Contractor shall make the formation samples available to the Hydrogeologist at all times when the drilling crew is at the site and all samples shall be delivered to the Hydrogeologist as soon as the well is completed. The Contractor shall be responsible for protecting the samples from loss or damage until delivery is made to the Hydrogeologist.

1.13 DISINFECTION

A. The Contractor shall thoroughly clean the drill rig and equipment before initiating work on the site. After completing well development and the video camera inspection but before pump testing the production well, the Contractor shall disinfect the well, test pump and pump discharge system

in accordance with pertinent tribal, federal, state and local requirements, including WAC 173-160-331.

B. The Contractor shall be responsible for disposal of any chlorinated water pumped from the well. The disposal shall be in accordance with tribal, federal, state and local regulations and requirements.

C. At the conclusion of the project, the Contractor shall leave the well in a disinfected condition. Well and equipment disinfection will be considered incidental to the work and no additional payment will be made by the Owner for the Contractor's well and equipment disinfection activities.

1.14 PUMPING TEST

A. ANTICIPATED TESTING PROGRAM

1. The Contractor shall conduct pumping tests in the completed well for the purpose of estimating well yield and aquifer properties. Testing shall include an approximate 4-hour step-rate pumping test and an 24-hour constant-rate pumping test. The Contractor shall assume that 3 total days of baseline and recovery monitoring will be required, during which time the Contractor shall not disturb the water column within the production well and no additional payment will be accrued by the Contractor.
2. The Hydrogeologist will advise the Contractor regarding the pumping rate and duration of each step during the step-rate test. The Hydrogeologist will also advise the Contractor regarding the pumping rate for the constant-rate pumping test, based on results of the step-rate pumping test. A recovery period shall follow both the step-rate and constant-rate pumping tests. The water level in the pumping well shall be allowed to recover to at least 95 percent of the pre-test static water level before both the step-rate pumping test and the constant-rate pumping test are started, and before the pump is removed from the well following the constant-rate test. No additional payment will be accrued by the Contractor during recovery periods.
3. The step-rate and constant-rate tests shall be run uninterrupted. In the event a period of shutdown occurs, and the Owner determines that the results of the test are nullified, the Contractor shall allow the water level within the well to recover in compliance with these specifications and repeat the test at the Contractor's expense. However, the Contractor can interrupt the test to avert damage to surrounding property and/or prevent discharge water from entering surface water. In this case, the interruption will not result in expense to the Contractor.

B. TEST EQUIPMENT

1. The Contractor shall be responsible for furnishing materials, equipment, fuel and labor required for the pumping test. The Contractor shall be responsible for the efficient and reliable operation of the pumping equipment, flow-rate measuring device and water disposal facilities. During testing, the pumping equipment and measuring devices shall be continuously attended to by the Contractor. The Contractor shall maintain the pumping discharge rate within 5 percent of the indicated rate during testing. The Contractor shall provide, install and maintain the discharge piping to the discharge point selected by the Owner.
2. The Contractor shall provide a pump capable of pumping at least 10 gpm against a lift of up to 280 feet plus the friction loss associated with the installed discharge piping system.

The pump intake shall be installed approximately 5 feet above the top of the well screen. The pumping equipment also shall include the following:

a. A gate valve installed within the discharge piping system at the wellhead for controlling the pumping rate.
b. Two flow measurement devices. The Contractor shall install a primary flow measurement device consisting of a calibrated flowmeter with totalizing and instantaneous capability. The Contractor also shall install a backup flow measurement device in case of malfunction, which could consist of a second calibrated flowmeter or an orifice plate/manometer assembly.
c. One minimum, 1-inch-inside-diameter sounding tube provided and installed within the production well by the Contractor concurrent with the test pump and made continuously accessible to the Owner's Representative during testing and recovery periods. The bottom of the sounding tube shall be located 3 feet above the top of the test pump assembly.
d. A port within the discharge piping system that is suitable for collection of water samples.
e. A check-valve installed within 20 feet (or as an integral part) of the pump to prevent backflow.
f. Temporary power and all required electrical and mechanical accessories for proper and continuous operation during the testing periods.

3. The pumping equipment shall include required electrical and mechanical accessories for proper and continuous operation during the testing period. The test pump and related equipment shall be suitable for use in a potable water supply well and shall be disinfected and free of oils, dust and foreign matter. The Contractor shall provide the Hydrogeologist with continuous access to the sounding tube and sampling port during the pumping tests.

C. TEST MAINTENANCE AND DATA COLLECTION

1. During testing, the pumping equipment and measuring devices shall be continuously attended to by the Contractor. The Contractor shall maintain the pumping discharge rate within 5 percent of the indicated rate during both the step-rate and constant-rate tests. Discharge rate shall be measured and recorded by the Contractor on a 10-minute interval during step-rate testing. During constant-rate testing, discharge rate shall be measured and recorded at the following interval (relative to the start of pumping):
   a. On a 10-minute interval from 0 to 60 minutes.
   b. On a 30-minute interval from 60 minutes to end of the test period.
2. Any adjustments to the discharge rate shall be recorded by the Contractor and shall not be made without first notifying and gaining approval of the Hydrogeologist.
3. During step-rate and constant-rate testing, the Contractor shall measure and record water levels within the new well using the electronic water level meter at the following interval (relative to the start of each step during step-rate testing and the start of pumping during constant-rate testing):
   a. On a 1-minute interval from 0 to 10 minutes.
   b. On a 5-minute interval from 10 to 60 minutes.
   c. On a 30-minute interval from 60 minutes to end of the step or test period.
4. Discharge and water level measurements, as well as the time of measurement, shall be legibly recorded on forms and provided to the Hydrogeologist at the conclusion of testing.
5. Samples for water quality analysis are to be collected by the Owner or the Hydrogeologist. Collected water quality samples are to be provided to the Owner for testing; Owner will coordinate with water quality testing laboratory.

1.15 DISPOSAL OF WATER FROM DRILLING, DEVELOPMENT AND PUMPING TEST

A. The Contractor shall be responsible for proper disposal of water so that no damage will result to the surrounding property and no discharge water enters surface water bodies through surface runoff. Upon completion and acceptance of the pumping test, materials, equipment and supplies required for disposal of water shall be removed from the site.

B. Disposal of water produced during the pumping tests shall be at a location selected by the Owner's Representative. This location may be as far as 400 feet from the well. Water shall be piped from the well to the disposal site.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION