STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Southwest Region Office
PO Box 47775 • Olympia, Washington 98504-7775 • 360-407-6300

October 4, 2024

Matt Laukala
C 3Legacy LLC
PO Box 1881
Milton, WA 98354
matt@caliberconcrete.com

Re: No Further Action Likely at the following Contaminated Site

Site name:	Former Machine Shop a.k.a Norfil Manufacturing
Site address:	1335 Valentine Ave SE, Pacific, WA 98047
Facility/Site ID:	19045
Cleanup Site ID:	15256
VCP Project No.:	SW1754

Dear Matt Laukala:

The Washington State Department of Ecology (Ecology) received your request on July 25, 2024 for an opinion regarding the sufficiency of your independent cleanup of the Former Machine Shop (Site) under the Voluntary Cleanup Program (VCP).[1] Acceptance of new electronic Site data into Ecology's Environmental Information Management (EIM) database was completed on August 28, 2024. This letter provides our opinion and analysis. We are providing this opinion under the authority of the Model Toxics Control Act (MTCA), chapter 70A.305 RCW.[2]

Opinion

Ecology has determined that no further action is likely necessary for this cleanup, pending successful completion of the requests in this letter.

[1] https://ecology.wa.gov/Spills-Cleanup/Contamination-cleanup/Voluntary-Cleanup-Program
[2] https://app.leg.wa.gov/RCW/default.aspx?cite=70A.305

Ecology bases this opinion on an analysis of whether the remedial action meets the substantive requirements of MTCA and its implementing regulations, which are specified in chapter 70A.305 RCW and chapter 173-340 WAC[3] (collectively called "MTCA").

Site Description

This opinion applies only to the Site described below. The Site is defined by the nature and extent of contamination associated with the following release(s):

- Diesel range and oil range total petroleum hydrocarbons (TPH-D and TPH-O, collectively, TPH-Dx) into the soil and groundwater.
- Arsenic, chromium, and lead into soil and potentially groundwater.
- Ethylene glycol into groundwater.

Enclosure A includes Site description, history, and diagrams.

The Property is comprised of two contiguous Pierce County tax parcels, numbers 4495400475 (west parcel) and 4495400476 (east parcel). There is one building on each parcel. The facility as a whole will be used as a contractor's yard for the foreseeable future. The Property is currently zoned as industrial.

Please note the parcels of real property associated with this Site are also located within the projected boundaries of the Tacoma Smelter Plume facility (FSID 62855481). At this time, Ecology has no information indicating that contamination from the Tacoma Smelter Plume facility affects those parcels. This opinion does not apply to any contamination associated with the Tacoma Smelter Plume facility.

Basis for the Opinion

This opinion is based on the information contained in the documents listed in **Enclosure B**.

Those documents are kept in the Central Files of the Southwest Regional Office of Ecology (SWRO) for review by appointment only. Information on obtaining those records can be found on Ecology's public records requests web page.[4] Some site documents may be available on Ecology's Cleanup Site Search web page.[5]

[3] https://apps.leg.wa.gov/WAC/default.aspx?cite=173-340
[4] https://ecology.wa.gov/About-us/Accountability-transparency/Public-records-requests
[5] https://apps.ecology.wa.gov/gsp/CleanupSiteDocuments.aspx?csid=15256

This opinion is void if any of the information contained in those documents is materially false or misleading.

As this Site is a collection of various releases rather than a release from a single source, Ecology has divided the Site into areas of concern (AOCs). The following table lists the AOCs at the Site as known to Ecology, and the status of each is presented as of the writing of this opinion letter. Ecology's opinion letter dated December 21, 2021, identified nine AOCs. Additional site investigation has not identified any additional AOCs beyond the original nine.

