



SoundEarth Strategies, Inc.
1011 SW Klickitat Way, Suite 212
Seattle, Washington 98134

June 20, 2023

Mr. Scott Koppelman
AMLI Residential Partners
425 Pontius Avenue North, Suite 400
Seattle, Washington 98109

SUBJECT: REMEDIAL INJECTION AND GROUNDWATER MONITORING WORK PLAN (UPDATED)
AMLI Wallingford Property
3400 Wallingford Avenue North
Seattle, Washington 98103
Project No.: 0789-004

Dear Mr. Koppelman:

SoundEarth Strategies, Inc. (SoundEarth) has prepared this updated work plan to present the scope of work for supplemental injections to remediate chlorinated volatile organic compounds (CVOCs) in groundwater at the AMLI Wallingford property located at 3400 Wallingford Avenue North in Seattle, Washington (the Property). The Property is currently enrolled in the Washington State Department of Ecology (Ecology) Voluntary Cleanup Program (VCP Project No. NW2739, Facility/Site No. 71755531). The work is being performed in support of pursuing a No Further Action determination.

The original work plan, dated June 13, 2022 (SoundEarth 2022a), has been updated to reflect the recent groundwater monitoring and sampling results and the proposed supplemental remedial injection program. The recent groundwater monitoring event was performed in March and May 2023 and was consistent with the scope of work presented in the Ecology Response and Work Plan for Groundwater Monitoring and Vapor Intrusion Evaluation (SoundEarth 2022b) and the request for additional monitoring wells that had been made by Ecology in the letter regarding Opinion Pursuant to WAC 173-340-515(5) on Remedial Action for Hazardous Waste Site (Ecology 2023).

This scope of work also includes post-injection groundwater monitoring events to evaluate the effectiveness of the supplemental remedial injections.

BACKGROUND

The Property consists of six tax parcels on the northern and southern sides of North 34th Street (King County Parcel Nos. 4083306660, 4083306670, 4083306695, 4083307105, 4083307155, and 4083307160) that encompass a total of approximately 87,894 square feet (2.02 acres) of land. The three parcels north of North 34th Street (King County Parcel Nos. 4083306660, 4083306670, and 4083306695) are collectively known as the North Block. The three parcels south of North 34th Street (King County Parcel Nos. 4083307105, 4083307155, and 4083307160) are collectively known as the South Block.

Multiple phases of remedial investigation activities have been conducted at the Property by SoundEarth since 2012. Based on the data gathered during these investigations, the Site, which is defined by the nature and extent of contamination associated with one or more releases of hazardous substances prior

to the implementation of remediation activities, includes soil contaminated with trichloroethene (TCE), tetrachloroethene (PCE), lead, and polycyclic aromatic hydrocarbons and groundwater contaminated with TCE. The identified TCE and PCE impacts likely resulted from a release associated with the Avtech Corporation manufacturing facility formerly located on the North Block of the Property. The field activities and findings of these investigations are included in SoundEarth's Draft Remedial Investigation and Feasibility Study Report dated January 10, 2014, and letter regarding SoundEarth's RI/FS/CAP Addendum, dated August 6, 2014 (SoundEarth 2014a, 2014b).

In 2014, SoundEarth initiated interim cleanup actions at the Site, which included source removal by excavation in conjunction with the construction of the existing buildings on the Property, the installation and operation of a soil vapor extraction (SVE) system beneath the newly constructed building on the North Block to mitigate potential vapor intrusion, and in situ chemical oxidation to address residual groundwater contamination beneath the Property and adjacent rights-of-way (ROWs). Interim cleanup actions conducted between 2014 and 2016, including remedial excavation activities; installation of injection wells; potassium permanganate injection events conducted in March 2015, July 2016, and December 2016; and installation of the SVE system in March 2015, are documented in SoundEarth's letter regarding the Cleanup Action Report, dated June 19, 2017 (SoundEarth 2017a; 2017 Cleanup Action Report).

Groundwater monitoring has been conducted at the Site during most quarters since the second quarter of 2012. Groundwater monitoring activities and results through the third quarter of 2017 have been documented in SoundEarth groundwater monitoring reports, the most recent of which is SoundEarth's letter regarding the Third Quarter 2017 Groundwater Monitoring Report (SoundEarth 2017b; Third Quarter 2017 Groundwater Monitoring Report).

Additional groundwater monitoring and remedial injection activities conducted at the Site since the completion of SoundEarth's 2017 Cleanup Action Report and Third Quarter 2017 Groundwater Monitoring Report are summarized in the following sections.

Summary of Groundwater Monitoring Events: Fourth Quarter 2017 through Fourth Quarter 2021 and March and May 2023

The table on the following page provides a summary of the results from the groundwater monitoring events conducted at the Site between the fourth quarter of 2017 and the fourth quarter of 2021 and in March and May 2023. Groundwater samples were collected from monitoring and injection wells and analyzed for CVOCs by US Environmental Protection Agency (EPA) Method 8260C or 8260D. Groundwater samples collected from select monitoring wells were analyzed for total manganese to assess chemical oxidant attenuation associated with previous injections of potassium permanganate. Monitoring wells in which TCE was detected at concentrations exceeding the Washington State Model Toxics Control Act (MTCA) Method A cleanup level for groundwater are noted in the table.

Full groundwater analytical results for all groundwater sampling events conducted to date are included in the attached Table 1. Groundwater analytical results for sampling events conducted between the third quarter of 2018 and the fourth quarter of 2021 are depicted on Figure 1. A groundwater contour map depicting the groundwater flow direction at the Site during the fourth quarter of 2021 is depicted on Figure 2. Groundwater analytical results for the March and May 2023 sampling event and the associated groundwater contour map are presented on Figures 3 and 4, respectively.

Year	Quarter of Groundwater Sampling Event	Sample Date(s)	Monitoring or Injection Wells Sampled	Chemicals Analyzed	Wells Containing Concentration of TCE Exceeding MTCA
2017	Fourth Quarter	12/4/17 and 12/06/17	MW05, MW12, MW16A, MW18, and IW08	CVOCs	MW05, MW12, and MW16A
2018	First Quarter	03/27/18	MW05, MW12, MW16A, MW18, and IW08	CVOCs	MW12
	Second Quarter	06/12/18	MW05 and MW16A	CVOCs	MW16A
	Third Quarter	09/12/18	MW05, MW12, and MW16A	CVOCs	MW05 and MW12
	Fourth Quarter	12/27/18	MW05, MW12, MW16A, and IW08	CVOCs	MW05, MW12, and MW16A
2019	First Quarter	03/21/19	MW05, MW12, and MW16A	CVOCs	MW12
	Second Quarter	06/12/19	MW05, MW12, MW16A, and IW08	CVOCs	MW12
	Third Quarter	09/19/19	MW05, MW12, MW16A, and IW08	CVOCs	MW05 and MW16A
	Fourth Quarter	12/12/19	MW05, MW12, and MW16A	CVOCs	MW05 and MW12
2020	First Quarter	03/24/20	MW05, MW12, MW16A, and IW08	CVOCs	MW12
	Second Quarter	07/06/20	MW05, MW12, MW16A, and IW08	CVOCs	MW05 and MW12
	Third Quarter	09/17/20	MW05, MW12, MW16A, and IW08	CVOCs	MW05 and MW12
	Fourth Quarter	12/16/20	MW05 and MW12	CVOCs	MW05 and MW12
2021	Third Quarter	09/22/21	MW05 and MW12	CVOCs	MW12
			MW05, MW12, and MW18	Total manganese	
	Fourth Quarter	12/28/21	MW05 and MW12	CVOCs	MW05 and MW12
			MW05, MW12, MW17, and MW18	Total manganese	
2023	First Quarter	03/07/23, 03/08/23, and 03/15/23	MW05, MW11D, MW12, MW14, MW15, MW16A, MW17, MW18, IW04A, IW30, IW39, and IW47	CVOCs	MW18
			MW05, MW12, and MW17	Total manganese	
	Second Quarter	05/01/23 and 05/03/23	IW08, MW11 (substitute for injection well IW15 as requested by Ecology; obstruction encountered at injection well IW15), and MW18	CVOCs	MW11 and MW18
			MW18	Total manganese	

