Remedial Investigation and Feasibility Study Report

Dawn Foods Site
6901 Fox Ave South
Seattle, Washington

Ecology Facility Site ID No.: 3505
Cleanup Site ID No.: 16678
Agreed Order No.: 21602

Project Number: 033-009

Prepared for:

BRIDGE

August 24, 2026

Prepared by:

CRETE CONSULTING, INC.

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Dawn Foods Site
6901 Fox Ave South
Seattle, Washington

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Acronyms and Abbreviations

ARARs	applicable or relevant and appropriate requirements
ASTs	aboveground storage tanks
bgs	below ground surface
Bridge	Bridge Point Seattle 130, LLC
BTEX	benzene, toluene, ethylbenzene, and xylenes
cPAHs	carcinogenic polycyclic aromatic hydrocarbons
CSM	conceptual site model
COC	chemical of concern
COI	constituents of interest
CVOC	chlorinated volatile organic compound
CUL	Cleanup up level
Ecology	Washington Department of Ecology
EPA	United States Environmental Protection Agency
ERD	enhanced in-situ reductive dechlorination
FBI	Friedman & Bruya, Inc
ft	foot
GC/MS	gas chromatography/mass spectrometry
GWCC	Great Western Chemical/Cascade Columbia Distribution Company
IHSs	indicator hazardous substances
IA	Interim Action
IAWP	Interim Action Work Plan
ICP-DRC-MS	inductively coupled plasma dynamic reaction cell mass spectrometry
LDW	Lower Duwamish Waterway

µg/L	microgram per liter
µg/m^3	microgram per cubic meter
µS/cm	microSiemens per centimeter
mg/kg	milligram per kilogram
MTCA	Model Toxics Control Act
NAVD88	North American Vertical Datum of 1988
PCE	perchloroethylene (tetrachloroethene)
pg/L	picogram/liter
PAHs	polycyclic aromatic hydrocarbons
PCBs	polychlorinated biphenyl Aroclors
PMEP	Permanent to the Maximum Extent Practicable
PCUL	Preliminary Cleanup Level
PQL	Practical quantitative limit
QAPP	Quality Assurance Project Plan
QQQ	triple quadrupole mass spectrometry
RI/FS	Remedial Investigation/Feasibility Study
RIWP	Remedial Investigation Work Plan
Site	Former Dawn Foods facility
SGC	Silica gel cleanup
SL	Screening level
SVOCs	Semi-volatile organic compounds
TEA	Terminal electronic acceptors
TEE	terrestrial ecological evaluation
TEQ	Toxic equivalency
TCE	trichloroethene
TOC	Total organic carbon
TPH	total petroleum hydrocarbons
PCE	tetrachloroethene
VC	Vinyl Chloride
VOC	volatile organic compound
WAC	Washington Administrative Code
ZVI	Zero-valent iron

Engineer’s Certification

I certify that the Remedial Investigation and Feasibility Study for the Former Dawn Foods facility (located at 6901 Fox Ave South in Seattle, Washington) was completed by me or by a person under my direct supervision.

Work for this project was performed in accordance with generally accepted professional practices for the nature and condition of work completed in the same or similar localities, at the time the work was performed.

No other warranty, express or implied, is made.

8/24/2026

Grant Hainsworth P.E., Principal
Washington State PE Number: 33192
Expiration Date: 6/5/2027

1 Introduction

This report presents the Remedial Investigation and Feasibility Study (RI/FS) for the Dawn Foods Site (Site), located at 6901 Fox Ave South in Seattle, Washington (see Figure 1; King County Parcel Number 000180-0113). The Site is currently owned by Bridge Point Seattle 130 (Bridge). This document has been prepared on behalf of Bridge for review and technical consultation by the Washington State Department of Ecology (Ecology) as required by Agreed Order (AO) No. 2160*2.*

The purpose of this report is to document Site conditions, examine remedial options, and recommend a remedy protective of human health and the environment consistent with Chapter 70A.305 RCW, Model Toxics Control Act (MTCA), as implemented by Chapter 173-340 WAC, MTCA Cleanup Regulation (collectively "MTCA"). This document is organized as follows in accordance with Ecology's Remedial Investigation and Feasibility Study Checklists:

- Section 2 summarizes general Site information, Site history, and Site uses including adjacent property uses.
- Section 3 presents the results of field investigations including previous environmental investigations, Site characterization, and sampling analytical results.
- Section 4 presents the Conceptual Site Model based on the data presented in Section 2.
- Section 5 presents proposed Site cleanup standards as well as indicator hazardous substances and the terrestrial ecological evaluation (TEE).
- Section 6 presents the remedial objectives and a reasonable number and type of potential remedial alternatives for the feasibility study.
- Section 7 presents a detailed evaluation of the potential remedial alternatives
- Section 8 evaluates the proposed remedial alternatives including a disproportionate cost analysis (DCA) and recommendation for the preferred remedy selection.
- Section 9 provides additional details regarding the preferred remedy.

2 Remedial Investigation

2.1 Environmental Setting

The Site covers 5.4-acres and is located in the Georgetown neighborhood of Seattle on the eastern shoreline of the Duwamish Waterway. The Site includes a warehouse building built in 1977 that is approximately 128,800 square feet (2.96 acres; King County parcel number 000180-0113[1]). The entire property, with the exception of limited landscaping, is covered with buildings, concrete, or asphalt.

In 2020 Bridge purchased the property from Guimont Fox Avenue LLC. The property, including the warehouse building, was leased to Dawn Food Products, Inc. through the end of 2023 to mix, store, produce, and ship dry food products, such as cake and brownie mixes. Bulk oils, which were used to make the dry food products, such as canola oil were received by truck and were previously received by rail. Currently the building is vacant.

The Site stormwater system collects roof drainage and surface flow as shown on Figure 2. The discharge point is a single outfall located adjacent to the Seattle Boiler Works property (500 South Myrtle Street, Seattle) with discharge to the Duwamish Waterway (Figure 2). Stormwater associated with operations on the Site is managed in compliance with Industrial Stormwater General Permit No. WAR011560. This stormwater discharges to the Duwamish Waterway at a point south of the southern property boundary. As shown on Figure 2, at least one other source contributes to the discharge point depicted as “unknown source” on the Seattle Boiler Works property.

The Site is located in the Georgetown neighborhood of Seattle adjacent to the Duwamish Waterway in a predominately industrial/commercial area of Seattle. The Site is zoned General Industrial MML U85 by the City of Seattle, which is for maritime, manufacturing, and logistics uses. Under the City of Seattle 2035 Master Plan[2], the Site will continue to be used for industrial purposes for the foreseeable future.

2.1.1 Points of Contact

Key Site contacts include:

Ecology Project Coordinator:
David Unruh
Northwest Region Office
david.unruh@ecy.wa.gov
(206) 459-6287

[1]Legal Description: LUTHER M COLLINS DC #46 & POR OF ABANDONED BED OF DUWAMISH RIVER IN NW 1/4 29-24-4 & POR VAC S WILLOW ST BEG NXN SWLY MGN OF FOX AVE S & C/L OF VAC S WILLOW ST TH N 88-49-54 W 838.35 FT TO NELY LN C W W #1 TH S 42-24-31 E 384.40 FT TH S 89-03-52 E 834.98 FT TO SWLY MGN SD FOX AVE TH N 42-23-30 W 379.61 FT TO BEG

[2] https://www.seattle.gov/opcd/current-projects/seattle-2035-comprehensive-plan

Site Owner:
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2.1.2 Site History and Past Land Use

The history and past land uses of the Site are summarized below. Figure 3 shows the historical features based upon historical aerial photographs and Sanborn Fire Insurance maps overlain on a current aerial photograph of the Site vicinity. In particular, features and the shorelines from 1917 and 1966 (Sanborn Fire Insurance maps) are identified. These years are selected because they are well represented on available historical documents. 1917 represents the very early record of the maritime use/shoreline features and 1966 represents the shift to metal fabrication. Figure 3 also presents improvements, historical features, and shorelines for adjacent and surrounding properties. Figure 4 presents key historical aerial photographs to show the changes between 1917 and 1977, and represents the present-day configuration of the Site, the shorelines, and the vicinity. During remedial investigation activities, no evidence of the former buildings or structures (e.g. marine railways) was observed, suggesting the historical infrastructure was removed.

- The Site is located in the Duwamish River Valley and is on the eastern shore of the Duwamish Waterway. The river formerly meandered throughout the area until the 1913 to 1916 dredging program provided a channelized Duwamish Waterway.
- Ship building activities, such as ship repair, painting, and fabrication, likely occurred between about 1917 and 1953 (see Figures 4A through 4D). The 1917 and 1929 Sanborn maps indicate that McAteer Shipbuilding, a wooden boat builder, was located on the subject property. Records reviewed indicate that National Steel Corporation, which occupied the parcel south of the Site (currently Seattle Boiler Works, 500 S Myrtle Street), expanded operations around 1929 and took over McAteer Ship Building Company. National Steel Construction is present on the 1949 and 1966 Sanborn maps. The extent to which National Steel Construction was involved in shipbuilding or repair is unclear. Aerial photos show that boats were present on the shoreline through 1936 and shoreline filling occurred between 1953 and 1956. Tax records indicate that the former buildings (at least 7 at one time) were constructed around 1929.

- Emerson GM Diesel, a sheet metal fabrication and generator manufacturing company, leased and operated on the property after ship building activities decreased/ceased starting around 1967/1969 (see Figure 3).
- King County Tax assessor records indicate that the existing warehouse was constructed in 1977 with all previously existing buildings demolished at that time. Fox Avenue Warehouse Corporation is listed as the owner of the property at that time, followed by Carline Foods and Sam Wylde Flour and Energy Foods occupying the building up until approximately 1987 (Hart Crowser 1996a and ECI 1998).
- Records indicate that the current warehouse (constructed in 1977) was used by various food companies, such as Bunge Foods (1988 to 2003) and then Dawn Food Products, Inc (2003 to 2023).
- In 2020 Bridge purchased the property from Guimont Fox Avenue LLC. The property, including the warehouse building, was leased to Dawn Food Products, Inc. through the end of 2023.
- Since being vacated the building has been rehabilitated and is currently vacant.

2.1.3 Future Planned Land Use

Bridge is currently completing renovations to the existing warehouse which will maintain its use as an industrial warehouse consistent with local zoning and master use planning. A future tenant will likely use the warehouse for distribution.

2.1.4 Vulnerable Populations and Overburdened Communities

The Site is located within a likely vulnerable population or overburdened community as it satisfies the first of the test criteria outlined in Ecology guidance (Ecology 2024):

1. The Site is located in a census tract that ranks a 10 on the Environmental Health Disparities Index from the Washington State Department of Health's EHD Map[3].

The Site does not exceed the threshold for the second and third test criteria:

2. The Site is located in a census tract that is below the 80th Washington state percentile of the Demographic Index from the U.S. Environmental Protection Agency's EJ Screen[4] (the Site is located in the 77th percentile in Washington state); and

[3] https://fortress.wa.gov/doh/wtnibl/WTNIBL/Map/EHD

[4] EPA's online EJ Screen tool was not active at time of this draft report. The tool was accessed through this non-EPA link: https://pedp-ejscreen.azurewebsites.net/

3. The Site is located in a census tract that is below the 80th Washington state percentile of the Supplemental Demographic Index from the U.S. Environmental Protection Agency's EJ Screen (the Site is located in the 70th percentile in Washington state).

The Interim Action (IA; Section 3.2) and Bridge's ongoing efforts to comply with the requirements of the AO will serve to address historical impacts at the Site and address potential human and environmental exposures. Those restorative actions will be further considered and documented in the evaluation of remedial actions presented in Section 8.

2.2 Adjacent General Site Information

2.2.1 Duwamish Waterway

The western Site boundary is the Duwamish Waterway. This portion of the Duwamish Waterway is within the Lower Duwamish Waterway (LDW) Superfund Site which is a 5-mile stretch of the channelized river that flows north into Elliot Bay. The site boundaries are defined as river mile 2.5 to river mile 10.8, Seattle Washington, U.S. Environmental Protection Agency (EPA) Identification No.: WA00002329803.

The LDW was added to the National Priorities List in 2001. Sediment in the LDW contains a wide range of contaminants due to decades of industrial activity and runoff from urban areas. EPA is leading efforts to assess and clean up the in-water impacts, while Ecology is the primary regulatory authority for upland source control sites along the LDW. The Site has been assessed as part of the EPA process and is not included as a contributor to the LDW.

2.2.2 Great Western Chemical/Cascade Columbia Distribution

Great Western Chemical/Cascade Columbia Distribution Company (GWCC) is located hydraulically upgradient to the east of the Site (Figures 3 and 5). That site is located at 6900 Fox Avenue, Ecology Facility Site ID No.: 2282 and Ecology Cleanup Site ID No.: 5082.

GWCC operated a chemical and petroleum repackaging and distribution facility on the upgradient property. Groundwater flows from GWCC towards the Site (in an east to west direction) with eventual discharge to the Duwamish Waterway.

In 1990, releases on the GWCC property were reported from multiple underground storage tanks (USTs) of unspecified petroleum products, halogenated organics, and non-halogenated solvents. In 2012, Ecology entered into an Agreed Order with the current property owner, Fox Ave Building LLC, to implement a Cleanup Action Plan.

Based on information reported by Ecology,[5] contaminants of concern in the soil and groundwater originating from the GWCC property are:

[5] https://apps.ecology.wa.gov/gsp/Sitepage.aspx?csid=5082

- Chlorinated volatile organic compounds (CVOCs)
- Petroleum hydrocarbons
- Semi-volatile organic compounds (SVOCs), including polycyclic aromatic hydrocarbons (PAHs)
- Dioxins and furans

Documents for the GWCC cleanup show the “Northwest Corner Plume CAA [Cleanup Action Area]” and the “Loading Dock Area” overlapping with the Site, as shown on Figure 5. The southeastern portion of the Bridge Property is designated as part of the “Downgradient Groundwater Plume CAA” for the GWCC Site. Data from the 2012 Cleanup Action Plan indicate that the impacts to the Bridge property include tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene, and vinyl chloride in groundwater (Ecology 2012). The potential for vapor intrusion (VI) at the Site due to this groundwater contamination does not appear to have been assessed by GWCC, although the data indicate that groundwater is likely impacted at concentrations exceeding applicable screening levels for VI.

Thermal treatment of groundwater occurred from January to May of 2013 and “bio-polishing” was initiated in 2014 (Calibre 2024). In March and August 2022, bio-polishing actions, which included the injection of soluble substrate in selected wells, bio-augmentation, buffer water injections, and performance groundwater monitoring were completed. Substrate injections were performed in the Northwest Corner Plume CAA portion of the GWCC Site (Calibre 2022) due to the presence of shallow groundwater concentrations that exceeded the total CVOC remediation level of 250 micrograms/liter (µg/L)[6]. Groundwater sampling was completed in July 2022 and August 2023 and indicated total CVOCs in the shallow groundwater bearing zone were present immediately upgradient from the Dawn Foods Site at concentrations between 124 and 191 µg/L in 2022 and between 48 and 208 µg/L in 2023 (Calibre 2024). These results are similar to the pre-remediation total CVOCs concentration range of 63.2 and 144 µg/L reported for sampling performed in June 2019 (Calibre 2019). Furthermore, concentrations of PCE are as high as 112 µg/L and TCE is as high as 17.9 µg/L at B-22, and vinyl chloride is as high as 30.3 to 55.1 µg/L at R1-1W12 and NW1-1, respectively. All three of these wells are located on the east side of Fox Ave South, immediately upgradient of the Site (Calibre 2024). These findings confirm a likely continuing impact to the Dawn Foods Site from historical releases on the GWCC Site.

2.2.3 Schultz Distributing

Emerson/Schultz Distributing was located northeast of the Site across Fox Avenue S, immediately north of GWCC as shown on Figure 3. The property is currently associated with Safety-Kleen with an address of 6801 E. Marginal Way S.

[6] The site-wide cleanup levels for groundwater are considerably higher than the cleanup levels established for this site (discussed in Section 5). The GWCC Cleanup levels for the main indicator CVOCs are: PCE = 3.3 ug/L; TCE = 30 ug/L and vinyl chloride = 2.4 ug/L.

Emerson/Schultz Distributing was developed in the 1920s for the Gypsum Products Corporation. From the late 1930s until the 1960s, Federal Pipe manufactured wood pipes and tanks. Its operations included a dip tank, drying kilns, and warehouse space. In 1964, a group of individuals, including members of the Emerson family, purchased the Gypsum Products Corporation. Emerson GM Diesel then leased the property in the 1960s and performed maintenance and repair of diesel motors and trucks. Pacific Detroit Diesel occupied the property between 1989 and 1996. In 1996, the property was leased to Schultz Distributing, Inc. Schultz has used the property as a distribution center for petroleum products. A number of aboveground storage tanks (ASTs; more than 21 based on aerial photos from 2006-2017) were installed on the Site as part of the Schultz operation. An internet search indicates that Schultz no longer operates at the property. It is not clear when Schultz vacated the property; Alpine Auto Sales is identified in the historical directories on the western portion of the property as early as 2010.

Past environmental investigations identified solvent use in the central part of the yard and in the shop area. In the western part of the yard nearest to the Dawn Foods Site, a 2,000- to 6,000-gallon UST collected paint material and solvents from a former paint room/carpenter shop (Floyd|Snider 2011).

Based on the location of the Schultz Distributing property, the history of that property, the known CVOC contamination, and the direction of groundwater migration, this property may be contributing to CVOC impacts on the Dawn Foods Site. The Schultz Distributing property does not appear to have been identified as a potential contaminated site by Ecology.

2.2.4 Seatac Marine Services

Seatac Marine Services LLC is located north of the Site shown on Figure 3 (6701 Fox Ave S). Environmental records indicate that a UST up to 1,100-gallons was present and removed at the site, but the tank closure date is not listed. Methyl ethyl ketone (MEK) was reportedly used at the site. Records indicate a reported spill at this site of 1 gallon of hydraulic oil on October 14, 2019. Multiple vendors operated out of the Seatac Marine Services properties, including Northland Services Inc, which was a RCRA small quantity generator, and United Marine Shipbuilding, which was a RCRA large quantity generator in 1990 (CRETE 2024a).

2.2.5 Seattle Boiler Works

Seattle Boiler Works provides fabrication and processing of boiler related products constructed mostly of metal. This site is located to the south of the Site shown on Figure 3 (500 and 501 South Myrtle Street). This site is down-gradient and/or cross-gradient of the subject property. The site reportedly has a UST that was installed in 1964 but no additional information was available to determine if this UST is still present. Reported spills at this site include an unknown volume of fuel oil in 1998, 15-gallons of diesel fuel in 2009, and transmission fluid into a stormwater catch basin on February 26, 2020 (CRETE 2024a).

During initial investigations at the Site in 2000, three direct push boreholes were advanced in the parking lot on the Seattle Boiler Works property (GP-SB-8, GP-SB-9, and GP-SB-12). Reconnaissance groundwater and soil analytical data from these off-Site locations are discussed as part of the Dawn Foods dataset.

3 Field Investigations

3.1 Previous Environmental Investigations

Numerous investigations have occurred at the Site between 1988 and 2025. Figures 6 and 7 show the known environmental sampling locations between 1996 and 2025. Below is a summary of environmental investigations completed to date.

3.1.1 1988 Earth Consultants, Inc.

On May 24, 1988, Earth Consultants Inc. (ECI) conducted soil sampling activities on the Site, prior to the adoption of MTCA. Laboratory analyses were conducted to evaluate soils for the presence of petroleum hydrocarbons and heavy metals. Conclusions presented in ECI's report to Larco Development dated May 31, 1988 acknowledged the presence of relatively small, localized surficial spillages of oil along the railroad tracks north of the building. The report concluded that the data suggested that the concentration of petroleum (oil) was below then current environmental regulatory agency "action levels" and that no remedial measures would be required under then existing law. No heavy metals were detected (ECI 1988). Other potential contaminants of concern were not considered. The ECI document does not include a diagram of sample locations, tables summarizing data, or copies of laboratory reports.

The data quality of this report is considered low and the scope of the work appears to be below the current standard of care.

3.1.2 1996 Hart Crowser

In 1996 Hart Crowser completed a limited subsurface investigation of the Site for the Guimont Trust (Figure 6; Hart Crowser 1996a). This investigation appears to have been performed to address recommendations presented in a Preliminary Environmental Assessment, which was prepared for Maple Leaf Property Management (Hart Crowser 1996b). Sample locations focused on four areas of the Site: the vicinity of the GWCC property boundary (HC-1); the vicinity of the historical sheet metal and assembling area/near a historical tar kettle building and boiler/aluminum dipping area (HC-2); downgradient of the former sheet metal area and near a possible paint spray booth (HC-3); and in the vicinity of historical ship painting and repair (HC-4 and HC-5).

Results of this report included field observations of petroleum-like odor in one location (sample location HC-4) and metals detected at two locations in the western portion of the subject property (in sample locations HC-4 and HC-5). Lead was detected above MTCA direct contact values at one location (HC-4). Volatile organic compounds were detected in several sample locations, but the report concluded that insufficient data was available to determine the source of the solvents (Hart Crowser 1996B). These historical features are shown on Figure 3 and 1996 Hart Crowser sample locations are shown on Figure 6.

3.1.3 2020-2026 CRETE

Additional assessments, associated with the property purchase due diligence, were conducted at the Site to further assess the findings of the earlier characterization efforts. The additional assessment actions were conducted both before and after the effective date of the AO (July 6, 2023).

3.1.3.1 Prior to Agreed Order

Prior to the effective date of the AO CRETE conducted further assessments of soil and groundwater conditions. This work was done to confirm the 1996 Hart Crowser data, verify that chlorinated volatile organic compounds (CVOCs) were present in groundwater along the eastern property boundary and the upgradient portion the Site due to the likely migration from the GWCC site (and potentially Schultz), characterize the vertical extent of contamination in soil, evaluate subslab and indoor air conditions and evaluate tidal influence on shallow groundwater conditions. Work included:

- Soil and groundwater sampling from temporary push probe drilling locations and from monitoring wells.
- Six monitoring wells (MW-1, MW-2, MW-3, MW-4, MW-5, and MW-6) were installed December 15-16, 2021 and subsequently developed on December 17, 2021.
- Three additional monitoring wells (MW-7, MW-8, and MW-9) were installed on March 9, 2023 and developed on March 13, 2023.
- Subslab and indoor air vapor sampling (June 2020 and June 2021; BR-SS/IA & IA1/BR-1A; OF-SS/IA & IA2/OF-IA; IA3; WH04-SS/WH-SS/IA & IA4; WH-05-SS/IA5; WH06-SS/IA6).
- A tidal study was performed from January 4 to 10, 2022 to assess the potential tidal influence on groundwater at the Site.

Investigation sample locations are shown on Figure 7.

3.1.3.2 Remedial Investigation

As noted, the effective date of the AO was July 2023. Prior to undertaking additional assessment of the Site, all of the then-existing data were shared with Ecology as required by the AO. Existing data were evaluated in the Remedial Investigation Work Plan (RIWP, CRETE 2024b) to identify data gaps. In accordance with the methods detailed in the RIWP, RI sampling was conducted from late 2023 through July 2026. The data gaps and the associated additional investigative tasks included:

- Groundwater quality immediately upgradient of groundwater discharge to the LDW. A well point, PD-1, was installed at the base of the shoreline bank downgradient of MW-1 on January 10, 2024. Sampling was performed at PD1 in January, April, June and September 2024. A second well point, PD-2, was installed and sampled on July 16, 2026 at the base of the shoreline bank downgradient of MW-3.

- Water quality within groundwater seeps on the east bank of the LDW. Additional samples were collected from visible surface water seeps in April, June, and September 2024 (Seep, Seep-MW1, Seep-MW2) and a surface water sample (LDW) was collected on June 6, 2024.
- MW-3D was installed in February 2026, this well is installed immediately upgradient of existing well MW-3. Additional soil borings, MW-3B, MW-3C, were completed for geological logging only. These borings were advanced to inform the location of MW-3D, which was installed outside of historical fill placed along the shoreline (discussed in Section 3.3.3). Soil boring RI-SB-19 was advanced on July 14, 2026 immediately upgradient of MW-3, approximately 4 feet to the east of MW-3. This soil boring was installed to inform the extent of debris in the vicinity of MW-3.
- Additional synoptic data for Sitewide groundwater quality. Quarterly groundwater sampling was performed at monitoring wells (MW-1 through MW-9) in March, June, and August 2023, January, April, June, and September 2024, February, May, and September 2025, and January 2026. Monitoring wells MW-10 and MW-11 were sampled from September 2024 through January 2026. MW-3D was sampled in February, June, and July 2026.
- Additional soil and groundwater delineation in the vicinity of the building and potential source areas. Additional drilling was performed and included completing soil borings RI-SB-07 through RI-SB-18 and collecting temporary groundwater grab samples from these twelve (12) locations on February 27 through February 29, 2024.
- Potential vapor intrusion beneath the warehouse building. Collected subslab vapor and indoor air and ambient air vapor samples on May 2, 2024. These locations included subslab samples BR-SS0524, OF-SS-0524, WH04-SS-0524, WH05-SS-0524, WH06-SS-0524, indoor air samples IA1-050124 through IA8-050124, ambient air samples AE-050124 and AW-050124.
- Additional information regarding the interaction between groundwater and the LDW and the potential extent of tidal influence and hydraulic communication. Completed a tidal study on October 28 through October 31, 2023.

Sample locations are shown on Figure 7. The results of these investigation efforts are summarized in Section 3.4. Appendix A includes copies of the laboratory reports not previously provided to Ecology. Soil and groundwater samples were collected in accordance with the RIWP Sampling and Analysis Plan / Quality Assurance Project Plan (SAP/QAPP) with the following minor deviations:

- Seep samples – water samples were collected from seeps observed during low tide. Seep sampling was not specified in the RIWP, this was added to provide data to assess groundwater discharge to surface water.
- LDW grab sample – surface water grab samples were collected directly from the LDW to provide background water quality information. Surface water sampling was not specified in the RIWP but was added to provide background data to assess groundwater quality.

- MW-3D – Three soil borings and one monitoring well (MW-3D) were installed in February 2026. These borings and this monitoring well were not specified in the RIWP but were added to assess groundwater quality upgradient of MW-3 as requested by Ecology[7].

Initial seep and surface water sampling deviations were noted in the second quarter 2024 progress report. Additional seep sampling was coordinated with Ecology in July 2024 based on review of RI data.

3.2 Previous Remedial Actions

To address CVOCs and zinc in groundwater in the southwestern corner, the southcentral portion, and the southeastern corner of the Site, an Interim Action (IA) was implemented from November 8 through 21, 2024. The IA included in-situ enhanced reductive dechlorination (ERD) for CVOCs and anaerobic sulfate-reduction for zinc via substrate injection in the vicinity of MW-5/MW-4, RI-SB-13, and MW-8.

All work was performed in accordance with WAC 173-340-430 and the Ecology approved IA Work Plan (IAWP; CRETE 2024c). The extent of the IA is shown on Figure 8. To address both CVOCs and zinc in groundwater and soil, a nutrient-amended carbohydrate electron donor was injected in the vicinity of MW-5/MW-4, RI-SB-13, and MW-8. The application of the electron donor to the subsurface created reductive conditions necessary for the reductive dechlorination of CVOCs and the sulfate reduction of zinc sulfate to zinc sulfide which results in removal of zinc from solution and subsequent precipitation. For CVOCs, the goal was to address the minor mass of chlorinated solvents dissolved in groundwater, but also address the majority of the chlorinated solvent mass sorbed onto the organic fraction in the soil as it partitions into the groundwater. For zinc, the goal was to transform adequate zinc in soil and groundwater to less soluble zinc sulfide to reduce groundwater concentrations to below the zinc CUL prior to migration to surface water.

The IAWP included installing 2 new monitoring wells – MW-10 and MW-11 (Figure 8). These wells were installed on September 19, 2024. A baseline sampling event was conducted on September 24, 2024, prior to implementing the IA on November 8, 2024. Wells sampled in the baseline event included: MW-1, MW-4, MW-5, MW-8, MW-10 and MW-11. Quarterly sampling was conducted in February, May, September 2025 and January 2026 at these same wells. Select additional groundwater samples were collected at other wells during the quarterly events (MW-2, MW-3 and MW-9).

[7] This scope was requested by Ecology in comments on the 2025 draft RIFS and discussed during a meeting with Ecology on January 14, 2026.

3.3 Site Conditions

3.3.1 Physical Surface Features

The Site covers 5.4-acres and includes a 128,800 square feet (2.96 acres) warehouse. The Site is covered in pavement/concrete surfaces except for two landscape areas along the shoreline, a landscape area along Fox Avenue, small areas at two transformer locations, and the rail spur north of the building. The top of the pavement is approximately 15.5 ft NAVD88[8]. The shoreline is armored from the top of bank and into the Duwamish Waterway.

The improvements to the Site eliminate the realistic possibility of its use as any type of meaningful environmental or ecological habitat. (See Section 5.3.1 Terrestrial Ecological Evaluation).

3.3.2 Regional Geology

The greater Duwamish Valley was formed by the carving action of glaciers that last advanced into this area from British Columbia approximately 15,000 years ago. When the ice sheets began to retreat approximately 5,700 years ago, the waters of Puget Sound extended up the Duwamish Valley as far south as Auburn, about 32 km (19 mi) upstream of the present mouth of the Duwamish River at Elliott Bay. Around that same time, the Osceola Mudflow descended from Mount Rainier, depositing a massive layer of sediment into the then marine waters near present-day Auburn and Kent. The mudflow diverted the historical course of the White River, at that time a tributary of the Puyallup River, to the Green River (Booth and Herman 1998).

The alluvial fill within the Duwamish Valley deepened over time from the deposition of upstream fluvial sediments of the White, Green, and Black Rivers, advancing the mouth of the Duwamish River farther to the north. The fill included beds of fine silts gravels deposited near the water’s edge. These sediments eventually buried the post-glacial form of the valley so that only a few outcroppings of bedrock remain exposed at the ground surface. As the river flooded and migrated back and forth across the floodplain, these sediments were re-deposited by the river and continually intermixed with additional riverine and floodplain deposits (Booth and Herman 1998). In the late 1800s and early 1900s, extensive modifications were made to the river, including the filling of tide flats and floodplains to straighten the river channel, resulting in the abandonment of almost 6 km (3.7 mi) of the original meandering riverbed. Several current side slips in the LDW are remnants of these old river meanders. The channel was dredged for navigational purposes, and the excavated material was frequently used to fill the old channel areas and the lowlands to bring them above flood levels. Subsequent filling of the lowlands for continued development resulted in a surficial layer of fill over most of the lower Duwamish Valley. Although the sediment types encountered in the LDW are variable (either from changing regional or local hydrodynamics or anthropogenic disturbances), basic sedimentary patterns of interbedded silts and sands are present in the LDW (Booth and Herman 1998).

[8] 15.5 ft NAVD88 is the average elevation measured at the surface between monitoring wells MW-1 through MW-6.

Valley deposits consist of 50 to 100 feet of older alluvium (Qoal), representing sand and silt estuarine deposits. Locally, these older sediments contain discontinuous gravel lenses, shells, and some wood. The younger alluvial deposits atop the older alluvium have a relatively uniform thickness and depth, with a base that almost everywhere is within 5 to 10 feet of the modern sea level. These deposits, which consist of silt, sand, and sandy silt with abundant wood and organics, represent channel and floodplain deposits laid down by the modern Duwamish River. Overlying the younger alluvium are varying amounts of fill that range in thickness from 3 to 10 feet. The fill material is composed of a mixture of sand, gravel, silt, and miscellaneous construction debris.

Groundwater occurs throughout the Lower Duwamish Valley in both the older and younger alluvial deposits. Shallow groundwater can also occur locally within fill material. In general, the valley alluvium is believed to comprise a single, large aquifer system (Booth and Herman 1998). Locally, where this aquifer is thickest, upper and lower groundwater zones are often differentiated on a site-specific basis, based on the occurrence of locally-continuous silt layers, upward gradients at depth, and/or saline groundwater pockets (Booth and Herman 1998). Although some of the deeper saline pockets are a reflection of the current intrusion of marine waters, most reflect connate or “trapped” seawater from previous depositional events. Groundwater recharge to the valley occurs via both infiltration and from upland aquifers that discharge into the alluvial valley both along subsurface pathways and through visible seeps along valley walls. Groundwater discharge is primarily to the channel of the Duwamish Waterway.

3.3.3 Site Geology

Site geologic conditions are illustrated on the geologic cross sections (Figures 9 and 10). The cross section locations were chosen as a representative schematic of the geologic units encountered by Site explorations. Appendix B includes borehole logs collected during the 2020 and 2024 field investigations. Direct push cores and monitoring well hollow stem augers were advanced to a depth of approximately 15 to 21.5 ft below ground surface (bgs). The units encountered beginning at the surface and progressing deeper are discussed in the following subsections.

3.3.3.1 **Undocumented Fill Material**

Near-surface soil at the Site predominately consists of historically placed undocumented fill material. Fill is present from ground surface (below pavement and structures) to a depth of 4 to 12 ft bgs. Wood debris (lumber, pallet fragments), brick fragments, asphalt rubble, concrete rubble, or waste (glass, metal, plastic) within the soil matrix are indicative of fill materials. These types of debris were observed in soil borings collected at the Site (MW-1, -2, -3, -5, -6, GP-SB-5, -6, -11, -13, 20, -21, -23, -24, -25, -27, -28, -29, RI-SB-1, -3, -4, -7, -8, -10, -16, -17, and MW-3B, -3C, Figure 7). The presence of gravelly sands, cobbly sands, or sandy gravel also indicates fill material; gravel-sands were observed in soil borings in soil borings collected at the Site (MW-1 through MW-5, MW-8, MW-10, -11, GP-SB-2, -4, -6, GP-SB-8 through GP-SB-15, GP-SB-18 through GP-SB-32, RI-SB-1 through RB-SB-15, RI-SB-17, -18, and MW-3B, -3C, Figure 7). The fill may consist of sediment dredged during Duwamish River channelization, which was commonly used as fill on sites adjacent to the Duwamish River[9]. The fill material may also include debris from former Site operations, particularly in the nearshore area, since the Site grade was increased between shipyard operations and the current configuration. A distinct debris layer was observed at RI-SB-19 from 12.5 to 14.5 ft bgs. This debris was unique from other debris observed at the Site and appeared to be charred due to burning. Fill material is predominately composed of poorly graded silty fine sand to gravelly sand or sandy silt to gravelly sandy silt. Locally, fill includes some organic matter, wood, and debris, including concrete rubble. This material was determined to be fill based on visual observations during soil boring activities.

3.3.3.2 Recent Alluvial Deposits

The first native soils encountered beneath the fill are interpreted to represent recent (i.e., predevelopment) alluvial deposits of the lower Duwamish Valley. These deposits range in composition from fine to medium sand to slightly silty to very silty fine to medium sand. Locally, within these deposits, fine sandy silt lenses are intercepted. Where fill is not present, these alluvial deposits range in depth from near-surface to the total depth investigated. These deposits have been interpreted to represent channel and floodplain deposits laid down by the modern Duwamish River (Booth and Herman 1998). These younger alluvial deposits are where the water table is encountered.

3.3.3.3 Silt Horizon

The upgradient GWCC site identified a thin layer of silt occasionally at 11 to 14 ft bgs. This silt horizon was used to define the base of an upper shallow groundwater unit. Except for direct push location GP-SB-2, this silt horizon was not encountered on the Site. A separate shallow silt (above 6 ft bgs) was observed in limited areas on the eastern portion of the Site that was also observed in the Northwest Corner of the GWCC site.

3.3.4 Groundwater

As stated above, the river formerly meandered throughout the area until the 1913 to 1916 dredging program provided a channelized Duwamish Waterway. The following sections discuss groundwater conditions at the Site.

3.3.4.1 Shallow Groundwater

The regional shallow groundwater flow direction is generally to the west-southwest with groundwater discharging to the Duwamish River. The shallow unconfined aquifer in the Duwamish River Valley is generally located within the native alluvium unit. Shallow groundwater can also occur locally within fill material. In general, the valley alluvium is believed to comprise a single, large aquifer system (Booth and Herman 1998). Groundwater recharge to the valley occurs via both infiltration and from upland aquifers that discharge into the alluvial valley both along subsurface

[9] https://historylink.org/File/2986#:~:text=The%20straightening%20of%20the%20Duwamish%20River%20began,diking%20and%20dredging%20districts%20that%20same%20year.

pathways and through visible seeps along valley walls. Groundwater discharge is primarily to the channel of the Duwamish Waterway.

Groundwater was generally encountered at between 8 and 10 ft bgs although tidal influence significantly increases that range near the Waterway. Regional groundwater flow direction is generally to the west-southwest with groundwater discharging to the Duwamish Waterway. Groundwater contour maps are included on Figures 11 and 12. Because groundwater at the Site is tidally influenced, the average groundwater piezometric surface from the tidal study is provided on Figure 11. Groundwater seeps have been observed during low tides along the shorelines. Seeps have been sampled when tide elevations were approximately -3.36 ft MLLW (Seep-0624, June 6, 2024) to -0.87 ft MLLW (Seep-MW1, September 24, 2024).

Data from the GWCC site indicate that the alluvium has an average hydraulic conductivity of $5.3x10^{-3}$ cm/s with a range from $3x10^{-3}$ to $1x10^{-2}$ cm/s.

3.3.4.2 Tidal Influence

Groundwater and surface water interactions also affect the salinity of the groundwater at the Site. Specific conductance, a proxy for salinity, is elevated in shoreline wells. This is likely due to the infiltration of brackish surface water from the LDW.

To determine the extent of the surface water and groundwater interactions, two tidal studies have been conducted at the Site. The first was performed from January 4 to 10, 2022 and a second from October 28 to 31, 2023; both were conducted during a time period that included negative and non-negative low tides, allowing for observation of the tidal response within the aquifer. During the first tidal study (2022), the 6 nearshore monitoring wells (MW-1 through MW-6) and the nearest NOAA-monitored tidal station (ID 9447130 in Seattle, WA) were used to measure tidal variations. The second tidal study (2023), Site wells MW-1 through MW-9 and the same NOAA-monitored tidal station were used. The results of the 2022 tidal study are included in the RIWP and results from the 2023 tidal study are discussed below and provided in Appendix C.

The 2023 tidal study was performed for all permanent monitoring wells (MW-1 through MW-9). The tidal study was conducted to determine the average groundwater flow direction and to establish the appropriate lag time at which to sample each well such that the groundwater in the well at the time of sampling is close to its lowest elevation during the tidal cycle. Samples collected during the low elevation would therefore be most representative of groundwater recharge into the wells.

Results from the tidal study indicate that all wells (wells MW-1 through MW-9) are tidally influenced with the strongest influence located at wells closer to the shoreline, with the influence dampening to the east. A summary of the tidal study results is included in Appendix C.

There was significant tidal influence in MW-1 through MW-6, with MW-1, MW-3, and MW-4 having tidal efficiencies (the change in hydraulic head to the change in tidal stage) ranging from 50% to 69% and with MW-2, MW-5, and MW-6 having significant but lesser tidal efficiencies ranging from 38% to 41%. Shoreline well MW-2 had less tidal influence that the other shoreline wells. MW-2 is screened across a gravelly sand that terminates at approximately 12.5 ft bgs and into a more poorly-graded medium to coarse-grained sand. MW-2 is in close proximity to the estimated 1917 shoreline, suggesting the well is screened into native alluvial deposits below 12.5 ft bgs which are more consolidated than the overlying fill material that was placed at a later date during shoreline and property development. It is not clear whether the dampened tidal effects are due to more consolidated soil or a physical obstruction between the shoreline and this well. MW-4 had stronger tidal influence than other upland wells, MW-5 and MW-6. This variability may be due to MW-4 being closer in proximity to a former channel meander. Tidal influence at upland wells MW-7, MW-8, and MW-9 were observed at 3% to 15% and are not considered significant. Gaging and potentiometric map data from the adjacent Great Western International Chemical Company (GWCC) site RI/FS (Floyd|Snider 2011) suggests that tidal influence may occur in deeper groundwater as far as 1,000 feet inland and others report significant tidal influence within 500 feet of the LDW (Booth and Herman 1998). Table 3 of Appendix C summarizes this data.

Based on the results of the tidal study, the groundwater flow direction is generally to the west-southwest with groundwater discharging to the Duwamish Waterway as shown on Figure 11.

Because the Site abuts the LDW, vertical hydraulic gradients are likely, the directions of which change with tidal levels. Generally upward gradients are present during high tides and downward gradients are present during low tides (Appendix C).

Table 1 provides lag times and recommended groundwater sampling windows. These lag times varied between 30 to 125 minutes.

3.3.4.3 **Potable Groundwater**

Groundwater in the area of the Site is not used for beneficial purposes. Site groundwater has elevated concentrations of specific conductivity that exceed the secondary state water quality MCL 700 microSiemens per centimeter (µS/cm). The nearest groundwater extraction well is from 1933 and associated with a business no longer in service[10] (Hemrick Brewing Company, which is also associated with Apex Brewing Company) located at 5225 East Marginal Way, approximately 1.4 miles away to the north. Per WAC 173-340-720(2), groundwater is defined as potable unless the requirements in this subsection are met. Further discussion of groundwater potability is provided in Section 5.2.1.

3.4 Analytical Results

To date, 93 soil samples, 56 grab groundwater samples (includes 47 direct push groundwater grab samples and 9 grab groundwater samples from shoreline seeps/point of discharge locations), and 16 quarterly groundwater sampling events from 12 monitoring wells have been collected at the Site. Data from the 1996 investigation are summarized on Table 2 and sample locations are shown on Figure 7. Results were compared to the Preliminary Cleanup Levels (PCULs) for the LDW. Samples at HC-1, HC-2 and HC-4 exceeded the PCULs for PCE and/or TCE. Samples from HC-4 exceeded PCULs for arsenic, cadmium, copper, lead, mercury, nickel and zinc. Oil-range petroleum

[10] https://www.brewerygems.com/apex.htm

hydrocarbons were detected at HC-4 and HC-5 but not at a concentration exceeding a PCUL. The 1996 data were used as the basis for subsequent work.

Investigation of the Site was performed in an iterative fashion with each round of assessment building upon the findings of earlier events. Recent sampling efforts have included a wider chemical analytical suite for soil, water, soil vapor and indoor air. Sampling has also considered potential migration from the Site to surface water.

The discussion below summarizes recent data, which are presented in Tables 3 through 15. Sample locations are shown on Figure 7, extents of contamination are shown on Figures 13 through 22, and Appendix A includes laboratory reports from data collected from 2023 through the most recent sampling events. Appendix D includes summary statistical compared to the screening levels for select soil and groundwater results. Laboratory reports for data collected prior to 2023 were presented in the RIWP. Data presented in this RI/FS has been submitted to Ecology's web-based electronic information management (EIM) system.

Soil and groundwater results are compared to the Preliminary Cleanup Level (PCUL) workbook values dated February 11, 2026 for the LDW. The selected values were based on a non-potable groundwater exposure pathway. Vapor results are compared to MTCA Method C cleanup levels (CULs) for industrial exposure contained in the Cleanup Levels and Risk Calculations (CLARC) dated February 2026.

The selection of Site cleanup standards is discussed in Sections 5.2 through 5.4 and the distribution of the data relative to cleanup levels is discussed in Section 5.5.

3.4.1 Data Quality Assurance

A data quality assurance review was completed for the analyses performed for the 2020 to 2026 investigation activities. Data adjustments are summarized in the summary tables and include the following general adjustments:

- Results were estimated or flagged due to one or more of the following reasons: method blank contamination, surrogate recovery outliers, laboratory duplicate sample precision outliers, matrix spike/matrix spike duplicate outliers, laboratory duplicate outliers, holding time exceedances, matrix spike recovery outliers, ion ratio outliers, field duplicate precision outliers, and sample cooler temperatures. These results have been flagged in the tables included in this report to indicate being outside of standards or as estimated concentrations. Qualified results are acceptable for use for the purpose of this report.

- At the time of sampling, if the standard practical quantitation limit (PQL) for an analyte was greater than the selected screening level at that time, the laboratory would use the method detection limit (MDL) as the reporting limit. Concentrations detected between the MDL and PQL values were "J" flagged as an estimated concentration.

- In general, the PQLs for most analytes were used as the reporting limits. Several analyses/media required the use of MDLs to achieve sufficiently low reporting limits.

Depending on the sampling media, the laboratory was unable to achieve sufficiently low PQLs/MDLs for several analytes (i.e., PCB Aroclors and PAHs for groundwater samples), as indicated in the analytical summary tables.

- Laboratory reports were complete and contained results for the samples and analyses requested on the chain-of-custody forms. The laboratory QA/QC data and assigned qualifiers were within acceptable ranges of tolerance, and the analytical data are acceptable for use as described by the data quality objectives.

3.4.2 Soil

Soil samples were analyzed for metals (aluminum, arsenic, cadmium, chromium (total and hexavalent chromium), copper, lead, mercury, nickel and zinc), total petroleum hydrocarbons (TPH), benzene, toluene, ethylbenzene, and xylenes (BTEX), CVOCs, SVOCs, , polychlorinated biphenyl Aroclors (PCBs), tributyltin, and dioxins and furans. Samples were generally collected from the vadose zone and from near the unsaturated/saturated interface at the time of sampling. Sample results are summarized on Tables 3 and 4. Sample locations are shown on Figure 7.

3.4.2.1 **Metals**

Soil samples were collected for metal analysis from GP-SB-5, GP-SB-6, GP-SB-8 through GP-SB-12, GP-SB-18 through -31, RI-SB-07 through RI-SB-11, and MW-1 through MW-8. Analytical results for the metals analysis are presented in Table 3. Detections of metals in soil included the following:

- Aluminum was not detected above the PCUL of 33,000 milligrams/kilogram (mg/kg) in either in both of the two samples submitted from GP-SB-19 for analysis. Aluminum was detected at concentrations of 6,790 and 14,500 mg/kg.
- Arsenic was detected above the PCUL of 7.3 mg/kg at GP-SB-8, GP-SB-23, GP-SB-24, RI-SB-04, RI-SB-08, RI-SB-10, RI-SB-11, and MW-2. Concentrations above the PCUL ranged from 8.31 mg/kg (SB-23) to 28.7 mg/kg (RI-SB-10). All other detections were below the PCUL.
- Cadmium was detected above the PCUL of 0.77 mg/kg in two soil sample, GP-SB-8 and MW-5 at concentrations of 2.76 and 1.08 mg/kg, respectively. All other samples were detected below the laboratory reporting limit.
- Chromium was detected in all soil samples above the lowest PCUL values of 0.0069 mg/kg (saturated)/0.14 mg/kg (vadose) based on hexavalent chromium. Total chromium was detected above the PCUL of 48 mg/kg (saturated/vadose) in GP-SB-22 and RI-SB-10, with concentrations of 98.4 and 698 mg/kg, respectively. Soil samples from RI-SB-07 and RI-SB-08 were analyzed for hexavalent chromium in addition to total chromium. Hexavalent chromium was detected in both soil samples at a concentration of 0.648 mg/kg (RI-SB-08) and 0.688 mg/kg (RI-SB-07), above the PCUL (0.031 mg/kg).

- Copper was detected above the PCUL of 36 mg/kg at GP-SB-5, GP-SB-8, MW-5, RI-SB-04, RI-SB-08, RI-SB-10, and RI-SB-11. Concentrations above the PCUL ranged from 53.7 mg/kg (RI-SB-08) to 460 mg/kg (RI-SB-11). All other detections were below the PCUL.
- Lead was detected in above the PCUL of 50 mg/kg at GP-SB-5, GP-SB-8, GP-SB-11, RI-SB-04, RI-SB-08, RI-SB-10, RI-SB-11, and MW-5. Concentrations above the PCUL ranged from 91.4 mg/kg (RI-SB-10) to 227 mg/kg (GP-SB-8). All other detections were below the PCUL.
- Mercury was detected above the PCUL of 0.7 mg/kg at GP-SB-5, RI-SB-09 and RI-SB-11. Concentrations above the PCUL ranged from 0.112 mg/kg (RI-SB-09) to 2 mg/kg (GP-SB-5). All other detections were below the PCUL.
- Nickel was detected above the PCUL of 48 mg/kg at GP-SB-8, GP-SB-11 and RI-SB-10. Concentrations above the PCUL ranged from 62.1 mg/kg (GP-SB-8) to 477 mg/kg (RI-SB-10). All other detections were below the PCUL.
- Zinc was detected above the PCULs of 100 mg/kg (vadose)/85 mg/kg (saturated) at GP-SB-5, GP-SB-8, GP-SB-11, GP-SB-25, MW-4, MW-5, RI-SB-04, RI-SB-08, RI-SB-10 and RI-SB-11. Concentrations above the PCUL ranged from 107 mg/kg (RI-SB-08) to 7,110 mg/kg (GP-SB-8). All other detections were below the PCUL.

Figures 13 through 17 show the extent to soil impacts of select metals (arsenic, chromium, copper, nickel, and zinc, respectively). The impacts are concentrated in the southwestern portion of the Site.

3.4.2.2 Petroleum-Related Compounds

Petroleum related compounds include total petroleum hydrocarbons (TPH) in the fuel and oil ranges and aromatic fuel gasoline components (benzene, toluene, ethylbenzene, and total xylenes; collectively BTEX). Select soil samples from direct push and monitoring well borings GP-SB-15 through GP-SB-17, RI-SB-1 through RI-SB-13, and MW-4 through MW-8 were analyzed for TPH compounds and BTEX. Analytical results for these compounds are summarized in Table 4a.

TPH analysis consisting of gasoline-range, diesel-range, and lube-oil range organics (GRO/DRO/ORO) were performed. A total of 18 samples were submitted for GRO analysis. GRO was detected in three of the 18 samples concentrations ranging from 5.6 mg/kg (GP-SB-32) to 200 mg/kg (RI-SB-10). Only one sample (RI-SB-10) contained a GRO concentration greater than the PCUL of 100 mg/kg, shown on Figure 18.

A total of eight samples were submitted for DRO analysis. DRO was detected in three of the eight samples at concentrations ranging from 90 mg/kg to 3,500 mg/kg. Only one sample contained a DRO concentration greater than the PCUL of 2,000 mg/kg, shown on Figure 18.

A total of eight samples were submitted for ORO analysis. ORO was detected in two of the eight samples at concentrations of 1,200 mg/kg and 7,300 mg/kg. Only one sample contained an ORO concentration greater than the PCUL of 2,000 mg/kg.

A total of nine samples were submitted for BTEX analysis. BTEX compounds were not detected above the laboratory reporting limits in any sample.

3.4.2.3 **CVOCs**

Analytical results for these compounds are summarized in Table 4a. A total of 11 samples were submitted for CVOC analysis; analytical results for these compounds are summarized in Table 4a. Of the CVOC analytes only tetrachloroethene (PCE), trichloroethene (TCE) and cis-1,2-dichloroethene (cDCE) were detected at a concentration above the laboratory reporting limits. Only PCE and TCE were detected at a concentration exceeding a PCUL.

- PCE was detected in four of the 11 samples submitted for analysis at concentrations ranging from 0.14mg/kg to 4.7 mg/kg. Each of these four values exceeded the PCUL of 0.0016 mg/kg
- TCE was detected in three of the 11 samples submitted for analysis at concentrations ranging from 0.088 mg/kg to 0.29 mg/kg. Each of these three values exceeded the PCUL of 0.00027 mg/kg.
- dDCE was detected in two of the 11 samples submitted for analysis at concentrations of 0.061 mg/kg and 0.34 mg/kg. Neither of the detected concentrations exceeded the PCUL of 160 mg/kg.

Figure 19 indicates the extent of PCE and TCE impacts in soil. The impacts are concentrated in the southwestern portion of the Site and in small areas in the southcentral area of the Site.

3.4.2.4 **SVOCs**

A total of 12 samples were submitted for SVOC analysis. This included selected soil samples from direct push soil borings GP-SB-21 through GP-SB-26 and RI-SB-1 through RI-SB-13. Analytical results for detected SVOC compounds are summarized in Table 4a.

SVOCs were detected in six of the 12 samples submitted for analysis. A total of 14 SVOC analytes were detected at concentrations exceeding the laboratory reporting limits. Of those 14 analytes, only benzo(a)pyrene (BAP), fluorene and total carcinogenic PAHs (cPAHs) were detected at concentrations exceeding a PCUL.

- BAP was detected in two of the 12 samples submitted for analysis at concentrations of 0.015 mg/kg and 0.15 mg/kg. Each of these concentrations exceeded the PCUL of 0.00016 mg/kg.
- Fluorene was detected in one of the 12 samples at a concentration of 0.67 mg/kg. This concentration exceeded the PCUL of 0.029 mg/kg.
- The detected concentrations for cPAHs were also evaluated using the Toxicity Equivalency Factor (TEF) method in WAC 173-340-708. Based on the TEF method, six of the 12 samples contained concentrations exceeding the PCUL for total cPAHs of 0.00016 mg/kg. Figure 20 indicates the extent of cPAHs exceeding the PCUL in soil and indicates that this area is limited to the western portion of the Site.

3.4.2.5 PCBs and Tributyltin

A total of 21 samples were submitted for PCB analysis. Only one PCB analyte, Aroclor 1260, was detected at a concentration exceeding the laboratory reporting limits. PCBs are evaluated based on the sum of all detected Aroclor concentrations. The detected Aroclor 1260 concentration exceeded the PCUL for total Aroclors of 0.03 mg/kg. Figure 21 shows the location of the soil sample, GP-SB-30, that exceeds the PCUL on the eastern portion of the Site.

A total of four samples were submitted for tributyltin analysis. Tributyltin was not detected above the laboratory reporting limit in any soil sample (Table 4a).

3.4.2.6 Dioxins and Furans

Based on the groundwater results for dioxins and furans observed in MW-3, a soil sample was collected in the immediate vicinity of MW-3 at RI-SB-19. This soil boring was advanced approximately 4 feet upgradient of MW-3 (Figure 21). A distinct debris layer was noted at this boring from 12.5 to 14.5 feet bgs (see Section 3.3.3.1). Dioxins and furans were detected at this sample interval at a concentration of 725 picograms per gram (pg/g) TEQ, above the PCUL of 5.2 pg/g TEQ. A second sample collected below the debris layer, at 17.5 to 20 ft bgs, had dioxins and furans detected at a concentration of 7.62 pg/g TEQ, slightly above the PCUL. Dioxin and furan data are summarized on Table 4b.

3.4.2.7 Summary of Soil Results

Analytes in soil exceeding a PCUL are:

- Metals – arsenic, cadmium, copper, chromium (total and hexavalent), lead, mercury, nickel, and zinc
- Petroleum – GRO, DRO, and ORO
- CVOCs – PCE and TCE
- SVOCs – Fluorene, benzo(a)pyrene and total cPAHs
- PCBs –Total PCBs
- Dioxins and Furans

3.4.3 Groundwater

Groundwater samples were collected from temporary wells (soil borings GP-SB-1 through GP-SB-32 and RI-SB-01 through RI-SB-18) and permanent groundwater monitoring well locations (MW-1 through MW-11) shown on Figure 7. Sample locations were selected to assess the potential for off-site groundwater contamination and potential historical on-site activities to impact Site groundwater. Results are summarized in Tables 5 through 12; laboratory reports are included in Appendix A. Groundwater results are discussed below.

3.4.3.1 Reconnaissance Groundwater Samples

Reconnaissance groundwater samples were collected using standard direct push probe methods. Direct push sampling was conducted over five separate sampling events:

- January 2020 – Direct push borings GP-SB-1 through GP-SB-7
- June 2020 – Direct push borings GP-SB-08 through GP-SB-15
- December 2020 – Direct push borings GP-SB-16 through GP-SB-32
- December 2021 – Direct push borings RI-SB-01 and RI-SB-02
- February 2023 – Direct push borings RI-SB-04 through RI-SB-18

3.4.3.1.1 Metals

Groundwater samples were submitted for analysis of arsenic, cadmium, total chromium, hexavalent chromium (CrVI), copper, lead, mercury, nickel, and zinc. Samples were analyzed for both total (unfiltered) and dissolved (filtered) metals.

Portions of the Site are subject to saltwater intrusion from the LDW. Saline conditions are measured during sampling using specific conductance. The presence of saltwater can strongly influence metals quantification resulting in a high bias on results (Soriano et al. 2020). Polyatomic ions in salt water co-elute with some target analytes (e.g. arsenic and copper) and create erroneously elevated results. Special sample preparation and analytical methods can address this interference without requiring dilution. Dilution of samples results in elevated laboratory reporting limits. The potential effect of saltwater intrusion on analytical results was evaluated at the Site through a comparison of analytical methods. Specific conductivity values greater than 2,000 microSiemens per centimeter (µS/cm) were used as an indication of likely saltwater influence on analytical quantification. Table 5 provides a snapshot of field parameters collected from Site monitoring wells, which shows elevated conductivity values (greater than 2,000 µS/cm) at MW-1 through MW-3 for all events and at least one elevated reading at MW-4 and MW-6.

Initial groundwater samples were analyzed for metals by EPA Method 6020B with triple quadrupole (QQQ) mass spectrometry. Because of the high specific conductivity values, reporting limits were elevated which can mask analytical interference for the other compounds and interferences can results in false positives. Subsequent samples were submitted to Brooks Applied Labs (BAL) for analysis with EPA Method 1638, which uses inductively coupled plasma dynamic reaction cell mass spectrometry (ICP-DRC-MS) modified using a Closed-Vessel Hotblock Digestion sample preparation.

Prior to establishing the interference due to saltwater intrusion, groundwater samples collected from direct push boreholes advanced in 2020 and 2021 were analyzed using Method 6020B for both total and dissolved metals. Table 6 includes metals results from samples collected within 75 feet of the shoreline, where elevated specific conductance has been measured. The following summary of analytical results excludes those samples collected from within 75 feet of the LDW shoreline that were analyzed using EPA Method 6020B.

The results of direct push groundwater sampling are summarized below with analytical results summarized in Table 7 and sampling locations indicated on Figure 7. The summary below is based upon concentrations of dissolved metals which exceeded a PCUL.

Only dissolved arsenic, dissolved nickel, and dissolved zinc were detected at a concentration exceeding a PCUL

- Dissolved arsenic was detected in five locations at concentrations exceeding the PCUL of 8 µg/L. The detected concentrations above the PCUL ranged from 11.1 µg/L (RI-SB-06) to 29.7 µg/L (GP-SB-7). Locations and concentrations are shown on Figure 13.
- Dissolved nickel was detected in two samples at concentrations exceeding the PCUL of 8.2 µg/L. The detected concentrations above the PCUL were 10.9 µg/L (GP-SB-11) and 22.7 µg/L (GP-SB-7). Locations and concentrations are shown on Figure 16.
- Dissolved zinc was detected in four samples at concentrations exceeding the PCUL of 81 µg/L. The detected concentrations ranged from 102 µg/L (RI-SB-11) to 22,300 µg/L (GP-SB-7). Locations and concentrations are shown on Figure 17.

3.4.3.1.2 Petroleum-Related Compounds

Petroleum related compounds include total petroleum hydrocarbons in the fuel and oil ranges, aromatic fuel gasoline components (benzene, toluene, ethylbenzene, and total xylenes, plus the fuel additive methyl-tert butyl ether (MTBE).

TPH were analyzed as Gasoline-Range Organics (GRO), Diesel-Range Organics (DRO) and Oil-Range Organics (ORO). Analysis for DRO and ORO was also performed using silica gel cleanup (SGC) to remove non-petroleum polar metabolites from the sample. This approach was appropriate given the likely age of any petroleum releases at the Site.

Analytical results for GRO are discussed relative to the PCUL. The PCUL for DRO and ORO is based on the combined sum of the detected concentrations.

GRO analysis was performed on nine samples. The detected concentration exceeded the PCUL of 1,000 µg/L in one sample. The detected concentration was 3,300 µg/L.

Total DRO analysis was performed on three samples (DRO and ORO). Samples from RI-SB-02 and RI-SB-10 exceed the PCUL of 500 µg/L (which includes SGC). Results were “x” flagged by the laboratory as not matching the standard chromatogram for diesel. RI-SB-10 is replaced by MW-5 (discussed in Section 5.5.2.3) and the detection in RI-SB-02 was not repeated in downgradient soil borings (RI-SB-01).

BTEX analyses were performed on 14 samples. None of the BTEX compounds were detected at a concentration exceeding their respective PCUL.

MTBE analysis was performed on nine samples. None concentrations exceeded the PCUL of 100 µg/L.

3.4.3.1.3 VOCs

A total of 24 samples were submitted for VOC analysis. Four VOCs were detected at a concentration exceeding a PCUL; PCE, TCE, cis-1,2-DCE, and vinyl chloride.

- PCE was detected two samples at a concentration above the PCUL of 2.9 µg/L. The concentrations were 4.1 µg/L (RI-SB-13) and 21 µg/L (RI-SB-11).
- TCE was detected in two samples at a concentration above the PCUL of 0.7 µg/L. The concentrations were 0.76 µg/L (RI-SB-09) and 2.1 µg/L (RI-SB-11).
- Cis-1,2-DCE was detected in one sample at a concentration above the PCUL of 182 µg/L. The concentration was 400 µg/L at location GP-SB-2.
- Vinyl chloride was detected in 12 samples at concentrations above the PCUL of 0.18 µg/L. The concentrations ranged from 0.21 µg/L (GP-SB-12) to 72 µg/L (GP-SB-2).

3.4.3.2 **Monitoring Well Groundwater Samples**

A total of 12 monitoring wells (MW-1 through MW-11 and MW-3D) are currently present at the Site. Routine groundwater sampling has occurred between January 2022 and January 2026. Select wells were sampled prior to the interim action (September 2024) and four quarters of quarterly sampling have been completed since the interim action. Groundwater results are summarized on Tables 8 through 13.

The following discussion focuses on those concentrations exceeding a PCUL. Monitoring well locations are indicated on Figure 7.

3.4.3.2.1 Metals

Metals results are discussed based on dissolved concentrations relative to the PCUL. Samples for total metals were not field or laboratory filtered. Samples for dissolved metals were field filtered with a 0.45-micron disposable capsule filter at the time of collection. All dissolved metals concentrations refer to these field filtered samples. All groundwater results from samples collected from monitoring wells are summarized in Table 8. Only arsenic and zinc were detected at a concentration exceeding a PCUL.

As discussed in Section 2.3.2.1.1, portions of the Site are subject to saltwater intrusion from the LDW. To further understand laboratory sample methods, split groundwater samples from the first sampling event (first quarter 2022, Table 9) were used to evaluate the potential for analytical bias based on saltwater intrusion. These samples were submitted to both BAL and Friedman and Bruya, Inc. (FBI) for chemical analysis. Groundwater samples submitted to BAL were analyzed for total and dissolved metals by EPA Method 1638 and the split samples submitted to FBI were analyzed for total and dissolved metals by EPA Method 6020B.

The results of the split samples indicated that elevated arsenic concentrations occurred in high salinity wells using EPA Method 6020B. Additionally, the elevated reporting limits using Method 6020B masked analytical interference for the other compounds. Due to the false positive arsenic results and the elevated reporting limits, all subsequent groundwater metals analyses were performed using EPA Method 1638 at BAL. Table 8 includes the results from BAL.

Groundwater detections above the PCUL from Site monitoring wells include the following:

- Dissolved arsenic was detected in groundwater samples from MW-8 and MW-9 at concentrations exceeding the PCUL of 8.0 µg/L. The concentrations ranged from 8.26 µg/L (MW-8, March 2023) to 13.4 µg/L (MW-9, August 2023). Dissolved arsenic has not been detected above the PCUL in the last three sampling events at MW-8 and the last 2 events at MW-9 (Table 8). The most recent enhanced reductive dichlorination (ERD) injection was performed at the northwest corner of the GWCC site in August 2023. These data suggest that the elevated arsenic results were due to reducing conditions caused by ERD at GWCC.
- Dissolved copper was detected in only one sample at a concentration above the PCUL of 3.1 µg/L. The concentration was 6.18 µg/L and was present in well MW-3 during the first sampling event in January 2022 but has not been detected above the PCUL for the last 9 sampling events.
- Dissolved zinc was detected in 29 samples at a concentration above the PCUL of 81 µg/L prior to the IA at MW-1, MW-4, and MW-5. Following the IA, zinc has been detected above the PCUL only at MW-1 and MW-5, the detected concentrations ranged from 87.4 µg/L (MW-1, January 2026) to 2,660 µg/L (MW-5, February 2025), shown on Table 8.

Figures 13 through 17 present the distribution of dissolved metals in groundwater.

3.4.3.2.2 Petroleum-Related Compounds

TPH and BTEX were analyzed on an intermittent basis from MW-1 through 9. The results are summarized below relative to PCULs.

GRO were detected in eight samples at concentrations exceeding the PCUL of 1,000 µg/L. The concentrations ranged from 1,300 µg/L to 2,900 µg/L. Each of these concentrations was detected in groundwater collected at MW-8.

Total DRO were detected at MW-5 (immediately downgradient of RI-SB-10) and MW-8. Concentrations of DRO at MW-5 exceeded the PCUL of 500 µg/L in only one sample. The detected concentration was 2,100 µg/L in MW-5 during the April 2022 sampling event; DRO has not been detected in subsequent sampling events at MW-5. The reported concentration carried an "x" qualifier from the laboratory indicating the result did not match the typical chromatographic pattern, which is typical of older and highly degraded petroleum compounds. Analysis using silica gel cleanup (SGC) did not detect DRO at a concentration exceeding the laboratory reporting limit of 50 µg/L. This well was resampled in January 2026 and in a non-SGC sample DRO was detected below the CUL at a concentration of 150x µg/L and using SGC was not detected above the laboratory reporting limit of 50 µg/L. DRO has been detected at MW-8, using SGC, above the PCUL during the last 4 quarters of sampling. Concentrations have ranged from 550x µg/L to 1,100x µg/L (Table 8), above the PCUL of 500 µg/L.

ORO were detected in two samples at concentrations exceeding the PCUL of 500 µg/L. The detected concentrations were 540 µg/L with an "x" qualifier and 590 µg/L in wells MW-5 and MW-8, respectively. Groundwater samples from MW-5 (with the result of 540 µg/L) was submitted for analysis with SGC, which did not detect ORO at a concentration exceeding the laboratory reporting limit of 250 µg/L. The total DRO values include the ORO contribution.

Figure 18 presents the estimated extents of GRO and DRO impacts. These impacts are localized to the area surrounding and MW-8 (GRO and DRO). The lateral extents of these impacts are well constrained by the available data.

BTEX compounds were not detected above laboratory reporting limits in groundwater samples from monitoring wells MW-1 through MW-9 with the exception of a sample from MW-8 in January 2024; all reporting limits were below the PCULs for BTEX compounds (Table 8).

3.4.3.2.3 CVOCs

CVOCs were analyzed in 87 groundwater samples across all sampling events from monitoring wells MW-1 trough MW-11. Only PCE, TCE, and vinyl chloride were detected at concentrations exceeding a PCUL. Results following the IA (May 2025 through January 2026) indicate the following:

- PCE was detected in 7 samples at a concentration exceeding the PCUL of 2.9 µg/L. The concentrations ranged from 3.7 to 8.7 µg/L and were only from wells MW-5 and MW-10. Concentrations of PCE historically exceeded the PCUL at MW-4 and MW-8.
- TCE was detected in 9 samples at a concentration exceeding the PCUL of 0.7 µg/L. The concentrations ranged from 0.78 µg/L to 1.6 µg/L and were only in wells MW-4, MW-5, MW-8 and MW-10.
- Vinyl chloride was detected in 15 samples at a concentration exceeding the PCUL of 0.18 µg/L. The concentrations ranged from 0.19 µg/L to 41 µg/L and were from wells MW-4, MW-5, and MW-8 through MW-11.

Figure 19 depicts CVOC impacts to groundwater at the Site. PCE and TCE impacts to groundwater are limited in lateral extent and are localized to the far southwestern and southeastern portions of the Site. Alternatively, vinyl chloride is widely distributed across the Site at generally low concentrations. This distribution of vinyl chloride is likely associated with on-Site migration from the upgradient GWCC Site.

3.4.3.2.4 SVOCs

PAH analyses were performed on groundwater samples collected from well MW-5 in April 2022, wells MW-1 through MW-9 in January 2024, and MW-3 in February 2025. Analysis included both non-carcinogenic PAHs and the seven cPAHs. Results are summarized on Table 11 and shown on Figure 20.

Of the non-carcinogenic PAHs only 1-methylnaphthalene was detected at a concentration exceeding its PCUL of 0.17 µg/L. The concentration ranged from 5.9 to 8.3 µg/L in well MW-8 (Table 11).

Of the cPAHs, only benzo(b)fluoranthene was detected at one monitoring well (MW-3) at a concentration exceeding the laboratory reporting limit. The detected concentration was 0.024 µg/L with a “J” qualifier indicating it was an estimated concentration. The 2024 estimated result is higher than the benzo(b)fluoranthene PCUL of 0.00016. MW-3 was resampled in February 2025 and benzo(b)fluoranthene was not detected above the laboratory reporting limit of 0.02 µg/L.

A full SVOC analyses (for non-PAH/cPAH compounds) were performed in samples from MW-1 through MW-9 in January 2024. No non-PAH SVOC analyte was detected in any sample at a concentration exceeding the laboratory reporting limits.

3.4.3.2.5 PCBs and Organotin Compounds

PCB analyses were performed on groundwater samples from well MW-5 in 2022, in wells MW-1 through MW-9 in January 2024, and additional samples were collected from MW-3 in April and June 2024.

Of the PCB analytes, only Aroclor 1254 was detected at a concentration above the laboratory reporting limits at MW-3. The detected concentration was 0.04 µg/L, above the PCUL for total PCBs, with a “J” qualifier indicating an estimated concentration. PCBs were not detected above laboratory reporting limits in the two subsequent sampling events at MW-3. Laboratory reporting limits were less than the PCUL of 0.03 µg/L.

Tributyltin (TBT) was a common compound added to marine paints as an antifouling biocide by the shipping industry and small boat owners in the 1970’s (2001 Santillo et all). Boat building and repair were performed at the Property from about 1929 through 1953-1956 (shoreline filling occurred between 1953 and 1956). There is no documented use of TBT on the Site, however, because of the known shipbuilding and maintenance operations, groundwater samples were collected in January 2024 from monitoring wells located in the vicinity of the ship building activities (MW-1, MW-2, MW-4, MW-5, and MW-6.) TBT was not detected in any of the samples at a concentration exceeding the laboratory reporting limit, which ranged from 0.31 µg/L to 0.52 µg/L (Table 12). The PCUL for TBT is based on a practical quantitation limit (PQL) of 0.0056 µg/L. The analytical laboratory was not able to attain that PQL with the site-specific sample matrices and the analytical method used.

