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TECHNICAL MEMORANDUM

26 November 2024
File No. 0204476-001

TO: Washington State Department of Ecology
Sunny Becker

FROM: Haley & Aldrich, Inc.
Andrew S. Nakahara, P.E., Environmental Engineer
Andrew S. Kaparos, P.E., Senior Associated Engineer

SUBJECT: Supplemental Water Sampling Work Plan for Treoil Industries Biorefinery

Introduction

Haley & Aldrich, Inc. (Haley & Aldrich) has prepared this supplemental grab water sampling work plan for the Treoil Industries Biorefinery property (Property) on behalf of the Washington State Department of Ecology (Ecology). The Property is located at 4242 Aldergrove Road (Cleanup Site ID number 950) and is comprised of a 34.24-acre parcel (#3901083260850000 of Whatcom County) currently owned by the Campbell Land Corporation and Mr. Jagroop S. Gill. It is approximately 5 miles northwest of the City of Ferndale, Washington, and 8 miles south of the Canada-United States border, as depicted in Figure 1.

The proposed supplemental investigation will address data gaps associated with potential accumulated water to the west of the Property. The new data will be used to supplement data collected during the August 2023 remedial investigation (RI) activities. Surface water was not present during the August 2023 RI activities, but some stormwater runoff (in the form of small drainages) has been previously observed by Ecology staff along the west and southern portions of the Property that may drain or discharge into existing wetlands. The previously mapped drainages and wetlands are shown on Figure 2.

SITE SUMMARY

The Site is defined as the nature and extent of contamination at the Property which, based on historic data collected, is limited to surficial soils in areas where past industrial activities occurred at the Property. Results of the August 2023 RI activities indicated the presence of total petroleum hydrocarbons (TPH), semi-volatile organic compounds (SVOCs [pentachlorophenol]), and metals (primarily chromium, copper, and lead) in soil at concentrations above screening levels primarily in near

surface soils (approximately in the upper 0.5 to 2.5 feet below ground surface). Groundwater was not encountered during RI activities, thus the soil to groundwater pathway is incomplete.

The RI Work Plan (Haley & Aldrich, 2023) proposed sampling surface water from the Site. However, surface water was not present during the RI and therefore samples could not be collected. Two samples from water accumulated in sumps were collected. There was also no water observed in the drainage/wetland areas during the RI activities.

Additional details on the Property background and previous investigations can be found in the Draft RI Report (Haley & Aldrich, 2024).

Supplemental Water Sampling Scope

This section below discusses how the additional grab water samples will be obtained.

OBJECTIVES

Following a public review of the Draft RI Report, concerns were brought up about the potential impacts the Site may have on the wetland and drainage system to the west of the Property (Figure 2). No water samples were collected in this area during the August 2023 RI activities as no water was observed. The objective of this Supplemental Water Sampling work plan is to collect field and lab data to determine potential impacts in the wetland and drainage system.

SCOPE OF SERVICES

The following scope has been developed to identify potential impacts in the wetland and drainage system.

- Two members of Haley & Aldrich staff will attempt to collect up to four grab water samples from the drainage system, one background grab water sample to the northeast of the Property, and one duplicate sample for a total of six samples.
  - Prior to Haley & Aldrich staff mobilizing for this sampling event, Ecology staff will visit the Property to verify and confirm that flowing water is present and in sufficient quantity to collect samples.
  - The approximate locations of the grab water samples are shown on Figure 2, but exact locations will be determined in the field based on site conditions. The drainages shown on Figure 2 are based on conditions observed in 2017 by Ecology staff. Since that time, the EPA has conducted multiple removal actions and Site conditions (including vegetation) have changed. It's possible that the drainages have changed course or are no longer actual drainages.
- Analyze grab water samples for total petroleum hydrocarbons – diesel range and heavy oil range (TPH-DRO) and gasoline range (TPH-G); volatile organic compounds (VOCs); SVOCs; total and dissolved metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, and zinc), hardness, and total suspended solids.

- Collect field parameters from each of the grab water samples (turbidity, specific conductivity, and pH).
- Collect GPS coordinates at the sample locations.
- Update the contaminated site model (CSM) in the RI Report, discussing the analytical results, and assessing potential risks to on- and off-site receptors via the drainage system.

