



DEPARTMENT OF
ECOLOGY
State of Washington

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Washington State Department of Ecology
Toxics Cleanup Program

IAA No. C2000071

INTERAGENCY AGREEMENT (IAA)

BETWEEN

THE STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY

AND

EASTSIDE FIRE AND RESCUE

THIS INTERAGENCY AGREEMENT (“Agreement” or “IAA”) is made and entered into by and between the state of Washington, Department of Ecology, hereinafter referred to as "ECOLOGY," and the Eastside Fire and Rescue” (a joint operation of King County Fire Protection District No. 10, King County Fire Protection District No. 38, the City of Issaquah, the City of North Bend, and the City of Sammamish) hereinafter referred to as “EFR” pursuant to the authority granted by Chapter 39.34 RCW.

THE PURPOSE OF THIS AGREEMENT is to further characterize nature and extent of per- and polyfluoroalkyl substances (PFAS) in soil and groundwater at source areas in the Lower Issaquah Valley; evaluate vertical stratification of PFAS in groundwater; assess additional potential up-gradient sources; and collect additional data for design of a source remedial action(s) where appropriate..

WHEREAS, ECOLOGY has legal authority under RCW 70.105D and WAC 173-340 to identify, investigate, and cleanup facilities where a hazardous substance has come to be located, and to work with entities to expeditiously and effectively address the release of a hazardous substance. And whereas the EFR has legal authority under RCW 52.26.808 pursuant to Chapter 39.34 RCW that allows each entity to conduct the actions detailed in this Agreement. Each party is authorized to undertake the actions in this agreement.

THEREFORE, IT IS MUTUALLY AGREED THAT:

1) SCOPE OF WORK

EFR shall furnish the necessary personnel, equipment, material and/or service(s) and otherwise do all things necessary for or incidental to the performance of the work set forth in Appendix A, *Statement of Work and Budget*, attached hereto and incorporated herein.

2) PERIOD OF PERFORMANCE

The period of performance of this IAA shall commence on the date of Ecology’s signature and be completed by **06/30/2021**, unless terminated sooner as provided herein. Amendments extending the period of performance, if any, shall be at the sole discretion of ECOLOGY.

3) COMPENSATION

Compensation for the work provided in accordance with this IAA has been established under the terms of RCW 39.34.130 and RCW 39.26.180(3). This is a performance-based agreement, in which payment is based on the successful completion of expected deliverables.

State funds will be utilized for this agreement.

The parties have determined that the cost of accomplishing the work identified herein will not exceed \$449,015.00, including any indirect charges. Payment for satisfactory performance of the work shall not exceed this amount unless the parties mutually agree via an amendment to a higher amount. Compensation for services shall be based on the terms and tasks set forth in Appendix A, *Statement of Work and Budget*. ECOLOGY will not make payment until it has reviewed and accepted the completed work.

4) BILLING AND PAYMENT PROCEDURE

Payment requests shall be submitted on state form, Invoice Voucher A19-1A. Invoices shall describe and document to ECOLOGY's satisfaction a description of the work performed, the progress of the work, and related costs. Each invoice voucher shall reference the Agreement (IAA) number and clearly identify those items that relate to performance under this Agreement. Payment will be made within thirty (30) days of submission of a properly completed invoice (form A19-1A) with supportive documentation. All expenses invoiced shall be supported with copies of invoices paid.

Send invoices to:

State of Washington Department of Ecology Toxics Cleanup Program Attn: Angela Harkins P.O. Box 47600 Olympia, WA 98504-7600
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Payment requests may be submitted on a monthly basis. Upon expiration of this Agreement, any claim for payment not already made shall be submitted to ECOLOGY within 30 days after the expiration date or the end of the fiscal year, whichever is earlier.

Payment will be issued through Washington State's Office of Financial Management's Statewide Payee Desk. To receive payment you must register as a statewide vendor by submitting a statewide vendor registration form and an IRS W-9 form at website, <https://ofm.wa.gov/it-systems/statewide-vendorpayee-services>. If you have questions about the vendor registration process, you can contact Statewide Payee Help Desk at (360) 407-8180 or email PayeeRegistration@ofm.wa.gov.

5) ALTERATIONS AND AMENDMENTS

This Agreement may be amended by mutual agreement of the parties. Such amendments shall not be binding unless they are in writing and signed by personnel authorized to bind each of the parties.

6) ASSIGNMENT

The work to be provided under this Agreement, and any claim arising thereunder, is not assignable or delegable by either party in whole or in part, without the express prior written consent of the other party, which consent shall not be unreasonably withheld.

7) ASSURANCES

Parties to this Agreement agree that all activity pursuant to this agreement will be in accordance with all the applicable current federal, state, and local laws, rules, and regulations.

8) CONFORMANCE

If any provision of this Agreement violates any statute or rule of law of the state of Washington, it is considered modified to conform to that statute or rule of law.

9) DISPUTES

Parties to this Agreement shall employ every effort to resolve a dispute themselves without resorting to litigation. In the event that a dispute arises under this Agreement that cannot be resolved among the parties, it shall be determined by a Dispute Board in the following manner. Each party to this Agreement shall appoint one member to the Dispute Board. The members so appointed shall jointly appoint an additional member to the Dispute Board. The Dispute Board shall review the facts, agreement terms, and applicable statutes and rules, and then make a determination of the dispute. The determination of the Dispute Board shall be final and binding on the parties hereto, unless restricted by law. The cost of resolution will be borne by each party paying its own cost. As an alternative to this process, if state agencies, either of the parties may request intervention by the Governor, as provided by RCW 43.17.330, in which event the Governor's process will control. The parties may mutually agree to a different dispute resolution process.