Butyltin was detected in each of the samples at concentrations ranging from 0.0079 µg/L to 0.0559 µg/L.

Neither dibutyltin nor tetrabutyltin were detected at a concentration exceeding the laboratory reporting limits.

3.4.3.2.6 Dioxins/Furans

The detected Aroclor 1254 at MW-3 led to follow-up analysis for dioxins and furans (D/F), which was triggered by the detection of PCB per the RIWP. D/F analyses were performed on samples from MW-3 and MW-4 in January 2024. The laboratory inadvertently analyzed groundwater from MW-4 for dioxins and furans. D/F analytical results are summarized in Table 13. Subsequent sampling for D/F also occurred at MW-3D and at PD-2.

No D/Fs were detected above the PCUL of 65 picograms per liter (pg/L; PCUL was adjusted to the PQL per Ecology[11]) based on total TEQ D/F in any of the groundwater samples collected from monitoring wells or PD-2. MW-3 has been sampled during 7 different events including 4 consecutive quarters (2024) and all results have been below the PCUL (Table 13).

Figure 21 presents the of D/F sample results in groundwater.

3.4.3.3 **Groundwater Summary of Results**

Analytes in groundwater that exceed a PCUL following four quarters of IA performance monitoring include:

- CVOCs – PCE, TCE, and vinyl chloride
- Metals – zinc
- Petroleum compounds – GRO and DRO

3.4.4 Seep Sampling

Groundwater samples were collected from seeps observed during low tide to provide additional information on groundwater quality at the property. Seep samples were collected in the vicinity of MW-1 (SEEP and SEEP-MW1) on April 26 and June 6, 2024, MW-2 (Seep-MW-2) on September 23, 2024 and MW-3 (Seep-MW3) on September 23, 2024. Samples were submitted for analysis of zinc, hexavalent and total chromium, and D/F.

Zinc (total and dissolved) has not been detected above the PCUL in samples collected from seeps in the vicinity of MW-1.

Hexavalent chromium was detected below the PCUL (of 1.6 µg/L) in all seep samples (Table 10).

Dioxins and furans were detected below the PCUL (65pg/L) in a sample collected from the groundwater seep near MW-3 (Table 13).

3.4.5 Surface Water Sampling

Surface water grab samples were collected directly from the LDW to provide background water quality information. A surface water sample was collected April 26, 2024 and September 17, 2025 for dioxins and furans and for hexavalent chromium.

Hexavalent chromium was detected below the PCUL (of 1.6 µg/L) in the surface water sample (Table 10).

Dioxins and furans were detected below the PCUL 65 pg/L) in surface water samples collected from the LDW (Table 13).

[11] July 31, 2026 Ecology email from David Unruh re D/F PQL.

3.4.6 Vapor Intrusion

Based on the downgradient location of the Site to the upgradient GWCC site as well as the elevated concentrations of CVOCs in groundwater on the eastern portion of the Site attributable to GWCC the potential for VI was evaluated.

The VI assessment included initial evaluations of subslab soil gas and contemporaneous indoor air samples, followed by two rounds of indoor air sampling, and then a final round of contemporaneous soil gas and indoor air sampling after Dawn Foods had vacated the structure. Results of this work is discussed below. Appendix A includes the results from the vapor intrusion work completed in 2024; previous data were included in the RIWP.

The results of the cumulative VI assessments is presented on Figure 22.

3.4.6.1 **Subslab Soil Gas**

Subslab soil gas was initially sampled in June 2020 from three locations at the Restroom, Office and Warehouse. Additional subslab soil gas sampling was performed in May 2024 from those same three locations plus two additional locations in the warehouse. Samples were analyzed for VOCs using Method TO-15 and Air Petroleum Hydrocarbons (APH) using the Massachusetts Department of Environmental Protection (MA-DEP) Method. All samples were collected following sampling procedures outlined in the sampling analysis plan included in the RIWP (CRETE 2024b). The samples were analyzed by FBI using gas chromatography/mass spectrometry (GC/MS). Sample results are summarized in Table 14. Sampling locations are indicated on Figure 22.

The analytical results are discussed below relative to the MTCA Method C screening levels for soil gas (SLsg) as presented in the Cleanup Levels and Risk Calculations (CLARC) for VOCs. No Method C SLsg is available for TPH compounds.

PCE was detected in five of the samples at concentrations exceeding the SLsg of 1,300 µg/m^3. These concentrations ranged from 2,100 µg/m^3 to 6,900 µg/m^3.

TCE was detected in seven of the samples at concentrations exceeding the SLsg of 67 ug/m3. These concentrations ranged from 88 µg/m^3 to 810 µg/m^3. Two sampling locations (restroom/BR-SS-0620; detected at 810 µg/m^3 and office/OF-SS-0620 detected at 290 µg/m^3) resulted in TCE detections above the MTCA Vapor Intrusion Short-term TCE subsurface screening Level of 250 µg/m^3, which is based on a short-term exposure for a workplace scenario.

PCE and TCE were detected at concentrations exceeding the SLs during both sampling events at generally consistent concentrations. Concentrations were highest on the eastern portion of the property closest to the GWCC Site.

M- and p-xylene and o-xylenes were also detected at concentrations exceeding a SLsg but only in the May 2024 sampling event. Those compounds were not detected above a laboratory reporting limits in the June 2020 event.

M- and p-xylenes were detected at concentrations of 31,000 µg/m^3 and 12,000 µg/m^3, which exceeds the SLsg of 3,300 µg/m^3. Both of these values had an “E” data qualifier indicating the result is estimated and above the instrument calibration range.

O-xylenes were detected at concentration of 9,300 µg/m^{3}and 4,200 µg/m^3. The higher value also had a “E” data qualifier.

There is not a MTCA Method C screening level for TPH in soil gas. TPH was detected in all samples, with concentrations ranging from 620 ug/m^3 (WH05-SS-0524) to 6,400 ug/m^3 (BR-SS-0620).

3.4.6.2 **Indoor Air**

Indoor air sampling was performed in June 2020 and May 2024 contemporaneous with subslab vapor sampling and then as standalone sampling in June 2021 and July 2023. Dring those sampling events various samples were collected at the women’s restroom, office, and 6 locations in the warehouse. The June 2020 sampling event included composite indoor air samples collected over 8 hours; the remaining indoor air sampling events included composite samples collected over 24 hours. The July 2023 and May 2024 sampling events were the most extensive with eight locations each. The May 2024 results represent Site conditions after Dawn Foods had vacated the premises. During all sampling events ambient samples were collected from upwind and downwind locations to estimate background levels of the COCs in the project area at the time of indoor air sampling.

Sample results are summarized in Table 15. Sampling locations are indicated on Figure 22. The Site is located in an industrial area of Seattle and several VOC compounds were detected in ambient air samples. Table 15 shows both the detected concentrations and a corrected concentration, which removes the average concentration of the VOC compound if it was detected in ambient air. VOCs[12] in the ambient air could be from sources outside of the building such as paints, aerosol sprays, fuels, or from emissions released from industrial uses in the area. The warehouse has many truck bay doors and windows that are directly connected to ambient air. During sampling activities, the doors were closed.

No volatile compounds were detected in any samples at a concentration exceeding a MTCA Method C indoor air cleanup level or above the TCE short-term air action level.

TPH was detected in all indoor air samples collected. As mentioned above, samples were collected when Dawn Foods was operating in the building (2020-2021), when they were ramping down activity (2023) and after they had vacated the building (2024). This discussion focuses on samples collected in 2024, which represent current Site conditions. TPH concentrations in indoor air samples collected inside the building ranged from 31 µg/m^3 to 131 µg/m^3. Ecology has not developed a TPH vapor intrusion screening level for commercial or industrial land use. In the absence of a MTCA screening level, indoor vapor sample results from May 2024 were evaluated on a point-by-point basis against risk thresholds using spreadsheets developed by Ecology (Ecology 2023). The spreadsheets are provided in Appendix E. The May 2024 results (summarized on Table 15) were compared to MTCA Method B Unrestricted, MTCA Commercial, and MTCA Method C Industrial risks

[12] https://www.epa.gov/indoor-air-quality-iaq/volatile-organic-compounds-impact-indoor-air-quality

using the hazard index, total cancer risk, and individual cancer risks. The May 2024 results were evaluated because those samples were collected when Dawn Foods production had terminated operations and vacated the building. Results from all locations were below the MTCA Commercial Method C vapor risk factors[13] and also below the MTCA Method B (unrestricted and commercial scenario). Evaluation of risk factors is included in Appendix E.

Table 15 also includes an evaluation of the July 2023 indoor air sampling event; this information was discussed in the RIWP. During the July 2023 event Dawn Foods was in the process of ramping down activities as they prepared to vacate the building. During that sampling event results from all locations were below the MTCA Commercial Method C vapor risk factors. Details related to this evaluation are presented in the RIWP.

3.4.6.3 **Vapor Intrusion Summary of Results**

There are no indoor air exceedances for the default MTCA cleanup levels or the risk scenarios evaluated.

3.4.7 Sediment

U.S. EPA Region 10 (EPA) is the agency with regulatory primacy for in-water and sediment cleanup of the LDW. The Site is located between river mile 2.2 and 2.3. Surface and subsurface data available on the LDW Superfund Site website, collected in close proximity to the Site, indicate that sediment proximal to the Site is not contaminated (Windward 2010). The Record of Decision for the LDW confirms that sediment adjacent to the Site does not require cleanup (EPA 2014). Sites immediately upstream and downstream of the Site do have contaminated sediment which can migrate, and likely historically has migrated, to sediment adjacent to the Site. These contaminants include: metals such as arsenic, lead, mercury, and zinc; PAHs, such as fluoranthene and phenanthrene; PCBs, TPH, and SVOCs such as benzyl alcohol (Ecology 2009). The cleanup action proposed for these nearby sites includes removal of contaminated sediment (EPA 2014).

LDW pre-remedial design sediment sampling was performed in 2022 (Windward and AnchorQEA 2023). Four grab samples and two sediment core samples were advanced in the intertidal zone adjacent to the Site. The samples were all below LDW remedial action levels for arsenic (57 mg/kg), total PCB Aroclor (12 mg/kg Organic Carbon normalized), and total cPAH (5.5 mg/kg).

These findings indicate that the Site was not historically, and is not currently, a source of impacts to the Duwamish Waterway or sediment adjacent to the Site.

[13] The RIWP includes a comparison of the July 2023 indoor air vapor results to the MTCA Commercial Method C vapor risk factors (CRETE 2024b). TPH risk factors were acceptable for the Commercial Method C value for all samples.

4 Conceptual Site Model

This section presents a conceptual site model (CSM) that discusses potential receptors and exposure pathways that will be evaluated during development of proposed CULs in Section 5.

4.1 Site Conditions

4.1.1 Physical Habitat Features

The Site is located in the Georgetown neighborhood of Seattle adjacent to the Duwamish Waterway in a predominately industrial/commercial area of Seattle. The Site covers 5.4-acres and includes a 128,800 square feet (2.96 acres) warehouse. The Site is covered in pavement/concrete surfaces except for the rail spur north of the building (which is covered in compacted gravel/dirt), a narrow strip to the west of the rail spur (which is compacted gravel), small areas of landscaping on the east side of the property, and a narrow strip of heavily armored shoreline which slopes steeply into the Duwamish Waterway.

4.1.2 Geology and Hydrogeology

Site geologic conditions are illustrated on the cross sections (Figures 9 and 10). Shallow soil consists of sand fill with some silt and gravels from ground surface to 9 to 12 ft bgs. Locally, fill includes some organic matter, wood, and debris, including concrete rubble. A thin layer of silt was occasionally identified at 11 to 14 ft bgs in boreholes advanced within about 150 feet of the shoreline that may be indicative of the pre-filling surface.

Groundwater is tidally influenced and results of tidal studies indicate that groundwater flow is to the west-southwest with groundwater discharging to the Duwamish Waterway. A net groundwater flow contour map is included on Figure 11. Results from the 2023 tidal study indicate that all wells (wells MW-1 through MW-9) are tidally influenced with the strongest influence located at wells closer to the shoreline, with the influence dampening to the east. A summary of the tidal results is included in Appendix C.

4.2 Identified Sources

4.2.1 Site Sources

There are no current releases or ongoing sources of contamination at the Site. Historical sources which may have contaminated soil, groundwater, and or indoor air/subslab vapor include the following:

- Ship painting and repair activities: Activities such as ship repair, painting, and fabrication likely occurred as early as 1917, and through 1953. These activities occurred primarily in the western and southwestern portion of the Site, as seen on historical aerials included as Figures 4A and 4B. The historical record is not clear on the exact types of activities and various locations in which they were performed. Compounds present in soil and groundwater in the southwestern portion of the Site include CVOCs, petroleum, and metals that may be associated with former ship building and repair activities. Known shipbuilding was limited to wooden boat building where primary activities would have included sawing, sanding, joint sealing, and painting. As indicated by aerial photos, the presence of marine railways, and shallow subsurface debris, the former ground surface where shipbuilding activities occurred has since been filled to the current upland grade. As a result, soil contamination in this area is generally present at depths consistent with the historical ground surface.

- Industrial manufacturing and fabrication over much of the central and western portion of the Site: After ship building (which decreased/ceased by 1966), the Site was leased and used by National Steel Corporation and Emerson GM Diesel until around 1977, when the property was developed to the current layout (the existing building was completed in 1977). These past operations likely resulted in releases and spills in the vicinity of MW-5 and MW-8 that may have resulted in CVOCs, petroleum compounds, and metal (MW-5 only) impacts. PCE and TCE were detected in soil and groundwater above screening levels at RI-SB-11 and RI-SB-13 (PCE only). These past industrial processes are also likely responsible for the other compounds such as PCBs. The source of dioxins and furans in soil appears to be associated will fill and debris along the LDW. The sources and timing of releases are not known.

4.2.2 Upgradient CVOCs

As discussed in Section 2, the Site is hydraulically downgradient of known chlorinated solvent releases from GWCC and the Emerson/Schultz Distributing block. The impacts at the GWCC Site are well established and known to migrate off-property, with documentation by GWCC confirming the existence of off-property impacts extending onto the Dawn Foods Site. These impacts have resulted in a broad dissolved-phase vinyl chloride plume that has affected much of the Dawn Foods Site and also has contributed PCE and TCE impacts to the eastern portion of the Site. Although under an Agreed Order, the GWCC Site has not been required to assess the maximum downgradient extent of its impacts to groundwater.

Molar concentrations of CVOCs (nmoles/L) were calculated for groundwater samples from Dawn Foods and GWCC monitoring wells and direct push locations (Table 16). For GWCC, the most recent publicly available data were used for all locations; the most recent data were obtained from the 2025 Annual Report (Farallon 2025). Figure 23 illustrates the molar concentration contours and indicates that the upgradient properties/Sites are the primary source of CVOC contamination to the eastern portion of the Dawn Foods Site.

4.2.3 Seattle Boiler Works

Three investigation locations were advanced on the south adjacent Seattle Boiler Works property (GP-SB-8, GP-SB-9, and GP-SB-12). Soil samples from these locations were analyzed for metals (Table 3) while groundwater samples were analyzed for metals and VOCs (Table 4a). Groundwater samples from GP-SB-8 and GP-SB-9 exceeded the SL for zinc while the groundwater sample from

GP-SB-12 exceeded the SL for vinyl chloride. Soil samples from GP-SB-9 and GP-SB-12 had concentrations below SLs for all metals analyzed. The soil sample from GP-SB-8 (9 to 10 ft bgs) had the highest measured concentrations for cadmium, lead, and zinc and the 3rd highest measured concentrations for arsenic and nickel. Cadmium, lead, and nickel were infrequently measured at concentrations exceeding SLs at the Site. Metals contamination at GP-SB-8 appears to be associated with a separate source unique to Seattle Boiler Works given the following information:

- GP-SB-8 contained the highest soil concentrations of multiple metals
- High soil concentrations of several metals that were not regularly observed at Dawn Foods
- Historical features (Figure 3), historical aerial photographs (Figures 4A and 4B), and sample locations (Figure 7) indicate that GP-SB-8 was advanced on the opposite side of the point from where historical ship building operations occurred at Dawn Foods
- GP-SB-8 is located within the former Duwamish River whereas Dawn Foods is located on the former mudflat
- Industrial operations have been present at Seattle Boiler Works since the early 1900s and these operations and associated filling activities are likely sources of these common contaminants for which Seattle Boiler Works has an obligation to investigate.

These findings strongly support a conclusion that the impacts observed at GP-SB-8 are the result of historical releases on the current Seattle Boiler Works Property and are likely not attributable to releases from the Dawn Foods Site. Therefore, no additional assessment of impacts in this area is required under the Dawn Foods AO.

4.3 Potential Transport Mechanisms

Contaminant release mechanisms refer to the manner in which contaminants are released from the primary source. Primary release mechanisms associated with the former ship building facility included upland process-related releases and spills. Given the apparent changes in Site grade and due to changes in the shoreline location, it is possible that some of these historical surface releases are at some depth below grade with clean fill above. The release mechanisms for the historical on-Site Emerson GM Diesel and National Steel Corporation activities are similarly assumed to be surface releases and the vertical migration through the soil column.

Urban and industrial sources outside the Site, including on-Site migration, could also have resulted in releases to soil, groundwater, or air within the Site boundaries. GWCC is a known contributor of CVOCs to groundwater impacts at the Site.

The Site is almost entirely paved or covered with concrete and warehouse structures, thereby limiting the potential transport mechanisms to the following:

- Soil leaching to groundwater – Soils are impacted with several compounds and have the potential to impact groundwater. This mechanism is limited for vadose zone soil given the degree of impervious surface cover. Saturated zone soil contamination is located in the southwest and southcentral areas of the Site that were addressed by the IA.

- Groundwater transport to surface water – The hydraulic gradient is toward the LDW with discharge to the waterway through seeps and groundwater flux below the low water level of the LDW.
- Volatilization to Indoor Air – Volatile compounds are known to exist in the soil gas below the on-Site structure. Those impacts have not affected indoor air quality above a CUL. Future modifications to the property either through remodel or redevelopment can readily address this mechanism through engineering controls (e.g., vapor barrier, passive venting).

Stormwater is currently managed under Industrial Stormwater General Permit No. WAR011560. The majority of the Site is paved and stormwater is monitored based on the permit conditions. The Site paving and concrete cover and existing stormwater system prevent any significant interaction between stormwater with soil and groundwater.

4.4 Potential Ecological and Human Receptors

Ecological and human receptors could be directly or indirectly exposed to contaminants in soil, sediment, and surface water as follows:

- Ecological – See Section 5.3.1 for Terrestrial Ecological Evaluation Exemption. The Site is located within an industrial area of Seattle with no discernable upland habitat. PCUL have incorporated the protection of sediment and surface water to the LDW.
- Human – On-Site workers or workmen performing improvements.
    - Direct contact – Incidental ingestion of soil (petroleum cleanup levels also include dermal contact with soil)
    - Inhalation – Inhalation of vapors in indoor air or below grade work environments (trenches, pits, excavations) due to vapor intrusion from soil or groundwater
    - Direct contact with or incidental ingestion of groundwater –In areas where groundwater becomes exposed during construction.

These receptors and pathways are evaluated in Section 5.

4.5 Remedial Investigation Conclusion

The purpose of a remedial investigation is to adequately characterize the Site for the purpose of developing and evaluating cleanup action alternatives. This remedial investigation has adequately characterized the distribution of hazardous substances at the Site consistent with WAC 173-340-350(7).

Section 5 of this report establishes cleanup standards consistent with WAC 173-340 Part VII and Sections 6 through 9 of this report present the feasibility study consistent with WAC 173-340-351 that develops and evaluates cleanup action alternatives consistent with WAC 173-340-360 and 370.

5 Proposed Cleanup Standards

5.1 Applicable or Relevant and Appropriate Requirements

5.1.1 Applicable or Relevant and Appropriate Requirements

MTCA requires that all cleanup actions comply with applicable or relevant and appropriate requirements (ARARs) under state and federal laws (WAC 173-340-360(2)), including “legally applicable requirements” and “relevant and appropriate requirements.” This section lists these requirements as they apply to cleanup levels, treatment and disposal, and property development.

5.1.1.1 Laws Applicable to Cleanup Levels

Potentially applicable requirements that apply to cleanup and action levels are summarized in Table 17. These are applied in Sections 5.2 through 5.4 below during the selection of the appropriate cleanup levels for soil and water is discussed below.

5.1.1.2 Laws Applicable to Treatment and Disposal

Table 17 provides a summary of laws relating to the management of soil and water during the treatment and disposal process. These laws are applied to the evaluation of remedial alternative in Section 8 of this report.

5.1.1.3 Other Remediation Requirements

Other potentially applicable requirements that apply to remediation activities are summarized in Table 17 and listed in the sections below. These requirements do not apply to cleanup levels or treatment and disposal activities, but place restrictions on how the remediation may be performed. These requirements are also considered in the evaluation of alternatives for implementability and cost (Section 8).

5.2 Proposed Groundwater Cleanup Standards

Proposed groundwater CULs are based on the PCUL workbook for the Lower Duwamish Waterway (version February 11, 2026). Where relevant, the PCULs have been adjusted based on practical quantitative limits (PQLs) or natural background concentrations. PCULs were developed based on groundwater non-potability. Support for that decision is provided below in Section 5.2.1.

Absent a consideration for potability, the three pathways related to groundwater cleanup are vapor intrusion and protection of surface water and sediment. While the LDW is being addressed by EPA there remains the requirement that discharge from the Site not adversely impact the surface water or sediment quality.

The vapor intrusion pathway has been demonstrated to be incomplete in the current configuration of the site due to the structure effectively preventing subslab vapor from entering the warehouse (Section 3.4.5). In addition, there are no plans to modify the existing warehouse foundation and floor or construct new structures. The current structure is an effective engineering control against vapor intrusion.

Arsenic was adjusted upward to the groundwater natural background level.

Future groundwater samples may be analyzed for EPH/VPH in addition to Northwest Total Petroleum hydrocarbon (NWTPH)-Dx to allow development and comparison of TPH concentrations relative to MTCA Method B criteria.

5.2.1 Groundwater Non-Potability

Groundwater potability was reviewed for applicability of human consumption of groundwater as a potential exposure pathway. Based on the criteria presented in WAC 173-340-720(2)(d), groundwater beneath the Site satisfies the MTCA non-potability criteria, and therefore human consumption of groundwater is not an exposure pathway of concern. Protection of drinking water is not applicable because the shallow groundwater is not potable and is expected to remain non-potable in the future under MTCA and local regulations based on the following evaluation:

- WAC 173-340-720(2)(d)(i) The conditions of (a) and (c) of this subsection are met. The conditions of (b) are also likely to be met:
    - WAC 173-340-720(2)(a) Neither the Site nor groundwater in its vicinity is a current source of drinking water based on Ecology's on-line well construction inventory.
        - Verification of no active drinking waters wells withing 1.0 mile of the project site was conducted using the Source Water Assessment Program Mapping Tool[14]. Two inactive wells are shown associated with Boeing Company Plant 1 (inactive since 1995) at a half mile upgradient and to the south of the Site and one well is located to the north 0.6 miles associated with Kaiser Cement and Gypsum owner, inactive since 1979. It was not possible to determine the use of these older wells, but it is presumed they were used for the industrial activities at the Boeing and Kaiser facilities.
    - WAC 173-340-720(2)(b)(ii) - The groundwater contains natural background concentrations of organic or inorganic constituents that make use of the water as a drinking water source not practicable. The proximity of the Site to the Duwamish Waterway indicates that any production scale groundwater extraction would result in saltwater intrusion to a well on the Site. This finding also relates to -720(2)(d) as a very low probability source of beneficial use groundwater.
    - WAC 173-340-720(2)(c) Ecology determines it is unlikely that hazardous substances will be transported from the Site groundwater to groundwater that is a current or potential future source of drinking water based on the following site-specific factors:

[14] https://doh.wa.gov/community-and-environment/drinking-water/source-water/gis-mapping-tool

  - (i) The extent of affected groundwater was discussed in Section 3.4.2.
  - (ii) The distance to the nearest existing water supply well is estimated to be about 0.6 miles to the north.
  - (iii) The low likelihood of interconnection between the contaminated ground water and groundwater that is a current or potential future source of drinking water since drinking water wells would be installed in deeper aquifers and there is an inferred upward vertical gradient in the vicinity of the Site.
  - (iv) The physical and chemical characteristics of the hazardous substances. Section 3 discusses the chemicals detected in groundwater and soil at the property. These compounds will not migrate to nearby groundwater wells based on the hydrogeological characteristics discussed in v and vi below.
  - (v) The hydrogeologic characteristics of the Site were discussed in Section 3.3. Upward vertical gradient was discussed above in (iii) and the direct connection of shallow groundwater to surface water is discussed below in (d).
  - (vi) The impacted shallow aquifer is part of an upper groundwater zone in the Duwamish Valley that is present to about 80 feet bgs. A specific discontinuous shallow silt was identified at GWCC but the upper groundwater zone is a deltaic deposit that includes numerous silt, silty sand, and sand interbeds.

Other information to consider with respect to whether Site groundwater is a potential future source of drinking water include:

- Specific conductance measured in groundwater contains natural background levels up to more than 45 times the state and local secondary maximum contaminant level of 700 µS/cm (at MW-3, January 2024; Table 5).
- A domestic supply well could not be placed in the vicinity of the Site as state and local codes prohibit the construction of drinking water wells in the vicinity of the Site.
- WAC 246-290-130(1) requires drinking water supplies to come from the highest quality source, which at the Site is the municipal water supply system.
- WAC 290-135(2)(b) specifies a minimum 100-foot drinking water well setback from surface water, roads, utilities, and buildings.
- WAC 173-340-720(2)(d). Conditions (i) through (iv) of this section are met.
  - (i) The conditions specified in (a) and (c) of this subsection are met - see above.
  - (ii) Groundwater beneath the Site is known to discharge to surface water (LDW)

- (iii) The LDW is not classified as a suitable domestic water supply source under WAC 173-201A.
- (iv) The shallow aquifer has an average hydraulic conductivity of $5x10^{-3}$ cm/s. Groundwater response to tidal fluctuation at this Site and GWCC has been observed several hundred feet into the upland, and elevated specific conductance (up to greater than 32,115 µS/cm [Table 5]) consistent with the presence of saline surface water mixing has been measured in groundwater. These observations indicate significant hydraulic connection between groundwater and surface water at the Site.

5.2.2 Total versus Dissolved Metals

During the RI, samples for both total and dissolved metals in groundwater were submitted for analysis. Analytical results for dissolved metals are used for comparison to CULs as filtering groundwater removes suspended solids that can result in a significant high bias of results due to metals compounds present in soil at natural background concentrations. Per WAC 173-340-720(9)(b), filtered results may be used for evaluating compliance with groundwater cleanup levels for metals with Ecology approval after demonstrating the Site meets specific criteria. Below is a list of the MTCA-specified criteria and a discussion of how the Site meets those criteria:

- i: A properly constructed monitoring well cannot be sufficiently developed to provide low turbidity water samples.
  - All Site monitoring wells were construction per Chapter WAC 173-160. Well construction details are summarized on Table 1 and monitoring well logs are provided in Appendix B. All monitoring wells were constructed after 2021. Table 5 presents a summary of stabilized groundwater parameters recorded immediately prior to sample collection. Guidance documents vary but indicate that samples should be filtered if turbidity measured in low flow samples is above 5 NTU or 10 NTU. The post-purging turbidity measurements for wells MW-3, MW-6, and MW-7 are regularly above these turbidity thresholds while other wells fluctuate above and below the thresholds.
- ii: Due to the natural background concentrations of hazardous substances in the aquifer material, unfiltered samples would not provide a representative measure of groundwater quality.
  - Groundwater data were evaluated to determine if total and dissolved results varied. In general, total and dissolved groundwater results are relatively consistent. A review of Table 8 indicates that there are only seven instances (see table below) where the use of the total result would have altered a compliance determination with a total metals CUL exceedance but a dissolved result below the CUL. All of these exceedances occurred in shoreline wells where tidal influence regularly disturbs the soil formation and tidal groundwater sample timing does not allow for time to wait until turbidity decreases to below 5 or 10 NTU. As indicated in the

table, turbidity readings exceeded 5 NTU in all cases with six of the results exceeding 19.7 NTU.

Date	Analyte	Total Result (µg/L)	Dissolved Result (µg/L)	Turbidity (NTU)
MW-1				
2/1/22	Copper	4.12	2.3	21.8
MW-2				
12/22/22	Copper	9.56	1.3	606
MW-3				
4/20/22	Copper	3.3	1.59J	45.7
12/22/22	Nickel	8.88	4.36	136
8/29/23	Copper	4.91	1.28	6.76
1/12/24	Copper	10.9	1.26U	19.71
1/5/26	Copper	5.98	3.01	34.51

- iii: Filtering is performed in the field with all practicable measures taken to avoid exposing the groundwater sample to the ambient air before filtering.
    - Groundwater samples were and will continue to be collected using low-flow sampling techniques (EPA 1996) per the Sampling Analysis Plan (SAP)/QAPP provided in the RIWP. Samples are filtered in the field when they are collected.

Similarly, reconnaissance groundwater samples are also especially prone to high bias of metals analysis due to elevated turbidity. Reconnaissance groundwater samples were collected using direct push sample tooling without a sand filter pack with a screen size of about 0.020 inches. Such samples also do not lend themselves to extensive well development or allow for any period of rest and equilibration with the ambient conditions. This method is prone to highly turbid samples and the resulting upward bias in total metals concentrations. Reconnaissance samples are, for this reason, generally not relied upon for compliance evaluations, but as a screening tool as part of an investigation. Due to the potential for false positives, dissolved metals results from direct push samples are used for general comparison to cleanup levels but should not be relied upon solely for compliance evaluation.

5.2.3 Summary of Proposed Groundwater Cleanup Standards

Groundwater CULs are based on protection of surface water and sediment and are presented in Table 18 for the following:

- CVOCs – PCE, TCE, and vinyl chloride
- Petroleum compounds – GRO and DRO
- Metals – zinc

The groundwater CUL for all COIs is based on protection of surface water or sediment and the point of compliance is set at the point of discharge to the Duwamish Waterway.

5.3 Proposed Soil Cleanup Standards

The Site is an industrial property as defined in MTCA WAC 173-340-200 because the property has been and is planned to be used for distribution of manufactured products and the property is zoned industrial by the City of Seattle (MML U/85 is an industrial and maritime zone). In addition, according to WAC 173-340-745(1)(a)(i), the Site contains key components that characterize it as an industrial property, such as building structures, paved areas, limited public access, and site-specific support facilities.

Soil screening levels used in Section 3 are based on the PCUL workbook for Lower Duwamish Waterway (version February 11, 2026), which has been developed by Ecology specifically for upland sites adjacent to the LDW. The TEE exposure pathway was evaluated and indicated that substantial wildlife exposure is unlikely; therefore, potential TEE exposures were not incorporated into the soil CULs. A detailed discussion of TEE exemption is provided in Section 5.3.1, below.

The soil CULs for all COIs are based on soil leaching to groundwater where groundwater CULs are based on the protection of surface water or sediment. For the metals COIs, many of these CULs default to natural background (arsenic, cadmium, total chromium, copper, mercury, nickel, and zinc [saturated]) because the protection of surface water or sediment PCUL is lower than the natural background value established by Ecology. Compliance with natural background cleanup levels is discussed in Section 5.5.2.

The point of compliance for soil CULs is throughout the Site.

5.3.1 Terrestrial Ecological Evaluation

A simplified terrestrial ecological evaluation (TEE) was performed for the Site. The following is a scored simplified TEE according to WAC 173-340-7492(2)(a)(ii).

The Site is located in an industrial area of south Seattle. The Site and the surrounding properties are industrial facilities resulting in less than ¼-acre of contiguous, undeveloped land. If very low quality habitat that includes former gravel lay down areas at the southern property (Seattle Boiler Works) is optimistically included as habitat, you get about 0.5 acres. South Myrtle Streets cuts off another 0.25 acres of low quality habitat also located at the southern property (Seattle Boiler Works). If you assume this could be counted as undeveloped land, there is a total of 0.75 acres of total potential habitat. This value is rounded up to the nearest half acre in Table 749-1 analysis, below. The Site is adjacent to the LDW; however, the shoreline is comprised of a steeply sloped bank with heavy armor which does not provide any habitat. The Site is not used by threatened or endangered species.

Based on Site conditions, the following points are assigned Per Table 749-1 of WAC 173-340-7492:

1. Points per contiguous, undeveloped acreage (1 acres): 6 points
2. The area is industrial or commercial (zoned as industrial[15]). 3 points
3. Low habitat quality of the site. 3 points
4. Undeveloped land is unlikely to attract wildlife. 2 points
5. PCB detected in soil. 1 point
6. **Summation of Items 2 through 5: 9 points**

This score **(9 points)** is larger than Item 1 score **(6 points)** and therefore the simplified TEE may be ended under WAC 173-340-7492 (2)(a)(ii) and the Site is exempt from further consideration of terrestrial or ecological exposures. Therefore, potential TEE exposures were not incorporated into the soil CULs and will not be considered further in the RI/FS.

5.3.2 Summary of Proposed Soil Cleanup Standards

Soil cleanup standards are based on the PCULs that were calculated to be protective of groundwater to surface water and sediment pathways are presented in Table 18 for the following:

- CVOCs – PCE and TCE
- Metals – arsenic, cadmium, copper, chromium (total and hexavalent), lead, mercury, nickel, and zinc
- Petroleum – GRO, DRO, and ORO
- PCBs –total PCBs
- SVOCs – fluorene, benzo(a)pyrene and Total PAHs
- Dioxins and Furans

5.4 Proposed Indoor Air Cleanup Standards

The proposed CULs for indoor air are MTCA Method C for indoor air based on an industrial exposure pathway for non-TPH compounds.

Ecology has not developed a TPH indoor air cleanup level for commercial or industrial land use, the default value listed in the PCUL database is based on a MTCA Method B for an unrestricted land use, which assumes a residential setting. In the absence of a MTCA cleanup level based on site use, indoor air sample results were evaluated on a point-by-point basis against vapor risk using spreadsheets developed by Ecology (Appendix E). Compliance with vapor cleanup standards is based on direct measurement of indoor air quality.

There are no indoor air exceedances of a proposed CUL. However, TCE, PCE, and xylenes have been detected above sub slab screening levels (Table 15). Thus, indoor air CULs are included for TCE, PCE,

[15] City of Seattle Industrial Zone MML U/85

and xylenes since these compounds are in subslab vapor above screening levels and may pose a risk if building conditions change or if subsurface work is conducted that could result in the accumulation of vapors (such as confined space work). No subslab vapor cleanup levels have been established by Ecology.

5.4.1 Summary of Proposed Indoor Air Cleanup Standards

Indoor air cleanup standards are based on MTCA Method C industrial indoor air cleanup levels and are presented in Table 18 for the following:

- VOCs – PCE, TCE and xylenes.

5.5 Nature and Extent of Contamination

With the development of cleanup levels complete, the data presented in Section 2 are evaluated based on the relevant receptors and exposure pathways and associated cleanup levels in the following sections.

5.5.1 Groundwater

Groundwater CULs are based on protection of surface water and sediment. The standard point of compliance is throughout the Site from the uppermost level of the saturated zone to the lowest depth which could potentially be affected by the Site.

During the most recent round of groundwater sampling, there is one location where groundwater CULs are exceeded at the shoreline monitoring wells:

- MW-1 –zinc

The zinc exceedance at MW-1 is associated with the source area in the southwest corner of the property. Zinc (total and dissolved) has not been detected above the PCUL in samples collected from seeps in the vicinity of MW-1. Zinc concentrations at MW-1 have decreased following the IA. The last time the well was sampled (January 4, 2026), the concentration of zinc was 87.4 µg/L, only slightly above the PCUL of 81 µg/L. This continues a decreasing trend of zinc concentrations since implementation of the IA. Zinc has not been detected in groundwater above the PCUL in samples collected from PD1, located downgradient of MW-1 (Table 8). PD1 was sampled for four consecutive quarters in 2024, all results were below the laboratory reporting limit (which ranged from 7.07 to 12 µg/L). Concentrations of zinc remain above the PCUL in the vicinity of MW-5 in the southwest portion of the Site.

Other groundwater cleanup level exceedances are present in the southcentral and southeast portion of the Site for PCE, TCE, DRO, and GRO. PCE and TCE impacts in the southeast portion of the property are indistinguishable from upgradient impacts at the GWCC Fox Avenue Site. In addition, a large portion of the property contains vinyl chloride exceedances that appear to be associated with sources upgradient of the Dawn Foods Site.

Figure 24 shows the extent of groundwater exceeding cleanup levels. This figure differs from the Section 2 figures (Figures 13 through 21) as described below:

- 1-methylnaphthalene exceeded the CUL at MW-8 during the sampling events in January 2024 and January 2026. The CUL (0.17 µg/L) is based on groundwater protective of indoor air and there is no CUL for the protection of surface water pathway. 1-methylnaphthalene is not included in the standard TO-15 analyte list so vapor data are not available, but it has been demonstrated that the building is an effective barrier to vapor migration to indoor air (Section 2.3.5). Therefor 1-methylnaphthalene is not shown on Figure 24.
- Benzo(b)fluoranthene, total cPAHs and PCBs were detected at MW-3 in one sample collected in 2024. These results were not reproduced in subsequent groundwater sampling conducted in February 2025. Therefor benzo(b)fluoranthene, total cPAHs and PCBs are not shown on Figure 24.
- Nickel was detected in the groundwater grab samples from GP-SB-7 (22.7 µg/L) and GP-SB-11 (10.9 µg/L) above the CUL of 8.2 µg/L. Monitoring wells MW-4 and MW-5 were installed immediately adjacent to GP-SB-7 and GP-SB-11, respectively (Figure 7), to provide long-term groundwater data from these locations. Dissolved nickel has not been detected in MW-4 or MW-5 above the CUL in the last nine sampling events. Therefore, nickel is not considered a COI in this area and is not shown on Figure 24.
- Arsenic
    - Arsenic was detected at GP-SB-7 (29.7 µg/L) but has not been detected at MW-4 above the CUL (MW-4 was installed immediately adjacent to GP-SB-7 to provide long-term groundwater data from this location). Therefore, arsenic is not considered a COI in this area.
    - Low level arsenic has been detected in groundwater grab samples in the upgradient portion of the Site at GP-SB-18, GP-SB-30, GP-SB-31 and from monitoring wells MW-8 and MW-9. Oxidation-Reduction Potential readings (Table 5) at MW-8 and MW-9 indicate that this area has groundwater reducing conditions that are likely due to the presence of GWCC CVOC contamination and associated enhanced reductive dichlorination treatment injections at GWCC (see Section 1.2.2). Arsenic concentrations have been decreasing in groundwater collected from monitoring wells MW-8 and MW-9 and was detected below the CUL for the last two quarters at MW-9 and for the last three quarters at MW-8. These exceedances are likely due to reducing conditions caused by groundwater treatment at the upgradient GWCC Site. Therefore, arsenic is not considered a COI in this area.
    - Groundwater slightly exceeds the CULs for arsenic and vinyl chloride at RI-SB-06 in the northwest corner of the Site. This location is close to the northern property boundary and downgradient of the adjacent Seatac Marine Services property. At nearby MW-3, arsenic has not been detected above the CUL in the last 9 quarterly sampling events and vinyl chloride was not detected for 4 consecutive

groundwater sampling events (Table 8). This appears to be an incomplete exposure pathway as this data is not observed at the downgradient monitoring well. Therefore, arsenic and vinyl chloride are not considered a COI in this area.

- Dissolved zinc was detected in a grab groundwater sample from GP-SB-29, located in the north eastern portion of the Site, above the CUL of 81 µg/L. Zinc has not been detected above the CUL in any other borings in the vicinity of GP-SB-29. This appears to be an incomplete exposure pathway as it has not been reproduced in data collected in the vicinity. Therefore, zinc is not considered a COI in this area.

5.5.2 Soil

Preliminary evaluation of soil exceedances of PCULs was presented in Section 2. The majority of the preliminary soil exceedances were based on soil PCULs that were calculated to be protective of groundwater to surface water and sediment pathways. However, the PCULs for many of the detected metals are well below the natural background concentrations documented by Ecology. Therefore, as normally allowed, the CULs for arsenic, cadmium, total chromium, copper, mercury, nickel and zinc are defaulted to natural background concentrations for Western Washington.

To further evaluate the extent of soil contamination, the following evaluations were performed:

- Comparison to soil direct contact criteria
- A statistical analysis of soil metals concentrations relative to natural background (Table 19)
- A demonstration of soil protective of groundwater (Table 20)

The majority of soil at the Site contains metals concentrations that are consistent with natural background metals concentrations (arsenic, cadmium, chromium, copper, mercury, nickel, and zinc). Soil samples that exceeded natural background concentrations were further examined using a soil to groundwater demonstration to evaluate whether the detected concentrations pose a threat of migration to groundwater. The soil to groundwater demonstration evaluation included metals, TPH, TCE, PCE, PCBs, and SVOCS).

The resulting extent of soil contamination is illustrated in Figure 25 and discussed in more detail below.

5.5.2.1 **Direct Contact**

Soil concentrations on the property are below MTCA Method C industrial levels for direct contact for all samples except RI-SB-10 from 5 to 8 feet bgs. Arsenic was detected at 28.7 mg/kg, above the Method A level of 20 mg/kg. This area is currently capped by the building parking lot. All other soil concentrations are below MTCA Method C industrial standards (Method A for arsenic and lead), which are shown on Table 3 for metal compounds and Table 4b for dioxins and furans. Method C direct contact values are not listed for non-metal compounds because the low level detections, summarized on Table 4a, are well below Method C direct contact values.

5.5.2.2 Natural Background Metals

Soil CULs for arsenic, cadmium, total chromium, copper, mercury, nickel and zinc are based on natural background concentrations. In Section 2, individual point exceedances of these natural background CULs were identified; however, this results in an overestimate of metals soil contamination since the natural background CUL was established based on the 90% upper confidence limit (UCL) of the natural background data set. To provide a more accurate representation of the extent of metals soil contamination, Site soil contamination concentrations were evaluated for compliance with natural background concentrations using the MTCA three-part rule defined in WAC 173-340-740(7), with modifications as set forth in WAC 173-340-740(7)(e)(i) and (ii) to control false positive error rates at 5%, as follows:

- The 95% upper confidence limit (UCL) on the sample mean may not exceed the natural background concentration.
- No sample may exceed two times the natural background concentration, except that this exceedance factor may be increased consistent with the procedures outlined the Statistical Guidance for Ecology Site Managers (Ecology 1992).
- Less than 10% of the samples may exceed the natural background concentration, except that this percentage may be increased consistent with the procedures outlined the Statistical Guidance for Ecology Site Managers (Ecology 1992).

The evaluation was conducted to determine if soil outside of the known source areas, generally the south side of the warehouse building, comply with the MTCA three-part rule. Soil samples from the source area, which include MW-5, GP-SB-05, GP-SB-08, GP-SB-11, RI-SB-04, RI-SB-07, RI-SB-08, RI-SB-10, and RI-SB-11, were excluded for this analysis.

Samples GP-SB-22 (total chromium), GP-SB-23 (arsenic), GP-SB-24 (arsenic), GP-SB-25 (zinc), RI-SB-09 (mercury), MW-2 (arsenic) and MW-4 (zinc) have point exceedances above a CUL but satisfy the natural background evaluation per WAC 173-340-740(7). Compliance with natural background is summarized on Table 19 and detailed in Appendix D.

Soil concentrations were determined to be consistent with natural background metals concentrations except for the following locations, which are in known source areas, where metals soil contamination is present:

- GP-SB-05 (mercury is present at a concentration greater than 10 times the CUL), GP-SB-08 (zinc is present greater than 10 times the CUL), and GP-SB-11 (zinc is present greater than 5 times the CUL);
- RI-SB-04 (zinc is present greater than 7 times the CUL), RI-SB-10 (arsenic is present more than 4 times the CUL), and RI-SB-11 (copper is present more than 10 times the CUL);
- RI-SB-07 and RI-SB-08 (hexavalent chromium are present greater than 10 times the CUL);
- MW-5 (zinc is present at a concentration greater than 10 times the CUL).

5.5.2.3 Soil Protective of Groundwater

CULs for the soil leaching to groundwater pathway are developed based on soil-to-groundwater partitioning calculations that include several assumptions that are generally acknowledged to be conservative and tend to overestimate the degree of contaminant partitioning to groundwater. These assumptions include 1) steady-state equilibrium conditions; 2) individual chemicals rather than mixtures; 3) partitioning coefficients that bias toward leaching; and 4) low soil organic carbon content. MTCA allows for an empirical demonstration for this pathway per WAC 173-340-747.

In order to make an empirical demonstration that a measured soil concentration will not cause an exceedance of a groundwater CUL, it is necessary to meet the following requirements under 173-340-747(9)(b):

- The measured groundwater concentration associated with the soil is less than or equal to the applicable groundwater CUL,
- Soil contamination has been present long enough that contamination would have reached groundwater by now, and
- Site conditions will not change in a way that could cause future migration.

Table 20 presents a summary of soil and groundwater data that are co-located or where there is a groundwater sampling location immediately downgradient of a soil sampling location. This analysis was performed for arsenic, lead, copper, mercury, hexavalent chromium, total chromium, nickel, PCBs, dioxins and furans, and SVOCS (including cPAHs and fluorene). Table 20 provides a summary of individual locations and analytes which either failed the natural background analysis (arsenic, mercury and zinc) or were not included in the natural background evaluation because the PCUL is not based on natural background (copper, hexavalent chromium, total chromium, nickel, lead, PCBs, cPAHs, fluorene and dioxins and furans).

The empirical demonstration evaluated data that was based on co-located soil and groundwater samples with the exceptions noted below.

- With respect to fluorene and cPAHs, co-located groundwater data were only available for one sample location (GP-SB-25); however, the results were extrapolated to the other locations since GP-SB-25 had the highest fluorene and cPAH soil concentrations by a factor of 10 and fluorene and total cPAHs have not been detected above the CUL in downgradient monitoring wells.
- Total PCB Aroclors exceeded the CUL in a soil sample collected from 12.5 to 13.3 ft bgs at GP-SB-30. GP-SB-30 is located near the upgradient edge of the Site and is more than 500 feet from the LDW. The PCB Aroclor concentration of 0.057 mg/kg exceeded the CUL of 0.03 mg/kg that is based on protection of surface water. Although there are no nearby paired groundwater samples, PCB Aroclors were analyzed at monitoring wells MW-1 through MW-9 in January 2024 with a resample of MW-3 in April 2024 and all monitoring well results were below the CUL.

- Dioxins and Furans (total TEQ) exceeded the CUL in a soil sample collected from 12.5 to 14.5 ft bgs and 17.5 to 20 ft bgs at RI-SB-19. This soil boring is located approximately 4 feet upgradient of monitoring well MW-3.

The empirical demonstration requirements in WAC 173-340-747(9) and WAC 173-340-747(10)(c) have been satisfied for arsenic, lead, copper, mercury, hexavalent chromium total chromium, nickel, PCBs, dioxins and furans, and SVOCS (including cPAHs and fluorene), summarized on Table 20, as follows:

- There has been no accumulation of light non-aqueous phase liquid on or in groundwater per WAC 173-340-747(10)(c)(i)(A).
- There have been no exceedances of surface water screening levels that are attributable to leaching from soil to groundwater per WAC 173-340-747(9)(b)(i).
- Soil contamination is associated with industrial activity that dates back to 1917 through 1953 (Section 3.2). A significant amount of time has elapsed to enable any constituent transport from soil to groundwater that could have occurred at the Site. Also, current hydrogeologic conditions are sufficiently representative of future Site conditions; no changes to the surface structures footprints/pavement are planned or likely in the future. The Site is zoned industrial and will continue to be used that way, maintaining the low leaching potential and minimal surface water infiltration. As a result, the criteria in WAC 173-340-747(9)(b)(ii) and WAC 173 340-747(10)(c)(i)(B) are satisfied.
- The spatial distribution of the monitoring network and the existing data record (e.g., more than eight consecutive quarters of comprehensive groundwater monitoring events conducted along shoreline monitoring wells and upgradient monitoring wells) are sufficiently robust to support the determinations listed above (Ecology 2016).

TCE and PCE have been detected above CULs in soil samples and groundwater samples at the following locations: RI-SB-09 (TCE only), RI-SB-11, and RI-SB-13 (PCE only). This demonstrates a potential connection between soil and groundwater for these compounds. TPH-Dx have been detected in soil samples and groundwater samples from RI-SB-10. MW-5 is immediately downgradient of RI-SB-10 and within the IA treatment area. TPH-Dx has not been detected above the PCUL at MW-5, indicating that TPH-Dx is no longer present in groundwater in the vicinity of RI-SB-10.

5.5.2.4 **Summary of Soil CUL Exceedances**

Based on the results of the natural background and soil to groundwater pathway analyses, the following soil sample locations exceed CULs for the identified chemicals:

- RI-SB-04 – Zinc (11-12 feet bgs)
- RI-SB-08 – Zinc (5-10 feet bgs)

- RI-SB-11 – Zinc, PCE and TCE (0.5-2 feet bgs [PCE and TCE only] 5-7.5 feet bgs [zinc, PCE and TCE])
- GP-SB-5 – Zinc (5-7 feet bgs)
- GP-SB-8 – Zinc (9-10 feet bgs)
- RI-SB-09 – PCE and TCE (10-12.5 feet bgs)
- RI-SB-10 – Arsenic, TPH Gx and Dx (5-8 feet bgs)
- RI-SB-13 – PCE (7.5-9 feet bgs)

All of these locations are in the immediate or greater former marine wharf, boat slip, and marine railway area or on the historical southwest peninsula (RI-SB-04). All of these locations, were within the treatment footprint of the IA and all of these compounds were target compounds for the IA. All contaminants that were demonstrated to be in compliance with natural background metals concentrations and to be protective of the soil to groundwater pathway achieve CULs and are not retained as COCs.

5.6 Chemicals of Concern

As discussed in Section 2, the soil and groundwater sample locations and analyses were selected based on past known and suspected Site use. Soil and groundwater samples have been collected across the Site (Figure 7) and have been analyzed for a wide variety of chemical compounds including: metals, TPH, CVOCs, PCBs, dioxins and furans, SVOCs, BTEX, PAHs, and tributyltin.

Table 21 summarizes the process of determining the chemicals of concern (COCs) from the COIs presented in the RIWP as determined by the analysis of RI data and cleanup level exceedances presented in Section 4.5. The COCs for each media selected for the Site are as follows:

- **Soil:**
    - Arsenic, zinc, TCE, PCE, TPH-Gasoline, and TPH-Diesel
- **Groundwater:**
    - Zinc, TCE, PCE, vinyl chloride, TPH-Gasoline and TPH-Diesel,
- **Indoor Air:**
    - TCE, PCE and xylenes

Cleanup levels for the COCs are provided in Table 21. The nature and extent of these COCs is documented within the RI. Groundwater COCs will not be sampled in areas of the Site where they have not been detected above CULs.

Chemicals that exceed MTCA Method B Direct Contact CULs are not identified as COCs. The locations of these MTCA Method B Direct Contact CUL exceedances will be documented in a Soil Management Plan as part of the Long-term Compliance Monitoring Plan that is required for the use of MTCA Method C CULs.

6 Remedial Objectives and Technologies

This Feasibility Study (FS) has been prepared consistent with the requirements of WAC 173-340-351. This section identifies the Remedial Action Objectives (RAOs) and briefly reviews a set of technologies that are potentially applicable at the Site based on the Site conditions and the scope of the cleanup.

6.1 Remedial Action Objectives

RAOs are selected below in conformance with the requirements of WAC 173-340-351(6)(a) Based on the conceptual site model, the FS has identified the following RAOs:

RAO 1. Protect Worker Contact with Soils

- Reduce risk from soil contact during subsurface work (e.g., buried utilities)
- Soil CULs based on direct contact under an industrial scenario
- Point of compliance – Surface to 15 feet bgs

RAO 2. Protect LDW via groundwater discharge

- Reduce risk to aquatic life and humans ingesting fish and shellfish
- Groundwater CULs based on water quality criteria and partitioning to sediment
- Point of compliance – conditional point of compliance is set at the point of discharge to the Duwamish Waterway which is assumed to be the Shoreline wells for this FS

RAO 3. Protect Groundwater via Soil Leaching

- Reduce risk of soil contamination leaching to groundwater
- Soil CULs based on leaching in the vadose and saturated zones
- Point of compliance – Surface to lowest depth where soil exceeds leaching CULs

RAO 4. Protect Workers via Inhalation of Vapors from Soil or Groundwater

- Reduce risk of vapor exposure in buildings and during subsurface confined space work (e.g., buried utilities)
- Groundwater CULs based on vapor intrusion screening levels
- Soil gas screening levels based on an industrial exposure scenario
- Indoor air CULs based on an inhalation in an industrial exposure scenario
- Points of compliance:
    - Groundwater throughout shallow aquifer
    - Air throughout the Site

No other RAOs are necessary to protect the current or potential future exposure pathways at the Site.

6.2 Remedial Technologies

Remedial technologies that will be combined into the alternatives to be evaluated are discussed below in accordance with WAC 173-340-351(6)(b). Groundwater contaminated with CVOCs (PCE, TCE, and VC), zinc, TPH, and dioxins and furans have the potential to migrate and impact the LDW as these have been detected in monitoring wells above CULs (Figure 24). Dioxins and furans have very limited potential for migration in groundwater. There are a limited number of remedial technologies that will effectively address both CVOCs and metals. This section briefly reviews a set of technologies that are potentially applicable based on the Site conditions and the nature and extent of contamination. These technologies, which are presented in order of permanence, may be used in combination to address the Site RAOs and include:

- Excavation, Off-Site Disposal
- Permeable Reactive Barrier
- Enhanced in-situ reductive dechlorination (ERD)
- Capping
- Natural Attenuation and Monitoring
- Institutional Controls

6.2.1 Excavation and Disposal

Excavation and disposal is commonly employed to permanently remove contaminated soil. Long-term risks are immediately reduced by the removal of contaminated soils and the potential for this soil to act as a continuing source of groundwater contamination.

Short term risks are greater for excavation and transportation of impacted soils due to the potential for workers to be exposed to contaminants by fugitive dust emissions and the potential for off-site migration of contaminated soils by stormwater runoff.

While excavation eliminates all possible future exposure pathways, the soil data does not indicate a clear significant source and there is no documented spill or release area. Furthermore, the area available for excavation is in the parking lot which contains extensive utilities (Figure 3) and would potentially require shoring and stabilization of the building and or the shoreline depending on the location of excavation activities. Excavation is retained for consideration for small, discrete areas and for a permanent to the maximum extent practicable remedial alternative.

6.2.2 Permeable Reactive Barriers

A permeable reactive barrier (PRB) is a subsurface trench containing reactive materials through which groundwater flows. This in-situ method for remediating dissolved-phase contaminants in groundwater combines a passive chemical or biological treatment zone with subsurface fluid flow management. The most commonly used PRB configuration is a continuous trench in which the treatment material is placed as backfill into the ground surface. The trench is perpendicular to and intersects the groundwater plume.

The majority of installed trench style PRBs use zero-valent iron (ZVI)[16] as the reactive media for converting contaminants to non-toxic or immobile species. ZVI has the ability to reductively dehalogenate CVOCs and reduce the mobility of zinc. EnviroBlend is another reactive media that stabilizes metals by regulating pH and forming insoluble compounds which become trapped in the PRB. These compounds can be susceptible to changes in pH and dissolved oxygen which can have the potential to remobilized bound chemicals[17].

Granular activated carbon (GAC) is typically used in above ground treatment systems, such as an end treatment in a water treatment system, or used with another material, such as mixing it with ZVI (ITRC 2005). GAC treats groundwater through the absorption of material to the carbon molecule, this results in the carbon eventually becoming clogged from the accumulation of suspended solids, inorganic mineral principates, or even biological growth (EPA 1984). Once the surface area is bound/clogged, absorption cannot occur anymore. Typically, these are managed through backwashing or through replacement. Groundwater with high suspended solids requires robust pretreatment – such as sedimentation or flocculation – to prevent bed clogging which will reduce the adsorption efficiency.

A PRB requires installation along the entire width of the groundwater plume or the installation of a funnel and gate system. These would include a physical barrier that intercepts the groundwater plume and directs the water into the PRB. Due to the extensive trenching, site utilities will be affected and will need to be terminated and removed, temporary utilities installed during construction and then permanently rerouted. The PRB will likely need to be replaced every 2-5 years as the reactive media will weather and become inactive over time due to the brackish marine water present in the LDW. This weathering will be more rapid than normal due to the nearshore tidal fluctuations, the weathering will clog the media, inhibiting contact time with groundwater. Additionally, it is possible that some of the immobilized chemicals may remobilize after the media is exhausted based on the influence of the dissolved oxygen present in the surface water.

6.2.3 Enhanced In-Situ Reductive Dechlorination

ERD is the process of modifying chemical, physical, and biological conditions in the aquifer to stimulate the microbial degradation of CVOCs in groundwater under anaerobic conditions to harmless end products (e.g., carbon dioxide [CO2] or ethene).

ERD is conducted in place, without having to pump out groundwater for aboveground cleanup. ERD is the process through which chlorine atoms attached to an organic compound are sequentially removed under anoxic (low oxygen) conditions. The degradation process for PCE is generally PCE

[16]https://clu-in.org/techfocus/default.focus/sec/
permeable_reactive_barriers,_permeable_treatment_zones,_and_application_of_zero-valent_iron/cat/overview/

[17] https://www.sciencedirect.com/science/article/abs/pii/S1383586616322055#:~:text=Runs%201%E2%80%933.-,Fig.,capacity%20of%20citric%20acid%20solution.&text=res%20image%20(220KB)-,Fig.,(Runs%201%E2%80%933).&text=Dissolution%20of%20ZVI(11)%20Fe,an%20oxidized%20species%20of%20citrate

→ TCE → cis-1,2-dichloroethylene (with the possibility of minor amounts of trans-1,2-dichloroethylene and 1,1- dichloroethylene) → vinyl chloride → ethene. ERD is used frequently to remediate CVOC contamination in groundwater. Application of ERD is comprised of the introduction of an electron donor and sometimes bioaugmentation to modify existing geochemical and biological conditions in an aquifer to facilitate degradation of contaminants. The electron donor (which is a carbon source) is used as food by native microbes, which in turn, produce hydrogen through fermentation reactions. This process depletes the aquifer of dissolved oxygen and other electron accepters including nitrate, sulfate, and ferric iron, which lowers the oxidation-reduction potential, thereby creating the conditions for reductive dechlorination to occur[18].

An electron donor and bioaugmentation is added to the impacted area to overcome the terminal electronic acceptors (TEA) sinks (i.e. dissolved oxygen, nitrate, sulfate, etc.) and create sulfate-reducing and/or methanogenic conditions throughout the target treatment zone. Either one or both conditions will promote the transfer of electrons to the chlorinated solvents, which will reduce their concentrations and remediate the target area. Desirable electron donor qualities include high water solubility, no particulate matter, low viscosity, and a low retardation factor in order to ensure mobility within the target treatment zone. If the substrate has a low solubility or significant retardation factor, then delivery via induced hydraulic gradients would require multiple pore volumes of recirculation prior to achieving site-wide delivery.

Treatment of cis-1,2 DCE and vinyl chloride (in the absence of PCE and TCE) may be degraded via direct oxidation, however, this could result in an increase in zinc concentrations.

Anaerobic sulfate-reducing conditions, resulting from the ERD, can also stabilize zinc contamination by chemically reducing zinc sulfate to zinc sulfide, thereby reducing the solubility of the zinc that is present in soil and groundwater (Suthersan et al 2009). Sufficient sulfate is expected to be present to support this process, particularly since sea water contains sulfate. Studies have also shown that metal sulfides remain stable even when the sulfate-reducing conditions no longer remain (Thomson et al. 2001; SERDP 2009). One study indicated that 1 to 2% of the metals would remobilize within 16 years after sulfate-reducing conditions no longer remained (SERDP 2009). Reagents can include compounds such as calcium polysulfide reagent, zero-valent iron (ZVI) or a blended mix with a proprietary mix (such as CarBstrate & NutriChlor, EHC-M™ Slurry, or Ecobond®).

ERD via substrate injection, was selected as the interim remedial technology for the Site and the IA was implemented in November 2024, summarized in Section 3.2. The IA focused on CVOCs and zinc.

This technology is carried forward as it is already being implemented at the Site to effectively treat affected groundwater.

6.2.4 Capping

Capping is a containment technology that involves leaving contaminated soil in place, isolating the medium from direct contact, and reducing or eliminating infiltration. Containment technologies

[18] https://clu-in.org/techfocus/default.focus/sec/Bioremediation/cat/Anaerobic_Bioremediation_(Direct)/

include hard surface capping with buildings and parking lots or soft capping with clean soil or gravel. Cap inspections and maintenance ensure that cap integrity is not compromised by Site operations, wear, or climate; institutional controls such as deed restrictions ensure proper future management of the cap and contained soil. The requirements for inspection and maintenance of a cap is typically included within an IC or EC for a Site. Capping is not treatment, so toxicity, mobility and volume of contaminants are not reduced by this technology.

Soil data indicates that soil contamination is below MTCA Method C industrial values (Section 5.5.2.1), thus capping is not needed for the direct contact pathway. However, capping is required to maintain the physical barriers per the simplified TEE (Section 5.3.1) and to limit potential infiltration of surface precipitation and its potential effects on contaminant mobility to groundwater. Development plans for the Site include maintaining the current building footprint (128,800 square feet building which covers approximately 55% percent of the Site) and parking/paved areas (which covers the remainder of the Site except for a small strip of vegetation along the shoreline). Because CULs were developed assuming that this pathway would be limited (see Section 5.3.1 for a TEE discussion) capping is carried forward as a potential technology for the Site.

6.2.5 Natural Attenuation and Monitoring

Long-term monitoring relies on the attenuation of groundwater constituents by natural processes, including biodegradation, abiotic degradation, adsorption, dispersion, dilution and precipitation. A long-term monitoring program would be designed to be sufficiently robust to monitor the progress of attenuation toward meeting cleanup objectives. Due to the passive nature of this remedial technology, it can be readily implemented with a minimum of institutional issues, such as permitting or arranging for access permissions, and also would have minimal potential for implementation problems, such as fouling. The potential drawbacks of sole reliance on this technology include potentially longer restoration periods when compared to active groundwater remediation technologies.

Attenuation processes, including dispersion, dilution, and biodegradation, are currently occurring throughout the Site. The effectiveness of attenuation is evidenced by declining contaminant concentrations following the IA and the reduced list of contaminates present at the shoreline wells above CULs. This technology will be retained for further evaluation to address groundwater COCs.

6.2.6 Institutional Controls

The purposes and implementation requirements of Institutional Controls (ICs) are defined under WAC 173-340-440. ICs are legal or administrative measures designed to limit or control activities that could result in exposures to contamination before, during, and after a cleanup action, particularly if contaminant residues are likely to remain above cleanup levels for an extended period of time. For the Site cleanup, institutional controls would be designed to:

- Ensure use of the Property for industrial purposes to allow for use of Method C cleanup levels.
- Ensure access by the Owner/representatives or Ecology to remedial systems (e.g., cleanup or monitoring equipment) before, during, and after active cleanup operations
- Protect occupants and construction workers from exposure to hazardous substances on-site during and after active cleanup operations.

A common institutional control is a local ordinance or a state rule or regulation. Local government, using its general land use authority, can limit the installation of groundwater wells and can require permits before excavation or drilling occurs in contaminated or urban areas. WAC 173-160-171 prohibits installation of a well within 100 ft of known or potential areas of contamination. The State Department of Health reviews permit applications for public drinking water sources and requires that the applicant should only use drinking water from the highest quality source feasible.

ICs may also include restrictive covenants (WAC 173-340-440(9)) commonly referred to as Environmental Covenants (ECs) which are recorded against a property deed and which run with land and are binding on future owners of a property which is part of a Site. ECs must be consistent with the requirements of the Uniform Environmental Covenants Act (RCW 64.70). Engineering controls which are part of a long-term remedy may be enshrined within the EC along with requirements for periodic inspection and contingency plans for removing, maintaining, or modifying the engineering control.

To the extent required by WAC 173-340-440 (11), Bridge will establish financial assurance for cleanup actions that include engineered and/or institutional controls. Financial assurance is intended to demonstrate that Bridge has sufficient resources to pay for costs associated with the operation and maintenance of the cleanup action, including institutional controls, compliance monitoring and corrective measures. Bridge currently provides financial assurance for other cleanup sites using a corporate financial test consistent with EPA requirements (40 CFR Part 264, Subpart F) and comparable state requirements.

Institutional controls already exist in the form of local ordinances restricting the use of groundwater for drinking water and prohibiting the installation of groundwater monitoring or extraction wells. These controls will remain in place unless the City of Seattle changes it regulations. The entire area around the Site is and has historically been used by industry (Section 2). Institutional controls are also required for the simplified TEE (Section 5.3.1) and will be carried forward to provide physical barriers between subsurface soils and wildlife receptors.

All soil samples collected throughout the Site are below the MTCA Method C industrial worker direct contact value. Subslab vapor is present below the building at concentrations above MTCA screening levels; however, all vapor samples collected within the building are below cleanup levels (Figure 22). Soil and groundwater beneath the building are likely the source of subslab vapor concentrations. Based on the potential for these sources to be disturbed during future work, institutional controls shall be applied to all soil beneath the building foundations. Because the building is currently limiting the exposure, and because future plans are uncertain as to the extent of remodeling, removal, or reconstruction, institutional controls will be put into place until the soil beneath the building is accessible. When the soil beneath the building becomes accessible, controls will be put into place to ensure that the soil is properly managed and disposed of in accordance with all local, state, and federal laws. Institutional controls would also address the maintenance of the existing surface capping in a manner that prevents potential exposures.

The use of ICs and ECs as a component of the Site remedy is carried forward for additional evaluation.

6.3 Selection of Remedial Technologies

The remedial alternatives to be evaluated are further screened for applicability in accordance with the requirements of WAC 173-340-351(6)(c). Based on the initial screening presented in the above section the selected technologies for this Site include:

- Excavation and Disposal
- PRB
- ERD
- Capping
- Institutional Controls and Monitoring

Based on these selected remedial technologies, proposed alternatives are identified in the following section and these technologies and the proposed alternatives are evaluated as required by WAC 173-340-351(6)(d) and (e) in accordance with the requirements of WAC 173-340-360(3).

7 Remedial Alternative Descriptions

The following remedial alternatives have developed for the Site based on the MTCA expectations for cleanup action alternatives (WAC 173-340-370), and are evaluated based on the requirements of WAC 173-340-360(3). These alternatives include a combination of technologies discussed above, which jointly address the RAOs for the Site.

1. Alternative 1 – ERD, Excavation and Off-Site Disposal, Institutional Controls, Monitoring, and Capping
2. Alternative 2 – ERD, Targeted Excavation and Off-Site Disposal, Institutional Controls, Monitoring, and Capping
3. Alternative 3 – ERD, PRB, Institutional Controls, Monitoring, and Capping
4. Alternative 4 – ERD, Institutional Controls, Monitoring, and Capping

The next section describes the alternatives, including a summary of the first round of performance data collected from the IA, and the following sections evaluate the alternatives based on MTCA standards.

7.1 Summary of Interim Action

As stated in Section 3.2, to address CVOCs and zinc in groundwater in the southwestern corner, the southcentral portion, and the southeastern corner of the property an IA was Implemented. All work was performed in accordance with WAC 173-340-430 and the Ecology approved IAWP (CRETE 2024c). The extent of the IA is shown on Figure 8. To address both CVOCs and zinc in groundwater, a nutrient-amended carbohydrate electron donor was injected in the vicinity of MW-5/MW-4, RI-SB-13, and MW-8 on November 8 through 21, 2024.

Prior to the injection work, a baseline groundwater sampling event was conducted September 23 through 25, 2024 at monitoring wells MW-1, MW-2, MW-4, MW-5, and MW-8 through MW-11. The first round of performance sampling was completed on February 25 and 26, 2025 at the same wells sampled for the baseline sampling and point of discharge location PD1. Results are summarized on Table 8. Copies of laboratory results are included in Appendix A.

Groundwater data for zinc shows a reduction in zinc at MW-1. The concentration measured during the baseline sampling event was 508 µg/L (September 2024) and the concentration in January 2026 was 87.4, just above the PCUL of 81 µg/L. Zinc at MW-4 has been below the PCUL for all quarters after the IA. At MW-5, the location of the highest zinc concentrations on Site, the concentration has decreased to 456 µg/L (January 2026). Zinc concentrations are shown on Figure 17. TPH-Gx and TPH-DRO remain at consistent concentrations at MW-8, shown on Figure 18.

CVOC concentrations have also followed a decreasing trend for TCE, PCE and VC. These compounds remain above PCULs at select wells, but geochemical parameters (summarized on Table 22) show that conditions remain favorable for reductive dechlorination. CVOC concentrations are shown on Figure 19.

Groundwater at the shoreline monitoring wells currently exceeds for the following COCs:

- MW-1 – Zinc is slightly above the PCUL.

The IA is ongoing and concentrations of COCs are expected to continue to reduce. The final cleanup design for this Site may be affected by the further reduction of groundwater COCs.

7.2 Remedy Descriptions

7.2.1 Alternative 1 - ERD, Excavation and Off-Site Disposal, Capping, Institutional Controls and Monitoring

Alternative 1 includes ERD as implemented in the IA, excavation in the soil impacted areas around RI-SB-09 and RI-SB-10 (Area 1; CVOCs and arsenic) and RI-SB-13 (Area 2; CVOCs), and institutional controls and monitoring.

Alternative 1 includes excavation along the shoreline and within the footprint of Site utilities. Utilities, including gas, power, and water lines, would need to be terminated prior to excavation activities and reinstalled upon completion. Stormwater lines which overlap with the removal areas would be abandoned and replaced following excavation activities.

