



**Cleanup Action Plan  
Illahee Foods  
5507 Illahee Rd NE  
Bremerton, WA 98310**

Prepared for: Mr. Jim Aho  
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June 28, 2018

**G-Logics Project 01-1129-B  
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June 28, 2018  
G-Logics Project 01-1129-B

Mr. Jim Aho  
Port of Illahee  
PO Box 2357  
Bremerton, WA 98310

**Subject: Cleanup Action Plan  
Illahee Foods  
5507 Illahee Rd NE  
Bremerton, WA 98310**

Dear Mr. Aho:

G-Logics is pleased to present this *Cleanup Action Plan (CAP)* for the above-referenced property (the “Property”). This plan describes the intended actions necessary to conduct the excavation and off-site disposal of petroleum-contaminated soils at the Property. The proposed work is to be conducted in accordance with the Model Toxics Control Act (MTCA) regulations and the Washington Pollution Liability Insurance Agency’s (PLIA) Revolving Loan and Grant Program. An *Engineering Design Report (EDR)* has been prepared as a supporting document and is provided separately (also dated June 28, 2018). A *Sampling and Analysis Plan, Compliance-Monitoring Plan, and Cleanup Contingency Plan*, as referenced in this document, are included as appendices of the EDR.

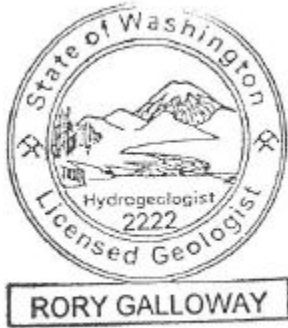
This CAP has been prepared in partial fulfillment of the requirements for the Property’s enrollment in PLIA’s Revolving Loan and Grant Program. This CAP will be submitted to PLIA with the understanding that the identified remedial action(s) meet the substantive requirements for cleanup actions under Washington’s MTCA, specifically WAC 173-340-360.

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Should you have additional questions, please contact us at your convenience. Thank you again for this opportunity to be of service.

Sincerely,

**G-Logics, Inc.**



A handwritten signature in cursive script that reads "Rory Galloway".

Rory L. Galloway, LG, LHG  
Principal

A handwritten signature in cursive script that reads "Dan Hatch".

Dan Hatch, PMP  
Remediation Manager

A handwritten signature in cursive script that reads "Anna J. Jordan".

Anna J. Jordan, LG  
Project Geologist

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## ACRONYMS AND ABBREVIATIONS

ARARs	Applicable or Relevant and Appropriate Requirements
CAP	Cleanup Action Plan
COC	Contaminant/Chemical of Concern
Ecology	Washington State Department of Ecology
EDR	Engineering Design Report
GRO	Gasoline-Range Organics
MTCA	Model Toxics Control Act
PLIA	Pollution Liability Insurance Agency
PPA	Preliminary Planning Assessment
PTAP	Petroleum Technical Assistance Program
UST	Underground Storage Tank
WAC	Washington Administrative Code

## EXECUTIVE SUMMARY

G-Logics understands the Port of Illahee (Client) intends to perform an Independent Remedial Action for the Property located at 5507 Illahee Rd NE in Bremerton, Washington. This cleanup would be performed in accordance with Washington Department of Ecology (Ecology) and Model Toxics Control Act (MTCA) regulations and guidance. This approach is encouraged by the Washington Pollution Liability Insurance Agency (PLIA) under their Petroleum Technical Assistance Program (PTAP). This *Cleanup Action Plan* (CAP) addresses the general requirements (performance specifications) for this remediation and restoration work at this Site.

The Property is identified as Illahee Foods, which is a former convenience store and gasoline station. Explorations have been conducted to assess the presence, nature, and extent of gasoline and benzene contamination on the eastern portion of the Property due to releases from underground storage tanks (USTs). Based on the compiled information, soil and groundwater contamination exists in the area of the current USTs. Remediation of these areas is to include excavation of contaminated soils with subsequent offsite disposal of the excavated materials. Upon the successful removal of these soils, the Port of Illahee intends to redevelop the Property as a community center.

The proposed excavation work on the Property likely would extend onto the adjacent right-of-way. Kitsap County, who owns the right-of-way to the east of the Property, and the Port of Illahee agree that a simple excavation of soils likely would satisfy the cleanup goals of both parties. We understand Kitsap County supports the excavation into the right-of-way to facilitate this Site cleanup. This CAP presents a description of the scope of work and rationale for the proposed remediation.

## **1.0 INTRODUCTION**

This document is the *Cleanup Action Plan (CAP)* for the Illahee Foods Site located at 5507 Illahee Rd NE in Bremerton, Washington (Figure 1). This CAP was prepared in accordance with Washington Administration Code (WAC) 173-340-380, and Washington Department of Ecology (Ecology) CAP checklist (Publication No. 16-09-008), dated May 2016. Additionally, the cleanup approach presented in this document is based on information provided in G-Logics *Preliminary Planning Assessment (PPA)*, dated October 10, 2017 (discussed in Section 1.2.2 of this report).

We understand that the Port of Illahee intends to purchase the Property, remove the existing underground storage tanks (USTs), and conduct the necessary cleanup work. To fund this work, the Port of Illahee has applied to the Pollution Liability Insurance Agency (PLIA) Revolving Loan and Grant Program. This CAP is intended to satisfy the documentation requirements for PLIA.

For the purposes of this document, the “Property” refers to the legal parcel that is to be purchased by Port of Illahee located at 5507 Illahee Rd NE, in Bremerton, WA (Figure 2). The “Site” refers to all areas of soil, groundwater, and/or soil vapor that have been impacted with petroleum hydrocarbons originating from the Property (Figures 3 and 4).

### **1.1 Purpose**

The purpose of the CAP is to identify the proposed cleanup action for the Site and to provide an explanatory document for public review. Specifically, this CAP provides the following information.

- Description of the Property and Site.
- Summary of current site conditions.
- Description of the proposed cleanup action for the Site.
- Presentation of cleanup standards (cleanup levels and points of compliance).
- Discussion of monitoring requirements (protection, performance, and confirmation).
- Schedule for the proposed cleanup work.



## **1.2 Previous Studies**

Historical releases of gasoline from the property's UST systems are understood to have occurred. Two previous environmental reports have been prepared and are summarized below. Sampling locations for previous and recent Site explorations are shown on Figure 2. Analytical data for soil and groundwater is presented in Tables 1 and 2, respectively. Groundwater-elevation measurements for the conducted explorations are presented in Table 3.

### ***1.2.1 Site Investigation Report, December 28, 2016***

G-Logics understands that in 2016, Langseth Environmental, Inc. (Langseth) completed five borings to depths ranging from 6 to 13 feet, in areas adjacent to the current USTs and pump-island (Figure 2). Soil samples were analyzed for gasoline-range organics (GRO), benzene, toluene, ethylbenzene, and xylene (BTEX), and lead. In collected soil samples, GRO was found above Model Toxics Control Act (MTCA) Method A Cleanup Levels (see Section 1.3 for a discussion of MTCA evaluation criteria). These samples, summarized in Table 1, were collected from two of the borings (B-4 and B-5, Figure 2) located to the east of the existing USTs. Groundwater reportedly was not encountered during drilling.

### ***1.2.2 Preliminary Planning Assessment, October 10, 2017***

G-Logics recently completed a Preliminary Planning Assessment (PPA), which provides the basic elements of a Remedial Investigation and Focused Feasibility Study for the Site. Specifically, the PPA includes information regarding the characterization of contamination and the review/selection of cleanup actions.

As part of the PPA work, G-Logics advanced eight borings to depths ranging from 6 to 15 feet below the ground surface (Figure 2). Four of the borings were completed as permanent monitoring wells (GLMW-1 through GLMW-4). GRO and/or BTEX compounds were detected above cleanup levels in soil and groundwater samples collected from GLMW-2 and GLMW-3 (Tables 1 and 2). Contaminants of concern were not identified above the laboratory reporting limits in soil or groundwater collected from the other borings.

### **1.3 Recent Environmental Investigations**

In April of 2018, a geotechnical study was completed to support a structural support design for shoring of the building during the proposed remedial excavation activities. A description of our site-exploration methods is presented in Appendix A. Boring logs are provided in Appendix B. G-Logics performed additional Site-characterization work concurrently with the geotechnical study.

G-Logics field screened and collected soil samples from one of the two geotechnical borings installed between the existing building and USTs (Figures 2 and 3). The sampled boring was located near the west end of the northern UST. Site contaminants were not detected at laboratory-reporting limits in the collected soil samples (Table 1). Groundwater samples also were collected from three of the existing monitoring wells, downgradient of the USTs. GRO was detected at concentrations above cleanup levels in well GLMW-3 (Table 2). No contaminants of concern were detected above the laboratory reporting limits in samples from GLMW-2 and GLMW-4.

### **1.4 Regulatory Framework**

The proposed remediation work will be conducted as an Independent Cleanup Action in accordance with MTCA and other local, state, and federal regulations, as appropriate. Additionally, remediation activities will be coordinated with PLIA under the Petroleum Technical Assistance Program (PTAP). It is G-Logics understanding that there are no other regulatory actions or reviews (i.e., SEPA, CERCLA, etc.) being performed on the Site at the time of this report. However, for the proposed work, other regulatory requirements may apply, including one or more of those listed in Section 4.4 of this CAP.

## **2.0 PROPERTY AND SITE DESCRIPTION**

The subject Property is in Kitsap County near the City of Bremerton, Washington (Figure 1). According to tax-assessor records, the Property is 0.15 acres and is currently occupied by a vacant 1,600 square foot structure. The tax-assessor records state that no gasoline dispensers currently are present at the Property. Site and Property information is further presented below.

**Site Name:** Illahee Foods

**Site Address:** 5507 Illahee Road NE

**Facility/Site No.:** 79247626

**Quarter Section Township Range:** SW Quarter, Section 31, T25N, R2E

**Tax Parcels:** 4429-015-001-0309

**Zoning Designation:** Neighborhood Commercial

**CS ID:** 14022

**PLIA PTAP Project No.:** Not Assigned

## **2.1 Property History**

The Property currently is vacant, but historically was occupied by two generations of gasoline stations and a convenience market. Figure 2 shows the approximate location of current and former site features, including USTs and the associated dispenser island. Retail operations, including fueling, have not been operational on the property since 2003.

Mr. Jim Aho, with the Port of Illahee, stated that the former market and station were constructed on the property prior to World War II, with the former UST located on the northwest portion of the Property. The original dispenser was located near the eastern boundary of the Property. Mr. Aho also stated a second dispenser was installed in the same area for leaded gasoline in the mid-1940s. No information regarding a second tank for storage of leaded gasoline was identified or provided during the PPA.

Currently, the building, a septic tank, three USTs, associated underground piping, and the foundation of the fueling island remain on the Property. The ground surface is largely covered with asphalt and concrete pavement. The locations of these fuel-system components are shown on Figure 2.

Historical records for the Property indicate that the existing building was constructed in 1979, and the three existing USTs were installed in 1980. According to Mr. Aho, remaining product reportedly was removed from the USTs in approximately 2003.

## **2.2 Cleanup Standards**

As part of cleanup standards identified by MTCA, contaminants of concern and applicable cleanup levels are discussed in this section.

### **2.2.1 MTCA Evaluation Criteria**

The MTCA regulations guide the remediation process at sites located within Washington. The regulations implementing MTCA are in the WAC, Chapter 173-340. MTCA “establishes administrative processes and standards to identify, investigate, and cleanup facilities where hazardous substances have come to be located” (WAC 173-340-100).

### **2.2.2 Contaminants of Concern**

Site contaminants include GRO and benzene in soil and groundwater, both found at concentrations above MTCA Method A Cleanup Levels. Analyzed samples also occasionally detected related contaminants (e.g., diesel), but GRO and benzene have been identified as the primary contaminants of concern (COCs) for the Site.

### **2.2.3 Cleanup Levels**

MTCA regulations list prescriptive, numerical “Method A Cleanup Levels” that “provide conservative cleanup levels for sites with relatively few hazardous substances.” MTCA Method A cleanup levels are applicable for soil and groundwater contaminants and satisfy the remedial objectives for this Site. The cleanup levels for the Site COCs are listed in Tables 1 and 2. These cleanup levels are considered conservative and are understood to be protective of direct-contact, ingestion pathways, and groundwater (for drinking-water uses).