Area of Concern (AOC)	Status	Referenced Opinion Letter
Potential impacts from the adjacent PetroCard service station	No further action (NFA)	December 21, 2021
Former drum storage area	NFA	December 21, 2021
Sheen on pavement area	NFA	December 21, 2021
Northern site boundary	NFA	December 21, 2021
Warehouse floor drain	NFA	December 19, 2022
Septic System	NFA	December 19, 2022
Stormwater catch basins	NFA	December 19, 2022
Uncovered utility trench	NFA likely, based on proposed cleanup	This letter
Chip shed/Demised oil shed	NFA likely, based on proposed cleanup	This letter

Analysis of the Cleanup

Ecology has concluded that no further remedial action is likely necessary to clean up contamination at the Site. Ecology bases its conclusion on the following analysis:

Characterizing the Site

Ecology has determined that your completed Site characterization is sufficient for setting cleanup standards and selecting a cleanup action. Enclosure A describes the Site.

Terrestrial Ecological Evaluation (TEE)

Atlas proposed an exclusion for the Site from further terrestrial ecological evaluation (TEE) using the simplified procedure based on WAC 173-340-900, Table 749-1. Atlas provided the TEE

analysis and documented the TEE in the applicable Ecology TEE form. The Property and Site continue to be zoned as industrial. Ecology concurs that the Site can be excluded from further TEE.

Environmental Justice and Cultural Resources

The Property is privately-owned, is zoned industrial, and is expected to remain so for the foreseeable future. The Property will continue to be used as a contractor storage facility for the current concrete company. Shallow soil has been heavily disturbed, and fill is present from 0 to 5 feet below ground surface (bgs). No cultural resources were identified during the 2021 excavation work at the former demised soil shed. Cultural resources are not likely to have been impacted during this cleanup project.

Request: Groundwater Monitoring in November 2024

Ecology requests continued groundwater monitoring in November 2024 to determine the trend of heavy oil concentrations in groundwater at monitoring well MW-3. Generally, both monitoring wells MW-3 and MW-4 should be sampled for the same Site hazardous substances as for recent previous events, such as TPH-D and TPH-O (with and without silica gel cleanup). Monitoring wells MW-1 and MW-2 could be gauged for depth to water only.

Environmental Information Management Database

In accordance with WAC 173-340-840 and TCP Policy 840,[6] all Site data collected since August 1, 2005 will need to be confirmed as uploaded, accepted, and approved in Ecology's Environmental Information Management (EIM) database prior to issuing any no further action (NFA) letter. Current Site data were accepted and approved into EIM on August 28, 2024.

Setting Cleanup Standards

Ecology has determined the cleanup levels and points of compliance you set for the Site will likely meet the requirements of MTCA.

Previous soil and groundwater concentrations at the Site were screened against the MTCA Method A and B cleanup levels (CULs). Method C CULs are proposed for the Site, to which Ecology concurs, with specific institutional and engineered controls (IC/EnC).

[6] https://apps.ecology.wa.gov/publications/SummaryPages/1609050

Media	Points of Compliance
Soil-Direct Contact	Based on human exposure via direct contact, the standard point of compliance is throughout the Site from ground surface to fifteen feet below the ground surface. WAC 173-340-740 (6)(d) **Met -- based on maintaining post-closure controls.**
Soil- Protection of Groundwater	Based on the protection of groundwater, the standard point of compliance is throughout the Site. WAC 173-340-747 **Met -- based on maintaining post-closure controls.**
Groundwater	Based on the protection of groundwater quality, the standard point of compliance is throughout the site from the uppermost level of the saturated zone extending vertically to the lowest most depth which could potentially be affected by the Site. WAC 173-340-720(8)(b) **Met – based on maintaining post-closure controls.**

The standard points of compliance for soil and groundwater are used at the Site. The ecological and air pathways have been shown to be incomplete. In addition, there is no surface water or sediment at the Site, so these pathways are incomplete as well.

Hazardous Substance[7]	**MTCA Cleanup Level Method**	**Soil Cleanup Level** (mg/kg)	**Groundwater Cleanup Level** (µg/L)
TPH as diesel	A/A	2,000	500
TPH as heavy oil	A/C	2,000	1,285
Arsenic	A	20	5
Chromium	A	2,000	50
Lead	A	250	15
Ethylene glycol	B	Not established	32,000

As Ecology concurred in our September 20, 2023 opinion letter, HCID analysis showed two separate petroleum substances (diesel and heavy oil). Additionally, if using the MTCA Method A cleanup levels for diesel and heavy oil at the Site, the HCID results further supported the use of separate cleanup levels for diesel and heavy oil at the Site. Atlas also analyzed diesel and heavy oil in groundwater using the volatile petroleum hydrocarbon (VPH) and extractable petroleum hydrocarbon (EPH) analyses, which showed distinct diesel and heavy oil carbon ranges. We also concurred with the use of silica gel cleanup on the NWTPH-Dx analysis for groundwater based on the demonstrated organic concentrations in soil. Therefore, comparison against MTCA

[7] Based on exceedance of cleanup level identified at the Site, per data collected to date.