10) FUNDING AVAILABILITY

ECOLOGYS ability to make payments is contingent on availability of funding. In the event funding from state, federal, or other sources is withdrawn, reduced, or limited in any way after the effective date and prior to completion or expiration date of this Agreement, ECOLOGY, at its sole discretion, may elect to terminate the Agreement, in whole or part, for convenience or to renegotiate the Agreement subject to new funding limitations and conditions. ECOLOGY may also elect to suspend performance of the Agreement until ECOLOGY determines the funding insufficiency is resolved. ECOLOGY may exercise any of these options with no notification restrictions, although ECOLOGY will make a reasonable attempt to provide notice.

In the event of termination or suspension, ECOLOGY will reimburse eligible costs incurred by the EFR through the effective date of termination or suspension. Reimbursed costs must be agreed to by ECOLOGY and the EFR. In no event shall ECOLOGY's reimbursement exceed ECOLOGY's total responsibility under the agreement and any amendments.

11) GOVERNING LAW AND VENUE

This Agreement is entered into pursuant to and under the authority granted by the laws of the state of Washington and any applicable federal laws. The provisions of this Agreement shall be construed to conform to those laws. This Agreement shall be construed and interpreted in accordance with the laws of the state of Washington, and the venue of any action brought hereunder shall be in the Superior Court for Thurston County.

12) INDEPENDENT CAPACITY

The employees or agents of each party who are engaged in the performance of this Agreement shall continue to be employees or agents of that party and shall not be considered for any purpose to be employees or agents of the other party.

13) ORDER OF PRECEDENCE

In the event of an inconsistency in the terms of this Agreement, or between its terms and any applicable statute or rule, the inconsistency shall be resolved by giving precedence in the following order:

- a. Applicable federal and state of Washington statutes, regulations, and rules.
- b. Mutually agreed upon written amendments to this Agreement.
- c. This Agreement, number C2000071.
- d. Appendix A, *Statement of Work and Budget*.
- e. Any other provisions or term of this Agreement, including materials incorporated by reference or otherwise incorporated.

14) RECORDS MAINTENANCE

The parties to this Agreement shall each maintain books, records, documents, and other evidence that sufficiently and properly reflect all direct and indirect costs expended by either party in the performance of the service(s) described herein. These materials shall be subject to inspection, review, or audit by personnel of both parties, other personnel duly authorized by either party, the Office of the State Auditor, and federal officials so authorized by law. All books, records, documents, and other materials relevant to this Agreement must be retained for six years after expiration of this Agreement. The Office of the State Auditor, federal auditors, and any persons duly authorized by the parties shall have full access and the right to examine any of these materials during this period. Each party will utilize reasonable security procedures and protections for all materials related to this Agreement. All materials are subject to state public disclosure laws.

15) RESPONSIBILITIES OF THE PARTIES

Each party of this Agreement hereby assumes responsibility for claims and/or damages to persons and/or property resulting from any act or omissions on the part of itself, its employees, its officers, and its agents. Neither party will be considered the agent of the other party to this Agreement.

16) RIGHTS IN DATA

Unless otherwise provided, data which originates from this Agreement shall be "work made for hire" as defined by the United States Copyright Act, Title 17 U.S.C. section 101 and shall be owned by state of Washington, ECOLOGY. Data shall include, but not be limited to, reports, documents, pamphlets, advertisements, books magazines, surveys, studies, computer programs, films, tapes, and/or sound reproductions. Ownership includes the right to copyright, patent, register, and the ability to transfer these rights.

17) SEVERABILITY

If any provision of this Agreement or any provision of any document incorporated by reference shall be held invalid, such invalidity shall not affect the other provisions of this Agreement which can be given effect without the invalid provision, if such remainder conforms to the requirements of applicable law and the fundamental purpose of this Agreement, and to this end the provisions of this Agreement are declared to be severable.

18) SUBCONTRACTORS

EFR agrees to take complete responsibility for all actions of any Subcontractor used under this Agreement for the performance. When federal funding is involved there will be additional contractor and subcontractor requirements and reporting.

Prior to performance, all subcontractors who will be performing services under this Agreement must be identified, including their name, the nature of services to be performed, address, telephone, WA State Department of Revenue Registration Tax number (UBI), federal tax identification number (TIN), and anticipated dollar value of each subcontract. Provide such information to ECOLOGY's Agreement manager.

19) TERMINATION FOR CAUSE

If for any cause, either party does not fulfill in a timely and proper manner its obligations under this Agreement, or if either party violates any of these terms and conditions, the aggrieved party will give the other party written notice of such failure or violation. The responsible party will be given the opportunity to correct the violation or failure within fifteen (15) business days. If failure or violation is not corrected, this Agreement may be terminated immediately by written notice of the aggrieved party to the other.

20) TERMINATION FOR CONVENIENCE

Either party may terminate this Agreement without cause upon thirty (30) calendar day prior written notification to the other party. If this Agreement is so terminated, the parties shall be liable only for performance rendered or costs incurred in accordance with the terms of this Agreement prior to the effective date of termination.

21) WAIVER

A failure by either party to exercise its rights under this Agreement shall not preclude that party from subsequent exercise of such rights and shall not constitute a waiver of any other rights under this Agreement unless stated to be such in a written amendment to this Agreement signed by an authorized representative of the parties.

22) AGREEMENT MANAGEMENT

The representative for each of the parties shall be responsible for and shall be the contact person for all communications, notifications, and billings questions regarding the performance of this Agreement. The parties agree that if there is a change in representatives that they will promptly notify the other party in writing of such change, such changes do not need an amendment.