The MTCA Method A cleanup levels have been established for unrestricted land use in accordance with WAC 173-340 and can be found in Tables 740-1 (soil) and 720-1 (groundwater). Accordingly, soil cleanup levels of 30 mg/kg for GRO and 0.03 mg/kg for benzene have been identified for the Site. Cleanup levels of 800 µg/L for GRO and 5 µg/L for benzene have been identified for groundwater at the Site.

Depending on the cleanup action(s) performed at the Site, the vapor-intrusion pathway may need to be assessed after remedial work is complete. Specifically, if petroleum contaminants remain on the property within 30 feet of an occupied building, a petroleum vapor-intrusion assessment would be required. If necessary, soil-vapor samples collected on the Property would be compared to MTCA Method B indoor-air cleanup levels. In addition, soil-vapor samples collected during this assessment would be analyzed for BTEX, naphthalene, and total-petroleum hydrocarbons (TPH) and compared to the TPH cleanup level presented in Ecology’s *Implementation Memorandum No. 18*, dated January 10, 2018.

#### **2.2.4 Points of Compliance**

Points of compliance are the locations where the soil, groundwater, and/or soil-vapor concentrations do not exceed the cleanup levels for the Property. The points of compliance for soil, groundwater, and soil vapor for this Property are listed below.

- For the protection of human exposure via direct contact, a standard point of compliance of fifteen feet will be used unless engineering and/or institutional controls are used to limit contact (e.g., concrete slab, etc.).
- For the protection of groundwater, soil compliance will be throughout the Property.
- For protection of drinking water, a standard groundwater point of compliance will be used and will extend vertically from the uppermost level of the saturated zone to the lowest depth potentially affected. Depth to groundwater in this area is approximately 6 feet.
- For the protection of soil vapors, soil compliance will be throughout the Property from the ground surface to the uppermost groundwater saturated zone.

### **2.3 Human Health and Environmental Concerns (Updated Conceptual Site Model)**

A Conceptual Site Model (CSM) originally was presented as part of G-Logics 2017 PPA. As described in Section 1.3 above, G-Logics performed additional Site characterization in April 2018. Based on the recent work and previously conducted explorations, an updated CSM has been developed.

Based on the environmental explorations conducted at the Site, petroleum contamination is present in soil and groundwater at the Site. As discussed above, GRO and benzene are understood to be the primary COCs and have been detected in soil and groundwater in the eastern portion of the Property. Other petroleum contaminants (e.g., toluene, ethylbenzene, and xylenes) have been locally detected, but are incidental to the COCs.

#### **2.3.1 Nature and Extent of Contamination**

Based on samples collected from the Site, releases appear to have occurred in the area of the USTs, migrated down to the water table and to the east (Figure 5). Information from wells GLMW-2 and GLMW-3 indicate soil and groundwater contamination has not been completely defined along the eastern Property boundary, where contaminant concentrations

were detected slightly above cleanup levels. The estimated extent of soil and groundwater contamination is shown on Figures 3, 4, 6, 7, and 8. Groundwater in this area is present at a depth of approximately 6 feet. Given the low contaminant concentrations and site geology, as shown in the cross-sections (Figures 6 through 8), it is anticipated that site contaminants rapidly attenuate to below cleanup levels near the eastern Property boundary.

### ***2.3.2 Exposure Pathways***

Per the PPA, contaminated soils at this Site are covered by pavement and not present at the ground surface. Contact with contaminated media could occur during development excavations and/or utility-maintenance activities. However, the magnitude and duration of such exposure would be limited. Additional protective equipment also could be worn, if needed during any construction activities.

An exposure pathway also exists for contaminant soil vapors to migrate into the on-Property building, via vapor intrusion. However, it is understood that this building is vacant, therefore an exposure risk currently does not exist. Future site conditions (once remedial activities have been performed) may require reassessment of the vapor-intrusion pathway.

Dust and soil-vapor inhalation exposures could potentially occur to workers during development/maintenance excavations at the Site. However, the magnitude and duration of such exposure would be limited. Specifically, excavations would be open to the atmosphere and/or mechanically-ventilated, thereby reducing potential vapor exposure to workers. Additional protective equipment also could be worn if needed.

Based on the current and probable future use of the Site, human ingestion and dermal contact with contaminated groundwater is not expected to occur. Specifically, the Site and surrounding areas are served by municipal water. According to the Ecology online well-log database, drinking-water supply wells are not located within the Site or in downgradient locations. Direct contact with contaminated groundwater could occur during development excavations and/or utility-maintenance activities.

Summarizing, there are no current exposure pathways at the Site. However, during construction and redevelopment of the Property, the following exposure pathways may be present.

- Inhalation of contaminants volatilized from soil vapor.
- Dermal contact with, inhalation of, and ingestion of soil particulates.
- Dermal contact with, and ingestion, of groundwater.

### **3.0 CLEANUP ACTION ALTERNATIVES AND ANALYSIS**

This Cleanup Action Plan document details the selected cleanup action presented in G-Logics PPA. The selected cleanup action(s) needs to meet the remedial objectives for the Site, which include the protection of human health and the environment and compliance with MTCA and other regulatory requirements. Site-specific remedial objectives also include the following.

- Protection from direct contact and ingestion of contaminated soil
- Protection of groundwater for drinking-water use
- Protection of indoor air quality

Based on the remedial objectives and the analysis presented in the PPA, G-Logics recommended removal of the USTs and over-excavation of contaminated media as the selected cleanup action for the Site. As described in the PPA, soil and groundwater contamination was found in close proximity to the USTs. The planned removal of the USTs and over-excavation of contaminated media, extending into public right-of-way areas, was selected for use. As part of this work, appropriate disposal of removed media and collection of confirmation samples should satisfy the cleanup requirements under MTCA. This approach also is consistent with Model Remedy No. 1 for Sites with Petroleum Impacts to Groundwater (Ecology Publication No. 16-09-057, dated May 2016, revised December 2017). Because this remedial action is a model remedy, a formal feasibility study was not required. The selected remedy is described in detail in Section 4.0 of this report.

## **4.0 DESCRIPTION OF SELECTED REMEDY**

Because soil and groundwater contamination were found near the USTs, G-Logics recommended removal of the USTs and over-excavation of contaminated media as the selected remedy. As stated above, this approach is consistent with Model Remedy No. 1 for Sites with Petroleum Impacts to Groundwater. The selected remedy is described in detail below.

### **4.1 Site Boundary Description**

Figure 2 presents the Property boundary. Figures 3 and 4 present the interpreted extent of soil and groundwater contamination, respectively, which represent the Site boundary. Figure 9 of this report shows the approximate aerial extent of the remedial excavation. Based on site characterization efforts, G-Logics recommends that the soils within the affected area be removed to a depth of approximately 10 feet. Groundwater, if encountered in the excavations, also would be removed as part of the proposed cleanup action (described in Section 4.2 below).

A summary of the proposed cleanup actions for the Property/Site are presented below. A separate *Engineering Design Report* (EDR) has been prepared for use by remediation contractors for the construction portion of the proposed cleanup action. Further details are provided in the accompanying EDR.

### **4.2 Description of the Cleanup Action**

Based on the current understanding of site conditions, the site-contamination issues can be addressed by excavation and off-site disposal of petroleum-contaminated media. As part of the proposed cleanup action, three of the existing monitoring wells (GLMW-2, GLMW-3, and GLMW-4) will be decommissioned (Figure 9). Additionally, three identified USTs would be removed per WAC 173-360 and Ecology Publication Nos. 010-158 and 020-94. In accordance with MTCA requirements, cleanup actions must meet the requirements outlined in WAC 173-340-360(2). Described below is a five-step approach which would meet the intent of these requirements.



1. Prepare MTCA-compliant project workplans and documents for review and approval by all interested parties. These documents include the following.
  - *Cleanup Action Plan* (this document).
  - *Engineering Design Report* (EDR).
    - *Compliance Monitoring Plan* (CMP).
    - *Sampling and Analysis Plan* (SAP).
    - *Cleanup Contingency Plan* (CCP).
    - *Solicitation for Bid*.
2. Decommission three groundwater-monitoring wells (GLMW-2, GLMW-3, and GLMW-4) located in the proposed remedial-excavation area.
3. Remove the identified USTs and any associated piping and/or equipment, including the dispenser island.
4. Excavate contaminated soils to the planned lateral and vertical extent. Collect confirmation samples in these areas. Dispose/treat contaminated soils off property at an approved facility. Groundwater, if encountered in the excavation, may require removal and proper disposal/treatment at an offsite facility.
5. Prepare a comprehensive Cleanup Action Report. Submit the report to PLIA with the request for No Further Action-Determination.

The proposed remedial activities are described in detail in our separate EDR and its appendices. Confirmation soil and groundwater samples would be compared to the MTCA Method A Cleanup Levels, as discussed in Section 2.2.3 of this CAP.

### **4.3 Confirmation Sampling and Points of Compliance**

Confirmation soil and groundwater samples would be collected at the points of compliance established for the Property (as described in Section 2.2.4). For soil, confirmation samples would be collected at all excavation boundaries, which represent the points of compliance at the excavation wall and floor areas (further described in the EDR and its appendices). The estimated excavation margins are shown on Figure 9.

For groundwater, compliance would be monitored with the installation of three new groundwater-monitoring wells. After the cleanup work is completed, two wells would be placed off-Property in downgradient locations (east of the Property) and one would be placed in the former UST area. The proposed locations for new monitoring wells are shown on Figure 9.

Currently, the excavation is primarily located within the Property boundary, with the eastern margin extending approximately 5 feet into the adjacent right-of-ways. The intent of the proposed cleanup work is to achieve cleanup levels for unrestricted land-use. Based on discovered site conditions at time of excavation, additional actions may be considered/implemented, as described in Section 4.6.4 below.

#### **4.4 Applicable, Relevant and Appropriate Requirements**

The MTCA regulations require that site cleanups comply with other applicable state and federal laws (Applicable or Relevant and Appropriate Requirements or ARARs).

Accordingly, other potentially applicable regulatory requirements for a cleanup action at this Site include the following.

- The Federal Clean Water Act (33 USC Section 1251).
- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 40 CFR 300.
- The Resource Conservation and Recovery Act (RCRA), 40 CFR 239-282.
- USDOT Hazardous Materials Regulations (HMR), 40 CFR 100 through 185.
- The Toxic Substances Control Act (TSCA), 15 USC Section 2601.
- The Occupational Safety and Health Act (OSHA) (Part 1910 of Title 29 of the Code of Federal Regulations, 29 CFR 1910).
- Washington's Dangerous Waste Regulations (Chapter 70.105 RCW; Chapter 173-303 WAC).
- Washington's Solid Waste Handling Standards (Chapter 173-350 WAC).
- Water Quality Standards for Groundwaters of the State of Washington, Chapter 173-200 WAC.
- Federal and State Clean Air Acts (42 USC 7401 et seq.; 40 CFR 50; RCW 70.94; WAC 173-400, 403).

- The State Environmental Policy Act (SEPA) (RCW 43.21C; WAC 197-11).
- Washington’s General Occupational Health Standards (WAC 296-62).
- Washington’s Safety Standards for Construction Work (WAC 296-155).
- Minimum Standards for Construction and Maintenance of Wells (WAC-173-160).
- Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action, Review Draft, October 2009, Publication Number 09-09-047.
- Technical Guide For Addressing Petroleum Vapor Intrusion At Leaking Underground Storage Tank Sites, (U.S. Environmental Protection Agency, June 2015).
- Native American Graves Protection and Repatriation Act (NAGPRA), 43 CFR 10.
- Archaeological Resources Protection Act (ARPA), 16 US Code Chapter 1B.
- Regulations, codes, and permits from local cities and counties (e.g., Water Quality, Road Closure, etc.).

#### **4.5 Restoration Timeframe**

It is anticipated that the described remedial efforts would require 16 to 20 months after receipt of the PLIA loan and/or grant. This timeframe considers the following.

- Solicitation and receipt of bids.
- Application and receipt of permits.
- Acquire geotechnical and structural engineering designs.
- Perform remedial work.
- Conduct soil and groundwater compliance monitoring. Groundwater monitoring will be performed quarterly for at least one year.
- Complete cleanup action reporting.

#### **4.6 Compliance Monitoring**

This section summarizes the compliance-monitoring approach for the Site. Further details are provided in the EDR and its appendices.