Method A cleanup levels for diesel and heavy oil could be completely separately. The MTCA Method C cleanup level for heavy oil, is further discussed below.

Contaminant concentrations are either more than 30 feet horizontally away from the building, or at a concentration of insufficient concern under the building to be a risk to workers. The petroleum-contaminated soil remaining at the Site was removed to the maximum extent practicable. The heavy oil in soil beneath the northeast corner of the west manufacturing building at UT-S is at a concentration of 2,700 milligrams per kilogram (mg/Kg). This residual contaminated soil is likely limited in extent (e.g., less than a cubic yard) and does not pose a risk to groundwater or indoor air. The remaining heavy oil in soil concentration beneath the northeast building corner is also less than MTCA Method B or Method C calculated site-specific CULs for the Site. Ecology concurs with your proposed approach for the UT-S location.

Based on your proposed areas of restriction in the Report, proposed institutional and engineered controls, as well as the planned environmental covenant, upon completion of these items, no further action is needed with regards to the residual petroleum contamination at the UT-S soil sampling location. The residual heavy oil in soil contamination at UT-S should be removed if the property is ever re-developed and the building removed, making the contaminated soil accessible.

November 2023 Groundwater Monitoring Results Discussion

Additional groundwater monitoring was conducted in November 2023. Following the process in section 8.9 of the Guidance for Remediation of Petroleum Contaminated Sites, a MTCA Method C groundwater CUL of 1,285 micrograms per liter (µg/L) (the median groundwater CUL calculated) was established to evaluate Site analytical results. This was the median CUL of the three calculated MTCA Method C CULs, with one of the calculated MTCA Method C CULs being more stringent than the MTCA Method A CUL. All of the concentrations at all Site monitoring wells are under the MTCA Method C CUL, with fewer than four quarters of compliant results for TPH-O at MW-3 alone.

Ecology previously concurred with the use of silica gel cleanup for NWTPH-Dx analysis in groundwater at the Site.[8] The use of MTCA Method C cleanup levels requires institutional and engineered controls memorialized by an environmental covenant with a long-term monitoring plan.

In addition, a MTCA C site-specific calculation was also completed for carcinogenic polycyclic aromatic hydrocarbons (cPAHs) in groundwater. Ecology concurs that you correctly calculated the MTCA Method C CUL and the toxicity equivalency factors (TEFs) for cPAHs. Based on the additional groundwater monitoring results, it appears that the MTCA Method A CUL is also met for cPAHs in groundwater at the Site, and we recommend using that CUL to compare analytical results. Ecology concurs that the cPAHs sampled in groundwater meet the requirements of WAC 173-340-900, Table 830-1, and concentrations were, on a TEF/TEQ-adjusted basis, less than the MTCA Method A CUL for benzo[a]pyrene in groundwater of 0.1 µg/L. **As a result, no further sampling of Site groundwater for cPAHs is needed.**

Further, no adjustments to the cleanup standards were needed based on consideration of applicable state and federal laws.

Selecting the cleanup action

Ecology has determined the cleanup action you selected for the Site meets the substantive requirements of MTCA.

Atlas provided a revised feasibility study (FS) with disproportionate cost analysis (DCA) for consideration of four remedial alternatives. Based on the evaluation, the proposed permanent alternative was groundwater pump and treat.

The greatest environmental benefit to cost for any remedial option was a Method C closure using an EC and long-term groundwater monitoring. Ecology concurs with Atlas' analysis.