The ECOLOGY Representative is:	The EFR Representative is:
Name: Tamara Cardona Address: PO Box 47600 Olympia, WA 98504-7600 Phone: 425.649.7058 Email: TACA461@ecy.wa.gov Fax: 425.649.7098	Name: Jeff Clark Address: 175 Newport Way NW Issaquah, WA 98027 Phone: 425.313.3201 Email: jclark@esf-r.org Fax: 425.313.3254

23) ALL WRITINGS CONTAINED HEREIN

This Agreement contains all the terms and conditions agreed upon by the parties. No other understandings, oral or otherwise, regarding the subject matter of this Agreement shall be deemed to exist or to bind any of the parties hereto.

State of Washington, Department of Ecology
IAA No. C2000071
Eastside Fire and Rescue

The signatories to this Agreement represent that they have the authority to bind their respective organizations to this Agreement.

IN WITNESS WHEREOF, the parties below, having read this Agreement in its entirety, including all attachments, do agree in each and every particular as indicated by their signatures below.

**State of Washington
Department of Ecology**

Eastside Fire and Rescue
(a joint operation of King County Fire Protection District No. 10, King County Fire Protection District No. 38, the City of Issaquah, the City of North Bend, and the City of Sammamish)

By: Polly Zehm 12/3/19
Signature Date

By: [Signature] 11.20.19
Signature Date

Polly Zehm
Deputy Director

Jeff Clark
Print Name:
Fire Chief
Title:

Approved as to form only:
Office of Attorney General

APPENDIX A SCOPE OF WORK AND ESTIMATED BUDGET

PURPOSE

The Washington State Department of Ecology (ECOLOGY), Eastside Fire and Rescue (EFR), and City of Issaquah (CITY) (collectively referred to as the Parties) are in the process of characterizing the nature and extent of perfluoroalkyl substances (PFAS) found in the Lower Issaquah Valley impacting the drinking water aquifer.

The primary suspected mechanism for release of PFAS to soil and groundwater in the Lower Issaquah Valley is the historical use of aqueous film forming foams (AFFF) during training exercises and while fighting petroleum hydrocarbon fuel fires. However, other potential sources and release mechanisms have not been investigated. The purpose of this scope of work is to further characterize PFAS in soil and groundwater at source areas in the Lower Issaquah Valley; evaluate vertical stratification of PFAS in groundwater; assess additional potential up-gradient sources; and collect additional data for design of a source remedial action(s) where appropriate.

BACKGROUND

Confirmed releases of AFFF have resulted in concentrations of PFAS in soil that exceed current ECOLOGY Investigatory Levels (Investigatory Levels) for unsaturated soil protection of groundwater; and concentrations of PFAS in shallow groundwater (up to a depth of 60 feet below ground surface [bgs]) at the following locations:

- 175 Newport Way Northwest (Eastside Fire and Rescue Headquarters Facility);
- Issaquah Valley Elementary West Playfield; and
- Issaquah Valley Elementary East Ballfields (Dodd Fields Park).

Two (2) additional locations have confirmed concentrations of PFAS in soil that exceed Investigatory Levels for unsaturated soil protection of groundwater and concentrations of PFAS in shallow groundwater that are slightly less than Investigatory Levels based on one shallow groundwater sampling event:

- North of 190 East Sunset Way (Memorial Field); and
- West of 135 East Sunset Way on the former rail grade (Rainier Trail Area).

Areas with confirmed or suspected impacts to soil and groundwater are collectively referred to as “areas of interest.” Areas of interest identified to date include 175 Newport Way Northwest, Issaquah Valley Elementary West Playfield, Dodd Fields Park, Memorial Field, and the Rainier Trail Area.

During the course of the previous (2018) investigation, an additional area of interest was identified up-gradient of monitoring well COI-MW07 where a former commercial upholstery shop (Former Commercial Upholstery Shop) was suspected to operate for more than a decade performing waterproofing, staining, and other fabric treatments. Soil and groundwater at the Former Commercial Upholstery Shop area of interest have not been assessed.

The previous (2018) investigation included the collection of intermediate groundwater (60 to 120 feet bgs) samples from monitoring wells COI-MW02 through COI-MW07 in conjunction with the assessment of shallow groundwater. Concentrations of PFAS in intermediate groundwater that exceed the Investigatory Level for groundwater were confirmed on the western portion of the Lower Issaquah Valley (Figure 2). However, migration pathways between shallow and intermediate groundwater have not been assessed. In

addition, intermediate groundwater captured by production wells SP-PW07 through SP-PW09 has not been characterized on the eastern portion of the Lower Issaquah Valley.

INTENTION OF AGREEMENT

It is ECOLOGY'S intention to fund Tasks 1 through 7 and 9 as part of this IAA. ECOLOGY will receive regular updates from EFR on progress of all currently funded tasks conducted in this agreement.

Tasks CURRENTLY FUNDED by ECOLOGY through this agreement:

- Task 1 – Project Management and Communication.
- Task 2 – Work Plan Addendum.
- Task 3 – Evaluate Vertical Stratification in Groundwater.
- Task 4 – Quarterly Groundwater Monitoring.
- Task 5 – Lower Issaquah Valley PFAS Additional Characterization Report.
- Task 6 – Evaluate Other Potential Source Areas.
- Task 7 – Additional Characterization of 175 Newport Way Northwest.
- Task 9 – Source Remediation Action Plan.

Tasks NOT CURRENTLY FUNDED by ECOLOGY through this agreement and planned to be funded directly by the CITY and EFR:

- Task 8 – Groundwater Modeling Evaluation.
- Task 10 – Investigation – Derived Waste Disposal.