#### ***4.6.1 Construction Monitoring***

Remediation activities, including soil and groundwater conditions, would need to be observed and documented by a qualified environmental consultant. Additionally, the proposed remedial work will require the excavation, handling, loading, transportation, and disposal of contaminated soils by a qualified environmental contractor.

#### ***4.6.2 Sample Collection and Analysis***

During the remedial excavation, soil samples would be collected to assess remediation progress. Upon completion of the proposed remedial excavation, the qualified environmental consultant would collect confirmation soil samples from the base and sidewalls of the excavation. Further details are provided in the separate EDR.

Based on prior measurements from groundwater-monitoring wells, groundwater is located on the Property at a depth of approximately 6 feet. Accordingly, it is anticipated that groundwater would be encountered during proposed excavation work. If necessary, encountered groundwater will be removed from the excavation and properly disposed offsite.

As described above, three new monitoring wells would be installed as part of the compliance monitoring. It is expected that at least four quarters of groundwater monitoring would be performed after the completion of the remedial activities.

At this time, the collection of soil-vapor or indoor-air samples is not required. However, a change in land use and/or future site conditions may require reassessment of the vapor-intrusion pathway.

#### ***4.6.3 Quality Assurance/Quality Control***

Quality Assurance/Quality Control (QA/QC) would include generally accepted procedures for sample collection, storage, tracking, documentation, and analysis as discussed in the EDR and its appendices.

#### ***4.6.4 Contingency Plan***

If soil contamination is found at the proposed excavation margins and/or depths at concentrations above the identified cleanup levels, additional soil excavation or other alternative remedial methods may be performed. If on-Property groundwater contamination

remains after the planned remedial work, additional actions also may be performed. A contingency plan identifying and discussing these methods are presented in G-Logics EDR and its appendices. Additional remedial work would be performed upon the discretion of the client representative and the property owner.

#### **4.7 Schedule and Estimated Cost for Implementation**

With the completion of the CAP, EDR, and supporting appendices/documents, it is understood that the tasks to implement the proposed remedial action are as follows.

- Two to three months to acquire contractor bids.
- Two to three months to apply and receive permits and complete the structural and engineering designs.

With the completion of these project-coordination tasks, it is anticipated that the proposed remediation work can begin within 4 to 6 months of receipt of the PLIA loan and/or grant. Groundwater monitoring also would be performed quarterly for at least one year as part of the planned remedial action. Again, the total restoration timeframe is anticipated to be 16 to 20 months after funding, as discussed in Section 4.5.

The costs for well decommissioning, tank closure, and contaminated media removal (and related effort) are estimated to be \$540,000. Calculations for this estimate are summarized in Table 4.

#### **4.8 Institutional/Engineering Controls**

Based on existing Site information, residual contamination is not expected to remain after cleanup. Therefore, it is not currently anticipated that institutional/engineering controls would be needed for this Site. If needed, institutional/engineering controls are discussed in the EDR and its appendices.

#### **4.9 Public Participation**

It is understood that PLIA will distribute this draft CAP (and related documents) for public review per WAC 173-340-600(13). If extensive comments are received on the draft CAP, it may be appropriate to provide a summary of the questions and detailed responses with the final CAP.

#### **4.10 Engineering Design Report and Solicitation for Bid**

It is understood that this CAP, the EDR, and the supporting documents will be provided to PLIA for their review and approval. With the approval of these documents and project funding, bid solicitations can be requested from qualified environmental contractors.

#### **4.11 Site Restoration**

With the completion of the remedial work, the Property will be restored to pre-excavation conditions. This includes the repair/replacement of utility lines requiring removal prior to excavation. Paving and/or landscape also should be restored to pre-excavation conditions. Further details regarding site restoration are presented in G-Logics EDR and appendices.

### **5.0 LIMITATIONS**

G-Logics has prepared this Cleanup Action Plan in accordance with the generally accepted standards of care that exist in the state of Washington at the time of this work. Since remediation technologies and regulations beyond our control could change at any time after the completion of this plan, our observations, findings and opinions can be considered valid only as of the date of the plan.

G-Logics assumes no responsibility or liability whatsoever for any claim, loss of property value, damage, or injury which results from pre-existing hazardous materials being encountered or present on the project site, or from the discovery of such hazardous materials.

No warranty, either express or implied, is made.

## 6.0 REFERENCES

Washington Department of Ecology, January 2018, *Petroleum Vapor Intrusion (PVI): Updated Screening Levels, Cleanup Levels, and Assessing PVI Threats to Future Buildings (Implementation Memorandum 18)*. Washington State Department of Ecology Publication No 17-09-043.

Washington Department of Ecology, December 2017, *Model Remedies for Sites with Petroleum Contaminated Soils*. Washington State Department of Ecology Publication No 15-09-043.

Washington Department of Ecology, December 2017, *Model Remedies for Sites with Petroleum Impacts to Groundwater*. Washington State Department of Ecology Publication No 16-09-057.

Washington Department of Ecology 2016 CAP Checklist

Washington Department of Ecology, 2016, *Guidance for Remediation of Petroleum Contaminated Sites*, Washington State Department of Ecology Publication No 10-09-057.

Washington Department of Ecology, 2001, *The Model Toxics Control Act Cleanup Regulation*, chapter 173-340 WAC: Olympia, Wash., Washington State Department of Ecology Publication No 94-06, Amended November, 2007, Revised 2013.

Site reports identified in Section 1.2 of this document.

# FIGURES



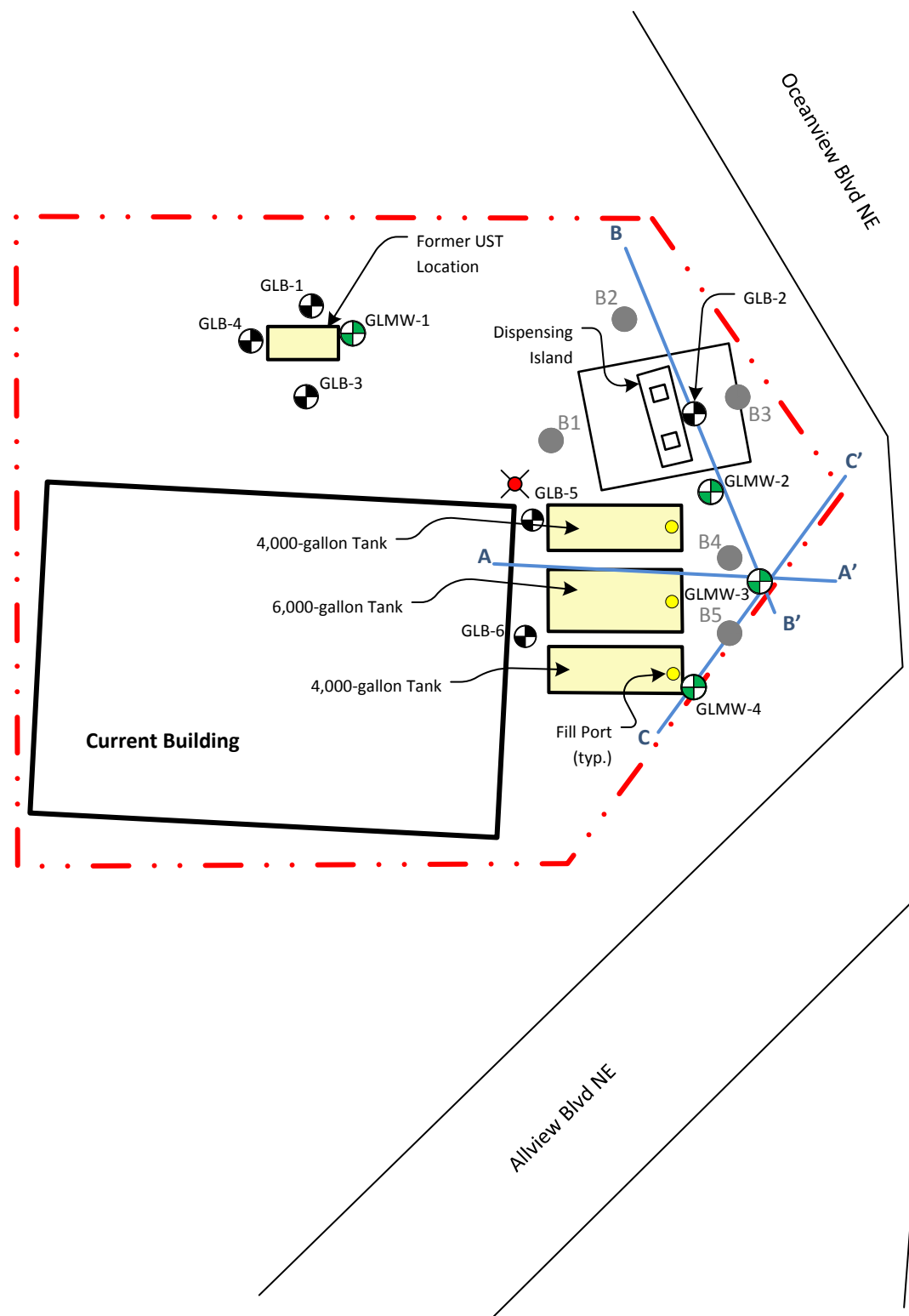


Project File: 01-1129-B F1.vsd

*g-logics*

**Site Location Maps**  
**Illahee Foods**  
**5507 Illahee Rd NE**  
**Bremerton, Washington**

**Figure**  
**1**



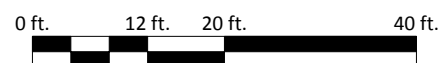
**Legend**

- Property Line
- Building Outline
- Underground Storage Tanks
- Langseth Boring Locations
- G-Logics Monitoring Well Locations
- G-Logics Boring Locations
- Cross-Section Location
- Selected Elevation Reference Point

Project File: 01-1129-B F2.vsd



Approximate Drawing Scale: 1" = 20'

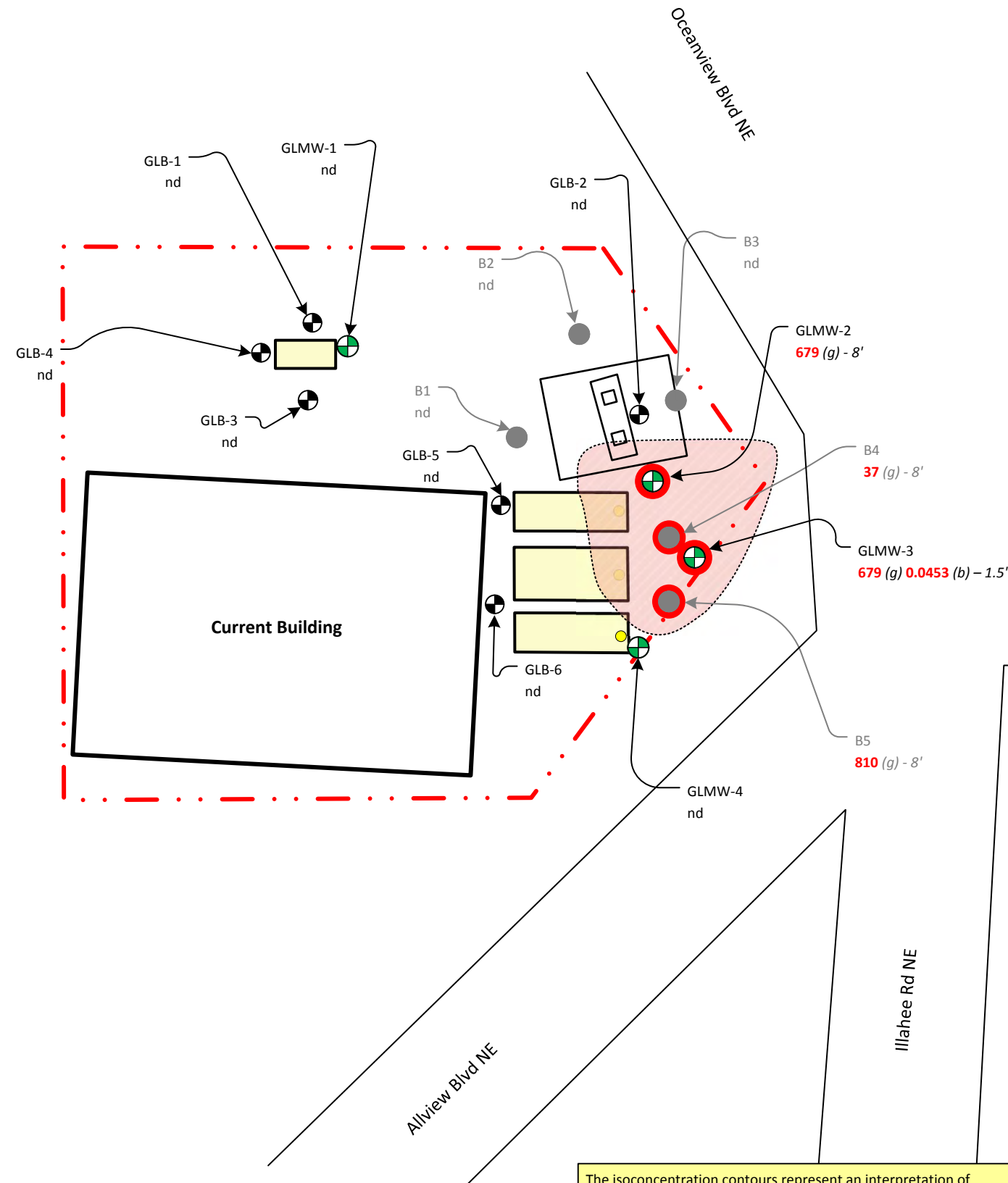


Note: This figure contains information in color. Black & white photocopies may not be suitable for review.