The majority of surfaces at the Property and Site are impervious (asphalt and concrete). A stormwater system is present as well. The former demised oil shed excavation straddles the boundary between the two parcels that comprise the Property. Ecology notes that the historical contaminant sources have been removed from the Site and current and future Site use will be as a contractor's storage yard for the current concrete business.

[8] From September 20, 2023 opinion letter.

MTCA Method C Proposed Cleanup Level

Ecology concurs with your proposed Method C CUL for diesel and heavy oil-range hydrocarbons (combined as total TPH). The proposed CUL is the median calculated value based on the November 2023 sampling results processed through the MTCATPH spreadsheet. The use of MTCA Method C at a Site requires institutional and engineered controls memorialized by an EC and supported by various long-term plans.

To confirm compliance with the proposed Method C Site-specific CUL, please sample MW-3 and MW-4 for NWTPH-Dx (with and without silica gel cleanup) in November 2024.

Groundwater monitoring results at monitoring wells MW-1 and MW-2 already meet both the proposed MTCA Method C CULs and the MTCA Method A CULs for each of diesel and heavy oil. The additional November 2023 groundwater monitoring confirms that no additional action is needed with regards to the stormwater system. Please continue to gauge monitoring wells MW-1 and MW-2 during groundwater monitoring events to confirm groundwater flow direction.

Industrial CULs Restrict Future Property Use: Your proposal of using industrial CULs for this cleanup requires an EC be placed on the Property in perpetuity, restricting and limiting future Property use to industrial usages. Industrial uses are defined by MTCA in WAC 173-340-200, and further described in WAC 173-340-745. Any EC would also include reporting of new businesses operating at the Property to Ecology, as well as tenant notification of the institutional controls, to ensure that future Property use conforms to EC requirements. This opinion may be rescinded if the Property is used for non-industrial uses in the future, as defined in WAC 173-340-200. The property owner at the time of Ecology's determination would be notified of our decision in writing.

Implementing the cleanup action

Ecology has determined your cleanup likely meets the cleanup standards set for the Site. This determination depends on the continued performance and effectiveness of the post-cleanup controls and monitoring specified in this letter.

The following interim actions have been completed at the Site:

- Removal of the demised oil shed and related contaminated soils. A total of 161.13 cubic yards of contaminated soil were properly disposed of at a permitted facility (Pierce County's LRI landfill at Graham, Washington). The results of soil sample collected at the excavation extent complied with the Method A cleanup levels for TPH-Dx.
- After the excavation at the former demised oil shed, two rounds of PersulfOx® and one round of PetroFix™ chemical injections were completed in a zone of approximately 5 to 15 feet bgs. At one catch basin, four PetroFix™ injections (in one round) were completed in shallow soil.
- Removal of 0.75 tons of petroleum-contaminated soil at the uncovered utility trench. This area is now paved.

Ecology supports the interim actions taken to reduce contaminant concentrations at the Site.

The concentration of TPH-O in groundwater at monitoring well MW-3 exceeded the MTCA Method A cleanup level in both November 2022 and November 2023, though the concentration declined from 1,900 µg/L to 1,100 µg/L. The latter value is less than the proposed MTCA Method C site-specific cleanup level for diesel and heavy oil combined. There are currently three consecutive quarterly groundwater monitoring results in compliance with the Site-specific MTCA Method C cleanup level for diesel and heavy oil at MW-3.

Ecology previously concurred with comparing post-silica gel cleanup results against Site CULs. Concentrations of TPH-Dx are in compliance during all other quarterly sampling events. In addition, groundwater results are compliant with the CULs for at least four quarters at monitoring wells MW-1 and MW-2.

Based on additional data collected, the groundwater flow direction has been sufficiently shown to be primarily to the south. Monitoring well MW-4, shown to be immediately downgradient of MW-3, has been in compliance with Site CULs for at least four consecutively quarterly events. Post silica gel cleanup results are appropriate to compare against CULs at all Site monitoring wells.

As TPH-Dx concentrations in groundwater exceed 500 µg/L, some contaminated soil remains in place close to MW-4. Both monitoring wells MW-3 and MW-4 were in the former demised oil shed excavation. Ecology concurs, with the newly presented data and FS/DCA, that cleanup actions have been taken to the maximum extent practicable for the Site.