Excavated soils would be disposed of at an off-site Subtitle D landfill. This alternative includes maintaining the current cap and replaces the asphalt cap disturbed during excavation activities, resulting in a continuous cap over impacted soil to prevent migration through erosion and to prevent contact with impacted soils. Site stormwater would be captured and treated, using the current treatment system. This remedy is shown on Figure 26 and includes:

- Excavation of approximately 8,200 tons of soil above the cleanup levels for VOCs (TCE and PCE), metals (zinc), and TPH. Performance monitoring on the bottom and sides of the excavated area to ensure all soil above the remediation levels is removed. This includes excavated soils outline in Alternative 2, the total volume of soil to be removed is 10,000 tons.
- All utilities removed during construction would be reinstalled.
- Monitoring wells MW-4 and MW-5 which are withing excavation footprints (MW-5) or side slopes (MW-4) are expected to be damaged during construction. These monitoring wells would be replaced in close vicinity to the abandoned well and using similar construction details as removed wells (total well depth, diameter, mount and screen interval).
- ERD to address both CVOCs and zinc in groundwater would include a nutrient-amended carbohydrate electron donor injected in the vicinity of MW-5/MW-4, RI-SB-13, and MW-8 (performed during the IA – See Section 3.2). The IA is ongoing and concentrations of COCs are expected to continue to reduce. The final cleanup design for this Site may be affected by the further reduction of groundwater COCs.

- Maintaining the current asphalt parking and building structure which would serve as a cap for the entire Site.
- Short-term groundwater monitoring of existing Site wells (MW-1, MW-5, MW-6, MW-8, MW-9, MW-10 and MW-11) to determine the effectiveness of the ERD injections and long-term groundwater monitoring of shoreline monitoring wells (MW-1 and MW-2); to evaluate groundwater conditions at the conditional point of compliance.
- Institutional controls to ensure that future property activities do not result in human or environmental exposure to impacted soils or subslab vapor and that the existing capped surfaces are maintained. A contaminated media management plan would be developed to manage Site soils and vapor conditions below the current building and would protect any future building conditions.

This alternative would address groundwater contamination through active (ERD and excavation) measures and continued groundwater monitoring. The alternative includes active treatment of CVOCs, and zinc at the southwestern corner (vicinity of MW-5 & RI-SB-07/CVOCs/zinc), southcentral portion (vicinity of RI-SB-13, CVOCs), and the southeastern corner (vicinity of MW-8, CVOCs/TPH). Excavation targets CVOC and metal concentrations in the southwestern corner (RI-SB-09, -10, and -11), and TPH located in the southwestern corner (RI-SB-13).

Continued groundwater monitoring at the upgradient portion of the Site (MW-9) and the northwest corner (RI-SB-06; via MW-3D) would address decreasing concentrations of arsenic, include monitoring of CVOCs (RI-SB-06; monitored at MW-3 or MW-3D), TPH located in the southeastern corner (MW-8/TPH-Gx and TPH-DRO).

Contingent actions may be conducted if concentrations of groundwater COCs at the shoreline are not achieved. Contingent actions may include additional ERD injection to address CVOC and metal COCs.

Soil contamination is addressed through ERD treatments for contamination within in the saturated zone, excavation and institutional controls.

This alternative complies with the RAOs as summarized below:

- **RAO 1. Protect Worker Contact with Soils and RAO 4. Protect Workers via Inhalation of Vapors from Soil or Groundwater –** Institutional controls (including a contaminated media management plan) are included to reduce the potential risk of worker contact with vapor or for vapor migration into the building if building conditions change. Under this alternative, soil at RI-SB-10, which is above Method A direct contact for arsenic, would be removed and disposed of at an off-site disposal facility. Compliance with this RAO would include documentation of compliance with institutional controls in quarterly/annual reports provided to Ecology.
- **RAO 2. Protect LDW via groundwater discharge –** ERD treatment of zinc would treat groundwater above CULs that could discharge to the LDW. Remaining areas of the Site would be monitored through a long-term monitoring plan. Groundwater compliance with this RAO would be measured at shoreline monitoring wells.

- **RAO 3. Protect Groundwater via Soil Leaching –** Excavation at Area 1 (RI-SB-11) and Area 2 (RI-SB-13) would remove vadose and saturated soil contamination eliminating the potential for leaching to groundwater. ERD treatment of zinc and would treat saturated soil contamination. Institutional controls would ensure that the surface features remain. Remaining areas of the Site would be monitored through the long-term monitoring plan. Groundwater compliance with this RAO would be measured at shoreline monitoring wells.

7.2.2 Alternative 2 - ERD, Targeted Excavation and Off-Site Disposal, Capping, Institutional Controls and Monitoring

Alternative 2 includes ERD, as implemented in the IA, targeted excavation in the soil impacted in the vicinity of RI-SB-11 (for soil with CVOCs, metals, and TPH compounds above CULs), institutional controls and monitoring. Alternative 2 is shown on Figure 27.

Proposed excavation is to 9 feet bgs with depth driven by PCE, TCE, and zinc in samples from RI-SB-11. The excavation extent would be pre-determined based on existing data and is limited along the shoreline, adjacent to the building and in the utility corridor near the building. Final soil conditions at the limits of the excavation would be documented through sampling and analysis. Excavated soils would be disposed of at an off-site Subtitle D landfill. Shoring would be required along the building and riverbank sides of the excavation to provide support during excavation. Water drainage and stormwater features would be rerouted during excavation. Dewatering would be required to control groundwater infiltration. This alternative avoids the main water lines, power lines and gas lines that run along the south side of the building. The existing stormwater system would be affected by Alternative 2. Catch basins within the footprint of removal (which would be removed) would be replaced after implementation.

This alternative includes maintaining the current cap and replaces the asphalt cap disturbed during excavation activities, resulting in a continuous cap over impacted soil to prevent migration through erosion and to prevent contact with impacted soils. This remedy includes:

- Targeted excavation of approximately 1,100 tons of soil contaminated with PCE, TCE and zinc.
- All utilities removed during construction would be reinstalled. All monitoring wells are outside of excavation footprints and are not expected to be damaged during construction.
- ERD to address both CVOCs and zinc in groundwater would include a nutrient-amended carbohydrate electron donor injected in the vicinity of MW-5/MW-4, RI-SB-13, and MW-8 (performed during the IA – See Section 3.2). The IA is ongoing and concentrations of COCs are expected to continue to reduce. The final cleanup design for this Site may be affected by the further reduction of groundwater COCs.
- Maintaining the current asphalt parking and building structure which would serve as a cap for the entire Site.

- Short-term groundwater monitoring of existing Site wells (MW-1, MW-5, MW-6, MW-8, MW-9, MW-10 and MW-11) to determine the effectiveness of the ERD injections and long-term groundwater monitoring of shoreline monitoring wells (MW-1, MW-2 and MW-3 or MW-3D); to evaluate groundwater conditions at the conditional point of compliance.
- Institutional controls to ensure that future property activities do not result in human or environmental exposure to impacted soils or subslab vapor and that the existing capped surfaces are maintained. A contaminated media management plan would be developed to manage Site soils and vapor conditions below the current building and would protect any future building conditions.

This alternative would address soil and groundwater contamination through active measures and continued groundwater monitoring to demonstrate long-term effectiveness. The alternative includes active treatment of CVOCs and zinc at the southwestern corner (vicinity of MW-5 & RI-SB-07, CVOCs/zinc), southcentral portion (vicinity of RI-SB-13, CVOCs), and the southeastern corner (vicinity of MW-8, CVOCs/TPH). Excavation targets CVOC concentrations in the southwestern corner (RI-SB-11).

Continued groundwater monitoring at the upgradient portion of the Site (MW-9) and the northwest corner (RI-SB-06; via MW-3 or MW-3D) would address decreasing concentrations of arsenic, include monitoring of CVOCs (RI-SB-06; monitored at MW-3 or MW-3D), and TPH located in the southeastern corner (MW-8/TPH-Gx and TPH-DRO)

Contingent actions may be conducted if concentrations of groundwater COCs at the shoreline are not achieved. Contingent actions may include additional ERD injection to address CVOC and metal COCs.

Soil contamination is addressed through ERD treatments for contamination within in the saturated zone, excavation in the vicinity of RI-SB-11 and institutional controls.

This alternative complies with the RAOs as summarized below:

- **RAO 1. Protect Worker Contact with Soils and RAO 4. Protect Workers via Inhalation of Vapors from Soil or Groundwater –** Institutional controls (including a contaminated media management plan) are included to reduce the potential risk of worker contact with soil (at RI-SB-10), vapor or for vapor migration into the building if building conditions change. Compliance with this RAO would include documentation of compliance with institutional controls in quarterly/annual reports provided to Ecology.

- **RAO 2. Protect LDW via groundwater discharge –** ERD treatment of zinc would treat groundwater above CULs that could discharge to the LDW. Remaining areas of the Site would be monitored through a long-term monitoring plan. Groundwater compliance with this RAO would be measured at shoreline monitoring wells.
- **RAO 3. Protect Groundwater via Soil Leaching –** Targeted excavation at Area 1 (RI-SB-11) would remove vadose and saturated soil contamination eliminating the potential for leaching to groundwater. ERD treatment of zinc would treat saturated soil contamination.

Remaining areas of the Site would be monitored through the long-term monitoring plan. Institutional controls would ensure that the surface features remain. Groundwater compliance with this RAO would be measured at shoreline monitoring wells.

7.2.3 Alternative 3 – ERD, PRB, Capping, Institutional Controls and Monitoring

Alternative 3 includes ERD, as implemented in the IA, the installation of a permeable reactive barrier (PRB), capping, institutional control and monitoring. Alternative 3 is shown on Figure 28.

A subsurface PRB is proposed downgradient of MW-5 to allow groundwater to flow through a matrix of activated carbon and zero-valent iron (ZVI) which would reductively dehalogenate CVOCs and reduce the mobility of zinc. The PRB would include a physical barrier that intercepts the groundwater plume prior to discharge. Because groundwater is affected by the tidal cycle, the ability for water to go both ways through the system would be maintained. The wall would include side arms that act to capture groundwater flowing towards the river, but during high tides, water can still pass through the PRB. To install the PRB with minimum soil disturbance, a trench installation method is proposed. Excavation would occur along the shoreline and within the footprint of Site utilities, however, using a trenching method the overall footprint would be minimized. Shoring would be minimized by installing the PRB in segments using trench boxes. A continuous silt unit has not been identified in borings at the Site. A treatment depth of 15 is assumed for this FS. Significant dewatering would be required during excavation and placement of the media. Utilities, including gas, power, and water lines, would need to be terminated prior to excavation activities, temporary utilities set up and then reinstalled upon completion. Stormwater lines which overlap with the removal areas would be abandoned and replaced following excavation activities.

Excavated soils would be disposed of at an off-site Subtitle D landfill. This alternative includes maintaining the current surface cap and replaces the asphalt cap disturbed during excavation activities, resulting in a continuous cap over impacted soil to prevent migration through erosion and to prevent contact with impacted soils. Post construction, Site stormwater would be captured and treated, using the current treatment system. This remedy includes:

- Installation of an approximately 170 feet long PRB. The PRB would be installed at a depth to intercept the water table, approximately 3 feet bgs at high tide, and extend to approximately 30 feet bgs. The PRB would be 2 feet thick and would be 15-20% ZVI, a mix of sand and ZVI would be used. The system would include the ability to service the PRB, including the ability to vacuum out media and replace media. Media would be disposed of an off-site Subtitle D landfill. It is assumed for this RI/FS that the replacement would occur after 3 years of operation. It is assumed that zinc would achieve CULs at the shoreline wells after 6 years and the media would be removed to eliminate the potential for the release of bound zinc as the media weathers. As a contingency, the PRB could continue to operate if data suggest that the media is still affectively treating the groundwater.
- All utilities removed during construction would be reinstalled.

- Monitoring wells MW-4 and MW-5 are expected to be on the side slope of the excavation footprints and would likely be damaged during construction. These monitoring wells would be replaced in close vicinity to the abandoned well and using similar construction details as removed wells (total well depth, diameter, mount and screen interval).
- ERD to address both CVOCs and zinc in groundwater would include a nutrient-amended carbohydrate electron donor injected in the vicinity of MW-5/MW-4, RI-SB-13, and MW-8 (performed during the IA – See Section 3.2). The IA is ongoing and concentrations of COCs are expected to continue to reduce. The final cleanup design for this Site may be affected by the further reduction of groundwater COCs.
- Maintaining the current asphalt parking and building structure which would serve as a cap for the entire Site.
- Short-term groundwater monitoring of existing Site wells (MW-1, MW-5, MW-6, MW-8, MW-9, MW-10 and MW-11) to determine the effectiveness of the ERD injections and the long-term groundwater monitoring of shoreline monitoring wells (MW-1, MW-2 and MW-3D); to evaluate groundwater conditions at the conditional point of compliance and downgradient of the PRB. MW-5 would provide data on the upgradient side of MW-5.
- Institutional controls to ensure that future property activities do not result in human or environmental exposure to impacted soils or subslab vapor and that the existing capped surfaces are maintained. A contaminated media management plan would be developed to manage Site soils and vapor conditions below the current building and would protect any future building conditions.

This alternative would address soil and groundwater contamination through active measures and continued groundwater monitoring to demonstrate long-term effectiveness. The alternative includes active treatment of CVOCs and zinc at the southwestern corner (vicinity of MW-5 & RI-SB-07/RI-SB-11), southcentral portion (vicinity of RI-SB-13, CVOCs), and the southeastern corner (vicinity of MW-8, CVOCs/TPH).

Continued groundwater monitoring at the upgradient portion of the Site (MW-9) and the northwest corner (RI-SB-06; via MW-3 or MW-3D) would address decreasing concentrations of arsenic, include monitoring of CVOCs (RI-SB-06; monitored at MW-3 or MW-3D), TPH located in the southeastern corner (MW-8/TPH-Gx and TPH-DRO).

Soil contamination is addressed through ERD treatments for contamination within the saturated zone, excavation in the vicinity of RI-SB-11 and institutional controls.

Contingent actions may be conducted if concentrations of groundwater COCs at the shoreline are not achieved. Contingent actions may include additional ERD injection to address CVOC and metal COCs.

This alternative complies with the RAOs as summarized below:

- **RAO 1. Protect Worker Contact with Soils and RAO 4. Protect Workers via Inhalation of Vapors from Soil or Groundwater –** Institutional controls (including a contaminated media management plan) are included to reduce the potential risk of worker contact with soil (at RI-SB-10), vapor or for vapor migration into the building if building conditions change. Compliance with this RAO would include documentation of compliance with institutional controls in quarterly/annual reports provided to Ecology.

- **RAO 2. Protect LDW via groundwater discharge –** ERD treatment of zinc would treat groundwater above CULs that could discharge to the LDW. Remaining areas of the Site would be monitored through a long-term monitoring plan. Groundwater compliance with this RAO would be measured at shoreline monitoring wells.
- **RAO 3. Protect Groundwater via Soil Leaching –** Targeted excavation at Area 1 (RI-SB-11) would remove vadose and saturated soil contamination eliminating the potential for leaching to groundwater. Remaining areas of the Site would be monitored through the long-term monitoring plan. Institutional controls would ensure that the surface features remain. Groundwater compliance with this RAO would be measured at shoreline monitoring wells.

7.2.4 Alternative 4 - ERD, Institutional Controls, Monitoring and Capping

Alternative 4 includes ERD as implemented in the IA, and maintains the existing cap to prevent contact with soils exceeding cleanup levels. This alternative is depicted on Figure 29 and includes:

- ERD to address both CVOCs and zinc in groundwater would include a nutrient-amended carbohydrate electron donor injected in the vicinity of MW-5/MW-4, RI-SB-13, and MW-8 (performed during the IA – See Section 3.2). The IA is ongoing and concentrations of COCs are expected to continue to reduce. The final cleanup design for this Site may be affected by the further reduction of groundwater COCs.
- Maintaining the current asphalt parking and building structure which would serve as a cap for the entire Site.
- Short-term groundwater monitoring of existing Site wells (MW-1, MW-5, -MW-6, MW-8, MW-9, MW-10 and MW-11) to determine the effectiveness of the ERD injections and long-term groundwater monitoring of shoreline monitoring wells (MW-1, MW-2 and MW-3D); to evaluate groundwater conditions at the conditional point of compliance.
- Institutional controls to ensure that future property activities do not result in human or environmental exposure to impacted soils or subslab vapor and that the existing capped surfaces are maintained. A contaminated media management plan would be developed to manage Site soils and vapor conditions below the current building and would protect any future building conditions.

This alternative addresses groundwater contamination through active (ERD) measures and continued groundwater monitoring. The alternative includes active treatment of CVOCs and zinc at the southwestern corner (vicinity of MW-5 & RI-SB-07, CVOCs/zinc), southcentral portion (vicinity of RI-SB-13/CVOCs), and the southeastern corner (vicinity of MW-8, CVOCs/TPH).

Continued groundwater monitoring at the upgradient portion of the Site (MW-9) and the northwest corner (RI-SB-06; via MW-3 or MW-3D) would address decreasing concentrations of arsenic, include monitoring of CVOCs (RI-SB-06; monitored at MW-3D), TPH located in the southeastern corner (MW-8/TPH-Gx and TPH-DRO).

Soil contamination is addressed through ERD treatments for contamination within in the saturated zone and institutional controls.

Contingent actions may be conducted if concentrations of groundwater COCs at the shoreline are not achieved. Contingent actions may include additional ERD injection to address CVOC and metal COCs.

This alternative addresses the RAOs as summarized below:

- **RAO 1. Protect Worker Contact with Soils and RAO 4. Protect Workers via Inhalation of Vapors from Soil or Groundwater –** Institutional controls (including a contaminated media management plan) are included to reduce the potential risk of worker contact with soil (at RI-SB-10), vapor or for vapor migration into the building if building conditions change. Compliance with this RAO would include documentation of compliance with institutional controls in quarterly/annual reports provided to Ecology.
- **RAO 2. Protect LDW via groundwater discharge -** ERD treatment of zinc would treat groundwater above CULs that could discharge to the LDW. Remaining areas of the Site would be monitored through a long-term monitoring plan. Groundwater compliance with this RAO would be measured at shoreline monitoring wells.
- **RAO 3. Protect Groundwater via Soil Leaching -** ERD treatment of zinc would treat saturated soil contamination. Remaining areas of the Site would be monitored through the long-term monitoring plan. Institutional controls would ensure that the surface features remain. Groundwater compliance with this RAO would be measured at shoreline monitoring wells.

8 Evaluation of Remedial Alternatives

MTCA provides the framework for evaluating and selecting cleanup actions. Within this framework are threshold requirements that must be met by all cleanup actions. The general requirements for cleanup actions, as defined in WAC 173-340-360(3)(a), and described in Ecology's guidance[19] are to:

- (i) Protect human health and the environment, including likely vulnerable populations and overburdened communities;
- (ii) Comply with cleanup standards (WAC 173-340-700 through 173-340-760);
- (iii) Comply with applicable state and federal laws (WAC 173-340-710);
- (iv) Prevent or minimize present and future releases and migration of hazardous substances in the environment;
- (v) Provide resilience to climate change impacts that have a high likelihood of occurring and severely compromising its long-term effectiveness;
- (vi) Provide for compliance monitoring (WAC 173-340-410 and 173-340-720 through 173-340-760);
- (vii) Not rely primarily on institutional controls and monitoring at a site, or portion thereof, if it is technically possible to implement a more permanent cleanup action;
- (viii) Not rely primarily on dilution and dispersion unless the incremental costs of any active remedial measures over the costs of dilution and dispersion grossly exceed the incremental degree of benefits of active remedial measures over the benefits of dilution and dispersion;
- (ix) Provide for a reasonable restoration time frame; and
- (x) Use permanent solutions to the maximum extent practicable.

The disproportionate cost analysis (DCA) involves comparing the costs and benefits of the alternatives and selecting the alternative with incremental costs that are not disproportionate to the environmental benefits resulting from that alternative. As outlined in WAC 173-340-360(5)(c)(iv), costs are determined to be disproportionate to benefits if the incremental cost of a more expensive alternative compared to a lower cost alternative exceeds the incremental degree of benefits achieved by the more expensive alternative. The evaluation criteria for the DCA are specified in WAC 173-340-360(5)(d) and include the following:

- Protectiveness
- Permanence
- Effectiveness over the long-term
- Management of implementation risks

[19] https://apps.ecology.wa.gov/publications/summarypages/2509059.html

- Technical and administrative implementability
- Cost

Based on these evaluations, a preferred remedial alternative is identified and discussed in Section 9.

8.1 General Requirements

MTCA cleanup actions must comply with general requirements. Cleanup action alternatives that do not comply with the general requirements are not considered suitable alternatives under MTCA. As provided in WAC 173-340-360(3)(a), the ten general requirements for remedial actions are evaluated in the following subsections.

8.1.1 Protect Human Health and the Environment

MTCA describes protectiveness as the overall protectiveness of human health and the environment, including the degree to which existing risks are reduced, time required to reduce risk at the facility and attain cleanup standards, on-site and off-site risks resulting from implementing the alternative, and improvement of the overall environmental quality.

All the alternatives provide adequate protection of human health and the environment. The protection of the terrestrial ecosystem is achieved by the use and maintenance of the Site as an industrial property.

Alternatives 1 through 3 provide additional levels of protection by removing source material from the Site and placing contaminated soil in an off-site landfill (Alternatives 1 and 2) and by treating groundwater through the PRB (Alternative 3).

The possible other exposure pathway, the flow of impacted groundwater into marine surface waters, is protected in all alternatives through ERD treatments and by groundwater monitoring and possible contingent actions. It is further protected in Alternatives 1 and 2 by source material removal and disposal. The duration of groundwater monitoring for each alternative is commensurate with the amount of contamination left on the Site; Alternatives 3 and 4 include long-term groundwater monitoring, and Alternatives 1 and 2 includes groundwater monitoring for two years after the remedy.

8.1.2 Compliance with Cleanup Standards and Laws

The cleanup levels for the Site have been developed in accordance with WAC 173-340-700 through WAC 173-340-760, discussed in Section 5 and summarized on Table 17. Alternatives 1 through 4 were developed based on the cleanup levels for the Site.

8.1.3 Comply with Applicable State and Federal Laws

A review of applicable local, state and federal laws which affect Site cleanup levels, treatment and disposal, and remediation activities are listed in Section 5.1 of this document and summarized on Table 17. Alternatives 1 through 4 comply with all applicable state and federal laws.

8.1.4 Prevent or Minimize Releases and Migration of Hazardous Substances

Alternatives 1 through 4 all prevent or minimize the releases of migration of hazardous substances through source reduction through in situ chemical injections (Alternatives 1 through 4), PRB groundwater treatment (Alternative 3) and soil excavation and removal (Alternatives 1 and 2).

8.1.5 Provide Resilience to Climate Change Impacts

All alternatives focus on subsurface conditions and include replacing surface conditions to pre remedial action conditions. Current Site conditions include a well armored riverbank slope that has been constructed to account for a high variability of surface water variations. Sea level rise in the vicinity of the Site is about 2 feet, which is considered the likely range by the year 2100[20].

The mean higher high water (MHHW) level for the LDW is elevation is 11.3 feet (based on the North American Vertical Datum of 1988 [NAVD88]). The current surface elevation of the upland is about 15.5 ft NAVD88[21]. This is 4.2 feet above the current MHHW elevation, which is above the future predicted sea level rise value or around 13.3 feet NAVD88.

None of the alternatives include specific measures to address future climate conditions as current Site conditions are protective of future conditions.

8.1.6 Compliance Monitoring and Protection

Monitoring during implementation of the remedy, included in Alternatives 1 through 4, will ensure that human health and the environment are protected during construction. Monitoring will be performed in compliance with a health and safety plan and local permits.

Performance sampling during soil excavation (Alternatives 1 and 2) and PRB treatment (Alternative 3) will ensure that cleanup criteria are satisfied. Groundwater monitoring will occur after the cleanup action to ensure that groundwater meets cleanup criteria.

8.1.7 Not Rely Primarily on Institutional Controls and Monitoring

Alternatives 1 through 4 include active remediation along with institutional controls and monitoring. None of the alternatives rely solely on institutional controls and monitoring.

8.1.8 Not Rely Primarily on Dilution and Dispersion

Alternatives 1 through 4 include active remediation and do not rely on dilution or dispersion.

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[20] https://www.wacoastalnetwork.com/wp-content/uploads/2020/02/SLR-Report-Miller-et-al-2018.pdf
[21] 15.5 ft NAVD88 is the average elevation measured at the surface between monitoring wells MW-1 through MW-6.

8.1.9 Reasonable Restoration Time Frame

Restoration time frame represents the time it takes to achieve cleanup levels at the points of compliance. The reasonable restoration time frame is evaluated by the factors described in WAC 173-340-360(4)(c) and include the following:

- (i) Potential risks posed by the site to human health and the environment, including likely vulnerable populations and overburdened communities;
- (ii) Practicability of achieving a shorter restoration time frame. A restoration time frame is not reasonable if an active remedial measure with a shorter restoration time frame is practicable;
- (iii) Long-term effectiveness of the alternative. A longer restoration time frame may be reasonable if the alternative has a greater degree of long-term effectiveness than one that primarily relies on on-site or off-site disposal, isolation, or containment;
- (iv) Current use of the site, surrounding areas, and associated resources that are, or may be, affected by releases from the site;
- (v) Potential future use of the site, surrounding areas, and associated resources that are, or may be, affected by releases from the site;
- (vi) Availability of alternative water supplies;
- (vii) Likely effectiveness and reliability of institutional controls;
- (viii) Ability to control and monitor migration of hazardous substances from the site;
- (ix) Toxicity of the hazardous substances at the site;
- (x) Natural processes that reduce concentrations of hazardous substances and have been documented to occur at the site or under similar site conditions; and
- (xi) For ecology-conducted or ecology-supervised remedial actions, public concerns identified and Indian tribes' rights and interests are also included.

All remedial actions are expected to take about six to nine months to implement. Alternative 1 is expected to achieve groundwater cleanup levels within 2 years as the removal includes all accessible soil contaminated material.

Alternatives 2 and 3 could achieve groundwater cleanup levels within that time frame but longer term monitoring (2 to 5 years) is required to confirm cleanup levels have been achieved and there is the potential need for contingent groundwater actions.

Alternative 4 relies on ERD for in situ groundwater treatment and attenuation and the time to achieve groundwater cleanup levels is anticipated to be much longer. Attenuation is expected to be 3 to 6 years. Time frames for attenuation are based on IA performance monitoring data.

All of the alternatives consider the 11 evaluation criteria set forth in WAC 173-340-360(4)(c), all result in a reasonable restoration time frame for each alternative.

8.1.10 Permanence

According to WAC 173-340-360(5)(d)(ii), permanence refers to the degree to which the alternative permanently reduces the toxicity, mobility, or volume of hazardous substances, including the adequacy of the alternative in destroying the hazardous substances, reduction or elimination of hazardous substance releases and sources of releases, degree of irreversibility of waste treatment process, and characteristics and quantity of treatment residuals generated.

All of the alternatives permanently reduce the volume of hazardous substances due to treatment from the interim action. The interim action was performed in areas with groundwater contamination and in locations where soil remained above CULs. Alternative 1 is the most permanent alternative since it includes excavation in the areas where soil above CULs was identified. Alternative 2 is slightly less permanent than Alternative 1 since it includes a smaller excavation footprint. Alternatives 3 and 4 are roughly equivalently permanent due to soil and groundwater treatment from the interim action.

Further evaluation of this item is included in the Disproportionate Cost Analysis, discussed below, which includes the procedures outlined in WAC 173-340-360(5)(c)(i) through (iv).

8.2 Action Specific Requirements

When applicable, cleanup actions must use remediation levels, institutional controls, provide financial assurances, and provide for periodic reviews in accordance with the WAC. None of the alternatives rely on remediation levels, but all other action specific requirements are included in Alternatives 1 through 4.

8.3 Public Concerns

Ecology and Bridge will continue to keep the public informed, seek community input, and address any concerns throughout this project. Additional issues or concerns will be considered as part of the cleanup action selection process, per WAC 173-340-600. Public comments on this RI/FS will be solicited from the community during the formal comment period, following Ecology's input. Common community concerns include noise, traffic, short- and long-term risks, and time frame for any proposed cleanup actions. Public concerns generally revolve around the degree of environmental improvement vs. public inconvenience (generally traffic). For purposes of this FS, it was assumed that the degree of long-term environmental cleanup would have greater weight (i.e., generate less public concern) than short-term public inconvenience.

8.4 Disproportionate Cost Analysis

The environmental benefits for the alternatives are evaluated based on six criteria in WAC 173-340-360(5)(d):

1. Protectiveness – The is criterion considers the degree to which the alternative protects human health and the environment, including likely vulnerable populations and overburdened communities. It requires consideration of the degree to which the alternative reduces existing

risks; the cleanup time frame; the on-Site and off-Site risks remaining after implementing the alternative; and the improvement of the overall environmental quality.

2. Permanence – This criterion requires consideration of the degree to which the alternative permanently reduces the toxicity, mobility or volume of hazardous substances, including the adequacy of the alternative in destroying the hazardous substances, the reduction or elimination of hazardous substance releases and sources of releases, the degree of irreversibility of waste treatment process, and the characteristics and quantity of treatment residuals generated.

3. Long-term effectiveness – This criterion considers the degree of certainty that the alternative will be successful, the reliability of the alternative during the period of time hazardous substances are expected to remain on-Site at concentrations that exceed cleanup levels, the magnitude of residual risk with the alternative in place, the resilience of the alternative to climate change impacts, and the effectiveness of controls required to manage treatment residues or remaining wastes. The following types of cleanup action components, in descending order, are used as a guide in assessing the relative degree of long-term effectiveness (WAC 173-340-360[5][d][iii][B]):

- Reuse or recycling
- Destruction or detoxification
- Immobilization or solidification
- On-site or off-site disposal at an appropriate waste disposal facility
- On-site isolation or containment with attendant engineering controls
- Institutional controls and monitoring.

4. Management of implementation risks – This criterion evaluates risks to human health and the environment, including likely vulnerable populations and overburdened communities, associated with the alternative during construction and implementation, and the effectiveness of the alternative to manage such risks. Risks can occur from worker or public exposure to contaminants, other releases of contaminants to the environment, and physical hazards created by construction and related materials management.

5. Technical and administrative implementability – This criterion assesses the ability to implement the alternative, including consideration of technical difficulty regardless of cost; the availability of necessary off-Site facilities, services, and materials; administrative and regulatory requirements; scheduling; project size and complexity; monitoring requirements; access for construction operations and monitoring; and integration with existing facility operations.

6. Costs – This criterion considers costs of remedial actions necessary to implement the alternative, including both construction and post-construction costs. Construction costs include design, permitting, construction, waste management, compliance monitoring, construction management, establishment of institutional controls, quality assurance and quality control; and regulatory oversight. Post-construction costs include operation and maintenance activities necessary to

maintain the effectiveness of the cleanup, waste management and disposal, replacement or repair of equipment, permit renewal, compliance monitoring, maintaining institutional controls, financial assurances, periodic reviews, postconstruction management, and regulatory oversight. Future post-construction costs are discounted using present worth analysis by estimating future costs using constant-year dollars and discounting future costs using the current U.S. Treasury real interest rate for bonds of comparable maturity to the period of analysis (up to 30 years).

8.4.1 DCA Scoring

The DCA scoring process compares the relative overall benefit and cost of the cleanup alternatives to identify the alternative that is permanent to the maximum extent practicable; and then that alternative is selected as the preferred remedy. The benefits of each alternative are evaluated based on the MTCA DCA criteria discussed above, other than cost. Each criterion is given a score between 1 and 10, with 1 being the lowest score and 10 being the highest. For each alternative, the individual criterion scores are then equally weighted (20 percent each) unless there is a compelling reason not to.

The total weighted benefit scores are compared to the estimated cost to implement the alternative, including the cost of construction, the net present value of any long-term expenses, and agency oversight costs that are recoverable from the responsible parties. Long-term costs cover operation and maintenance, monitoring, equipment replacement and institutional controls.

A cost-to-benefit ratio is calculated for each alternative by dividing its total weighted benefit score by its total cost.

8.4.2 Determination of Permanence to the Maximum Extent Practicable

Under MTCA, preference is given to cleanup actions that use permanent solutions to the maximum extent practicable. Permanent remedies require no additional action to meet cleanup standards per the definition in MTCA. A practicable cleanup action is designed, constructed and implemented in a reliable, cost-effective manner. A cleanup action is not considered practicable if the incremental costs are disproportionate to the incremental benefits when compared to lower-cost alternatives.

The MTCA DCA analysis for this FS uses a relative benefit-to-cost ratio to compare the alternatives and determine whether incremental cost increases are disproportionate to respective incremental increases in benefits. To calculate the relative cost-to-benefit ratio for each alternative, the total weighted benefit score was divided by the total cost. Alternatives with incremental benefits that are disproportionately small in comparison to the incremental cost produce lower relative cost-benefit ratios.

8.5 Evaluation of Remedial Alternatives

This section summarizes the evaluation results for cleanup action alternatives using a quantitative approach as prescribed in MTCA 173-340-350 and -360 and per the Ecology's Guidance for Making Cleanups Permanent to the Maximum Extent Practicable (PMEP Guidance; Ecology 2025). The degree to which each cleanup action alternative uses permanent solutions to the maximum extent practicable was determined using a disproportionate cost analysis of the alternatives as described in Section 8.4. Alternatives were evaluated against weighted benefit criteria, scored on a scale from 1 (lowest score) to 10 (highest score) and summed to develop a total weighted relative benefit score for the alternative. A discussion of the scoring considerations for each criterion and the cost of each alternative is presented in the sections that follow.

Four alternatives were evaluated for the Site as summarized in Table 23 and Table 24. Each of the cleanup action alternatives meet the MTCA requirements.

8.6 Protectiveness

As discussed in Section 8.1.1, all the alternatives provide adequate protection of human health and the environment through a combination of removing source material, monitoring and institutional controls. All alternatives protect marine surface waters through ERD treatments and by groundwater monitoring and possible contingent actions. Alternative 4 is ranked the lowest because the most amount of source material is contained on-site while the other alternatives include greater source area removal, by removing source material from the Site and placing contaminated soil in an off-site landfill. Alternatives 2 and 3 are incrementally more protective, as the alternatives permanently remove progressively more contaminated material or remove groundwater contamination through the PRB treatment. Alternative 1 has the highest ranking as it removes the most contaminated material.

8.7 Permanence

As discussed in Section 8.1.10, Alternatives 1 and 2 are more permanent than Alternatives 3 and 4. Alternative 1 removes the greatest quantity of impacted soil; therefore, it is expected to be the most permanent. Alternative 3 and 4 have the same permanence as they both include treatment that converted contaminants to non-toxic (ERD) or immobile species (PRB).

8.8 Long-Term Effectiveness

The following criteria will be considered when evaluating the long-term effectiveness of each alternative (WAC-173-340-360(5)(d)(iii)):

- Degree of certainty that the alternative will be successful
- How reliable the alternative will be while the hazardous substances remain on-site and exceed CULs
- Magnitude of residual risk associated with the alternative

- Effectiveness of controls that are in place to manage treatment residues or remaining wastes.
- MTCA provides hierarchy guidance (WAC-173-340-360(5)(d)(iii)(B)) for determining long-term effectiveness, as presented below in descending order:
    - Reuse or recycling
    - Destruction or detoxification
    - Immobilization or solidification
    - On-site or off-site disposal at an appropriate waste disposal facility
    - On-site isolation or containment with attendant engineering controls
    - Institutional controls and monitoring.

Effectiveness over the long-term varies depending on the degree of certainty that a remedy will be successful, the reliability of a remedy, and the residual risk of a remedy. All of the remedial alternatives have been used extensively as remedial alternatives at local MTCA cleanup sites, and have high degrees of certainty and reliability of use. The alternatives vary widely when including the hierarchy considerations. Alternative 1 performs the highest because it depends on off-site disposal, this alternative ranks higher than Alternatives 2 and 3 because it has a higher volume of off-site disposal. Alternatives 4, which depends on in-situ injections (ERD) and institutional controls and monitoring, rank last.

8.9 Management of Short-Term Risks

Management of short-term risks relates to the risk to human health and the environment, including vulnerable populations and overburdened communities, associated with the alternative during construction and implementation, and the effectiveness of measures to control such risks.

Short-term risks associated with each alternative can be effectively managed during implementation through administrative controls. Alternative 4 poses the least short-term risk, since contaminated soil remains in place. The disposal options, Alternatives 1 and 2, have the most short-term risk to human health and the environment during construction because of the handling and transporting of hazardous waste. Alternative 3 has many of the same aspects as Alternatives 2 and 3 (excavation and construction) and is scored in the middle since it is expected to have lower duration and low number of trucks for transporting. These risks can be effectively managed through appropriate health and safety plans and procedures.

8.10 Technical and Administrative Implementability

Technical and administrative implementability relates to the ability of an alternative to be implemented, including whether the alternative is technically possible, availability of necessary off-site facilities, services and materials, administrative and regulatory requirements, scheduling, size, complexity, monitoring requirements, access for construction operations and monitoring, and integration with existing facility operations and other current or potential remedial actions.

All of the alternatives are readily implemented with local equipment and local expertise. Alternative 4 is the most readily implemented remedy as part of Site redevelopment and requires the least amount of permitting, coordination and access. Alternatives 1 through 3 require the handling and transportation of hazardous substances. Alternative 1 requires additional measures to protect the shoreline, utilities, and building during the extensive excavation efforts required to remove contaminated soils.

A sustainability analysis was completed for Alternative 4 (the lowest cost alternative) and Alternative 1 (the highest cost alternative). This quantitative sustainability analysis included analysis of the following metrics, all of which can be managed through administrative requirements and are technically implementable:

- Greenhouse Gas (GHG) Emissions Footprint/Air Emissions/Energy Usage/Resource Consumption (GHG/Emissions) – Alternative 4 has the lowest GHG/Emissions as this alternative uses the least amount of equipment and does not include the disposal of soils at a landfill. Alternative 1 has the largest GHG/Emissions as this includes the removal, transport and disposal of approximately 10,000 tons of soil and requires the import of a similar volume of backfill material.
- Water impacts – Because of the location of the Site, all alternatives have the risk of a surface release into the adjacent waterway. The risk is lower with Alternative 4 as this has minimal Site disturbance and Alternative 1 has the highest risk due to the increased Site surface disturbance from excavation activities, including excavation activities along the riverbank (in the vicinity of MW-3).
- Injury and Fatality Risk – Any construction project has the risk for injury and fatalities. These risks are minimized through compliance with ARAR's (specially health and safety requirements associated with WA State Department of Labor & Industries and OSHA). Alternative 4 has the lowest injury and fatality risk as this alternative uses the least amount of equipment and personnel, and has the shortest duration of active construction. Alternative 1 has the highest injury and fatality risk as this includes the removal, transport and disposal of the largest quantity of soil and import backfill materials which results in a large number of transportation trucks, drivers, on-site excavation equipment and longest duration to complete the work.
- Climate Vulnerability – None of the alternatives include specific measures to address future climate conditions. All alternatives focus on subsurface conditions and include replacing surface conditions to pre remedial action conditions. Current Site conditions include a well armored riverbank slope that has been constructed to account for a high variability of surface water variations. Sea level rise in the vicinity of the Site is about 2 feet, which is considered the likely range by the year 2100[22].

[22] https://www.wacoastalnetwork.com/wp-content/uploads/2020/02/SLR-Report-Miller-et-al-2018.pdf

8.11 Cost

Cost refers to the cost of implementing the alternative, including construction, net present value of any long-term costs, and agency oversight costs that are recoverable. Long-term costs include operation and maintenance, monitoring, equipment replacement costs, and the cost of maintaining institutional controls.

Table 23 summarizes the expected cost for each alternative, a detailed cost breakdown is provided in Appendix F. The cost of the remedies range from approximately $1,109,000 for Alternative 4 to $7,118,000 for Alternative 1 (including long-term monitoring and maintenance).

8.12 Disproportionate Cost Analysis Evaluation

A relative cost-to-benefit ratio is used to compare the cleanup action alternatives to determine whether costs are disproportionate to benefits.

Table 24 presents the total weighted relative benefit score for each alternative calculated using the raw scores and respective weighting factor for each criterion. The costs for each alternative are also provided in Table 24. The benefits, costs, and relative cost-to-benefit ratio are presented graphically in Figure 30.

The total weighted relative benefit scores for the alternatives range from 5.2 (Alternative 3) to 7.2 (Alternative 1) as shown in Table 24 and Figure 30.

Under MTCA, costs must be considered when selecting the alternative that is permanent to the maximum extent practicable and costs are considered disproportionate to benefits if the incremental costs of the alternative over that of a lower cost alternative exceed the incremental degree of benefits achieved by the alternative over that of lower cost alternative. Graphically, this concept is illustrated in Figure 30.

Using the PMEP Guidance and the PMEP Tool following the semi-quantitative PMEP method, the four alternatives were ranked by degree of permanence. Alternatives 3 and 4 have the same level of permanence. Per Section 5.2.4 of the PMEP Guidance, Alternative 3 was eliminated from the DCA screening because Alternative 4 is more cost-effective than Alternative 3 (i.e., Alternative 4 has the lowest cost per degree of benefit, as shown on Figure 30). Alternatives 1, 2, and 4 were then evaluated using the PMEP Tool which determined that Alternative 4 is permanent to the maximum extent practicable alternative and thus the preferred remedial action. Output of the PMEP is included in Appendix F.

9 Preferred Remedial Alternative

Alternative 4 is the preferred remedial alternative. This remedy was chosen after a careful review of the remedy selection requirements in the MTCA Cleanup Regulation, using the Site conditions and the remedy alternatives presented in this report. Alternative 4 fulfills the general requirements and the evaluation for practicable permanence (WAC 173-340-360(5)(d)(ii). The remedy fulfills the site-specific cleanup objectives by permanently removing source materials, eliminating the exposure pathway of direct contact with soils, achieving the lowest most protective cleanup standards, and includes short-term monitoring (to evaluate active treatments) and long-term monitoring for groundwater quality.

This remedial alternative satisfies the requirements of a final cleanup under the AO. As discussed above, Alternative 4 satisfies the substantive and administrative requirements of MTCA, will achieve and maintain compliance with cleanup levels (demonstrated through monitoring), and includes institutional controls to ensure that the environment and human health are protected from possible exposure pathways. Alternative 4 will also prevent recontamination of the property from other areas of the Site through institutional controls, environmental oversight during redevelopment, and long-term groundwater monitoring.

This alternative is depicted on Figure 29. The main components of this remedy include:

- ERD to address both CVOCs and zinc in groundwater will include a nutrient-amended carbohydrate electron donor injected in the vicinity of MW-5/MW-4, RI-SB-13, and MW-8 (performed during the IA – See Section 3.2). The IA is ongoing and concentrations of COCs are expected to continue to decrease. The final cleanup design for this Site may be affected by the further reduction of groundwater COCs.
- Maintaining the current asphalt parking and building structure which will serve as a cap for the entire Site.
- Short-term groundwater monitoring of existing Site wells (MW-1, MW-5, MW-6, MW-8, MW-9, MW-10 and MW-11) to evaluate active treatment and long-term groundwater monitoring of shoreline monitoring wells (MW-1, MW-2 and MW-3 or MW-3D) to evaluate groundwater conditions at the Site.
- Institutional controls to ensure that future property activities do not result in human or environmental exposure to impacted soils or subslab vapor and maintain the integrity of the surface cap features. A contaminated media management plan will be developed to manage Site soils and vapor conditions below the current building and address future conditions.

Contingent actions may be conducted if concentrations of groundwater COCs at the shoreline do not achieve CULs or have not demonstrated a declining trend that will achieve CULs within a reasonable restoration time frame. More detail regarding contingent actions and data that may trigger a contingent action will be provided in the draft Cleanup Action Plan (dCAP).

9.1 Groundwater Monitoring

Short-term groundwater monitoring will be conducted at Site motioning wells: MW-1, MW-5, MW-6, MW-8, MW-9, MW-10 and MW-11, to determine the effectiveness of the interim actions through 2 years of quarterly sampling.

After 2 years of quarterly monitoring, the program will transition to long-term monitoring and include shoreline monitoring wells (MW-1, MW-2 and MW-3 or MW-3D) to evaluate groundwater conditions at the Site. Long-term monitoring would include semiannual for 3 years, annual monitoring until the CULs are achieved at the conditional point of compliance and monitoring every 5 years thereafter. After 5 years the groundwater concentrations and trends will be evaluated to assess the need for a contingent action.

Groundwater sampling will include measurement of field parameters (turbidity, dissolved oxygen, specific conductance, temperature, pH, oxidation/reduction potential, and water drawn down) to evaluate stability of groundwater collected from wells. Groundwater sampling methods will be consistent with past sampling methods, such as the IAWP Quality Assurance Project Plan (QAPP, CRETE 2024c). Monitoring wells will be sampled to account for tidal influences using the sampling guidance provided on Table 1.

Groundwater collected at Site monitoring wells will be sampled for the COCs listed in Table 21. Compounds may be reduced at individual monitoring wells if concentrations remain below CULs for repeated events, as approved by Ecology. A sampling analysis plan and QAPP specific to the preferred remedial alternative, which will provide details on the groundwater sampling collection methods and protocols, will be prepared with the dCAP, which will be reviewed and approved by Ecology.

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Tables

Table 1 Well Construction Details
Bridge - Former Dawn Foods Site

Well ID	Construction Date	Well Tag ID	Well Diameter (inches)	Type	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	Total Well Depth (ft bgs)	Top of PVC Elevation (ft NAVD88)	Northing (NAD 83)	Easting (NAD 83)	Average Lag Time (of 2 low low tides) hr:min	Suggested Sample Collection Time
MW-1	12/16/2021	BNL-604	2	flush mount	5	20	20	15.85	200604.88	1270762.88	0:31	30 minutes after low low tide
MW-2	12/15/2021	BNL-602	2		5	20	20	14.36	200718.75	1270647.59	2:05	120-125 minutes after low low tide
MW-3	12/16/2021	BNL-605	2		5	20	20	16.22	200859.86	1270528.95	1:37	90-100 minutes after low low tide
MW-3D	2/5/2026	BJP-165	2		10	20	20	NM	NM	NM	Assume MW-3	Assume MW-3
MW-4	12/16/2021	BNL-606	2		5	20	20	15.51	200608.63	1270863.35	0.:29	30 minutes after low low tide
MW-5	12/16/2021	BNL-601	2		5	20	20	14.27	200661.37	1270801.29	1:23	80-90 minutes after low low tide
MW-6	12/15/2021	BNL-603	2		5	20	20	14.76	200757.39	1270710.38	1:25	80-90 minutes after low low tide
MW-7	3/9/2023	BPW-457	2		4	19	19.5	14.79	200861.72	1271103.47	1:25	80-90 minutes after low low tide
MW-8	3/9/2023	BPW-455	2		4	19	20	14.83	200661.56	1271382.73	0:51	50 minutes after low low tide
MW-9	3/9/2023	BPW-456	2		4	19	20	15.54	200757.05	1271420.24	1:21	80-85 minutes after low low tide
MW-10	9/19/2024	BQH-755	2		4.5	19.5	18.96	16.56	200596.653	1271359.892	NA	NA
MW-11	9/19/2024	BQH-756	2		5	20	19.38	16.03	200603.7898	1270985.387	NA	NA
PD-1	1/10/2024	NA	1	Piezometer	Note 1	Note 1	Note 1	NA	200593.807	1270712.826	NA	at low low tide

ft bgs - feet below ground surface

NA - not available

NM - not measured

Note 1 - PD-1 is installed in the shoreline of the Duwamish River, at the base of the riverbank toe. The screen is approximatly 1 foot below the sediment surface. The well point has a 6-inch screen and the top of the screen is positioned at approximately -3 ft MLLW.

Table 2 Summary of 1996 Hart Crowser Soil Data
Bridge - Former Dawn Foods Site

Sample ID	PCUL (mg/kg) [A]	MTCA Direct Contact (mg/kg)	HC-1, S-2	HC-1, S-3	HC-2, S-1	HC-2, S-2	HC-3, S-1	HC-3, S-2	HC-4, S-3	HC-4, S-4	HC-5, S-1	HC-5, S-2	
Date Sample			9/6/1996	9/6/1996	9/6/1996	9/6/1996	9/6/1996	9/6/1996	9/6/1996	9/6/1996	9/6/1996	9/6/1996	
Depth ft. bgs			7.5-9.0	12.5-14.0	2.5-4.0	7.5-9	2.5-4.0	7.5-9.0	7.5-9.0	12.5-14.0	2.5-4.0	7.5-9	
Vadose or Saturated			Saturated	Saturated	Vadose	Saturated	Vadose	Saturated	Saturated	Saturated	Vadose	Saturated	
PID Reading			1	5	0	0	0	0	NA	1.5	0	0	MDL
Units			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
TPH													
Gasoline Range	100 [A]	100	ND	ND	ND	NA	ND	ND	ND	ND	ND	NA	10
Stoddard Solvent	1000	NV	ND	ND	ND	ND	ND	ND	20	ND	ND	NA	10
Diesel	2000	2000	ND	ND	ND	ND	ND	ND	ND	85	ND	NA	20
Oil	2000	2000	ND	ND	ND	ND	ND	ND	170	800	110	NA	50
PCBs													
Total Aroclors	0.03	66 (Aroclor 1254)	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	0.5
VOCs													
Acetone	72000		NA	0.013	NA	ND	NA	0.049	0.038	0.046 [C]	NA	NA	0.0019
Methylene Chloride	0.43/0.032 [B]	0.02	NA	0.0032 [C]	NA	0.003 [C]	NA	0.003 B	0.0038 [C]	0.0031 [C]	NA	NA	0.0028
cis-1,2-Dichloroethene	160/120	NV	NA	0.0037	NA	ND	NA	ND	0.08	ND	NA	NA	0.0014
Trichloroethene	0.0044/0.00027 [B]	1800	NA	0.014	NA	ND	NA	ND	0.068	ND	NA	NA	0.0014
Tetrachloroethene	0.029/0.0016 [B]	63000	NA	0.12	NA	0.0091	NA	ND	0.33	ND	NA	NA	0.0014
Carbon Disulfide	8,000/7,400 [B]	350000	NA	ND	NA	ND	NA	ND	0.0029	0.0019	NA	NA	0.0014
trans-1,2-Dichloroethene	5/0.32 [B]	NV	NA	ND	NA	ND	NA	ND	0.0034	ND	NA	NA	0.0014
Isoproplybenzene	8000/1600 [B]	NV	NA	ND	NA	ND	NA	ND	0.0014	ND	NA	NA	0.0014
1,3,5-Trimethylbenzene	800/170 [B]	35000	NA	ND	NA	ND	NA	ND	0.016	ND	NA	NA	0.0014
1,2,4-Trimethylbenzene	800/170 [B]	35000	NA	ND	NA	ND	NA	ND	0.035	ND	NA	NA	0.0014
sec-Butylbenzene	8000/1400 [B]	350000	NA	ND	NA	ND	NA	ND	0.005	ND	NA	NA	0.0014
4-Isoproplyltoluene	NV	NV	NA	ND	NA	ND	NA	ND	0.0062	ND	NA	NA	0.0014
n-Butylbenzene	4000/690 [B]	180000	NA	ND	NA	ND	NA	ND	0.0028	ND	NA	NA	0.0014
Naphthalene	0.039/0.002[1] [B]	5.00	NA	ND	NA	ND	NA	ND	0.0089	ND	NA	NA	0.0069
Metals													
Aluminum	80000	3,500,000	NA	8180	NA	12400	NA	12000	12300	9620	NA	16000	3
Arsenic	7.3	20	NA	ND	NA	ND	NA	ND	26	ND	NA	ND	7
Iron	56000	2500000	NA	3100	NA	4400	NA	4000	28000	8200	NA	8200	2.5
Cadmium	0.77	3500	NA	ND	NA	ND	NA	ND	1.8	ND	NA	ND	0.5
Chromium	Cr III: 550/27 Cr VI: 0.14/0.0069	Cr III: 5,300,000 Cr VI: 820	NA	3.2	NA	5.9	NA	4.4	44	4.5	NA	8.5	1.5
Lead	250/56	1000	NA	ND	NA	ND	NA	ND	580	36	NA	ND	5
Mercury	0.07	2	NA	ND	NA	ND	NA	ND	0.41	0.29	NA	ND	0.05
Copper	36	140,000	NA	7.1	NA	8.5	NA	8.8	360	47	NA	24	1
Nickel	48	70,000	NA	1.6 J	NA	4.9	NA	4.5	76	9.7	NA	11	5
Zinc	100/85	1,100,000	NA	9.4	NA	9.6	NA	11	6400	55	NA	32	0.25

Notes:

Bold = detection

Shading denotes a detected exceedance of a screening level

feet bgs = feet below ground surface

mg/kg = milligrams per kilograms

U = laboratory detection limit

J = reported concentration is an estimate.

NA = Not analyzed

ND = Not detected

MTCA - Model Toxics Control Act

A- Preliminary Cleanup Levels (PCUL) for Lower Duwamish Waterway workbook, these have been developed by Ecology specifically for the LDW. These are based on the February 11, 2026 version. Source: https://apps.ecology.wa.gov/cleanupsearch/site/1643#site-documents.

B - Screening Level MTCA Soil Protective of Groundwater Vadose/Saturated (based on protection of surface water)

C - Analyte detected in method blank

Table 3 Summary 2000-2024 Soil Data - Metals
Bridge - Former Dawn Foods Site

Sample ID	Date Sampled	Sample Depth (feet bgs)	Vadose or Saturated	Units	Aluminum	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
GP-SB-5-7	1/2/2020	7	Saturated	mg/kg	NA	5.09	1 U	NA	213	222	2	6.84	180
GP-SB-5-12	1/2/2020	12	Saturated	mg/kg	NA	2.48	1 U	NA	19.1	3.09	1 U	9.08	24.9
GP-SB-6-4	1/2/2020	4	Vadose	mg/kg	NA	4.98	1 U	NA	26.9	25	1 U	10.6	78.7
GP-SB-6-10	1/2/2020	10	Saturated	mg/kg	NA	2.37	1 U	NA	12.7	2.17	1 U	5.32	26.7
GP-SB-8	6/9/2020	9 to 10	Saturated	mg/kg	NA	11.6	2.76	NA	78	227	1 U	62.1	7110
GP-SB-9	6/9/2020	9 to 10	Saturated	mg/kg	NA	5.32	1 U	NA	25 U	4.23	1 U	11.8	71.9
GP-SB-10	6/9/2020	8 to 10	Saturated	mg/kg	NA	5 U	1 U	NA	35	18.6	1 U	14.2	57.6
GP-SB-11	6/9/2020	4 to 5	Vadose	mg/kg	NA	5 U	1 U	NA	83.1	48.2	1 U	174	459
GP-SB-12	6/9/2020	8.5 to 9.5	Saturated	mg/kg	NA	5 U	1 U	NA	25 U	1.04	1 U	5.40	34.5
GP-SB-18-03	12/1/2020	2 to 3	Vadose	mg/kg	NA	4.81	1 U	15.9 J / 15.7	NA	13.5	1 U	4.71 J / 5.05	46.3 J / 55.3
GP-SB-18-09.5	12/1/2020	9 to 9.5	Saturated	mg/kg	NA	1 U	1 U	7.66	NA	1 U	1 U	3.00	24.2
GP-SB-19-03.5	12/1/2020	3 to 3.5	Vadose	mg/kg	6790	3.56	1 U	9.41	NA	49.1	1 U	5.04	40.1
GP-SB-19-08.5	12/1/2020	8 to 8.5	Saturated	mg/kg	14500	3.48	1 U	9.91	NA	2.27	1 U	9.19	57.1
GP-SB-20-04.5	12/1/2020	3.5 to 4.5	Vadose	mg/kg	NA	3.41	1 U	8.53	NA	6.36	1 U	8.16	29.7
GP-SB-20-09	12/1/2020	7 to 9	Saturated	mg/kg	NA	2.49	1 U	8.34	NA	2.96	1 U	6.79	26.8
GP-SB-21-05	12/1/2020	3 to 5	Vadose	mg/kg	NA	1.75	1 U	9.89	NA	2.04	1 U	11.5	19.3
GP-SB-21-10	12/1/2020	7.5 to 10	Saturated	mg/kg	NA	6.11	1 U	7.63	NA	5.41	1 U	5.18	27.7
GP-SB-22-07	12/1/2020	5 to 7	Saturated	mg/kg	NA	4.87	1 U	98.4	NA	3.41	1 U	17.4	30.2
GP-SB-22-09	12/1/2020	9 to 10	Saturated	mg/kg	NA	2.09	1 U	9.35	NA	2.42	1 U	12.4	19.4
GP-SB-23-05	12/1/2020	3 to 5	Saturated	mg/kg	NA	13.6	1 U	11.6 J / 12.8	NA	7.66	1 U	15.2 J / 17.1	67.1 J / 77.5
GP-SB-23-11	12/1/2020	10 to 11	Saturated	mg/kg	NA	8.31	1 U	12.2	NA	7.16	1 U	14.2	55.4
GP-SB-24-10	12/1/2020	7.5 to 10	Saturated	mg/kg	NA	10.4	1 U	11.2	NA	6.27	1 U	15.0	51.7
GP-SB-24-12	12/1/2020	10 to 12	Saturated	mg/kg	NA	8.53	1 U	11.7	NA	4.35	1 U	12.4	43.3
GP-SB-25-08	12/5/2020	6 to 8	Vadose	mg/kg	NA	5.44	1 U	9.67	NA	48.3	1 U	6.49	140
GP-SB-25-13.5	12/5/2020	12 to 13.5	Saturated	mg/kg	NA	5.07	1 U	9.10	NA	3.37	1 U	11.4	29.2
GP-SB-26-06	12/5/2020	4 to 6	Vadose	mg/kg	NA	4.13	1 U	20.3	NA	20.0	1 U	14.7	39.8
GP-SB-26-12	12/5/2020	10 to 12	Saturated	mg/kg	NA	2.48	1 U	8.91	NA	3.01	1 U	9.48	22.8
GP-SB-27-08	12/5/2020	6 to 8	Saturated	mg/kg	NA	2.03	1 U	6.61	NA	1.08	1 U	5.45	18.5
GP-SB-27-12	12/5/2020	11 to 12	Saturated	mg/kg	NA	3.05	1 U	9.13	NA	6.60	1 U	7.43	32.3
GP-SB-27-14.5	12/5/2020	12 to 14.5	Saturated	mg/kg	NA	4.79	1 U	11.3	NA	3.83	1 U	7.00	20.7
GP-SB-28-04	12/5/2020	2 to 4	Vadose	mg/kg	NA	2.31	1 U	18.4	NA	34.0	1 U	22.9	36.9
GP-SB-28-08	12/5/2020	6 to 8	Saturated	mg/kg	NA	1.81	1 U	6.53	NA	1.04	1 U	5.68	17.5
GP-SB-28-12	12/5/2020	11.2 to 12	Saturated	mg/kg	NA	6.91	1 U	11.6	NA	5.49	1 U	12.8	39.5
GP-SB-28-13	12/5/2020	12 to 13	Saturated	mg/kg	NA	3.26	1 U	11.3	NA	2.81	1 U	7.09	16.5
GP-SB-29-06.5	12/5/2020	5.2 to 6.5	Vadose	mg/kg	NA	3.87	1 U	9.71	NA	3.31	1 U	6.13	19.9
GP-SB-29-10.5	12/5/2020	9.5 to 10.5	Saturated	mg/kg	NA	1.85	1 U	10.6	NA	1.83	1 U	3.88	28.1
GP-SB-29-12	12/5/2020	11 to 12	Saturated	mg/kg	NA	1.33	1 U	8.60	NA	1.42	1 U	3.93	18.4
GP-SB-30-05.5	12/12/2020	4 to 5.5	Vadose	mg/kg	NA	6.06	1 U	9.67	NA	24.8	1 U	7.62	58.6
GP-SB-30-08	12/12/2020	7 to 8	Saturated	mg/kg	NA	1.40	1 U	5.74	NA	1 U	1 U	4.2	12.1
GP-SB-30-13.3	12/12/2020	12.5 to 13.3	Saturated	mg/kg	NA	3.56	1 U	17.5	NA	5.90	1 U	12.4	54.6
GP-SB-31-06	12/12/2020	4.5 to 6	Vadose	mg/kg	NA	4.50	1 U	9.68	NA	16.5	1 U	6.97	99.8
GP-SB-31-08	12/12/2020	7 to 8	Saturated	mg/kg	NA	3.85	1 U	12.9	NA	2.50	1 U	6.59	22.8
GP-SB-31-14	12/12/2020	12.5 to 14	Saturated	mg/kg	NA	1.08	1 U	9.36	NA	1.79	1 U	4.82	23.2
MW-1 13-14'	12/16/2021	13 to 14	Saturated	mg/kg	NA	3.86	1 U	9.48	NA	1.73	1 U	5.18	17.8
MW-2 7.5-9'	12/15/2021	7.5 to 9	Saturated	mg/kg	NA	2.51	1 U	9.4	NA	2.73	1 U	12.3	25 U
MW-2 12.5-14'	12/15/2021	12.5 to 14	Saturated	mg/kg	NA	8.55	1 U	12.0	NA	3.77	1 U	17.1	41.7
MW-3 7.5-9'	12/16/2021	7.5 to 9	Saturated	mg/kg	NA	1.36	1 U	8.96	NA	2.37	1 U	14.9	25 U
MW-3 12.5-14'	12/16/2021	12.5 to 14	Saturated	mg/kg	NA	4.21	1 U	10.1	NA	6.00	1 U	10.7	38.3
MW-4 7.5-9'	12/16/2021	7.5 to 9	Saturated	mg/kg	NA	1.86	1 U	8.83	NA	1.89	1 U	6.09	138
MW-4 11-11.5'	12/16/2021	11 to 11.5	Saturated	mg/kg	NA	2.50	1 U	11.3	NA	2.67	1 U	10.7	89.2
MW-5 12.5-14'	12/15/2021	12.5 to 14	Saturated	mg/kg	NA	5.46	1.08	17.1	NA	93.1	1 U	8.37	7,000
MW-6 7.5-9'	12/15/2021	7.5 to 9	Saturated	mg/kg	NA	3.80	1 U	9.06	NA	13.9	1 U	6.89	36.1
RI-SB-01-10	12/18/2021	8 to 10	Saturated	mg/kg	NA	2.20	1 U	14.9	NA	7.51	1 U	8.21	49.2
RI-SB-01-14	12/18/2021	12.5 to 14	Saturated	mg/kg	NA	3.31	1 U	13.0	NA	2.60	1 U	7.39	16.9
RI-SB-02-08	12/18/2021	6 to 8	Saturated	mg/kg	NA	3.17	1 U	9.21	NA	2.14	1 U	5.74	64.9
RI-SB-02-12	12/18/2021	10 to 12	Saturated	mg/kg	NA	1.59	1 U	10.2	NA	1.49	1 U	4.96	25.1
RI-SB-04 2-4' / DUP-022823	2/28/2023	2 to 4	Vadose	mg/kg	NA	13.0 / 8.24	1 U / 1 U	43.3 / 32.9	161 / 38.8	97.6 / 76.9	1 U / 1 U	28.8 / 23.5	694 / 627
RI-SB-04 11-12'	2/28/2023	11 to 12	Saturated	mg/kg	NA	2.73	1 U	10.7	20.1	3.15	1 U	7.98	116
RI-SB-05 9-10'	2/28/2023	9 to 10	Saturated	mg/kg	NA	2.09	1 U	7.51	8.24	1.35	1 U	5.51	58.3
RI-SB-05 12.5-14'	2/28/2023	12.5 to 14	Saturated	mg/kg	NA	7.30	1 U	11.2	16.5	2.13	1 U	14.2	26.0
RI-SB-06 6-8'	2/28/2023	6 to 8	Saturated	mg/kg	NA	1.63	1 U	8.51	8.44	5.51	1 U	5.24	24.1
RI-SB-06 12.5-13.5'	2/28/2023	12.5 to 13.5	Saturated	mg/kg	NA	3.37	1 U	10.2	15.1	1.90	2 U	8.79	23.8
MW-7 8-10'	2/28/2023	8 to 10	Saturated	mg/kg	NA	5.44	1 U	11.2	18.2	5.70	1 U	8.15	21.3
MW-7 16-18'	2/28/2023	16 to 18	Saturated	mg/kg	NA	2.89	1 U	11.1	18.1	2.42	1 U	9.74	25.9
MW-8 11-13'	2/28/2023	11 to 13	Saturated	mg/kg	NA	1 U	1 U	5.23	7.76	1 U	1 U	4.19	15.3
RI-SB-07 10-15'	2/29/2024	10 to 15	Saturated	mg/kg	NA	NA	NA	19.8 0.688*	NA	NA	NA	NA	NA
RI-SB-08 5-10'	2/29/2024	5-10	Saturated	mg/kg	NA	10.6	0.150	20.8 0.648*	53.7	8.90	0.0195	20.5	107
RI-SB-08 10.6-12.5'	2/29/2024	10.6-12.5	Saturated	mg/kg	NA	4.54	0.041 J	14.1	23.6	38.2	0.0552	7.99	45.3
RI-SB-09 10-12.5' DUP01-0224	2/29/2024	10-12.5	Saturated	mg/kg	NA	3.88 4.81	0.07 0.082	18.5 15.4	23.7 22.7	5.38 4.74	0.112 0.0183	12.2 13.6	45.5 47.9
RI-SB-10 5-8'	2/27/2024	5-8	Saturated	mg/kg	NA	28.7	0.472	698	206	91.4	0.044	477	412
RI-SB-11 5-7.5'	2/27/2024	5-7.5	Vadose	mg/kg	NA	7.37	0.670	28.9	460	133	0.231	16.8	335
RI-SB-13													
Screening Level MTCA Soil Method C Direct Contact (Method A for arsenic and lead)					3,500,000	20	3500	Cr III: 5,300,000 Cr VI: 820	140,000	1000	2	70,000	1,100,000
PCUL (Vadose)					3,500,000	7.3	0.77	Cr III: 548.11 Cr VI: 0.62	36	1000	0.07	48	100
PCUL (Saturated)					3,500,000	7.3	0.77	Cr III: 27.41 Cr VI: 0.031	36	81	0.07	48	85

Notes:
Bold = detection
Shading denotes a detected exceedance of a screening level
Preliminary Cleanup Levels (PCUL) for Lower Duwamish Waterway workbook, these have been developed by Ecology specifically for the LDW. These are based on the February 11, 2026 version.
Source: https://apps.ecology.wa.gov/cleanupsearch/site/1643#site-documents.
* Value is for hexavalent chromium.
feet bgs = feet below ground surface
mg/kg = milligrams per kilograms
U = laboratory detection limit
J = reported concentration is an estimate.
Cr Vi = Chromium VI (hexavalent chromium); Cr III = Chromium three. Both screening levels are presented, the lowest is used for shading.