**Site Diagram, Exploration Locations**

**Illlahee Foods**  
**5507 Illahee Rd NE**  
**Bremerton, WA**

**Figure**  
**2**



### Legend

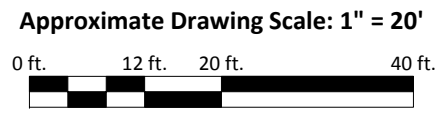
- Property Line
- Building Outline
- Estimated Area of Soil Contamination
- Current or Former Underground Storage Tanks
- Langseth Boring Locations
- G-Logics Monitoring Well Locations
- G-Logics Boring Locations
- Contaminant Concentrations Detected Above MTCA Cleanup Level

### Sample Legend

- Sample Identification
- Sample Depth (in feet)
- Reported Concentration
- Gasoline (g) Concentrations (mg/kg) (See Table 1 in Appendix A for complete list of results)
- Benzene (b) Concentrations (mg/kg) (See Table 1 in Appendix A for complete list of results)

The isoconcentration contours represent an interpretation of available data. These contours may change with additional measurements and/or data points, remedial efforts, natural attenuation, and/or other influences.

Note: This figure contains information in color. Black & white photocopies may not be suitable for review.



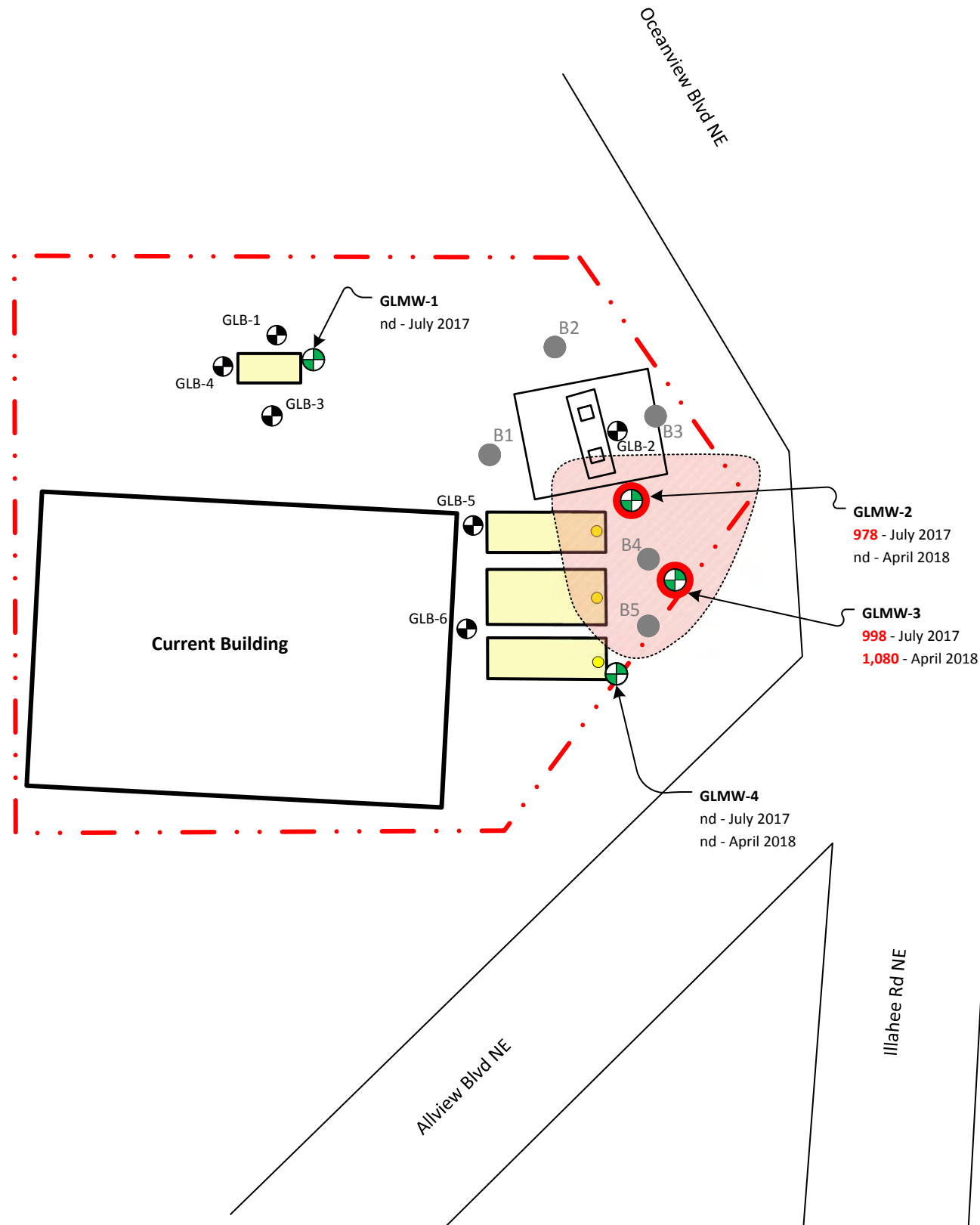
**Exploration Locations with Soil Concentrations**  
**Illahee Foods**  
**5507 Illahee Rd NE**  
**Bremerton, WA**

**Figure**  
**3**

Project File: 01-1129-B F3.vsd







### Legend

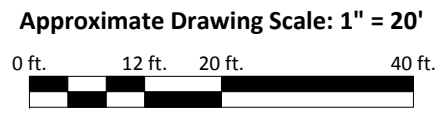
- Property Line
- Building Outline
- Estimated Area of Contamination
- Current or Former Underground Storage Tanks
- B4 Langseth Boring Locations
- GLMW-1 G-Logics Monitoring Well Locations
- GLB-1 G-Logics Boring Locations
- 998 Contaminant Concentrations Detected Above MTCA Cleanup Level

### Sample Legend

- GLMW-1 Sample Location
- 998 Gasoline Concentrations (ug/L)  
(See Table 2 in Appendix A for complete list of results)

The isoconcentration contours represent an interpretation of available data. These contours may change with additional measurements and/or data points, remedial efforts, natural attenuation, and/or other influences.

Note: This figure contains information in color. Black & white photocopies may not be suitable for review.

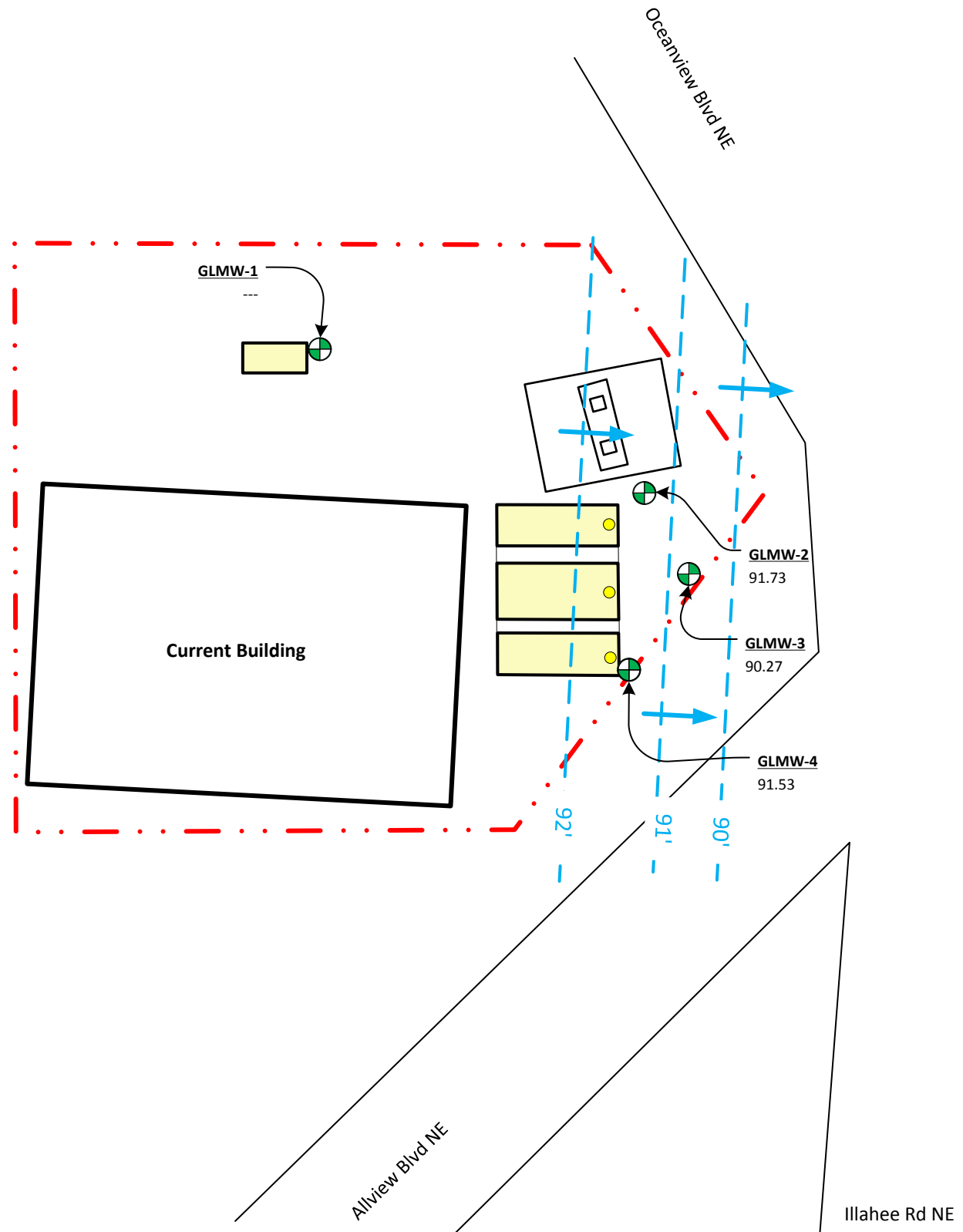


**Exploration Locations with Groundwater Concentrations**  
**Illahee Foods**  
**5507 Illahee Rd NE**  
**Bremerton, WA**



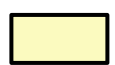



**Figure**  
**4**

Project File: 01-1129-B F4.vsd





**General Figure Symbols**

-  Property Line
-  Building Outline
-  Underground Storage Tanks
-  G-Logics Monitoring Well Locations
-  Interpreted GW Elevation Contour
-  Interpreted GW Flow Direction

Project File: 01-1129-B F5.vsd



Approximate Drawing Scale: 1" = 20'  
 0 ft. 12 ft. 20 ft. 40 ft.

The contours represent an interpretation of available data, for the indicated date. These contours may change with additional measurements and/or data points, remedial efforts, natural attenuation, and/or other influences.

Note: This figure contains information in color. Black & white photocopies may not be suitable for review.