Task 1: Project Management and Communication

EFR will develop and complete the following:

- Scheduling;
- Budgeting;
- Allocation of personnel resources;
- Subcontracting;
- Contract management;
- Executive Committee coordination and meetings; and
- Other administrative duties.

Task 1 Deliverable:

- 1) Monthly meeting minutes and/or progress reports detailing completed activities if a formal deliverable is not available is due to ECOLOGY starting the 15th day of the month following execution of this agreement.

Task 2: Preparation of Work Plan Addendum

Task 2 includes:

- EFR will update the existing Lower Issaquah Valley Per- and Poly-Fluoroalkyl Substances Characterization Study Work Plan (Work Plan).
- EFR will update associated Quality Assurance and Program Plan (QAPP) with an addendum to address the tasks described in this scope of work¹.
- EFR will ensure compliance with cultural and archeological requirements, including the incorporation of the existing Inadvertent Discovery Plan.

The updated Work Plan and QAPP will describe the final scope of work to be performed, including:

- Sample locations and types;
- Standard operating procedures for work to be performed;
- Quality control measures;
- Analytical methods and laboratories;
- Applicable Investigatory Levels; and
- Other project information as appropriate.

Task 2 Deliverables:

- 1) Draft Lower Issaquah Valley Per- and Poly-Fluoroalkyl Substances Characterization Study Work Plan Addendum due to ECOLOGY for review sixty (60) days after agreement execution.
- 2) Final Lower Issaquah Valley Per- and Poly-Fluoroalkyl Substances Characterization Study Work Plan Addendum, including ECOLOGY comments, due to ECOLOGY thirty (30) days after receipt of comments from ECOLOGY.

Task 3: Evaluate Vertical Stratification in Groundwater

Task 3 includes:

- EFR will manage the installation of select shallow and intermediate monitoring wells: clustered monitoring wells will be installed to further evaluate potential migration pathways between shallow and intermediate groundwater at the locations identified on Figure 1.

The proposed additional wells include:

- An intermediate monitoring well near existing shallow monitoring well IES-MW01 at Issaquah Elementary School (Figures 1 and 2) to evaluate vertical migration and gradient between shallow and intermediate groundwater;
- Intermediate monitoring wells between IES-MW01 and COI-MW06 and between COI-MW06 and NWN-MW03 (Figures 1 and 2) to evaluate intermediate groundwater and stratigraphy;
- Two (2) intermediate and shallow monitoring well pairs (four wells total) east and west of COI-MW06 approximately along Northwest Dogwood Street (Figure 1) to evaluate lateral impacts to intermediate groundwater;
- Shallow monitoring wells near existing intermediate monitoring wells COI-MW05, COI-MW06, and COI-MW07 (Figures 1 and 2) to evaluate vertical migration and gradient between shallow and intermediate groundwater;
- Intermediate monitoring wells near the existing shallow monitoring wells NWN-MW02 and NWN-MW03 at 175 Newport Way Northwest (Figure 3) to evaluate vertical migration and gradient, and stratigraphy below 175 Newport Way Northwest;

¹ Preparation of an addendum to the original Work Plan and QAPP is anticipated to reduce total labor for Task 2 by incorporating the previously approved documents by reference.

- Intermediate monitoring well near existing shallow monitoring well MF-R02 at Memorial Field (Figure 1) to evaluate vertical migration and gradient at Memorial Field and intermediate groundwater quality; and
- Intermediate monitoring wells at Northeast Dogwood Street and the intersection of Northwest Gilman Boulevard and Rainier Boulevard to evaluate intermediate groundwater impacts and quality on the east side of the Lower Issaquah Valley (Figure 1).
- EFR will manage the collection of reconnaissance groundwater samples to further evaluate vertical stratification of groundwater impacts in the Lower Issaquah Valley.
 - Up to three (3) reconnaissance groundwater samples will be collected from discrete depths during installation of new intermediate monitoring wells.
 - One (1) reconnaissance groundwater sample will be collected during installation of new shallow monitoring wells.
 - Groundwater samples will be analyzed for PFAS by Modified U.S. Environmental Protection Agency (EPA) Method 537.² The analytical laboratory will be held to the current Department of Defense Quality Systems Manual, Version 5.1.1³ certification to meet target reporting limits for non-drinking water matrices.

Task 3 Deliverables:

- 1) Following installation, boring logs are due to ECOLOGY by December 31, 2020.
- 2) Following installation of borings, survey data is due to ECOLOGY by December 31, 2020.

Task 4: Quarterly Groundwater Monitoring

Task 4 includes four (4) complete quarterly groundwater monitoring events and two (2) gauging events in the Lower Issaquah Valley for both shallow and intermediate groundwater. Data collection will further refine groundwater conditions during wet and dry seasons in shallow and intermediate groundwater and provide data to evaluate vertical migration of PFAS between the shallow and intermediate groundwater (Figure 2).

Repeat measurements from permanent monitoring wells will allow for evaluation of seasonal fluctuation in groundwater elevation; variations in the concentrations of PFAS in shallow and intermediate groundwater; and potential interaction between shallow groundwater and surface water in Issaquah Creek.

Quarterly groundwater monitoring events managed by ERF will include:

- Gauging of existing shallow and intermediate monitoring wells and stream gauging for the following:
 - Issaquah Creek proximate to Issaquah Valley Elementary and Dodd Fields Park,
 - Monitoring well COI-MW07, and
 - Production well COI-PW04 (two quarters total);
- Gauging and sampling of select shallow and intermediate monitoring wells identified in advance and presented to the Parties during regular Executive Committee meetings (estimated to be 25 wells per event, four quarters total⁴);

² EPA Method 537.1 has been approved for drinking water. Analysis of soil and groundwater by Modified Method EPA 537 relies on changes made by the analytical laboratory to analyze non-drinking water matrices.