NA = Not analyzed
ND = Not detected
MTCA - Model Toxics Control Act

Table 4a Summary of 2000-2024 Soil Data - TPH, VOCs, SVOCs, PCBs, and TBT
Bridge - Former Dawn Foods Site

Sample ID	PCUL (mg/kg)	MTCA Direct Contact (mg/kg)	GP-SB-15	GP-SB-1510 (Duplicate)	GP-SB-16-07	GP-SB-16-11	GP-SB-17-05	GP-SB-17-10	GP-SB-21-05	GP-SB-21-10	GP-SB-22-07	GP-SB-22-09	GP-SB-23-05	GP-SB-23-11	GP-SB-24-10	GP-SB-24-12	GP-SB-25-08	GP-SB-25-13.5	GP-SB-26-06	GP-SB-26-12
Date Sample			6/9/2020	6/9/2020	12/1/2020	12/1/2020	12/1/2020	12/1/2020	12/1/2020	12/1/2020	12/1/2020	12/1/2020	12/1/2020	12/1/2020	12/1/2020	12/1/2020	12/5/2020	12/5/2020	12/5/2020	12/5/2020
Depth ft. bgs			10 to 11	10 to 11	6 to 7	10 to 11	4 to 5	9 to 10	3 to 5	7.5 to 10	5 to 7	9 to 10	3 to 5	10 to 11	7.5 to 10	10 to 12	6 to 8	12 to 13.5	4 to 6	10 to 12
Zone			Saturated	Saturated	Saturated	Saturated	Vadose	Saturated	Vadose	Saturated	Saturated	Saturated	Vadose	Saturated	Saturated	Saturated	Vadose	Saturated	Vadose	Saturated
Units			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
BTEX/GRO/DRO																				
Benzene	0.0088/0.00056	0.03	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	0.72/0.044	7.00	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	0.18/0.01	6.00	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Xylenes	0.94/0.055	9.00	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gasoline Range	100	100	5 U	6 U	5 U	5 U	5 U	5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diesel Range Organics (DRO)	2000	2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lube Range Oil (ORO)	2000	2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DRO/ORO (Diesel + Lube Oil)	2,000	2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs																				
Vinyl chloride	0.0011/0.000056	11000	0.05 U	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	No Criteria	NV	0.5 U	0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	26/1.4	NV	0.05 U	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	0.43/0.03	0.02	0.5 U	0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	5.2/0.32	NV	0.05 U	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	175/175	700000	0.05 U	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	160/160	NV	0.05 U	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane (EDC)	0.35/0.024	1400	0.05 U	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	370/21	2.00	0.05 U	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	0.0044/0.00027	1800	0.05 U	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	0.029/0.0016	63000	0.025 U	0.025 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs (only detected compounds)																				
Naphthalene	0.039/0.0021	5.00	NA	NA	NA	NA	NA	NA	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.05
2-Methylnaphthalene	0.67/0.039	NV	NA	NA	NA	NA	NA	NA	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**0.28**	<0.01	<0.01	<0.05
1-Methylnaphthalene	20/20	NV	NA	NA	NA	NA	NA	NA	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**1.8**	<0.01	<0.01	<0.05
Acenaphthylene	1.3/1.3	NV	NA	NA	NA	NA	NA	NA	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.05
Acenaphthene	0.5/0.28	210000	NA	NA	NA	NA	NA	NA	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**0.43**	<0.01	<0.01	<0.05
Fluorene	0.54/0.029	140000	NA	NA	NA	NA	NA	NA	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**0.67**	<0.01	<0.01	<0.05
Phenanthrene	1.5/1.5	NV	NA	NA	NA	NA	NA	NA	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**1.0**	<0.01	<0.01	<0.05
Anthracene	0.96/0.051	1100000	NA	NA	NA	NA	NA	NA	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.05
Fluoranthene	1.7/0.09	140000	NA	NA	NA	NA	NA	NA	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**0.21**	<0.01	**0.016**	<0.05
Pyrene	2.6/0.14	110000	NA	NA	NA	NA	NA	NA	<0.05	<0.01	<0.05	**0.062**	<0.05	<0.05	<0.05	<0.05	**0.24**	<0.01	**0.017**	<0.05
Benzo(g,h,i)perylene	0.67/0.67	NV	NA	NA	NA	NA	NA	NA	<0.05	<0.01	<0.05	**0.01 J**	<0.05	<0.05	**0.064 J**	**0.051 J**	**0.10**	<0.01	**0.010**	<0.05
Benz(a)anthracene	1.3/1.3	NV	NA	NA	NA	NA	NA	NA	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**0.11**	<0.01	<0.01	<0.05
Chrysene	1.4/1.4	NV	NA	NA	NA	NA	NA	NA	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**0.14**	<0.01	**0.012**	<0.05
Benzo(a)pyrene	0.0003/0.00016	2.00	NA	NA	NA	NA	NA	NA	<0.05	<0.01	<0.05	<0.05 J	<0.05	<0.05	<0.05 J	<0.05 J	**0.15**	<0.01	**0.015**	<0.05
Benzo(b)fluoranthene	na/na	NV	NA	NA	NA	NA	NA	NA	<0.05	<0.01	**0.060**	**0.12 J**	<0.05	<0.05	**0.064 J**	**0.060 J**	**0.19**	<0.01	**0.019**	<0.05
Benzo(k)fluoranthene	na/na	NV	NA	NA	NA	NA	NA	NA	<0.05	<0.01	<0.05	<0.05 J	<0.05	<0.05	<0.05 J	<0.05 J	**0.063**	<0.01	<0.01	<0.05
Indeno(1,2,3-cd)pyrene	0.6/0.6	NV	NA	NA	NA	NA	NA	NA	<0.05	<0.01	<0.05	<0.05 J	<0.05	<0.05	<0.05 J	<0.05 J	**0.11**	<0.01	**0.010**	<0.05
Dibenz(a,h)anthracene	0.23/0.23	NV	NA	NA	NA	NA	NA	NA	<0.05	<0.01	<0.05	<0.05 J	<0.05	<0.05	<0.05 J	<0.05 J	<0.05	<0.01	<0.01	<0.05
Total cPAHs TEQ	0.0003/0.00016	NV	NA	NA	NA	NA	NA	NA	<0.05	<0.01	**0.006**	**0.012**	<0.05	<0.05	**0.0064**	**0.006**	**0.188**	<0.01	**0.018**	<0.05
PCBs																				
Aroclor 1221	see total	NV	NA	NA	NA	NA	NA	NA	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Aroclor 1232	see total	NV	NA	NA	NA	NA	NA	NA	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Aroclor 1016	see total	250	NA	NA	NA	NA	NA	NA	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Aroclor 1242	see total	NV	NA	NA	NA	NA	NA	NA	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Aroclor 1248	see total	NV	NA	NA	NA	NA	NA	NA	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Aroclor 1254	see total	66	NA	NA	NA	NA	NA	NA	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Aroclor 1260	see total	66	NA	NA	NA	NA	NA	NA	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Aroclor 1262	see total	NV	NA	NA	NA	NA	NA	NA	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Aroclor 1268	see total	NV	NA	NA	NA	NA	NA	NA	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Total Aroclors	0.03	NV	NA	NA	NA	NA	NA	NA	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Tributyltin	PQL = 0.004	NV	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 4a Summary of 2000-2024 Soil Data - TPH, VOCs, SVOCs, PCBs, and TBT
Bridge - Former Dawn Foods Site

Sample ID		GP-SB-27-08	GP-SB-27-12	GP-SB-28-08	GP-SB-28-13	GP-SB-29-10.5	GP-SB-30-05.5	GP-SB-30-13.3	GP-SB-31-06	GP-SB-31-14	GP-SB-32-04	GP-SB-32-12	MW-1	MW-2	MW-2	MW-3	MW-3	MW-4 11-11.5'	MW-5 12.5-14'
Date Sample	PCUL (mg/kg)	12/5/2020	12/5/2020	12/5/2020	12/5/2020	12/5/2020	12/12/2020	12/12/2020	12/12/2020	12/12/2020	12/12/2020	12/12/2020	12/16/2021	12/15/2021	12/15/2021	12/16/2021	12/16/2021	12/16/2021	12/15/2021
Depth ft. bgs		6 to 8	11 to 12	6 to 8	12 to 13	9.5 to 10.5	4 to 5.5	12.5 to 13.3	4.5 to 6	12.5 to 14	2 to 4	10.3 to 12	13 to 14	7.5 to 9	12.5 to 14	7.5 to 9	12.5 to 14	11 to 11.5	12.5 to 14
Zone		Saturated	Saturated	Saturated	Saturated	Saturated	Vadose	Saturated	Vadose	Saturated	Vadose	Saturated	Saturated	Saturated	Saturated	Saturated	Saturated	Saturated	Saturated
Units		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
BTEX/GRO/DRO																			
Benzene	0.0088/0.00056	NA	NA	NA	NA	NA	NA	NA	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA	NA	NA	NA	NA	NA
Toluene	0.72/0.044	NA	NA	NA	NA	NA	NA	NA	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	0.18/0.01	NA	NA	NA	NA	NA	NA	NA	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA	NA	NA	NA	NA	NA
Total Xylenes	0.94/0.055	NA	NA	NA	NA	NA	NA	NA	0.06 U	0.06 U	0.06 U	0.06 U	NA	NA	NA	NA	NA	NA	NA
Gasoline Range	100	NA	NA	NA	NA	NA	NA	NA	5 U	5 U	**5.6**	5 U	NA	NA	NA	NA	NA	NA	5 U ht
Diesel Range Organics (DRO)	2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**470 x**
Lube Range Oil (ORO)	2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1,200**
DRO/ORO (Diesel + Lube Oil)	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1,200**
VOCs																			
Vinyl chloride	0.0011/0.000056	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.05 U	0.05 U
Chloroethane	No Criteria	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.5 U	0.5 U
1,1-Dichloroethene	26/1.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.05 U	0.05 U
Methylene chloride	0.43/0.03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.5 U	0.5 U
trans-1,2-Dichloroethene	5.2/0.32	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.05 U	0.05 U
1,1-Dichloroethane	175/175	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.05 U	0.05 U
cis-1,2-Dichloroethene	160/160	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.05 U	0.05 U
1,2-Dichloroethane (EDC)	0.35/0.024	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.05 U	0.05 U
1,1,1-Trichloroethane	370/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.05 U	0.05 U
Trichloroethene	0.0044/0.00027	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.05 U	0.05 U
Tetrachloroethene	0.029/0.0016	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.025 U	0.025 U
SVOCs (only detected compounds)																			
Naphthalene	0.039/0.0021	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	0.67/0.039	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	20/20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	1.3/1.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	0.5/0.28	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	0.54/0.029	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	1.5/1.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	0.96/0.051	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	1.7/0.09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	2.6/0.14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.67/0.67	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benz(a)anthracene	1.3/1.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	1.4/1.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	0.0003/0.00016	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	na/na	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	na/na	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.6/0.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.23/0.23	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total cPAHs TEQ	0.0003/0.00016	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCBs		**PCBs**																	
Aroclor 1221	see total	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1232	see total	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1016	see total	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	see total	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1248	see total	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	see total	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	see total	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	**0.057**	0.02 U	0.02 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1262	see total	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1268	see total	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Aroclors	0.03	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	**0.057**	0.02 U	0.02 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tributyltin	PQL = 0.004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 4a Summary of 2000-2024 Soil Data - TPH, VOCs, SVOCs, PCBs, and TBT
Bridge - Former Dawn Foods Site

Sample ID	PCUL (mg/kg)	MW-6 7.5-9'	RI-SB-01-10	RI-SB-01-14	RI-SB-02-08	RI-SB-02-12 / Duplicate	RI-SB-04 2-4' / DUP-022823	MW-8 11-13'	RI-SB08 5-10' DUP03-0224	RI-SB-09 10-12.5'	RI-SB-10 8-10'	RI-SB-11 0.5-2'	RI-SB-11 5-7.5'	RI-SB-13 7.9-9'	RI-SB-13 13.3-15'
Date Sample		12/15/2021	12/18/2021	12/18/2021	12/18/2021	12/18/2021	2/28/2023	2/28/2023	2/29/2024	2/29/2024	2/27/2024	2/27/2024	2/27/2024	2/27/2024	2/27/2024
Depth ft. bgs		7.5 to 9	8 to 10	12.5 to 14	6 to 8	10 to 12	2 to 4	11 to 13	5 to 10	10 to 12.5	8 to 10	0.5 to 2	5 to 7.5	7.9 to 9	13.3 to 15
Zone		Saturated	Saturated	Saturated	Saturated	Saturated	Vadose	Saturated	Saturated	Saturated	Saturated	Vadose	Vadose	Saturated	Saturated
Units		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
BTEX/GRO/DRO															
Benzene	0.0088/0.00056	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	0.72/0.044	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	0.18/0.01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Xylenes	0.94/0.055	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gasoline Range	100	NA	5 U	5 U	5 U	5 U / 5 U	**11 x**	5 U	NA	NA	**200**	NA	NA	NA	NA
Diesel Range Organics (DRO)	2000	NA	50 U	50 U	50 U	50 U / 50U	50 U / **90 x**	50 U	NA	NA	**3,500**	NA	NA	NA	NA
Lube Range Oil (ORO)	2000	NA	250 U	250 U	250 U	250 U / 250U	250 U / 250 U	250 U	NA	NA	**7,300**	NA	NA	NA	NA
DRO/ORO (Diesel + Lube Oil)	2,000	NA	250 U	250 U	250 U	250 U / 250 U	250 U / **90 x**	250 U	NA	NA	**10,800**	NA	NA	NA	NA
VOCs															
Vinyl chloride	0.0011/0.000056	0.05 U	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Chloroethane	No Criteria	0.5 U	NA	NA	NA	NA	NA	NA	NA	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	26/1.4	0.05 U	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Methylene chloride	0.43/0.03	0.5 U	NA	NA	NA	NA	NA	NA	NA	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,2-Dichloroethene	5.2/0.32	0.05 U	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,1-Dichloroethane	175/175	0.05 U	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
cis-1,2-Dichloroethene	160/160	0.05 U	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.05 U	**0.34**	**0.061**	0.05 U	0.05 U
1,2-Dichloroethane (EDC)	0.35/0.024	0.05 U	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,1,1-Trichloroethane	370/21	0.05 U	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Trichloroethene	0.0044/0.00027	0.05 U	NA	NA	NA	NA	NA	NA	NA	**0.088**	0.02 U	**0.29**	**0.092**	0.02 U	0.02 U
Tetrachloroethene	0.029/0.0016	0.025 U	NA	NA	NA	NA	NA	NA	NA	**3.6**	0.025 U	**4.7**	**2.7**	**0.14**	0.025 U
SVOCs (only detected compounds)															
Naphthalene	0.039/0.0021	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	0.67/0.039	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	20/20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	1.3/1.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	0.5/0.28	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	0.54/0.029	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	1.5/1.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	0.96/0.051	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	1.7/0.09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	2.6/0.14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.67/0.67	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benz(a)anthracene	1.3/1.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	1.4/1.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	0.0003/0.00016	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	na/na	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	na/na	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.6/0.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.23/0.23	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total cPAHs TEQ	0.0003/0.00016	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCBs															
Aroclor 1221	see total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1232	see total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1016	see total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	see total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1248	see total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	see total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	see total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1262	see total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1268	see total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Aroclors	0.03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tributyltin	PQL = 0.004	NA	NA	NA	NA	NA	NA	NA	0.00372 U /0.00385 U	0.00384 U	0.0021 U	NA	0.0013 U	NA	NA

Notes:
Bold = detection
Shading denotes a detected exceedance of a screening level
Preliminary Cleanup Levels (PCUL) for Lower Duwamish Waterway workbook, these have been developed by Ecology specifically for the LDW. These are based on the February 11, 2026 version. Source: https://apps.ecology.wa.gov/cleanupsearch/site/1643#site-documents.

[A] - No benzene present in soil
feet bgs = feet below ground surface
mg/kg = milligrams per kilograms
U = laboratory detection limit
J = reported concentration is an estimate.
NA = Not analyzed
ND = Not detected
MTCA - Model Toxics Control Act
PQL for tributyltin is based on Analytical Resources confirmation on April 2024

TPH GRO - Total Petroleum Hydrocarbons Gasoline Range Organics
TPH DRO - Total Petroleum Hydrocarbons Diesel Range Organics
BTEX - Benzene, toluene, ethylbenzene, xylenes
CVOCs - Chlorinated Volatile Organic Compounds
SVOCs - Semi Volatile Organic Compounds
PCBs - Polychlorinated biphenyls
cPAHs - carcinogenic polycyclic aromatic hydrocarbons
x = Sample chromatographic pattern does not resemble the fuel standard used for quantitation.
ht - The re-run analysis was performed outside the method holding time requirement.

Table 4b Summary of 2026 Soil Data - Dioxins and Furan
Bridge - Former Dawn Foods Site

Sample ID / Date Sampled	Screening Level (pg/g)	RI-SB-19 12.5-14.5	RI-SB-19 17.5-20
Date Sampled		7/14/2026	7/14/2026
Dioxins/Furans (Sample results are in pg/g)			
1,2,3,4,6,7,8-HpCDD	See Total Dioxin/Furan TEQ	**41600**	**111**
1,2,3,4,6,7,8-HpCDF	See Total Dioxin/Furan TEQ	**4930**	**26.8**
1,2,3,4,7,8,9-HpCDF	See Total Dioxin/Furan TEQ	**163**	**1.57 J**
1,2,3,4,7,8-HxCDD	See Total Dioxin/Furan TEQ	**387**	**1.48 J**
1,2,3,4,7,8-HxCDF	See Total Dioxin/Furan TEQ	**37**	**4.23**
1,2,3,6,7,8-HxCDD	See Total Dioxin/Furan TEQ	**697**	**4.90**
1,2,3,6,7,8-HxCDF	See Total Dioxin/Furan TEQ	**11.8**	**2.09 J**
1,2,3,7,8,9-HxCDD	See Total Dioxin/Furan TEQ	**52.9**	**2.83**
1,2,3,7,8,9-HxCDF	See Total Dioxin/Furan TEQ	**56.2**	**1.91 J**
1,2,3,7,8-PeCDD	See Total Dioxin/Furan TEQ	**6.19**	**1.47 J**
1,2,3,7,8-PeCDF	See Total Dioxin/Furan TEQ	ND	**0.862 J**
2,3,4,6,7,8-HxCDF	See Total Dioxin/Furan TEQ	**41.4**	**1.75 J**
2,3,4,7,8-PeCDF	See Total Dioxin/Furan TEQ	**12.9**	**7.11**
2,3,7,8-TCDD	5.2	**1.24**	**0.306 J**
2,3,7,8-TCDF	See Total Dioxin/Furan TEQ	ND	**0.852**
OCDD	See Total Dioxin/Furan TEQ	**369000**	**883**
OCDF	See Total Dioxin/Furan TEQ	**25400**	**63.7**
Total Dioxin/Furan TEQ	5.2 (natural background)	**725**	**7.62**
Total Dioxin/Furan TEQ	1680 (Method C Direct Contact)	**725**	**7.62**

Notes:
J - Estimated concentration value detected below the reporting limit.
ND = analyte not detected at or above reporting limit.
All results are in pg/g (picogram/grams)
Shading denotes a detected exceedance of a screening level.

Table 5 Groundwater Field Parameters
Bridge - Former Dawn Foods Site

Location ID	Date	Time	Depth to Water (ft BTOC)	Flow Rate (mL/min)	Temperature (°C)	Specific Conductance (µS/cm)	ORP (mV)	DO (mg/L)	pH	Turbidity (NTU)
MW-1	2/1/2022	23:07	15.44	125	12.21	8160	178	9.53	6.53	21.8
	4/19/2022	13:56	15.15	125	13.1	6529	144.4	8.06	6.88	1.45
	12/21/2022	21:35	15.50	250	13.4	14800	168	10.66	8.01	35.8
	8/29/2023	10:20	15.39	250	16.7	16586	78.6	6.95	6.67	1.1
	1/10/2024	22:45	15.26	350	13.9	12523	95.9	7.82	6.74	2.97
	4/26/2024	13:42	14.89	250	14.6	6834	144	5.71	6.49	0.47
	6/6/2024	11:28	15.41	175	15.2	9203	143.8	10.84	6.68	0.28
	9/24/2024	5:03	15.03	300	17.1	8906	149.4	4.1	6.59	0.28
	2/26/2025	22:17	14.80	200	12.5	15272	240.9	6.79	6.65	1.4
	5/27/2025	12:04	15.30	175	16.1	7654	136.6	4.95	6.82	1.48
	9/15/2025	6:12	14.65	N/A	17.1	13823	166.1	4.35	6.59	15.17
	1/4/2026	23:40	9.70	N/A	9.3	6010	232.7	8.59	6.93	7.57
	4/6/2026	14:47	14.40	<125	16.7	6255	223.6	5.72	6.96	1.44
MW-2	1/31/2022	22:16	11.12	200	8.75	12300	171	3.77	7.05	1.79
	4/19/2022	14:54	11.82	250	10.7	14051	113.4	6.64	7.5	8.43
	12/22/2022	23:27	12.28	<250	10.07	29000	34	6.06	7.47	606
	8/29/2023	11:51	12.43	200	19.2	31818	79.6	4.47	7.15	5.13
	1/22/2024	22:54	11.77	250	9.8	19964	78.3	7.86	7.39	1.81
	4/24/2024	14:03	12.45	225	11.2	17164	161.7	6.61	7.31	2.46
	6/5/2024	11:23	12.07	225	14.2	20182	149.6	6.52	7.35	0.93
	9/23/2024	5:06	12.20	275	18.9	27573	149.2	3.29	7.23	2.99
	5/28/2025	13:47	12.15	N/A	15.6	24556	99.9	6.62	7.46	3.05
	9/16/2025	8:14	12.38	N/A	19.1	32804	58.2	3.35	7.11	4.29
	11/4/2025	23:58	12.10	175	16.5	29046	186.6	4.36	7.34	1.27
MW-3	1/30/2022	22:02	16.25	200	9	26495	71.8	6.01	6.99	14.1
	4/20/2022	15:32	19.43	200	92	22900	181	9.28	7.39	45.7
	12/22/2022	22:58	18.17	<250	9.84	33900	29	5.72	6.92	136
	8/29/2023	11:11	18.10	175	15.7	33077	97.8	4.83	6.73	6.76
	1/12/2024	0:24	NM	225	9.8	32115	110.3	5.41	6.78	19.7
	4/25/2024	14:14	17.34	<200	11.3	23054	94.5	4.36	6.86	11.2
	6/5/2024	10:32	16.29	150	13.1	26214	174.3	5.85	6.7	1.83
	9/23/2024	4:23	17.20	100	17.4	29868	148.7	3.1	6.71	12.4
	2/25/2025	22:42	16.68	200	9	30725	13.8	4.56	6.98	31.5
	5/28/2025	13:01	16.90	N/A	16.8	30663	104	5.76	6.73	5.14
	9/17/2025	8:49	16.50	N/A	17.2	36262	95.2	3.82	6.62	59.44
	1/5/2026	0:15	12.00	75	10	19465	198.5	5.66	6.86	34.51
	6/18/2026	15:25	18.37	<125	23.3	29140	189.9	4.91	6.67	12.7
	7/16/2026	14:23	17.75	150	17	28483	110.4	4.16	6.73	405
MW-3D	2/15/2026	23:13	12.54	225	12.7	3851	-81.2	1.95	6.28	9.35
	4/5/2026	14:56	12.59	<300	15.8	1190	-41.5	1.57	6.3	1.52
	6/18/2026	15:35	12.89	250	22.7	1918	58.6	1.43	6.09	5.71
	7/16/2026	15:22	12.67	250	16.6	2777	2.7	1.25	6.20	32.83
MW-4	2/1/2022	0:08	15.00	200	13.24	1670	26	0	6.24	3.78
	4/20/2022	14:47	14.27	250	14.5	662	-19	0.45	6.07	1.4
	12/22/2022	22:23	15.13	<250	13.79	1330	-33	0	6.88	14.6
	8/30/2023	11:25	14.73	300	17.1	1024	-19.8	2.09	6.18	11.05
	1/11/2024	23:52	14.75	200	13.4	2376	23.7	0.21	5.98	6.68
	4/24/2024	12:28	13.98	200	15.4	1568	124.3	0.68	6.01	13.1
	6/7/2024	11:38	14.67	200	16.3	551	75.2	0.14	6.18	3.5
	9/25/2024	5:33	13.67	150	17.6	251	-42.7	0.3	6.57	15.2
	2/25/2025	21:42	13.98	200	14.5	2070	-116.3	0.03	6.34	4.7
	5/29/2025	13:28	15.95	200	17.7	514	-42.7	1.5	6.19	3.44
	9/16/2025	7:22	13.95	N/A	16.9	1241	-102.4	-0.07	6.08	1.51
	1/6/2026	0:36	13.60	150	14.1	6835	-61	-0.11	5.98	1.65
	4/5/2026	14:07	13.68	200	16.7	5441	41.5	1.01	5.92	2.98
MW-5	1/31/2022	23:11	12.22	250	13.15	3300	-89	0.06	6.88	4.85
	4/21/2022	15:41	11.63	300	14.1	2068	-139.1	0.51	6.58	16.9
	12/21/2022	22:22	12.42	<250	12.4	3700	-150	0.01	7.76	52.2
	8/28/2023	10:46	12.25	300	19.4	2042	-73.8	1.65	6.75	4.95
	1/22/2024	21:58	11.59	225	14.3	1297	-109.1	0.11	6.81	20.5
	4/25/2024	13:27	11.84	<250	14.3	1242	-97.7	0	6.93	3.04
	6/6/2024	12:25	12.47	NM	16.1	1294	-77.7	0.19	6.89	0.47
	9/25/2024	6:25	11.71	275	19.2	937	-128.5	0.16	6.89	2.33
	2/26/2025	23:06	11.75	200	11.8	1249	24.8	-0.01	6.61	7
	5/27/2025	13:06	12.40	N/A	15	723	-55.8	1.64	6.71	23.6
	9/15/2025	7:01	11.90	>250	17.9	898	-90.2	-0.08	6.74	8.42
	1/7/2026	1:52	10.89	230	13.8	259	-110.9	-0.11	6.95	1.61
	4/5/2026	14:05	11.61	<225	14.2	582	-66.9	11.12	6.93	2.97
MW-6	1/30/2022	22:58	12.70	225	10.97	19600	16	7.33	6.62	2.25
	4/21/2022	16:27	12.45	250	13.4	8023	-29.5	0.63	6.29	7.8
	12/21/2022	23:15	13.40	<250	12.34	13800	-36	0	7.03	54.4
	8/30/2023	12:14	13.11	350	17.4	17826	-31.5	1.66	6.19	1.55
	1/10/2024	23:53	12.70	250	12.5	23477	118	2.81	6.24	26.5
	4/24/2024	13:18	12.45	275	13.4	10138	80.9	0.04	6.34	10.09
	6/7/2024	12:32	12.98	275	16.9	10815	80.9	0.59	6.28	6.69
	5/29/2025	14:29	13.28	200	19.1	11520	36	1.72	6.27	16.6
MW-7	8/28/2023	13:02	10.34	225	14.8	387	-42.4	1.96	6.2	8.74
	1/12/2024	12:00	7.04	175	7.8	1282	201.6	6.05	5.78	65.5
	4/26/2024	14:45	9.53	200	12.5	1135	126.9	1.96	6.07	12.3
	6/6/2024	9:32	9.21	200	13	140	136.5	0.96	6.22	13
	6/6/2024	9:32	9.21	200	13	140	136.5	0.96	6.22	13
MW-8	8/28/2023	13:55	9.03	275	19.7	978	-88.2	1.55	6.24	1.59
	1/10/2024	20:41	8.24	275	14.8	853	-102.9	0.16	6.35	0.43
	4/24/2024	11:33	8.60	NM	14.4	566	-51.3	0	6.29	2.4
	6/5/2024	12:09	8.81	250	16.7	577	-67.5	0.14	6.62	1.02
	9/23/2024	9:52	8.90	300	19.3	620	-98	0.18	6.41	4.39
	2/25/2025	17:48	8.07	200	14.2	553	-108	0	6.21	11.4
	5/28/2025	10:47	8.54	250	17.2	587	-75.3	1.57	6.34	4.58
	9/15/2025	9:49	9.02	N/A	19	632	-137.5	-0.09	6.45	15.08
	9/17/2025	7:26	8.98	>250	18.3	604	-144.7	-0.05	6.65	4.45
	1/5/2026	12:36	7.63	230	13.9	544	-118.7	-0.11	6.43	6.31
	4/6/2026	12:43	8.27	N/A	16.0	619	-45.8	1.17	6.23	26.9
MW-9	8/28/2023	11:54	9.66	225	17.5	686	-109.5	1.68	6.11	1.35
	1/9/2024	19:52	8.41	350	13.5	831	-120.9	0.13	6.16	0.78
	4/25/2024	12:27	9.09	300	11.4	746	-106.3	0	6.31	0.91
	6/7/2024	9:24	9.05	125	14.9	914	-62.2	0.4	6.16	7.54
	1/5/2026	11:46	8.21	NA	14.4	702	-146.7	-0.08	6.34	1.09
	4/4/2026	12:39	8.74	250	12.4	849	-112.2	1.28	6.62	1.15
MW-10	9/23/2024	8:38	10.77	300	16.1	234	37.7	0.88	6.4	2.88
	2/25/2025	18:29	9.94	200	13.8	185.6	63.1	0.01	5.79	2.8
	5/28/2025	11:40	10.40	225	225	189.9	69.5	1.84	5.93	1.24
	9/15/2025	2:09	15.30	<200	15.3	188.4	78.2	0.89	6.22	-1.19
	9/15/2025	2:09	15.30	<200	15.3	188.4	78.2	0.89	6.22	-1.19
	1/10/2026	13:38	9.26	140	13.6	124.8	160.5	-0.05	5.97	17.9
	1/21/2026	13:42	9.70	125+	12.8	202.8	186.5	0.19	5.73	0.76
	4/5/2026	12:59	9.89	<400	13.6	204.6	249.6	2.71	5.79	1.05
MW-11	9/23/2024	6:49	10.17	125	16.7	318	-110.8	0.38	6.65	1.3
	2/25/2025	19:38	9.25	200	11.4	3007	-53	0.04	6.17	5.9
	5/29/2025	12:27	10.06	200	14.8	1463	-68.3	1.66	6.37	1.59
	9/15/2025	8:04	10.31	<250	16.3	1461	-117	-0.07	6.41	2.15
	9/15/2025	8:04	10.31	<250	16.3	1461	-117	-0.07	6.41	2.15
	1/5/2026	1:34	8.79	<250	12.8	6945	-73.6	-0.07	6.15	7.78
	4/4/2026	15:07	9.24	<200	13.5	2839	-86.7	1.17	6.69	6.99
PD-1	1/10/2024	21:46	NM - saturated at ground surface	300	12.7	2337	-64.3	0.16	6.59	0.36
	4/26/2024	13:08	NM- saturated at ground surface	NM	14.8	1238	-30.8	0.0	6.86	1.54
	6/6/2024	10:49	NM - saturated at ground surface	>250	14.7	789	86.1	0.27	7.58	0.92
	9/24/2024	4:26	NM - saturated at ground surface	>250	14.5	437	-63.8	4.19	6.96	1.20
PD-2	7/16/2026	13:06	NM - saturated at ground surface	~350	15.6	30089	-61.4	1.96	7.61	10.63

Notes:
°C - degrees Celsius
DO - dissolved oxygen
ft bgs - feet below ground surface
mg/L - milligrams per liter
µS/cm - microSiemen per centimeter
mL/min - milliliters per minute
mV - millivolt
NTU - nephelometric turbidity unit
ORP - oxidation-reduction potential
NM - not measured

Table 6 Direct Push Borehole Groundwater - High Salinity 2000 Data - Metals
Bridge - Former Dawn Foods Site

Sample ID	PCUL (ug/L)	GP-SB-6	GP-SB-08	GP-SB-09	Dup (GP-SB-09)	GP-SB-10	GP-SB-20	GP-SB-21	GP-SB-22	GP-SB-23	GP-SB-24
Date Sampled		1/2/20	6/9/20	6/9/20	6/9/20	6/9/20	12/1/20	12/1/20	12/1/20	12/1/20	12/1/20
Sample results are in ug/L											
Metals Total/Dissolved											
Aluminum - total	See dissolved	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic - total	See dissolved	**23**	**14.0**	**10.2**	**10.7**	**48.7**	**21.6**	**25**	**20**	**38.4**	**26.6**
Cadmium - total	See dissolved	10 U	1 UJ	1 UJ	1 U	1 UJ	1 UJ	5 UJ	1 UJ	5 UJ	5 UJ
Chromium - total	See dissolved	NA	NA	NA	NA	NA	**13.7**	10 U	10 U	**13.8**	10 U
Copper - total	See dissolved	**66.1**	**8.84**	**4.65**	**3.68 J**	**53.5**	NA	NA	NA	NA	NA
Lead - total	See dissolved	10 U	**12.6**	1 U	1 U	**63.9**	**5.85**	10 U	1 U	**11.1**	10 U
Mercury - total	See dissolved	1 U	1 U	1 U	1 U	1 U	1 U	10 U	1 U	10 U	10 U
Nickel - total	See dissolved	**42.4**	**6.11**	**4.24**	**4.74 J**	**18.2**	**8.30**	**12.8**	10 U	**15.4**	10 U
Selenium - total	See dissolved	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc - total	See dissolved	**3770**	**562**	**342**	**502**	**104**	50 U	50 U	50 U	**52.7**	50 U
Arsenic - dissolved	8.0	**10.6**	**13.1**	**10.2**	**10.7**	**25.2**	**11.9**	**20**	**18.4**	**27.2**	**27.1**
Cadmium - dissolved	1.2	5 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ	1 U	1 UJ	1 UJ
Chromium - dissolved	Cr III: 27.4 Cr VI: 1.6	NA	NA	NA	NA	NA	**4.06**	10 U	**2.14**	10 U	10 U
Copper - dissolved	3.1	5 U	**7.00**	**5.58**	**2.97**	**5.29**	NA	NA	NA	NA	NA
Lead - dissolved	8.1	5 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 UJ	1 UJ
Mercury - dissolved	0.03	5 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 UJ	1 UJ
Nickel - dissolved	8.2	**8.71**	**6.35**	**4.88**	**4.14**	**5.74**	**4.26**	**14.8**	10U	10 U	**11.3**
Zinc - dissolved	81	**3,110**	**574**	**378**	**317**	5 U	5 U	50U	5 U	50U	50U

Notes:
Bold = detection
Shading denotes a detected exceedance of a screening level
Preliminary Cleanup Levels (PCUL) for Lower Duwamish Waterway workbook, these have been developed by Ecology specifically for the LDW. TThese are based on the February 11, 2026 version.
Source: https://apps.ecology.wa.gov/cleanupsearch/site/1643#site-documents.
Cr Vi = Chromium VI (hexavalent chromium); Cr III = Chromium trivalent. Both screening levels are presented, the lowest is used for shading.
ug/L = micrograms per liters
U = laboratory detection limit
J = reported concentration is an estimate.
NA = Not analyzed

Table 7 Summary of Direct Push Borehole Groundwater Samples - Detected Compounds Only
Bridge - Former Dawn Foods Site

Sample ID	PCUL (ug/L)	GP-SB-1	GP-SB-2	GP-SB-3	GP-SB-5	GP-SB-6	GP-SB-7	GP-SB-08	GP-SB-09	Dup (GP-SB-09)	GP-SB-10	GP-SB-11	GP-SB-12	GP-SB-13	GP-SB-14	GP-SB-15	GP-SB-16	GP-SB-17	GP-SB-18	GP-SB-19	GP-SB-20	GP-SB-21	GP-SB-22	GP-SB-23	GP-SB-24	GP-SB-25	GP-SB-27	GP-SB-28
Date Sampled		1/2/20	1/2/20	1/2/20	1/2/20	1/2/20	1/2/20	6/9/20	6/9/20	6/9/20	6/9/20	6/9/20	6/9/20	6/9/20	6/9/20	6/9/20	12/1/20	12/1/20	12/1/20	12/1/20	12/1/20	12/1/20	12/1/20	12/1/20	12/1/20	12/5/20	12/5/20	12/5/20
Within 75ft of the Shoreline? (See Note 1)		no	no	no	no	yes	no	yes	yes	yes	yes	no	no	no	no	no	no	no	no	no	yes	yes	yes	yes	yes	no	no	no
																							Sample results are in ug/L					
Metals Total/Dissolved																												
Arsenic - total	See dissolved	NA	NA	**7.22**	**29**	**23**	**37.9**	14.0	10.2	10.7	48.7	**3.68**	1 U	NA	NA	NA	NA	NA	**16.3**	**10 U**	21.6	25	20	38.4	26.6	**15.7**	**2.76**	**5.07**
Cadmium - total	See dissolved	NA	NA	1 U	**2.87**	10 U	1 U	1 UJ	1 UJ	1 U	1 UJ	1 U	1 U	NA	NA	NA	NA	NA	1 U	1 U	1 UJ	5 UJ	1 UJ	5 UJ	5 UJ	1 U	1 U	1 U
Chromium - total	See dissolved	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**12.1**	**4.25**	13.7	10 U	10 U	13.8	10 U	**18.6**	10 U	**23.7**
Copper - total	See dissolved	NA	NA	25 U	**1,460**	**66.1**	5 U	8.84	4.65	3.68 J	53.5	**4.01**	2.4 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead - total	See dissolved	NA	NA	**24.2**	**632**	10 U	1 U	12.6	1 U	1 U	63.9	**1.11**	1 U	NA	NA	NA	NA	NA	**1.55**	**1.08**	5.85	10 U	1 U	11.1	10 U	**12.4**	10 U	10 U
Mercury - total	See dissolved	NA	NA	1 U	**4.29**	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA	NA	NA	1 U	1 U	1 U	10 U	1 U	10 U	10 U	1 U	1 U	1 U
Nickel - total	See dissolved	NA	NA	5 U	**66**	**42.4**	**24**	6.11	4.24	4.74 J	18.2	**10.8**	**2.23 J**	NA	NA	NA	NA	NA	**9.65**	**6.54**	8.30	12.8	10 U	15.4	10 U	**18.6**	10 U	**12.2**
Zinc - total	See dissolved	NA	NA	25 U	**1,070**	**3770**	**22,800**	562	342	502	104	**32.2**	**17.9 J**	NA	NA	NA	NA	NA	50 U	50 U	50 U	50 U	50 U	52.7	50 U	**95.5**	50 U	**91.9**
Arsenic - dissolved	8	NA	NA	**6.92**	1 U	*10.6*	**29.7**	*13.1*	*10.2*	*10.7*	*25.2*	**4.61 ca**	1 Uca	NA	NA	NA	NA	NA	**14.8**	**1.85**	*11.9*	*20*	*18.4*	*27.2*	*27.1*	**5.05**	1 U	1 U
Cadmium - dissolved	1.2	NA	NA	1 U	1 U	*5 U*	1 U	*1 U*	*1 UJ*	*1 U*	*1 U*	1 U	1 U	NA	NA	NA	NA	NA	1 U	1 U	*1 U*	*1 UJ*	*1 U*	*1 UJ*	*1 UJ*	1U	1 U	1 U
Chromium - dissolved	Cr III: 27.4	NA	NA	NA	NA	*NA*	NA	*NA*	*NA*	*NA*	*NA*	NA	NA	NA	NA	NA	NA	NA	**1.72**	10 U	*4.06*	*10 U*	*2.14*	*10 U*	*10 U*	1 U	1 U	1 U
Chromium VI - dissolved	Cr VI: 1.6	NA	NA	NA	NA	*NA*	NA	*NA*	*NA*	*NA*	*NA*	NA	NA	NA	NA	NA	NA	NA	NA	NA	*NA*	*NA*	*NA*	*NA*	*NA*	NA	NA	NA
Copper - dissolved	3.1	NA	NA	25 U	25 U	*5 U*	5 U	*7.00*	*5.58*	*2.97*	*5.29*	**2.73**	2.4 UJ	NA	NA	NA	NA	NA	NA	NA	*NA*	*NA*	*NA*	*NA*	*NA*	NA	NA	NA
Lead - dissolved	8.1	NA	NA	1 U	1 U	*5 U*	1 U	*1 U*	*1 U*	*1 U*	*1 U*	1 U	1 U	NA	NA	NA	NA	NA	1 U	1 U	*1 U*	*1 UJ*	*1 U*	*1 UJ*	*1 UJ*	1 U	1 U	1 U
Mercury - dissolved	0.03	NA	NA	1 U	1 U	*5 U*	1 U	*1 U*	*1 U*	*1 U*	*1 U*	1 U	1 U	NA	NA	NA	NA	NA	1 U	1 U	*1 U*	*1 UJ*	*1 U*	*1 UJ*	*1 UJ*	1 U	1 U	1 U
Nickel - dissolved	8.2	NA	NA	5 U	5 U	*8.71*	**22.7**	*6.35*	*4.88*	*4.14*	*5.74*	**10.9**	**2.37 J**	NA	NA	NA	NA	NA	**5.30**	10 U	*4.26*	*14.8*	*10U*	*10 U*	*11.3*	**1.62**	**2.33**	**3.28**
Zinc - dissolved	81	NA	NA	25 U	25 U	*3,110*	**22,300**	*574*	*378*	*317*	*5 U*	**18.8**	**16.5 J**	NA	NA	NA	NA	NA	**7.01**	50U	*5 U*	*50U*	*5 U*	*50U*	*50U*	**14.6**	5 U	**6.36**
TPH GRO/DRO																												
Gasoline Range Organics	**1000**	100 U	**800**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**100**	**380**	**3,300**	100 U	100 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diesel Range Organics	see total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Motor Oil Organics (ORO)	see total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diesel Range Organics w/ SGC	see total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Motor Oil Organics (ORO) w/ SGC	see total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dx (DRO + ORO)	See TPH Dx difference	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dx (DRO + ORO) w/ SGC	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dx Difference (DRO + ORO - SGC)	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs																												
Benzene	**1.6**	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	NA	NA	0.35 U	0.35 U	NA	NA	NA	1 U	1 U	1U	1 U	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	**21**	1 U	1 U	1 U	1U	1 U	NA	1 U	1 U	1 U	NA	NA	NA	1 U	**3.1**	**5.1**	1 U	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	102	1 U	1 U	1U	1 U	1 U	NA	1 U	1 U	1 U	NA	NA	NA	NA	NA	**8.1**	1 U	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes, Total	106	2 U	2 U	2 U	2 U	2 U	NA	2 U	2 U	2 U	NA	NA	NA	1 U	**5.6**	**8.3**	3 U	3 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	14666	1U	10 U	1U	1U	1 U	NA	1 U	1 U	1 U	NA	NA	1 U	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	**182**	**16**	**400**	1 U	1 U	1 U	NA	1 U	1 U	1 U	NA	NA	1 U	NA	NA	**11**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane (EDC)	**3.5**	1U	10 U	1U	1U	1 U	NA	1 U	1 U	1 U	NA	NA	1 U	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	**11**	1U	10 U	1U	1U	1 U	NA	1 U	1 U	1 U	NA	NA	1 U	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	**130**	1U	10 U	1U	1U	1 U	NA	1 U	1 U	1 U	NA	NA	1 U	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	**77**	1U	10 U	1U	1U	1 U	NA	1 U	1 U	1 U	NA	NA	1 U	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	No Criteria	NA	NA	NA	NA	0.04 U	NA	NA	0.02 U	**0.039**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl t-butyl ether	857	**1.1**	10 U	1U	1U	1 U	NA	1 U	1 U	1 U	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	**100**	5U	10 U	1U	1U	1 U	NA	1 U	1 U	1 U	NA	NA	5U	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	**2.9**	1 U	10 U	1U	1U	1 U	NA	1 U	1 U	1 U	NA	NA	1 U	NA	NA	**2.5**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	5440	1U	10 U	1U	1U	1 U	NA	1 U	1 U	1 U	NA	NA	1 U	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	**0.7**	1 U	1 U	1U	1U	1 U	NA	1 U	1 U	1 U	NA	NA	1 U	1U	1U	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	**0.18**	**44**	**72**	**0.31**	0.2 U	0.2 U	NA	0.1 U	1 U	1 U	NA	NA	**0.21**	NA	NA	**1.8**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tributyltin	PQL = 0052	NA	NA	NA	NA	NA	NA	NA	0.31U	0.36U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 7 Summary of Direct Push Borehole Groundwater Samples - Detected Compounds Only
Bridge - Former Dawn Foods Site

Sample ID	PCUL (ug/L)	GP-SB-29	GP-SB-30	GP-SB-31	GP-SB-32	RI-SB-01	RI-SB-02 / Duplicate	RI-SB-04	RI-SB-05	RI-SB-06	RI-SB-07 DUP05-0224	RI-SB-08 DUP04-0224	RI-SB-09 DUP02-0224	RI-SB-10	RI-SB-11	RI-SB-12	RI-SB-13	RI-SB-14	RI-SB-15	RI-SB-16	RI-SB-17	RI-SB-18
Date Sampled		12/5/20	12/12/20	12/12/20	12/12/20	12/18/21	12/18/21	2/28/23	2/28/23	2/28/23	2/29/24	2/29/24	2/29/24	2/27/24	2/27/24	2/27/24	2/27/24	2/27/24	2/28/24	2/28/24	2/28/24	2/28/24
Within 75ft of the Shoreline? (See Note 1)		no	no	no	no	no	no	yes	no	no	yes	yes	no	no	no	no	no	no	no	no	no	no
Metals Total/Dissolved																						
Arsenic - total	See dissolved	**1.15**	**15.1**	**17.5**	NA	**5.03**	**2.53 / 6.40**	**0.944**	**1.68**	**11.5**	NA	**4.89**	**2.47 / 2.68**	**3.04**	**1.58**	NA	NA	NA	NA	NA	NA	NA
Cadmium - total	See dissolved	1 U	1 U	1 U	NA	1 U	1 U / 1 U	0.061 U	0.061 U	0.061 U	NA	0.061 U	0.152 U / **0.075 J**	**0.075 J**	**0.097 J**	NA	NA	NA	NA	NA	NA	NA
Chromium - total	See dissolved	1 U	**11.4**	**3.19**	NA	**13.5**	**6.56 / 19.5**	**7.21**	**3.19 J**	**7.02**	NA	**2.22 J**	4.29 U / **2.87 J**	**3.63 J**	**3.13 J**	NA	NA	NA	NA	NA	NA	NA
Copper - total	See dissolved	NA	NA	NA	NA	NA	NA	**5.66**	**7.00**	**9.38**	NA	**2.86**	**6.66 / 5.85 J**	**53.0**	**5.89**	NA	NA	NA	NA	NA	NA	NA
Lead - total	See dissolved	1 U	**3.44**	1 U	NA	**4.27**	**2.70 / 11.0**	**1.35**	**1.82**	**2.22**	NA	**1.30**	**2.34 / 2.33**	**25.9**	**2.79**	NA	NA	NA	NA	NA	NA	NA
Mercury - total	See dissolved	1 U	1 U	1 U	NA	1 U	1 U / 1 U	NA	NA	NA	NA	**0.00523**	**0.00524 / 0.00609**	**0.625**	**0.0276**	NA	NA	NA	NA	NA	NA	NA
Nickel - total	See dissolved	**3.10**	**12.0**	**5.77**	NA	**15.7**	5 U / **8.65**	**3.58 J**	**2.67 J**	**4.13**	NA	**1.54 J**	3.03 U / **2.04 J**	**2.23 J**	**2.08 J**	NA	NA	NA	NA	NA	NA	NA
Zinc - total	See dissolved	**210**	**67.6**	**17.4**	NA	**38.9**	**31.1 / 77.4**	**65.7**	**138**	**19.0 J**	NA	**31.0**	17.7 U / **9.93 J**	**38.9**	**114**	NA	NA	NA	NA	NA	NA	NA
Arsenic - dissolved	8	1 U	**11.3**	**16.4**	NA	1 U	**1.29 / 1.20**	0.162 U	**0.766**	**11.1**	NA	**4.30**	**1.93 / 1.84**	**1.13**	**0.996**	NA	NA	NA	NA	NA	NA	NA
Cadmium - dissolved	1.2	1 U	1 U	1 U	NA	1 U	1 U / 1 U	0.061 U	0.061 U	0.061 U	NA	0.061 U	0.152 U / 0.061 U	0.061 U	0.061 U	NA	NA	NA	NA	NA	NA	NA
Chromium - dissolved	Cr III: 27.4	1 U	1 U	**1.19**	NA	**1.39**	**2.12 / 2.06**	1.72 U	1.72 U	**3.48 J**	NA	1.72 U	4.29 U / 1.72 U	**1.92 J**	**1.81 J**	NA	NA	NA	NA	NA	NA	NA
Chromium VI - dissolved	Cr VI: 1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.5 U	0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper - dissolved	3.1	NA	NA	NA	NA	NA	NA	0.505 U	0.505 U	0.505 U	NA	0.505 U	1.26 U / 0.505 U	0.505 U	**1.14**	NA	NA	NA	NA	NA	NA	NA
Lead - dissolved	8.1	1 U	1 U	1 U	NA	1 U	1 U / 1 U	0.061 U	0.061 U	0.061 U	NA	0.061 U	0.152 U / 0.061 U	0.061 U	**0.257**	NA	NA	NA	NA	NA	NA	NA
Mercury - dissolved	0.03	1 U	1 U	1 U	NA	1 U	1 U / 1 U	NA	NA	NA	NA	0.00014 U	**0.00019 J** / 0.00013 U	**0.00249**	**0.00373**	NA	NA	NA	NA	NA	NA	NA
Nickel - dissolved	8.2	**3.41**	**2.96**	**4.49**	NA	**1.95**	**1.66 / 1.62**	1.21 U	**1.41 J**	**2.17 J**	NA	1.21 U	3.03 U / 1.21 U	1.21 U	**2.30 J**	NA	NA	NA	NA	NA	NA	NA
Zinc - dissolved	81	**209**	**33.0**	**12.3**	NA	**5.49**	**10.7 / 9.96**	7.07 U	**123**	**8.80 J**	NA	**21.7 J**	17.7 U / 7.07 U	**7.29 J**	**102**	NA	NA	NA	NA	NA	NA	NA
TPH GRO/DRO																						
Gasoline Range Organics	**1000**	NA	NA	100 U	100 U	100 U	100 U / 100 U	NA	NA	NA	NA	NA	NA	**720**	NA	NA	NA	NA	NA	NA	NA	100 U
Diesel Range Organics	see total	NA	NA	NA	NA	**150 x**	**65 x / 710 x**	NA	NA	NA	NA	NA	NA	**3,100 x**	NA	NA	NA	NA	NA	NA	NA	NA
Motor Oil Organics (ORO)	see total	NA	NA	NA	NA	**490 x**	250 U / **290 x**	NA	NA	NA	NA	NA	NA	250 U	NA	NA	NA	NA	NA	NA	NA	NA
Diesel Range Organics w/ SGC	see total	NA	NA	NA	NA	50 U	50 U / 50 U	NA	NA	NA	NA	NA	NA	**96 x**	NA	NA	NA	NA	NA	NA	NA	NA
Motor Oil Organics (ORO) w/ SGC	see total	NA	NA	NA	NA	**290**	250 U / 250 U	NA	NA	NA	NA	NA	NA	250 U	NA	NA	NA	NA	NA	NA	NA	NA
Total Dx (DRO + ORO)	See TPH Dx difference	NA	NA	NA	NA	**640 x**	**65 x / 1,000 x**	NA	NA	NA	NA	NA	NA	**3100 x**	NA	NA	NA	NA	NA	NA	NA	NA
Total Dx (DRO + ORO) w/ SGC	500	NA	NA	NA	NA	**290**	250 U / 250 U	NA	NA	NA	NA	NA	NA	**96 x**	NA	NA	NA	NA	NA	NA	NA	NA
Total Dx Difference (DRO + ORO - SGC)	500	NA	NA	NA	NA	**350**	**65/ 750**	NA	NA	NA	NA	NA	NA	**3004**	NA	NA	NA	NA	NA	NA	NA	NA
VOCs																						
Benzene	**1.6**	NA	NA	1 U	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	**21**	NA	NA	1 U	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	102	NA	NA	1 U	1 U	NA	NA	NA	NA	NA	0.5 U / 0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes, Total	106	NA	NA	3 U	3 U	NA	NA	NA	NA	NA	0.02 U / 0.02 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	14666	NA	NA	NA	NA	1 U	1 U / 1 U	1 U	1 U	1 U	1 U / 1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	**182**	NA	NA	NA	NA	1 U	1 U / 1 U	1 U	1 U	1 U	1 U / 1 U	1 U	**1.4**	**1.2**	**11**	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane (EDC)	**3.5**	NA	NA	NA	NA	0.2 U	0.2 U / 0.2 U	0.2 U	0.2 U	0.2 U	0.2 U / 0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1-Dichloroethane	**11**	NA	NA	NA	NA	1 U	1 U / 1 U	1 U	1 U	1 U	1 U / 1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	**130**	NA	NA	NA	NA	1 U	1 U / 1 U	1 U	1 U	1 U	1 U / 1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene	**77**	NA	NA	NA	NA	1 U	1 U / 1 U	1 U	1 U	1 U	1 U / 1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Phenanthrene	No Criteria	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl t-butyl ether	857	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	**100**	NA	NA	NA	NA	**5.2 ca lc**	**11 ca lc / 9.3 ca lc**	5 U	5 U	5 U	5 U / 5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	**2.9**	NA	NA	NA	NA	**1.6**	1 U / 1 U	1 U	1 U	1 U	1 U / 1 U	1 U	**2.9**	1 U	**21**	1 U	**4.1**	1 U	1 U	1 U	1 U	1 U
1,1,1-Trichloroethane	5440	NA	NA	NA	NA	1 U	1 U / 1 U	1 U	1 U	1 U	1 U / 1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	**0.7**	NA	NA	NA	NA	0.5 U	0.5 U / 0.5 U	0.5 U	0.5 U	0.5 U	0.5 U / 0.5 U	0.5 U	**0.76**	1 U	**2.1**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl chloride	**0.18**	NA	NA	NA	NA	**0.21**	**0.30 / 0.28**	**0.50**	**0.55**	**0.40**	0.02 U / 0.02 U	**0.10**	**0.022**	**0.11**	**0.70**	**0.14**	**0.13**	0.02 U	**0.57**	**0.90**	**0.44**	0.02 U
Tributyltin	PQL = 0052	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0052 U 0.0052 U	0.0052 U	0.0052 U	0.0052 U	NA	NA	NA	NA	NA	NA	NA

Table 7 Summary of Direct Push Borehole Groundwater Samples - Detected Compounds Only
Bridge - Former Dawn Foods Site

Notes:
Bold = detection
Shading denotes a detected exceedance of a screening level (See Note 1)
Note 1:Grab groundwater samples collected after 2020 were analyzed using inductively coupled plasma mass spectrometry methods because of the high conductivity observed at the site. Groundwater grab samples collected in 2020 (all samples starting with "GP-SB") were not analyzed using these methods and results shown may include interferences resulting from high conductivity in the sample matrix. For wells within 75 feet of the shoreline, which are known to have high conductivity, dissolved metals are not compared to the SL and are not shaded. See Table 6.
Preliminary Cleanup Levels (PCUL) for Lower Duwamish Waterway workbook, these have been developed by Ecology specifically for the LDW. These are based on the February 11, 2026 version.
Source: https://apps.ecology.wa.gov/cleanupsearch/site/1643#site-documents.
Cr Vi = Chromium VI (hexavalent chromium); Cr III = Chromium trivalent. Both screening levels are presented, the lowest is used for shading.
TEq - Toxicity Equivalency to cPAHs, calculated by multiplying result by appropriate TEF.
Ca = The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.
x = Sample chromatographic pattern does not resemble the fuel standard used for quantitation.
ug/L = micrograms per liters
U = laboratory detection limit
J = reported concentration is an estimate.
NC - No Criterion
NA = Not analyzed
PQL for tributyltin is based on Analytical Resources confirmation on April 2024

TPH GRO - Total Petroleum Hydrocarbons Gasoline Range Organics
TPH DRO - Total Petroleum Hydrocarbons Diesel Range Organics
VOCs -Volatile Organic Compounds
ND = Not detected

Table 8 Summary of Monitoring Well Groundwater Samples
Bridge - Former Dawn Foods Site

Sample ID	PCUL (ug/L)	MW-1					MW-1 / DUP01-0623 (duplicate)	MW-1 / DUP03-0823 (duplicate)									
Date Sampled		2/1/22	4/19/22	8/8/22	12/21/22	3/25/23	6/21/23	8/29/23	10/19/23	1/10/24	4/26/24	6/6/24	9/24/24	2/26/25	5/27/25	9/15/25	1/4/26
Metals Total/Dissolved (ug/L)																	
Arsenic - total	See Dissolved	**1.70**	**1.62**	**1.38**	**1.19**	**1.35**	**1.37 / 1.42**	**1.25 / 1.16**	**1.47 J**	**1.65**	**1.38**	**1.32**	NA	NA	NA	NA	NA
Cadmium - total	See Dissolved	**0.179 J**	**0.154 J**	**0.289**	**0.550**	**0.252**	**0.158 J / 0.141 J**	**0.457 / 0.482**	**1.14**	**0.482**	**0.164 J**	**0.17 J**	NA	NA	NA	NA	NA
Chromium - total	See Dissolved	**2.27 J**	1.72 U	1.72 U	1.72 U	1.72 U	1.72 U / 1.72 U	1.72 U / 1.72 U	4.29 U	1.72 U	1.72 U	1.72 U	1.72 U	1.72 U	1.72 U	1.72 U	NA
Copper - total	See Dissolved	**4.12**	**2.16**	**1.46**	**2.25**	**1.91**	**1.49 / 1.37**	**1.70 / 1.62**	**2.39 J**	**2.38**	**1.60 J**	**1.64 J**	NA	NA	NA	NA	NA
Mercury - total	See Dissolved	NA	NA	NA	NA	NA	NA	NA	NA	**0.00108**	**0.00073 H**	**0.00051**	NA	NA	NA	NA	NA
Nickel - total	See Dissolved	NA	1.21 U	1.21 U	**2.05 J**	1.21 U	1.21 U / 1.21 U	**1.77 J / 1.69 J**	**3.45 J**	**1.29 J**	1.21 U	1.21 U	NA	NA	NA	NA	NA
Lead - total	See Dissolved	**0.332**	**0.053 J**	0.061 U	0.061 U	0.061 U	0.061 U / 0.061 U	**0.107 J** / 0.061 U	0.152 U	0.061 U	0.091 U	0.091 U	NA	NA	NA	NA	NA
Zinc - total	See Dissolved	**278**	**292**	**225**	**652**	**388**	**235 / 237**	**390 / 398**	**949**	**496**	**289**	**282**	**487**	**319**	**227**	**198**	**116**
Arsenic - dissolved	8.00	**1.23**	**1.58**	**1.37**	**1.14**	**1.41**	**1.43 / 1.56**	**1.20 / 1.26**	**1.52 J**	**1.58**	**1.40**	**1.24**	NA	NA	NA	NA	NA
Cadmium - dissolved	1.20	**0.175 J**	**0.159 J**	**0.235**	**0.532**	**0.215**	**0.146 J / 0.138 J**	**0.451 / 0.502**	**1.13**	**0.523**	**0.162 J**	**0.17 J**	NA	NA	NA	NA	NA
Chromium - dissolved	Cr III: 27.4	1.72 U	1.72 U	1.72 U	1.72 U	1.72 U	1.72 U / 1.72 U	1.72 U / 1.72 U	4.29 U	1.72 U	1.72 U	1.72 U	NA	NA	1.72 U	1.72 U	NA
Chromium VI - dissolved	Cr VI: 1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.49**	**0.265**	**0.204**	**0.25**	**0.194**	**0.283**	NA
Copper - dissolved [b]	3.10	**2.30**	**2.07**	**1.56**	**2.14**	**2.91**	**1.44 / 1.33**	**1.75 / 1.81**	**1.94 J**	**2.02**	**1.63 J**	**1.67 J**	NA	NA	NA	NA	NA
Mercury - dissolved	0.03	NA	NA	NA	NA	NA	NA	NA	NA	**0.00101**	**0.00072 H**	**0.00055**	NA	NA	NA	NA	NA
Nickel - dissolved	8.20	NA	1.21 U	**1.37 J**	**1.85 J**	1.21 U	1.21 U / 1.21 U	**1.57 J / 1.54 J**	**3.70 J**	1.22 J	1.21 U	1.21 U	NA	NA	NA	NA	NA
Lead - dissolved	8.10	0.040 U	0.040 U	0.061 U	0.061 U	0.061 U	0.061 U / 0.061 U	**0.102 J** / 0.061 U	1.52 U	0.061 U	0.091 U	0.091 U	NA	NA	NA	NA	NA
Zinc - dissolved	81	**260**	**282**	**209**	**637**	**380**	**226 / 235**	**386 / 379**	**956**	**528**	**290**	**261**	**508**	**289**	**219**	**212**	**87.4**
GRO/DRO - NWTPH-Dx/-Gx (ug/L)																	
Gasoline Range Organics	1000	NA	NA	100 U	NA	NA	NA	NA	NA	100 U	NA	NA	NA	NA	NA	NA	NA
Diesel Range Organics	see total	NA	NA	50 U	NA	NA	NA	NA	NA	50 U	NA	NA	NA	NA	NA	NA	NA
Diesel Range Organics w/ SGC	see total	NA	NA	NA	NA	NA	NA	NA	NA	50 U	NA	NA	NA	NA	NA	NA	NA
Motor Oil Organics (ORO)	see total	NA	NA	250 U	NA	NA	NA	NA	NA	250 U	NA	NA	NA	NA	NA	NA	NA
Motor Oil Organics (ORO) w/ SGC	see total	NA	NA	NA	NA	NA	NA	NA	NA	250 U	NA	NA	NA	NA	NA	NA	NA
Total Dx (DRO + ORO)	See TPH Dx difference	NA	NA	ND	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA
Total Dx (DRO + ORO) w/ SGC	500	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA
Total Dx Difference*	500	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA
VOCs (ug/L)																	
Benzene	1.6	NA	NA	NA	NA	NA	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA
Toluene	102	NA	NA	NA	NA	NA	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	21	NA	NA	NA	NA	NA	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA
Xylenes, Total	106	NA	NA	NA	NA	NA	NA	NA	NA	3 U	NA	NA	NA	NA	NA	NA	NA
Chloroethane	14666	NA	1 U	NA	1 U	1 U	1 U / 1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,1-Trichloroethane	5440	NA	1 U	NA	1 U	1 U	1 U / 1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	11	NA	1 U	NA	1 U	1 U	1 U / 1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	130	NA	1 U	NA	1 U	1 U	1 U / 1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane (EDC)	3.5	NA	0.2 U	NA	0.2 U	0.2 U	0.2 U / 0.2 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
trans-1,2-Dichloroethene	77	NA	1 U	NA	1 U	1 U	1 U / 1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	182	NA	1 U	NA	1 U	1 U	1 U / 1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methylene chloride	100	NA	5 U	NA	5 U	5 U	5 U / 5 U	5 U	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethane	No critiera	NA	1 U	NA	1 U	1 U	1 U / 1 U	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA
Tetrachloroethene	2.9	NA	1 U	NA	1 U	1 U	1 U / 1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U
Trichloroethene	0.70	NA	0.5 U	NA	0.5 U	0.5 U	0.5 U / 0.5 U	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.05 U	0.05 U	0.05 U
Vinyl chloride	0.18	NA	**0.021**	NA	0.02 U	0.02 U	0.2 U / 0.2 U	0.02 U	NA	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U

Table 8 Summary of Monitoring Well Groundwater Samples
Bridge - Former Dawn Foods Site

Sample ID	PCUL (ug/L)	MW-2																	
Date Sampled		1/31/22	4/19/22	8/9/22	12/22/22	3/26/23	6/19/23	8/29/23	1/22/24	4/24/24	6/5/24	9/23/24	5/28/25	9/16/25	11/4/25	11/4/25	11/4/25	11/4/25	11/5/25
Metals Total/Dissolved (ug/L)																			
Arsenic - total	See Dissolved	**3.14**	**3.97**	**3.32**	**4.46**	**2.86**	**3.72**	**3.62**	**3.48**	**3.56**	**3.64**	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium - total	See Dissolved	0.061 U	0.061 U	**0.225**	**0.178 J**	0.152 U	**0.137 J**	**0.311**	**0.067 J**	0.061 U	**0.09 J**	NA	NA	NA	NA	NA	NA	NA	NA
Chromium - total	See Dissolved	1.72 U	1.72 U	1.72 U	**5.06 J**	4.29 U	1.72 U	**2.39 J**	**2.21 J**	1.72 U	1.72 U	4.29 U	4.29 U	4.29 U	1.72 U	1.72 U	1.72 U	**2.06 J**	1.72 U
Copper - total	See Dissolved	**1.10**	**3.10**	**1.51**	**9.56**	1.26 U	**2.87**	**2.80**	**1.17**	**1.33 J**	**1.08 J**	NA	NA	NA	NA	NA	NA	NA	NA
Mercury - total	See Dissolved	NA	NA	NA	NA	NA	NA	NA	**0.00032 J**	**0.00043**	**0.00044**	NA	NA	NA	NA	NA	NA	NA	NA
Nickel - total	See Dissolved	NA	**1.31 J**	**1.64 J**	**4.35**	3.03 U	1.21 U	**3.54 J**	1.21 U	1.21 U	1.21 U	NA	NA	NA	NA	NA	NA	NA	NA
Lead - total	See Dissolved	**0.081 J**	**0.725**	**0.194**	**2.55**	0.152 U	**0.589**	**0.229**	0.061 U	**0.137 J**	0.091 U	NA	NA	NA	NA	NA	NA	NA	NA
Zinc - total	See Dissolved	7.07 U	7.07 U	7.07 U	**11.0 J**	17.7 U	7.07 U	**14.3 J**	7.07 U	12.1 U	12.1 U	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic - dissolved	8.00	**3.37**	**3.48**	**3.29**	**2.94**	**2.82**	**3.42**	**3.21**	**3.64**	**3.58**	**3.42**	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium - dissolved	1.20	**0.071 J**	0.061 U	**0.214**	**0.131 J**	0.152 U	**0.154 J**	**0.270**	**0.077 J**	**0.077 J**	**0.087 J**	NA	NA	NA	NA	NA	NA	NA	NA
Chromium - dissolved	Cr III: 27.4	1.72 U	1.72 U	1.72 U	1.72 U	4.29 U	1.72 U	1.72 U	1.72 U	1.72 U	1.72 U	NA	4.29 U	4.29 U	1.72 U	1.72 U	1.72 U	1.72 U	1.72 U
Chromium VI - dissolved	Cr VI: 1.6	NA	NA	NA	NA	NA	NA	NA	NA	**1.51**	**0.522**	**0.645**	**0.490**	**0.145**	**0.594**	**0.505**	**0.517**	**0.658**	**0.658**
Copper - dissolved [b]	3.10	**1.13**	**1.02**	**1.13**	**1.30**	1.26 U	**1.44**	**1.38**	**1.02**	**0.935 J**	**1.22 J**	NA	NA	NA	NA	NA	NA	NA	NA
Mercury - dissolved	0.03	NA	NA	NA	NA	NA	NA	NA	**0.00022 J**	**0.00031 J**	**0.00022**	NA	NA	NA	NA	NA	NA	NA	NA
Nickel - dissolved	8.20	NA	1.21 U	1.21 U	1.21 U	3.03 U	1.21 U	**1.68 J**	1.21 U	1.21 U	1.21 U	NA	NA	NA	NA	NA	NA	NA	NA
Lead - dissolved	8.10	0.040 U	0.040 U	0.061 U	0.061 U	0.152 U	0.061 U	**0.089 J**	0.061 U	0.091 U	**0.061 U**	NA	NA	NA	NA	NA	NA	NA	NA
Zinc - dissolved	81	7.07 U	7.07 U	7.07 U	7.07 U	17.7 U	7.07 U	**10.9 J**	7.07 U	12.1 U	12.1 U	NA	NA	NA	NA	NA	NA	NA	NA
GRO/DRO - NWTPH-Dx/-Gx (ug/L)																			
Gasoline Range Organics	1000	NA	NA	**1000** [g] **100 U ht**	**100 U**	NA	NA	NA	100 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diesel Range Organics	see total	NA	NA	50 U	NA	NA	NA	NA	50 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diesel Range Organics w/ SGC	see total	NA	NA	NA	NA	NA	NA	NA	50 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Motor Oil Organics (ORO)	see total	NA	NA	250 U	NA	NA	NA	NA	250 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Motor Oil Organics (ORO) w/ SGC	see total	NA	NA	NA	NA	NA	NA	NA	250 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dx (DRO + ORO)	See TPH Dx difference	NA	NA	ND	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dx (DRO + ORO) w/ SGC	500	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dx Difference*	500	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs (ug/L)																			
Benzene	1.6	NA	NA	NA	NA	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	102	NA	NA	NA	NA	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	21	NA	NA	NA	NA	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes, Total	106	NA	NA	NA	NA	NA	NA	NA	3 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	14666	NA	NA	1 U	NA	1 U	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	5440	NA	NA	1 U	NA	1 U	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	11	NA	NA	1 U	NA	1 U	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	130	NA	NA	1 U	NA	1 U	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane (EDC)	3.5	NA	NA	0.2 U	NA	0.2 U	NA	NA	0.2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	77	NA	NA	1 U	NA	1 U	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	182	NA	NA	1 U	NA	1 U	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	100	NA	NA	5 U	NA	5 U	NA	NA	5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethane	No critiera	NA	NA	1 U	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	2.9	NA	NA	1 U	NA	1 U	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	0.70	NA	NA	0.5 U	NA	0.5 U	NA	NA	0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	0.18	NA	NA	0.02 U	NA	0.02 U	NA	NA	0.02 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 8 Summary of Monitoring Well Groundwater Samples
Bridge - Former Dawn Foods Site

Sample ID	PCUL (ug/L)	MW-3												
Date Sampled		1/30/22	4/20/22	8/8/22	12/22/22	3/26/23	6/21/23	8/29/23	1/12/24	4/25/24	6/5/24	5/28/25	9/17/25	1/5/26
Metals Total/Dissolved (ug/L)														
Arsenic - total	See Dissolved	**3.06**	**3.66**	**3.08**	**2.74**	**3.37**	**2.80**	**3.32**	**4.39**	**2.95**	NA	NA	NA	NA
Cadmium - total	See Dissolved	**0.168 J**	**0.293 J**	**0.254 J**	**0.148 J**	0.152 U	**0.246**	**0.297**	0.152 U	0.152 U	NA	NA	NA	NA
Chromium - total	See Dissolved	4.29 U	4.29 U	4.29 U	**16.4**	4.29 U	1.72 U	**3.58 J**	**4.73 J**	4.29 U	NA	**5.24 J**	4.29 U	NA
Copper - total	See Dissolved	**1.09 J**	**3.30**	**2.20 J**	**2.60**	4.64 U	**2.65**	**4.91**	**10.9**	2.27 U	NA	NA	NA	**5.98**
Mercury - total	See Dissolved	NA	NA	NA	NA	NA	NA	NA	**0.00820**	**0.00062**	NA	NA	NA	NA
Nickel - total	See Dissolved	NA	3.03 U	**3.35 J**	**8.88**	3.03 U	**1.34 J**	**4.17**	**4.81 J**	3.03 U	NA	NA	NA	NA
Lead - total	See Dissolved	0.101 U	**0.595**	**0.292 J**	**0.351**	**0.920**	**0.558**	**1.59**	**3.64**	0.227 U	NA	NA	NA	NA
Zinc - total	See Dissolved	17.7 U	17.7 U	17.7 U	7.07 U	17.7 U	7.07 U	**17.0 J**	17.7 U	30.3 U	NA	NA	NA	NA
Arsenic - dissolved	8.00	**4.10**	**3.07**	**3.10**	**2.54**	**2.59**	**2.28**	**2.33**	**1.95**	**2.45**	NA	NA	NA	NA
Cadmium - dissolved	1.20	**0.221 J**	**0.247 J**	**0.296 J**	**0.175 J**	0.152 U	**0.180 J**	**0.258**	0.152 U	0.152 U	NA	NA	NA	NA
Chromium - dissolved	Cr III: 27.4	4.29 U	4.29 U	4.29 U	**2.49 J**	4.29 U	1.72 U	**1.83 J**	4.29 U	4.29 U	NA	4.29 U	4.29 U	NA
Chromium VI - dissolved	Cr VI: 1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.398**	**0.145**	NA
Copper - dissolved [b]	3.10	**6.18**	**1.59 J**	**1.43 J**	**1.70**	**1.37 J**	**1.33**	**1.28**	1.26 U	2.27 U	NA	NA	NA	**3.01**
Mercury - dissolved	0.03	NA	NA	NA	NA	NA	NA	NA	**0.00031 J**	0.00013 U	NA	NA	NA	NA
Nickel - dissolved	8.20	NA	3.03 U	**4.70 J**	**4.36**	3.03 U	1.21 U	**2.48 J**	3.03 U	3.03 U	NA	NA	NA	NA
Lead - dissolved	8.10	**1.49**	0.101 U	0.152 U	0.061 U	0.152 U	0.061 U	**0.089 J**	0.152 U	0.227 U	NA	NA	NA	NA
Zinc - dissolved	81	17.7 U	17.7 U	17.7 U	7.07 U	17.7 U	7.07 U	**11.5 J**	17.7 U	30.3 U	NA	NA	NA	NA
GRO/DRO - NWTPH-Dx/-Gx (ug/L)														
Gasoline Range Organics	1000	NA	NA	NA	NA	NA	NA	NA	100 U	NA	NA	NA	NA	NA
Diesel Range Organics	see total	NA	NA	NA	NA	NA	NA	NA	50 U	NA	NA	NA	NA	NA
Diesel Range Organics w/ SGC	see total	NA	NA	NA	NA	NA	NA	NA	50 U	NA	NA	NA	NA	NA
Motor Oil Organics (ORO)	see total	NA	NA	NA	NA	NA	NA	NA	250 U	NA	NA	NA	NA	NA
Motor Oil Organics (ORO) w/ SGC	see total	NA	NA	NA	NA	NA	NA	NA	250 U	NA	NA	NA	NA	NA
Total Dx (DRO + ORO)	See TPH Dx difference	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
Total Dx (DRO + ORO) w/ SGC	500	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
Total Dx Difference*	500	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
VOCs (ug/L)														
Benzene	1.6	NA	NA	NA	NA	NA	NA	NA	1 U	NA	NA	NA	NA	NA
Toluene	102	NA	NA	NA	NA	NA	NA	NA	1 U	NA	NA	NA	NA	NA
Ethylbenzene	21	NA	NA	NA	NA	NA	NA	NA	1 U	NA	NA	NA	NA	NA
Xylenes, Total	106	NA	NA	NA	NA	NA	NA	NA	3 U	NA	NA	NA	NA	NA
Chloroethane	14666	NA	NA	NA	NA	1 U	1 U	1 U	1 U	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	5440	NA	NA	NA	NA	1 U	1 U	1 U	1 U	NA	NA	NA	NA	NA
1,1-Dichloroethane	11	NA	NA	NA	NA	1 U	1 U	1 U	1 U	NA	NA	NA	NA	NA
1,1-Dichloroethene	130	NA	NA	NA	NA	1 U	1 U	1 U	1 U	NA	NA	NA	NA	NA
1,2-Dichloroethane (EDC)	3.5	NA	NA	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	77	NA	NA	NA	NA	1 U	1 U	1 U	1 U	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	182	NA	NA	NA	NA	1 U	1 U	1 U	1 U	NA	NA	NA	NA	NA
Methylene chloride	100	NA	NA	NA	NA	5 U	5 U	5 U	5 U	NA	NA	NA	NA	NA
Trichloroethane	No critiera	NA	NA	NA	NA	1 U	1 U	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	2.9	NA	NA	NA	NA	1 U	1 U	1 U	1 U	NA	NA	NA	NA	NA
Trichloroethene	0.70	NA	NA	NA	NA	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	NA	NA	NA
Vinyl chloride	0.18	NA	NA	NA	NA	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA	NA	NA	NA