**Groundwater Contours, 4/26/2018**  
 Illahee Foods  
 5507 Illahee Rd NE  
 Bremerton, WA

**Figure**  
**5**

**Legend**

- Property Boundary
- G-Logics Well Locations
- G-Logics Boring Locations
- Langseth Boring Locations
- Estimated Area of Soil Contamination
- UST Locations
- Approximate Area of Excavation

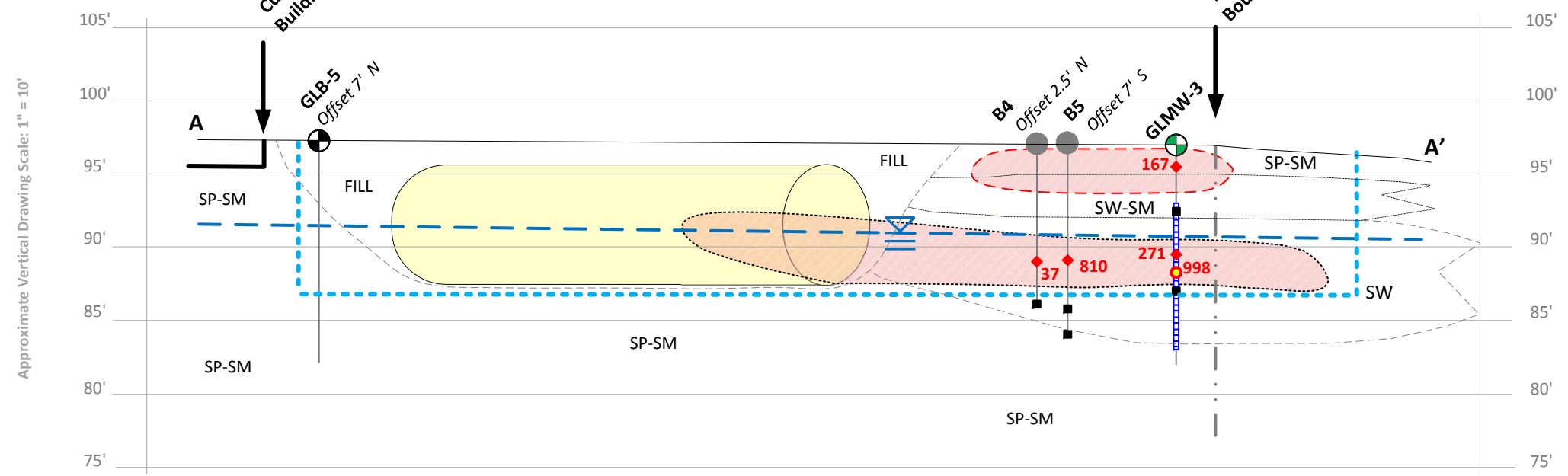
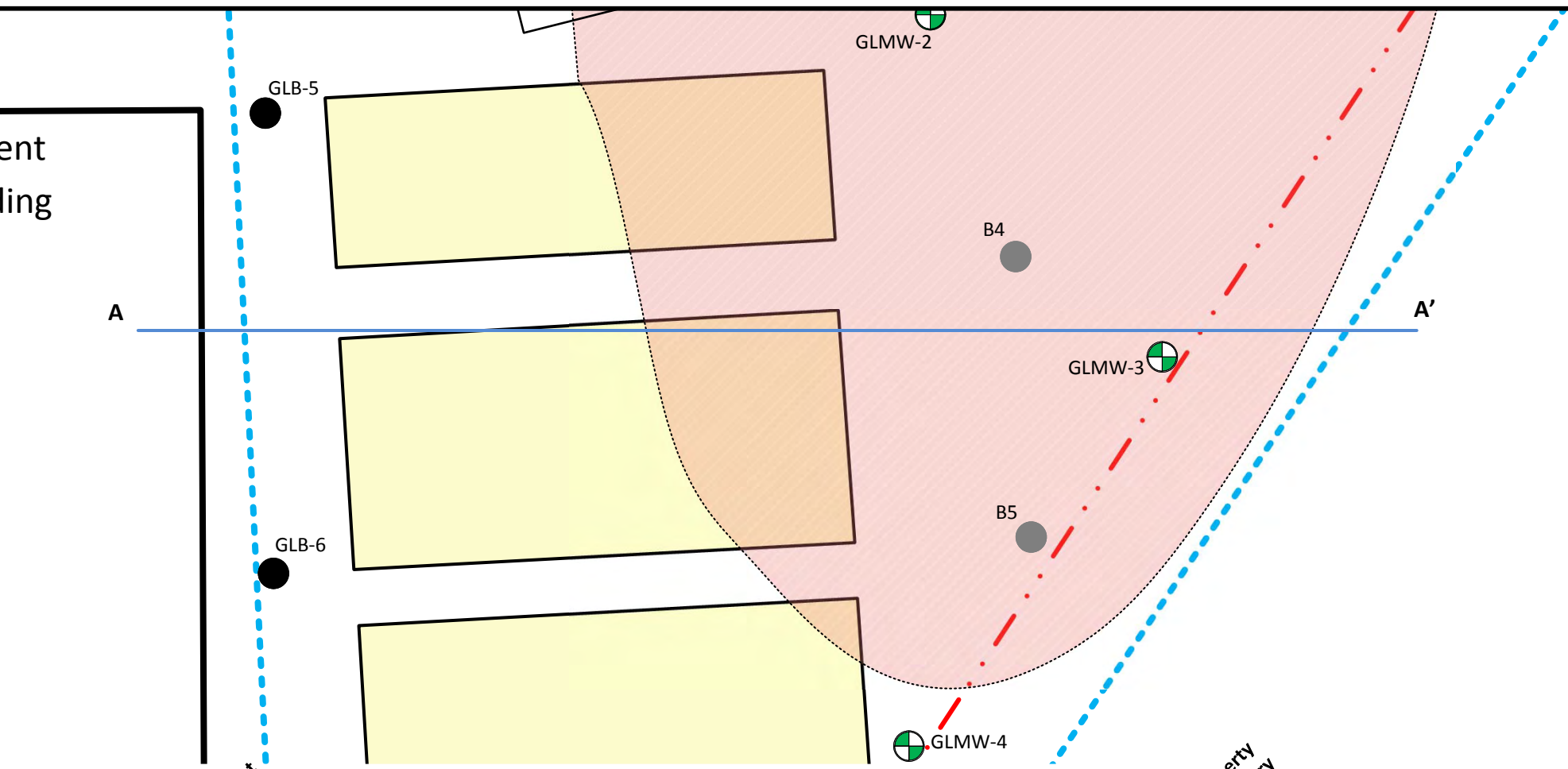
**Cross-Section Legend**

- Approximate Water Table Elevation (Based on August 2017 Measurements)
- Cross Section Line, Approximate Ground Surface
- Approximate Geologic Contact Based on USCS Soil Classification
- Boring/Well Location
- GRO Not Detected in Soil
- 37 GRO Concentration Detected in Soil Above MTCA Cleanup Level
- 998 GRO Concentration Detected in Groundwater Above MTCA Cleanup Level

Notes: See boring logs for full geologic description.  
Elevations based on an arbitrary elevation of 100.00 feet at the NE corner of the bottom step on the northeast side of the vacant store (See Figure 2).



Current Building

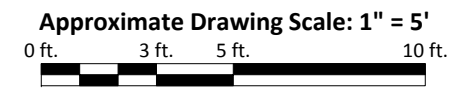


This image represents an interpretation of available data. This data may change with additional measurements and/or data points, remedial efforts, natural attenuation, and/or other influences.

Note: This figure contains information in color. Black & white photocopies may not be suitable for review.

**Cross Section A to A'**  
Illahee Foods  
5507 Illahee Rd NE  
Bremerton, WA

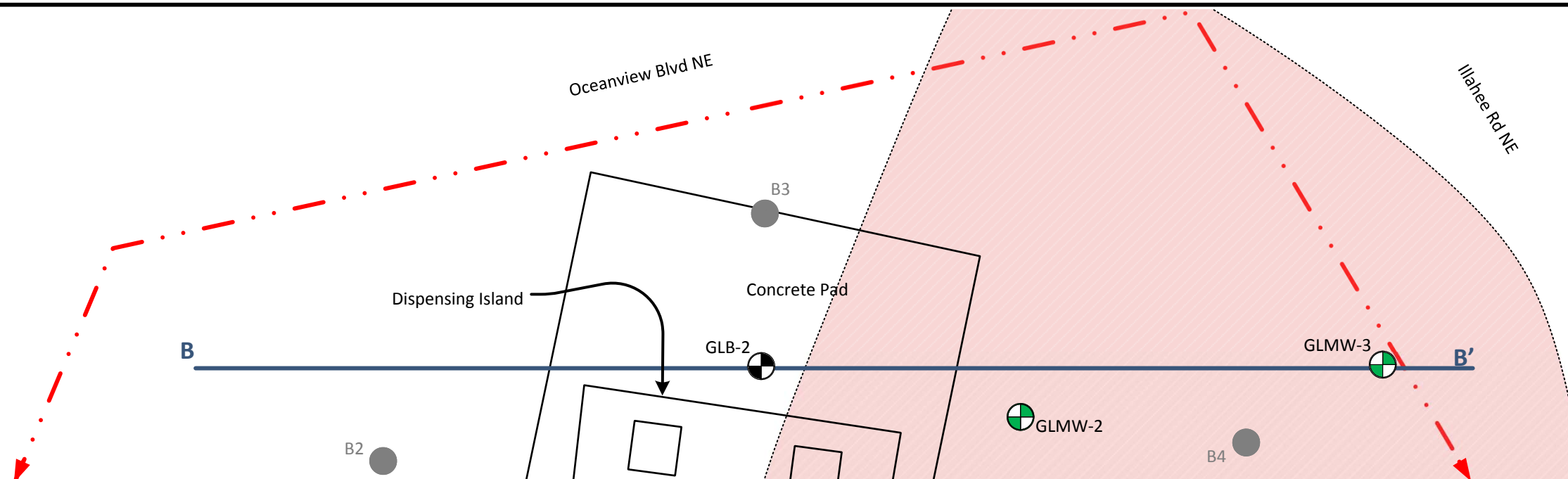
**Figure 6**





**Legend**

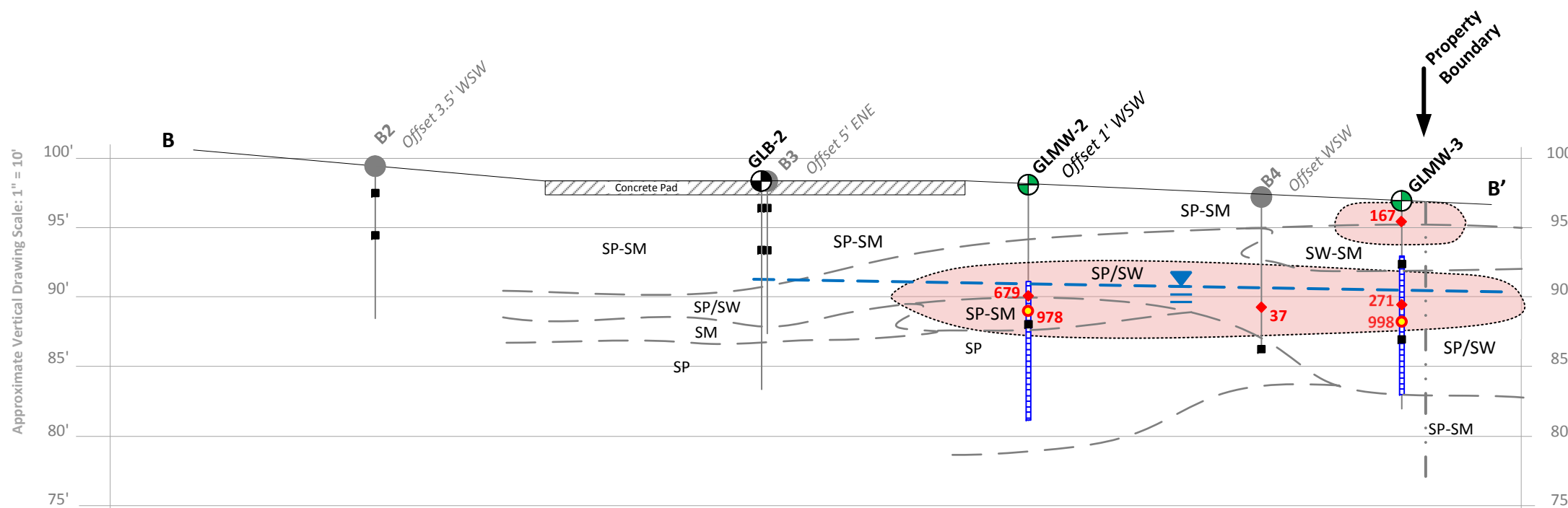
- Property Boundary
- G-Logics Well Locations
- G-Logics Probe Locations
- Langseth Boring Locations
- Estimated Area of Soil Contamination



**Cross-Section Legend**

- Approximate Water Table Elevation (Based on August 2017 Measurements)
- Cross Section Line, Approximate Ground Surface
- Approximate Geologic Contact Based on USCS Soil Classification
- Boring/Well Location
- nd GRO Not Detected in Soil
- 5,400 GRO Concentration Detected in Soil Above MTCA Cleanup Level
- 17,300 GRO Concentration Detected in Groundwater Above MTCA Cleanup Level

Notes: See boring logs for full geologic description.  
Elevations based on an arbitrary elevation of 100.00 feet at the NE corner of the bottom step on the northeast side of the vacant store (See Figure 2).