Ecology concurs that the concentrations of Site hazardous substances in groundwater at MW-4 are in compliance. Ecology also concurs that monitoring well MW-4 is located directly south and downgradient of the current exceedance of TPH-O in groundwater in monitoring well MW-3. Monitoring well MW-3 is located within the excavation for the former demised oil shed.

Ecology concurs that remediation (excavation and chemical injections) were sufficient to meet the standard of maximum extent practicable, as confirmed by additional groundwater monitoring. The use of the EC is not anticipated to extend the restoration time frame beyond a reasonable limit.[9]

The vast majority of the Property is covered with building foundations, asphalt parking lots, and concrete. Future Property use is as a contractor's yard. The Property will remain zoned for industrial, which also meets the industrial zoning requirements under WAC 173-340-200.

Please note that petroleum-contaminated soil which may be subject to re-use during any potential Site re-development, would need to meet criteria under Tables 12.1 and 12.2, in Ecology publication No. 10-09-057. Ecology acknowledges that no Site re-development is currently planned.

As contaminated soil, though at concentrations less than the MTCA Method B site-specific cleanup, is proposed to be left in place under the building foundation, Ecology concurs that institutional controls and engineered controls memorialized by an EC are needed. Additionally, groundwater compliance is being determined for TPH-D and TPH-O using MTCA Method C, which also requires institutional controls and an environmental covenant.

1) Institutional controls: standard restrictions which will affect the specific area at the demised oil shed.
2) Engineered controls: the building foundation and gravel and concrete cap at the former demised oil shed.
3) **With your next deliverable, please submit:**

    a. Details of the November 2024 groundwater monitoring event.
    b. A title search.[10]
    c. Draft word processing version of an EC.
    d. Figure(s) showing the area of restriction or linking to the applicable cleanup site search page if proposing to use that link as a placeholder. The area of restriction can be limited to the area of the contaminated soil and groundwater and is **not** required to encompass the entire Property.

[9] WAC 173-340-360(3)
[10] Please see TCP Procedure 440A for the full list of requirements to implement an environmental covenant.

e. Contaminated media management, cap monitoring, and long-term groundwater monitoring, and contingency plan. All of these plans could be sections in a single report.

f. Financial assurance requirements under WAC 173-340-440(11) remain on pause based on Toxics Cleanup Program Program decision dated May 25, 2022.

g. Depending on the results of the November 2024 groundwater monitoring event, Ecology concurs with annual Site long-term groundwater and cap monitoring, every November, for five years until the first periodic review. Upon written request, Ecology could re-visit if groundwater monitoring needs to continue based on this long-term monitoring at the first 5-year periodic review.

h. However, four consecutive quarters of groundwater monitoring results at all Site wells less than the MTCA Method A CUL of 500 µg/L[11] and soil confirmatory sampling would be needed to someday pursue an unencumbered ("clean") NFA determination.

Limitations of the Opinion

Opinion does not settle liability with the state

Liable persons are strictly liable, jointly and severally, for all remedial action costs and for all natural resource damages resulting from the release or releases of hazardous substances at the Site. This opinion **does not**:

- Resolve or alter a person's liability to the state.
- Protect liable persons from contribution claims by third parties.

To settle liability with the state and obtain protection from contribution claims, a person must enter into a consent decree with Ecology under RCW 70A.305.040(4).[12]

Opinion does not constitute a determination of substantial equivalence

To recover remedial action costs from other liable persons under MTCA, one must demonstrate that the action is the substantial equivalent of an Ecology-conducted or Ecology-supervised action. This opinion does not determine whether the action you performed is substantially equivalent. Courts make that determination. See RCW 70A.305.080[13] and WAC 173-340-545.[14]

[11] For each of diesel and heavy oil, if using MTCA Method A to determine final cleanup levels compliance. See page 10 in Ecology's opinion letter dated September 20, 2023 for the discussion leading to Ecology's concurrence.
[12] https://app.leg.wa.gov/RCW/default.aspx?cite=70A.305.040
[13] https://app.leg.wa.gov/RCW/default.aspx?cite=70A.305.080
[14] https://apps.leg.wa.gov/WAC/default.aspx?cite=173-340-545

State is immune from liability

The state, Ecology, and its officers and employees are immune from all liability, and no cause of action of any nature may arise from any act or omission in providing this opinion. See RCW 70A.305.170(6).[15]

Questions

If you have any questions about this opinion, please contact me at 360-999-9589 or tim.mullin@ecy.wa.gov.