Table 8 Summary of Monitoring Well Groundwater Samples
Bridge - Former Dawn Foods Site

Sample ID	PCUL (ug/L)	MW-4														
									MW-4 / DUP-0124 (duplicate)					DUP01-0525		DUP01-0126
Date Sampled		2/2/22	4/20/22	8/9/22	12/22/22	3/26/23	6/19/23	8/30/23	1/11/24	4/24/24	6/7/24	9/25/24	2/25/25	5/29/25	9/16/25	1/6/26
Metals Total/Dissolved (ug/L)																
Arsenic - total	See Dissolved	**0.586 J**	**0.410 J**	**0.204 J**	**0.162 U**	**0.163 J**	**0.204 J**	**0.276 J**	0.162 U / 0.162 U	**0.288 J**	0.222 U	NA	NA	NA	NA	NA
Cadmium - total	See Dissolved	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U / 0.061 U	0.061 U	0.061 U	NA	NA	NA	NA	NA
Chromium - total	See Dissolved	1.72 U	1.72 U	1.72 U	1.72 U	1.72 U	1.72 U	1.72 U	**1.82 J** / 1.72 U	1.72 U	1.72 U	NA	NA	NA	NA	NA
Copper - total	See Dissolved	0.404 U	**0.449 J**	0.505 U	**0.582 J**	**0.720 J**	0.505 U	**0.640 J**	**0.841 J / 0.702 J**	**1.04 J**	0.909 U	NA	NA	NA	NA	NA
Mercury - total	See Dissolved	NA	NA	NA	NA	NA	NA	NA	**0.00016 J / 0.00019 J**	0.00013 U	0.00014 U	NA	NA	NA	NA	NA
Nickel - total	See Dissolved	NA	**2.11 J**	1.21 U	**1.23 J**	**1.94 J**	1.21 U	1.21 U	1.21 U / 1.21 U	1.21 U	1.21 U	NA	NA	NA	NA	NA
Lead - total	See Dissolved	0.040 U	0.040 U	0.061 U	0.061 U	0.061 U	0.061 U	**0.100 J**	0.061 U / 0.061 U	0.091 U	0.091 U	NA	NA	NA	NA	NA
Zinc - total	See Dissolved	**535**	**446**	**106**	**534**	**1,380**	**285**	**212**	**687 / 764**	**1,170**	**368**	**145**	**256**	12.1 U	12.1 U / 12.1 U	12.1 U
Arsenic - dissolved	8.00	**0.645 J / 0.564 J**	**0.323 J**	**0.165 J**	**0.162 U**	0.162 U	0.162 U	0.162 U	0.162 U / 0.162 U	0.222 U	0.222 U	NA	NA	NA	NA	NA
Cadmium - dissolved	1.20	0.061 U / 0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U / 0.061 U	0.061 U	0.061 U	NA	NA	NA	NA	NA
Chromium - dissolved	Cr III: 27.4	1.72 U / 1.72 U	1.72 U	1.72 U	1.72 U	1.72 U	1.72 U	1.72 U	1.72 U / 1.72 U	1.72 U	1.72 U	NA	NA	NA	NA	NA
Chromium VI - dissolved	Cr VI: 1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper - dissolved [b]	3.10	**0.626 J / 0.635 J**	**0.514 J**	**1.66**	**0.553**	**1.33**	0.505 U	0.505 U	0.505 U / 0.505 U	0.909 U	0.909 U	NA	NA	NA	NA	NA
Mercury - dissolved	0.03	NA	NA	NA	NA	NA	NA	NA	0.00014 U / 0.00014 U	0.00013 U	0.00014 U	NA	NA	NA	NA	NA
Nickel - dissolved	8.20	NA	**2.02 J**	**1.76 J**	**1.45 J**	**2.04 J**	1.21 U	1.21 U	1.21 U / 1.21 U	1.21 U	1.21 U	NA	NA	NA	NA	NA
Lead - dissolved	8.10	0.040 U / 0.040 U	0.040 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U / 0.061 U	0.091 U	0.091 U	NA	NA	NA	NA	NA
Zinc - dissolved	81	**515 / 516**	**399**	**99.4**	**533**	**1310**	**278**	**167**	**627 / 664**	**1080**	**332**	**136**	12.1 U	12.1 U	12.1 U / 12.1 U	12.1 U
GRO/DRO - NWTPH-Dx/-Gx (ug/L)																
Gasoline Range Organics	1000	NA	NA	100 U	NA	NA	NA	NA	100 U / 100 U	NA	NA	NA	NA	NA	NA	NA
Diesel Range Organics	see total	NA	NA	50 U	NA	NA	NA	NA	50 U / 50 U	NA	NA	NA	NA	NA	NA	NA
Diesel Range Organics w/ SGC	see total	NA	NA	NA	NA	NA	NA	NA	50 U / 50 U	NA	NA	NA	NA	NA	NA	NA
Motor Oil Organics (ORO)	see total	NA	NA	250 U	NA	NA	NA	NA	250 U / 250 U	NA	NA	NA	NA	NA	NA	NA
Motor Oil Organics (ORO) w/ SGC	see total	NA	NA	NA	NA	NA	NA	NA	250 U / 250 U	NA	NA	NA	NA	NA	NA	NA
Total Dx (DRO + ORO)	See TPH Dx difference	NA	NA	ND	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA
Total Dx (DRO + ORO) w/ SGC	500	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA
Total Dx Difference*	500	NA	NA	ND	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA
VOCs (ug/L)																
Benzene	1.6	NA	NA	NA	NA	NA	NA	NA	1 U / 1 U	NA	NA	NA	NA	NA	NA	NA
Toluene	102	NA	NA	NA	NA	NA	NA	NA	1 U / 1 U	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	21	NA	NA	NA	NA	NA	NA	NA	1 U / 1 U	NA	NA	NA	NA	NA	NA	NA
Xylenes, Total	106	NA	NA	NA	NA	NA	NA	NA	3 U / 3 U	NA	NA	NA	NA	NA	NA	NA
Chloroethane	14666	NA	1 U	NA	1 U	1 U	1 U	1 U	1 U / 1 U	1 U	1 U	1 U	1 U	1 U / 1 U	1 U	1 U
1,1,1-Trichloroethane	5440	NA	1 U	NA	1 U	1 U	1 U	1 U	1 U / 1 U	1 U	1 U	1 U	1 U	1 U / 1 U	1 U	1 U
1,1-Dichloroethane	11	NA	1 U	NA	1 U	1 U	1 U	1 U	1 U / 1 U	1 U	1 U	1 U	1 U	1 U / 1 U	1 U	1 U
1,1-Dichloroethene	130	NA	1 U	NA	1 U	1 U	1 U	1 U	1 U / 1 U	1 U	1 U	1 U	1 U	1 U / 1 U	1 U	1 U
1,2-Dichloroethane (EDC)	3.5	NA	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U / 0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U / 0.2 U	0.2 U	0.2 U
trans-1,2-Dichloroethene	77	NA	1 U	NA	1 U	1 U	1 U	1 U	1 U / 1 U	1 U	1 U	1 U	1 U	1 U / 1 U	1 U	1 U
cis-1,2-Dichloroethene	182	NA	**2.5**	NA	**1.8**	1 U	**1.5**	**1.5**	1 U / 1 U	1 U	**1.3**	**2.1**	**1**	**2.3 / 2.2**	**5.1**	1 U
Methylene chloride	100	NA	5 U	NA	5 U	5 U	5 U	5 U	5 U / 5 U	5 U	5 U	5 U	5 U	5 U / 5 U	5 U	5 U
Trichloroethane	No critiera	NA	0.5 U	NA	1 U	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	2.9	NA	1 U	NA	**1.2**	**1.9**	**2.4**	**4.8**	1 U / 1 U	**3.1**	**3.1**	**5.8**	**0.94**	**1.9 / 1.9**	**1.6**	**0.91**
Trichloroethene	0.70	NA	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U / 0.5 U	0.5 U	0.5 U	0.5 U	**0.16**	**0.44 / 0.38**	**1.3**	**0.32**
Vinyl chloride	0.18	NA	**0.59**	NA	**0.53**	**0.11**	**0.35**	**0.41**	**0.30 / 0.28**	**0.19**	**0.39**	**0.26**	**0.57**	**1.2 / 1.2**	**1.9**	**0.32**

Table 8 Summary of Monitoring Well Groundwater Samples
Bridge - Former Dawn Foods Site

Sample ID	PCUL (ug/L)	MW-5	MW-5 / DUP-0422 (duplicate)	MW-5 / DUP-0822 (duplicate)							DUP01-0624		DUP01-0225			
Date Sampled		1/31/22	4/21/22	8/9/22	12/21/22	3/25/23	6/19/23	8/28/23	1/22/24	4/25/24	6/6/24	9/25/24	2/26/2025	5/27/25	9/15/25	1/7/26
Metals Total/Dissolved (ug/L)																
Arsenic - total	See Dissolved	2.08	0.681 J / 0.513 J	0.404 U / 0.182 J	0.297 J	0.555 J	0.980	0.719 J	0.162 U	0.434 J	0.43 J / 0.386 J	NA	NA	NA	NA	NA
Cadmium - total	See Dissolved	0.061 U	0.061 U / 0.061 U	0.152 U / 0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U / 0.061 U	NA	NA	NA	NA	NA
Chromium - total	See Dissolved	1.72 U	1.72 U / 1.72 U	4.29 U / 1.72 U	1.72 U	1.72 U	1.72 U	1.72 U	1.72 U	1.72 U	1.72 U / 1.72 U	NA	1.72 U/1.72	1.72 U	NA	NA
Copper - total	See Dissolved	1.3	0.404 U / 0.404 U	1.26 U / 0.505 U	0.505 U	0.595 J	0.505 U	0.505 U	0.505 U	0.909 U	0.909 U / 0.909 U	NA	NA	NA	NA	NA
Mercury - total	See Dissolved	NA	NA	NA	NA	NA	NA	NA	0.00016 J	0.00014 U	0.00014 U / 0.00014 U	NA	NA	NA	NA	NA
Nickel - total	See Dissolved	NA	1.21 U / 1.21 U	3.03 U / 1.21 U	1.21 U	1.86 J	1.21 U	1.21 U	1.21 U	1.21 U	1.21 U / 1.21 U	NA	NA	NA	NA	NA
Lead - total	See Dissolved	2.09	0.142 / 0.040 U	0.152 U / 0.061 U	0.063 J	0.074 J	0.061 U	0.075 J	0.061 U	0.091 U	0.091 U / 0.091 U	NA	NA	NA	NA	NA
Zinc - total	See Dissolved	1,930	268 / 195	32.8 J / 36.9	240	684	638	286	108	56.3	178 / 163	69.2	3010/2950	3,110	1,070	567
Arsenic - dissolved	8.00	1.98	0.568 J / 0.473 J	0.404 U / 0.182 J	0.309 J	0.443 J	0.860	0.584 J	0.162 U	0.408 J	0.396 J / 0.427 J	NA	NA	NA	NA	NA
Cadmium - dissolved	1.20	0.061 U	0.061 U / 0.061 U	0.152 U / 0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U / 0.061 U	NA	NA	NA	NA	NA
Chromium - dissolved	Cr III: 27.4	1.72 U	1.72 U / 1.72 U	4.29 U / 1.72 U	1.72 U	1.72 U	1.72 U	1.72 U	1.72 U	1.72 U	1.72 U / 1.72 U	NA	NA	1.72 U	NA	NA
Chromium VI - dissolved	Cr VI: 1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.025 U/0.025 U	0.025 U	NA	NA
Copper - dissolved [b]	3.10	0.404 U	0.404 U / 0.983 J	1.26 U / 0.866 J	1.46	0.505 U	0.505 U	0.505 U	0.505 U	0.909 U	0.909 U / 0.909 U	NA	NA	NA	NA	NA
Mercury - dissolved	0.03	NA	NA	NA	NA	NA	NA	NA	0.00013 U	0.00014 U	0.00014 U / 0.00014 U	NA	NA	NA	NA	NA
Nickel - dissolved	8.20	NA	1.21 U / 1.21 U	3.03 U	1.52 J	1.21 U	1.21 U	1.21 U	1.21 U	1.21 U	1.21 U / 1.21 U	NA	NA	NA	NA	NA
Lead - dissolved	8.10	0.147	0.078 J / 0.093 J	0.152 U / 0.061 U	0.116 J	0.061 U	0.061 U	0.093 J	0.061 U	0.091 U	0.091 U / 0.091 U	NA	NA	NA	NA	NA
Zinc - dissolved	81	1,880	122 / 103	34.9 J / 33.6	241	700	633	202	76.0	37.0	47.5 / 48.2	12.3 J	2660/2310	2,050	987	456
GRO/DRO - NWTPH-Dx/-Gx (ug/L)																
Gasoline Range Organics	1000	NA	100 U	100 U	NA	NA	NA	NA	100 U	NA	NA	NA	NA	NA	NA	NA
Diesel Range Organics	see total	NA	2,100 x	330 x	120x / 96x *	NA	NA	NA	69x	NA	NA	NA	NA	NA	NA	150x
Diesel Range Organics w/ SGC	see total	NA	50 U	NA	NA	NA	NA	NA	50 U	NA	NA	NA	NA	NA	NA	50 U
Motor Oil Organics (ORO)	see total	NA	540 x	250 U	250 U / 250 U *	NA	NA	NA	250 U	NA	NA	NA	NA	NA	NA	50 U
Motor Oil Organics (ORO) w/ SGC	see total	NA	250 U	NA	NA	NA	NA	NA	250 U	NA	NA	NA	NA	NA	NA	200 U
Total Dx (DRO + ORO)	See TPH Dx difference	NA	2,640	330	120x / 96x *	NA	NA	NA	69 x	NA	NA	NA	NA	NA	NA	150x
Total Dx (DRO + ORO) w/ SGC	500	NA	250 U	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	ND
Total Dx Difference*	500	NA	2,390	NA	120x / 96x *	NA	NA	NA	19	NA	NA	NA	NA	NA	NA	100
VOCs (ug/L)																
Benzene	1.6	NA	1 U	NA	NA	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA
Toluene	102	NA	1 U	NA	NA	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	21	NA	1 U / 1 U	NA	NA	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA
Xylenes, Total	106	NA	3 U	NA	NA	NA	NA	NA	3 U	NA	NA	NA	NA	NA	NA	NA
Chloroethane	14666	NA	1 U / 1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U/1 U	1 U	1 U	1 U
1,1,1-Trichloroethane	5440	NA	1 U / 1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U/1 U	1 U	1 U	1 U
1,1-Dichloroethane	11	NA	1 U / 1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U/1 U	1 U	1 U	1 U
1,1-Dichloroethene	130	NA	1 U / 1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U/1 U	1 U	1 U	1 U
1,2-Dichloroethane (EDC)	3.5	NA	0.2 U / 0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U/0.2 U	0.2 U	0.2 U	0.2 U
trans-1,2-Dichloroethene	77	NA	1.9 / 1.8	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U/1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	182	NA	5.0 / 4.7	NA	10	6.3	4.1	2.8	1.6	1 U	1 U	1 U	12/13	2.3	1.0	1 U
Methylene chloride	100	NA	5 U / 5 U	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U/5 U	5 U	5 U	5 U
Trichloroethane	No critiera	NA	1 U / 1 U	NA	1 U	1 U	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA
Tetrachloroethene	2.9	NA	6.1 / 6.0	NA	5.9	9.8	9.1	20	1.0	8.4	11.0	11	3.8/3.7	1.6	4.3	5.9
Trichloroethene	0.70	NA	1.7 / 1.7	NA	0.5 U	0.53	0.5 U	0.58	0.5 U	0.5 U	0.5 U	0.5 U	0.98/0.97	0.10	0.26	1.2
Vinyl chloride	0.18	NA	2.1 / 1.4	NA	6.9	5.0	6.8	8.2	4.9	2.3	5.8	5.5	1.8/1.9	0.66	0.30	0.16

Table 8 Summary of Monitoring Well Groundwater Samples
Bridge - Former Dawn Foods Site

Sample ID	PCUL (ug/L)	MW-6			DUP02-1222 (duplicate)								DUP03-0323 (duplicate)	MW-7	DUP01-0823		DUP-0424	
Date Sampled		1/30/22	4/21/22	8/8/22	12/21/22	3/25/23	6/21/23	8/30/23	1/10/24	4/24/24	6/7/24	5/29/25	3/28/23	6/21/23	8/28/23	1/12/24	4/26/24	6/6/24
Metals Total/Dissolved (ug/L)																		
Arsenic - total	See Dissolved	**0.504 J**	**1.04 J**	**0.416 J**	**0.294 J / 0.336 J**	0.404 U	0.404 U	**0.223 J**	**0.195 J**	**0.248 J**	NA	NA	**0.448 J**	**0.439 J**	**0.669 J**	**0.497 J**	**0.772**	**0.628 J**
Cadmium - total	See Dissolved	0.152 U	0.152 U	0.061 U	0.061 U / 0.061 U	0.152 U	0.152 U	0.061 U	0.061 U	0.061 U	NA	NA	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U
Chromium - total	See Dissolved	4.29 U	4.29 U	**2.29 J**	1.72 U / 1.72 U	4.29 U	4.29 U	**1.85 J**	1.72 U	1.72 U	NA	1.72 U	1.72 U	**1.97 J**	**4.82 J**	1.72 U	1.72 U	1.72 U
Copper - total	See Dissolved	1.01 U	**1.30 J**	0.505 U	**0.990 J / 0.945 J**	1.26 U	1.26 U	0.505 U	0.505 U	0.909 U	NA	NA	**0.655 J**	0.505 U	**0.506 J**	**0.570 J**	**1.21 J**	**0.926 J**
Mercury - total	See Dissolved	NA	NA	NA	NA	NA	NA	NA	**0.00031 J**	**0.00030 J**	NA	NA	NA	NA	NA	0.00014 U	**0.00040 J**	0.00014 U
Nickel - total	See Dissolved	NA	3.03 U	1.21 U	1.21 U / 1.21 U	3.03 U	3.03 U	**1.32 J**	1.21 U	1.21 U	NA	NA	1.21 U	**1.21 J**	**1.21 U**	1.12 U	1.21 U	1.21 U
Lead - total	See Dissolved	0.101 U	**0.414**	**0.062 J**	0.061 U / 0.061 U	**0.599**	0.152 U	0.061 U	0.061 U	0.091 U	NA	NA	0.061 U	0.061 U	**0.113 J**	0.061 U	**0.105 J**	0.091 U
Zinc - total	See Dissolved	17.7 U	17.7 U	7.07 U	7.07 U / 7.07 U	17.7 U	17.7 U	7.07 U	7.07 U	12.1 U	NA	NA	7.07 U	7.07 U	**9.39 J**	7.07 U	12.1 U	12.1 U
Arsenic - dissolved	8.00	**0.286 J**	**0.241 J**	**0.367 J**	**0.189 J / 0.216 J**	0.404 U	0.404 U	**0.251 J**	0.162 U	0.222 U	NA	NA	**0.415 J**	**0.311 J**	**0.562 J**	0.162 U	0.222 U	0.222 U
Cadmium - dissolved	1.20	0.152 U	0.152 U	0.061 U	0.061 U / 0.061 U	0.152 U	0.152 U	0.061 U	0.061 U	0.061 U	NA	NA	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U
Chromium - dissolved	Cr III: 27.4	4.29 U	4.29 U	**1.90 J**	1.72 U / 1.72 U	4.29 U	4.29 U	1.72 U	1.72 U	1.72 U	NA	1.72 U	1.72 U	1.72 U	**4.31 J**	1.72 U	1.72 U	1.72 U
Chromium VI - dissolved	Cr VI: 1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.025 U	NA	NA	NA	NA	NA	NA
Copper - dissolved [b]	3.10	1.01 U	1.01 U	0.505 U	**0.653 J / 0.707 J**	1.26 U	1.26 U	0.505 U	0.505 U	0.909 U	NA	NA	**0.521 J**	**0.505 U**	0.505 U	0.505 U	0.909 U	0.909 U
Mercury - dissolved	0.03	NA	NA	NA	NA	NA	NA	NA	0.00013 U	0.00013 U	NA	NA	NA	NA	NA	**0.00019 J**	0.00013 U	0.00014 U
Nickel - dissolved	8.20	NA	3.03 U	1.21 U	1.21 U / 1.21 U	3.03 U	3.03 U	**1.23 J**	1.21 U	1.21 U	NA	NA	**1.40 J**	**1.21 U**	**1.21 U**	1.21 U	1.21 U	1.21 U
Lead - dissolved	8.10	0.101 U	0.101 U	0.061 U	0.061 U / 0.061 U	0.152 U	0.152 U	0.061 U	0.061 U	0.091 U	NA	NA	0.061 U	0.061 U	**0.225**	0.061 U	0.091 U	0.091 U
Zinc - dissolved	81	17.7 U	17.7 U	7.07 U	7.07 U / 7.07 U	17.7 U	17.7 U	7.07 U	7.07 U	12.1 U	NA	NA	7.07 U	7.07 U	**10.6 J**	7.07 U	12.1 U	12.1 U
GRO/DRO - NWTPH-Dx/-Gx (ug/L)																		
Gasoline Range Organics	1000	NA	NA	NA	NA	NA	NA	NA	100 U	NA	NA	NA	NA	NA	NA	100 U	NA	NA
Diesel Range Organics	see total	NA	NA	NA	NA	NA	NA	NA	50 U	NA	NA	NA	NA	NA	NA	50 U	NA	NA
Diesel Range Organics w/ SGC	see total	NA	NA	NA	NA	NA	NA	NA	50 U	NA	NA	NA	NA	NA	NA	50 U	NA	NA
Motor Oil Organics (ORO)	see total	NA	NA	NA	NA	NA	NA	NA	250 U	NA	NA	NA	NA	NA	NA	250 U	NA	NA
Motor Oil Organics (ORO) w/ SGC	see total	NA	NA	NA	NA	NA	NA	NA	250 U	NA	NA	NA	NA	NA	NA	250 U	NA	NA
Total Dx (DRO + ORO)	See TPH Dx difference	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	ND	NA	NA
Total Dx (DRO + ORO) w/ SGC	500	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	ND	NA	NA
Total Dx Difference*	500	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	ND	NA	NA
VOCs (ug/L)																		
Benzene	1.6	NA	NA	NA	NA	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	1 U	NA	NA
Toluene	102	NA	NA	NA	NA	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	1 U	NA	NA
Ethylbenzene	21	NA	NA	NA	NA	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	1 U	NA	NA
Xylenes, Total	106	NA	NA	NA	NA	NA	NA	NA	3 U	NA	NA	NA	NA	NA	NA	3 U	NA	NA
Chloroethane	14666	NA	NA	1 U	1 U / 1 U *	1 U	NA	1 U	1 U	1 U	1 U	NA	1 U / 1 U *	NA	1 U / 1 U	1 U	1 U / 1 U	1 U
1,1,1-Trichloroethane	5440	NA	NA	1 U	1 U / 1 U *	1 U	NA	1 U	1 U	1 U	1 U	NA	1 U / 1 U *	NA	1 U / 1 U	1 U	1 U / 1 U	1 U
1,1-Dichloroethane	11	NA	NA	1 U	1 U / 1 U *	1 U	NA	1 U	1 U	1 U	1 U	NA	1 U / 1 U *	NA	1 U / 1 U	1 U	1 U / 1 U	1 U
1,1-Dichloroethene	130	NA	NA	1 U	1 U / 1 U *	1 U	NA	1 U	1 U	1 U	1 U	NA	1 U / 1 U *	NA	1 U / 1 U	1 U	1 U / 1 U	1 U
1,2-Dichloroethane (EDC)	3.5	NA	NA	0.2 U	0.2 U / 0.2 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.2 U / 0.2 U	NA	0.2 U / 0.2 U	0.2 U	0.2 U / 0.2 U	0.2 U
trans-1,2-Dichloroethene	77	NA	NA	1 U	1 U / 1 U *	1 U	NA	1 U	1 U	1 U	1 U	NA	1 U / 1 U *	NA	1 U / 1 U	1 U	1 U / 1 U	1 U
cis-1,2-Dichloroethene	182	NA	NA	1 U	1 U / 1 U *	1 U	NA	1 U	1 U	1 U	1 U	NA	1 U / 1 U *	NA	1 U / 1 U	1 U	1 U / 1 U	1 U
Methylene chloride	100	NA	NA	**7.1 lc**	5 U / 5 U *	5 U	NA	5 U	5 U	5 U	5 U	NA	5 U / 5 U *	NA	5 U / 5 U	5 U	5 U / 5 U	5 U
Trichloroethane	No critiera	NA	NA	1 U	1 U / 1 U *	1 U	NA	NA	1 U	1 U	NA	NA	1 U / 1 U *	NA	1 U / 1 U	1 U	1 U / 1 U	NA
Tetrachloroethene	2.9	NA	NA	1 U	1 U / 1 U *	1 U	NA	1 U	1 U	1 U	1 U	NA	1 U / 1 U *	NA	1 U / 1 U	1 U	1 U / 1 U	1 U
Trichloroethene	0.70	NA	NA	0.5 U	0.5 U / 0.5 U *	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U / 0.5 U *	NA	0.5 U / 0.5 U	0.5 U	0.5 U / 0.5 U	0.5 U
Vinyl chloride	0.18	NA	NA	**0.12**	**0.057 / 0.051 ***	0.02 U	NA	**0.094**	0.02 U	**0.020**	0.02 U	NA	**0.14 / 0.15**	NA	**0.61 / 0.59**	0.02 U	0.02 U / 0.02 U	0.02 U

Table 8 Summary of Monitoring Well Groundwater Samples
Bridge - Former Dawn Foods Site

Sample ID	PCUL (ug/L)	MW-8											MW-9							MW-10				
		DUP01-0323 (duplicate)											DUP02-0323 (duplicate)											
Date Sampled		3/25/23	6/19/23	8/28/23	1/10/24	4/24/24	6/5/24	9/23/24	2/25/25	5/28/25	9/17/25	1/5/26	3/28/23	6/19/23	8/28/23	1/9/24	4/25/24	6/7/24	1/5/26	9/23/24	2/25/25	5/28/25	9/15/25	1/5/2026[a]
Metals Total/Dissolved (ug/L)																								
Arsenic - total	See Dissolved	**8.12 / 8.55 ***	**4.94**	**9.72**	**5.08**	**2.99**	**4.12**	NA	NA	NA	NA	NA	**3.59**	**8.83**	**13.1**	**9.05**	**10.4**	**6.66**	**5.09**	NA	NA	NA	NA	1 U
Cadmium - total	See Dissolved	0.061 U / 0.061 U *	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	NA	NA	NA	NA	NA	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	NA	NA	NA	NA	NA	NA
Chromium - total	See Dissolved	1.72 U / 1.72 U *	1.72 U	1.72 U	1.72 U	1.72 U	1.72 U	NA	NA	NA	NA	NA	1.72 U	1.72 U	1.72 U	1.72 U	1.72 U	1.72 U	NA	NA	NA	NA	NA	NA
Copper - total	See Dissolved	**0.966 J / 1.04 ***	0.505 U	0.505 U	0.505 U	**1.15 J**	**0.963 J**	NA	NA	NA	NA	NA	**0.556 J**	**2.58**	0.505 U	**0.699 J**	0.909 U	0.909 U	NA	NA	NA	NA	NA	NA
Mercury - total	See Dissolved	NA	NA	NA	**0.00080**	**0.00016 J**	0.00014 U	NA	NA	NA	NA	NA	NA	NA	NA	**0.00036 J**	0.00014 U	**0.00029 J**	NA	NA	NA	NA	NA	NA
Nickel - total	See Dissolved	**2.08 J / 2.17 J ***	**1.84 J**	**1.87 J**	**1.72 J**	**1.94 J**	1.21 U	NA	NA	NA	NA	NA	**1.23 J**	1.21 U	1.21 U	1.21 U	**1.59 J**	**1.26 J**	NA	NA	NA	NA	NA	NA
Lead - total	See Dissolved	0.061 U / 0.061 U *	0.061 U	**0.098 J**	0.061 U	0.091 U	0.091 U	NA	NA	NA	NA	NA	0.061 U	**0.132**	**0.081 J**	**0.099 J**	0.091 U	0.091 U	NA	NA	NA	NA	NA	NA
Zinc - total	See Dissolved	7.07 U / 7.07 U *	7.07 U	**10.8 J**	7.07 U	12.1 U	12.1 U	NA	NA	NA	NA	NA	7.07 U	**9.03 J**	**8.84 J**	7.07 U	12.1 U	12.1 U	NA	NA	NA	NA	NA	NA
Arsenic - dissolved	8.00	**8.26 / 8.40 ***	**4.61**	**9.07**	**5.61**	**2.74**	**4.25**	NA	NA	NA	NA	NA	**3.31**	**9.62**	**13.4**	**8.50**	**10.6**	**6.6**	**4.84**	NA	NA	NA	NA	1 U
Cadmium - dissolved	1.20	0.061 U / 0.061 U *	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	NA	NA	NA	NA	NA	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	NA	NA	NA	NA	NA	NA
Chromium - dissolved	Cr III: 27.4	1.72 U / 1.72 U *	1.72 U	1.72 U	1.72 U	1.72 U	1.72 U	NA	NA	NA	NA	NA	1.72 U	1.72 U	1.72 U	1.72 U	1.72 U	1.72 U	NA	NA	NA	NA	NA	NA
Chromium VI - dissolved	Cr VI: 1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper - dissolved [b]	3.10	**0.748 J / 0.907 J ***	**0.505 U**	0.505 U	0.505 U	0.909 U	0.909 U	NA	NA	NA	NA	NA	0.505 U	0.505 U	0.505 U	0.505 U	0.909 U	0.909 U	NA	NA	NA	NA	NA	NA
Mercury - dissolved	0.03	NA	NA	NA	**0.00039 J**	0.00014 U	0.00014 U	NA	NA	NA	NA	NA	NA	NA	NA	0.00014 U	0.00014 U	0.00014 U	NA	NA	NA	NA	NA	NA
Nickel - dissolved	8.20	**2.10 J / 2.31 J ***	**1.88 J**	**1.71 J**	**1.59 J**	**1.91 J**	1.21 U	NA	NA	NA	NA	NA	1.21 U	1.21 U	1.21 U	1.21 U	**1.59 J**	1.21 U	NA	NA	NA	NA	NA	NA
Lead - dissolved	8.10	0.061 U / 0.061 U *	0.061 U	**0.112 J**	0.061 U	0.091 U	0.091 U	NA	NA	NA	NA	NA	0.061 U	0.061 U	**0.102 J**	0.061 U	0.091 U	0.091 U	NA	NA	NA	NA	NA	NA
Zinc - dissolved	81	7.07 U / 7.07 U *	7.07 U	**10.1**	7.07 U	12.1 U	12.1 U	NA	NA	NA	NA	NA	7.07 U	7.07 U	**9.71 J**	7.07 U	12.1 U	12.1 U	NA	NA	NA	NA	NA	NA
GRO/DRO - NWTPH-Dx/-Gx (ug/L)																								
Gasoline Range Organics	1000	**2,300**	**1,500**	**1,300**	**1,900**	**2,900**	**2,900**	NA	NA	NA	**2400**	**2100**	100 U / 100 U *	NA	100 U	100 U	100 U	100 U	NA	NA	NA	NA	NA	100 U
Diesel Range Organics	see total	NA	**380 x**	NA	**650 x**	**760 x**	**1200x**	NA	NA	**1200 x**	**980 x**	**780x**	NA	NA	NA	50 U	50 U	50 U	NA	NA	NA	NA	NA	50 U
Diesel Range Organics w/ SGC	see total	NA	NA	NA	**550 x**	**810 x**	**1000x**	NA	NA	**1100 x**	**810 x**	**670x**	NA	NA	NA	50 U	NA	NA	NA	NA	NA	NA	NA	50 U
Motor Oil Organics (ORO)	see total	NA	**590**	NA	250 U	250 U	250 U	NA	NA	200 U	200 U	200 U	NA	NA	NA	250 U	250 U	250 U	NA	NA	NA	NA	NA	200 U
Motor Oil Organics (ORO) w/ SGC	see total	NA	NA	NA	250 U	250 U	250 U	NA	NA	200 U	200 U	200 U	NA	NA	NA	250 U	NA	NA	NA	NA	NA	NA	NA	200 U
Total Dx (DRO + ORO)	See TPH Dx difference	NA	**590**	NA	**650 x**	**760**	**1200x**	NA	NA	**1200 x**	**980 x**	**780x**	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	ND
Total Dx (DRO + ORO) w/ SGC	500	NA	NA	NA	**550 x**	**810**	**1000x**	NA	NA	**1100 x**	**810 x**	**670x**	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	ND
Total Dx Difference*	500	NA	**590**	NA	**100**	**50**	**200**	NA	NA	**100**	**170**	**110**	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	ND
VOCs (ug/L)																								
Benzene	1.6	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	102	NA	NA	NA	**6.5**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	21	NA	NA	NA	**2.5**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes, Total	106	NA	NA	NA	**6.1**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3 U	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	14666	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,1-Trichloroethane	5440	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	11	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	130	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane (EDC)	3.5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
trans-1,2-Dichloroethene	77	1 U	**1.5**	1 U	**1.4**	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	182	**9.0**	**14**	**4.4**	**30**	**3.6**	**3.8**	**4.6**	**3.4**	**2.9**	**4.5**	**3.2**	**6.1**	**12**	**6.1**	**11**	**18**	**41 / 39**	**12**	**48**	**11**	**1.1**	**13**	**2.0**
Methylene chloride	100	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethane	No critiera	1 U	1 U	1 U	1 U	1 U	NA	NA	NA	NA	NA	NA	1 U	1 U	1 U	1 U	1 U	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	2.9	**2.6**	**2.2**	**5.6**	1 U	**3.6**	**2.6**	**4.3**	**1.8**	**1.4**	**2.7**	**2.4**	1 U	1 U	1 U	1 U	1 U	1 U	0.5 U	**1.7**	**7.6**	**7.5**	**6.1**	**8.7**
Trichloroethene	0.70	**0.98**	**1.8**	**1.1**	**1.2**	**1.0**	**1.0**	**0.9**	0.05 U	**0.43**	**0.78**	**1.2**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**0.20**	**0.56**	**1.6**	**0.93**	**1.2**	**1.4**
Vinyl chloride	0.18	**1.5**	**5.0**	**1.4**	**22**	**5.2**	**2.7**	**0.95**	**4**	**6**	**4.5**	**2.3**	**12**	**26**	**19**	**19**	**36**	**47 / 44**	**41**	**24**	**4.6**	**0.075**	**0.81**	**0.076**

Table 8 Summary of Monitoring Well Groundwater Samples
Bridge - Former Dawn Foods Site

Sample ID	PCUL (ug/L)	MW-11				DUP02-0126	PD/PD1					SEEP (Vicinity of MW-1)		SEEP-MW1	SEEP-MW2	LDW
Date Sampled		9/23/24	2/25/25	5/29/25	9/15/25	1/6/26	10/19/23	1/10/24	4/26/24	6/6/24	9/24/24	4/26/24	6/6/24	9/24/24	9/23/24	6/6/24
Metals Total/Dissolved (ug/L)																
Arsenic - total	See Dissolved	NA	NA	NA	NA	NA	**0.290 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium - total	See Dissolved	NA	NA	NA	NA	NA	0.061 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium - total	See Dissolved	NA	NA	NA	NA	NA	1.72 U	NA	NA	NA	NA	NA	NA	1.72 U	4.29 U	NA
Copper - total	See Dissolved	NA	NA	NA	NA	NA	0.505 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury - total	See Dissolved	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel - total	See Dissolved	NA	NA	NA	NA	NA	1.21 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead - total	See Dissolved	NA	NA	NA	NA	NA	0.061 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc - total	See Dissolved	12.1 U	12.1 U	12.1 U	12.1 U	NA	7.07 U	7.07 U	NA	12.1 U	1.72 U	**28.3**	**242**	NA	NA	NA
Arsenic - dissolved	8.00	NA	NA	NA	NA	NA	**0.226 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium - dissolved	1.20	NA	NA	NA	NA	NA	0.061 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium - dissolved	Cr III: 27.4	NA	NA	NA	NA	NA	1.72 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI - dissolved	Cr VI: 1.6	NA	NA	NA	NA	NA	NA	NA	NA	**0.113**	**0.057**	NA	0.051 U	**0.89**	**0.642**	**0.129**
Copper - dissolved [b]	3.10	NA	NA	NA	NA	NA	0.505 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury - dissolved	0.03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel - dissolved	8.20	NA	NA	NA	NA	NA	1.21 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead - dissolved	8.10	NA	NA	NA	NA	NA	0.061 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc - dissolved	81	12.1 U	12.1 U	12.1 U	12.1 U	NA	7.07 U	7.07 U	12.1 U	12.1 U	NA	**26.6**	12.1 U	NA	NA	NA
GRO/DRO - NWTPH-Dx/-Gx (ug/L)																
Gasoline Range Organics	1000	NA	NA	NA	NA	NA	NA	100 U	NA	NA	NA	NA	NA	NA	NA	NA
Diesel Range Organics	see total	NA	NA	NA	NA	NA	NA	50 U	NA	NA	NA	NA	NA	NA	NA	NA
Diesel Range Organics w/ SGC	see total	NA	NA	NA	NA	NA	NA	50 U	NA	NA	NA	NA	NA	NA	NA	NA
Motor Oil Organics (ORO)	see total	NA	NA	NA	NA	NA	NA	250 U	NA	NA	NA	NA	NA	NA	NA	NA
Motor Oil Organics (ORO) w/ SGC	see total	NA	NA	NA	NA	NA	NA	250 U	NA	NA	NA	NA	NA	NA	NA	NA
Total Dx (DRO + ORO)	See TPH Dx difference	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA
Total Dx (DRO + ORO) w/ SGC	500	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA
Total Dx Difference*	500	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA
VOCs (ug/L)																
Benzene	1.6	NA	NA	NA	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	102	NA	NA	NA	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	21	NA	NA	NA	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes, Total	106	NA	NA	NA	NA	NA	NA	3 U	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	14666	1 U	1 U	1 U	1 U	1 U / 1 U	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	5440	1 U	1 U	1 U	1 U	1 U / 1 U	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	11	1 U	1 U	1 U	1 U	1 U / 1 U	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	130	1 U	1 U	1 U	1 U	1 U / 1 U	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane (EDC)	3.5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U / 0.2 U	NA	0.2 U	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	77	1 U	1 U	1 U	1 U	1 U / 1 U	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	182	1 U	1 U	1 U	1 U	1 U / 1 U	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	100	5 U	5 U	5 U	5 U	5 U / 5 U	NA	5 U	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethane	No critiera	1 U	1 U	NA	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	2.9	1 U	**0.83**	**0.71**	**0.91**	**0.67 / 0.66**	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	0.70	0.5 U	**0.12**	**0.17**	**0.18**	**0.10 / 0.10**	NA	0.5 U	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	0.18	**0.54**	**0.18**	**0.18**	**0.23**	**0.039 / 0.042**	NA	**0.037**	NA	NA	NA	NA	NA	NA	NA	NA

Table 8 Summary of Monitoring Well Groundwater Samples
Bridge - Former Dawn Foods Site

Notes:
All results in ug/L (micrograms per liter)
Bold = detection
Shading denotes a detected exceedance of a screening level
Cr Vi = Chromium VI (hexavalent chromium); Cr III = Chromium trivalent. Both screening levels are presented, the lowest is used for shading.
* Indicates duplicate value with associated normal sample.
[a] - MW-10 was sampled on January 6 (CVOCs and TPH) and January 26, 2026 (for total and dissolved arsenic).
[b] - Filter blank results from February 2022 sampling included dissolved copper results greater than the method reporting limit.
g - The presence of the analyte may be due to carryover from previous sample injections.
Preliminary Cleanup Levels (PCUL) for Lower Duwamish Waterway workbook, these have been developed by Ecology specifically for the LDW. These are based on the February 11, 2026 version. Source: https://apps.ecology.wa.gov/cleanupsearch/site/1643#site-documents.
MTCA - Model Toxics Control Act
ND = Not detected
U = laboratory detection limit
J = reported concentration is an estimate.
NC - No Criterion
NA = Not analyzed
Ca = The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.
x = Sample chromatographic pattern does not resemble the fuel standard used for quantitation.
lc - The presence of the analyte is likely due to laboratory contamination.
ht - The re-run analysis was performed outside the method holding time requirement.
H - The analysis was performed outside of the method holding time requirement
Total Dx - Total Diesel; SGC - Silica Gel Cleanup
TPH GRO - Total Petroleum Hydrocarbons Gasoline Range Organics; TPH DRO - Total Petroleum Hydrocarbons Diesel Range Organics
TPH Dx difference is the difference of total Dx with and without SGC. If no SGC value is avaiable, zero is assumed for that component.
VOCs -Volatile Organic Compounds

Table 9 First Quarter Monitoring Well Groundwater Sample Results - Metals Testing Methods
Bridge - Former Dawn Foods Site

Sample ID	PCUL (ug/L)	MW-1		MW-2		MW-3		MW-4		MW-5		MW-6	
Date Sampled		2/1/2022	2/1/2022	1/31/2022	1/31/2022	1/30/2022	1/30/2022	2/2/2022	2/2/2022	1/31/2022	1/31/2022	1/30/2022	1/30/2022
Specific Conductance (uS/cm)		8,160		12,300		22,900		1,670		3,300		19,600	
Sample results are in ug/L													
Metals Total/Dissolved													
Laboratory - Analytical Method for Metals Only		6020B	1638 Mod	6020B	1638 Mod	6020B	1638 Mod	6020B	1638 Mod	6020B	1638 Mod	6020B	1638 Mod
Arsenic - total	See dissolved	**12.5**	**1.70**	**20.1**	**3.14**	**37.2**	**3.06**	**3.38 / 3.18**	**0.586 J**	**9.51**	**2.08**	**31.1**	**0.504 J**
Cadmium - total	See dissolved	10 U	**0.179 J**	10 U	0.061 U	10 U	**0.168 J**	1 U / 1 U	0.061 U	1 U	0.061 U	10 U	0.152 U
Chromium - total	See dissolved	10 U	**2.27 J**	10 U	1.72 U	10 U	4.29 U	5 U / 5 U	1.72 U	10 U	1.72 U	10 U	4.29 U
Copper - total	See dissolved	**8.42**	**4.12**	**6.88**	**1.10**	50 U	**1.09 J**	5 U / 5 U	0.404 U	5 U	**1.3**	**6.48**	1.01 U
Mercury - total	See dissolved	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel - total	See dissolved	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead - total	See dissolved	1 U	**0.332**	10 U	**0.081 J**	10 U	0.101 U	1 U / 1 U	0.040 U	**1.72**	**2.09**	10 U	0.101 U
Zinc - total	See dissolved	**234**	**278**	5 U	7.07 U	50 U	17.7 U	**522 / 537**	**535**	**2,020**	**1,930**	5 U	17.7 U
Arsenic - dissolved	8.0	**10.4**	**1.23**	**19.8**	**3.37**	**36.0**	**4.10**	**2.14 / 2.22**	**0.645 J / 0.564 J**	**5.25**	**1.98**	**28.2**	**0.286 J**
Cadmium - dissolved	1.2	10 U	**0.175 J**	10 U	**0.071 J**	10 U	**0.221 J**	1 U / 1 U	0.061 U / 0.061 U	1 U	0.061 U	10 U	0.152 U
Chromium - dissolved	Cr III: 27.5	10 U	1.72 U	10 U	1.72 U	10 U	4.29 U	**1.02** / 1 U	1.72 U / 1.72 U	1 U	1.72 U	10 U	4.29 U
Copper - dissolved [a]	3.1	5 U	**2.30**	50 U	**1.13**	50 U	**6.18**	5 U / 5 U	**0.626 J / 0.635 J**	5 U	0.404 U	50 U	1.01 U
Mercury - dissolved	0.03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel - dissolved	8.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead - dissolved	5.6	10 U	0.040 U	10 U	0.040 U	10 U	**1.49**	1 U / 1 U	0.040 U / 0.040 U	1 U	**0.147**	10 U	0.101 U
Zinc - dissolved	81	**217**	**260**	50 U	7.07 U	50 U	17.7 U	**500 / 509**	**515 / 516**	**1,900**	**1,880**	50 U	17.7 U

Notes:

All results in ug/L (micrograms per liter)

Bold = detection

Shading denotes a detected exceedance of a screening level

Cr Vi = Chromium VI (hexavalent chromium); Cr III = Chromium trivalent. Both screening levels are presented, the lowest is used for shading.

[a] - Filter blank results from February 2022 sampling included dissolved copper results greater than the method reporting limit.

Preliminary Cleanup Levels (PCUL) for Lower Duwamish Waterway workbook, these have been developed by Ecology specifically for the LDW. These are based on the February 11, 2026 version.

https://apps.ecology.wa.gov/cleanupsearch/site/1643#site-documents.

MTCA - Model Toxics Control Act

ND = Not detected

U = laboratory detection limit

J = reported concentration is an estimate.

NA = Not analyzed

µS/cm = microsiemens per centimeter

Table 10 Hexavalent Chromium Groundwater and Soil Results
Bridge - Former Dawn Foods Site

Sample ID (sample depth provided for soil samples)	Sample Date	Hexavalent Chromium - soil (saturated zone)	Chromium - soil (saturated zone)	Hexavalent Chromium - water (dissolved)	Chromium - water (dissolved)
PCUL (Vadose/Saturated for soil)		Cr VI: 0.031	Cr III: 27 Cr VI: 0.031	Cr VI: 1.6	Cr III: 27.4 Cr VI: 1.6
Units		mg/kg	mg/kg	ug/L	ug/L
RI-SB-08 (5-10 ft bgs)	2/29/24	**0.648**	**20.8**	0.5 U	1.72 U
RI-SB-07 (10-15 ft bgs)	2/29/24	**0.688**	**19.8**	0.5 U	NA
MW-1	4/26/24	NA	NA	**1.49**	1.72 U
MW-1	6/6/24	NA	NA	**0.265**	1.72 U
MW-1	9/24/24	NA	NA	**0.204**	1.72 U *
MW-1	2/26/25	NA	NA	**0.25**	1.72 U
MW-1	5/27/25	NA	NA	**0.194**	1.72 U
MW-1	9/15/25	NA	NA	**0.283**	1.72 U
MW-2	4/24/24	NA	NA	**1.51**	1.72 U
MW-2	6/5/24	NA	NA	**0.522**	1.72 U
MW-2	9/23/24	NA	NA	**0.645**	4.29 U *
MW-2	5/28/25	NA	NA	**0.490**	4.29 U
MW-2	9/16/25	NA	NA	**0.586**	4.29 U
MW-2	11/4/25	NA	NA	**0.594**	1.72 U
MW-2	11/4/25	NA	NA	**0.505**	1.72 U
MW-2	11/4/25	NA	NA	**0.517**	1.72 U
MW-2	11/4/25	NA	NA	**0.658**	1.72 U
MW-2	11/5/25	NA	NA	**0.635**	1.72 U
MW-3	5/28/25	NA	NA	**0.398**	4.29 U
MW-3	9/17/25	NA	NA	**0.145**	4.29 U
MW-5/Dup01-0225	2/26/25	NA	NA	0.025 U/0.025 U	1.72 U/1.72 U
MW-5	5/27/25	NA	NA	0.025 U	1.72 U
MW-6	5/27/25	NA	NA	0.025 U	1.72 U
PD-1	6/6/24	NA	NA	**0.113**	NA
PD-1	9/24/24	NA	NA	**0.057**	1.72 U *
SEEP	6/6/24	NA	NA	0.051 U	NA
SEEP-MW1	9/24/24	NA	NA	**0.89**	1.72 U *
SEEP-MW2	9/23/24	NA	NA	**0.642**	4.29 U *
DW-River	6/6/24	NA	NA	**0.129**	NA
DW-River	9/17/2025	NA	NA	**0.074**	1.72 U

Notes:
Bold = detection
Shading indicates a detected exceedance of a screening leve
Preliminary Cleanup Levels (pCUL) for Lower Duwamish Waterway workbook, these have been developed by Ecology specifically for the LDW
These are based on the February 11, 2026 version. Source: https://apps.ecology.wa.gov/cleanupsearch/site/1643#site-documents.
Cr Vi = Chromium VI (hexavalent chromium); Cr III = Chromium three. Both screening levels are presented, the lowest is used for shading.
ug/L = micrograms per liters
mg/kg = milligrams per kilograms
U = laboratory detection limit
MTCA - Model Toxics Control Act
NA = Not analyzed
* only total analyzed, total value listed in table.

Table 11 SVOC Monitoring Well Groundwater Sample Results
Bridge - Former Dawn Foods Site

Sample ID	PCUL (ug/L)	MW-1	MW-2	MW-3	MW-3	MW-4	MW4 (DUP-0124)	MW-5	MW-5	MW-6	MW-7	MW-8	MW-8	MW-9	PD-1
Date Sampled		1/10/2024	1/22/2024	1/12/2024	2/26/2025	1/11/2024	1/11/2024	1/22/2024	4/21/2022	1/10/2024	1/12/2024	1/10/2024	1/5/2026	1/9/2024	1/10/2024
SVOCs - PAHs															
Acenaphthene	5.3	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	**0.03**	**0.034**	0.02 U	0.02 U	0.02 U	NA	0.02 U	0.02 U
Acenaphthylene	No criteria	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	NA	0.02 U	0.02 U
Anthracene	2.1	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	NA	0.02 U	0.02 U
Benzo(ghi)perylene	No criteria	0.04 U	0.04 U	0.04 UJ	0.04 UJ	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	NA	0.04 U	0.04 U
Dibenzofuran	3.1	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	NA	0.02 U	0.02 U
Fluoranthene	1.8	0.02 U	0.02 U	**0.026**	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	NA	0.02 U	0.02 U
Fluorene	3.7	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	NA	0.02 U	0.02 U
1-Methylnaphthalene	0.17 (based on indoor air)	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**5.9**	**8.3**	0.2 U	0.2 U
2-Methylnaphthalene	14.0	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U
Naphthalene	1.4	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U
Phenanthrene	No criteria	0.02 U	0.02 U	**0.023**	0.05 U	0.02 U	0.02 U	**0.024**	0.02 U	0.02 U	0.02 U	0.02 U	NA	0.02 U	0.02 U
Pyrene	2.0	0.02 U	0.02 U	**0.024**	0.02 U	0.02 U	0.02 U	**0.02**	0.02 U	0.02 U	0.02 U	0.02 U	NA	0.02 U	0.02 U
Benzo(a)pyrene	0.000016	0.02 U	0.02 U	0.02 UJ	0.02 UJ	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	NA	0.02 U	0.02 U
Benzo(a)anthracene	0.00016	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	NA	0.02 U	0.02 U
Benzo(b)fluoranthene	0.00016	0.02 U	0.02 U	**0.024 J**	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	NA	0.02 U	0.02 U
Benzo(k)fluoranthene	0.0016	0.02 U	0.02 U	0.02 UJ	0.02 UJ	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	NA	0.02 U	0.02 U
Chrysene	0.016	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	NA	0.02 U	0.02 U
Dibenzo(a,h)anthracene	0.000016	0.02 U	0.02 U	0.02 UJ	0.02 UJ	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	NA	0.02 U	0.02 U
Indeno(1,2,3-cd)pyrene	0.00016	0.02 U	0.02 U	0.02 UJ	0.02 UJ	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	NA	0.02 U	0.02 U
Total cPAH TEQ	PQL = 0.02	ND	ND	**0.0024**	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND
Other SVOCs															
Benzoic acid	589.3	10 U	10 U	10 Uk	10 Uk	10 U	10 U	10 U	NA	10 U	10 U	10 U	NA	10 U	10 U
Benzyl alcohol	56.4	2 U	2 U	2 U	2 U	2 U	2 U	2 U	NA	2 U	2 U	2 U	NA	2 U	2 U
Bis(2-chloroethoxy)methane	No criteria	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U
Bis(2-chloroethyl) ether	0.06	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U
Bis(2-ethylhexyl) phthalate	0.046	3.2 U	3.2 U	3.2 U	3.2 U	3.2 U	3.2 U	3.2 U	NA	3.2 U	3.2 U	3.2 U	NA	3.2 U	3.2 U
4-Bromophenyl phenyl ether	No criteria	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U
Butylbenzyl phthalate	0.013	2 U	2 U	2 U	2 U	2 U	2 U	2 U	NA	2 U	2 U	2 U	NA	2 U	2 U
Carbazole	No criteria	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	NA	0.02 U	0.02 U	0.02 U	NA	0.02 U	0.02 U
4-Chloroaniline	No criteria	20 U	20 U	20 U	20 U	20 U	20 U	20 U	NA	20 U	20 U	20 U	NA	20 U	20 U
4-Chloro-3-methylphenol	36.0	2 U	2 U	2 U	2 U	2 U	2 U	2 U	NA	2 U	2 U	2 U	NA	2 U	2 U
2-Chloronaphthalene	100.0	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U
2-Chlorophenol	17.0	2 U	2 U	2 U	2 U	2 U	2 U	2 U	NA	2 U	2 U	2 U	NA	2 U	2 U
4-Chlorophenyl phenyl ether	No criteria	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U
1,2-Dichlorobenzene	4.5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U
1,3-Dichlorobenzene	2.0	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U
1,4-Dichlorobenzene	5.0	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U
2,4-Dichlorophenol	10.0	2 U	2 U	2 U	2 U	2 U	2 U	2 U	NA	2 U	2 U	2 U	NA	2 U	2 U
Diethyl phthalate	92.6	2 U	2 U	2 U	2 U	2 U	2 U	2 U	NA	2 U	2 U	2 U	NA	2 U	2 U
Dimethyl phthalate	59.0	2 U	2 U	2 U	2 U	2 U	2 U	2 U	NA	2 U	2 U	2 U	NA	2 U	2 U
2,4-Dimethylphenol	No criteria	2 U	2 U	2 U	2 U	2 U	2 U	2 U	NA	2 U	2 U	2 U	NA	2 U	2 U
2,4-Dinitrophenol	100.0	6 U	6 U	6 Uk	6 Uk	6 U	6 U	6 U	NA	6 U	6 U	6 U	NA	6 U	6 U
2,4-Dinitrotoluene	0.2	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	NA	1 U	1 U
2,6-Dinitrotoluene	No criteria	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	NA	1 U	1 U
Di-n-butyl phthalate	No criteria	2 U	2 U	2 UJ	2 UJ	2 U	2 U	2 U	NA	2 U	2 U	2 U	NA	2 U	2 U
Di-n-octyl phthalate	2.3	2 U	2 U	2 U	2 U	2 U	2 U	2 U	NA	2 U	2 U	2 U	NA	2 U	2 U
Hexachlorobenzene	0.000005	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U
Hexachlorobutadiene	0.01	0.2 Ujl	0.2 U	0.2 Ujl	0.2 Ujl	0.2 Ujl	0.4 U	0.2 U	NA	0.2 Ujl	0.2 Ujl	0.2 Ujl	NA	0.2 Ujl	0.2 Ujl
Hexachlorocyclopentadiene	1.00	0.6 Uk	0.6 U	0.6 Uk	0.6 Uk	0.6 Uk	1.2 U	0.6 U	NA	0.6 Uk	0.6 Uk	0.6 Uk	NA	0.6 Uk	0.6 Uk
Hexachloroethane	0.020	0.2 Ujl	0.2 U	0.2 Ujl	0.2 Ujl	0.2 Ujl	0.4 U	0.2 U	NA	0.2 Ujl	0.2 Ujl	0.2 Ujl	NA	0.2 Ujl	0.2 Ujl
Isophorone	110.0	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U
2-Methylphenol	9.8	2 U	2 U	2 U	2 U	2 U	2 U	2 U	NA	2 U	2 U	2 U	NA	2 U	2 U
3-Methylphenol + 4-Methylphenol	No criteria	4 U	4 U	4 U	4 U	4 U	4 U	4 U	NA	4 U	4 U	4 U	NA	4 U	4 U
2-Nitroaniline	No criteria	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U	NA	1 U	1 U
3-Nitroaniline	No criteria	20 U	20 U	20 U	20 U	20 U	20 U	20 U	NA	20 U	20 U	20 U	NA	20 U	20 U
4-Nitroaniline	No criteria	20 U	20 U	20 U	20 U	20 U	20 U	20 U	NA	20 U	20 U	20 U	NA	20 U	20 U
Nitrobenzene	100.0	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U
2-Nitrophenol	No criteria	2 U	2 U	2 U	2 U	2 U	2 U	2 U	NA	2 U	2 U	2 U	NA	2 U	2 U
4-Nitrophenol	No criteria	6 U	6 U	6 U	6 U	6 U	6 U	6 U	NA	6 U	6 U	6 U	NA	6 U	6 U
N-Nitrosodiphenylamine	0.6	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U
N-Nitroso-di-n-propylamine	0.058	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U
4,6-Dinitro-2-methylphenol	No criteria	6 U	6 U	6 U	6 U	6 U	6 U	6 U	NA	6 U	6 U	6 U	NA	6 U	6 U
Pentachlorophenol	0.002	1 U	1 U	1 Uk	1 Uk	1 U	1 U	1 U	NA	1 U	1 U	1 U	NA	1 U	1 U
Phenol	101.1	2 U	2 U	2 U	2 U	2 U	2 U	2 U	NA	2 U	2 U	2 U	NA	2 U	2 U
2,2'-Oxybis(1-chloropropane)	No criteria	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U
2,4,5-Trichlorophenol	600.0	2 U	2 U	2 U	2 U	2 U	2 U	2 U	NA	2 U	2 U	2 U	NA	2 U	2 U
2,4,6-Trichlorophenol	0.28	2 U	2 U	2 U	2 U	2 U	2 U	2 U	NA	2 U	2 U	2 U	NA	2 U	2 U
1,2,4-Trichlorobenzene	0.037	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U

Notes:
All results in ug/L.
Bold = detection
Shading denotes a detected exceedance of a screening level
MTCA screening levels are from Preliminary Cleanup Levels (PCUL) for Lower Duwamish Waterway workbook, these have been developed by Ecology specifically for the LDW.
These are based on the February 11, 2026 version. Source: https://apps.ecology.wa.gov/cleanupsearch/site/1643#site-documents.
MTCA - Model Toxics Control Act
SVOCs -Semi Volatile Organic Compounds
ug/L = micrograms per liters
NA = Not analyzed
U = laboratory detection limit
ND = Not detected
J = reported concentration is an estimate.

Table 12 TBT and PCB Monitoring Well Groundwater Sample Results
Bridge - Former Dawn Foods Site

Sample ID	Screening	MW-1	MW-2	MW-3	MW-3	MW-3	MW-4 / DUP-0124 (duplicate)	MW-5 / DUP-0422 (duplicate)	MW-5	MW-6	MW-7	MW-8	MW-9	PD/PD-1
Date Sampled	**Level (ug/L)**	**1/10/2024**	**1/22/2024**	**1/12/2024**	**4/25/2024**	**6/5/2024**	**1/11/2024**	**4/21/2022**	**1/22/2024**	**1/10/2024**	**1/12/2024**	**1/10/2024**	**1/9/2024**	**1/10/2024**
Butyl Tins (ug/L)														
Tributyltin	7.40E-03	0.0052 U	0.0052 U	NA	NA	NA	0.0052 U	NA	0.0052 U	0.0052 U	NA	NA	NA	0.0052 U
Dibutyltin	NC	0.0077 U	0.0077 U	NA	NA	NA	0.0077 U	NA	0.0077 U	0.0077 U	NA	NA	NA	**0.0157**
Butyltin	NC	**0.0559**	**0.0226**	NA	NA	NA	**0.0094**	NA	**0.0079**	**0.0180**	NA	NA	NA	**0.0077**
Tetrabutyltin	NC	0.0300 U	0.0300 U	NA	NA	NA	0.0300 U	NA	0.0300 U	0.0300 U	NA	NA	NA	0.0300 U
PCBs (ug/L)														
Aroclor 1221	see total	0.03 JU	0.03 JU	0.03 UJ	0.1 U	0.013 UJ	0.03 UJ / 0.03 UJ	0.1 U	0.03 JU	0.03 JU	0.03 JU	0.03 JU	0.03 JU	NA
Aroclor 1232	see total	0.03 JU	0.03 JU	0.03 UJ	0.1 U	0.013 UJ	0.03 UJ / 0.03 UJ	0.1 U	0.03 JU	0.03 JU	0.03 JU	0.03 JU	0.03 JU	NA
Aroclor 1016	see total	0.03 JU	0.03 JU	0.03 UJ	0.1 U	0.013 UJ	0.03 UJ / 0.03 UJ	0.1 U	0.03 JU	0.03 JU	0.03 JU	0.03 JU	0.03 JU	NA
Aroclor 1242	see total	0.03 JU	0.03 JU	0.03 UJ	0.1 U	0.013 UJ	0.03 UJ / 0.03 UJ	0.1 U	0.03 JU	0.03 JU	0.03 JU	0.03 JU	0.03 JU	NA
Aroclor 1248	see total	0.03 JU	0.03 JU	0.03 UJ	0.1 U	0.013 UJ	0.03 UJ / 0.03 UJ	0.1 U	0.03 JU	0.03 JU	0.03 JU	0.03 JU	0.03 JU	NA
Aroclor 1254	see total	0.03 JU	0.03 JU	**0.04 J**	0.1 U	0.013 UJ	0.03 UJ / 0.03 UJ	0.1 U	0.03 JU	0.03 JU	0.03 JU	0.03 JU	0.03 JU	NA
Aroclor 1260	see total	0.03 JU	0.03 JU	0.03 UJ	0.1 U	0.013 UJ	0.03 UJ / 0.03 UJ	0.1 U	0.03 JU	0.03 JU	0.03 JU	0.03 JU	0.03 JU	NA
Aroclor 1262	see total	0.03 JU	0.03 JU	0.03 UJ	0.1 U	0.013 UJ	0.03 UJ / 0.03 UJ	0.1 U	0.03 JU	0.03 JU	0.03 JU	0.03 JU	0.03 JU	NA
Aroclor 1268	see total	0.03 JU	0.03 JU	0.03 UJ	0.1 U	0.013 UJ	0.03 UJ / 0.03 UJ	0.1 U	0.03 JU	0.03 JU	0.03 JU	0.03 JU	0.03 JU	NA
Total PCBs	PQL = 0.03	ND	ND	**0.04 J**	ND	ND	ND / ND	0.1 U	ND	ND	ND	ND	ND	NA

Notes:
All results in ug/L (micrograms per liter)
Bold = detection
Shading denotes a detected exceedance of a screening level
* Indicates duplicate value with associated normal sample.
MTCA screening levels are from Preliminary Cleanup Levels (PCUL) for Lower Duwamish Waterway workbook, these have been developed by Ecology specifically for the LDW. These are based on the February 11, 2026 version. Source: https://apps.ecology.wa.gov/cleanupsearch/site/1643#site-documents.

MTCA - Model Toxics Control Act — ND = Not detected
U = laboratory detection limit — NC - No Criterion
J = reported concentration is an estimate. — PQL for tributyltin is based on Analytical Resources confirmation on April 2024
PCB = polychlorinated biphenyls — TBT = Tributyltin

Table 13 Dioxins and Furans Monitoring Well Groundwater Sample Results
Bridge - Former Dawn Foods Site

Sample ID			MW-4	MW-3	MW-3	MW-3	MW-3	MW-3	MW-3	MW-3	MW-3	MW-3	MW-3	MW-3	MW-3	MW-3D	MW-3D	MW-3D	MW-3D	MW-3D	MW-3D	SEEP-MW-3	PD2-0726	Duwamish Waterway	Duwamish Waterway	Duwamish Waterway	Duwamish Waterway	Duwamish Waterway (SW3-0726)
Sample Type	Fraction Used in the TEF for ND values	Screening Level (pg/L)	NORMAL	NORMAL	NORMAL	NORMAL	CENTRIFUGED	NORMAL	NORMAL	FILTERED	CENTRIFUGED	NORMAL	FILTERED	CENTRIFUGED	NORMAL	NORMAL	CENTRIFUGED	NORMAL	NORMAL	NORMAL	FILTERED	NORMAL	NORMAL	NORMAL	NORMAL	FILTERED	CENTRIFUGED	NORMAL
Date Sampled			1/11/2024	1/11/2024	4/25/2024	6/5/2024	6/5/2024	9/23/2024	9/17/2025	9/17/2025	9/17/2025	6/18/2026	6/18/2026	6/18/2026	7/16/2026	2/15/2026	2/15/2026	4/5/2026	6/18/2026	7/16/2026	7/16/2026	9/23/2024	7/16/2026	6/6/2024	9/17/2025	9/17/2025	9/17/2025	7/16/2026
Dioxins/Furans (Sample results are in pg/L)																												
2,3,7,8-TCDD	no	See Total D/F TEQ	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,7,8-PeCDD	no	See Total D/F TEQ	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,4,7,8-HxCDD	See Note A	See Total D/F TEQ	ND	3.4 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	6.90	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,6,7,8-HxCDD	See Note A	See Total D/F TEQ	ND	19.3	ND	ND	ND	ND	11.2 J	ND	ND	16.3 J	ND	ND	11.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,7,8,9-HxCDD	no	See Total D/F TEQ	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,4,6,7,8-HpCDD	See Note A	See Total D/F TEQ	ND	1190	148	28.9	9.47 J	81	663	ND	16.5 J	1,190	ND	36.1	713	6.77	9.34 J	7.51 J	ND	ND	ND	ND	ND	6.72 J	42.7	ND	ND	ND
OCDD	See Note A	See Total D/F TEQ	ND	18900 B	2290	378 B	143 B	1100	12600	ND	303	16,300	ND	293	9,630	40.8	75.0 J	42.6 J	ND	30	ND	313	30.30	62.1 B	665	ND*	ND*	23.2
2,3,7,8-TCDF	See Note B	See Total D/F TEQ	ND	11.4	ND	ND	ND	ND	ND	1.30 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,7,8-PeCDF	no	See Total D/F TEQ	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,3,4,7,8-PeCDF	See Note B	See Total D/F TEQ	ND	2.59 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,4,7,8-HxCDF	no	See Total D/F TEQ	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,6,7,8-HxCDF	See Note B	See Total D/F TEQ	ND	2.38 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,7,8,9-HxCDF	no	See Total D/F TEQ	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,3,4,6,7,8-HxCDF	no	See Total D/F TEQ	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,4,6,7,8-HpCDF	See Note A	See Total D/F TEQ	ND	177	19.7 J	ND	ND	15.7	89.5	ND	ND	178	ND	ND	53.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.72 J	ND*	ND	ND
1,2,3,4,7,8,9-HpCDF	no	See Total D/F TEQ	ND	ND	ND	ND	ND	ND	6.34	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OCDF	See Note A	See Total D/F TEQ	ND	1330	151	ND	7.18 J	160	682 J	ND	20.4 J	1,390	ND	ND	380	ND	ND	ND	ND	ND	ND	25.7	ND	ND	48.6 J	2.81 J	ND	ND
Total Dioxin/Furan TEQ (only detected compounds ND=0)	Includes Notes A and Notes B	65 (PQL)	ND	24.16 J	2.41 J	0.40	0.14 J	1.20	12.7 J	0.13 J	0.262 J	20.60	ND	0.45	12.50	0.0799 J	0.116 J	0.0879 J	ND	0.01	ND	0.10	0.01	0.09 J	0.698 J	0.000843 J	ND	0.01
Total Dioxin/Furan TEQ (all fractions detected at MW-3. ND=1/2 MDL)	Includes Notes A and Notes B	65 (PQL)	0.97	24.16	3.24	1.07	0.77	1.44	13.12	0.62	0.87	22.81	2.86	3.27	13.87	3.39	3.43	3.40	3.35	2.75	2.75	0.38	2.75	0.68	1.27	0.50	0.61	2.75
Total Dioxin/Furan TEQ (most frequent fractions detected in MW-3. ND =1/2 ND for most frequent fractions detected in MW-3)	Includes Note A fraction only	65 (PQL)	0.38	22.01	2.65	0.66	0.39	1.37	12.79	0.24	0.54	21.45	1.49	1.90	12.51	2.03	2.06	2.04	1.99	1.38	1.38	0.27	1.38	0.31	0.97	0.26	0.33	1.38
Total Suspended Solids (mg/L)	---	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	78	NA	NA	14	NA	NA	NA	8.8	ND	NA	NA	19	NA	NA	NA	NA	18

Notes:
B - This analyte was detected in the method blank; J - Estimated concentration value detected below the reporting limit.
ND = analyte not detected at or above reporting limit; NA = not analyzed
pg/L = picogram/liter; mg/L = miligrams per liter
Note A - represents dioxins and furans fractions detected in MW-3 in most events
Note B - represents dioxins and furans fractions only detected in the first event, these have not been detected at MW-3 during the last 6 events
Sample type:
Normal - no filtering or centrifuging occurred.
Filtered - collected groundwater was filtered at the well prior delivery to the laboratory. Sampling followed standard protocols for dissolved metals.
Centrifuging - a normal sample that was centrifuged by the laboratory prior to analysis.