This image represents an interpretation of available data. This data may change with additional measurements and/or data points, remedial efforts, natural attenuation, and/or other influences.

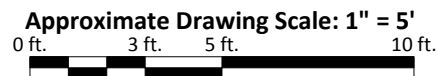
Note: This figure contains information in color. Black & white photocopies may not be suitable for review.

**Cross Section B to B'**

**Illaha Foods**  
5507 Illahee Rd NE  
Bremerton, WA

**Figure**

**7**







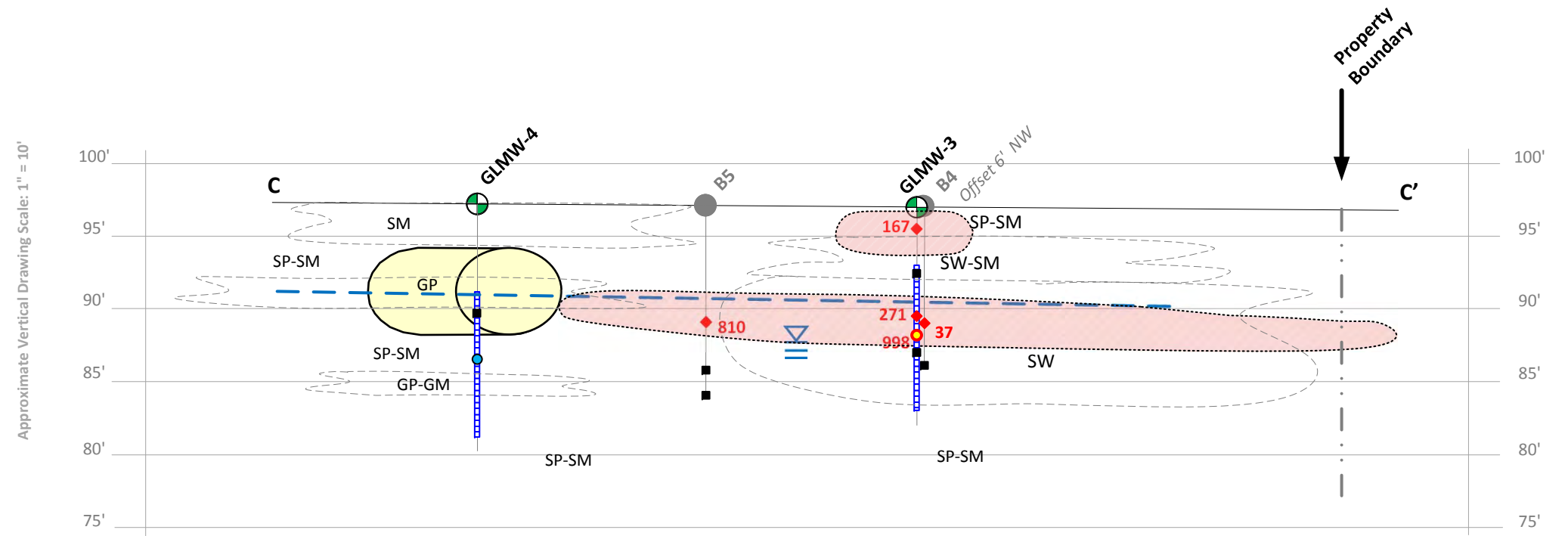
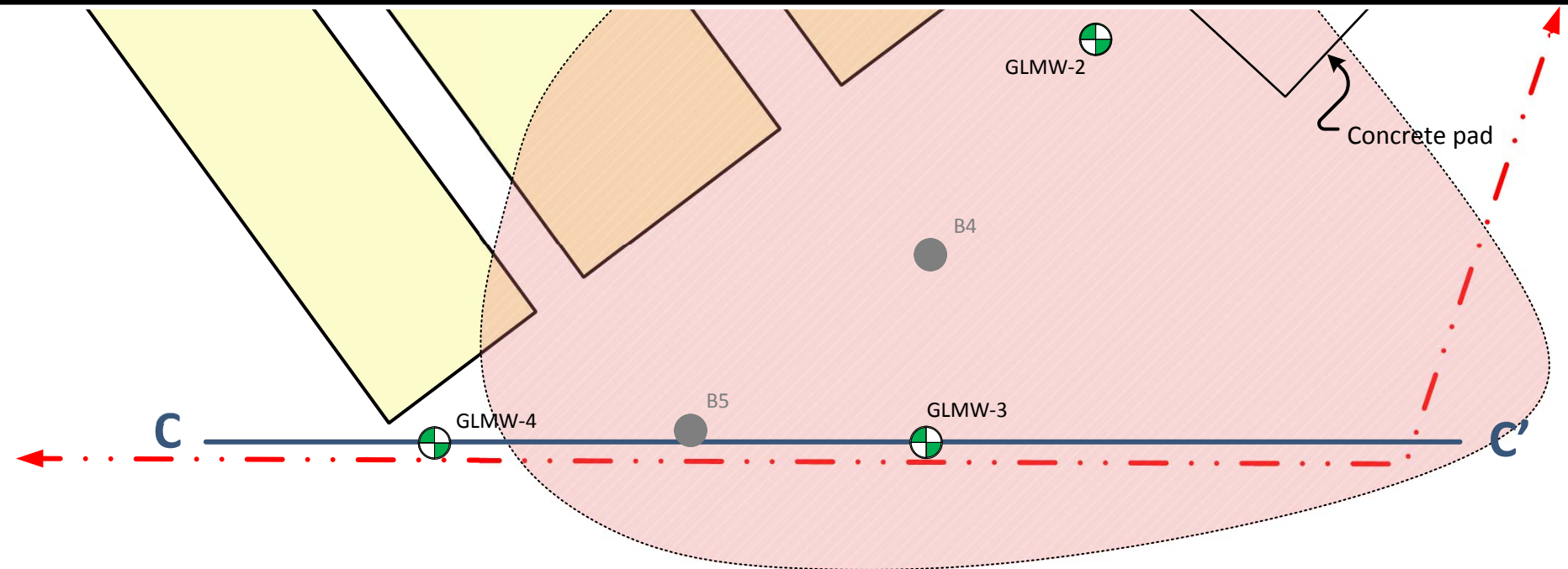
**Legend**

- Property Boundary
- G-Logics Well Locations
- Langseth Boring Locations
- Estimated Area of Soil Contamination
- UST Locations

**Cross-Section Legend**

- Approximate Water Table Elevation (Based on August 2017 Measurements)
- Cross Section Line, Approximate Ground Surface
- Approximate Geologic Contact Based on USCS Soil Classification
- Boring/Well Location
- GRO Not Detected in Soil
- GRO Concentration Detected in Soil Above MTCA Cleanup Level
- GRO Concentration Detected in Groundwater Above MTCA Cleanup Level

Notes: See boring logs for full geologic description.  
Elevations based on an arbitrary elevation of 100.00 feet at the NE corner of the bottom step on the northeast side of the vacant store (See Figure 2).



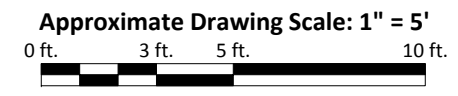
This image represents an interpretation of available data. This data may change with additional measurements and/or data points, remedial efforts, natural attenuation, and/or other influences.

Note: This figure contains information in color. Black & white photocopies may not be suitable for review.

**Cross Section C to C'**  
Illahee Foods  
5507 Illahee Rd NE  
Bremerton, WA

**Figure 8**





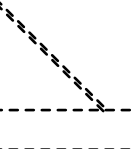




Project File: 01-1129-B F8 - C to C'.vsd

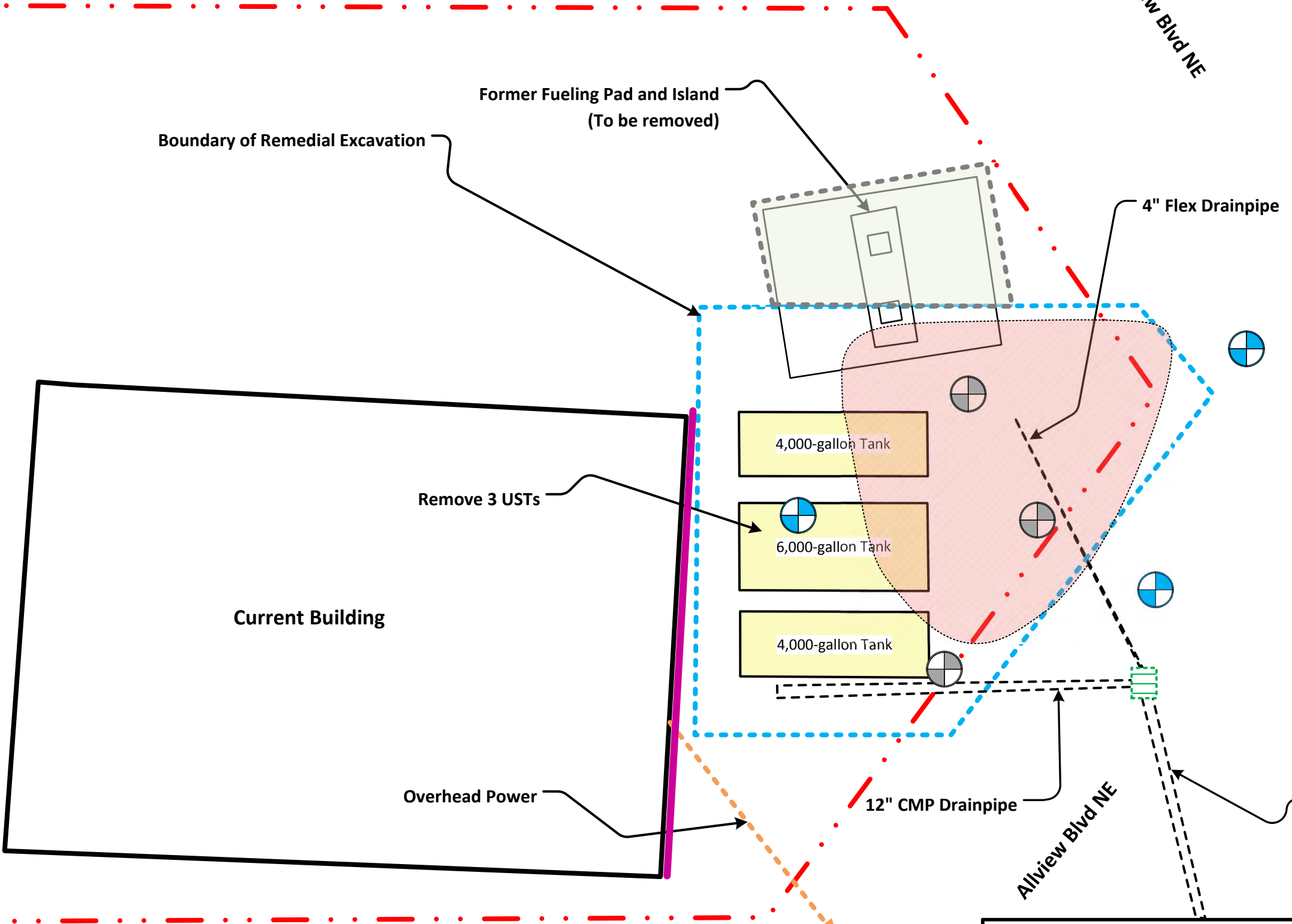






**General Figure Symbols**

-  Property Line
-  Building Outline
-  Proposed Remedial Excavation  
Approximately 40' x 45' x 10' deep
-  Proposed Shallow Excavation  
Approximately 20' x 12' x 3' deep
-  Approximate Locations of  
stormdrain lines  
(per Kitsap County Drainage Survey,  
dated December 3, 2012)
-  Approximate location  
of Pin Piles
-  Monitoring Wells to be  
Decommissioned
-  Proposed Locations of  
Compliance-Monitoring Wells
-  Estimated Area of  
Contamination



Project File: 01-1129-B F9 - Remedial Ex.vsd



Approximate Drawing Scale: 1" = 10'  
0 ft. 6 ft. 10 ft. 20 ft.