To complete the scope of work listed above, the following assumptions were made:

- Ecology will confirm the presence of accumulated water within the drainage system and wetland prior to the mobilization and collection of the grab water samples.
- Access and security will be provided by Ecology and/or the local sheriff's office (to be coordinated by Ecology).
- No railroad right of way (ROW) permit will be required to collect the background grab water sample.
- Only one sampling mobilization and sampling event will be conducted to collect the supplemental water samples.

GRAB WATER SAMPLING

Haley & Aldrich will collect up to five grab water samples (HA-W-01 through HA-W-05) and one duplicate sample for chemical analysis from the various drainages described above. Water samples will be collected using laboratory-provided containers and proper personal protective equipment. Grab samples may be collected using a telescopic pole and cup for safety purposes in case water is flowing quickly or if water levels are sufficiently deep to warrant the equipment. If used, the cup will be thoroughly decontaminated in-between sample locations. The surface water sampling will be conducted once, when water levels in the area have accumulated enough to sampleable levels.

FIELD SCREENING AND SAMPLING AND DOCUMENTATION

Field personnel will collect the grab water samples from the locations shown on Figure 2. However, the exact locations may change if the drainage areas have changed or the location is inaccessible. Following the collection of each sample, pH, specific conductivity, and turbidity will be measured in the field. Furthermore, field personal will note any observations in the sample or accumulated water (i.e., sheen, odor, accumulated debris).

Samples collected by field personnel will be submitted for environmental testing under standard chain of custody procedures to the analytical laboratory (Onsite Environmental, Inc.) for chemical analyses. Copies of all final analytical laboratory data will be submitted electronically to Ecology. All environmental data derived during this supplemental investigation will be uploaded to Ecology's Environmental Information Management database/system.

LABORATORY ANALYSIS, QUALITY ASSURANCE, AND QUALITY CONTROL

Chemical laboratory analyses will be completed by an Ecology accredited analytical laboratory (Onsite Environmental, Inc.) consistent with standard protocols and practices for similar sites. The laboratory reports will be reviewed by a Haley & Aldrich technical specialist to ensure conformance with project standards, provide additional data qualifications as appropriate, and verify that the data are acceptable for the purposes of the project. Further details on quality assurance and quality control measures are described in Appendix A (Sampling and Analysis Plan) of the RI work plan (Haley & Aldrich, 2023).

REPORTING

Upon completion of field work and data analyses, the Draft RI Report will be updated for Ecology, which will include the supplemental field activities, sampling procedures, and laboratory testing results. The environmental data collected during this investigation will be used to identify contaminants of potential concern that may be impacting or are present in the wetland and drainage system. Analytical results will be compared to appropriate screening levels. Documentation of the fieldwork, data validation, and quality assurance/quality control will be provided, along with an evaluation of the analytical results, and recommendations for further assessment, if applicable.

Use of this Memorandum

Work for this project will be performed in accordance with generally accepted professional practices for the nature and conditions of the work completed in the same or similar localities, at the time the work will be performed. It is intended for the exclusive use of Ecology for specific application to the referenced property. This memorandum is not meant to represent a legal opinion. No other warranty, express or implied, is made.

Attachments:

Figure 1 – Vicinity Map
Figure 2 – Site Map and Proposed Grab Water Sample Locations

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References

1. Haley & Aldrich, 2023. Remedial Investigation Work Plan - Treoil Industries Biorefinery. For Washington State Department of Ecology. August 2023.

2. Haley & Aldrich, 2024. Remedial Investigation Report - Treoil Industries Biorefinery. For Washington State Department of Ecology. 10 April 2024.