³ United States Department of Defense (DoD) and Department of Energy (DOE), 2018. *Consolidated Quality Systems Manual (QSM) for Environmental Laboratories*. Version 5.1.1.

⁴ Two quarters each of seasonal high groundwater (anticipated to be winter) and low groundwater (anticipated to be summer).

- Gauging and sampling of select Sammamish Plateau Water and Sewer District monitoring and production wells⁵, including:
 - SP-MW03,
 - SP-MW07,
 - SP-MW08,
 - SP-PW07,
 - SP-PW08, and
 - SP-PW09 (included in estimated 25 wells per event listed above, four quarters total); and
- Gauging and sampling of new shallow and intermediate monitoring wells that are expected to be installed under Task 3 in late 2019 to early 2020 (two events per location to allow time for installation, included in 25 location estimates listed above).

Groundwater samples will be analyzed by Modified EPA Method 537. Groundwater monitoring results, including elevation measurements and analytical results, will be documented in summary figures and tables to be provided to the Parties quarterly for review and evaluation under Task 7.

Estimated costs include four (4) complete sampling events with thirty (30) samples (25 locations plus 5 quality control samples) each, and two (2) events where monitoring well and Issaquah Creek gauging only is performed.⁶ Monitoring wells that will be sampled for each quarterly event will be identified in advance and presented to the Parties during regular Executive Committee meetings.

Task 4 Deliverable:

- 1) Written quarterly progress report for each sampling event detailing field sampling, summary analytical data tables, and laboratory reports due to ECOLOGY via email at least two (2) weeks following each monitoring event.

Task 5: Lower Issaquah Valley PFAS Additional Characterization Summary Report

Task 5 includes compilation, evaluation, and final reporting for data collected under Tasks 3 and 4. Boring logs, summary tables, and figures will be provided to the Parties on a quarterly basis as data is collected as part of progress reporting under Tasks 3 and 4 (see above). EFR will compile and evaluate additional information, including:

- Groundwater contouring and calculation of local and regional groundwater gradients for sampling and gauging events;
- Review and evaluation of soil and groundwater sample analytical results and comparison to Investigatory Levels;
- Development of cross sections and summary figures to support development of a regional conceptual site model; and
- Identification of data gaps and/or development of recommendations as appropriate.

Task 5 Deliverables:

- 1) Draft Lower Issaquah Valley PFAS Additional Characterization Summary Report to be submitted to ECOLOGY for review by April 30, 2021.
- 2) Final Lower Issaquah Valley PFAS Additional Characterization Summary Report, including ECOLOGY comments, to be submitted to ECOLOGY by June 15, 2021.

⁵ Farallon assumes for this Statement of Work that access to Sammamish Plateau Water and Sewer District groundwater production and monitoring wells will be negotiated by the Parties.

⁶ Groundwater elevation measurements will also be collected for all groundwater sampling events.

Task 6: Evaluate Other Potential Source Area

Task 6 includes evaluation of other potential source areas such as the up-gradient Former Commercial Upholstery Shop. During a prior investigation, monitoring well COI-MW07 was installed at Alder Place near Issaquah Creek approximately 300 feet north of West Sunset Way. PFOS and PFOA were detected in shallow reconnaissance groundwater collected from boring COI-MW07 at a combined concentration of 0.054 micrograms per liter, slightly less than the Investigatory Level for groundwater of 0.070 micrograms per liter suggesting possible impacts to shallow groundwater from an unidentified up-gradient source. Commercial cleaning, waterproofing, and stain-proofing solutions are known to contain concentrations of PFAS ranging from 1.71 to 8.86 micrograms per gram of liquid⁷.

Pending analytical results from a shallow monitoring well to be installed west of monitoring well COI-MW07 and under Task 3; the potential history of use, and shallow groundwater impacts associated with the Former Commercial Upholstery Shop may need to be further evaluated by EFR, who will manage performing an evaluation of historical records including city directories and regional archives. Estimated costs assume preparation of a report similar to a Phase I Environmental Site Assessment for the up-gradient Former Commercial Upholstery Shop.

Task 6 Deliverable:

- 1) Summary report of historical uses for up-gradient Former Commercial Upholstery Shop to be submitted to ECOLOGY for review by April 30, 2021.

Task 7: Additional Characterization of 175 Newport Way Northwest

Task 7 includes additional characterization of soil and groundwater at 175 Newport Way Northwest. EFR will manage the additional characterization that will evaluate:

- Impacts to soil,
- Impacts to shallow groundwater, and
- Impacts to intermediate groundwater; and
- Migration pathways between shallow and intermediate groundwater.

The data collected under Task 7 will be used to prepare a focused evaluation of technically feasible remediation technologies and to identify possible pilot testing for a source remedial action at 175 Newport Way Northwest. Selection of a source remedial action and implementation details will be addressed under analysis and reporting to be performed under Task 9.

Additional characterization includes:

- Advancing seventeen (17) direct-push borings to a maximum depth of twenty (20) feet bgs on the western portion of 175 Newport Way Northwest (Figure 3);
- Installing three (3) new shallow monitoring wells on the northwestern portion of 175 Newport Way Northwest in addition to the installation of the two (2) new intermediate wells discussed under Task 3; and
- Installing at least two (2) piezometers⁸ for groundwater gauging (Figure 3) to evaluate hydraulic conductivity at different depths than the shallow and intermediate monitoring wells.
- Sampling of soil during well installation: soil samples will be collected at 5-foot intervals during drilling and analyzed by Modified EPA Method 537.