Note: This figure contains information in color. Black & white photocopies may not be suitable for review.

**Site Diagram, Proposed Remedial Excavation**  
Illahee Foods  
5507 Illahee Road NE  
Bremerton, WA

**Figure**  
**9**

# **TABLES**

**TABLE 1**  
**Soil Sample Analysis**  
**Illahee Foods**  
**5507 Illahee Rd NE**  
**Bremerton, Washington**

Exploration Location	Sample Date	Sample Number	Sample Depth (ft)	PID Reading (ppmv) (e)	Gasoline Range Organics	Diesel Range Organics	Heavy Oil Range Organics	Benzene	Toluene	Ethylbenzene	Xylenes	Total Lead
<b>MTCA Cleanup Level (1)</b>				NA	100(b)/30(c)	2,000	2,000	0.03	7	6	9	250
(units in mg/kg)												
<b>Langseth Environmental (2016)</b>												
<b>B-1</b>	12/12/2016	B-1-3'	3	---	<10	---	---	<0.02	<0.1	<0.05	<0.15	<b>12.4</b>
	12/12/2016	B-1-6'	6	---	<10	---	---	<0.02	<0.1	<0.05	<0.15	<5
<b>B-2</b>	12/12/2016	B-2-2'	2	---	<10	---	---	<0.02	<0.1	<0.05	<0.15	<5
	12/12/2016	B-2-5'	5	---	<10	---	---	<0.02	<0.1	<0.05	<0.15	<5
<b>B-3</b>	12/12/2016	B-3-2'	2	---	<10	---	---	<0.02	<0.1	<0.05	<0.15	<b>8.3</b>
	12/12/2016	B-3-2' Dup	2	---	<10	---	---	<0.02	<0.1	<0.05	<0.15	---
	12/12/2016	B-3-5'	5	---	<10	---	---	<0.02	<0.1	<0.05	<0.15	<5
<b>B-4</b>	12/12/2016	B-4-8'	8	---	<b>37</b>	---	---	<b>0.028</b>	<0.1	<b>0.28</b>	<0.15	<5
	12/12/2016	B-4-11'	11	---	<10	---	---	<0.02	<0.1	<0.05	<0.15	<5
<b>B-5</b>	12/12/2016	B-5-8'	8	---	<b>810</b>	---	---	<b>0.69</b>	<b>1.57</b>	<b>8.87</b>	<b>4.84</b>	<5
	12/12/2016	B-5-11.5'	11.5	---	<10	---	---	<0.02	<0.1	<0.05	<0.15	<5
	12/12/2016	B-5-13'	13	---	<10	---	---	<0.02	<0.1	<0.05	<0.15	<5
<b>G-Logics (2017)</b>												
<b>GLB-1</b>	7/12/2017	GLB-1-5	5	12.2	---	---	---	---	---	---	---	---
	7/12/2017	GLB-1-6	6	8.9	<4.60	<25.0	<50.0	<0.00920	<0.0460	<0.0230	<0.0690	<b>1.58</b>
<b>GLB-2</b>	7/13/2017	GLB-2-2	2	5.0	<6.08	<25.0	<50.0	<0.0122	<0.0608	<0.0304	<0.0912	<b>31.3</b>
	7/13/2017	GLB-2-5	5	5.4	<5.45	<25.0	<50.0	<0.0109	<0.0545	<0.0272	<0.0817	<b>3.58</b>
	7/13/2017	GLB-2-10	10	7.6	---	---	---	---	---	---	---	---
	7/13/2017	GLB-2-10 DUP	10	---	---	---	---	---	---	---	---	---
	7/13/2017	GLB-2-15	15	7.0	---	---	---	---	---	---	---	---
<b>GLB-3</b>	7/13/2017	GLB-3-5	5	3.3	---	---	---	---	---	---	---	---
	7/13/2017	GLB-3-6	6	17.0	---	---	---	---	---	---	---	---
	7/13/2017	GLB-3-10	10	17.0	<4.65	<25.0	<50.0	<0.00930	<0.0465	<0.0233	<0.0698	<b>1.39</b>
<b>GLB-4</b>	7/13/2017	GLB-4-5	5	17.0	---	---	---	---	---	---	---	---
	7/13/2017	GLB-4-7.5	7.5	19.4	<4.23	<25.0	<50.0	<0.00846	<0.0423	<0.0212	<0.0635	<b>1.25</b>
	7/13/2017	GLB-4-10	10	16.9	<3.74	<25.0	<50.0	<0.00748	<0.0374	<0.0187	<0.0561	<b>1.72</b>
<b>GLB-5</b>	4/26/2018	GLB-5-5	5	0.0	---	---	---	---	---	---	---	---
	4/26/2018	GLB-5-8	8	0.2	<5.57	---	---	<0.0222	<0.0222	<0.0277	<0.0555	---
	4/26/2018	GLB-5-10	10	0.3	<6.41	---	---	<0.0257	<0.0257	<0.0321	<0.0641	---
	4/26/2018	GLB-5-12	12	0.5	---	---	---	---	---	---	---	---
	4/26/2018	GLB-5-15	15	0.4	---	---	---	---	---	---	---	---
<b>GLB-6</b>	4/26/2018	No Samples Taken										
<b>GLMW-1</b>	7/13/2017	GLMW-1-5	5	2.3	---	---	---	---	---	---	---	---
	7/13/2017	GLMW-1-10	10	2.8	<5.65	<25.0	<50.0	<0.0113	<0.0565	<0.0282	<0.0847	<b>1.18</b>
	7/13/2017	GLMW-1-15	15	4.8	<4.81	<25.0	<50.0	<0.00962	<0.0481	<0.0241	<0.0722	<b>1.46</b>
<b>GLMW-2</b>	7/13/2017	GLMW-2-2.5	3	5.8	---	---	---	---	---	---	---	---
	7/13/2017	GLMW-2-5	5	5.3	---	---	---	---	---	---	---	---
	7/13/2017	GLMW-2-8	8	339	<b>679</b>	<b>42.7</b>	<50.0	<0.0101	<0.0504	<b>0.0493</b>	<0.0755	<b>1.48</b>
	7/13/2017	GLMW-2-8 DUP	8	339	<b>267</b>	<25.0	<50.0	<0.0103	<0.514	<0.0257	<0.0771	<b>1.90</b>
	7/13/2017	GLMW-2-10	10	9.0	<5.60	<25.0	<50.0	<0.0112	<0.0560	<0.0280	<0.0839	<b>1.32</b>
	7/13/2017	GLMW-2-14	14	6.8	---	---	---	---	---	---	---	---

**TABLE 1**  
**Soil Sample Analysis**  
**Illahee Foods**  
**5507 Illahee Rd NE**  
**Bremerton, Washington**

Exploration Location	Sample Date	Sample Number	Sample Depth (ft)	PID Reading (ppmv) (a)	Gasoline Range Organics	Diesel Range Organics	Heavy Oil Range Organics	Benzene	Toluene	Ethylbenzene	Xylenes	Total Lead
<b>MTCA Cleanup Level (1)</b>				NA	100(b)/30(c)	2,000	2,000	0.03	7	6	9	250
<i>(units in mg/kg)</i>												
<b>GLMW-3</b>	7/13/2017	GLMW-3-1.5	1.5	50	<b>167</b>	<25.0	<50.0	<b>0.0453</b>	<b>0.109</b>	<b>2.14</b>	<b>8.05</b>	---
	7/13/2017	GLMW-3-4.5	4.5	15	<6.27	<25.0	<50.0	<0.0125	<0.0627	<0.0314	<0.0941	---
	7/13/2017	GLMW-3-7.5	7.5	330	<b>271</b>	<b>142</b>	<50.0	<0.0109	<0.0544	<b>0.0544</b>	<0.0815	<b>2.20</b>
	7/13/2017	GLMW-3-10	10	34	<3.97	<25.0	<50.0	<0.00794	<0.0397	<0.0199	<0.0596	---
	7/13/2017	GLMW-3-12	12	9.0	---	---	---	---	---	---	---	---
<b>GLMW-4</b>	7/13/2017	GLMW-3-15	15	8.5	---	---	---	---	---	---	---	---
	7/13/2017	GLMW-4-5	5	5.1	---	---	---	---	---	---	---	---
	7/13/2017	GLMW-4-7.5	7.5	16.6	<4.55	<25.0	<50.0	<0.00909	<0.0455	<0.0227	<0.0682	<b>1.80</b>
	7/13/2017	GLMW-4-10	10	14.7	---	---	---	---	---	---	---	---
7/13/2017	GLMW-4-14	14	12.4	---	---	---	---	---	---	---	---	

**Notes:** Refer to site diagram(s) for sampling locations. Refer to laboratory reports for analytical methods.

(1) Available Method A Cleanup Levels, MTCA, revised 2013.

(a) Soil samples were field screened using a PID to measure VOCs. Headspace VOC concentrations were measured after placing the soil in a sealed plastic bag and allowing soil and air inside the bag to equilibrate.

(b) Soil Cleanup Level for Gasoline with no detectable benzene in the soil.

(c) Soil Cleanup Level for Gasoline with detectable benzene in the soil.

--- Sample not analyzed.

Dup Duplicate Sample for QA/QC.

<50.0 Sample concentration below laboratory reporting limit.

**27** Bold number(s) indicates contaminant detected, below cleanup level.

**160** Bold number(s) and yellow shading indicates concentration exceeds MTCA Cleanup Level.

**TABLE 2**  
**Groundwater Sample Analysis**  
**Illahee Foods**  
**5507 Illahee Rd NE**  
**Bremerton, Washington**

Exploration Location	Sample Date	Sample Number											
			Gasoline Range Organics	Diesel Range Organics	Heavy Oil Range Organics	Benzene	Toluene	Ethylbenzene	Xylenes	Methyl tert-butyl ether (MTBE)	1,2-Dibromoethane (EDB)	1,2-Dichloroethane (EDC)	Total Lead
<b>MTCA Cleanup Level (1)</b>			1,000(a)/800(b)	500	500	5.00	1,000	700	1,000	20	0.01	5	15
(units in ug/L)													
<b>GLMW-1</b>	7/13/2017	GLMW-1-W	<100	<76.2	<152	<0.200	<1.00	<0.500	<1.50	---	---	---	<b>2.43</b>
<b>GLMW-2</b>	7/13/2017	GLMW-2-W	<b>978</b>	<77.7	<155	<0.200	<1.00	<b>0.690</b>	<1.50	<1.00	<0.020	<0.500	<b>0.333</b>
	4/26/2018	GLMW-2-W	<50.0	---	---	<1.00	<1.00	<1.00	<1.00	---	---	---	---
<b>GLMW-3</b>	7/13/2017	GLMW-3-W	<b>998</b>	<b>103</b>	<155	<b>4.76</b>	<1.00	<b>3.84</b>	<b>2.21</b>	<1.00	<0.020	<0.500	<b>0.533</b>
	4/26/2018	GLMW-3-W	<b>1,080</b>	---	---	<1.00	<1.00	<b>2.33</b>	<1.00	---	---	---	---
<b>GLMW-4</b>	7/13/2017	GLMW-4-W	<100	<76.2	<152	<0.200	<1.00	<0.500	<1.50	---	---	---	<b>0.467</b>
	4/26/2018	GLMW-4-W	<50.0	---	---	<1.00	<1.00	<1.00	<1.00	---	---	---	---
<b>Trip Blank</b>	7/13/2017	Trip Blank 1546	<100	---	---	<0.200	<1.00	<0.500	<1.50	---	---	---	---

Notes: Refer to site diagram(s) for sampling locations. Refer to laboratory reports for analytical methods.

- (1) Available Method A Cleanup Levels, MTCA, revised 2013.
- (a) Groundwater Cleanup Level for Gasoline with no detectable benzene in groundwater.
- (b) Groundwater Cleanup Level for Gasoline with detectable benzene in the groundwater.
- Sample not analyzed.
- <50.0 Sample concentration below laboratory reporting limit.
- 27** Bold number(s) indicates contaminant detected, below cleanup level.
- 160** Bold number(s) and yellow shading indicates concentration exceeds MTCA Cleanup Level.
- <250** Reporting limits exceeds cleanup level.