Since the implementation of interim cleanup actions beginning in 2014, TCE concentrations have declined to levels below the MTCA Method A cleanup level in groundwater throughout the majority of the Site. However, TCE concentrations remain above the cleanup level in groundwater in the vicinities of monitoring wells MW11, in the North 34th Street ROW, and MW18, in the Burke Avenue North ROW. As of the most recent sampling event, total manganese concentrations were below the MTCA Method B

cleanup level in groundwater samples collected from groundwater monitoring wells MW05, MW17, and MW18. Total manganese was detected at a concentration of 19,400 micrograms per liter ($\mu\text{g/L}$), which exceeds the MTCA Method B cleanup level of 750 $\mu\text{g/L}$, in the groundwater sample collected from monitoring well MW12; the elevated total manganese concentration suggests the presence of residual potassium permanganate in the vicinity of this well.

Summary of Remedial Injection Events: April 2019 and May 2021

Since 2015, five remedial injection events have been conducted to address TCE concentrations in groundwater beneath the Site. The injection of potassium permanganate has promoted the chemical oxidation of CVOCs. Injections of potassium permanganate conducted in March 2016, July 2016, and December 2016 are described in SoundEarth's 2017 Cleanup Action Report (SoundEarth 2017a). The following provides a summary of the additional injection events conducted in April 2019 and May 2021.

- **April 2019 Injection Event.** On April 24 and 25, 2019, potassium permanganate was injected into injection wells IW12, IW53, and IW58. These injection wells are located proximate to monitoring wells MW16A, MW05, and MW12, respectively, where TCE concentrations remained above the MTCA Method A cleanup level prior to the injection event. A total of 1,325 gallons of potassium permanganate treatment compound was injected into the subsurface.
- **May 2021 Injection Event.** On May 12 and 13, 2021, potassium permanganate was injected into monitoring wells MW05 and MW12 and injection wells IW58 and IW03. The injections were performed to reduce residual TCE to concentrations below the MTCA Method A cleanup level in monitoring wells MW05 and MW12. The potassium permanganate solution was injected into MW05 (640 gallons), MW12 (480 gallons), IW58 (160 gallons), and IW03 (160 gallons) for a total of 1,440 gallons.

Since this injection event, TCE continues to be detected at concentrations exceeding the MTCA Method A cleanup level in groundwater samples from monitoring wells MW05 and MW12.

REMEDIAL INJECTION SCOPE OF WORK

Since 2014, performance groundwater monitoring has indicated a decrease in TCE concentrations to levels below the MTCA Method A cleanup level throughout the majority of the Site. However, TCE concentrations remain above the cleanup level in groundwater samples from monitoring wells MW11 and MW18. SoundEarth plans to conduct a supplemental targeted injection event to further reduce the TCE concentrations in these areas of the Site. The supplemental injection event will utilize a sodium permanganate injectate to chemically oxidize the residual TCE.

Comparatively, the sodium-based permanganate (liquid-based form; 40 percent stock solution) can be prepared at a higher injectate concentrations than potassium-based permanganate (solid based form; up to 5 percent solution per solubility limits). It is anticipated that delivery of a higher concentration permanganate-based injection solution will overcome the natural organic demand associated with fine-grained material present in the vicinity of monitoring wells MW11 and MW18.

In general, the injection program will consist of the following:

- Prior to the injection event, an update to the existing Underground Injection Control (UIC) registration will be completed.

- A 40 percent sodium permanganate stock solution will be mixed with potable water in an aboveground tank to prepare a dilute sodium permanganate injection solution (up to 20 percent by volume).
- The prepared sodium permanganate solution will be injected into existing injection wells IW16, IW56, and IW57 and monitoring wells MW11 and MW18 under gravity or moderate injection pressure (Figure 1). Based on previous injection events, it is anticipated that up to 750 gallons will be injected per well.
- During the injection process, adjacent monitoring or injection wells will be periodically monitored for changes in groundwater elevation (via water-level measurements) and visual indicators (i.e., sodium permanganate imparts a pink/purple color).

It is assumed the injections will be completed over the course of 4 days.

POST-INJECTION GROUNDWATER MONITORING EVENTS

The recently completed groundwater monitoring and sampling event performed in March and May 2023 will serve as the baseline groundwater monitoring event. Following the supplemental injection event, SoundEarth will conduct two performance groundwater monitoring events to evaluate the treatment effectiveness of the sodium permanganate injections. The performance groundwater monitoring events will be completed approximately 3 months and 6 months following the completion of the injections. The performance groundwater monitoring events will consist of measuring water levels and collecting groundwater samples from monitoring wells MW11, MW17, and MW18 using low-flow sampling techniques for field parameter measurements (pH, temperature, electrical conductivity, dissolved oxygen, and oxidation-reduction potential) and chemical analysis.

Groundwater samples collected from monitoring wells MW11 and MW18 will be submitted for analysis for CVOCs by EPA Method 8260C. Groundwater samples collected from all three monitoring wells will be submitted for analysis of total manganese by EPA Method 200.8 to evaluate chemical oxidant attenuation.

PRELIMINARY SCHEDULE

It is anticipated that the sodium permanganate injections will be performed upon Ecology approval of this updated work plan and following the update to the existing UIC registration.

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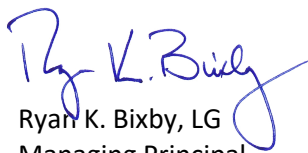
SoundEarth appreciates the opportunity to work with you on this project. Please contact the undersigned at (206) 306-1900 if you have any questions or require additional information.

Respectfully,

SoundEarth Strategies, Inc.



Levi Fernandes, PE
Senior Engineer



Ryan K. Bixby, LG
Managing Principal

Attachments: Figure 1, Fourth Quarter 2021 Groundwater Analytical Results
Figure 2, Fourth Quarter 2021 Groundwater Contour Map
Figure 3, March and May 2023 Groundwater Analytical Results
Figure 4, March and May 2023 Groundwater Contour Map
Table 1, Summary of Groundwater Data

CJT:kak

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SoundEarth Strategies, Inc. (SoundEarth). 2014a. *Draft Remedial Investigation and Feasibility Study Report, Avtech Property, 3400 Wallingford Avenue North, Seattle, Washington*. Prepared for AML Residential Partners. January 10.

_____. 2014b. Letter regarding RI/FS/CAP Addendum, Avtech Corporation Property, 3400 Wallingford Avenue North, Seattle, Washington. From Rob Roberts, John Funderburk, and Terry Montoya. To Scott Koppelman, AML Residential Partners. August 6.

_____. 2017a. Letter regarding Cleanup Action Report, AML Wallingford Property, 3400 Wallingford Avenue North, Seattle, Washington. From Chris Cass, Rob Roberts, John Funderburk, and Terry Montoya. To Scott Koppelman, AML Residential Partners. June 19.