⁷ T.P. Knepper and F.T. Lange Editors. 2012. *Polyfluorinated Chemicals and Transformation Products Handbook of Environmental Chemistry*. Springer Publishing, New York, p. 35.

⁸ Piezometers are constructed to evaluate groundwater elevations using a short screened interval and typically cost less per unit to install than full size monitoring wells.

- Groundwater sampling: reconnaissance shallow groundwater samples will be collected from select direct-push borings and shallow groundwater samples will be collected from the new monitoring wells and analyzed for PFAS by Modified EPA Method 537 to further refine the nature and extent of impacts to shallow groundwater.
- Aquifer testing in shallow and intermediate monitoring wells on the western and northern portions of 175 Newport Way Northwest will be performed to evaluate:
 - Migration pathways between shallow and intermediate groundwater and
 - Hydraulic conductivity,
 - Specific storage, and
 - Transmissivity of the water-bearing zone(s).

The resulting data will be evaluated to identify possible pilot testing for feasible remediation technologies that may include, but are not limited to, hydraulic source control or in situ treatment of source material by direct injection.

Estimated costs assume three (3) shallow monitoring wells and two (2) piezometers in addition to seventeen (17) direct-push borings. Analytical costs assume three (3) soil samples from each direct push boring, ten (10) groundwater samples, and quality control and duplicate samples.

Task 7 Deliverables:

- 1) Draft Additional Characterization Summary Report for 175 Newport Way Northwest due for ECOLOGY review by April 30, 2021.

Report will include:

- Summary figures and tables;
 - Figures drawn to an approximate scale that include groundwater contours and analytical results as appropriate;
 - A preliminary conceptual site model, including updated cross sections for 175 Newport Way Northwest;
 - Identification of data gaps and development of recommendations for additional characterization as appropriate; and
 - A focused evaluation of technically feasible remediation technologies and possible pilot testing for a source remedial action based on the analytical and characterization work performed.
- 2) Final Additional Characterization Summary Report, including ECOLOGY comments, for 175 Newport Way Northwest due to ECOLOGY June 15, 2021.
 - a. This deliverable will be incorporated into the Final Lower Issaquah Valley PFAS Additional Characterization Summary Report as described in Task 5.

Task 8: Groundwater Modeling Evaluation (not currently included in this agreement)

Analytical and aquifer testing results as well as stratigraphic information will be used to update a finite element groundwater fate and transport model (MODFLOW) that will be used to evaluate groundwater flow and behavior on the eastern and western sides of the Lower Issaquah Valley. The ultimate objective of the groundwater model, once fully developed and calibrated to head measurements across the Lower Issaquah Valley, will be used to evaluate the potential performance of future interim remedial actions.

Groundwater model construction, initialization, calibration, and verification will be performed under a separate Interagency Agreement between ECOLOGY and the City of Issaquah. Task 8 includes scope for EFR to review and comment on the MODFLOW model produced by the City of Issaquah as appropriate.

Task 8 Deliverable (not currently included in this agreement)

- 1) MODFLOW Model Review Memorandum.

Task 9: Source Remediation Action Plan

Pending the additional information collected under Tasks 3 through 8 and approval by the Parties, Task 9 includes development of a Source Remediation Action Plan for identified areas of interest. EFR will develop the Source Remediation Action Plan to include an evaluation any material data gaps and whether additional feasibility assessment and/or pilot studies are needed prior to selection of a preferred remedial action.

If adequate information is available to identify a preferred remedial action through an evaluation of alternatives, a summary of the rationale for its selection, and a summary of its implementation including remedial action levels for each target medium and a draft schedule for implementation will be provided as well.

Task 9 Deliverables:

- 1) Draft Source Remediation Action Plan due to ECOLOGY for review by April 30, 2021.
- 2) Final Source Remediation Action Plan, including ECOLOGY comments, due to ECOLOGY by June 15, 2021.

Task 10: Investigation-Derived Waste Disposal (not currently included in this agreement)

Task 10 includes profiling and disposal of investigation-derived waste (IDW) generated as part of the PFAS characterization work. IDW generated will include:

- Drums of soil cuttings,
- Decontamination water, and
- Purge water from monitoring wells.

EFR will ensure that all IDW will be properly removed from the project sites prior to the period of performance end date of this agreement.

Task 10 Deliverables: not ECOLOGY deliverables

- 1) Progress report provided with Executive Committee meeting minutes.
- 2) Confirmation of disposal.