Table 14 Summary of SubSlab Vapor Intrusion Assessment Results
Bridge - Former Dawn Foods Site

	Method C Screening Level (sub slab)	Restroom		Office		Warehouse - IA4		Warehouse - IA5	Warehouse - IA6
		BR-SS-0620	BR-SS-0524	OF-SS-0620	OF-SS-0524	WH-SS-0620	WH04-SS-0524	WH05-SS-0524	WH06-SS-0524
		6/27/2020	5/2/2024	6/27/2020	5/2/2024	6/27/2020	5/2/2024	5/2/2024	5/2/2024
Compounds	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3
cis-1,2-Dichloroethene	1,300	**150**	**82**	**29**	**68**	3.2 U	2.9 U	2.9 U	5.9 U
1,2-Dichloroethane (EDC)	32	1.6 U	15 U	1.7 U	15 U	0.33 U	**7.3**	3 U	6.1 U
Tetrachloroethene	1,300	**5,900**	**6,900 E**	**2,100**	**6,600 E**	**570**	**460**	**240**	**3,100 E**
Trichloroethene	67	**810**	**650**	**290**	**790**	**220**	**130**	**3**	**88**
Vinyl chloride	95	10 U	9.2 U	10 U	9.2 U	2.1 U	1.8 U	1.9 U	3.8 U
Benzene	110	12 U	12 U	13 U	12 U	2.6 U	2.3 U	2.3 U	4.8 U
Ethylbenzene	33,000	17 U	**11,000 E**	18 U	**1,800**	3.5 U	3.1 U	3.2 U	6.5 U
m,p-Xylene	see total	34 U	**31,000 E**	36 U	**12,000 E**	7 U	6.3 U	6.3 U	13 U
o-Xylene	see total	17 U	**9,300 E**	18 U	**4,200**	3.5 U	3.1 U	3.2 U	6.5 U
Xylene, total	3,300	34 U	**40,300**	36 U	**16,200**	7 U	6.3 U	6.3 U	13 U
Naphthalene	25	10 U	9.4 U	11 U	9.4 U	2.1 U	1.9 U	1.9 U	3.9 U
Analysis For Volatile Compounds By Method MA-APH									
APH EC5-8 aliphatics/ACGIH C5-8 aliphatics	NV	**6,400**	**3,200**	**2,000**	**2,800**	**990**	**760**	**620**	**1,200**
APH EC9-12 aliphatics/ACGIH C9-15 aliphatics	NV	1,400 U	**900**	1,400 U	**1,100**	**580**	180 U	180 U	**850**
APH EC9-10 aromatics/ACGIH C9-15 aromatics	NV	970 U	900 U	1,000 U	900 U	200 U	180 U	180 U	370 U
Total TPH	NV *	**6,400**	**4,100**	**2,000**	**3,900**	**1,570**	**760**	**620**	**2,050**

Notes:

µg/m^3 = micrograms per cubic meter of air
Bold = detected compound
Shade = detection exceeds indoor air Method C

E = The result is estimated and above the instrument calibration range
U = laboratory detection limit
NV - no value available

TPH = Total Petroleum Hydrocarbons (sum of detected aliphatics and aromatic results)
* no commercial or method C value is available. Method B is based on unrestricted use which includes residential exposure, which is not consistent with site use.

Table 15 Summary of Vapor Intrusion Assessment Results
Bridge - Former Dawn Foods Site

	MTCA Screening Level (indoor air) Method C	**IA3 - Warehouse SE**				**Women's Restroom**				**Office**				**IA4 - Warehouse Center/Eastern**		
		WH-IA-0620	IA3-061221	IA3-070423	IA3-050124	BR-IA-0620	IA1-061221	IA1-070423	IA1-050124	OF-IA-0620	IA2-061221	IA2-070423	IA2-050124	IA4-061221	IA4-070423	IA4-050124
		6/27/2020	6/21/2021	7/4/2023	5/1/2024	6/27/2020	6/21/2021	7/4/2023	5/1/2024	6/27/2020	6/21/2021	7/4/2023	5/1/2024	6/21/2021	7/4/2023	5/1/2024
Compounds	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3	EDL	TEQ 1/2 EDL	ug/m^3	EDL	TEQ 1/2 EDL
cis-1,2-Dichloroethene	40	0.4 U	0.4 U	0.4 U	0.4 U	0.56 U	0.4 U	0.4 U	0.4 U	0.4 U	<0.53	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
1,1-Dichloroethane	16	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
1,1,1-Trichloroethane	5000	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U
1,1,2-Trichloroethane	0.20	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U
1,2-Dichloroethane (EDC)	0.96	**0.265**	**0.2**	**0.382**	**0.205**	**0.175**	**0.09**	**0.12**	**0.085**	**0.185**	**0.08**	**0.122**	**0.045**	**0.26**	***0.352***	**0.205**
Tetrachloroethene	40	6.8 U	6.8 U	6.8 U	6.8 U	9.5 U	**7.1**	6.8 U	6.8 U	6.8 U	8.8 U	6.8 U	6.8 U	6.8 U	6.8 U	6.8 U
Trichloroethene	2.00	0.27 U	**0.13**	**0.14**	0.11 U	**0.37**	**0.38**	**0.17**	**0.11**	**0.33**	**0.34**	**0.19**	0.11 U	**0.15**	**0.12**	0.11 U
Vinyl chloride	2.84	0.26 U	0.26 U	0.13 U	0.26 U	0.36 U	0.26 U	0.13 U	0.26 U	0.26 U	0.13 U	0.13 U	0.26 U	0.26 U	0.13 U	0.26 U
Benzene	3.210	**0.75**	**0.06**	**0.62**	0.32 U	**0.63**	neg	**neg**	**0.42**	**0.68**	0.42 U	**neg**	**0.55**	**0.06**	**0.62**	0.32 U
Ethylbenzene	1000	0.43 U	0.43 U	**0.08**	**0.46**	0.61 U	0.43 U	**neg**	**0.58**	0.43 U	0.56 U	**neg**	**0.57**	0.43 U	**0.08**	0.43 U
Toluene	5000	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U
m,p-Xylene	see total	**1.1**	0.87 U	**0.75**	**1.7**	**1.2**	0.87 U	**neg**	**2.1**	**1.1**	1.1 U	**neg**	**2.1**	0.87 U	**0.65**	**1.4**
o-Xylene	see total	**0.44**	0.43 U	**0.19**	**0.65**	0.61 U	0.43 U	**neg**	**0.76**	**0.46**	0.56 U	**neg**	**0.76**	0.43 U	**0.23**	**0.5**
Xylene, total	100	**1.54**	0.87 U	**0.94**	**2.35**	**1.2**	0.87 U	**neg**	**2.86**	**1.56**	1.1 U	**neg**	**2.86**	0.87 U	**0.88**	**1.9**
Naphthalene	0.74	**0.23**	**0.04**	**0.13**	**0.17**	**0.25**	**0.08**	**neg**	**0.14**	**0.34**	**0.13**	**neg**	**0.29**	**0.02**	**neg**	**0.17**
Analysis For Volatile Compounds By Method MA-APH																
APH EC5-8 aliphatics/ACGIH C5-8 aliphatics	NV	**140**	**11**	**102**	75 U	**120**	**31**	**22**	75 U	**130**	**21**	**12**	**88**	**21**	**122**	**83**
APH EC9-12 aliphatics/ACGIH C9-15 aliphatics	NV	**130**	**200**	25 U	25 U	**130**	**73**	25 U	25 U	**110**	**91**	25 U	25 U	**240**	25 U	25 U
APH EC9-10 aromatics/ACGIH C9-15 aromatics	NV	25 U	25 U	25 U	**45**	35 U	25 U	25 U	**47**	25 U	32 U	25 U	**36**	25 U	25 U	**48**
TPH	NV [a]	**272.5**	**211.1**	**103.8**	**45.0**	**252.1**	**104.1**	**22.0**	**47.0**	**242.6**	**112.1**	**12.0**	**124.0**	**261.1**	**123.6**	**131.0**
TPH - Risk Factors	MTCA Commercial/ Industrial	Not Evaluated	Not Evaluated	pass	pass	Not Evaluated	Not Evaluated	pass	pass	Not Evaluated	Not Evaluated	pass	pass	Not Evaluated	pass	pass

Table 15 Summary of Vapor Intrusion Assessment Results
Bridge - Former Dawn Foods Site

												Ambient Air Samples			
	MTCA Screening Level (indoor air) Method C	**IA5 - Warehouse Center/Stairs to Office**			**IA6 - Warehouse Center**			**IA7- Indoor Warehouse Fire Sprinkler**		**IA-8 Indoor Warehouse Outside Test Kitchen**		Ambient East	Ambient West	Ambient East	Ambient West
		IA5-061221	IA5-070423	IA5-050124	IA6-061221	IA6-070423	IA6-050124	IA7-070423	IA7-050124	IA8-070423	IA8-050124	AE-050124	AW-050124	AE-070423	AW-070423
		6/21/2021	7/4/2023	5/1/2024	6/21/2021	7/4/2023	5/1/2024	7/4/2023	5/1/2024	7/4/2023	5/1/2024	5/1/2024	5/1/2024	7/4/2023	7/4/2023
Compounds	ug/m^3	ug/m^3	EDL	TEQ 1/2 EDL	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3
cis-1,2-Dichloroethene	40	<0.53	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
1,1-Dichloroethane	16	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.49 U	0.4 U
1,1,1-Trichloroethane	5000	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.65 U	0.55 U
1,1,2-Trichloroethane	0.20	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.065 U	0.055 U
1,2-Dichloroethane (EDC)	0.96	**0.11**	**0.272**	**0.125**	**0.06**	**0.072**	**0.045**	**0.042**	**0.008**	**0.052**	**0.012**	**0.061**	**0.069**	**0.063**	**0.053**
Tetrachloroethene	40	8.8 U	6.8 U	6.8 U	6.8 U	6.8 U	6.8 U	6.8 U	6.8 U	6.8 U	6.8 U	6.8 U	6.8 U	8.1 U	6.8 U
Trichloroethene	2.00	0.14 U	**0.14**	0.11 U	0.11 U	0.11 U	0.11 U	**0.13**	0.11 U	**0.11**	0.11 U	0.11 U	0.11 U	0.13 U	0.11 U
Vinyl chloride	2.84	0.13 U	0.13 U	0.26 U	0.26 U	0.13 U	0.26 U	0.13 U	0.26 U	0.13 U	0.26 U	0.26 U	0.26 U	0.16 U	0.13 U
Benzene	3.210	neg	**0.52**	**0.32**	neg	**0.01**	0.32 U	**0.02**	0.32 U	**0.01**	0.32 U	0.32 U	0.32 U	**0.83**	**0.73**
Ethylbenzene	1000	0.56 U	**0.1**	0.43 U	0.43 U	**0.09**	0.43 U	**0.1**	0.43 U	**0.1**	0.43 U	0.43 U	0.43 U	**0.75**	**0.57**
Toluene	5000	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U
m,p-Xylene	see total	1.1 U	**0.75**	**1.3**	0.87 U	**0.55**	**1.1**	**0.65**	**1.1**	**0.65**	**1.3**	0.87 U	0.87 U	**1.9**	**1.8**
o-Xylene	see total	0.56 U	**0.28**	**0.46**	0.43 U	**0.18**	0.43 U	**0.22**	0.43 U	**0.25**	0.43 U	0.87 U	0.87 U	**0.72**	**0.66**
Xylene, total	100	1.1 U	**1.03**	**1.76**	0.87 U	**0.73**	**1.1**	**0.87**	**1.1**	**0.9**	**1.3**	0.87 U	0.87 U	**2.62**	**2.46**
Naphthalene	0.74	**0.005**	**0.170**	**0.22**	**0.09**	**neg**	**0.18**	**0.200**	**0.12**	**0.17**	**0.15**	0.073 U	0.073 U	**0.36**	**0.73**
Analysis For Volatile Compounds By Method MA-APH															
APH EC5-8 aliphatics/ACGIH C5-8 aliphatics	NV	**11**	**142**	75 U	**31**	**82**	**77**	**82**	**76**	**72**	75 U	75 U	75 U	**88**	**88**
APH EC9-12 aliphatics/ACGIH C9-15 aliphatics	NV	**320**	25 U	25 U	**310**	25 U	25 U	**68**	25 U	**55**	25 U	25 U	25 U	25 U	25 U
APH EC9-10 aromatics/ACGIH C9-15 aromatics	NV	32 U	25 U	**53**	**27**	25 U	**37**	25 U	**27**	25 U	**31**	25 U	25 U	25 U	25 U
TPH	NV [a]	**331.0**	**143.8**	**53.0**	**341.1**	**82.8**	**114.0**	**151.2**	**103.0**	**128.2**	**31.0**	25 U	25 U	**88**	**88**
TPH - Risk Factors	MTCA Commercial/ Industrial	Not Evaluated	pass	pass	Not Evaluated	pass	pass	pass	pass	pass	pass	Not Evaluated	Not Evaluated	Not Evaluated	Not Evaluated

Notes:
Shade = detection exceeds indoor air Method C
μg/m^3 = micrograms per cubic meter of air
Bold = detected compound
U = laboratory detection limit
NV - no value available
neg = average ambient concentrations exceed the indoor air measured value.
TPH = Total Petroleum Hydrocarbons (sum of detected aliphatics and aromatic results)
Results shown have been corrected for ambient air affects and duplicates are not shown. Only detected compounds - detected in indoor air or subslab vapor - are shown.
a Ecology has not developed a TPH vapor intrusion screening level for commercial or industrial land use. In the absence of a MTCA screening level, indoor vapor sample results from July 2023 were evaluated on a point-by-point basis against vapor risk using spreadsheets developed by Ecology and provided in the December 11, 2023 comments (Ecology 2023). See Appendix E.

Table 16 Groundwater CVOCs Source Evaluation
Bridge - Former Dawn Foods Site

Location ID	Sample Date	Groundwater Analytical Results (micrograms per liter) VOCs[3] Tetrachloroethene	Trichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Vinyl Chloride	Total CVOCs (nmol/L)
Dawn Foods Monitoring Wells							
MW-1	1/4/2026	0.25	0.025	0.5	0.5	0.01	12
MW-2	1/22/24	0.5	0.25	0.5	0.5	0.01	15
MW-3	1/12/24	0.5	0.25	0.5	0.5	0.01	15
MW-4	1/6/2026	0.9	0.32	0.5	0.5	0.32	23
MW-5	1/7/2026	5.9	1.20	0.5	0.5	0.16	58
MW-6	6/7/24	0.5	0.25	0.5	0.5	0.01	15
MW-7	6/6/24	0.5	0.25	0.5	0.5	0.01	15
MW-8	1/5/2026	2.4	1.20	3.2	0.5	2.3	99
MW-9	1/5/2026	0.3	0.20	12.0	0.5	41	788
MW-10	1/5/2026	8.7	1.40	2.0	0.5	0.076	90
MW-11	1/6/2026	0.7	0.10	0.5	0.5	0.04	16
Dawn Foods Direct Push Locations							
GP-SB-1	1/2/20	0.5	0.5	16	0.5	44	881
GP-SB-2	1/2/20	5	0.5	400	5	72	5363
GP-SB-3	1/2/20	0.5	0.5	0.5	0.5	0.31	22
GP-SB-5	1/2/20	0.5	0.5	0.5	0.5	0.1	19
GP-SB-6	1/2/20	0.5	0.5	0.5	0.5	0.1	19
GP-SB-8	6/9/20	0.5	0.5	0.5	0.5	0.05	18
GP-SB-9 (Dup)	6/9/20	0.5	0.5	0.5	0.5	0.5	25
GP-SB-12	6/9/20	0.5	0.5	0.5	0.5	0.21	20
GP-SB-15	6/9/20	2.5	0.5	11	0.5	1.8	166
RI-SB-01	12/18/21	1.6	0.25	0.5	0.5	0.21	25
RI-SB-02 (Dup)	12/18/21	0.5	0.25	0.5	0.5	0.29	20
RI-SB-04	2/28/23	0.5	0.25	0.5	0.5	0.5	23
RI-SB-05	2/28/23	0.5	0.25	0.5	0.5	0.55	24
RI-SB-06	2/28/23	0.5	0.25	0.5	0.5	0.4	22
RI-SB-07	2/29/24	0.5	0.25	0.5	0.5	0.01	15
RI-SB-08	2/29/24	0.5	0.25	0.5	0.5	0.1	17
RI-SB-09	2/29/24	2.9	0.76	1.4	0.5	0.022	43
RI-SB-10	2/27/24	0.5	0.5	1.2	0.5	0.11	26
RI-SB-11	2/27/24	21	2.1	11	0.5	0.7	272
RI-SB-12	2/27/24	0.5	0.25	0.5	0.5	0.14	17
RI-SB-13	2/27/24	4.1	0.25	0.5	0.5	0.13	39
RI-SB-14	2/27/24	0.5	0.25	0.5	0.5	0.01	15
RI-SB-15	2/28/24	0.5	0.25	0.5	0.5	0.57	24
RI-SB-16	2/28/24	0.5	0.25	0.5	0.5	0.9	30
RI-SB-17	2/28/24	0.5	0.25	0.5	0.5	0.44	22
RI-SB-18	2/28/24	0.5	0.25	0.5	0.5	0.01	15
GWCC/Fox Avenue Monitoring Wells							
B-13	4/8/1999	4600	220	100	0.5	0.5	30458
B-10A	10/20/2010	1.9	16	3800	140	1400	63169
B-22	1/15/2025	0.106	0.25	135	0.712	168	4090
NW1-1	1/15/2025	0.25	0.137	95.1	0.13	69.2	2092
R1-IW9	1/16/2025	2.5	2.5	6.8	2.5	3.17	181
R1-IW12	1/16/2025	0.25	0.25	181	0.325	122	3825
B-54	1/16/2025	157	19.8	639	2.5	1	7730
B-66	1/16/2025	93.9	22.1	349	1.36	1	4364
B-77	5/4/2016	1.15	0.57	0.5	0.5	0.1	23
GWCC/Fox Avenue Temporary Wells							
TB-1	1/22/99	4300	130	54	0.5	0.5	27490
TB-2	1/22/99	2700	74	60	0.5	0.5	17477
TB-3	1/22/99	2100	52	41	0.5	0.5	13495
TB-4	1/22/99	2400	36	28	0.5	0.5	15049
Molecular Weight (g/mol)		165.83	131.39	96.95	96.95	62.51	

Notes:

1. Dawn Foods data is the most recent data point for each well.
2. GWCC/Fox Avenue data is the most recent publically available data
3. One-half the reporting limit used when U qualified value.

g/mol - grams per mole (molar mass)

VOC - volatile organic compound

GWCC/Fox Ave - Great Western Chemical/Cascade Columbia Distribution Company Ecology Site

Table 17 Potentially Applicable Requirements

Potentially Applicable Requirements for Cleanup Levels			
Medium	**Standard/ Criterion**	**Citation**	**Comments**
Soil	State of Washington requirements for establishing numeric or risk-based goals and selecting cleanup actions.	Model Toxics Control Act (WAC 173-340, Sections 740 and 745, 747)	Relevant and appropriate to site remediation.
Groundwater and surface water	State of Washington requirements for establishing numeric or risk-based goals and selecting cleanup actions.	Model Toxics Control Act (WAC 173-340, Sections 720 and 730 and WAC 173-246-290)	Relevant and appropriate to site remediation.
Surface Water	State water quality standards; conventional water quality parameters and toxic criteria.	Washington Water Pollution Control Act - State Water Quality Standards for Surface Water (RCW 90.48) WAC 173-201A	Narrative and quantitative limits for surface water protection.
Surface Water	Ambient water quality criteria for the protection of aquatic organisms and human health.	Federal Water Pollution Control Act/ Clean Water Act (CWA) §304 (33 USC 1251B1376;40 CFR 100B149) 40 CFR 131	Ambient water criteria and Water Quality Standards for the human consumption of organisms at 1 X 10^{-6} risk.
Surface Water	Ambient water quality criteria for the protection of aquatic organisms and human health.	National Toxics Rule 40 CFR 131	Relevant and appropriate to site remediation.
Groundwater (Protective of Drinking Water)	SDWA National Primary Drinking Water Standards: Maximum Contaminant Levels (MCLs), Maximum Contaminant Level Goals (MCLGs), Proposed MCLs and MCLGs.	Safe Drinking Water Act (SDWA) 40 CFR 141	Not anticipated as applicable since WAC 173-340-720(2)(d) criteria results in non potable determination. See section 5.2.1 of RIFS Report.
Potentially Applicable Requirements for Disposal			
Activity	**Requirement**	**Citation**	**Comments**
General Remediation	State hazardous waste management requirements. Management of wastes that designate as Washington hazardous waste as specified in WAC 173-303-070.	General Facility Standards (WAC 173-303-280-395)	Relevant and appropriate to site remediation.
Designation of Waste for Disposal	State criteria for dangerous waste, which are broader than federal criteria and include toxicity and persistence.	Washington Dangerous Waste Regulations (WAC 173-303) Designation procedures (Section -070) and WAC 173-350 (solid waste regulations).	The appropriate waste designation should be made for IDW or other waste generated during remedial actions, according to WAC 173-303-100. Soils with PCE, TCE and VC are considered a listed F002 dangerous waste unless Ecology determines that these materials do not warrant management as a dangerous waste. Soils and groundwater that are not classified as dangerous waste will be considered 'contaminated soils', according to WAC 173-350-100. Soil and groundwater with solvents present will require Ecology to make a contained-in determination, which will determine if the media contains hazardous waste for disposal.
Treatment, Storage, or Disposal of Hazardous Wastes	Effective November 8, 1988, disposal of contaminated soil or debris is subject to land disposal prohibitions or treatment standards.	40 CFR 268 Federal Land Disposal Restrictions; WAC 173-303-140, -141 Land Disposal Restrictions	Anticipated to be relevant for qualifying treatment of residues/sludges.
Discharge to POTWs (Publicly Owned Treatment Works)	Contaminated water must be pretreated to certain limits prior to discharge.	National Pretreatment Standards (40 CFR 403); Metro District Wastewater Discharge Ordinance	Discharges to POTWs are considered off-site activities; pretreatment and permitting requirements would be applicable.
Point Source or Other Defined Emission Source	State implementation of ambient air quality standards.	Washington State Clean Air Act (70.94 RCW) General Requirements for Air Pollution Sources (WAC 173-400)	Potentially applicable to remedial actions.
	PSAPCA ambient and emission standards.	PSAPCA Regulations I and III	
Potentially Applicable Requirements for Remediation Activities			
Location/Activity	**Requirement/Prerequisite**	**Citation**	**Comments**
General Remediation	Site worker health and safety.	WISHA (WAC 296-62) OSHA (29 CFR 1910.120)	Relevant requirement.
	Erosion and sedimentation controls.	Puget Sound Water Quality Management Plan (RCW 90.70.070)	Relevant requirement.
Monitoring Wells	Standards for construction, testing, and abandonment of water and resource protection wells.	WAC 173-160-010 through -303, -050 through -060	Applicable requirement for remediation activities.
Washington Underground Injection Control Program	Requirements for underground injection control applicable to cleanup alternatives that include injection of materials into subsurface groundwater and soil.	WAC 173-218	Potentially relevant depending on remedial activities selected.
Noise Control	Maximum noise levels	Noise Control Act of 1974 (RCW 70.107; WAC 173-60)	Potentially relevant depending on remedial activities selected.
Air Emissions	Regional ambient air quality standards applicable to regulated air contaminant.	Puget Sound Air Pollution Control Agency (PSAPCA) Regulation III	Emissions from site not expected to qualify as major source unless: a) emissions are greater than 100 tons/yr; or b) emissions of a specified air contaminant occur.
	New Source Pretreatment Standards applicable to new source of hazardous air pollutants.	40 CFR 60	Potentially applicable to releases from remedial actions.
	Controls for New Sources of Toxic Air Pollutants for emission of any Class A or Class B toxic air pollutant (identified in WAC 173-460-150 through -160) into ambient air.	WAC 173-460	Potentially applicable to releases from remedial actions.
	Regional Emission Standards for Toxic Air Pollutants. Source of toxic air contaminant requires a notice of construction.	PSAPCA Regulation III	Potentially applicable depending on remedial technology used.
	Regional Emission Standards for fugitive dust. BACT to control dust.	PSAPCA Regulation I	Potentially applicable to releases from remedial actions which include the treatment of vapor and the release of emissions.
Disturbance of Greater than 5 Acres	NPDES Stormwater Permit for construction activity.	WAC 173-226, RCW 90.48	Potentially applicable depending on remedial technology used and footprint of remedial action.
Archaeological and Historic Preservation Act	Establishes procedures for the preservation of historical and archeological data that might be destroyed through alteration of terrain because of a federally licensed activity or program.	16 USC 469	Potentially applicable depending on remedial technology used.
Archaeological Resources Protection Act	Specifies the steps that must be taken to protect archaeological resources and sites that are on public and Native American lands and to preserve data uncovered.	16 USC 470aa; 43 CFR 7	Potentially applicable depending on remedial technology used.
Within State Siting Criteria for Waste Management Facilities	Siting criteria to be used as initial screen for consideration of solid or dangerous waste facility sites.	WAC 173-304, WAC 173-303-282(2)(b)(iii)	No new solid or dangerous waste management facilities are planned.
State Environmental Policy Act	State law intended to ensure state and local government officials consider environmental values when making decisions or taking an official action such as approving the Cleanup Action Plan.	RCW 43.21C; WAC 197-11; WAC 173-802	Potentially applicable depending on remedial technology used.

Notes:
CFR – code of federal regulations; CULs – cleanup levels; MTCA – Model Toxics Control Act; RCW – Revised Code of Washington; WAC – Washington Administrative Code; WISHA – Washington State Department of Labor and Industries
USC - United States Code

Table 18 Proposed Cleanup Levels
Bridge - Former Dawn Foods Site

COI - Soil				
Compound	**Vadose PCUL**	**Basis**	**Saturated PCUL**	**Basis**
Metals (mg/L)				
Arsenic	7.3	Natural Background	7.3	Natural Background
Cadmium	0.77	Natural Background	0.77	Natural Background
Total Chromium	48	Natural Background	48	Natural Background
Hexavalent Chromium	0.14	Protect SW via GW (vadose)	0.0069	Protect SW via GW (sat)
Copper	36	Natural Background	36	Natural Background
Lead	1620	Protect SW via GW (vadose)	81	Protect SW via GW (sat)
Mercury	0.07	Natural Background	0.07	Natural Background
Nickel	48	Natural Background	48	Natural Background
Zinc	100	Protect SW via GW (vadose)	85	Natural Background
Petroleum-Related Compounds (mg/L)				
Gasoline Range	100	Protect SW via GW (vadose)	100	Protect SW via GW (sat)
DRO/ORO (Diesel + Lube Oil)	2,000	Protect SW via GW (vadose)	2,000	Protect SW via GW (sat)
Volatile Organic Compounds				
Trichloroethene	0.0044	Protect SW via GW (vadose)	0.00027	Protect SW via GW (vadose)
Tetrachloroethene	0.029	Protect SW via GW (vadose)	0.0016	Protect SW via GW (vadose)
Semi-Volatile Organic Compounds (mg/L)				
Fluorene	1	sed-erosion/sed-gw sat zone	0.029	sed-erosion/sed-gw sat zone
Benzo(a)pyrene	0.0003	sed-gw vadose/sed-gw sat zone	0.00016	sed-gw vadose/sed-gw sat zone
Total cPAHs TEQ	0.0003	sed-gw vadose/sed-gw sat zone	0.00016	sed-gw vadose/sed-gw sat zone
Polychlorinated Biphenyl Aroclors® (mg/L)				
Total PCBs	0.030	PQL	0.030	PQL
Dixoins and Furans (mg/L)				
Dixoins and Furans	5.70E-06	PQL	5.70E-06	PQL

COI-Groundwater		
Compound	**PCUL**	**Basis**
Metals (ug/L)		
Arsenic - dissolved	8.00	Natural Background
Cadmium - dissolved	1.20	Protect Sediment
Total Chromium - dissolved	Cr III: 27.4	Protect Surface Water
Chromium VI - dissolved	Cr VI: 1.6	Protect Surface Water
Copper - dissolved [b]	3.10	Protect Surface Water
Mercury - dissolved	0.03	Protect Surface Water
Nickel - dissolved	8.20	Protect Surface Water
Zinc - dissolved	81	Protect Surface Water
Petroleum-Related Compounds (ug/L) *		
Gasoline Range Organics	1700	Protect Surface Water
Total Dx (DRO + ORO)	2100	Protect Surface Water
Volatile Organic Compounds (ug/L)		
Tetrachloroethene	2.9	Protect Surface Water
Trichloroethene	0.70	Protect Surface Water
Vinyl chloride	0.18	Protect Surface Water
Semi-Volatile Organic Compounds (ug/L)		
1-methylnaphthalene	0.2	Protection of indoor air
Benzo(b)fluoranthene	0.00016	Protect Surface Water
Halogenated Aromatic Hydrocarbons (ug/L)		
Total dioxin/furan TEQ	5.70E-05	PQL

COI -Vapor		
Compound	**PCUL**	**Basis**
Volatile Organic Compounds (ug/m3)		
Tetrachloroethene	40	MTCA Method C Industrial
Trichloroethene	2.00	MTCA Method C Industrial
Xylene, totals	100	MTCA Method C Industrial
Naphthalene	0.74	MTCA Method C Industrial
TPH	TPH risk factors	MTCA Method C Industrial

Notes
*Values based on Ecology's Implementation Memorandum #23 for Petroleum Hydrocarbon Contaminants

COI - constituents of interest
COC - contaminant of concern
TEQ - Toxic equivalency
$\mu g/m^3$ = micrograms per cubic meter of air
pg/L - picogram/liter

mg/kg - milligram per kilogram
ug/L - microgram per liter
NA - not applicable
PCUL - Preliminary Cleanup Levels

Table 19 Upper Confidence Level Summary Analysis - Soil Results
Bridge - Former Dawn Foods Site

Sample ID	Arsenic	Cadmium	Chromium	Copper	Mercury	Nickel	Zinc
PRO UCL 95% UCL	**4.4**	**0.042**	**14.85**	**21.75**	**0.0427**	**10.01**	**45.21**
UCL Test Method	95% KM (t)	95% KM (t) UCL	95% Student's-t UCL	95% KM (t)	95% KM (t) UCL	95% Approximate Gamma UCL	KM H-UCL
Max Value	**13.6**	**0.5**	**98.4**	**35**	**0.07**	**22.9**	**140**
Sample Set Size	61	61	56	15	61	61	61
No. of Exceedances in Data Set	5	0	1	0	0	0	4
Max Allowable Concentration	20	2	132	72	0.1925	132	234
No. Allowed Exceedances	9	9	9	4	9	9	9
Natural Background (NB)	7.3	0.77	48	36	0.07	48	85
Is UCL below the NB value?	**Yes.**	**Yes.**	**Yes.**	**Yes.**	**Yes.**	**Yes.**	**Yes.**
Is the max value below 2x NB?	**Yes.**	**Yes.**	**No.**	**Yes.**	**Yes.**	**Yes.**	**Yes.**
Is max value below max allowable?	**Yes.**	**Yes.**	**Yes.**	**Yes.**	**Yes.**	**Yes.**	**Yes.**
Is number of exceedances below allowable?	**Yes.**	**NA - all below**	**Yes.**	**NA - all below**	**NA - all below**	**NA - all below**	**Yes.**

Notes:

1. Max value excludes filtered samples. Filtered samples include all soil samples from the following locations: MW-5, GP-SB-05, GP-SB-08, GP-SB-11, RI-SB-04, RI-SB-07, RI-SB-08, RI-SB-10, and RI-SB-11

2. Number of allowable exceedances and max allowable concentration is based on the following:
Statistical Guidance for Ecology Site Managers. Washington Department of Ecology. August 1992.
https://apps.ecology.wa.gov/publications/documents/9254.pdf

Table 20 Summary of Soil Protective of Groundwater Results
Dawn Foods Site

COI	Soil			Groundwater (GW) at Nearest Location to Soil Max Sample				Notes
	Soil PCUL (saturated; mg/kg)	Max Concentration Saturated Samples (mg/kg)	Max Soil Sample ID and Sample Depth (ft bgs)	GW PCUL (ug/L)	Max Groundwater Concentration (ug/L)	Max GW Sample ID	Is compund detected at any shoreline well above PCUL (MW-1, MW-2, MW-3)*	
arsenic	7.3	28.7	RI-SB-10 5-8'	8	1.13	RI-SB-10	No	
lead	81	580	HC-4**	8.1	0.257	RI-SB-11	No	HC-4 soil data was collected in 1996. This sample was repopulated in 2024 with RI-SB-11. Lead was detected at a concentration of 133 mg/kg.
copper	36	460	RI-SB-11 5-7.5'	3.1	1.14	RI-SB-11	No	Soil sample is vadose, the sample interval is just above the saturated depth. No saturated soil sample from this boring.
mercury	0.07	2	GP-SB-5-7	0.03	ND (<1.0)	GP-SB-5	No	
hexavalent chromium	0.031	0.688	RI-SB-07 10-15'	1.6	0.658	MW-2	No	
total chromium	Cr III: 27	698	RI-SB-10 5-8'	Cr III: 27.4	1.92 J	RI-SB-10	No	
nickel	48	477	RI-SB-10 5-8'	8.2	ND (<1.21)	RI-SB-10	No	
PCBs	0.03	0.057	GP-SB-30-13.3	0.052	Not detected at any site monitoring well above the PCUL		No	MW-3 was resampled and initial results were not replicated
Dioxins and Furans	5.20E-06	7.25E-04	RI-SB-19-12.5-14.5	6.50E-05 (PQL)	2.4E-05	MW-3	No	RI-SB-19 was installed approximately 4 feet upgradient of MW-3.
cPAHs	0.00016	0.188	GP-SB-25-08	0.009 (PQL)	ND (<0.04)	GP-SB-25	No	MW-3 was resampled and initial results were not replicated
fluorene	0.029	0.67	GP-SB-25-08	3.7	ND (<0.04)	GP-SB-25	No	Soil sample is vadose, the sample interval is just above the saturated depth. The saturated sample was ND (<0.01)

Notes:
Bold = detection
mg/kg = milligrams per kilograms
ug/L = micrograms per liter
< = less than the laboratory detection limit
* For metals, dissolved groundwater data used, for all COIs, data from most recent sampling evaluated.
** HC-4 soil data was collected in 1996. This sample was repopulated in 2024 with RI-SB-11.
PCUL - Preliminary Cleanup Levels
ND - not detected

Table 21 Chemicals of Concern and Cleanup Levels
Bridge - Former Dawn Foods

Constituent	COI	COC	Cleanup Levels (Soil is Vadose/ Saturated)	CUL Unit	Basis
Soil					
Arsenic	Yes	**Yes - in the vicinity of RI-SB-10; results are > Method C Direct Contact. All other results are < Soil to GW Pathway**	**20**	**mg/kg**	**Method A Direct Contact Value**
Cadmium	Yes	No – < DC and Soil to GW Pathway	NA	NA	NA
Total Chromium	Yes	No – < DC and Soil to GW Pathway	NA	NA	NA
Hexavalent Chromium	No	No – < DC and Soil to GW Pathway	NA	NA	NA
Copper	Yes	No – < DC and Soil to GW Pathway	NA	NA	NA
Lead	Yes	No – < DC and Soil to GW Pathway	NA	NA	NA
Mercury	Yes	No – < DC and Soil to GW Pathway	NA	NA	NA
Nickel	Yes	No – < DC and Soil to GW Pathway	NA	NA	NA
Zinc	Yes	**Yes**	**100/85**	**mg/kg**	**Protect SW via GW (vadose)/Natural Background**
Gasoline Range Organics (TPH-Gx)	No	**Yes**	**100**	**mg/kg**	**Protect SW via GW**
total Diesel Range (DRO+ORO)	No	**Yes**	**2,000**	**mg/kg**	**Protect SW via GW**
Trichloroethene (TCE)	No	**Yes**	**0.0044/ 0.00027**	**mg/kg**	**Protect SW via GW**
Tetrachloroethene (PCE)	Yes	**Yes**	**0.029/ 0.0016**	**mg/kg**	**Protect SW via GW**
cPAH TEQ	Yes	No – < DC and Soil to GW Pathway	NA	NA	NA
Benzo(a)pyrene	No	No – see cPAH TEQ	NA	NA	NA
Fluorene	No	No – < DC and Soil to GW Pathway	NA	NA	NA
PCB	No	No – < DC and Soil to GW Pathway	NA	NA	NA
Dioxin and Furans	No	No – < DC and Soil to GW Pathway	NA	NA	NA
Groundwater					
Arsenic	Yes	No - < PCULs	NA	NA	NA
Cadmium	Yes	No - < PCULs	NA	NA	NA
Total Chromium	Yes	No - <PCULs	NA	NA	NA
Hexavalent Chromium	No	No - <PCULs	NA	NA	NA
Copper	Yes	No - <PCULs	NA	NA	NA
Mercury	Yes	No - <PCULs	NA	NA	NA
Nickel	Yes	No - <PCULs	NA	NA	NA
Zinc	Yes	**Yes**	**81**	**µg/L**	**Protect Surface Water**
TPH-G	Yes	**Yes (MW-8)**	**1700 ***	**µg/L**	**Protect Surface Water**
TPH-Dx	Yes	**Yes (MW-8)**	**2100 ***	**µg/L**	**Protect Surface Water**
PCE	Yes	**Yes**	**2.9**	**µg/L**	**Protect Surface Water**
TCE	Yes	**Yes**	**0.70**	**µg/L**	**Protect Surface Water**
Vinyl Chloride	Yes	**Yes**	**0.18**	**µg/L**	**Protect Surface Water**
cis-1,2 DCE	Yes	No - <PCULs	NA	NA	NA
1-methylnaphthalene	No	No – below PCUL based on protection of surface water	NA	NA	NA
Benzo(b)fluoranthene	No	No - <PCULs	NA	NA	NA
PCBs	No	No- <PCULs	NA	NA	NA
Total dioxin/furan TEQ	5.70E-05	No- <PCULs	NA	NA	NA
Indoor Air					
PCE	No	**Yes (based on sub-slab data)[1]**	**40**	**µg/m3**	**MTCA Method C Industrial**
TCE	Yes	**Yes (based on sub-slab data)[1]**	**2.00**	**µg/m3**	**MTCA Method C Industrial**
Naphthalene	Yes	No - <PCULs	NA	NA	NA
TPH	Yes	No - <PCULs	NA	NA	NA
Xylenes	No	**Yes (based on sub-slab data)[1]**	**100**	**µg/m3**	**MTCA Method C Industrial**

Notes:
No - <PCULs = all values are below PCULs
No – < DC and Soil to GW Pathway = all soil concentrations are below direct contact or satisfied the soil to groundwater demonstration to be protective of groundwater
1. The indoor air COCs TCE, PCE, and xylenes since these compounds were present in sub-slab vapor above screening levels (Table 14) and may pose a risk if building conditions change or if subsurface work is conducted that could result in the accumulation of vapors (such as confined space work). No sub-slab vapor cleanup levels have been established by Ecology.
*Values based on Ecology's Implementation Memorandum #23 for Petroleum Hydrocarbon Contaminants

COC - contaminant of concern
TEQ - Toxic equivalency
NA - not applicable
mg/kg - milligram per kilogram
ug/L - microgram per liter
PCUL - Preliminary Cleanup Levels
$\mu g/m^3$ = micrograms per cubic meter of air

Table 22 Interim Action Performance Data - Geochemical Results
Bridge - Former Dawn Foods

	MW-1				MW-4				MW-5					MW-8					MW-10				MW-11			
Compound	**9/24/24**	**2/26/25**	**5/27/25**	**9/15/25**	**9/25/24**	**2/25/25**	**9/16/25**	**1/6/26**	**9/25/24**	**2/26/25**	**5/27/25**	**9/15/25**	**1/7/26**	**9/23/24**	**2/25/25**	**5/28/25**	**9/15/25**	**1/5/26**	**9/23/24**	**2/25/25**	**9/15/25**	**1/10/26**	**9/23/24**	**2/25/25**	**5/29/25**	**9/15/25**
Methane - mg/L	0.005 U	0.005 U	**0.0102**	**0.00944**	**0.34**	**2.91**	**1.2**	**0.818**	**1.68**	**10.5**	**6.73**	**7.68**	**2.22**	**2.42**	**6.35**	**5.74**	**3.23**	**2.38**	**0.051**	**0.0206**	0.005 U	0.00500 U	**1.31**	**0.68**	**1.7**	**2.37**
Ethylene - mg/L	0.01 U	0.01 U	0.0100 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0100 U	0.01 U	0.01 U	0.0100 U	0.01 U	0.0100 U	0.01 U	0.01 U	0.0100 U	0.01 U	0.0100 U	0.01 U	0.01 U	0.01 U	0.0100 U	0.01 U	0.01 U	0.0108 U	0.01 U
Ethane - mg/L	0.01 U	0.01 U	0.0100 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0100 U	0.01 U	0.01 U	0.0100 U	**0.0083**	0.0100 U	0.01 U	0.01 U	0.0100 U	**0.0103**	0.0100 U	0.01 U	0.01 U	0.01 U	0.0100 U	0.01 U	0.01 U	0.0108 U	0.01 U
Chloride - mg/L	**5,090**	**3,700**	**2,160**	**4,450**	**50.5**	**400**	**244**	**2,300**	**235**	**17.4**	**24**	**56.4**	**24.0**	**59.5**	**35.9**	**43.5**	**37.8**	**28**	**10.4**	**4.13**	**6.56**	**2.6**	**61**	**844**	**379**	**359**
Nitrite - mg/L	0.2 U	20 U	4.00 U	20.0 U	0.4 U	2 U	**4.34**	**0.2 U**	0.4 U	1 U	0.200 U	**1.57**	**0.2 U**	0.2 U	0.4 U	0.200 U	**1.27**	0.2 U	0.2 U	0.2 U	2.00 U	0.2 U	0.2 U	0.2 U	0.200 U	**5.75**
Nitrate - mg/L	**0.314**	20 U	4.00 U	**10.8**	0.4 U	2 U	2.00 U	0.2 U	0.4 U	1 U	0.200 U	2.00 U	0.2 U	0.2 U	0.4 U	0.200 U	2.00 U	0.2 U	0.2 U	0.2 U	2.00 U	0.2 U	0.2 U	0.2 U	0.200 U	2.00 U
Phosphorus, Total Orthophosphate (As PO4) - mg/L	0.4 U	40 U	**25.4**	**10.8**	0.8 U	4 U	4.00 U	1 U	0.8 U	2 U	0.400 U	4.00 U	1 U	0.4 U	0.8 U	0.400 U	4.00 U	1 U	0.4 U	0.4 U	4.00 U	1 U	0.4 U	0.4 U	0.400 U	4.00 U
Sulfate - mg/L	**739**	**518**	**325**	**515**	**11.7**	10 U	**17.6**	**310**	**14.9**	10 U	1	10.0 U	1 U	**6.11**	2 U	3.27	10.0 U	**2.6**	**15**	**25.6**	**12.6**	**28**	**3.27**	**122**	**48**	**29.0**
Total Organic Carbon - mg/L	**0.93**	**0.974**	**1.51**	**1.25**	**3.26**	**88.2**	**4.29**	**4.33**	**4.53**	**144**	**19.6**	**6.68**	**2.43**	**8.56**	**12.3**	**5.34**	**7.34**	**5.87**	**5.41**	**1.55**	**1.84**	**1.23**	**2.45**	**2.89**	**3.29**	**4.69**
Ammonia - mg/L	0.15 U	0.15 U	0.150 U	0.150 U	0.15 U	0.15 U	0.150 U	0.150 U	0.15 U	0.15 U	0.150 U	0.150 U	0.150 U	0.15 U	0.15 U	0.150 U	0.150 U	0.150 U	0.15 U	0.15 U	0.150 U	0.150 U	0.15 U	0.15 U	N/A	0.150 U
Iron - Dissolved - ug/L	**560**	18.2 U	1000 U	**670**	**14,000**	**63,800**	**25,000**	**31,000**	**8,500**	**16,300**	**8,700**	**20,000**	**4,000**	**28,000**	**43,100**	**23,000**	**33,000**	**41,000**	**1,600**	**18.2 U**	**230**	**87**	**20,000**	**54,000**	**29,000**	**34,000**
Manganese - Dissolved - ug/L	10 U	0.909 U	1 U	2 U	**730**	**575**	**650**	**460**	**660**	**1,260**	**660**	**680**	**400**	**7,200**	**4,520**	**4,900**	**7,000**	**800**	**660**	**61**	**110**	**25**	**600**	**2,040**	**920**	**870**

Notes:
ug/L - micrograms per liter
mg/L - milligrams per liter
Bold = detection

Table 23 MTCA Requirements: Evaluation of Alternatives
Bridge - Former Dawn Foods Site

MTCA Cleanup Action Requirement	Alternative 1 ERD, Excavation and Off-Site Disposal, Capping, Institutional Controls and Monitoring	Alternative 2 ERD, Targeted Excavation and Off-Site Disposal, Capping, Institutional Controls and Monitoring	Alternative 3 ERD, PRB, Capping, Institutional Controls and Monitoring	Alternative 4 ERD, Institutional Controls, Monitoring and Capping
General Criteria				
Protect Human Health and the Environment	Yes	Yes	Yes	Yes
Compliance with Cleanup Standards and Laws	Yes	Yes	Yes	Yes
Comply with Applicable State and Federal Laws	Yes	Yes	Yes	Yes
Prevent or Minimize Releases and Migration of Hazardous Substances	Yes	Yes	Yes	Yes
Provide Resilience to Climate Change Impacts	Yes	Yes	Yes	Yes
Compliance Monitoring and Protection	Yes	Yes	Yes	Yes
Not rely Primarily on Institutional Controls and Monitoring	Yes	Yes	Yes	Yes
Not Rely Primarily on Dilution and Dispersion	Yes	Yes	Yes	Yes
Reasonable Restoration Time Frame	Yes	Yes	Yes	Yes
Permanence	Yes	Yes	Yes	Yes
Action-Specific Criteria				
Use Institutional Controls in Accordance with WAC	Yes	Yes	Yes	Yes
Provide for Financial Assurances in Accordance with WAC	Yes	Yes	Yes	Yes
Provide for Periodic Reviews in Accordance with WAC	Yes	Yes	Yes	Yes
Public Concerns and Tribal Rights and Interests				
Consideration for Public Concerns and Tribal Rights and Interests	Yes	Yes	Yes	Yes

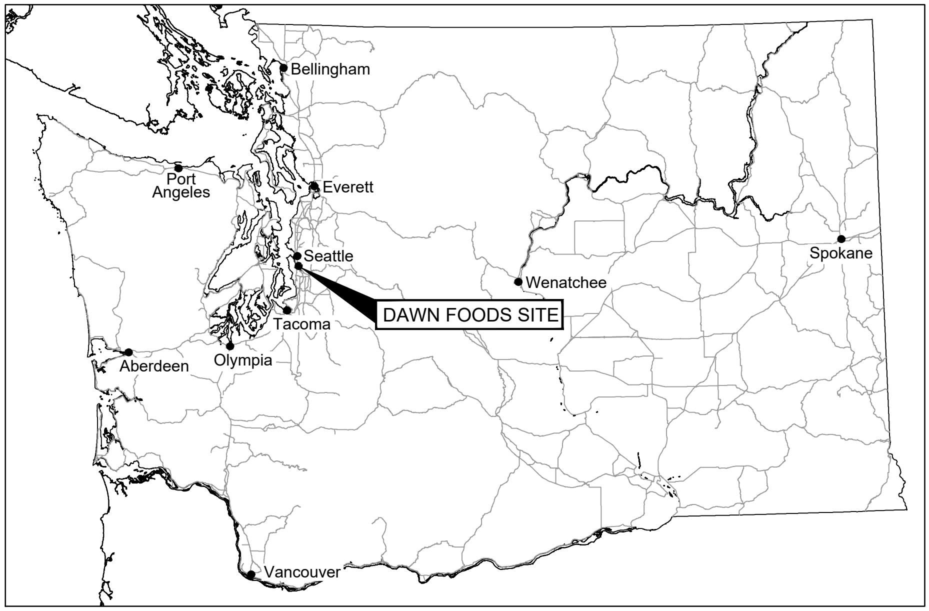
Notes:
MTCA = Model Toxics Control Act
ERD = Enhanced in-situ reductive dichlorination
PRB = permeable reactive barrier
WAC = Washington Administrative Code

Table 24 Disproportionate Cost Analysis for Remedial Alternatives
Bridge - Former Dawn Foods Site

Alternative	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Criteria Weight Fraction	ERD, Excavation and Off-Site Disposal, Capping, Institutional Controls and Monitoring	ERD, Targeted Excavation and Off-Site Disposal, Capping, Institutional Controls and Monitoring	ERD, PRB, Capping, Institutional Controls and Monitoring	ERD, Institutional Controls, Monitoring and Capping
Evaluation of Permanence Using MTCA Disproportionate Cost Analysis				
Protectiveness 20%	10	7	7	5
Permanence 20%	10	7	4	4
Long-Term Effectiveness 20%	10	7	5	3
Management of Implementation Risks 20%	3	5	5	10
Technical/Administrative Implementability 20%	3	5	5	10
Overall Weighted Benefit Score **100%**	**7.2**	**6.2**	**5.2**	**6.4**
Disproportionate Cost Analysis				
Remedy Permanate to the Maximum Extent Practicable	Yes	Yes	Yes	Yes
Probable Cost	$7,118,000	$2,540,000	$4,263,000	$1,109,000
Total Benefit Score	7.2	6.2	5.2	6.4
Total Estimated Cost (Millions)	$7.12	$2.54	$4.26	$1.11
Cost Effectiveness (Cost/Benefit Ratio)	1.0	0.4	0.8	0.2

Notes:
Notes: 1 = Lowest Relative Ranking, 10=Highest Relative Ranking
ERD = Enhanced in-situ reductive dichlorination
PRB = permeable reactive barrier
WAC = Washington Administrative Code

Figures



WASHINGTON LOCATION MAP

VICINITY MAP

0 800 1600
SCALE IN FEET

Source: Google Earth. Image date 8/22/2022

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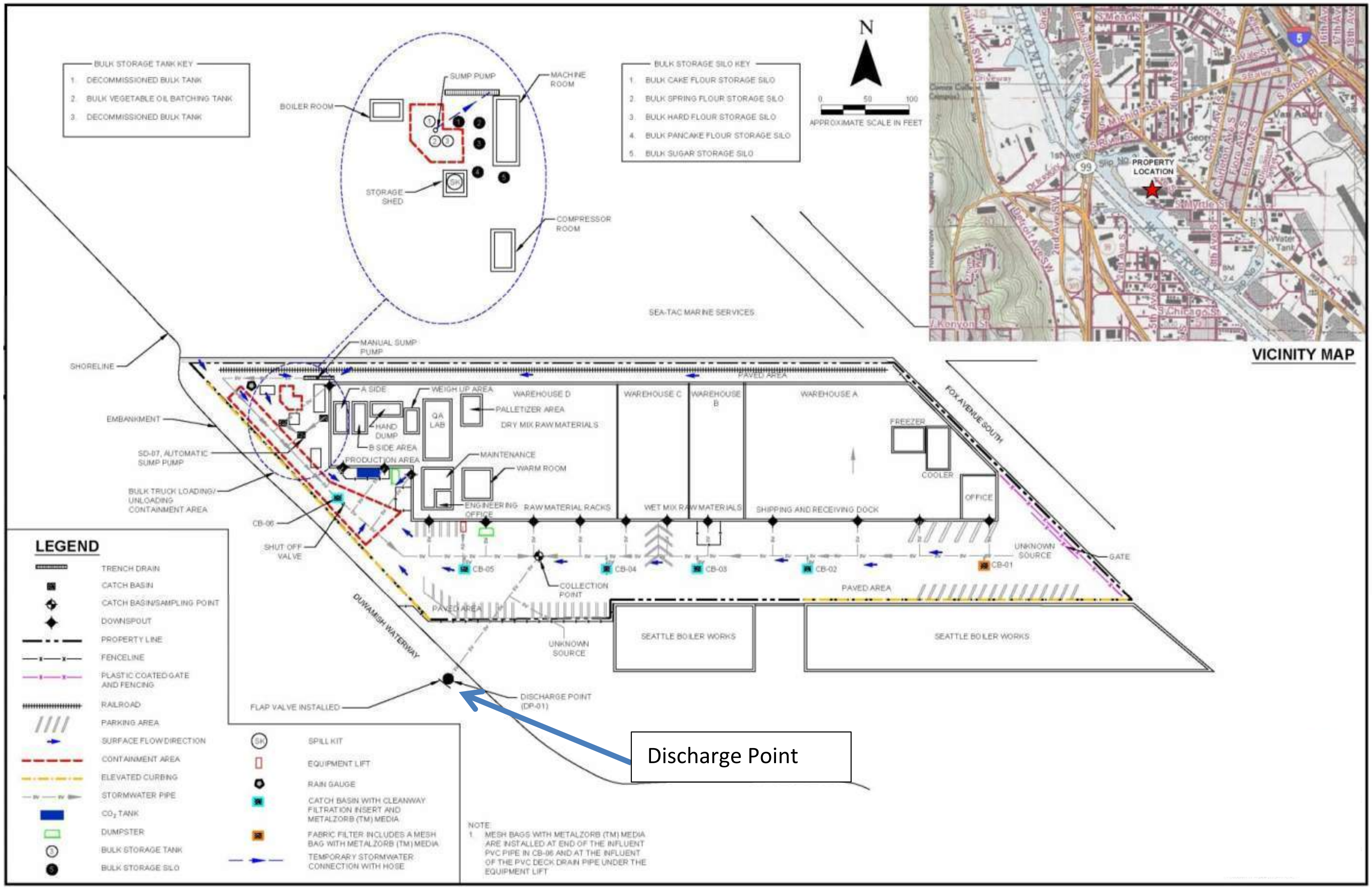
Dawn Food Site
6901 Fox Ave South
August 2, 2026

Figure 1
Vicinity Map

File: Dawn Foods Vicmap.dwg Layout: Vicmap



Source of Figure –Stormwater Treatment Engineering Design Report. Perpared by Clear Water Servi‹ es and Landau Assoicates, Inc. May 2021.

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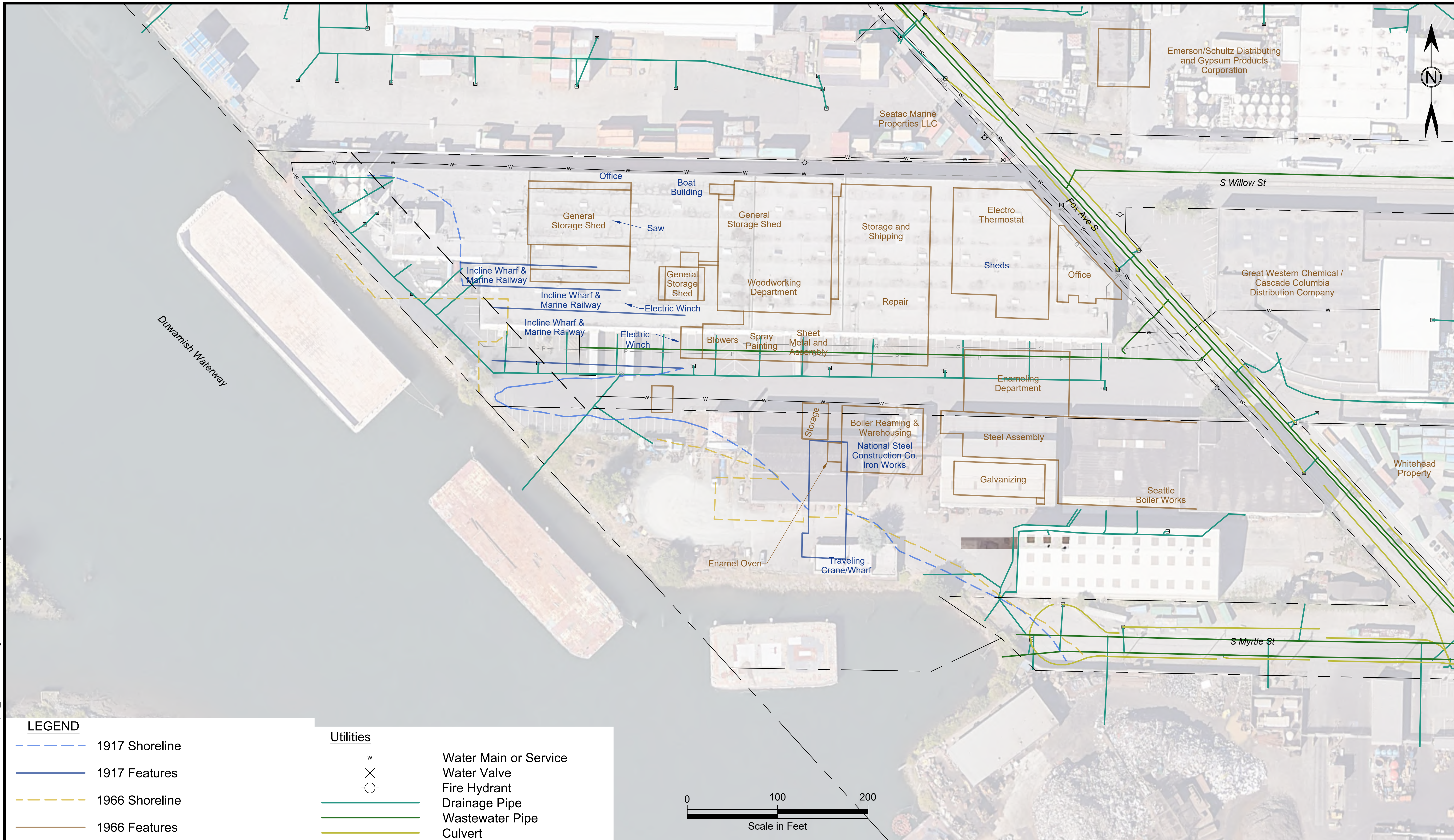
Former Dawn Foods Facility Bridge Point Seattle 130, LLC August 2, 2026	Figure 2 Stormwater Facility Site Map



LEGEND

- 1917 Shoreline
- 1917 Features
- 1966 Shoreline
- 1966 Features

Utilities

- Water Main or Service
- Water Valve
- Fire Hydrant
- Drainage Pipe
- Wastewater Pipe
- Culvert
- Catch Basin
- Manhole
- Powerline - Overhead
- Powerline - Underground
- Power Pole
- Gasline

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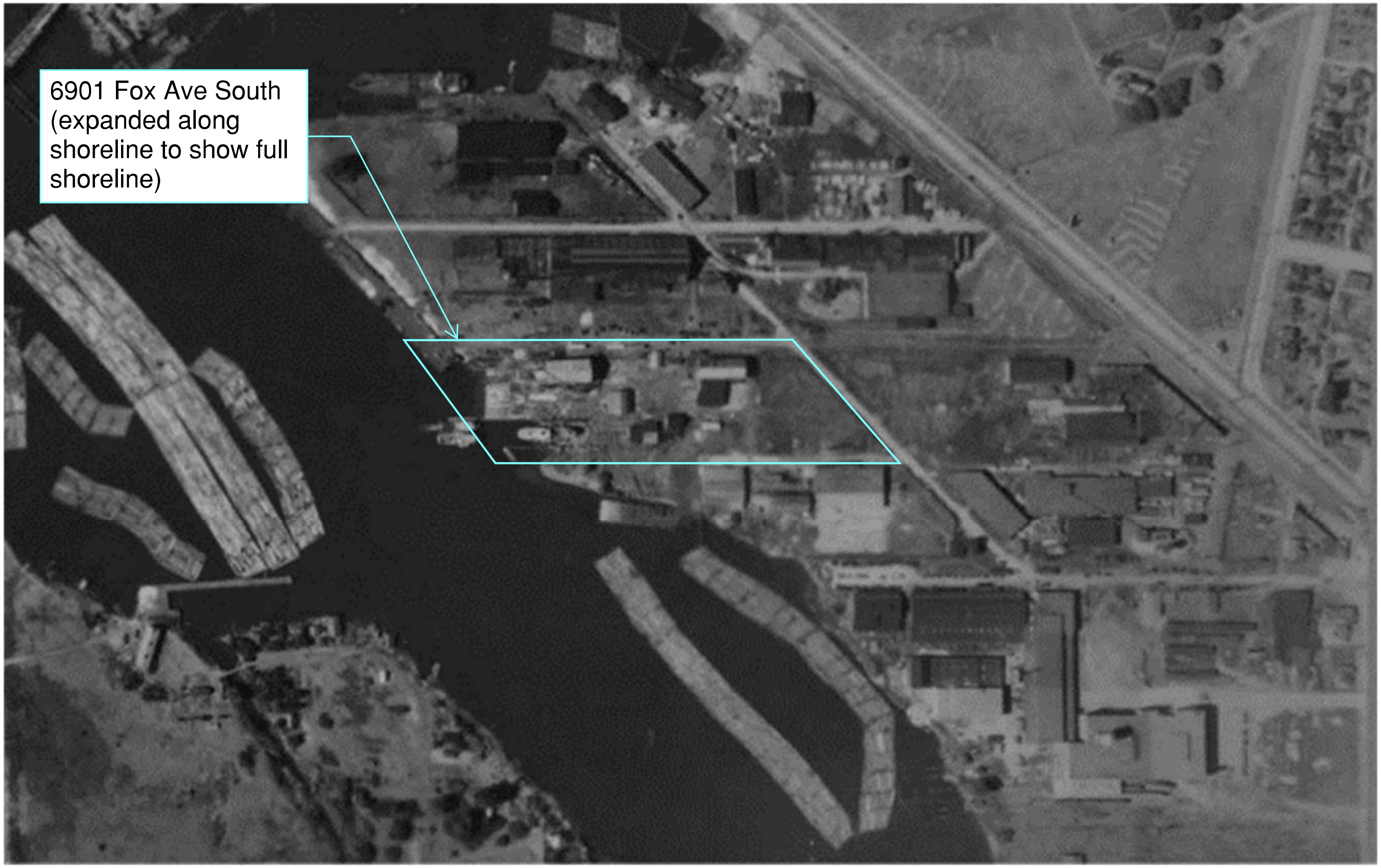
Dawn Food Site
6901 Fox Ave South
August 1, 2026

Figure 3
Site Historical Features and Existing Site Utilities

File: D:_Projects\Crete\Dawn Foods\Dawn Foods Sample_2026 RIFS.dwg Date: 8/20/2026 | Caby

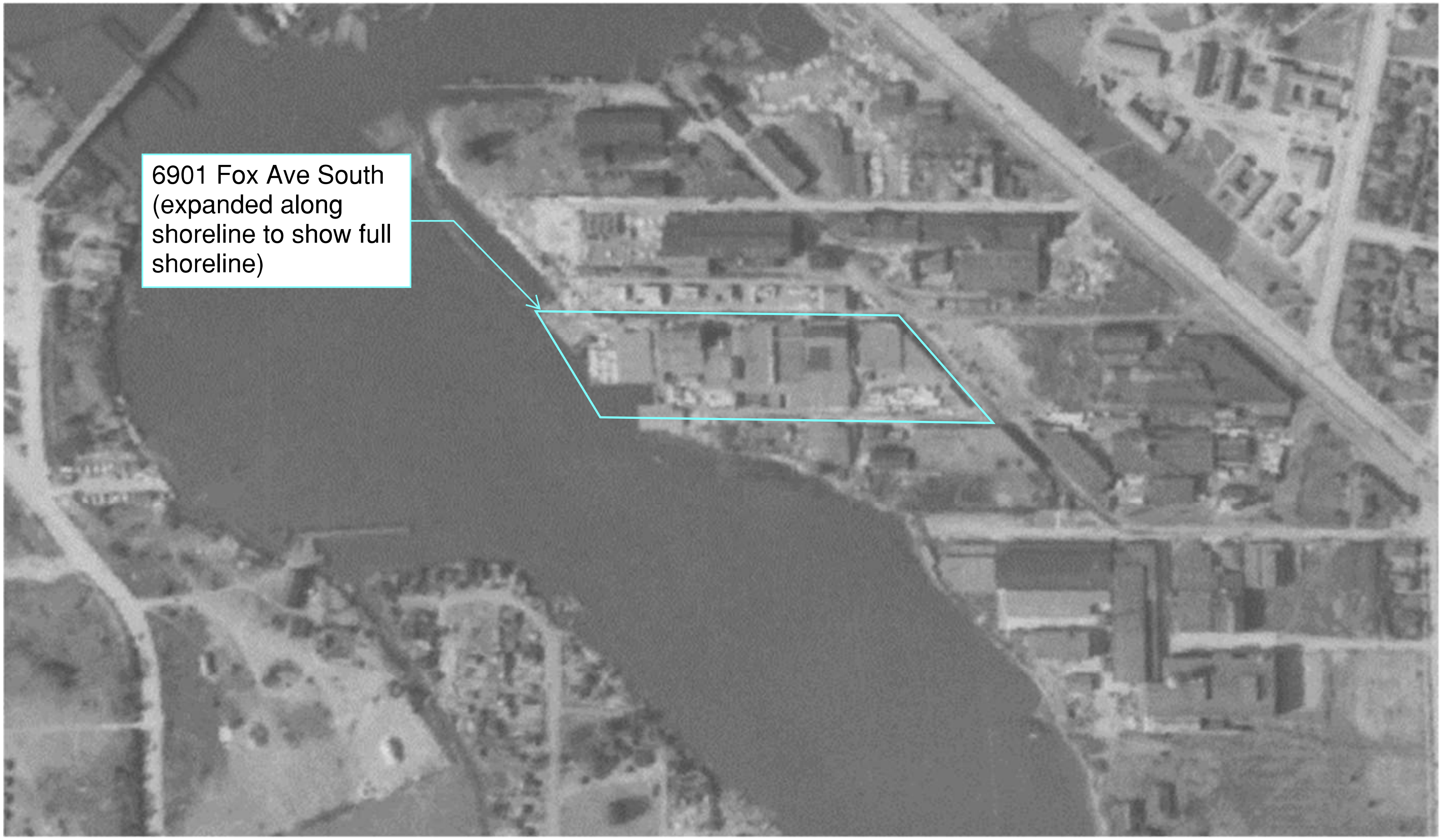


1936

Former Dawn Foods Facility
Bridge Point Seattle 130, LLC
August 2, 2026

Figure 4A
Historical Aerial Photographs
Parcel Number 000180-0113

CRETE CONSULTING, INC.