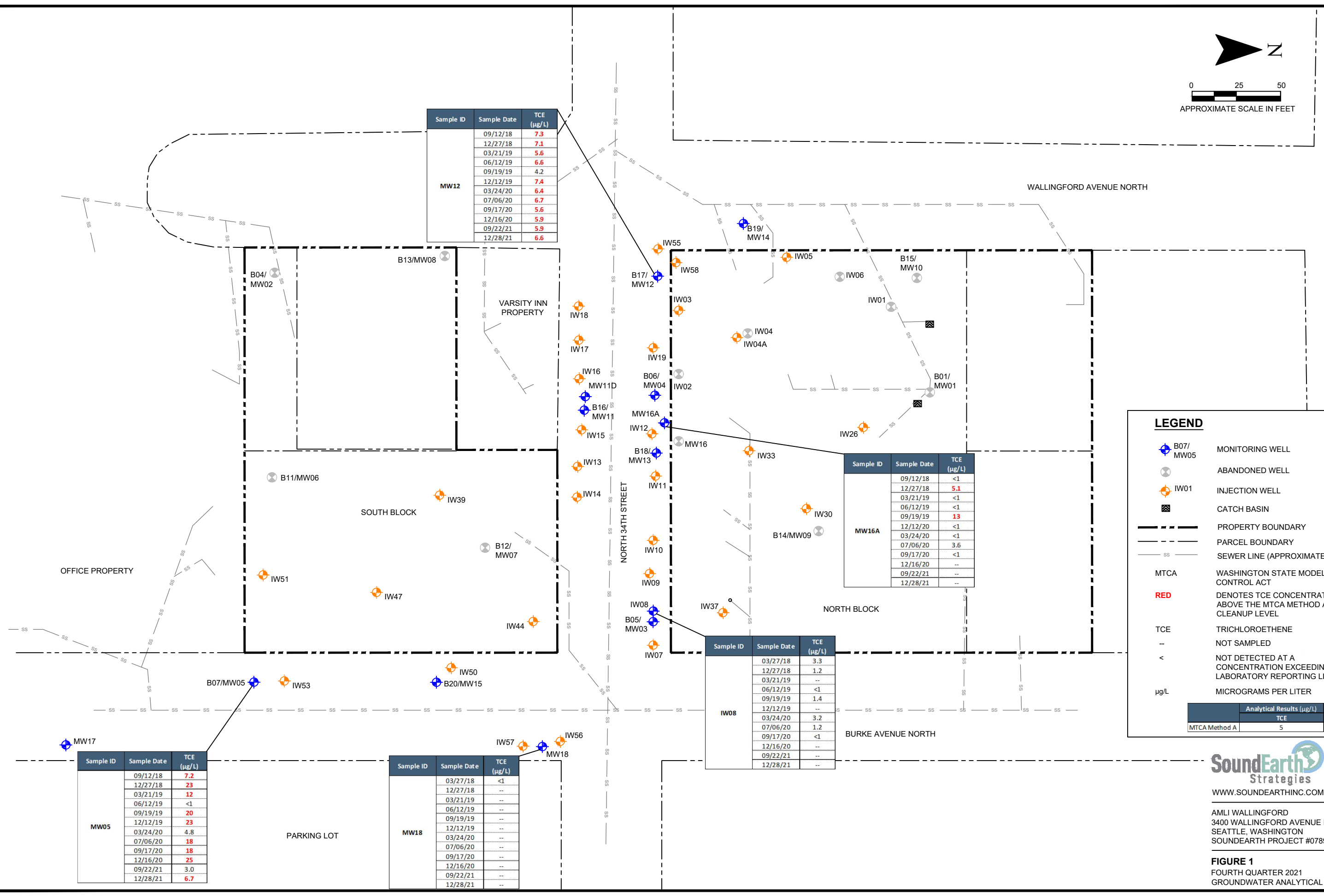
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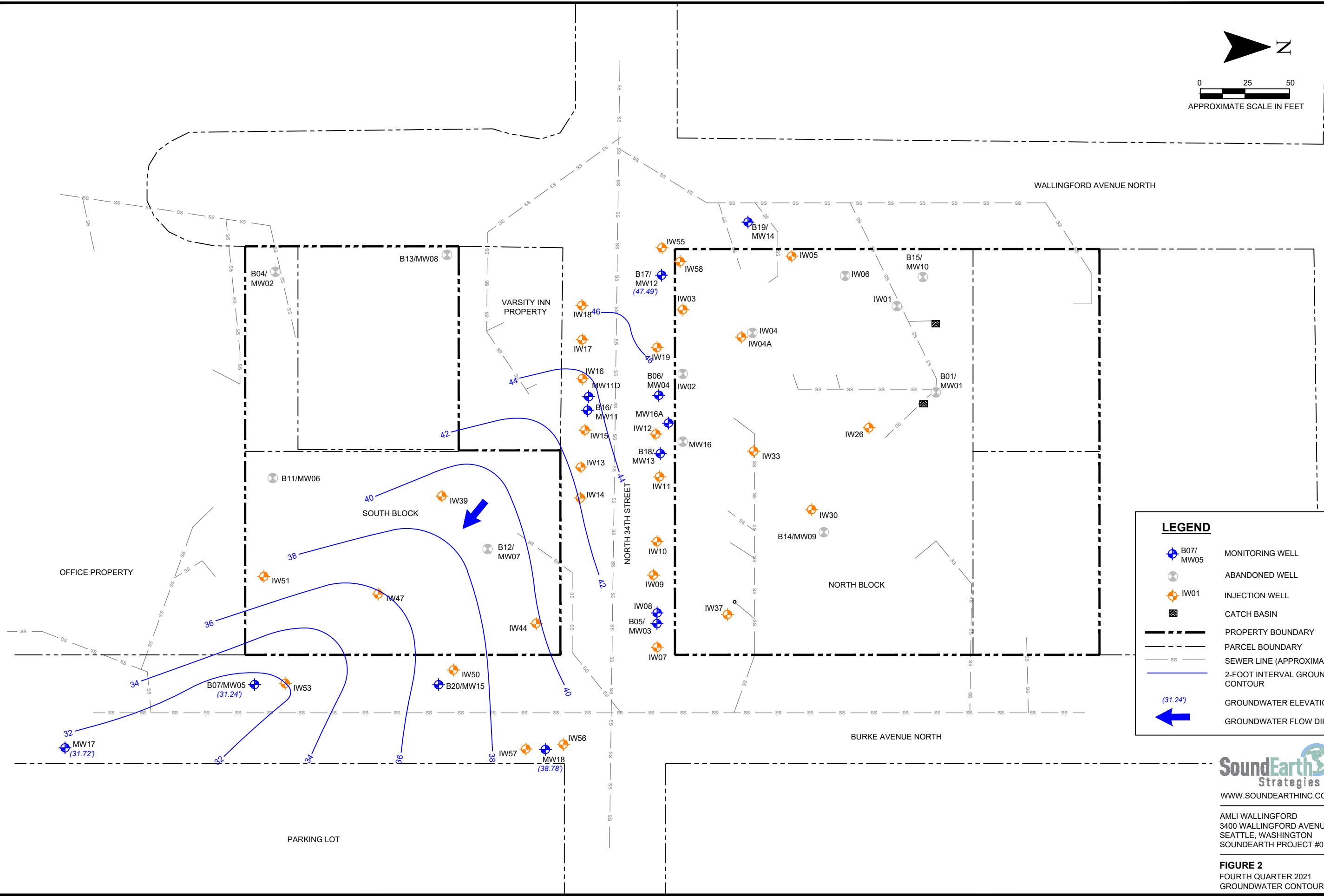
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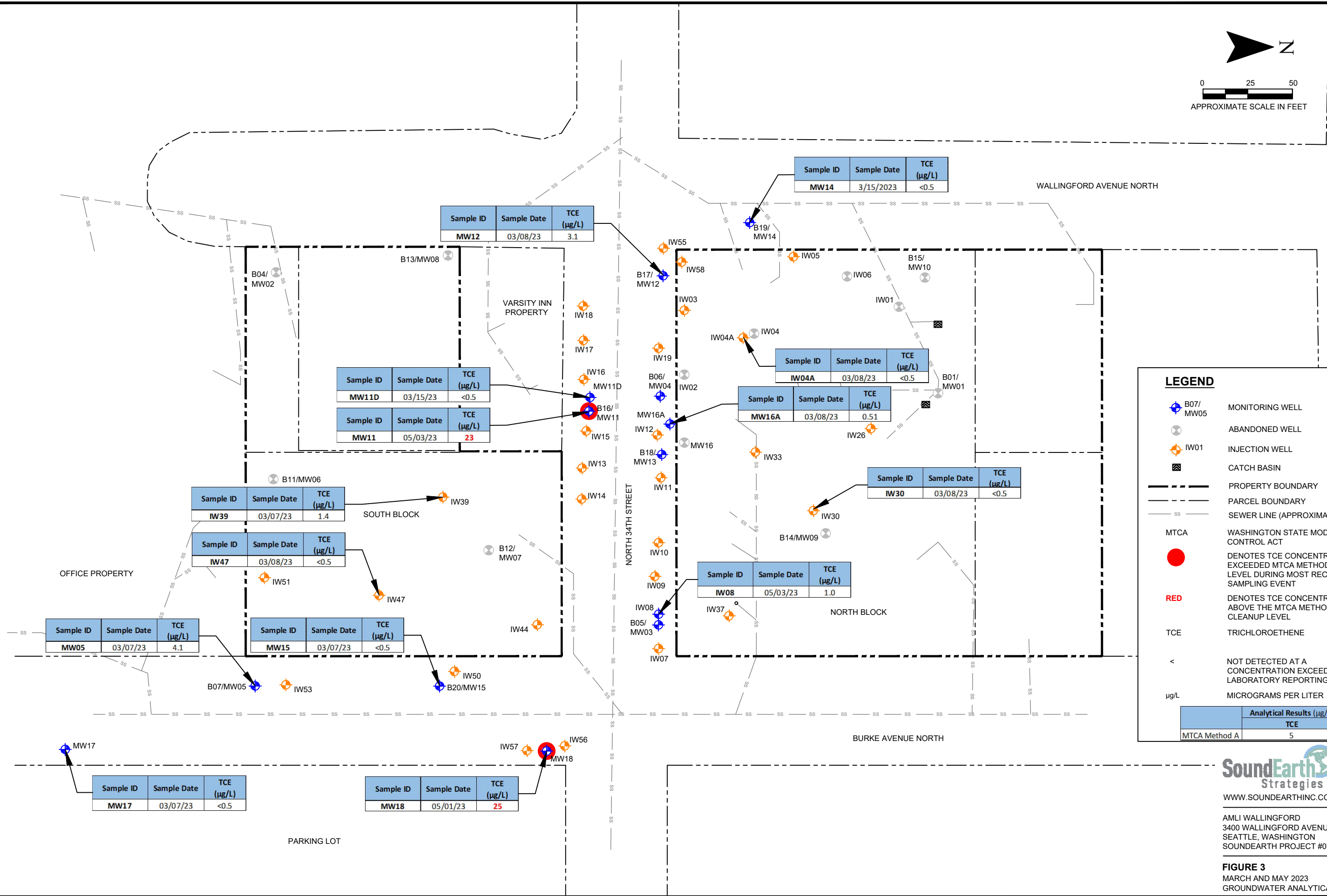
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Washington State Department of Ecology (Ecology). 2023. Letter regarding Opinion Pursuant to WAC 173-340-515(5) on Remedial Action for Hazardous Waste Site, Avtech Corp, 3400 Wallingford Avenue N, Seattle, WA 98103. From David Unruh. To Levi Fernandes, SoundEarth Strategies, Inc. January 19.