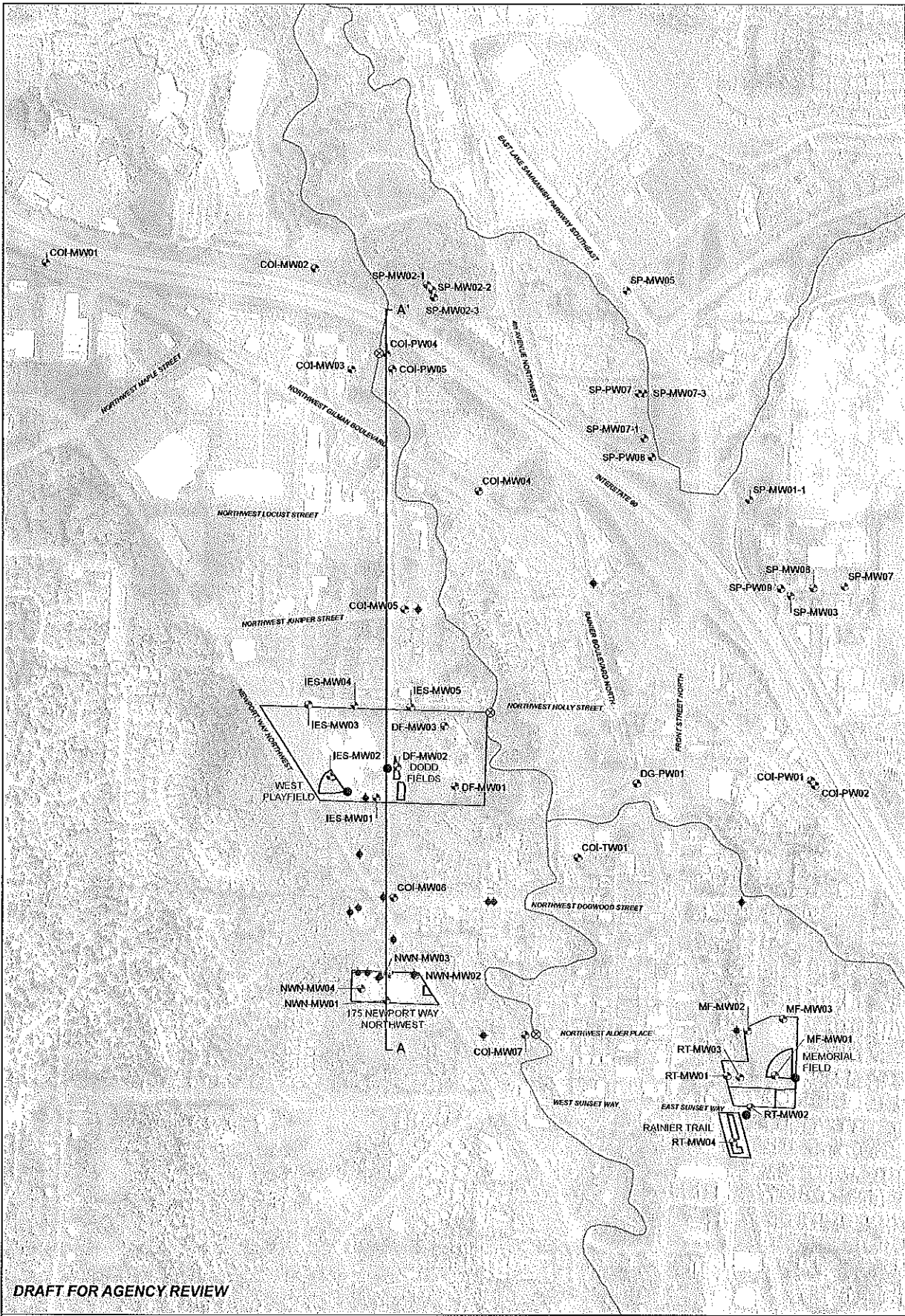
BUDGET

Task	Description	Cost	ECOLOGY funding through IAA
1	Project Management and Communication	\$26,920.00	\$26,920.00
2	Preparation of Work Plan Addendum	\$16,300.00	\$16,300.00
3	Evaluate Vertical Stratification in Groundwater	\$169,000.00	\$169,000.00
4	Quarterly Groundwater Monitoring	\$87,265.00	\$87,265.00
5	Lower Issaquah Valley PFAS Additional Characterization Summary Report	\$32,080.00	\$32,080.00
6	Evaluate Other Potential Source Area	\$4,170.00	\$4,170.00
7	Additional Characterization of 175 Newport Way Northwest	\$97,220.00	\$97,220.00
8	Groundwater Modeling Evaluation	\$10,440.00	\$0.00
9	Source Remediation Action Plan	\$16,060.00	\$16,060.00
10	Investigation-derived Waste Disposal	\$14,380.00	\$0.00
Total			\$449,015.00

SCOPE OF WORK ATTACHMENTS

Including:

- Figure 1 - Lower Issaquah Valley Sampling Locations
- Figure 2 - Cross-Section A-A
- Figure 3 - Proposed Additional Characterization



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LEGEND

- ⊕ PROPOSED PIEZOMETER
- ◆ PROPOSED SHALLOW MONITORING WELL
- ⊕ PROPOSED INTERMEDIATE MONITORING WELL
- ⊕ PROPOSED DEEP MONITORING WELL
- ⊕ SHALLOW MONITORING WELL
- ⊕ INTERMEDIATE MONITORING WELL
- ⊕ DEEP MONITORING WELL
- ⊕ FIRE HYDRANT
- ▭ KING COUNTY PARCEL
- ▭ MIS DECISION UNIT

LINE OF CROSS-SECTION

NOTES
 MIS = MULTI INCREMENTAL SAMPLE
 1. ALL LOCATIONS ARE APPROXIMATE
 2. FIGURES WERE PROVIDED IN COLOR
 GRAYSCALE COPIES MAY NOT
 REPRODUCE ALL ORIGINAL INFORMATION

0 300
 SCALE IN FEET



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California
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Drawn By: Jones Checked By: EB Date: 6/17/2019