1943

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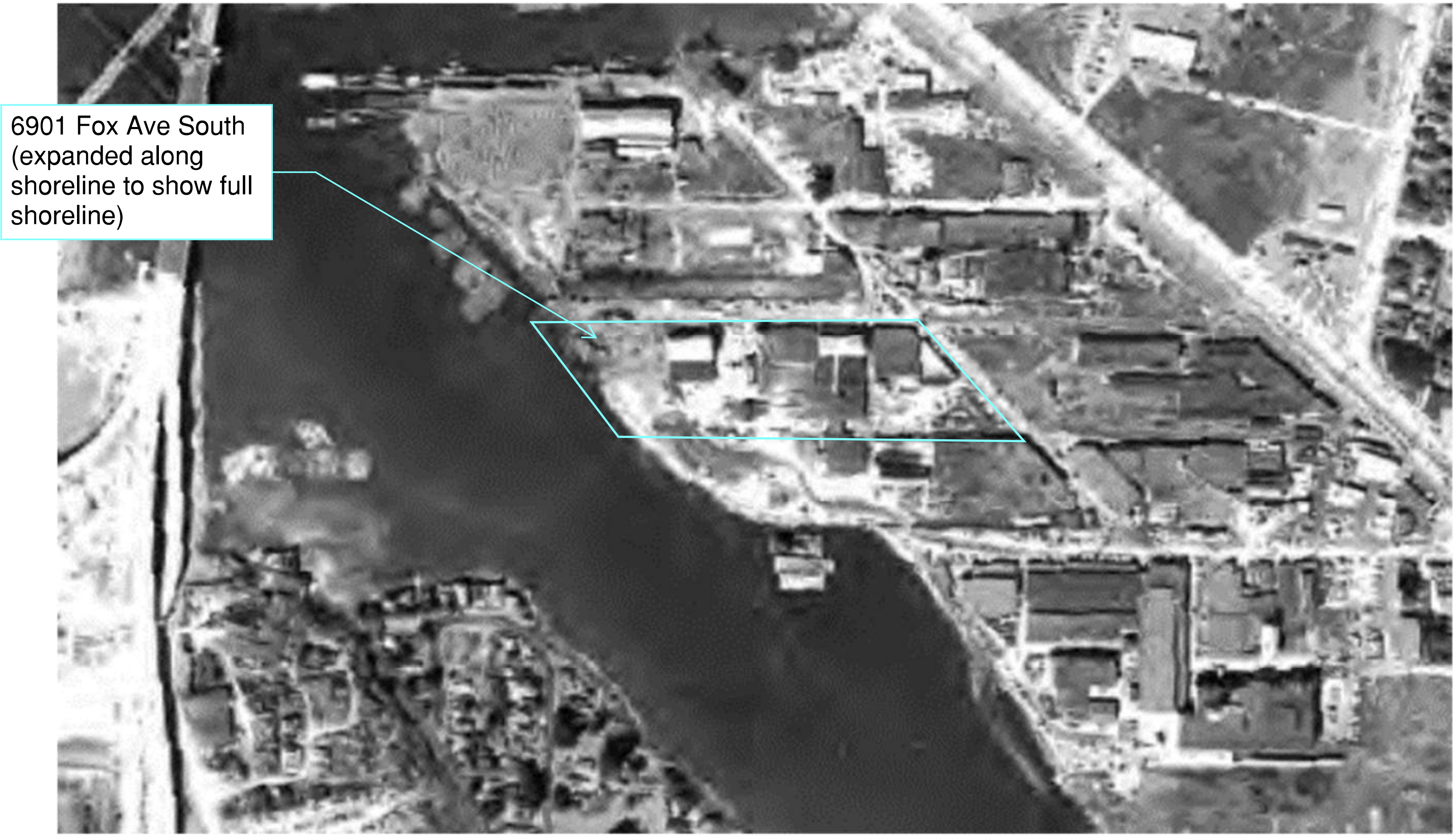
Former Dawn Foods Facility
Bridge Point Seattle 130, LLC
August 2, 2026

Figure 4B
Historical Aerial Photographs
Parcel Number 000180-0113



1956

CRETE
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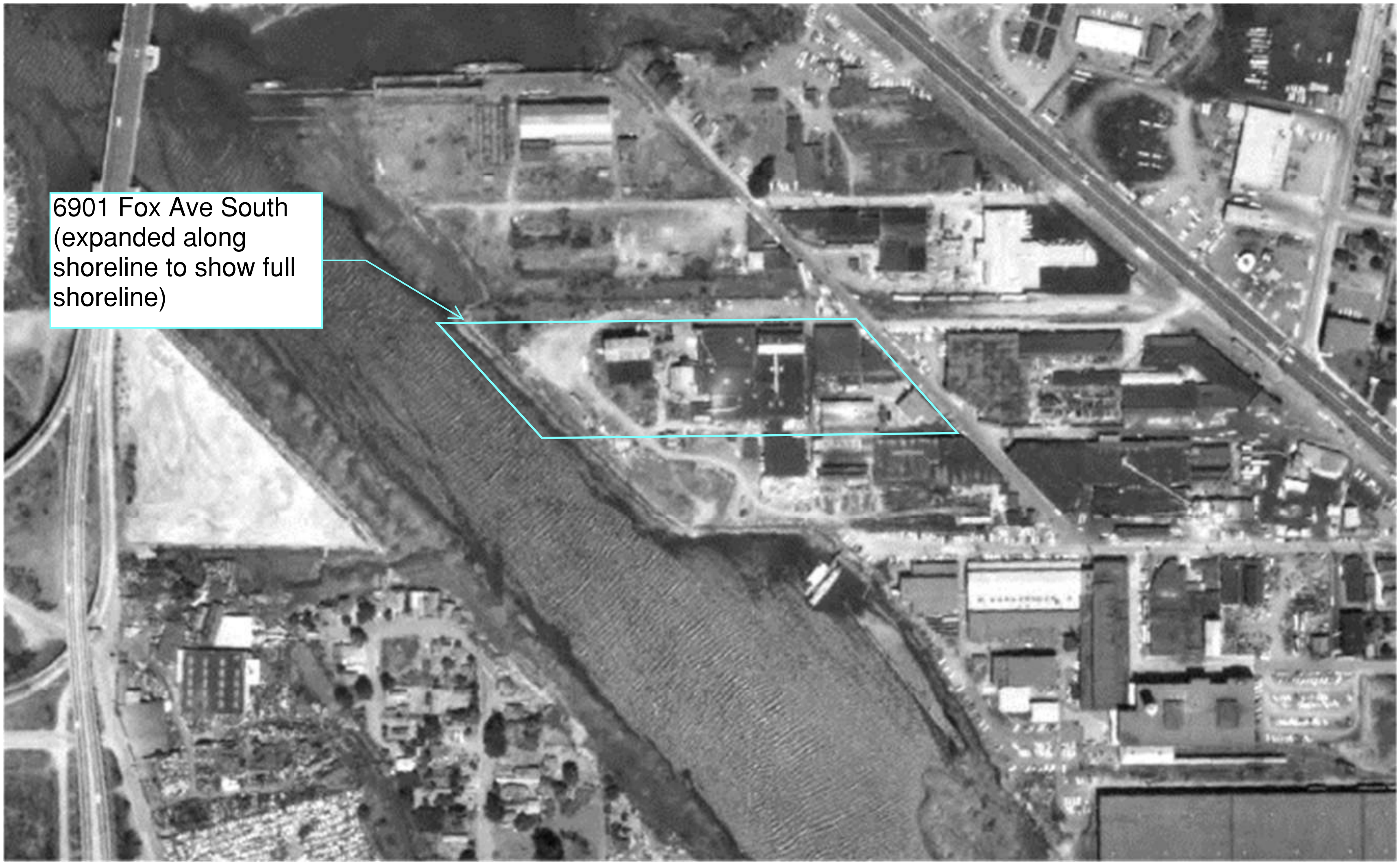
Former Dawn Foods Facility
Bridge Point Seattle 130, LLC
August 2, 2026

Figure 4C
Historical Aerial Photographs
Parcel Number 000180-0113



1965

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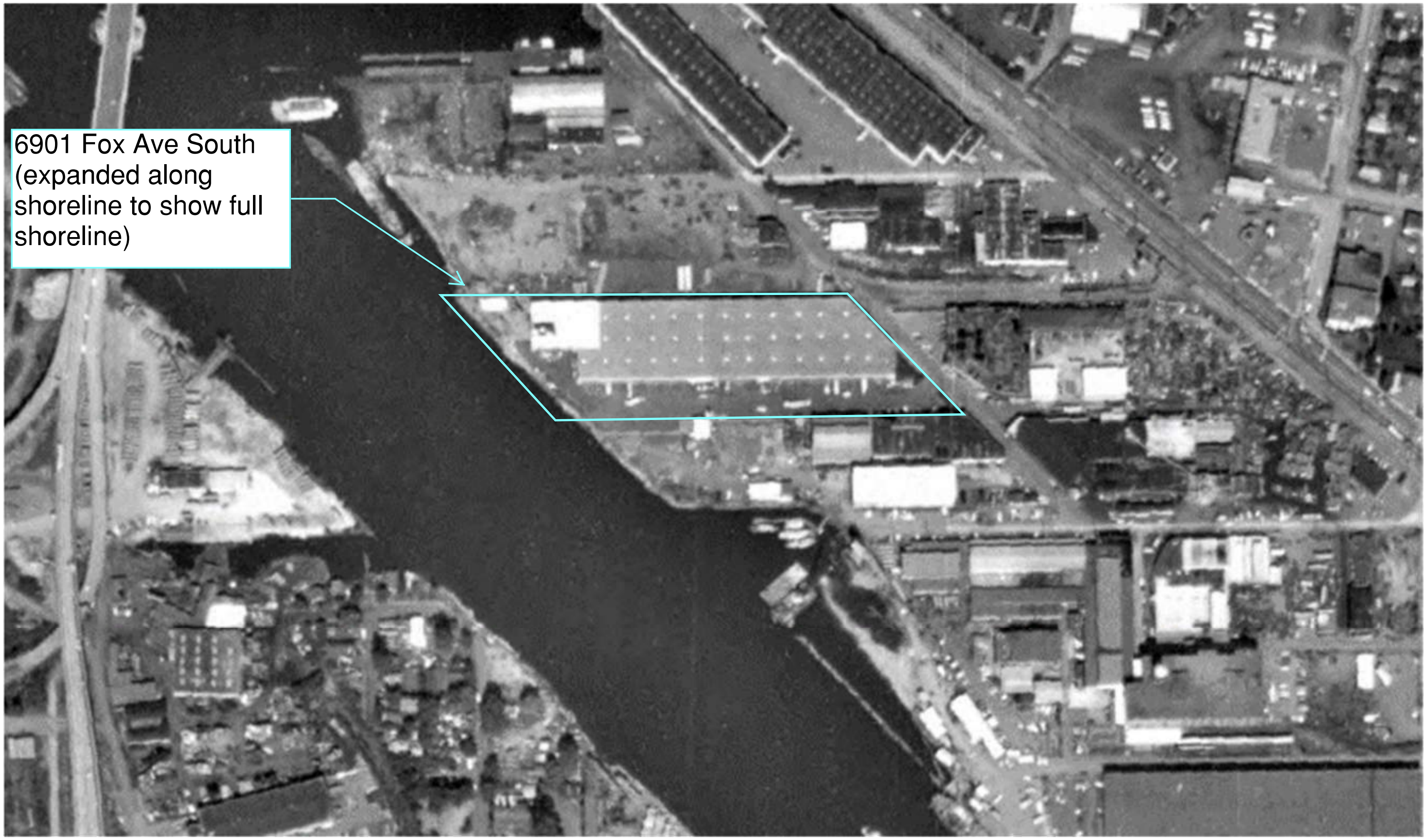
Former Dawn Foods Facility
Bridge Point Seattle 130, LLC
August 2, 2026

Figure 4D
Historical Aerial Photographs
Parcel Number 000180-0113



1977

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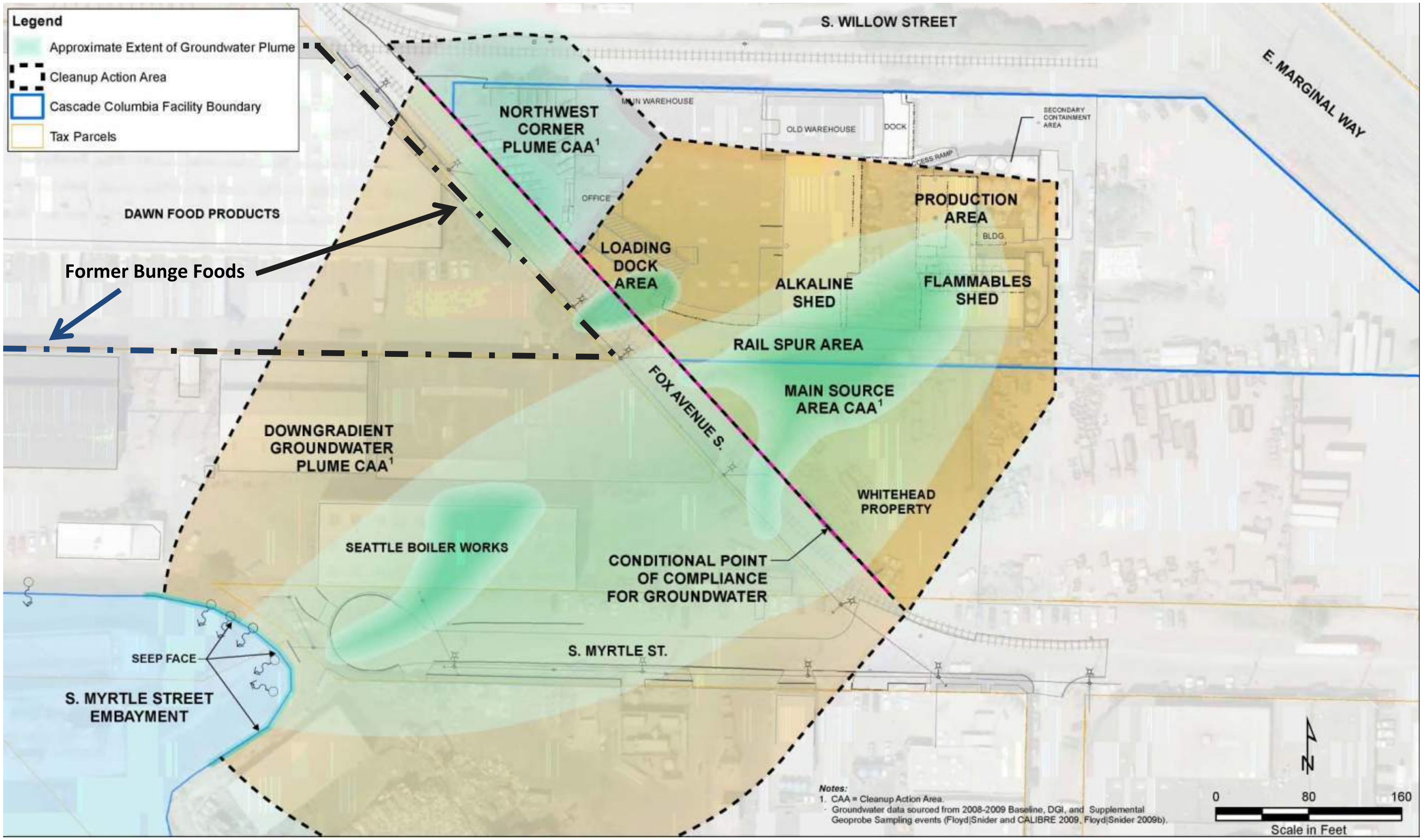
Former Dawn Foods Facility
Bridge Point Seattle 130, LLC
August 2, 2026

Figure 4E
Historical Aerial Photographs
Parcel Number 000180-0113



Source of Figure: Floyd Snider, 2012. Cleanup Action Plan. Figure 2.3 Cleanup Action Areas.

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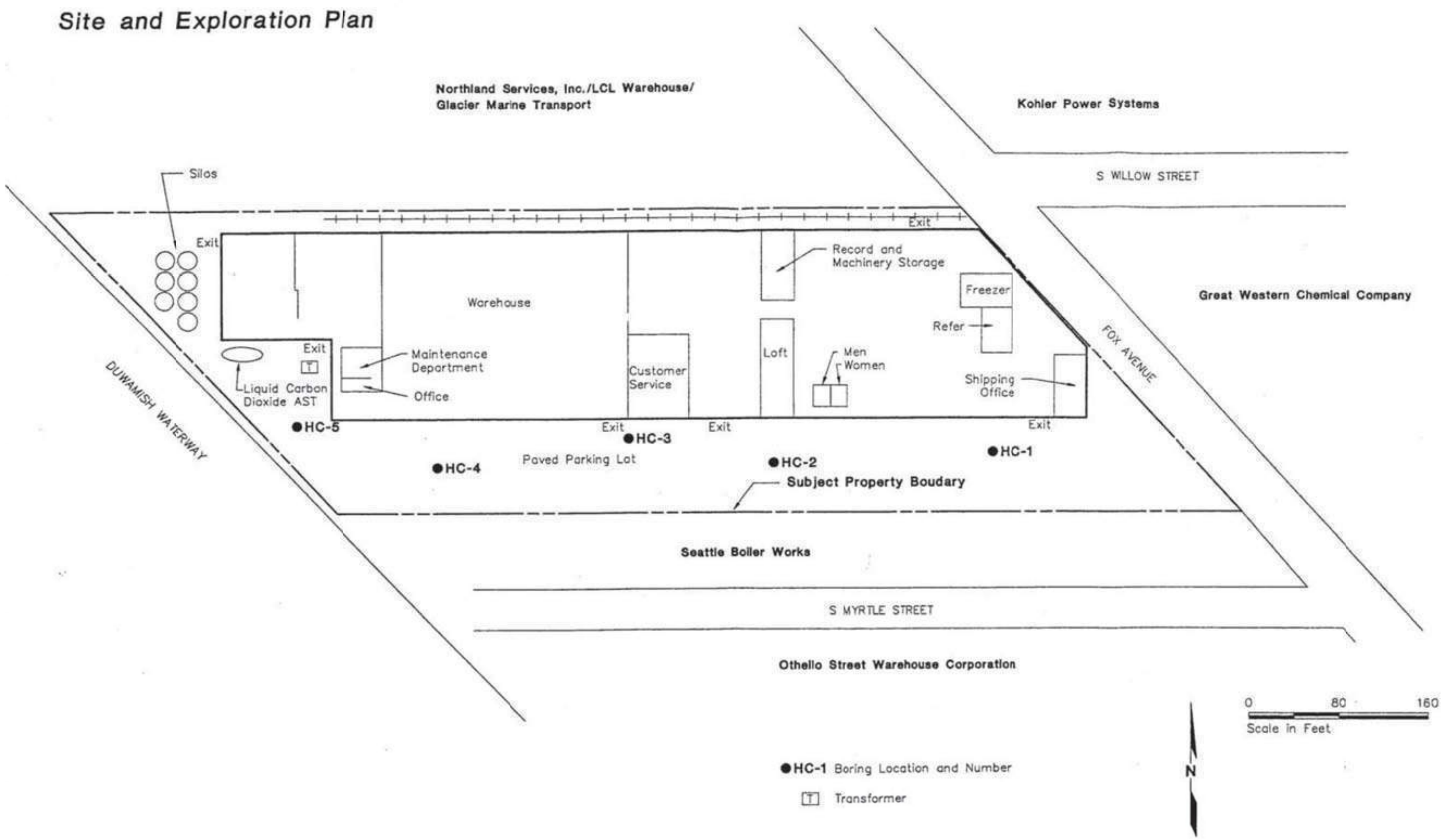
Former Dawn Foods Facility Bridge Point Seattle 130, LLC August 2, 2026	Figure 5 Upgradient Groundwater Plume



Source: Figure 2 from Limited Subsurface Investigation Fox Avenue property, 6901 Fox Avenue, Seattle, Washington. Prepared by Hart Crowser, November 12, 1996.

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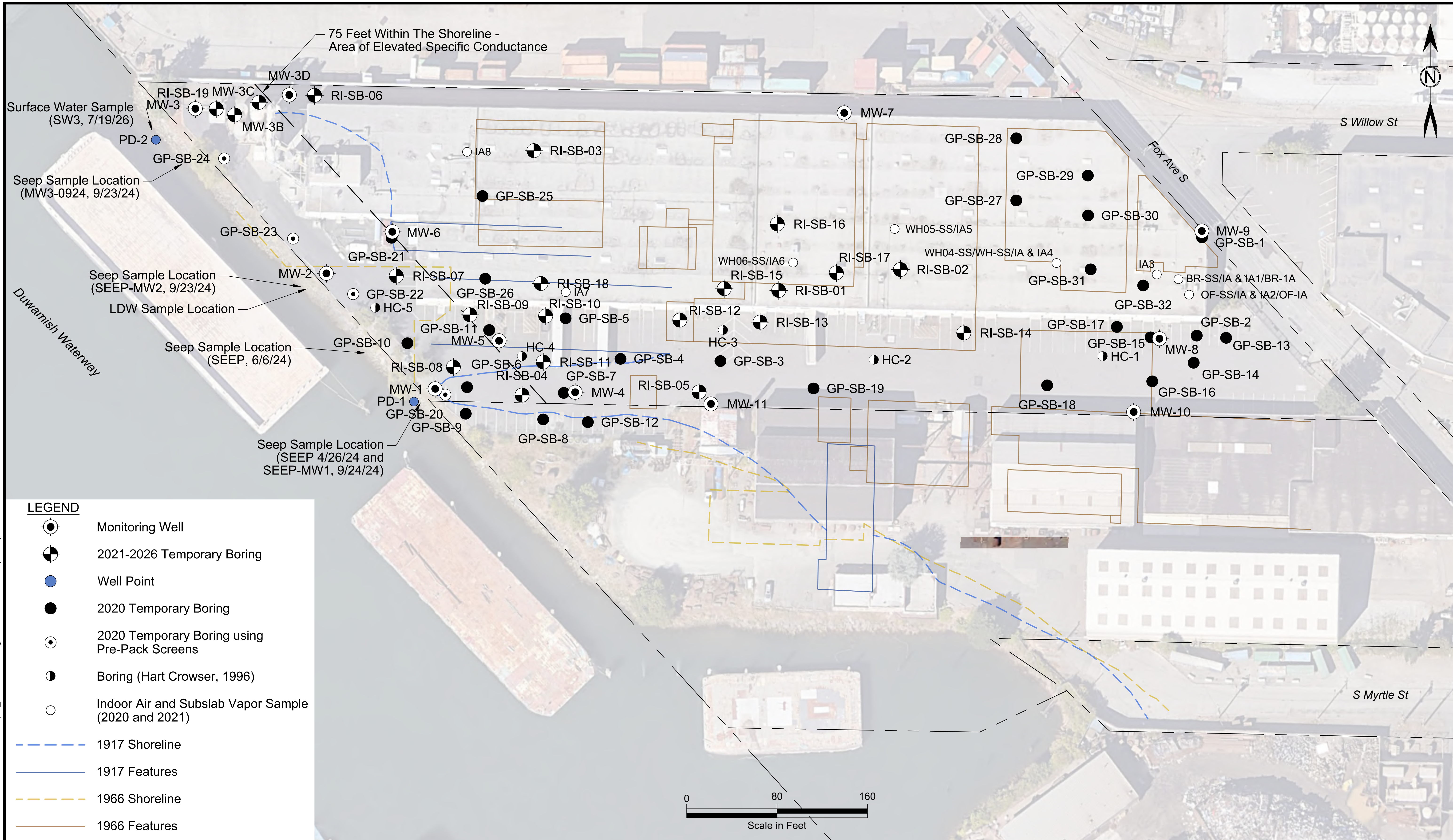
Former Dawn Foods Facility Bridge Point Seattle 130, LLC August 2, 2026	Figure 6 1996 Soil and Groundwater Sample Locations



File: D:_Projects\Crete\Dawn Foods\Dawn Foods Sample_2026 RIFS.dwg Date: 8/20/2026 | Caby

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Dawn Food Site
6901 Fox Ave South
August 1, 2026

Figure 7
Investigation Locations

LEGEND

- Interim Action Injection Radius of Influence (Estimated)
- Monitoring Point for System Performance
- Monitoring Well
- 2021-2026 Temporary Boring
- Well Point
- 2020 Temporary Boring
- 2020 Temporary Boring using Pre-Pack Screens
- Boring (Hart Crowser, 1996)

Utilities

- Water Main or Service
- Water Valve
- Fire Hydrant
- Drainage Pipe
- Wastewater Pipe
- Culvert
- Catch Basin
- Manhole
- Powerline - Overhead
- Powerline - Underground
- Power Pole
- Gasline

0 60 120
Scale in Feet

NOTES

1. Utility locations are based on City of Seattle GIS map information and in-field observations, and should be considered approximate.

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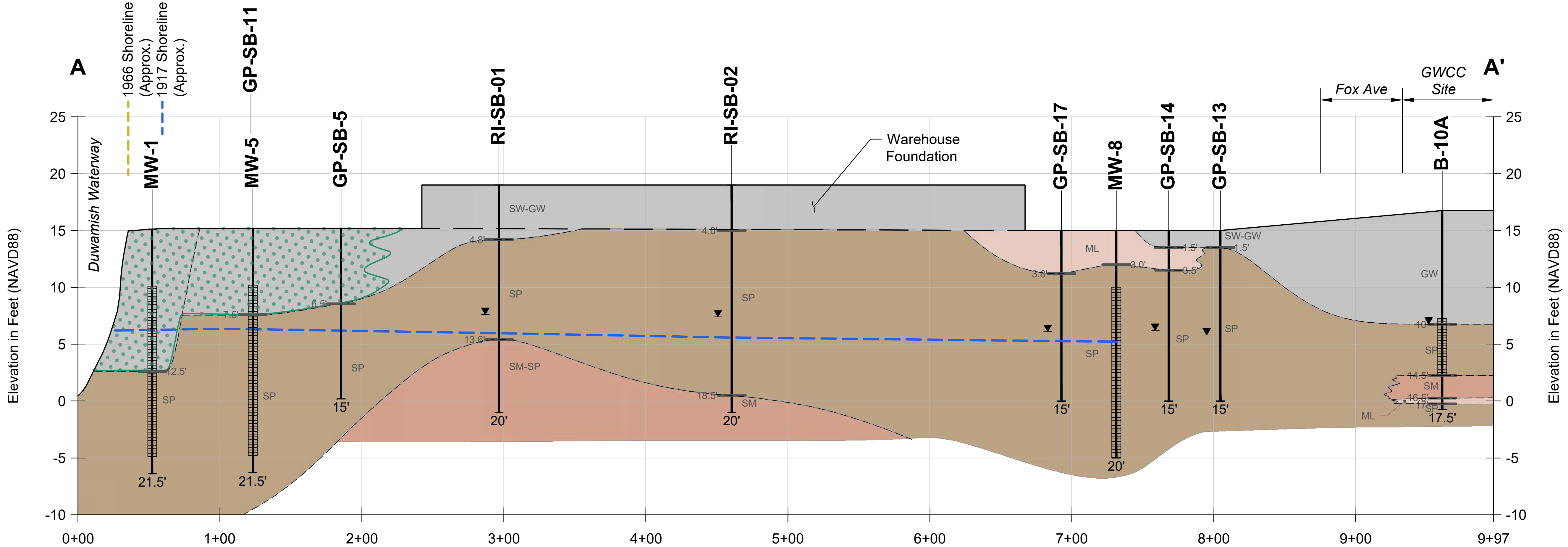
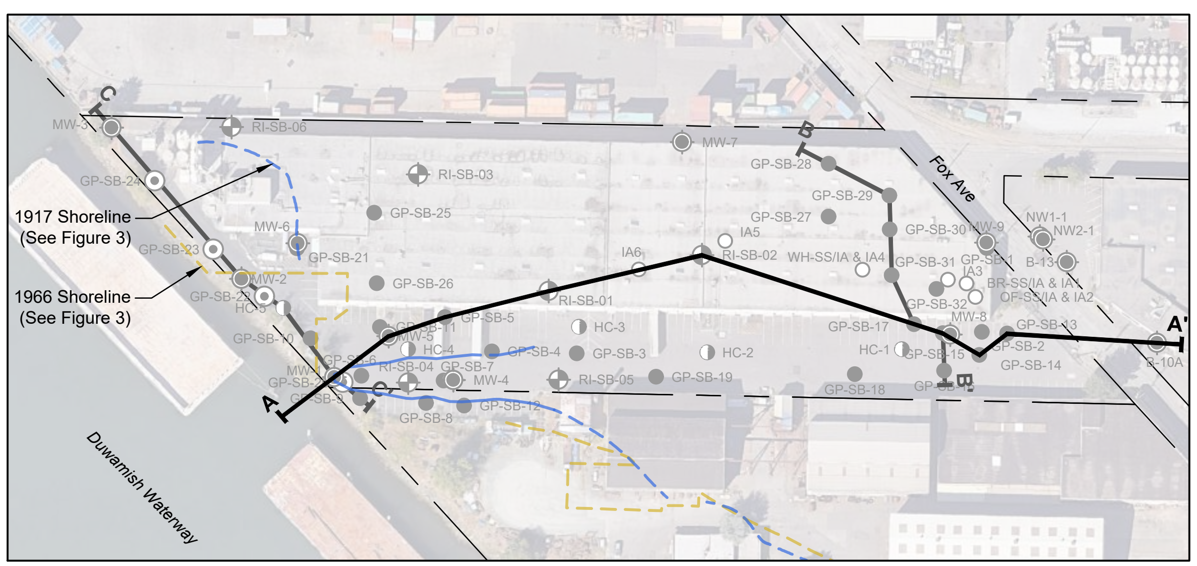
Dawn Food Site
6901 Fox Ave South
August 1, 2026

Figure 8
Summary of Interim Action Areas

File: D:_Projects\Crete\Dawn Foods\Dawn Foods Sample_2026 RIFS.dwg Date: 8/20/2026 | Caby





KEY MAP

LEGEND

B-1	Exploration Designation
2'	Noted Lithologic Contact Depth Below Ground Surface (in Feet)
SM	Unified Soil Classification System
▼	Water Level Observed at Time of Drilling
	Approximate Distinct Lithologic Contact
	Approximate Groundwater Surface
	Screen Interval
15'	Depth of Exploration (in Feet)

LITHOLOGY LEGEND

- GW, SW-GW, SW (FILL) - Gravelly Sand or Sand with Gravel
- SW - SAND - Variable Fine to Fine to Coarse-Grained, Sometimes Wood
- SP - SAND - Variable Fine to Fine to Coarse-Grained, Sometimes Wood/Roots
- SM - SILTY SAND, Variable Fine to Fine to Coarse-Grained, Sometimes Wood/Roots, Occasional Clay Seams
- ML - SILT or SANDY SILT, often with very fine to fine grained sand
- CL - SANDY CLAY, SILTY CLAY
- DEBRIS - Gravel and Concrete Rubble, Bricks, Wood, Asphalt Debris

0 10 20
Vertical Scale in Feet

0 80 160
Scale in Feet
Vertical Exaggeration = 8X

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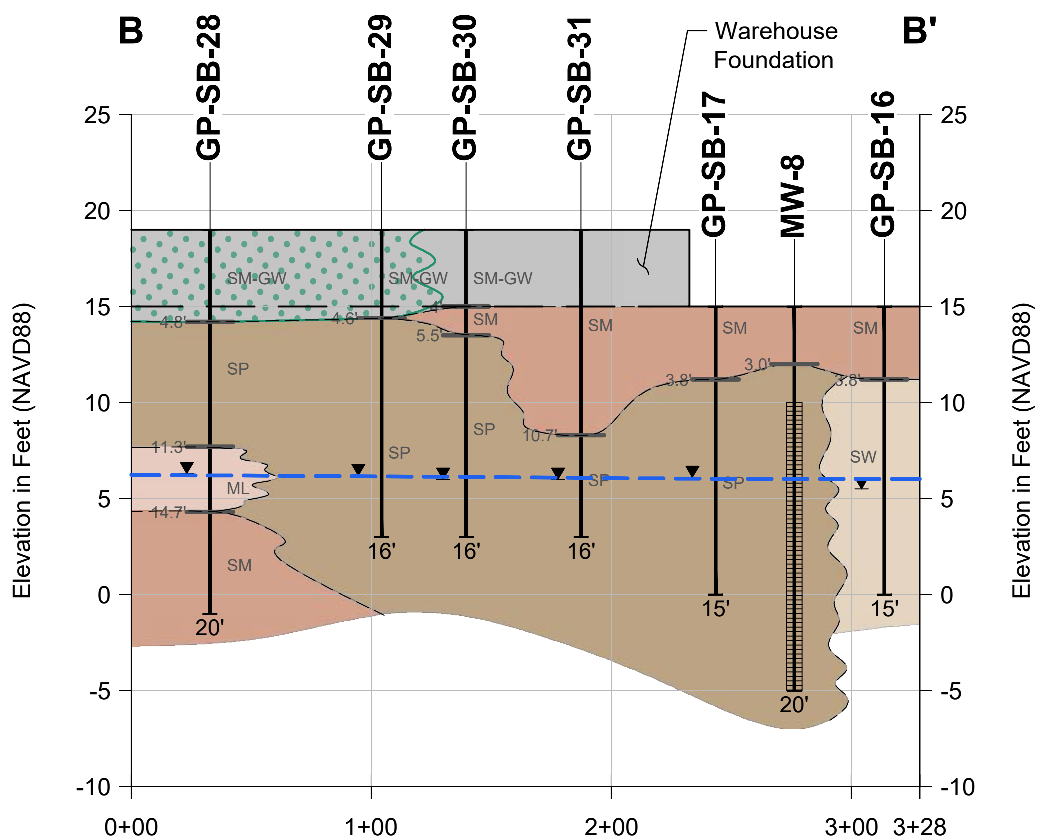
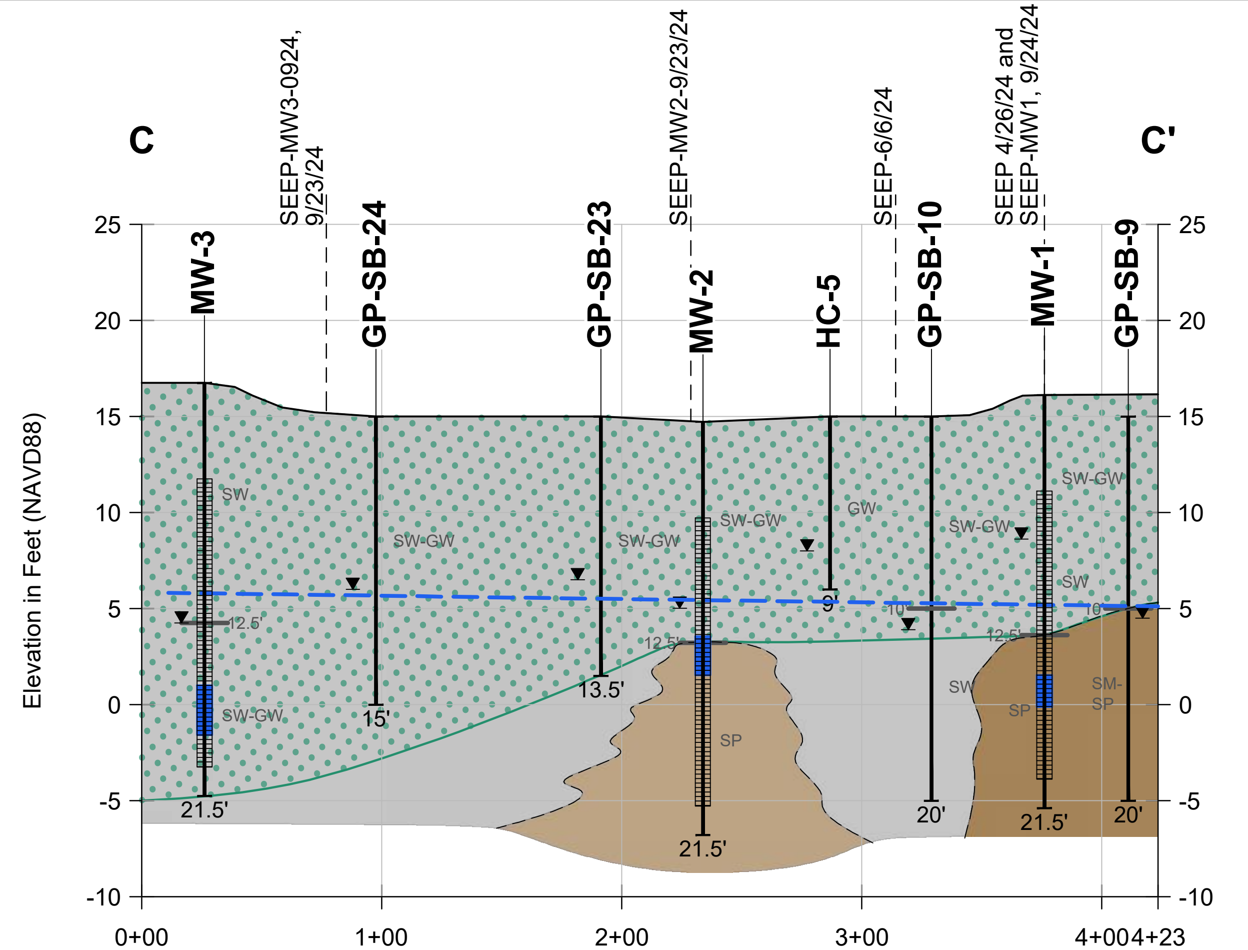
NOTE
Ground surface elevations based on monitoring well survey data and warehouse as-built drawings. Bathymetric data from GIS data for LDW FS posted to LDWG website (https://ldwg.org/project-library/).

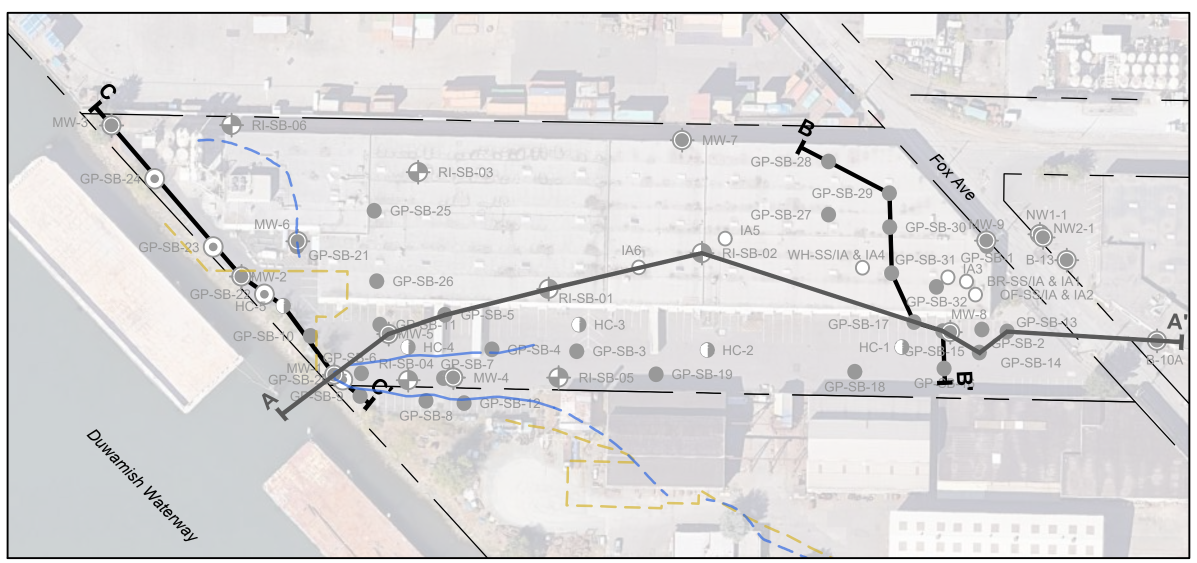
Dawn Food Site
6901 Fox Ave South
August 1, 2026

Figure 9
Cross Section A-A'

File: D:_Projects\Crete\Dawn Foods\Dawn Foods Sections_2026.dwg Date: 8/6/2026 | Cabry







KEY MAP

NOTES

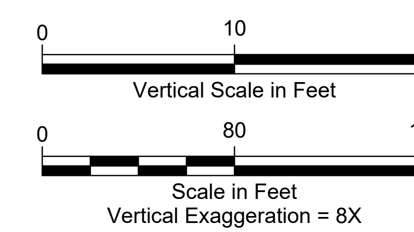
1. Ground surface elevations based on monitoring well survey data and warehouse as-built drawings. Bathymetric data from GIS data for LDW FS posted to LDWG website (https://ldwg.org/project-library/).
2. Debris was not noted in the boring from GP-SB-10, however, recovery was poor from 0-15 feet bgs, debris is extrapolated based on surrounding borings.
3. Seep locations are shown as an approximate locations and represent grab groundwater seep samples. Seeps were present just above the elevation of the river at the time of sampling.

LEGEND

- B-1 — Exploration Designation
- 2' — Noted Lithologic Contact Depth Below Ground Surface (in Feet)
- SM — Unified Soil Classification System
- ▼ — Water Level Observed at Time of Drilling
- Approximate Distinct Lithologic Contact
- Approximate Groundwater Surface
- Screen Interval
- Approximate Groundwater Surface Elevation During Low Tide Lag Sampling (Select Wells)
- 15' — Depth of Exploration (in Feet)

LITHOLOGY LEGEND

- GW, SW-GW, SW (FILL) - Gravelly Sand or Sand with Gravel
- SW - SAND - Variable Fine to Fine to Coarse-Grained, Sometimes Wood
- SP - SAND - Variable Fine to Fine to Coarse-Grained, Sometimes Wood/Roots
- SM - SILTY SAND, Variable Fine to Fine to Coarse-Grained, Sometimes Wood/Roots, Occasional Clay Seams
- ML - SILT or SANDY SILT, often with very fine to fine grained sand
- CL - SANDY CLAY, SILTY CLAY
- DEBRIS - Gravel and Concrete Rubble, Bricks, Wood, Asphalt Debris



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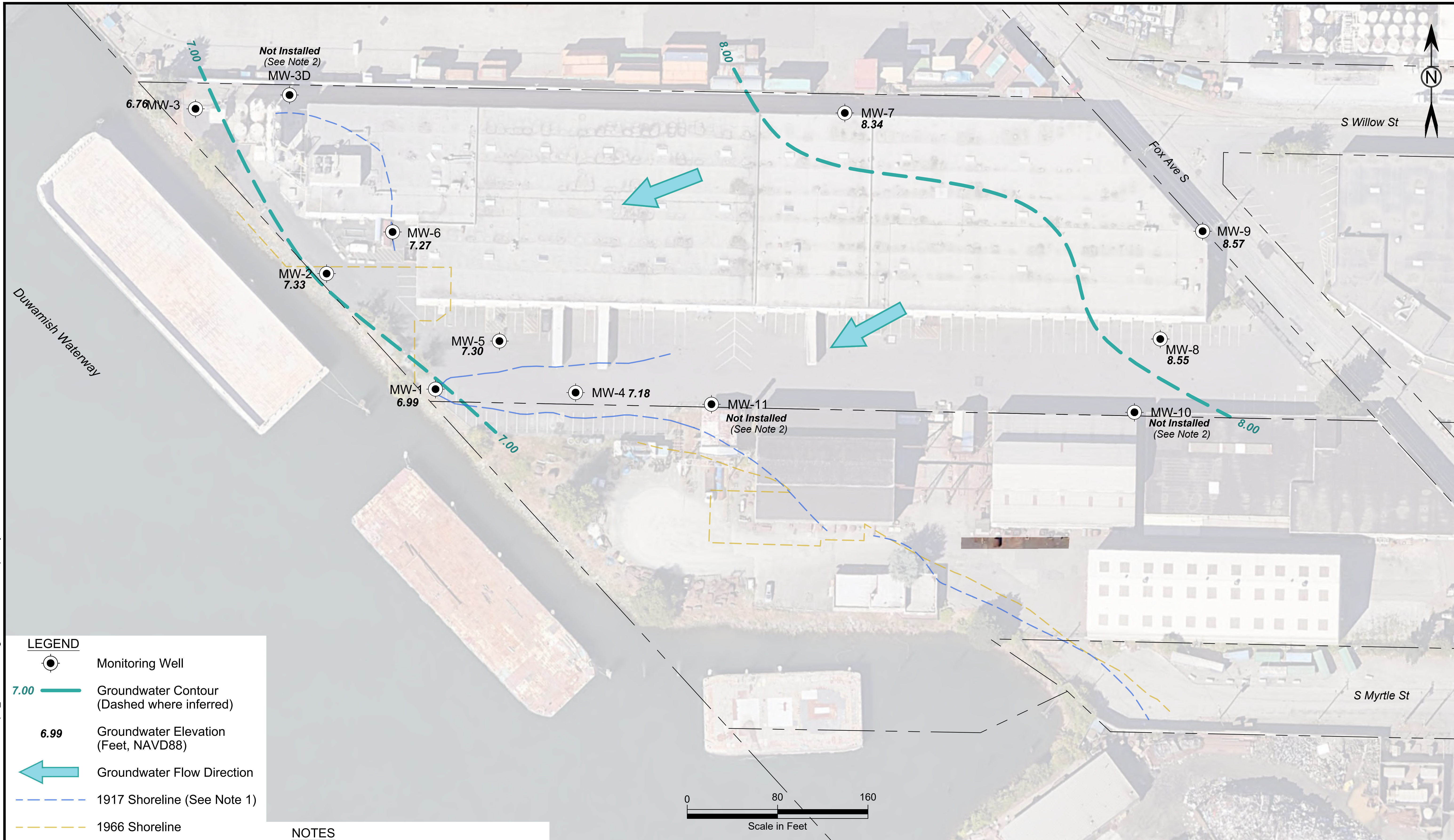
Dawn Food Site
6901 Fox Ave South
August 1, 2026

Figure 10
Cross Sections B-B' and C-C'

File: D:_Projects\Crete\Dawn Foods\Dawn Foods Sections_2026.dwg Date: 8/6/2026 | Cabry



LEGEND

	Monitoring Well
7.00	Groundwater Contour (Dashed where inferred)
6.99	Groundwater Elevation (Feet, NAVD88)
	Groundwater Flow Direction
	1917 Shoreline (See Note 1)
	1966 Shoreline

NOTES

1. 1917 shoreline marine railway (the gap in the shoreline) is not shown. See Figure 3.
2. MW-3D, MW-10, and MW-11 were not installed at the time of water level measurements.

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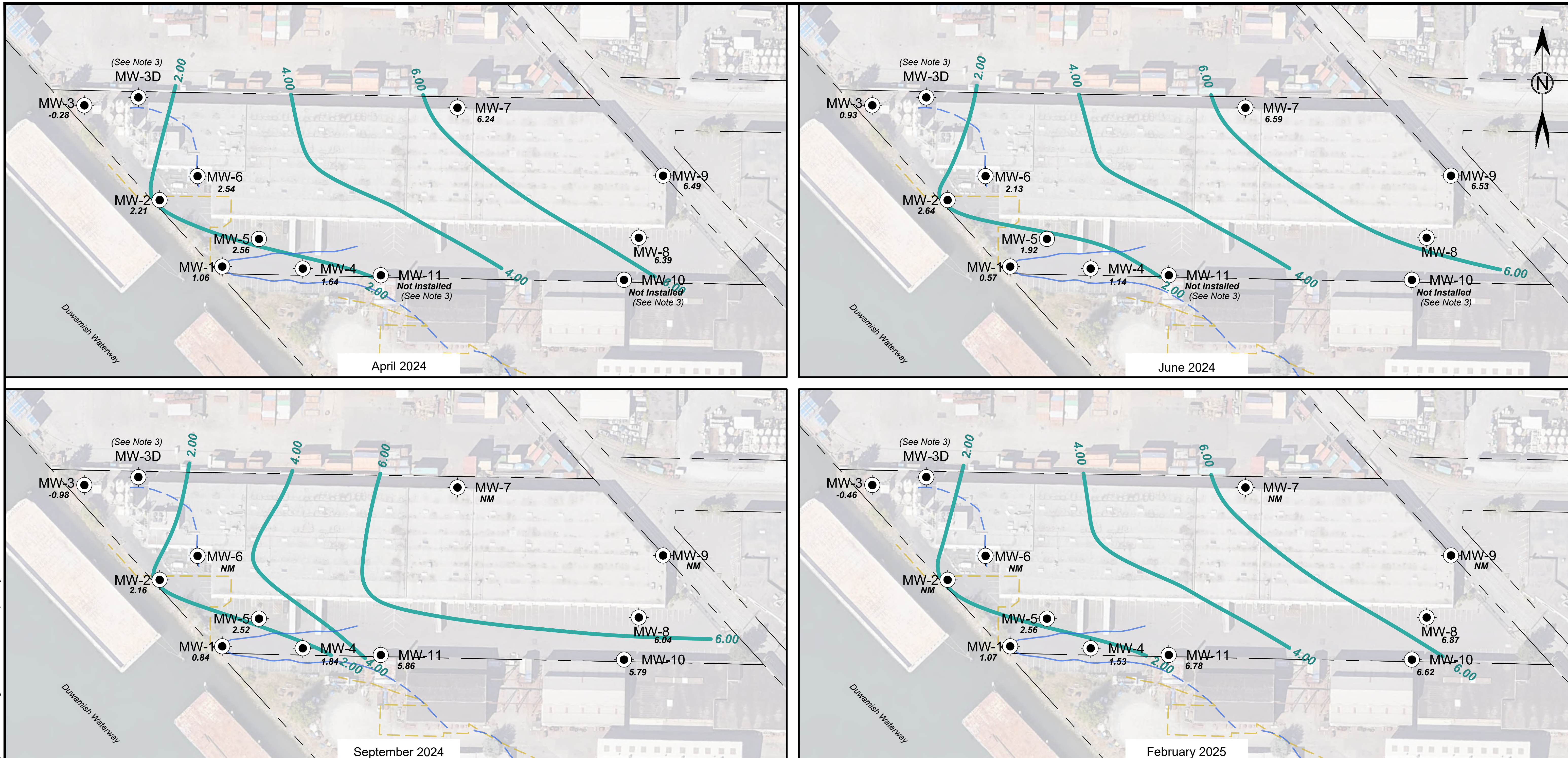
Dawn Food Site
6901 Fox Ave South
August 1, 2026

Figure 11
Net Groundwater Flow Map Tidal Study
October 2023

File: D:_Projects\Crete\Dawn Foods\Dawn Foods Sample_2026 RIFS.dwg Date: 8/20/2026 | Cabry



LEGEND

Monitoring Well

2.00 Groundwater Contour (Dashed where inferred)

0.57 Groundwater Elevation (Feet, NAVD88)

1917 Shoreline (See Note 1)

1966 Shoreline

0 150 300
Scale in Feet

NOTES

1. 1917 shoreline marine railway (the gap in the shoreline) is not shown. See Figure 3.
2. NM = Not Measured
3. MW-10 and MW-11 were installed after June 2024. MW-3D was installed in February 2026.

Water Level Measurement Date Collected

April 2024	=	April 24-26, 2024
June 2024	=	June 5-7, 2024
September 2024	=	September 23-25, 2024
February 2025	=	February 25-26, 2025

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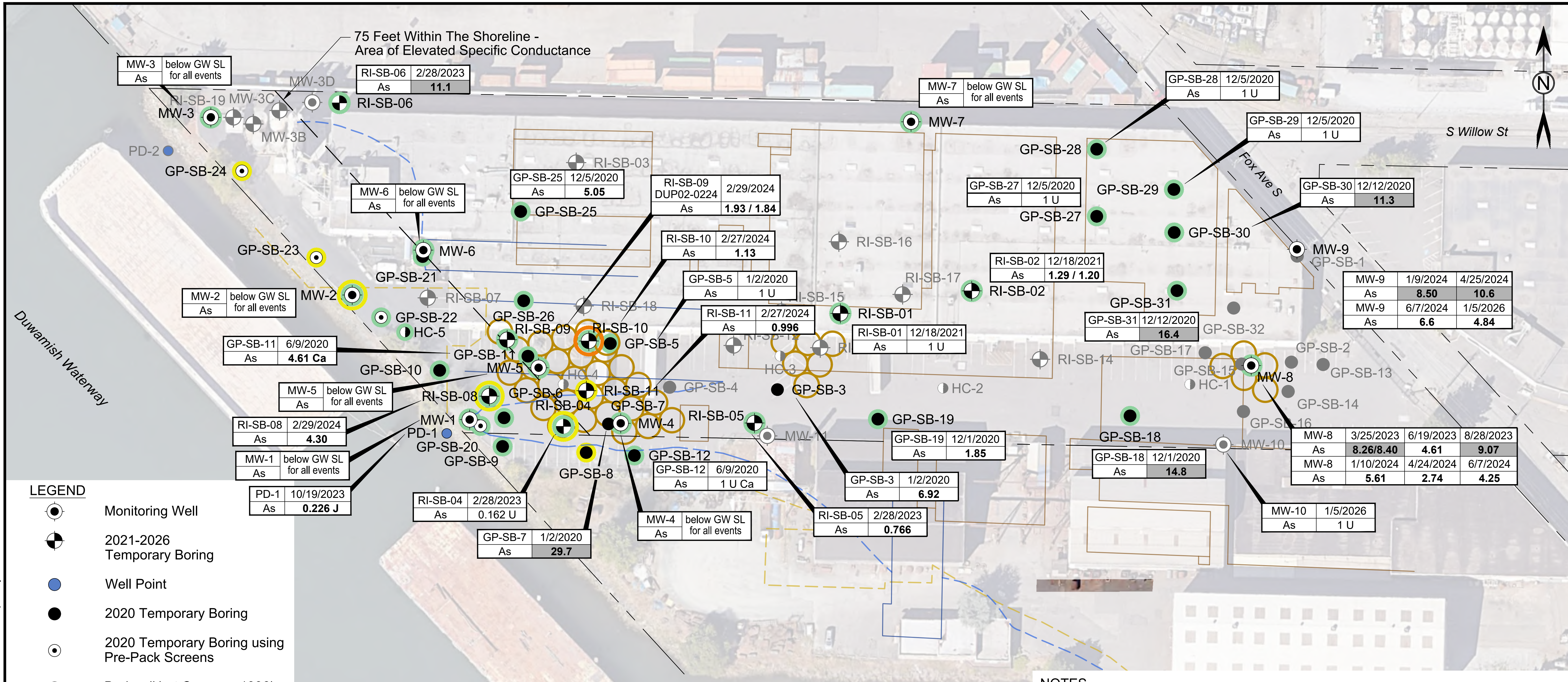
Dawn Food Site
6901 Fox Ave South
August 1, 2026

Figure 12
Groundwater Flow Map
April 2024 - February 2025

File: D:_Projects\Crete\Dawn Foods\Dawn Foods Sample_2026 RIFS.dwg Date: 8/20/2026 | Caby



LEGEND

- Monitoring Well
- 2021-2026 Temporary Boring
- Well Point
- 2020 Temporary Boring
- 2020 Temporary Boring using Pre-Pack Screens
- Boring (Hart Crowser, 1996)
- Location Not Sampled for this Parameter
- Interim Action Injection Radius of Influence (Estimated)
- 1917 Shoreline
- 1917 Features
- 1966 Shoreline
- 1966 Features

Groundwater Analytical Data

Sample ID → GP-SB-12 | 6/9/2020 ← Date Sampled

Arsenic - GW → As | 5 ← Result in ug/L

SL = Screening Level
mg/kg = milligram per kilogram
ug/L = micrograms per liter
MTCA = Model Toxics Control Act
U = Concentration Below Reporting Detection Limit (non-Detect Value)

Bold = Detection
Shading denotes an exceedance of a Screening Level of 8 ug/L

Ca = The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

Soil Results

- Soil Results below SL of 7.3 mg/kg
- Soil Results above SL of 7.3 mg/kg but less than 2x SL
- Soil Results are more than 2x SL of 7.3 mg/kg but less than 10x SL

Scale in Feet: 0, 80, 160

NOTES

1. Sample locations shown in bold represent soil and/or groundwater sampling locations for this compound. Bold sample locations without a groundwater data callout box were only sampled for soil.
2. Estimated extent of groundwater contamination is based on monitoring well data and geoprobe samples collected 75 feet back from the shoreline or geoprobe samples collected after 2020. Monitoring well samples and grab groundwater samples collected after 2020 were analyzed using inductively coupled plasma mass spectrometry methods because of the high conductivity observed at the site. Groundwater grab samples collected in 2020 (all samples starting with "GP-SB") were not analyzed using these methods and results shown may include interferences resulting from high conductivity in the sample matrix. Results from these samples are shown on summary tables.
3. All groundwater results represent samples that were field filtered at the time of collection.

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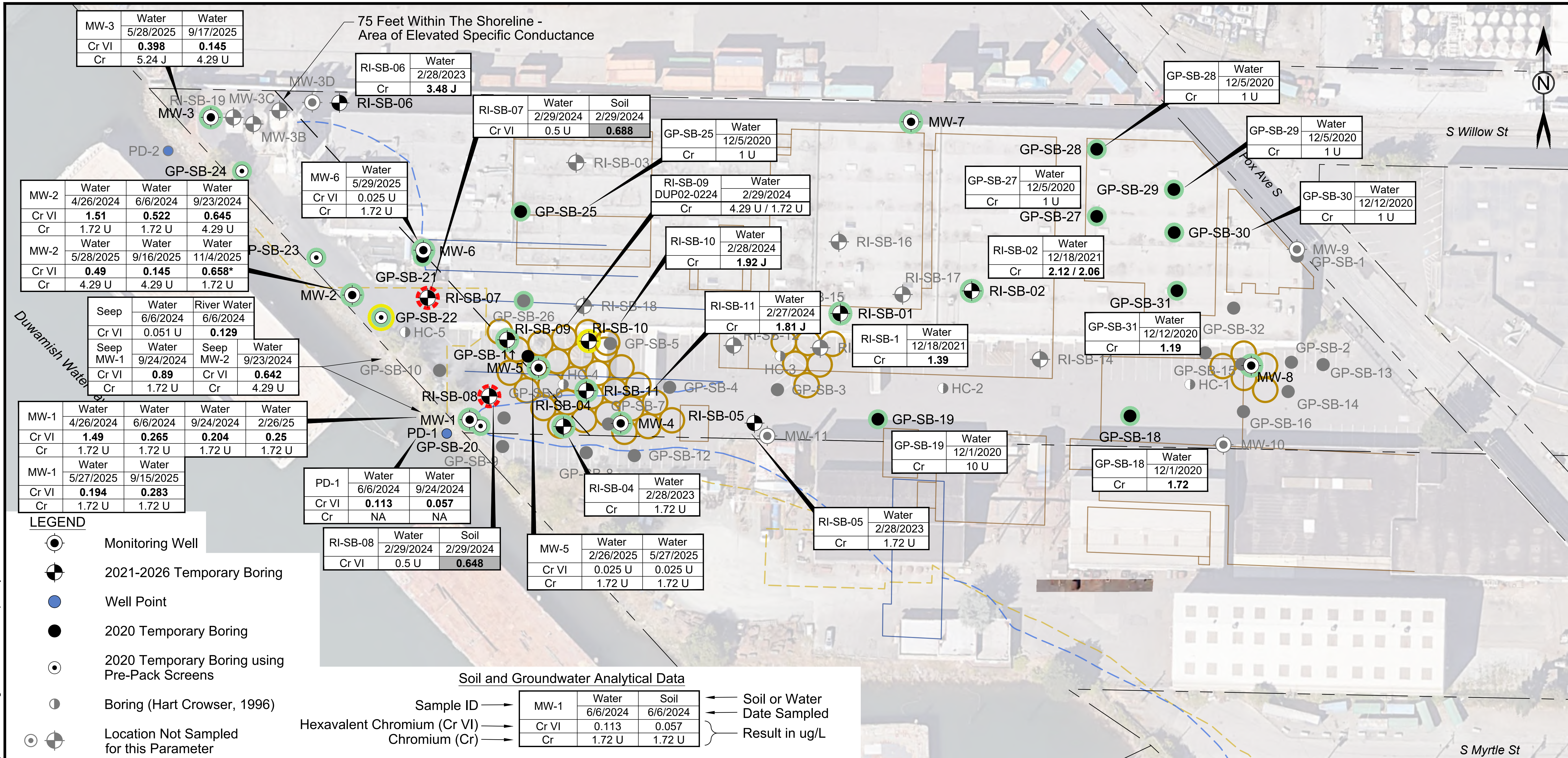
Dawn Food Site
6901 Fox Ave South
August 1, 2026

Figure 13
Estimated Extent of Arsenic in Soil and Groundwater

File: D:_Projects\Crete\Dawn Foods\Dawn Foods Sample_2026 RIFS.dwg Date: 8/20/2026 | Caby



MW-3	Water 5/28/2025	Water 9/17/2025
Cr VI	**0.398**	**0.145**
Cr	5.24 J	4.29 U

RI-SB-06	Water 2/28/2023
Cr	**3.48 J**

RI-SB-07	Water 2/29/2024	Soil 2/29/2024
Cr VI	0.5 U	**0.688**

GP-SB-25	Water 12/5/2020
Cr	1 U

GP-SB-28	Water 12/5/2020
Cr	1 U

GP-SB-29	Water 12/5/2020
Cr	1 U

MW-6	Water 5/29/2025
Cr VI	0.025 U
Cr	1.72 U

RI-SB-09 DUP02-0224	Water 2/29/2024
Cr	4.29 U / 1.72 U

GP-SB-27	Water 12/5/2020
Cr	1 U

GP-SB-30	Water 12/12/2020
Cr	1 U

MW-2	Water 4/26/2024	Water 6/6/2024	Water 9/23/2024
Cr VI	**1.51**	**0.522**	**0.645**
Cr	1.72 U	1.72 U	4.29 U
MW-2	Water 5/28/2025	Water 9/16/2025	Water 11/4/2025
Cr VI	**0.49**	**0.145**	**0.658***
Cr	4.29 U	4.29 U	1.72 U

RI-SB-10	Water 2/28/2024
Cr	**1.92 J**

RI-SB-02	Water 12/18/2021
Cr	**2.12 / 2.06**

Seep	Water 6/6/2024	River Water 6/6/2024
Cr VI	0.051 U	**0.129**

Seep MW-1	Water 9/24/2024	Seep MW-2	Water 9/23/2024
Cr VI	**0.89**	Cr VI	**0.642**
Cr	1.72 U	Cr	4.29 U

RI-SB-11	Water 2/27/2024
Cr	**1.81 J**

RI-SB-1	Water 12/18/2021
Cr	**1.39**

GP-SB-31	Water 12/12/2020
Cr	**1.19**

MW-1	Water 4/26/2024	Water 6/6/2024	Water 9/24/2024	Water 2/26/25
Cr VI	**1.49**	**0.265**	**0.204**	**0.25**
Cr	1.72 U	1.72 U	1.72 U	1.72 U
MW-1	Water 5/27/2025	Water 9/15/2025		
Cr VI	**0.194**	**0.283**		
Cr	1.72 U	1.72 U		

GP-SB-19	Water 12/1/2020
Cr	10 U

GP-SB-18	Water 12/1/2020
Cr	**1.72**

PD-1	Water 6/6/2024	Water 9/24/2024
Cr VI	**0.113**	**0.057**
Cr	NA	NA

RI-SB-04	Water 2/28/2023
Cr	1.72 U

RI-SB-05	Water 2/28/2023
Cr	1.72 U

RI-SB-08	Water 2/29/2024	Soil 2/29/2024
Cr VI	0.5 U	**0.648**

MW-5	Water 2/26/2025	Water 5/27/2025
Cr VI	0.025 U	0.025 U
Cr	1.72 U	1.72 U

LEGEND

- Monitoring Well
- 2021-2026 Temporary Boring
- Well Point
- 2020 Temporary Boring
- 2020 Temporary Boring using Pre-Pack Screens
- Boring (Hart Crowser, 1996)
- Location Not Sampled for this Parameter
- Interim Action Injection Radius of Influence (Estimated)
- 1917 Shoreline
- 1917 Features
- 1966 Shoreline
- 1966 Features

Soil and Groundwater Analytical Data

Sample ID →
Hexavalent Chromium (Cr VI) →
Chromium (Cr) →

MW-1	Water 6/6/2024	Soil 6/6/2024
Cr VI	0.113	0.057
Cr	1.72 U	1.72 U

← Soil or Water Date Sampled
Result in ug/L

SL = Screening Level
mg/kg = milligram per kilogram
ug/L = micrograms per liter
MTCA = Model Toxics Control Act
U = Concentration Below Reporting Detection Limit (non-Detect Value)
NA = Not Analyzed
Bold = Detection
Shading denotes an exceedance of a Screening Level of 1.62 ug/L for Cr VI in Groundwater
For groundwater samples with CR (total) data, concentrations are compared to the Cr III PCUL (27.40 ug/L) as the SL
* Five samples were collected from MW-2 on Nov 4-5, 2025, the highest result is shown on this figure.

Soil Results

Cr VI results compared to the PCUL:
above SL of 0.031 mg/kg for Saturated Zone Cr VI by more than 10 SL

Total Cr results compared to the Cr III PCULs:
below SL of 548/27 mg/kg for Vadose/Saturated Cr III
above SL of 548/27 mg/kg for Vadose/Saturated Cr III but less than 2x SL

0 80 160
Scale in Feet

NOTES

1. Sample locations shown in bold represent soil and/or groundwater sampling locations for this compound. Bold sample locations without a groundwater data callout box were only sampled for soil.
2. For soil total Cr results below the PCULs, all results were compared to the lowest PCUL (Saturated Zone) for this figure. See tables for sample depth.
3. For direct push grab groundwater samples, only dissolved results are shown as these were collected as grab samples.

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Dawn Food Site
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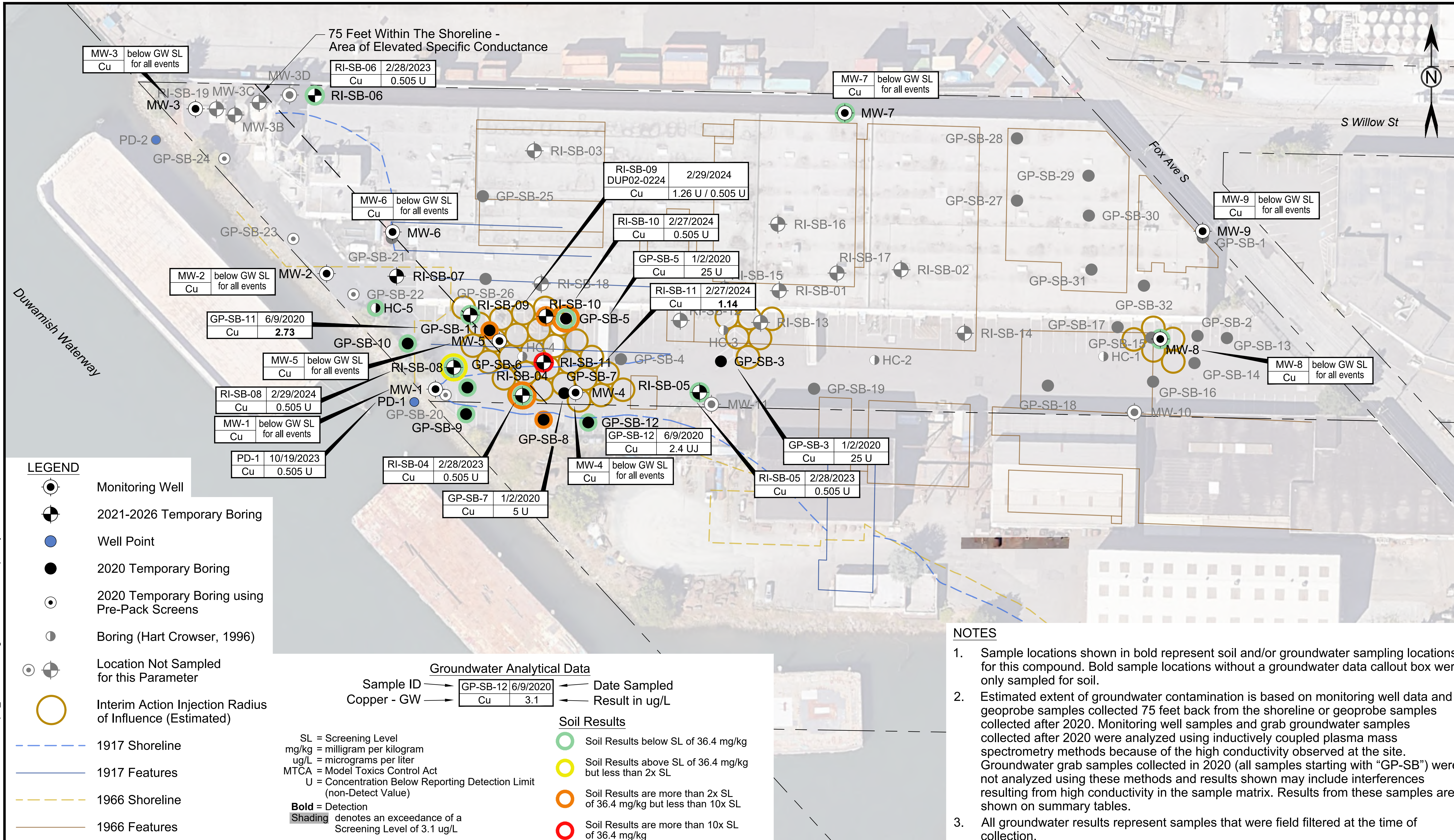
August 1, 2026

Figure 14
Estimated Extent of Chromium in Soil and Groundwater

File: D:_Projects\Crete\Dawn Foods\Dawn Foods Sample_2026 RIFS.dwg Date: 8/20/2026 | Caby



LEGEND

- Monitoring Well
- 2021-2026 Temporary Boring
- Well Point
- 2020 Temporary Boring
- 2020 Temporary Boring using Pre-Pack Screens
- Boring (Hart Crowser, 1996)
- Location Not Sampled for this Parameter
- Interim Action Injection Radius of Influence (Estimated)
- 1917 Shoreline
- 1917 Features
- 1966 Shoreline
- 1966 Features

Groundwater Analytical Data

Sample ID → GP-SB-12 | 6/9/2020 ← Date Sampled

Copper - GW → Cu | 3.1 ← Result in ug/L

SL = Screening Level
mg/kg = milligram per kilogram
ug/L = micrograms per liter
MTCA = Model Toxics Control Act
U = Concentration Below Reporting Detection Limit (non-Detect Value)
Bold = Detection
Shading denotes an exceedance of a Screening Level of 3.1 ug/L

Soil Results

- Soil Results below SL of 36.4 mg/kg
- Soil Results above SL of 36.4 mg/kg but less than 2x SL
- Soil Results are more than 2x SL of 36.4 mg/kg but less than 10x SL
- Soil Results are more than 10x SL of 36.4 mg/kg

NOTES

1. Sample locations shown in bold represent soil and/or groundwater sampling locations for this compound. Bold sample locations without a groundwater data callout box were only sampled for soil.
2. Estimated extent of groundwater contamination is based on monitoring well data and geoprobe samples collected 75 feet back from the shoreline or geoprobe samples collected after 2020. Monitoring well samples and grab groundwater samples collected after 2020 were analyzed using inductively coupled plasma mass spectrometry methods because of the high conductivity observed at the site. Groundwater grab samples collected in 2020 (all samples starting with “GP-SB”) were not analyzed using these methods and results shown may include interferences resulting from high conductivity in the sample matrix. Results from these samples are shown on summary tables.
3. All groundwater results represent samples that were field filtered at the time of collection.