FIGURES



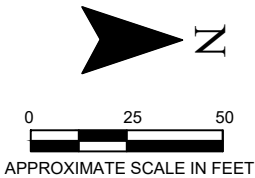
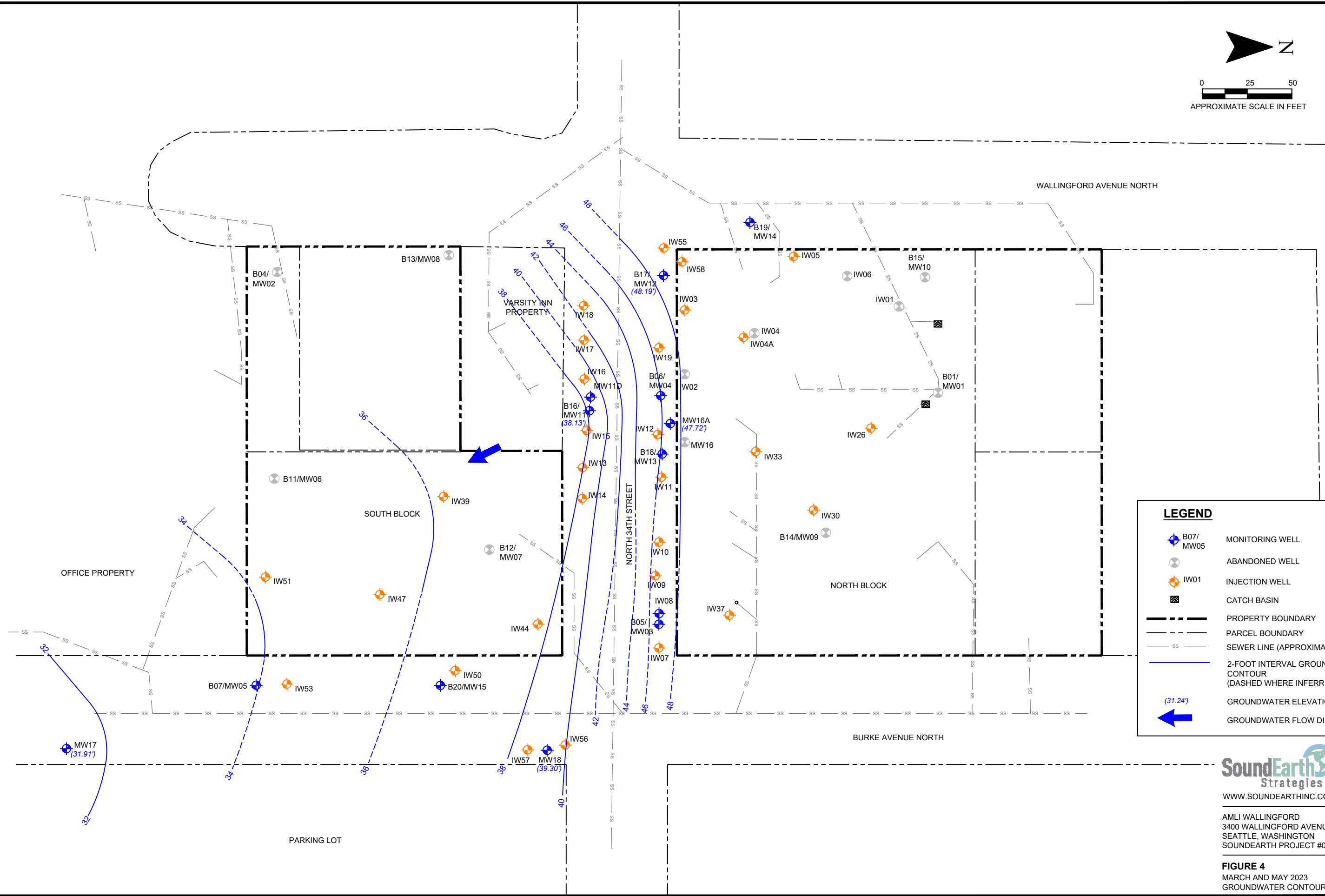