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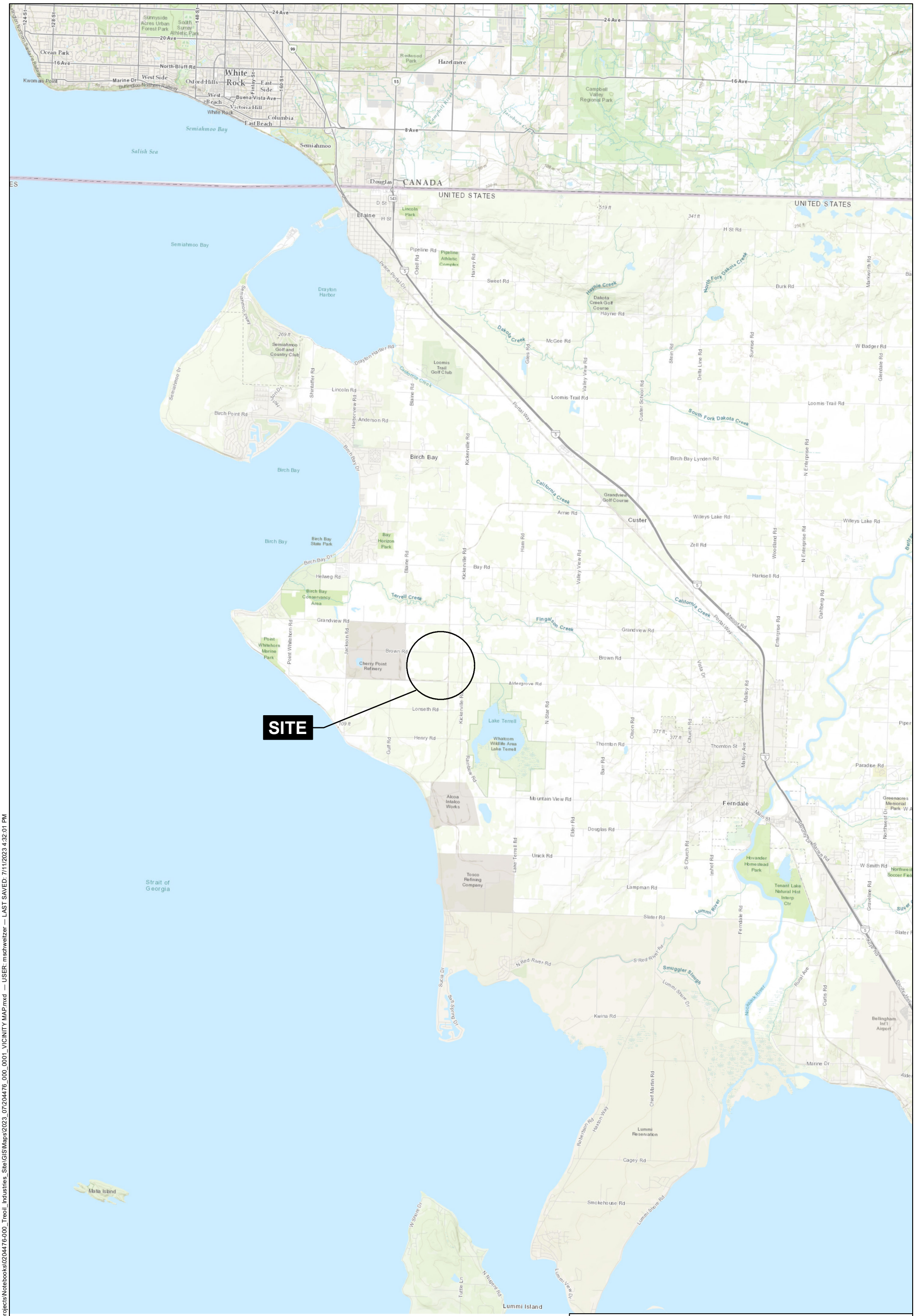

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. BASEMAP IMAGERY SOURCE: ESRI