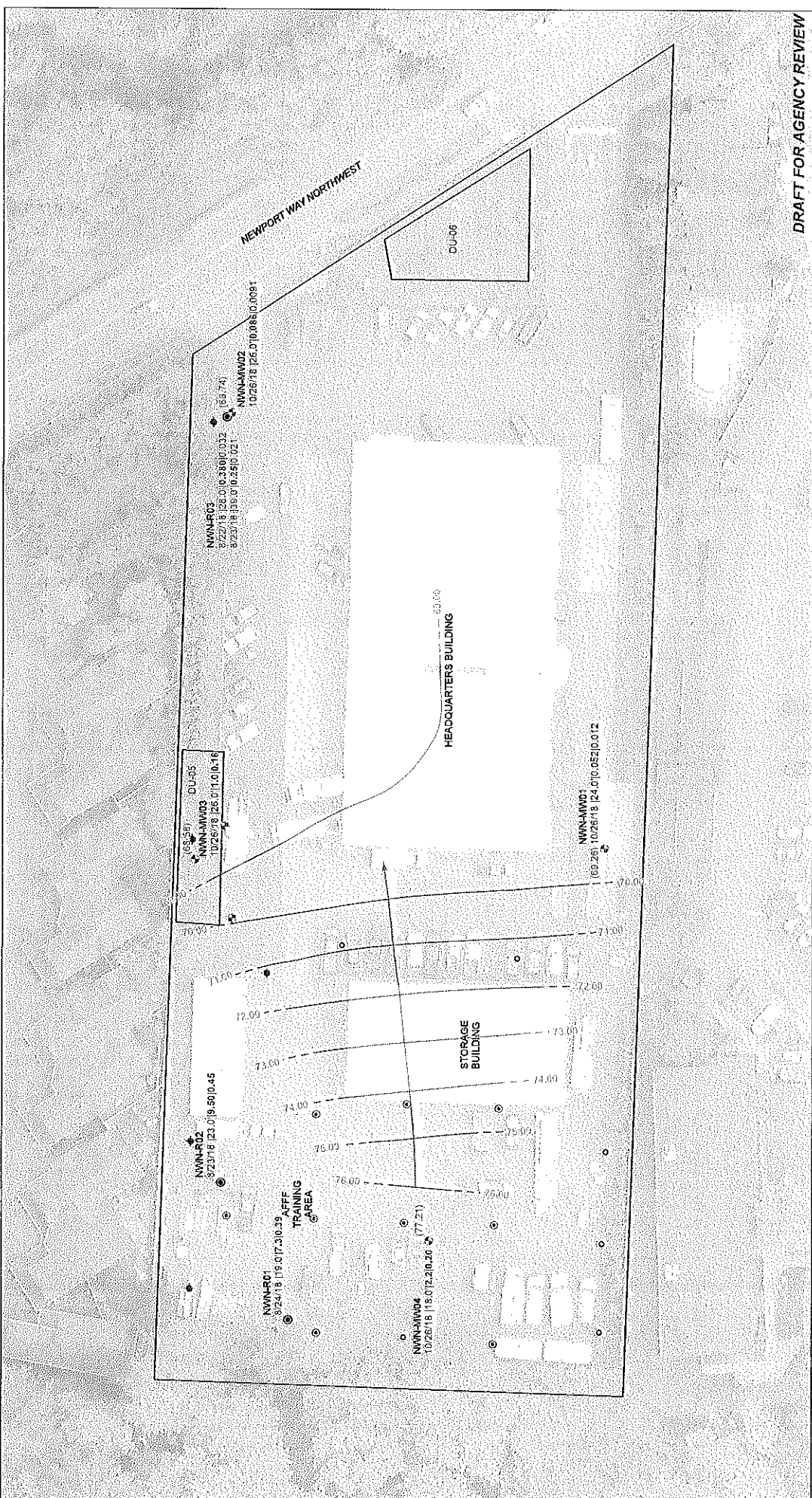
FIGURE 1

**LOWER ISSAQUAH VALLEY SAMPLING LOCATIONS
 PFAS CHARACTERIZATION STUDY
 LOWER ISSAQUAH VALLEY
 ISSAQUAH, WASHINGTON**

FARALLON PN: 1754-002

Disc Reference:
 Disc: 04171911754-002 PFAS L001Tab_001_Regional_Superfund_1754-002_L001Tab_001

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LEGEND

- PROPOSED PIEZOMETER
- PROPOSED BORING - SOIL SAMPLING
- PROPOSED BORING - RECONSTRUCTION
- PROPOSED DEEP AND SHALLOW MONITORING WELL
- PROPOSED INTERMEDIATE MONITORING WELL
- BORING
- SHALLOW MONITORING WELL

NOTES:

- SAMPLE RESULTS HIGHLIGHTED IN GREEN
- TEMPORARY WELL GROUNDWATER REDUCES
- SAMPLE RESULTS HIGHLIGHTED IN RED REPRESENT
- PFAS = PER- AND POLY-FLUOROALKYL SUBSTANCES
- PFOA = PERFLUOROOCTANOIC ACID
- PFOS = PERFLUOROSULFONIC ACID
- SDA = SURFACTANT DETERGENT AGENTS
- BDL = DETECTED CONCENTRATIONS EXCEEDING
- THE APPLICABLE WASHINGTON STATE
- DEPARTMENT OF ECOLOGY
- REGULATORY LIMITS (RFL) OF 1000
- MICROGRAMS PER LITER
- == DENOTES ANALYTE NOT DETECTED AT OR
- BELOW THE APPLICABLE REPORTING LIMIT (RFL)
- 60S = BELOW REPORTING SURFACE

SCALE IN FEET

FIGURE 3

PROPOSED ADDITIONAL CHARACTERIZATION
 175 NEWPORT WAY NORTHWEST
 PHASE 2B REMEDIATION STUDY
 LOWER ISSAQUAH VALLEY
 ISSAQUAH, WASHINGTON

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Washington
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 Portland | Bend | Baker City
 Oakland | Folsom | Irvine

CREATED BY: EP
 DATE: 07/26/17
 DRAWN BY: JRM

Document Path: C:\Projects\175 Newport Way Northwest Remediation\175 Newport Way Northwest Remediation\Figure 3.dwg