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FIGURE 3
MARCH AND MAY 2023
GROUNDWATER ANALYTICAL RESULTS



LEGEND

	B07/ MW05	MONITORING WELL
		ABANDONED WELL
	IW01	INJECTION WELL
		CATCH BASIN
		PROPERTY BOUNDARY
		PARCEL BOUNDARY
		SEWER LINE (APPROXIMATE)
		2-FOOT INTERVAL GROUNDWATER CONTOUR (DASHED WHERE INFERRED)
	(31.24')	GROUNDWATER ELEVATION
		GROUNDWATER FLOW DIRECTION

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3400 WALLINGFORD AVENUE NORTH
SEATTLE, WASHINGTON
SOUNDEARTH PROJECT #0789-004

FIGURE 4
MARCH AND MAY 2023
GROUNDWATER CONTOUR MAP

TABLE



Table 1
Summary of Groundwater Data
Former Avtech Property (AMLI Wallingford)
3400 Wallingford Avenue North
Seattle, Washington

Sample ID and TOC Elevation	Sample Date	Depth to Groundwater ⁽¹⁾ (feet)	Groundwater Elevation ⁽²⁾ (feet)	Analytical Results (µg/L)				
				Vinyl Chloride ⁽³⁾	cis-1,2-DCE ⁽³⁾	TCE ⁽³⁾	PCE ⁽³⁾	Total Manganese ⁽⁴⁾
MW01 84.44	01/17/12	27.59	56.85	<0.2 ^{pr}	<1	<1	<1	--
	05/01/12	25.02	59.42	<0.2	<1	<1	<1	--
	01/11/13	26.25	58.19	--	--	--	--	--
	04/25/13	24.75	59.69	--	--	--	--	--
	07/10/13	25.55	58.89	--	--	--	--	--
	10/10/13	27.43	57.01	--	--	--	--	--
	03/25/14	27.67	56.77	<0.2	<1	2.3	<1	--
Well Decommissioned On October 29, 2014								
MW02 69.73	01/17/12	DRY	--	--	--	--	--	--
	04/27/12	DRY	--	--	--	--	--	--
	01/11/13	DRY	--	--	--	--	--	--
	04/25/13	DRY	--	--	--	--	--	--
	07/10/13	DRY	--	--	--	--	--	--
	10/10/13	DRY	--	--	--	--	--	--
Well Decommissioned On October 29, 2014								
MW03 75.48	01/17/12	DRY	--	--	--	--	--	--
	04/27/12	31.18	44.30	<0.2	2.2	83	<1	--
	05/08/12	31.06	44.42	<0.2	1.9	64	<1	--
	01/14/13	31.78	43.70	<0.2	1.7	71	<1	--
	04/24/13	30.96	44.52	<0.2	1.8	76	<1	--
	07/10/13	Inaccessible						
	10/10/13	Inaccessible						
	06/29/15	36.15	39.33	--	--	--	--	--
	09/14/15	--	--	--	--	--	--	--
	12/02/15	31.72	43.76	--	--	--	--	--
	02/18/16	31.10	44.38	--	--	--	--	--
	05/27/16	32.55	42.93	--	--	--	--	--
	12/27/16	34.48	41.00	--	--	--	--	--
MW04 79.47	01/17/12	36.70	42.77	<0.2 ^{pr}	<1	110	<1	--
	04/27/12	36.09	43.38	<0.2	<1	170	<1	--
	01/11/13	36.44	43.03	<0.2	<1	85	<1	--
	04/24/13	35.93	43.54	<0.2	<1	290	<1	--
	07/10/13	36.15	43.32	<0.2	<1	150	<1	--
	10/10/13	36.90	42.57	--	--	--	--	--
	09/19/17	36.38	43.09	<0.2	<1	4.0	<1	--
	12/04/17	36.83	42.64	--	--	--	--	--
MW04 (Field Dup) 79.47	01/17/12	36.70	42.77	<0.2 ^{pr}	<1	120	<1	--
	04/27/12	36.09	43.38	<0.2	<1	170	<1	--
	06/29/15	--	--	--	--	--	--	--
	09/14/15	36	--	--	--	--	--	--
MTCA Method A Cleanup Level for Groundwater⁽⁵⁾				0.2	NE	5	5	750
MTCA Method B Cleanup Level for Groundwater⁽⁶⁾				NE	16	NE	NE	750



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				Vinyl Chloride ⁽³⁾	cis-1,2-DCE ⁽³⁾	TCE ⁽³⁾	PCE ⁽³⁾	Total Manganese ⁽⁴⁾
MW05 55.61	01/17/12	24.90	30.71	<0.2 ^{DT}	<1	3.3	<1	--
	05/01/12	23.40	32.21	<0.2	<1	1.9	<1	--
	01/14/13	24.34	31.27	<0.2	<1	3.3	<1	--
	04/24/13	22.86	32.75	<0.2	<1	3.0	<1	--
	07/10/13	23.71	31.90	<0.2	<1	1.9	<1	--
	10/10/13	25.57	30.04	<0.2	1.1	8.2	<1	--
	10/28/13	--	--	<0.2	1.1	8.4	<1	--
	03/25/14	25.77	29.84	<0.2	2.1	9.9	<1	--
	06/29/15	Inaccessible						
	09/14/15	24.82	30.79	<0.2	<1	<1	<1	--
	12/03/15	25.24	30.37	<0.2	2.8	27	<1	--
	02/22/16	24.66	30.95	<0.2	2.5	23	<1	--
	05/27/16	24.52	31.09	<0.2	2.1	21	<1	--
	09/29/16	24.85	30.76	<0.2	<1	<1	<1	--
	12/27/16	24.04	31.57	<0.2	<1	7.9	<1	--
	03/21/17	22.95	32.66	<0.2	<1	<1	<1	--
	05/24/17	22.23	33.38	<0.2	<1	<1	<1	--
	09/18/17	23.80	31.81	<0.2	<1	<1	<1	--
	12/04/17	24.31	31.30	<0.2	<1	11	<1	--
	03/27/18	23.53	32.08	<0.2	<1	2.0	<1	--
	06/12/18	23.45	32.16	<0.2	<1	2.4	<1	--
	09/12/18	24.41	31.20	<0.2	<1	7.2	<1	--
	12/27/18	24.81	30.80	<0.2	1.9	23	<1	--
	03/21/19	24.40	31.21	<0.2	1.0	12	<1	--
	06/12/19	24.29	31.32	<0.2	1.0	<1	<1	--
	09/19/19	26.17	29.44	<0.2	1.7	20	<1	--
	12/12/19	25.09	30.52	<0.2	2.3	23	<1	--
	03/24/20	23.95	31.66	<0.2	1.7	4.8	<1	--
	07/06/20	24.50	31.11	<0.2	1.9	18	<1	--
	09/17/20	24.86	30.75	<0.2	2.2	18	<1	--
	12/16/20	24.90	30.71	<0.2	3.4	25	<1	--
	09/22/21	24.61	31.00	<0.2	<1	3	<1	2,540
	12/28/21	24.37	31.24	<0.02	<1	6.7	<1	1,300
	03/07/23	24.11	31.50	<0.02	<1	4.1	<1	79.7
MW06 68.39	04/25/12	31.84	36.55	<0.2	<1	3.2	<1	--
	01/14/13	31.86	36.53	<0.2	<1	2.4	<1	--
	04/26/13	30.85	37.54	<0.2	<1	4.5	<1	--
	07/11/13	32.01	36.38	<0.2	<1	3.2	<1	--
	10/11/13	33.61	34.78	<0.2	<1	<1	<1	--
	04/17/14	--	--	<0.2	<1	3.9	<1	--
Well Decommissioned On October 29, 2014								
MW07 76.78	04/25/12	37.43	39.35	<0.2	<1	3.3	<1	--
	01/11/13	37.59	39.19	<0.2	<1	3.5	<1	--
	04/25/13	36.52	40.26	<0.2	<1	6.1	<1	--
	07/11/13	36.97	39.81	<0.2	<1	11	<1	--
	10/10/13	37.97	38.81	<0.2	<1	6.5	<1	--
	03/25/14	38.32	38.46	<0.2	<1	6.4	<1	--
Well Decommissioned On October 29, 2014								
MTCA Method A Cleanup Level for Groundwater ⁽⁵⁾				0.2	NE	5	5	750