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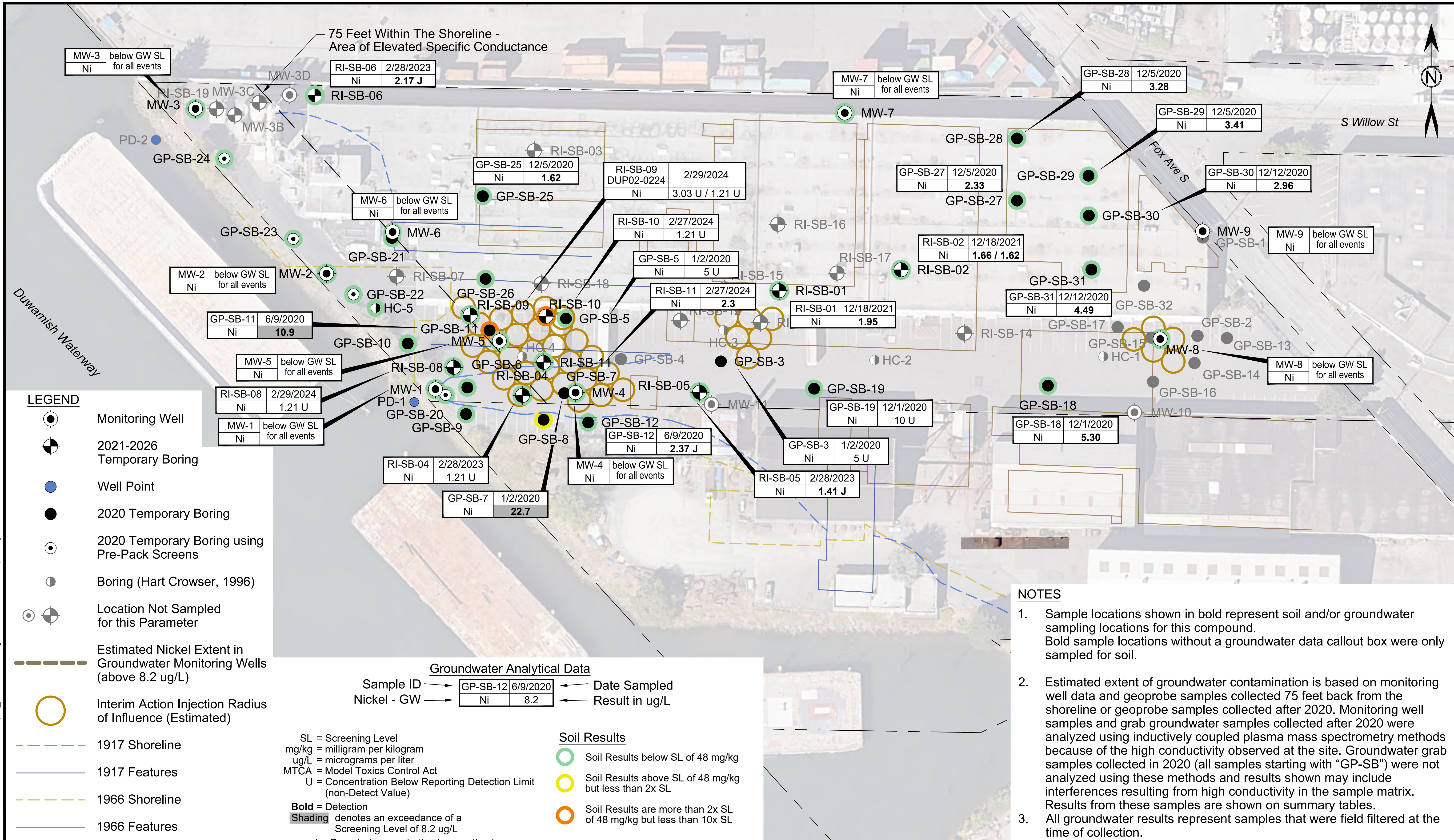
Figure 15
Estimated Extent of Copper in Soil and Groundwater

File: D:_Projects\Crete\Dawn Foods\Dawn Foods Sample_2026 RIFS.dwg Date: 8/20/2026 | Caby



LEGEND

- Monitoring Well
- 2021-2026 Temporary Boring
- Well Point
- 2020 Temporary Boring
- 2020 Temporary Boring using Pre-Pack Screens
- Boring (Hart Crowser, 1996)
- Location Not Sampled for this Parameter
- Estimated Nickel Extent in Groundwater Monitoring Wells (above 8.2 ug/L)
- Interim Action Injection Radius of Influence (Estimated)
- 1917 Shoreline
- 1917 Features
- 1966 Shoreline
- 1966 Features

Groundwater Analytical Data

Sample ID →	GP-SB-12	6/9/2020	← Date Sampled
Nickel - GW →	Ni	8.2	← Result in ug/L

SL = Screening Level
mg/kg = milligram per kilogram
ug/L = micrograms per liter
MTCA = Model Toxics Control Act
U = Concentration Below Reporting Detection Limit (non-Detect Value)
Bold = Detection
Shading denotes an exceedance of a Screening Level of 8.2 ug/L
J = Reported concentration is an estimate.

Soil Results

- Soil Results below SL of 48 mg/kg
- Soil Results above SL of 48 mg/kg but less than 2x SL
- Soil Results are more than 2x SL of 48 mg/kg but less than 10x SL

NOTES

1. Sample locations shown in bold represent soil and/or groundwater sampling locations for this compound. Bold sample locations without a groundwater data callout box were only sampled for soil.
2. Estimated extent of groundwater contamination is based on monitoring well data and geoprobe samples collected 75 feet back from the shoreline or geoprobe samples collected after 2020. Monitoring well samples and grab groundwater samples collected after 2020 were analyzed using inductively coupled plasma mass spectrometry methods because of the high conductivity observed at the site. Groundwater grab samples collected in 2020 (all samples starting with "GP-SB") were not analyzed using these methods and results shown may include interferences resulting from high conductivity in the sample matrix. Results from these samples are shown on summary tables.
3. All groundwater results represent samples that were field filtered at the time of collection.

0 80 160
Scale in Feet

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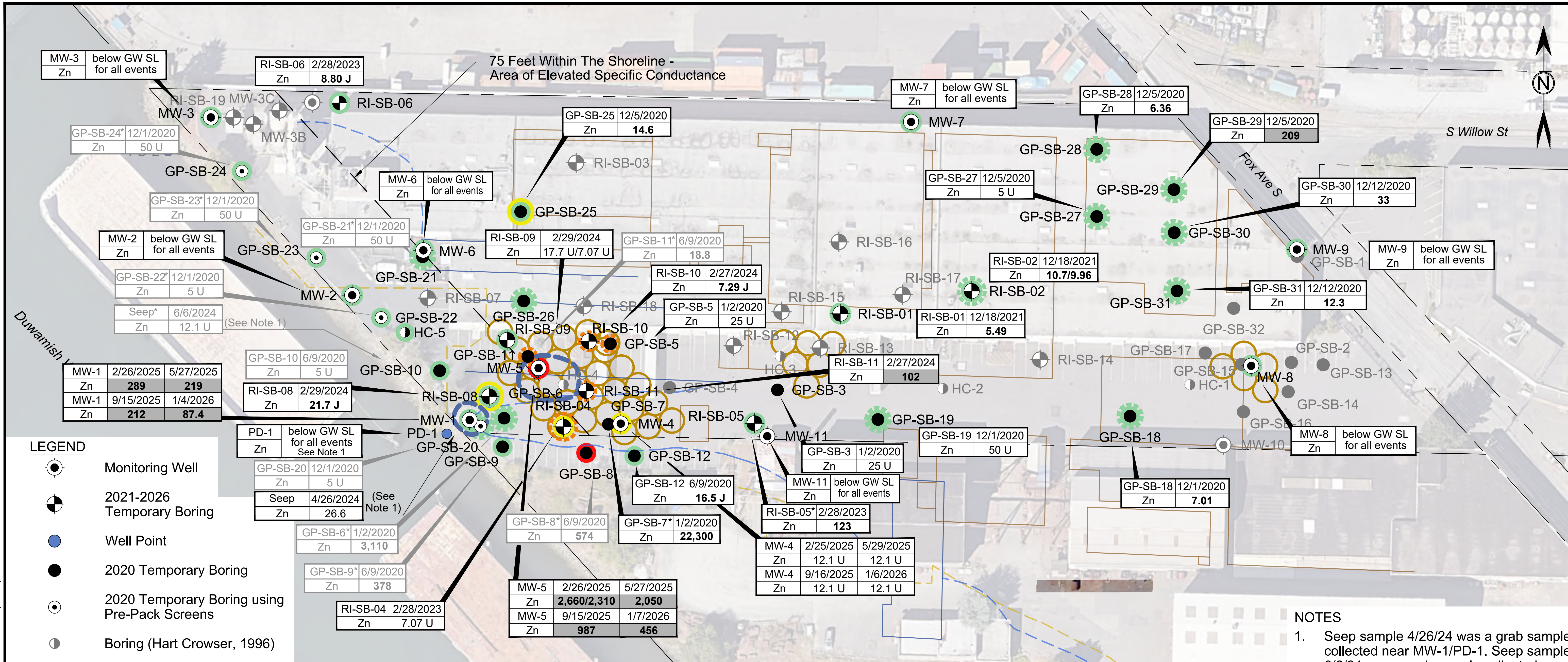
Figure 16
Estimated Extent of Nickel in Soil and Groundwater

File: D:_Projects\Crete\Dawn Foods\Dawn Foods Sample_2026 RIFS.dwg Date: 8/20/2026 | Caby



LEGEND

- Monitoring Well
- 2021-2026 Temporary Boring
- Well Point
- 2020 Temporary Boring
- 2020 Temporary Boring using Pre-Pack Screens
- Boring (Hart Crowser, 1996)
- Location Not Sampled for this Parameter
- Estimated Zinc Groundwater Extent (above 81 ug/L)
- Interim Action Injection Radius of Influence (Estimated)
- 1917 Shoreline
- 1917 Features
- 1966 Shoreline
- 1966 Features

Groundwater Analytical Data

Sample ID	GP-SB-12	6/9/2020	Date Sampled
Zinc - GW	Zn	81	Result in ug/L

SL = Screening Level
mg/kg = milligram per kilogram
ug/L = micrograms per liter
MTCA = Model Toxics Control Act
U = Concentration Below Reporting Detection Limit (non-Detect Value)
Bold = Detection
Shading denotes an exceedance of a Screening Level of 81 ug/L

Soil Results

- Soil Results below SL of 100/85 mg/kg based on Vadose/Saturated
- Soil Results above SL of 100/85 mg/kg based on Vadose/Saturated but less than 2x SL
- Soil Results are more than 2x SL of 100/85 mg/kg based on Vadose/Saturated but less than 10x SL
- Soil Results are more than 10x SL of 100/85 mg/kg based on Vadose/Saturated

** Vadose Results = dash circle
Saturated = solid circle

* Direct push groundwater data results provided for information only, groundwater data from monitoring well used to determine extent. Direct push data within 75 feet of the shoreline collected in 2020 are not used for contouring as this data may have interferences with the salinity present in the groundwater. The presence of saltwater can strongly influence metals quantification resulting in a high bias on results. Subsequent sampling methods used a different laboratory sample preparation method which minimizes this interference, discussed in the RIFS text.

NOTES

1. Seep sample 4/26/24 was a grab sample collected near MW-1/PD-1. Seep sample 6/6/24 was a grab sample collected closer to MW-2 as April location could not be replicated.
2. GP-SB-5 soil results include 2 saturated samples, the upper most interval exceeds the saturated screening level. The lower interval is below the screening level.
3. Sample locations shown in bold represent soil and/or groundwater sampling locations for this compound. Bold sample locations without a groundwater data callout box were only sampled for soil.
4. All groundwater results represent samples that were field filtered at the time of collection.

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Dawn Food Site
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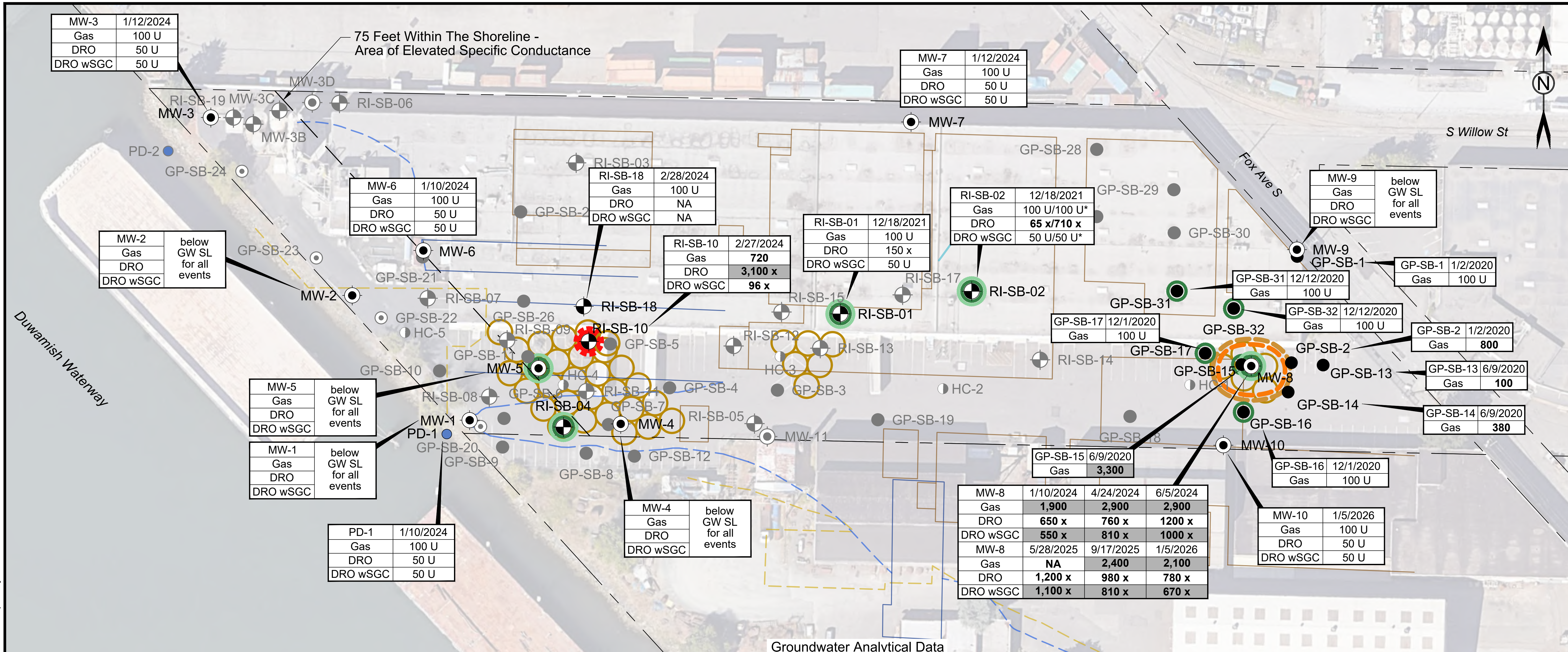
Figure 17
Estimated Extent of Zinc in Soil and Groundwater

File: D:_Projects\Crete\Dawn Foods\Dawn Foods Sample_2026 RIFS.dwg Date: 8/20/2026 | Cabry



LEGEND

- Monitoring Well
- 2021-2026 Temporary Boring
- Well Point
- 2020 Temporary Boring
- 2020 Temporary Boring using Pre-Pack Screens
- Boring (Hart Crowser, 1996)
- Location Not Sampled for this Parameter
- Estimated TPH-Gasoline Groundwater Extent (1,000 ug/L)
- Estimated TPH-Diesel Groundwater Extent (1,000 ug/L)
- 1917 Shoreline
- 1917 Features
- 1966 Shoreline
- 1966 Features

Groundwater Analytical Data

Sample ID → GP-SB-12 | 6/9/2020 ← Date Sampled

Sample ID	GP-SB-12	6/9/2020
Gasoline Range Organics	Gas	1,700
Total Diesel Range Organics	DRO	500
Total Diesel with Silica Gel Cleanup	DRO wSGC	100

Result in ug/L

SL = Screening Level
mg/kg = milligram per kilogram
ug/L = micrograms per liter
MTCA = Model Toxics Control Act
U = Concentration Below Reporting Detection Limit (non-Detect Value)
* = Parent Sample/Duplicate Sample Results
NA = Not Analyzed
Bold = Detection
Gray Shading Denotes an exceedance of the Gas Screening Level of 1,000 ug/L DRO Screening Level of 500 ug/L. The DRO screening level is applied to the difference between DRO and DRO with Silica Gel Cleanup
x = Sample chromatographic pattern does not resemble fuel standard used for quantitation.

Soil Result above applicable screening level

Soil Result for Gas
- below Saturated/Vadose Zone SL of 100 mg/kg
- above Saturated/Vadose Zone SL of 100 mg/kg

Soil Result for DRO
- below Saturated/Vadose Zone SL of 2,000 mg/kg
- above Saturated/Vadose Zone SL of 2,000 mg/kg

NOTE

Sample locations shown in bold represent soil and/or groundwater sampling locations for this compound. Bold sample locations without a groundwater data callout box were only sampled for soil.

0 80 160
Scale in Feet

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Dawn Food Site
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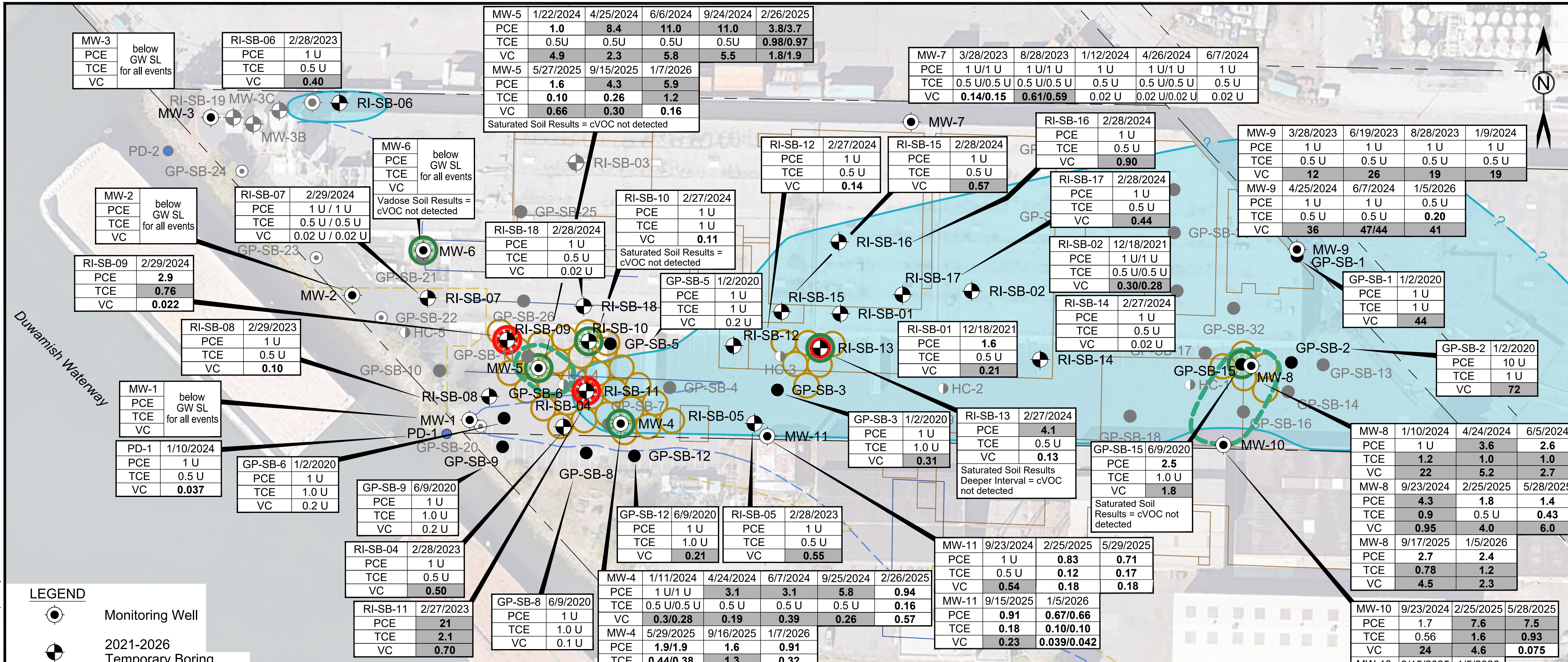
Figure 18
Estimated Extent of TPH in Soil and Groundwater

File: D:_Projects\Crete\Dawn Foods\Dawn Foods Sample_2026 RIFS.dwg Date: 8/20/2026 | Caby



LEGEND

- Monitoring Well
- 2021-2026 Temporary Boring
- Well Point
- 2020 Temporary Boring
- 2020 Temporary Boring using Pre-Pack Screens
- Boring (Hart Crowser, 1996)
- Location Not Sampled for this Parameter
- Interim Action Injection Radius of Influence (Estimated)
- Estimated Extent of VC (0.18 ug/L) Groundwater Plume
- Estimated PCE or TCE Groundwater Extent 2.9 ug/L for PCE 0.7 ug/L for TCE
- 1917 Shoreline
- 1917 Features
- 1966 Shoreline
- 1966 Features

Groundwater Analytical Data

Sample ID	GP-SB-12	6/9/2020	Date Sampled
Tetrachloroethene	PCE	2.9	Result in ug/L
Trichloroethene	TCE	7.0	
Vinyl chloride	VC	1.6	

SL = Screening Level
mg/kg = milligram per kilogram
ug/L = micrograms per liter
MTCA = Model Toxics Control Act
U = Concentration Below Reporting Detection Limit (non-Detect Value)
Bold = Detection
Shading denotes an exceedance of a Screening Level of 2.9 ug/L for PCE, 0.7 ug/L for TCE, and 0.18 ug/L for VC

Soil Result above applicable screening level

Soil Result for PCE (Vadose/Saturated)
- below SL of 0.029/0.0016 mg/kg
- above SL of 0.029/0.0016 mg/kg

Soil Result for TCE
- below SL of 0.0044/0.0027 mg/kg
- above SL of 0.0044/0.0027 mg/kg

NOTES

1. Sample locations shown in bold represent soil and/or groundwater sampling locations for this compound. Bold sample locations without a groundwater data callout box were only sampled for soil.
2. Reconnaissance groundwater samples from temporary borings are used to inform this map, however, extents are based on groundwater samples collected from monitoring wells since those represent more recent conditions following the interim action work.

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Dawn Food Site
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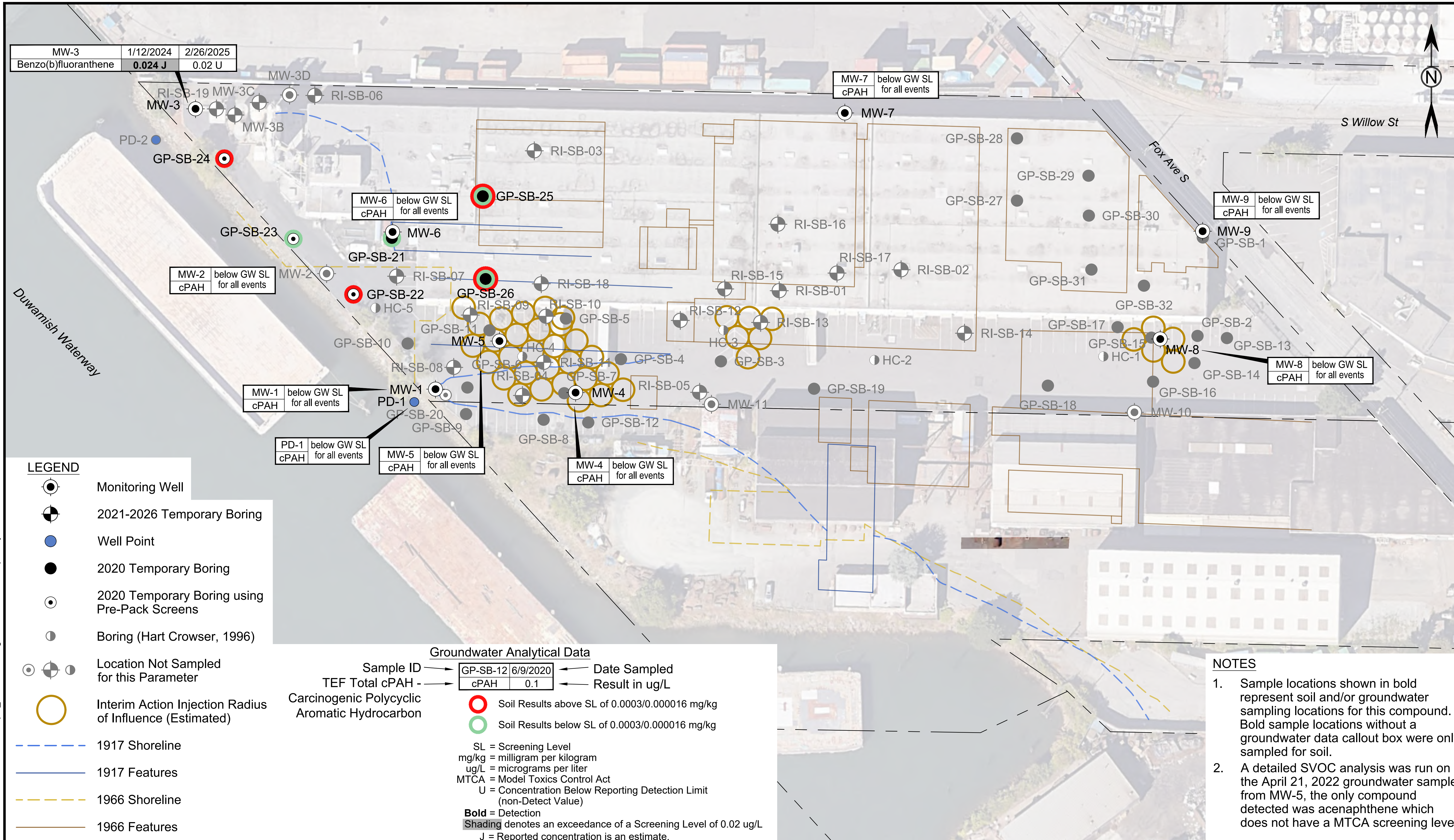
Figure 19
Estimated Extent of PCE, TCE and Vinyl Chloride in Soil and Groundwater



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Dawn Food Site
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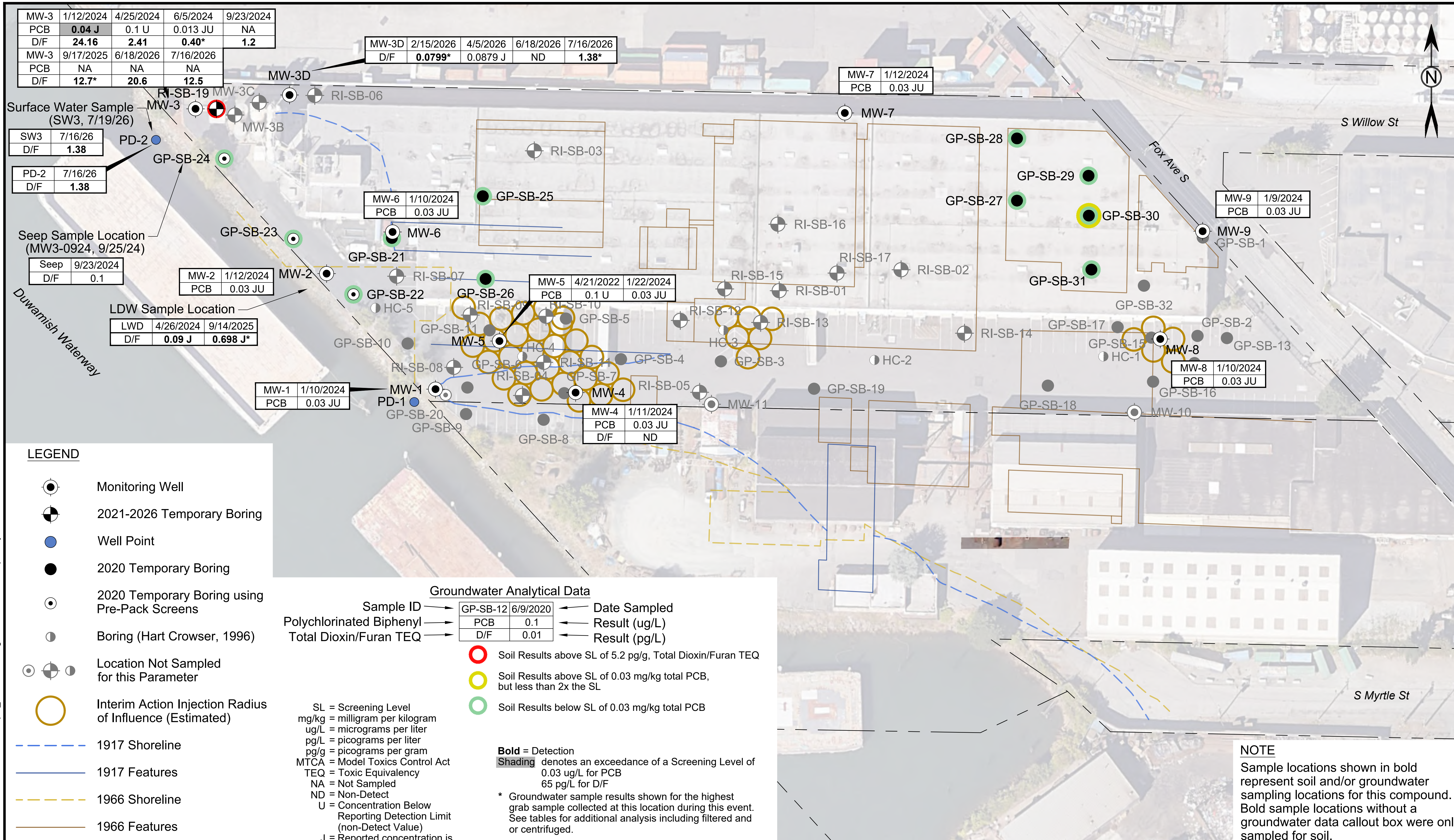
August 1, 2026

Figure 20
Estimated Extent of Total cPAH in Soil and Groundwater

File: D:_Projects\Crete\Dawn Foods\Dawn Foods Sample_2026 RIFS.dwg Date: 8/20/2026 | Caby



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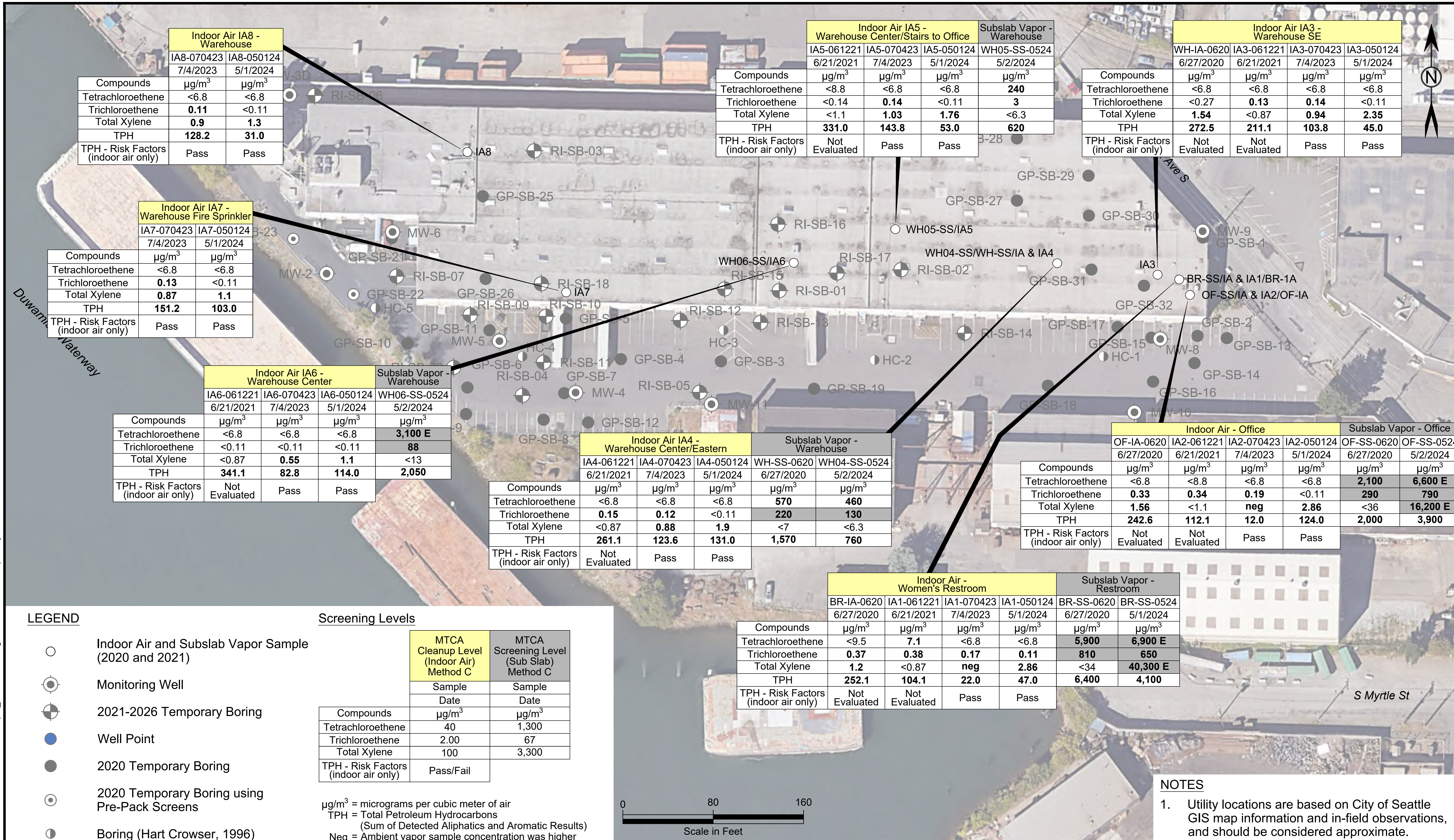
Dawn Food Site
6901 Fox Ave South
August 1, 2026

Figure 21
Estimated Extent of PCB and Dioxin and Furan in Soil and Groundwater

File: D:_Projects\Crete\Dawn Foods\Dawn Foods Sample_2026 RIFS.dwg Date: 8/20/2026 | Caby



Indoor Air IA8 - Warehouse	IA8-070423	IA8-050124
	7/4/2023	5/1/2024
Compounds	µg/m³	µg/m³
Tetrachloroethene	<6.8	<6.8
Trichloroethene	**0.11**	<0.11
Total Xylene	**0.9**	**1.3**
TPH	**128.2**	**31.0**
TPH - Risk Factors (indoor air only)	Pass	Pass

Indoor Air IA5 - Warehouse Center/Stairs to Office	IA5-061221	IA5-070423	IA5-050124	Subslab Vapor - Warehouse WH05-SS-0524
	6/21/2021	7/4/2023	5/1/2024	5/2/2024
Compounds	µg/m³	µg/m³	µg/m³	µg/m³
Tetrachloroethene	<8.8	<6.8	<6.8	**240**
Trichloroethene	<0.14	**0.14**	<0.11	**3**
Total Xylene	<1.1	**1.03**	**1.76**	<6.3
TPH	**331.0**	**143.8**	**53.0**	**620**
TPH - Risk Factors (indoor air only)	Not Evaluated	Pass	Pass	

Indoor Air IA3 - Warehouse SE	WH-IA-0620	IA3-061221	IA3-070423	IA3-050124
	6/27/2020	6/21/2021	7/4/2023	5/1/2024
Compounds	µg/m³	µg/m³	µg/m³	µg/m³
Tetrachloroethene	<6.8	<6.8	<6.8	<6.8
Trichloroethene	<0.27	**0.13**	**0.14**	<0.11
Total Xylene	**1.54**	<0.87	**0.94**	**2.35**
TPH	**272.5**	**211.1**	**103.8**	**45.0**
TPH - Risk Factors (indoor air only)	Not Evaluated	Not Evaluated	Pass	Pass

Indoor Air IA7 - Warehouse Fire Sprinkler	IA7-070423	IA7-050124
	7/4/2023	5/1/2024
Compounds	µg/m³	µg/m³
Tetrachloroethene	<6.8	<6.8
Trichloroethene	**0.13**	<0.11
Total Xylene	**0.87**	**1.1**
TPH	**151.2**	**103.0**
TPH - Risk Factors (indoor air only)	Pass	Pass

Indoor Air IA6 - Warehouse Center	IA6-061221	IA6-070423	IA6-050124	Subslab Vapor - Warehouse WH06-SS-0524
	6/21/2021	7/4/2023	5/1/2024	5/2/2024
Compounds	µg/m³	µg/m³	µg/m³	µg/m³
Tetrachloroethene	<6.8	<6.8	<6.8	**3,100 E**
Trichloroethene	<0.11	<0.11	<0.11	**88**
Total Xylene	<0.87	**0.55**	**1.1**	<13
TPH	**341.1**	**82.8**	**114.0**	**2,050**
TPH - Risk Factors (indoor air only)	Not Evaluated	Pass	Pass	

Indoor Air IA4 - Warehouse Center/Eastern	IA4-061221	IA4-070423	IA4-050124	Subslab Vapor - Warehouse WH-SS-0620	WH04-SS-0524
	6/21/2021	7/4/2023	5/1/2024	6/27/2020	5/2/2024
Compounds	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³
Tetrachloroethene	<6.8	<6.8	<6.8	**570**	**460**
Trichloroethene	**0.15**	**0.12**	<0.11	**220**	**130**
Total Xylene	<0.87	**0.88**	**1.9**	<7	<6.3
TPH	**261.1**	**123.6**	**131.0**	**1,570**	**760**
TPH - Risk Factors (indoor air only)	Not Evaluated	Pass	Pass		

Indoor Air - Office	OF-IA-0620	IA2-061221	IA2-070423	IA2-050124	Subslab Vapor - Office OF-SS-0620	OF-SS-0524
	6/27/2020	6/21/2021	7/4/2023	5/1/2024	6/27/2020	5/2/2024
Compounds	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³
Tetrachloroethene	<6.8	<8.8	<6.8	<6.8	**2,100**	**6,600 E**
Trichloroethene	**0.33**	**0.34**	**0.19**	<0.11	**290**	**790**
Total Xylene	**1.56**	<1.1	**neg**	**2.86**	<36	**16,200 E**
TPH	**242.6**	**112.1**	**12.0**	**124.0**	**2,000**	**3,900**
TPH - Risk Factors (indoor air only)	Not Evaluated	Not Evaluated	Pass	Pass		

Indoor Air - Women's Restroom	BR-IA-0620	IA1-061221	IA1-070423	IA1-050124	Subslab Vapor - Restroom BR-SS-0620	BR-SS-0524
	6/27/2020	6/21/2021	7/4/2023	5/1/2024	6/27/2020	5/1/2024
Compounds	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³
Tetrachloroethene	<9.5	**7.1**	<6.8	<6.8	**5,900**	**6,900 E**
Trichloroethene	**0.37**	**0.38**	**0.17**	**0.11**	**810**	**650**
Total Xylene	**1.2**	<0.87	**neg**	**2.86**	<34	**40,300 E**
TPH	**252.1**	**104.1**	**22.0**	**47.0**	**6,400**	**4,100**
TPH - Risk Factors (indoor air only)	Not Evaluated	Not Evaluated	Pass	Pass		

LEGEND

- ○ Indoor Air and Subslab Vapor Sample (2020 and 2021)
- Monitoring Well
- 2021-2026 Temporary Boring
- Well Point
- 2020 Temporary Boring
- 2020 Temporary Boring using Pre-Pack Screens
- Boring (Hart Crowser, 1996)

Screening Levels

	MTCA Cleanup Level (Indoor Air) Method C	MTCA Screening Level (Sub Slab) Method C
	Sample	Sample
	Date	Date
Compounds	µg/m³	µg/m³
Tetrachloroethene	40	1,300
Trichloroethene	2.00	67
Total Xylene	100	3,300
TPH - Risk Factors (indoor air only)	Pass/Fail	

µg/m³ = micrograms per cubic meter of air
TPH = Total Petroleum Hydrocarbons (Sum of Detected Aliphatics and Aromatic Results)
Neg = Ambient vapor sample concentration was higher than the indoor air vapor sample concentration, of same compound

Bold = Detected Compound
Shading denotes an exceedance of Method C Screening Level
E = The result is estimated and above the instrument calibration range

NOTES

1. Utility locations are based on City of Seattle GIS map information and in-field observations, and should be considered approximate.

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Dawn Food Site
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Figure 22
Summary of Vapor and Subslab Soil Vapor Sampling Results

File: D:_Projects\Crete\Dawn Foods\Dawn Foods Sample_2026 RIFS.dwg Date: 8/20/2026 | Caby

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Dawn Food Site
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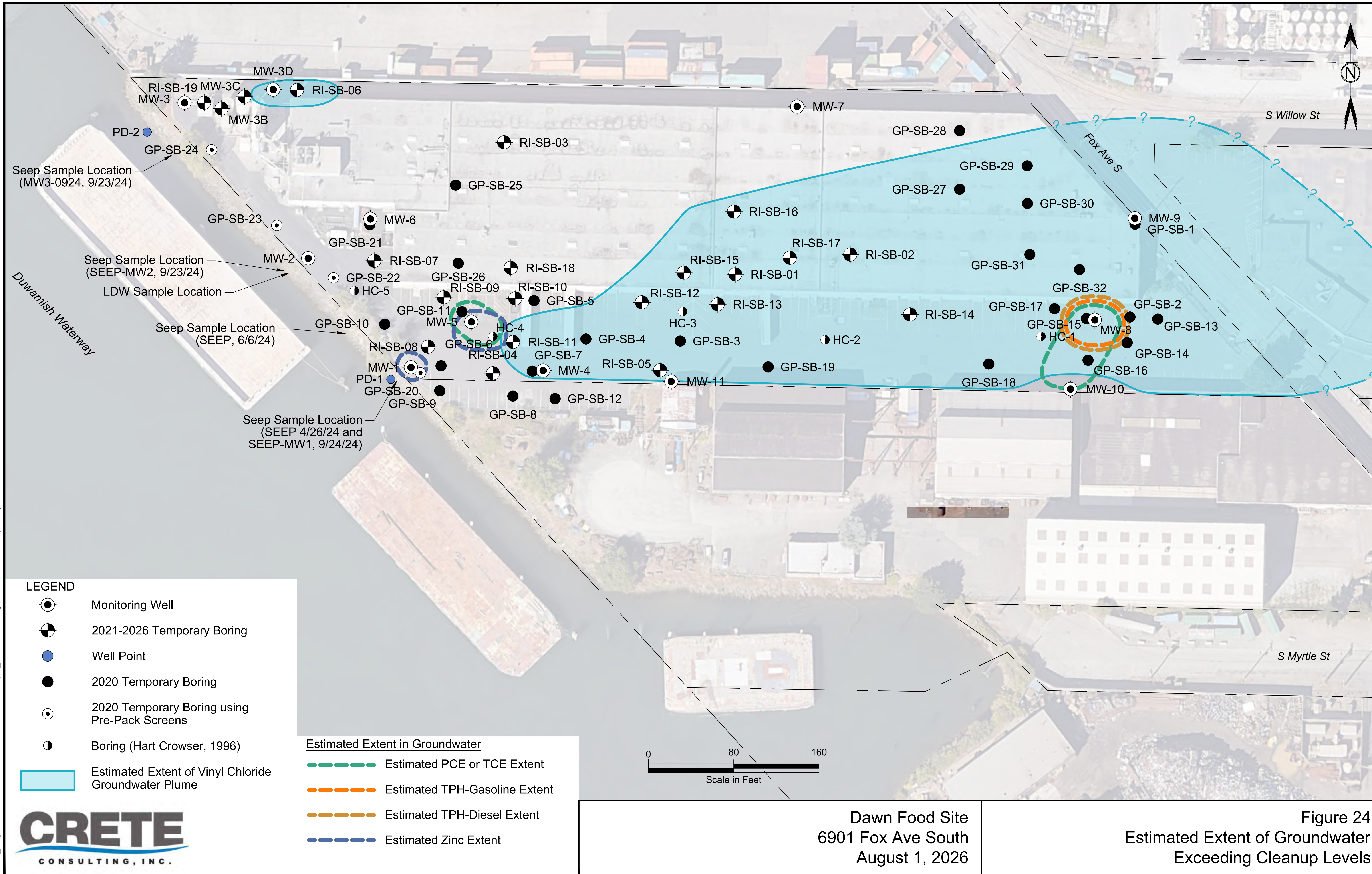
Figure 23
CVOC Source Evaluation

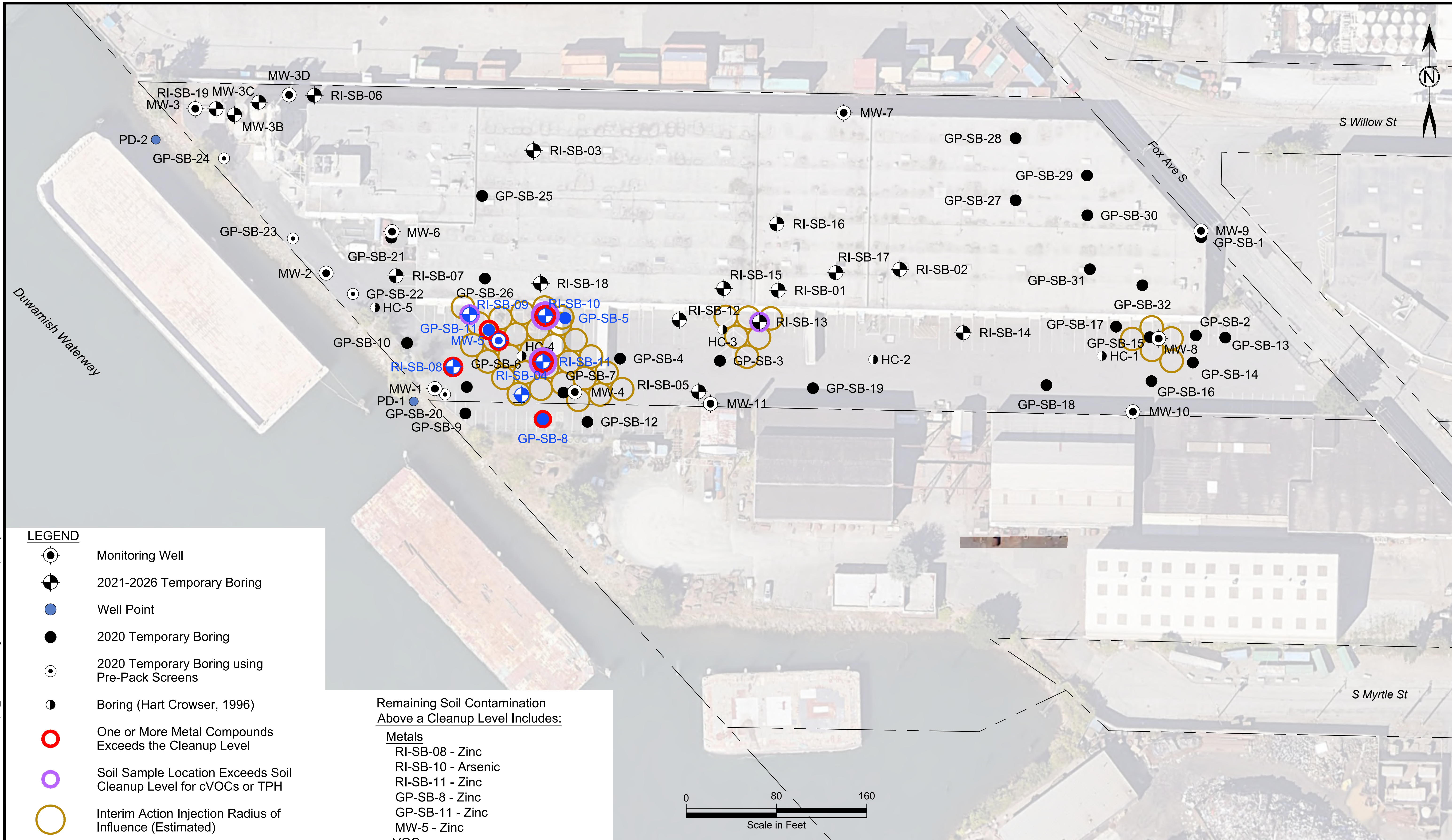
File: D:_Projects\Crete\Dawn Foods\Dawn Foods Sample_2026 RIFS.dwg Date: 8/20/2026 | Caby



Dawn Food Site
6901 Fox Ave South
August 1, 2026

Figure 24
Estimated Extent of Groundwater
Exceeding Cleanup Levels

File: D:_Projects\Crete\Dawn Foods\Dawn Foods Sample_2026 RIFS.dwg Date: 8/20/2026 | Caby



LEGEND

- Monitoring Well
- 2021-2026 Temporary Boring
- Well Point
- 2020 Temporary Boring
- 2020 Temporary Boring using Pre-Pack Screens
- Boring (Hart Crowser, 1996)
- One or More Metal Compounds Exceeds the Cleanup Level
- Soil Sample Location Exceeds Soil Cleanup Level for cVOCs or TPH
- Interim Action Injection Radius of Influence (Estimated)

Remaining Soil Contamination Above a Cleanup Level Includes:

Metals
- RI-SB-08 - Zinc
- RI-SB-10 - Arsenic
- RI-SB-11 - Zinc
- GP-SB-8 - Zinc
- GP-SB-11 - Zinc
- MW-5 - Zinc

cVOCs
- RI-SB-09 - TCE and PCE
- RI-SB-11 - TCE and PCE
- RI-SB-13 - PCE

TPH
- RI-SB-10 - TPH Gx and Dx

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Dawn Food Site
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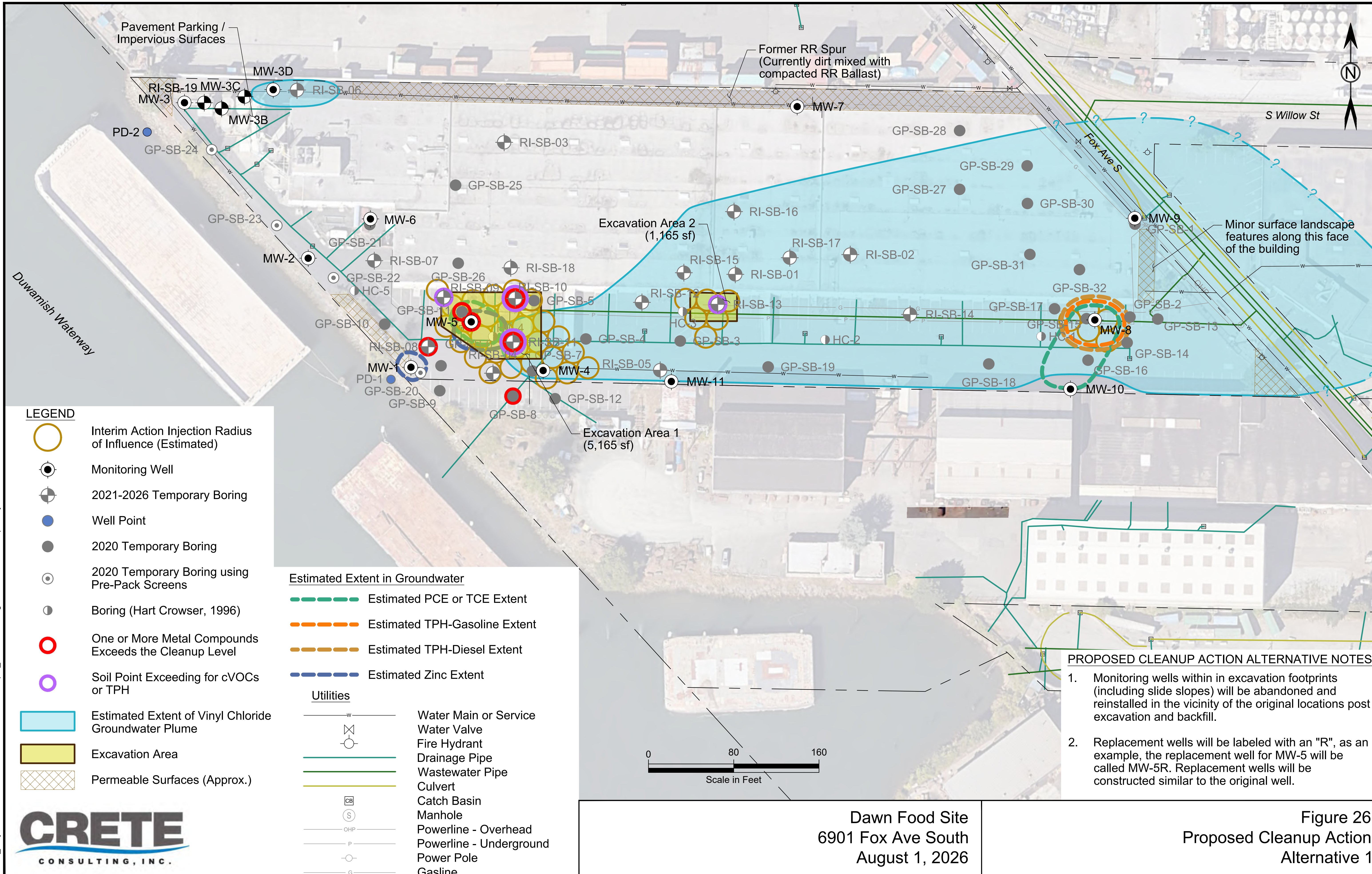
August 1, 2026

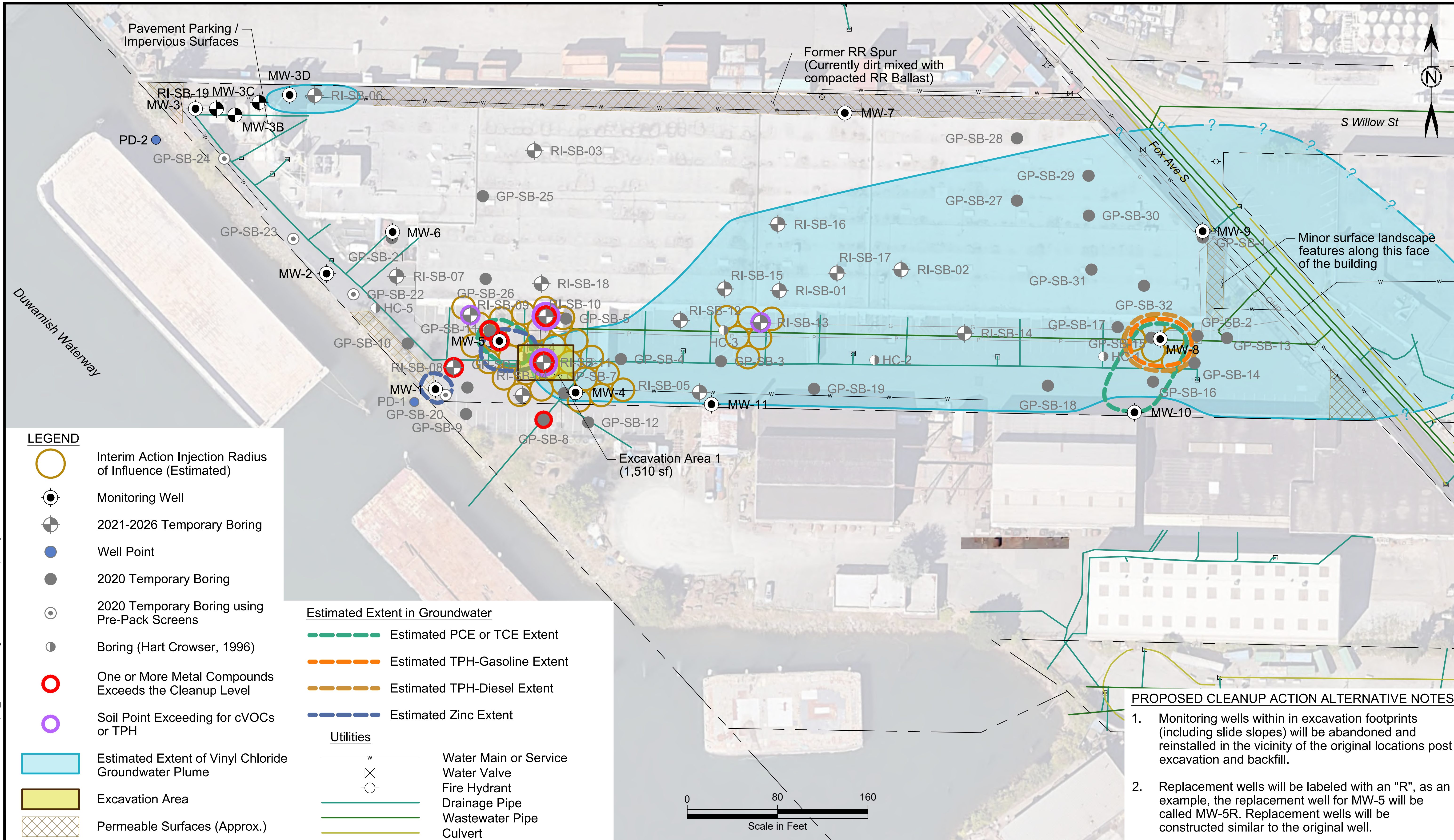
Figure 25
Soil Exceeding Cleanup Levels Prior to Interim Action

File: D:_Projects\Crete\Dawn Foods\Dawn Foods Sample_2026 RIFS.dwg Date: 8/20/2026 | Caby



Dawn Food Site
6901 Fox Ave South
August 1, 2026

Figure 26
Proposed Cleanup Action Alternative 1



LEGEND

- Interim Action Injection Radius of Influence (Estimated)
- Monitoring Well
- 2021-2026 Temporary Boring
- Well Point
- 2020 Temporary Boring
- 2020 Temporary Boring using Pre-Pack Screens
- Boring (Hart Crowser, 1996)
- One or More Metal Compounds Exceeds the Cleanup Level
- Soil Point Exceeding for cVOCs or TPH
- Estimated Extent of Vinyl Chloride Groundwater Plume
- Excavation Area
- Permeable Surfaces (Approx.)

Estimated Extent in Groundwater

- Estimated PCE or TCE Extent
- Estimated TPH-Gasoline Extent
- Estimated TPH-Diesel Extent
- Estimated Zinc Extent

Utilities

- Water Main or Service
- Water Valve
- Fire Hydrant
- Drainage Pipe
- Wastewater Pipe
- Culvert
- Catch Basin
- Manhole
- Powerline - Overhead
- Powerline - Underground
- Power Pole
- Gasline

PROPOSED CLEANUP ACTION ALTERNATIVE NOTES

1. Monitoring wells within in excavation footprints (including slide slopes) will be abandoned and reinstalled in the vicinity of the original locations post excavation and backfill.

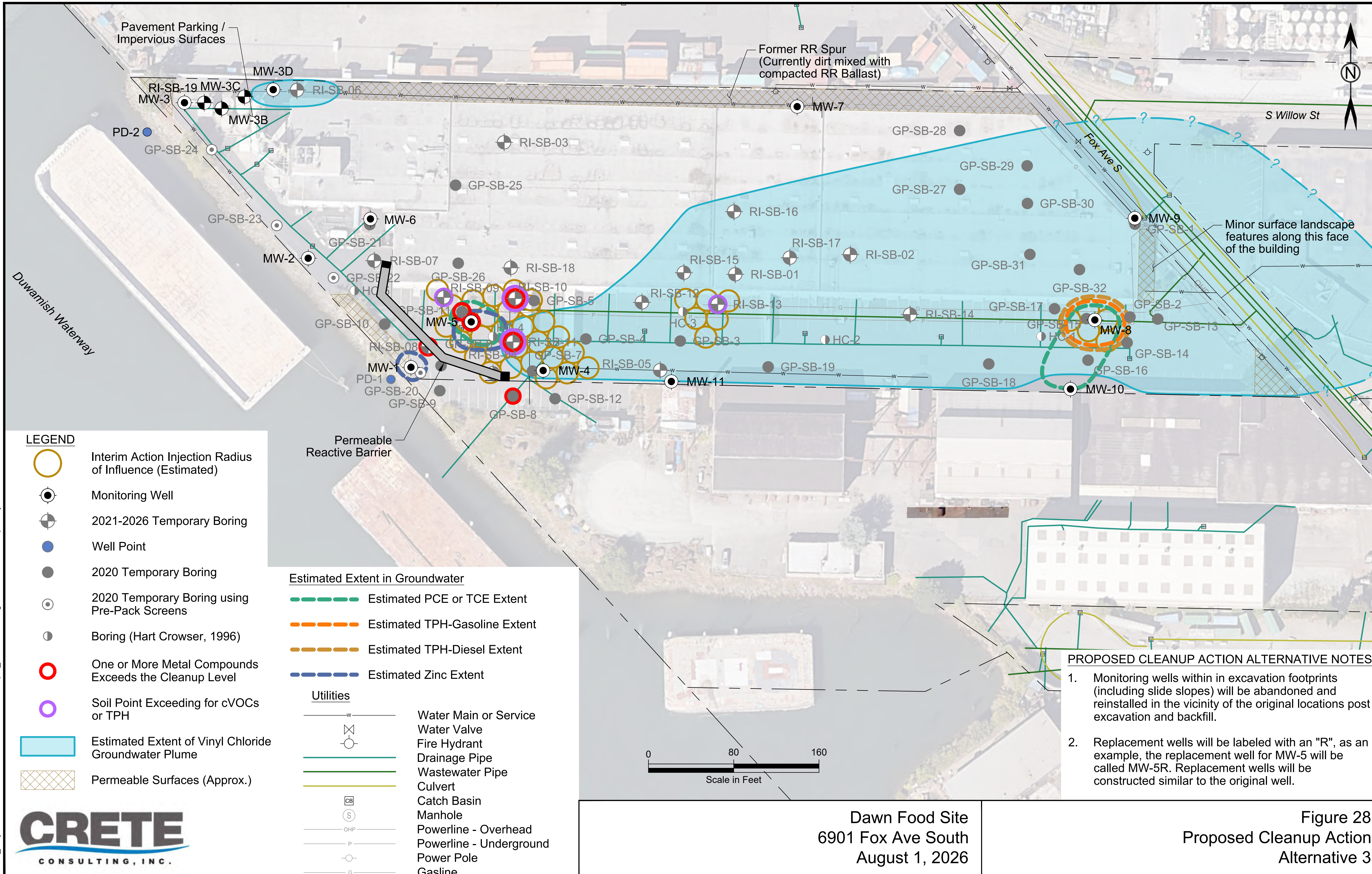
2. Replacement wells will be labeled with an "R", as an example, the replacement well for MW-5 will be called MW-5R. Replacement wells will be constructed similar to the original well.

CRETE CONSULTING, INC.

Dawn Food Site
6901 Fox Ave South
August 1, 2026

Figure 27
Proposed Cleanup Action
Alternative 2

File: D:_Projects\Crete\Dawn Foods\Dawn Foods Sample_2026 RIFS.dwg | Date: 8/20/2026 | Caby



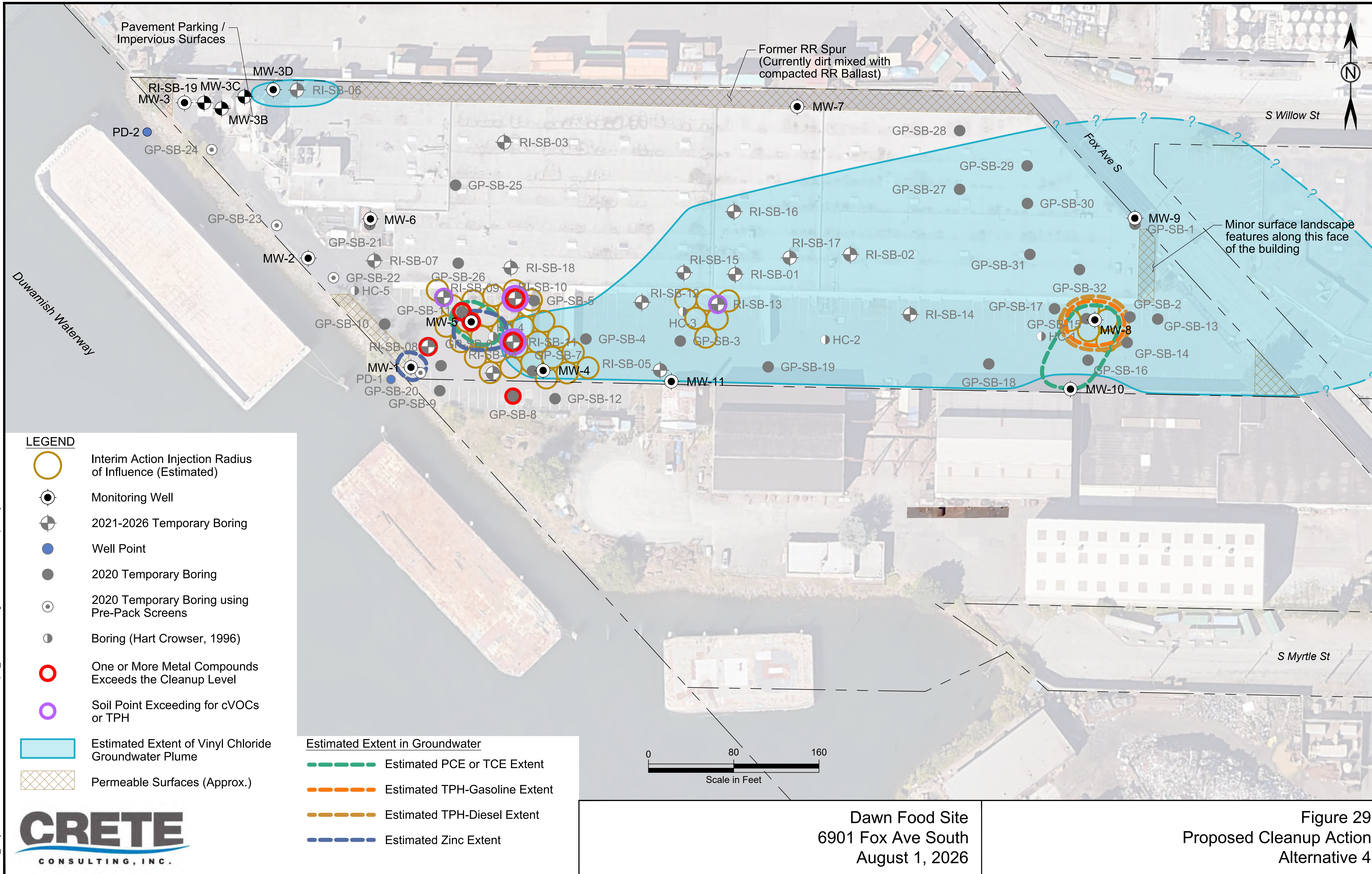
PROPOSED CLEANUP ACTION ALTERNATIVE NOTES

1. Monitoring wells within in excavation footprints (including slide slopes) will be abandoned and reinstalled in the vicinity of the original locations post excavation and backfill.
2. Replacement wells will be labeled with an "R", as an example, the replacement well for MW-5 will be called MW-5R. Replacement wells will be constructed similar to the original well.

Dawn Food Site
6901 Fox Ave South
August 1, 2026

Figure 28
Proposed Cleanup Action
Alternative 3

File: D:_Projects\Crete\Dawn Foods\Dawn Foods Sample_2026 RIFS.dwg Date: 8/20/2026 | Caby



Dawn Food Site
6901 Fox Ave South
August 1, 2026

Figure 29
Proposed Cleanup Action
Alternative 4

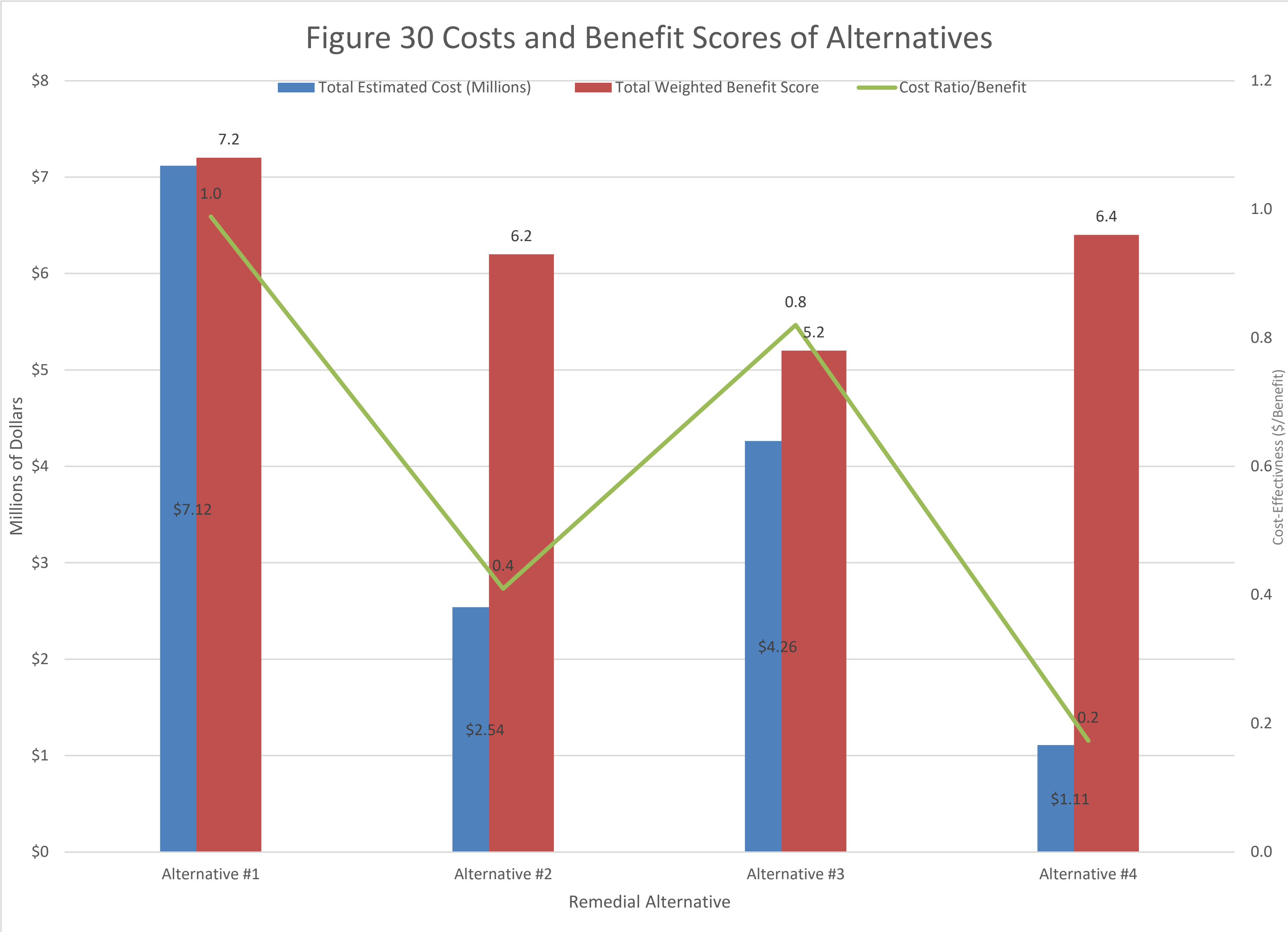


Figure 30 Costs and Benefit Scores of Alternatives
Total Estimated Cost (Millions)
Total Weighted Benefit Score
Cost Ratio/Benefit
$8
$7
$6
$5
$4
$3
$2
$1
$0
Millions of Dollars
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Cost-Effectivness ($/Benefit)
7.2
1.0
$7.12
6.2
0.4
$2.54
0.8
5.2
$4.26
6.4
0.2
$1.11
Alternative #1
Alternative #2
Alternative #3
Alternative #4
Remedial Alternative