Sincerely,

Tim Mullin, LHG
Toxics Cleanup Program
Southwest Region Office

TCM: at

Enclosures (2): A – Site Description
B – Document List

cc by email: Liz Rachman, LHG, Atlas Geosciences NW; irachman@atlasgeonw.org
Marian Abbett, PE, Ecology; marian.abbett@ecy.wa.gov
Ecology Site file

[15] https://app.leg.wa.gov/RCW/default.aspx?cite=70A.305.170

Enclosure A

Site Description

Site Description

The Site is located at 1335 Valentine Ave SE, Pacific, Pierce County, Washington. The Property includes two Pierce County parcels: 4495400475 (west parcel) and 4495400476 (east parcel; combined, the Property). According to the Pierce County Assessor-Treasurer's website, parcel 449500475 is 1.071 acres in size, and parcel 449500476 is 1.022 acres in size.

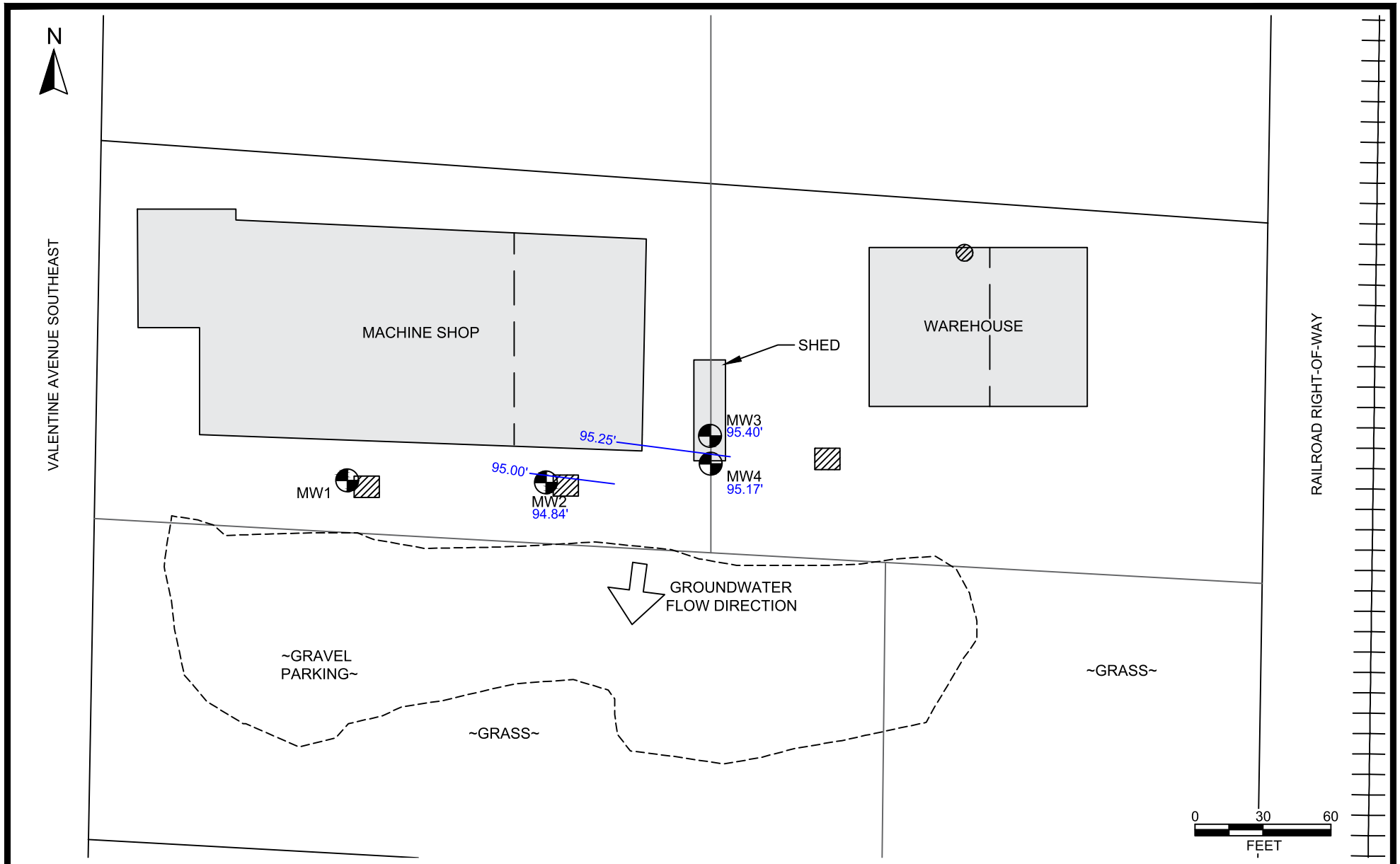
Property History and Current Use: The Property has been used for manufacturing aerospace parts for at least the past 30 years. A manufacturing building occupies parcel 449500475, a warehouse occupies parcel 449500476, and a shed used for storing oil previously straddled the shared property line between the two parcels. Most surfaces at the Site are asphalt with concrete pads for exits from buildings or for the now removed demised oil shed. Gravel and dirt are present as surface cover at the demised oil shed excavation (gravel) and the former septic system drainfield (dirt).