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				Vinyl Chloride ⁽³⁾	cis-1,2-DCE ⁽³⁾	TCE ⁽³⁾	PCE ⁽³⁾	Total Manganese ⁽⁴⁾
MW08 76.61	04/25/12	37.86	38.75	<0.2	<1	<1	<1	--
	01/11/13	37.34	39.27	--	--	--	--	--
	04/25/13	Inaccessible						
	07/10/13	Inaccessible						
	10/10/13	Inaccessible						
	Well Decommissioned On October 29, 2014							
MW09 81.17	05/01/12	23.19	57.98	<0.2	<1	2.0	<1	--
	01/14/13	24.00	57.17	<0.2	1.5	42	<1	--
	04/24/13	22.87	58.30	<0.2	<1	24	<1	--
	07/10/13	23.65	57.52	<0.2	<1	36	<1	--
	10/10/13	25.52	55.65	<0.2	1.5	43	<1	--
	03/25/14	25.72	55.45	<0.2	2.4	51	<1	--
	Well Decommissioned On October 29, 2014							
MW10 85.50	05/01/12	21.90	63.60	<0.2	<1	<1	<1	--
	01/11/13	22.56	62.94	--	--	--	--	--
	04/25/13	21.49	64.01	--	--	--	--	--
	07/10/13	22.63	62.87	--	--	--	--	--
	10/10/13	24.75	60.75	--	--	--	--	--
	03/25/14	24.82	60.68	<0.2	<1	<1	<1	--
	Well Decommissioned On October 29, 2014							
MW11 78.80	04/30/12	44.56	34.24	<0.2	<1	14	<1	--
	05/08/12	44.52	34.28	<0.2	<1	29	<1	--
	01/11/13	44.74	34.06	<0.2	<1	78	<1	--
	04/25/13	43.56	35.24	<0.2	<1	39	<1	--
	07/10/13	43.90	34.90	<0.2	<1	56	<1	--
	10/10/13	44.59	34.21	<0.2	<1	35	<1	--
	03/25/14	44.86	33.94	<0.2	<1	48	<1	--
	06/29/15	41.43	37.37	--	--	--	--	--
	09/14/15	42.24	36.56	Inaccessible				
	12/03/15	42.40	36.40	<0.2	<1	16	<1	--
	02/18/16	41.15	37.65	--	--	--	--	--
	05/27/16	--	--	Inaccessible				
	05/03/23	40.67	38.13	<0.02	<1	23	<1	--
MW11D 76.01	04/30/14	43.74	NS	<0.2	<1	<1	<1	--
	06/29/15	44.25	31.76	<0.2	<1	<1	<1	--
	09/15/15	44.65	31.36	<0.2	<1	<1	<1	--
	12/03/15	43.71	32.30	<0.2	<1	<1	<1	--
	02/18/16	43.18	32.83	<0.2	<1	<1	<1	--
	05/27/16	42.59	33.42	<0.2	<1	<1	<1	--
	03/15/23	42.79	33.22	0.068	<1	<0.5	<1	--
MTCA Method A Cleanup Level for Groundwater ⁽⁵⁾				0.2	NE	5	5	750
MTCA Method B Cleanup Level for Groundwater ⁽⁶⁾				NE	16	NE	NE	750



Table 1
Summary of Groundwater Data
Former Avtech Property (AMLI Wallingford)
3400 Wallingford Avenue North
Seattle, Washington

Sample ID and TOC Elevation	Sample Date	Depth to Groundwater ⁽¹⁾ (feet)	Groundwater Elevation ⁽²⁾ (feet)	Analytical Results (µg/L)				
				Vinyl Chloride ⁽³⁾	cis-1,2-DCE ⁽³⁾	TCE ⁽³⁾	PCE ⁽³⁾	Total Manganese ⁽⁴⁾
MW12 81.83	04/27/12	32.81	49.02	<0.2	<1	14	<1	--
	01/14/13	33.30	48.53	<0.2	<1	5.0	<1	--
	04/25/13	32.76	49.07	<0.2	<1	5.7	<1	--
	07/10/13	33.08	48.75	<0.2	<1	10	<1	--
	10/10/13	32.95	48.88	--	--	--	--	--
	06/29/15	32.89	48.94	<0.2	<1	2.9	<1	--
	09/15/15	33.70	48.13	<0.2	<1	13	<1	--
	12/03/15	33.74	48.09	<0.2	<1	15	<1	--
	02/18/16	31.96	49.87	<0.2	<1	9.1	<1	--
	05/27/16	32.36	49.47	<0.2	<1	9.2	<1	--
	09/29/16	34.10	47.73	<0.2	<1	<1	<1	--
	12/27/16	33.09	48.74	<0.2	<1	<1	<1	--
	03/21/17	32.03	49.80	<0.2	<1	<1	<1	--
	05/25/17	31.90	49.93	<0.2	<1	<1	<1	--
	09/19/17	33.79	48.04	<0.2	<1	6.7	<1	--
	12/04/17	34.37	47.46	<0.2	<1	7.6	<1	--
	03/27/18	32.97	48.86	<0.2	<1	6.0	<1	--
	06/12/18	32.20	49.63	--	--	--	--	--
	09/12/18	34.23	47.60	<0.2	<1	7.3	<1	--
	12/27/18	35.01	46.82	<0.2	<1	7.1	<1	--
	03/21/19	34.14	47.69	<0.2	<1	5.6	<1	--
	06/12/19	34.26	47.57	<0.2	<1	6.6	<1	--
	09/19/19	34.80	47.03	<0.2	<1	4.2	<1	--
	12/12/19	35.36	46.47	<0.2	<1	7.4	<1	--
	03/24/20	33.81	48.02	<0.2	<1	6.4	<1	--
	07/06/20	33.30	48.53	<0.2	<1	6.7	<1	--
	09/17/20	34.52	47.31	<0.2	<1	5.6	<1	--
	12/16/20	34.79	47.04	<0.2	<1	5.9	<1	--
	09/22/21	34.90	46.93	<0.2	<1	5.9	<1	19,800
	12/28/21	34.34	47.49	<0.02	<1	6.6	<1	14,500
	03/08/23	33.64	48.19	<0.02	<1	3.1	<1	19,400
MW13 78.94	04/27/12	34.97	43.97	<0.2	<1	1.0	<1	--
	05/07/12	34.94	44.00	<0.2	<1	2.0	<1	--
	04/24/13	34.88	44.06	<0.2	<1	2.5	<1	--
	07/10/13	35.15	43.79	<0.2	<1	37	<1	--
	10/10/13	35.73	43.21	--	--	--	--	--
	06/29/15	--	--	--	--	--	--	--
	09/14/15	--	--	--	--	--	--	--
	02/18/16	--	--	--	--	--	--	--
	05/27/16	--	--	--	--	--	--	--
MW14 84.60	12/27/16	39.67	39.27	--	--	--	--	--
	04/30/12	29.99	54.61	<0.2	<1	<1	<1	--
	01/11/13	30.95	53.65	--	--	--	--	--
	04/25/13	Inaccessible						
	07/10/13	30.56	54.04	--	--	--	--	--
	10/10/13	32.00	52.60	--	--	--	--	--
	06/29/15	32.00	52.60	--	--	--	--	--
	09/14/15	33.18	51.42	--	--	--	--	--
	02/18/16	Inaccessible						
	05/27/16	31.35	53.25	--	--	--	--	--
	03/15/23	33.45	51.15	<0.02	<1	<0.5	<1	--
MTCA Method A Cleanup Level for Groundwater ⁽⁵⁾				0.2	NE	5	5	750
MTCA Method B Cleanup Level for Groundwater ⁽⁶⁾				NE	16	NE	NE	750