HALEY ALDRICH

TREOIL INDUSTRIES SITE
FERNDALE, WASHINGTON

VICINITY MAP

JULY 2023

FIGURE 1

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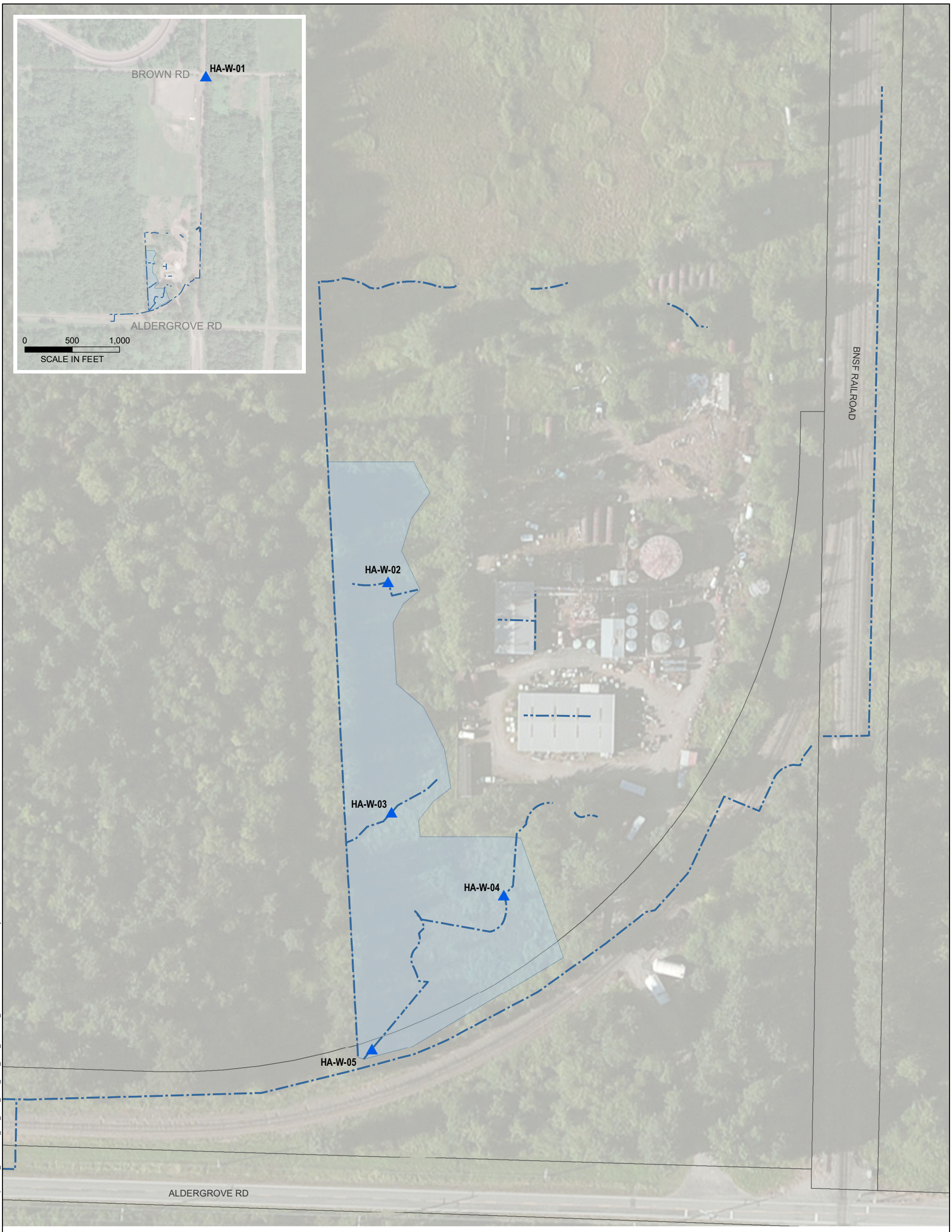

LEGEND

- PROPOSED SUPPLEMENTAL GRAB WATER SAMPLE
- DRAINAGE
- DELINEATED WETLAND
- PARCEL BOUNDARY

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. DRAINAGE IN RAILROAD RIGHT OF WAY IS ASSUMED TO EXTEND NORTHWARD TO BROWN ROAD. FULL PATH NOT SHOWN.
3. SAMPLE LOCATIONS MAY BE ADJUSTED OR ELIMINATED DEPENDING ON THE DRAINAGE AND FIELD CONDITIONS AT THE TIME OF SAMPLING.
4. ASSESSOR PARCEL DATA SOURCE: WHATCOM COUNTY
5. AERIAL IMAGERY SOURCE: ESRI

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MAIN MAP SCALE IN FEET

HALEY ALDRICH

TREOIL INDUSTRIES SITE
FERNDALE, WASHINGTON

SITE MAP AND PROPOSED GRAB WATER SAMPLE LOCATIONS

NOVEMBER 2024

FIGURE 2

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