Property Vicinity: The Site is located in an area of mainly commercial and industrial facilities. Railroad tracks border the Property on the east, and Valentine Avenue borders the Property on the west. A PetroCard/Pacific Pride card lock gasoline station is present on the adjacent parcel to the northwest of the Property.

Soils and Geology: To the maximum depth explored of approximately 15 feet bgs, the Site is underlain primarily by fill and unconsolidated sands with some silts and gravels.

Groundwater: Based on boring logs and depth to water obtained from Site monitoring wells (MW-1 through MW-4), Site groundwater is shallow, at approximately 4 feet bgs. The Site is not within a 10-year wellhead travel timeframe for any drinking water supply well.

Surface/Storm Water/Septic Systems/Wetlands: At least three catch basins are present at the Property. A septic tank and drain field are present in the north-central portion of the Property. There is no naturally occurring surface water at the Site. The nearest surface water is the White River located approximately 850 feet east of the Site. No wetlands are present on the Property or at the Site.



ATLAS GEOSCIENCES NW
P.O. BOX 1009
SUMNER, WA 98390

LEGEND:

- SITE BUILDING
- SITE BOUNDARY
- PARCEL BOUNDARY
- CATCH BASIN
- FLOOR DRAIN
- MONITORING WELLS
- GROUNDWATER ELEVATION CONTOUR
- 97.00' GROUNDWATER ELEVATION RELATIVE TO SITE SPECIFIC DATUM

DRAWN BY:	CES
PROJ. NO:	02-0040-H
DATE:	FEBRUARY 2024
APPROX SCALE:	SEE ABOVE
PRJ MGR:	ER

GROUNDWATER ELEVATIONS NOVEMBER 2023

FIGURE 3

FORMER MACHINE SHOP

1335 VALENTINE AVENUE SOUTHEAST

PACIFIC, WASHINGTON

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Enclosure B: Document List

1. Atlas Geosciences NW (Atlas), Response to Ecology Letter dated September 20, 2023, July 19, 2024.
2. Ecology, Re: Further Action at the following contaminated Site, September 20, 2023.
3. Atlas, Response to Ecology Letter dated December 21, 2021, May 5, 2022.
4. Ecology, Re: Further Action at the following Site, December 21, 2021.
5. Atlas, Cleanup Action Report, May 29, 2021.
6. Atlas, Remedial Investigation, June 22, 2020.
7. Atlas, Supplemental Phase II Subsurface Investigation, April 28, 2020.
8. Environmental Associates, Inc. (EAI), Phase I Environmental Site Assessment Update, October 9, 2019.
9. EAI, Phase I Environmental Site Assessment Norfil Manufacturing, January 15, 2009.