Table 1
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Former Avtech Property (AMLI Wallingford)
3400 Wallingford Avenue North
Seattle, Washington

Sample ID and TOC Elevation	Sample Date	Depth to Groundwater ⁽¹⁾ (feet)	Groundwater Elevation ⁽²⁾ (feet)	Analytical Results (µg/L)				
				Vinyl Chloride ⁽³⁾	cis-1,2-DCE ⁽³⁾	TCE ⁽³⁾	PCE ⁽³⁾	Total Manganese ⁽⁴⁾
MW15 66.09	04/30/12	27.37	38.72	<0.2	<1	<1	<1	--
	01/14/13	27.76	38.33	<0.2	<1	<1	<1	--
	04/24/13	26.69	39.40	<0.2	<1	<1	<1	--
	07/10/13	Inaccessible						
	10/28/13	28.02	38.07	<0.2	<1	<1	<1	--
	04/16/14	28.38	37.71	<0.2	<1	<1	<1	--
	06/29/15	32.76	33.33	--	--	--	--	--
	09/14/15	29.14	36.95	--	--	--	--	--
	12/03/15	29.65	36.44	<0.2	<1	<1	<1	--
	02/18/16	28.75	37.34	--	--	--	--	--
	05/27/16	29.11	36.98	<0.2	<1	<1	<1	--
	12/27/16	28.45	37.64	--	--	--	--	--
	03/07/23	28.95	37.14	<0.02	<1	<0.5	<1	--
MW16	04/16/14	40.18	NS	<0.2	<1	<1	<1	--
Well Destroyed By Earthwork Construction: February 2015								
MW16A 81.97 ⁽⁷⁾	06/29/15	34.78	--	<0.2	<1	<1	<1	--
	09/30/15	--	--	<0.2	<1	3.0	<1	--
	12/03/15	37.09	44.88	<0.2	<1	<1	<1	--
	02/18/16	36.06	45.91	<0.2	<1	<1	<1	--
	05/27/16	36.60	45.37	<0.2	<1	9.7	<1	--
	09/29/16	35.01	46.96	<0.2	<1	6.4	<1	--
	12/27/16	34.00	47.97	<0.2	<1	20	<1	--
	03/21/17	33.71	48.26	<0.2	<1	3.5	<1	--
	05/25/17	33.70	48.27	<0.2	<1	5.6	<1	--
	09/19/17	34.78	47.19	<0.2	<1	<1	<1	--
	12/04/17	35.11	46.86	<0.2	<1	12	<1	--
	03/27/18	34.07	47.90	<0.2	<1	2.7	<1	--
	06/12/18	34.23	47.74	<0.2	<1	5.3	<1	--
	09/12/18	35.02	46.95	<0.2	<1	<1	<1	--
	12/27/18	35.33	46.64	<0.2	<1	5.1	<1	--
	03/21/19	34.70	47.27	<0.2	<1	<1	<1	--
	06/12/19	34.86	47.11	<0.2	<1	<1	<1	--
	09/19/19	35.22	46.75	<0.2	<1	13	<1	--
	12/12/19	35.55	46.42	<0.2	<1	<1	<1	--
	03/24/20	34.60	47.37	<0.2	<1	<1	<1	--
	07/06/20	34.86	47.11	<0.2	<1	3.6	<1	--
	09/17/20	36.11	45.86	<0.2	<1	<1	<1	--
	12/16/20	35.21	46.76	--	--	--	--	--
	03/08/23	34.25	47.72	<0.02	<1	0.51	<1	--
MTCA Method A Cleanup Level for Groundwater⁽⁵⁾				0.2	NE	5	5	750



Table 1
Summary of Groundwater Data
Former Avtech Property (AMLI Wallingford)
3400 Wallingford Avenue North
Seattle, Washington