**TABLE 3**  
**Groundwater Elevation Measurements**  
**Illahee Foods**  
**5507 Illahee Rd NE**  
**Bremerton, WA**

Well Designation	Well Installation Date	Elevation Top of PVC Casing (ft.)*	Depth to Top of Screen (ft.)	Depth to Bottom of Screen (ft.)	Well Diam. (in.)	Date Measured	Depth to Water (ft.)	Calculated GW Elevations (ft.)
GLMW-01	7/14/17	100.90	5	15	2	08/08/17	5.19	95.71
GLMW-02	7/14/17	98.05	7	17	2	08/08/17	12.88	85.17
						4/26/18	6.32	91.73
GLMW-03	7/14/17	96.95	4	14	2	08/08/17	9.27	87.68
						4/26/18	6.68	90.27
GLMW-04	7/14/17	97.07	6	16	2	08/08/17	9.1	87.97
						4/26/18	5.54	91.53

Notes:

\* Elevations based on an arbitrary elevation of 100.00 feet on the NE corner of the bottom step on the northeast side of the vacant store.

**Table 4**  
**Planning-Level Budgets**  
**Remedial Action <sup>(1)</sup>**  
**Illahee Foods**  
**5507 Illahee Road NE, Bremerton, WA**

Budget Components	Estimates
Architect	\$0
Structural Engineering	\$13,000
Geotechnical Engineering	\$5,000
Permit/Municipality	\$7,500
Fueling System Upgrades <sup>(2)</sup> (includes contractor, materials, and equipment)	\$0
Charging Station Upgrades <sup>(2)</sup> (includes infrastructure upgrades, contractor, materials and equipment)	\$0
Contaminated Soil Excavation, Transportation and Disposal. Site Restoration *	\$357,600
Environmental-Consulting Related Tasks, (including well decommissioning, sampling/analysis, field labor, compliance monitoring, and reporting)	\$45,450
Project Management (5%)	\$21,400
<b>Subtotal</b>	<b>\$449,950</b>
<b>20% Scope Contingency <sup>(3)</sup></b>	<b>\$89,990</b>
<b>Total Budget Estimate</b>	<b>\$539,940</b>

Notes and Assumptions:

The presented budget estimates are for planning purposes only and do not present a bid or guarantee of costs. Estimates reflect direct payment to professionals and contractors. The presented estimates are based on our current understanding of site conditions. The presented costs do not include Department of Ecology or PLIA costs, attorney fees, or other items not specifically identified in the CAP.

1

2

Based on Attached Contractor Estimates and project assumptions listed by contractors and as stated in the CAP report.

3

Scope Contingency based on maximum contingency allowed by PLIA. However, guidance from the US Environmental Protection Agency's "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study" July 2000 states indicates 30% is a typical contingency for this type of project.

\*

Allowing for up to 840 tons of contaminated soil and 16,000 gallons of contaminated water disposed during UST removal work. Soil and Groundwater Disposal fees assume that all soils will not be classified as "Hazardous."

# **APPENDIX A**



## **FIELD EXPLORATION METHODS**

G-Logics performed subsurface soil sampling during the assessment conducted on the subject property. The sampling activities were conducted in general accordance with Washington Department of Ecology (Ecology) guidelines and regulations.

### **Health and Safety Plan**

In accordance with the WISHA standards, under the assumption that the project is being performed under the WISHA Hazardous Waste Operations Standard and state regulations, a site-specific Health and Safety Plan was developed for the field activities completed at the subject property. All field personnel reviewed the plan and implemented the procedures while conducting the on-site field activities.

### **Underground Utility Clearance**

Before conducting the subsurface exploration, G-Logics contacted a service that notifies public utilities of proposed subsurface investigations. Additionally, on-site private utilities were located by a private locating company to identify on-site utilities as well as specific areas of concern. Consequently, the below-grade utility locations were identified by marking their inferred location on the ground surface. This information was used to aid in identifying sampling locations. Additionally, at each boring location, the first 5 feet of soils were removed using air-knife methods.

### **Quality Assurance Quality Control**

Quality Assurance/Quality Control (QA/QC) for the presented scope of work included generally accepted procedures for sample collection, storage, tracking, and documentation. All sampling equipment was washed and rinsed before the collection of the samples. All samples were labeled with a sample number, date, time, and sampler name, and were stored in an ice chest containing frozen "blue ice". Appropriate chain-of-custody documentation was completed.

## **General**

G-Logics developed a health and safety plan for this project before the start of fieldwork. The health and safety plan included specifications for steel toe boots, hard hats, safety glasses, and protective clothing. For the protection of the crew, a photoionization detector (PID) was used to screen for the presence of volatile organic concentrations in the breathing zone during the drilling of the borings. The PID was a Thermo Environmental Model 580B OVM, or equivalent, with a 10.5-ev lamp. The instrument was calibrated to 100 parts per million by volume (ppmv) with an isobutylene gas standard. The PID measures volatile organic compounds (VOCs) in the air in ppmv.

## **Hollow-Stem Auger Soil Sampling**

Soil borings were drilled using a track-mounted hollow-stem auger-drilling rig, provided by our drilling subcontractor (Holocene, Puyallup, WA). A G-Logics geologist was present during the drilling and assisted in obtaining samples of the subsurface materials, maintained a log of the borings, made detailed observations of site conditions, and provided technical assistance, as required.

All drilling and sampling equipment was cleaned before mobilization and between borings to reduce the potential for cross contamination. In addition, the sampling equipment was cleaned between each sampling interval before the collection of the next sample.

The track-mounted direct-push rig used for this work consisted of a 1.5-inch diameter stainless steel, split-spoon sampler. The sampler was 18 inches in length. The collected soils contained within the sample were removed and placed into laboratory-provided glass jars. Samples were collected from the soil core using an Easy Draw Syringe and Powerstop Handle. The soil plug was then extruded into a laboratory-supplied 40 ml VOA Vial containing methanol preservative. The extracted sampler was washed prior to each sampling attempt.

The G-Logics geologist screened the collected soil samples for evidence of contamination, indicated by noticeable odor, visible staining, or discoloration on the soil sampler and in the soil sample. A portion of each soil sample was placed into a plastic bag and the collected vapors were drawn through the photoionization detector (PID) for qualitative screening of VOCs. The vapor reading was noted as the field screening result. A new plastic bag was used each time a sample was screened.

The soils were then observed and categorized for grain-size, color, presence of artifacts, moisture, odor, staining, sheen, and any other indications of contamination. This information was recorded on field boring logs (attached). Samples were collected where indications of contamination were observed or from where contamination would likely be present (i.e. at the groundwater interface).

Upon completion of each soil boring the resulting hole was backfilled with bentonite. All soil cuttings were collected and placed into a waste drum for proper disposal (determined by analytical results).

Collected samples were labeled with a sample number, date, time, and sampler's name and stored in an ice chest containing frozen "blue ice". Chain-of-custody procedures were followed to document sample handling.

### **Water-Level Measurements in Wells**

Water-level measurements were referenced to the top of the well casing. The static water level was measured in each monitoring-well using a conductivity type, water-level probe (Keck Model 1213, Flat Tape Water Level Meter). The conductivity probe was lowered into the well until the instrument detected water. The tape on the probe was used to obtain a depth-to-water measurement, from the reference point, to within 0.01 feet.

# **APPENDIX B**

# Unified Soil Classification System (USCS)

PRIMARY DIVISIONS		SYMBOL	DESCRIPTIONS
<b>COARSE GRAINED SOILS</b>  Sands & Gravels, Over 50% retained on #200 sieve	<b>GRAVELS</b>  Over 50% of coarse material retained on #4 sieve	<b>CLEAN GRAVEL</b>  Less than 5% passing #200 sieve	GW Well graded gravel, many different particle sizes, little or no fines
		<b>GRAVEL WITH FINES</b>	GP Poorly graded, few different particle sizes, little or no fines
			GM Silty gravels, gravel-sand-silt mixtures
		GC Clayey gravels, gravel-sand-clay mixtures	
	<b>SAND</b>  Over 50% of coarse material passed #4 sieve	<b>CLEAN SANDS</b>  Less than 5% passing #200 sieve	SW Well graded gravel, many different particle sizes, little or no fines
			SP Poorly graded, few different particle sizes, little or no fines
		<b>SAND WITH FINES</b>	SM Silty gravels, gravel-sand-silt mixtures
			SC Clayey gravels, gravel-sand-clay mixtures
<b>FINE GRAINED SOILS</b>  Silts & Clays, Over 50% passing the #200 sieve	<b>SILTS AND CLAYS</b>  Liquid limit is less than 50 %	ML Inorganic silts, slight to no plasticity	
		CL Inorganic clays, low to moderate plasticity	
		OL Organic silts and clays of low plasticity	
	<b>SILTS AND CLAYS</b>  Liquid limit is more than 50 %	MH Inorganic silts, moderate to high plasticity	
		CH Inorganic clays, high plasticity, fat clays	
		OH Organic silts and clays of high plasticity	
<b>Highly Organic Soils</b>		PT Peat and other highly organic soils	

## Soil Samples



Disturbed, bag, bulk, or grab sample



Standard penetration split spoon sample



Cuttings



Continuous-Core Sample

## Field Measurements



Water Level Observed During Drilling



Photoionization Detector



Parts Per Million by Volume



End of Boring (E.O.B)

**Note:** Blows per foot is the number of blows used to drive a split-spoon (2" OD) sampler through the last 12 inches of an 18-inch sampling attempt. One blow is a 30-inch fall of a 140-pound hammer.

**Note:** The line separating strata on the logs represents approximate boundaries only. The actual transition may be gradual. No warranty is provided as to the continuity of the strata between exploration locations. Logs represent the soil section observed at the exploration location on the date of exploration only.

ExplorationLogLegend.pub

*g-logics*

**Exploration Log Legend**

INTERVAL	BLOW COUNT	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
0			0-0.5': Asphalt				Temporary Boring, Backfilled with Bentonite
			0.5-5': GRAVELLY SAND with trace silt, medium to coarse grained, brown, moist, no odor		FILL		
5	4,6,9	GLB-5-5	5-10': Poorly graded SAND with silt and gravel, fine grained, brown, wet, no odor.	5	SP-SM	0.0	
	4,4,5	GLB-5-8		45	SP-SM	0.2	
10	12,18,20	GLB-5-10	10-16.5': SILTY SAND with gravel, very fine to fine grained, brown, moist to wet at 15', no odor, dense.	100	SP-SM	0.3	
	50/1	GLB-5-12		5	SP-SM	0.5	
15	29,50/6	GLB-5-15	16.5-21.5': Poorly graded SAND with trace gravel and silt, medium grained, gray, wet, no odor, dense.	60	SP-SM	0.4	
20	50/6		Terminated at 21.5'	95		0.4	
25							
30							

Drilling Method: HSA	Date: 4/26/2018	Other Information:
Drilling Company: Holocene	Weather: Sunny	
Boring Diameter: 8"	Page 1 of 1	
Logged By: H. Carter		

	<b>Boring/Well Log</b> <b>Illahee Foods</b> <b>5507 Illahee Rd NE</b> <b>Bremerton, Washington</b>	<b>GLB-5</b>
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INTERVAL	BLOW COUNT	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
0			0-0.5': Asphalt				Temporary Boring, Backfilled with Bentonite
			0.5-6.5': GRAVELLY SAND with silt, fine to medium grained, brown, dry, no odor		FILL		
5	24,26,28		6.5-16.5': SILTY SAND with gravel, very fine to fine grained, brown, moist, no odor, dense.	65	SP-SM		
10	21,26,29			100	SP-SM		
15	29,50/6		16.5-21.5': Poorly graded SAND with gravel and silt, fine to medium grained, brown, moist to wet at 20', no odor.	80	SP-SM		
20	50/3		Terminated at 21.5'	20			
25							
30							

Drilling Method: HSA	Date: 4/26/2018	Other Information:
Drilling Company: Holocene	Weather: Sunny	
Boring Diameter: 8"	Page 1 of 1	
Logged By: H. Carter		

	<b>Boring/Well Log</b> <b>Illahee Foods</b> <b>5507 Illahee Rd NE</b> <b>Bremerton, Washington</b>	<b>GLB-6</b>
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