Sample ID and TOC Elevation	Sample Date	Depth to Groundwater ⁽¹⁾ (feet)	Groundwater Elevation ⁽²⁾ (feet)	Analytical Results (µg/L)				
				Vinyl Chloride ⁽³⁾	cis-1,2-DCE ⁽³⁾	TCE ⁽³⁾	PCE ⁽³⁾	Total Manganese ⁽⁴⁾
MW17 43.95	06/29/15	12.51	31.44	<0.2	<1	<1	<1	--
	07/17/15	--	--	--	--	--	--	276
	09/14/15	13.36	30.59	<0.2	<1	1.2	<1	8.10
	12/03/15	12.83	31.12	--	--	--	--	3.00
	02/22/16	11.15	32.80	<0.2	<1	<1	<1	--
	05/27/16	12.00	31.95	<0.2	<1	<1	<1	--
	12/27/16	Inaccessible						
	12/27/18	12.91	31.04	--	--	--	--	--
	03/21/19	13.68	30.27	--	--	--	--	--
	06/12/19	12.95	31.00	--	--	--	--	--
	09/19/19	14.02	29.93	--	--	--	--	--
	12/12/19	13.94	30.01	--	--	--	--	--
	03/24/20	11.96	31.99	--	--	--	--	--
	09/17/20	13.75	30.20	--	--	--	--	--
	12/16/20	13.35	30.60	--	--	--	--	--
	09/22/21	Inaccessible						
	12/28/21	12.23	31.72	--	--	--	--	2.22
	03/07/23	12.04	31.91	<0.02	<1	<0.5	<1	26.5
MW18 72.43	06/29/15	32.76	39.67	<0.2	4.9	46	<1	--
	07/16/15	--	--	--	--	--	--	251
	09/15/15	33.94	38.49	<0.2	5.1	45	<1	25.6
	12/03/15	34.00	38.43	<0.2	8.2	69	<1	35.6
	02/19/16	33.31	39.12	<0.2	5.1	50	<1	--
	05/27/16	31.98	40.45	<0.2	4.2	36	<1	--
	09/29/16	33.06	39.37	<0.2	4.4	41	<1	--
	12/27/16	32.18	40.25	<0.2	<1	<1	<1	--
	03/21/17	31.82	40.61	<0.2	<1	<1	<1	--
	05/25/17	30.50	41.93	<0.2	<1	<1	<1	--
	09/19/17	32.09	40.34	<0.2	<1	<1	<1	--
	12/04/17	33.14	39.29	<0.2	<1	<1	<1	--
	03/27/18	32.86	39.57	<0.2	<1	<1	<1	--
	06/12/18	32.40	40.03	--	--	--	--	--
	09/12/19	33.19	39.24	--	--	--	--	--
	12/27/18	34.16	38.27	--	--	--	--	--
	03/21/19	33.81	38.62	--	--	--	--	--
	06/12/19	33.38	39.05	--	--	--	--	--
	09/19/19	33.63	38.80	--	--	--	--	--
	12/12/19	34.12	38.31	--	--	--	--	--
	03/24/20	33.54	38.89	--	--	--	--	--
	09/17/20	33.25	39.18	--	--	--	--	--
	12/16/20	33.91	38.52	--	--	--	--	--
	09/22/21	33.52	38.91	--	--	--	--	12,900
	12/28/21	33.52	38.91	--	--	--	--	3,160
	03/07/23	33.15	39.28	<0.02	1.8	24	<1	7,260
	05/01/23	33.13	39.30	<0.02	2.4	25	<1	203
IW01	04/16/14	24.90	NS	<0.2	<1	<1	<1	--
	Well Decommissioned On February 3, 2015							
IW02	04/16/14	36.91	NS	<0.2	<1	<1	<1	--
	Well Destroyed By Earthwork Construction: February 2015							
IW03	04/16/14	33.20	NS	<0.2	<1	17	<1	--
MTCA Method A Cleanup Level for Groundwater⁽⁵⁾				0.2	NE	5	5	750
MTCA Method B Cleanup Level for Groundwater⁽⁶⁾				NE	16	NE	NE	750



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Seattle, Washington

Sample ID and TOC Elevation	Sample Date	Depth to Groundwater ⁽¹⁾ (feet)	Groundwater Elevation ⁽²⁾ (feet)	Analytical Results (µg/L)				
				Vinyl Chloride ⁽³⁾	cis-1,2-DCE ⁽³⁾	TCE ⁽³⁾	PCE ⁽³⁾	Total Manganese ⁽⁴⁾
IW04	04/16/14	30.05	NS	<0.2	<1	44	<1	--
Well Decommissioned On March 9, 2015								
IW04A	03/08/23	14.93	NS	<0.02	<1	<0.5	<1	--
IW05	04/16/14	30.29	NS	<0.2	<1	<1	<1	--
IW06	04/16/14	28.75	NS	<0.2	<1	<1	<1	--
Well Decommissioned On February 5, 2015								
IW08 75.90	07/16/15	--	NS	<0.2	<1	<1	<1	--
	09/15/15	35.54	40.36	<0.2	<1	5.7	<1	--
	12/03/15	35.34	40.56	<0.2	<1	16	<1	--
	02/19/16	35.00	40.90	<0.2	<1	15	<1	--
	05/27/16	35.55	40.35	<0.2	<1	7.2	<1	--
	10/24/16	38.73	37.17	<0.2	<1	<1	<1	--
	12/27/16	35.99	39.91	--	--	--	--	--
	03/21/17	35.79	40.11	<0.2	<1	<1	<1	--
	05/24/17	35.84	40.06	<0.2	<1	1.6	<1	--
	09/18/17	37.24	38.66	<0.2	<1	1.5	<1	--
	12/04/17	38.15	37.75	<0.2	<1	1.3	<1	--
	03/27/18	35.90	40.00	<0.2	<1	3.3	<1	--
	12/27/18	40.20	35.70	<0.2	<1	1.2	<1	--
	03/21/19	Inaccessible						
	06/12/19	39.11	36.79	<0.2	<1	<1	<1	--
	09/19/19	--	--	<0.2	<1	1.4	<1	--
	12/12/19	Inaccessible						
	03/24/20	--	--	<0.2	<1	3.2	<1	--
	07/06/20	36.65	39.25	<0.2	<1	1.2	<1	--
	09/17/20	37.24	38.66	<0.2	<1	<1	<1	--
	12/16/20	37.91	37.99	--	--	--	--	--
	03/15/23	--	--	Inaccessible				
	05/03/23	36.00	39.90	<0.02	<1	0.97	<1	--
IW15	03/07/23	35.00	NS	Well blocked at 35' bgs				
IW30	03/08/23	9.92	NS	<0.2	<1	<0.5	<1	--
IW39	03/07/23	15.26	NS	<0.2	<1	1.4	<1	--
IW47	03/08/23	17.51	NS	<0.2	<1	<0.5	<1	--
MTCA Method A Cleanup Level for Groundwater ⁽⁵⁾				0.2	NE	5	5	NE
MTCA Method B Cleanup Level for Groundwater ⁽⁶⁾				NE	16	NE	NE	750

NOTES:

Red denotes concentrations exceeding the MTCA Method A and Method B Cleanup Levels.

Sample analyses conducted by Friedman & Bruya, Inc. of Seattle, Washington.

TOC elevations surveyed by Triad Associates on May 3, 2012.

⁽¹⁾ Measured in feet below a fixed spot on the top of the well casing rim.

⁽²⁾ Elevation datum NAVD88, Seattle BM#2609CC 58A at 60.344' and BM#2609CC 55A at 32.066'.

⁽³⁾ Analyzed by EPA Method 8260C or 8260D. All other 8260C analytes were not detected above the laboratory reporting limit.

⁽⁴⁾ Analyzed by EPA Method 6020 or 200.8.

⁽⁵⁾ MTCA Cleanup Regulation, Method A Cleanup Levels, Table 720-1 of WAC 173-340-900, revised November 2007.

⁽⁶⁾ MTCA Cleanup Regulation, Chapter 173-340 of WAC, CLARC, Groundwater, Method B, Non-Carcinogen, Standard Formula Value, CLARC Website <<https://fortress.wa.gov/ecy/clarc/CLARHome.aspx>>.

⁽⁷⁾ Well casing was repaired, extended-up, and surveyed after the Third Quarter 2015 groundwater sampling event was performed.

Laboratory Note:

^P Sample received with incorrect preservation. Results should be considered an estimate.

-- = not analyzed/not measured

< = not detected at a concentration exceeding the laboratory reporting limit

µg/L = micrograms per liter

CLARC = Cleanup Levels and Risk Calculation

cis-1,2-DCE = cis-1,2-dichloroethene

EPA = US Environmental Protection Agency

MTCA = Washington State Model Toxics Control Act

NAVD88 = North American Vertical Datum of 1988

NE = no MTCA Method A cleanup level established for this analyte

NS = well casing not surveyed

PCE = tetrachloroethene

TCE = trichloroethene

TOC = top of casing elevation

WAC = Washington Administrative Code