

M E M O R A N D U M

TO: Sunny Becker Department of Ecology **DATE:** June 17, 2024
FROM: Thomas Cammarata, SoundEarth Strategies, Inc.
SUBJECT: Second Quarter 2024 Progress Report Plastic Sales and Service Site

SoundEarth Strategies, Inc. (SoundEarth) has prepared this progress report to summarize activities completed in the second quarter of 2024 at the Plastic Sales and Services Site (the Site), Cleanup Site ID: 2074, which encompasses the property located at 6870 Woodlawn Avenue Northeast in Seattle, Washington (the Property) and adjacent rights-of-ways (ROWS). The Site is defined by the extent of contamination caused by the releases of hazardous substances at the former dry cleaning facility located on the Property and includes:

- The Dry Cleaner Building property
- The property adjoining the Dry Cleaner Building property to the north, located at 6869 Woodlawn Avenue Northeast (north-adjoining property)
- The property adjoining the Dry Cleaner Building property to the south, located at 6565 4th Avenue Northeast
- The property adjoining the Dry Cleaner Building property to the west, located at 6850 Woodlawn Avenue Northeast
- Portions of the western alley (the alley) and Woodlawn Avenue Northeast and 4th Avenue Northeast rights-of-way (Woodlawn Ave ROW and 4th Ave ROW, respectively)

The work summarized below was conducted under a Consent Decree established between the Washington State Department of Ecology (Ecology) and The Lutheran Retirement Home of Greater Seattle (d/b/a The Hearthstone Retirement Living): Consent Decree Re: Plastic Sales Site, No. 16-2-13117-4, filed June 3, 2016.

SITE ACTIVITIES: GROUNDWATER MONITORING SECOND QUARTER 2024

The following sections summarize groundwater monitoring activities completed at the Site during the second quarter of 2024.

Enhanced Reductive Dichlorination Pilot Test Groundwater Monitoring

SoundEarth completed the 30-day post pilot test groundwater monitoring on April 15, 2024, in accordance with the *Groundwater Pilot Test Work Plan Addendum, Plastic Sales and Service Site, 6870 Woodlawn Avenue Northeast, Seattle, Washington* (Work Plan) prepared by SoundEarth dated January 30, 2024. Analytical results for groundwater samples collected from the pilot test performance

monitoring wells did not show a substantial decline in the CVOC concentrations from injecting Electron Donor Solution – Extended Release (EDS-ER) and zero valent iron (ZVI) in pilot test injection wells. One exception is the CVOC concentrations at well IW32. In October 2023, tetrachlorethylene (PCE) and trichloroethylene (TCE) were detected at concentrations of 46 micrograms per liter ($\mu\text{g/L}$) and 150 $\mu\text{g/L}$, respectively. In April 2024, PCE and TCE were not detected at concentrations above laboratory reporting limits. In October 2023, cis-1,2-dichloroethylene (cis-1,2-DCE) and vinyl chloride (VC) were detected at concentrations of 9,600 $\mu\text{g/L}$ and 2,000 $\mu\text{g/L}$, respectively. In April 2024, cis-1,2-DCE and VC were detected at concentrations of 110 $\mu\text{g/L}$ and 73 $\mu\text{g/L}$, respectively. Analytical results from the 30-day post pilot test groundwater sample event are highlighted in green in Table 1.

Comprehensive Semiannual Groundwater Monitoring and Sampling

SoundEarth completed the comprehensive semiannual groundwater monitoring and sampling event between April 12 and 17, 2024. Groundwater wells monitored and sampled in April 2024 are shown on Figures 1 and 2. Analytical results from the comprehensive semiannual groundwater monitoring samples are presented in Table 1. The groundwater flow directions and the footprints of the CVOC groundwater plumes in the shallow and deep water-bearing zones are also shown on Figures 1 and 2. The groundwater flow directions and footprint of the CVOC plumes in shallow and deep water-bearing zones in April 2024 are like that observed at the Site in April and October of 2023.

Problem(s) Encountered in Second Quarter 2024

SoundEarth encountered no problems in the second quarter of 2024.

PLANNED ACTIVITIES: SECOND QUARTER 2024

Planned activities at the Site in the third quarter of 2024 are summarized below.
































Third Quarter 2024

SoundEarth will perform the 90-day and 120-day post pilot test groundwater sampling events.

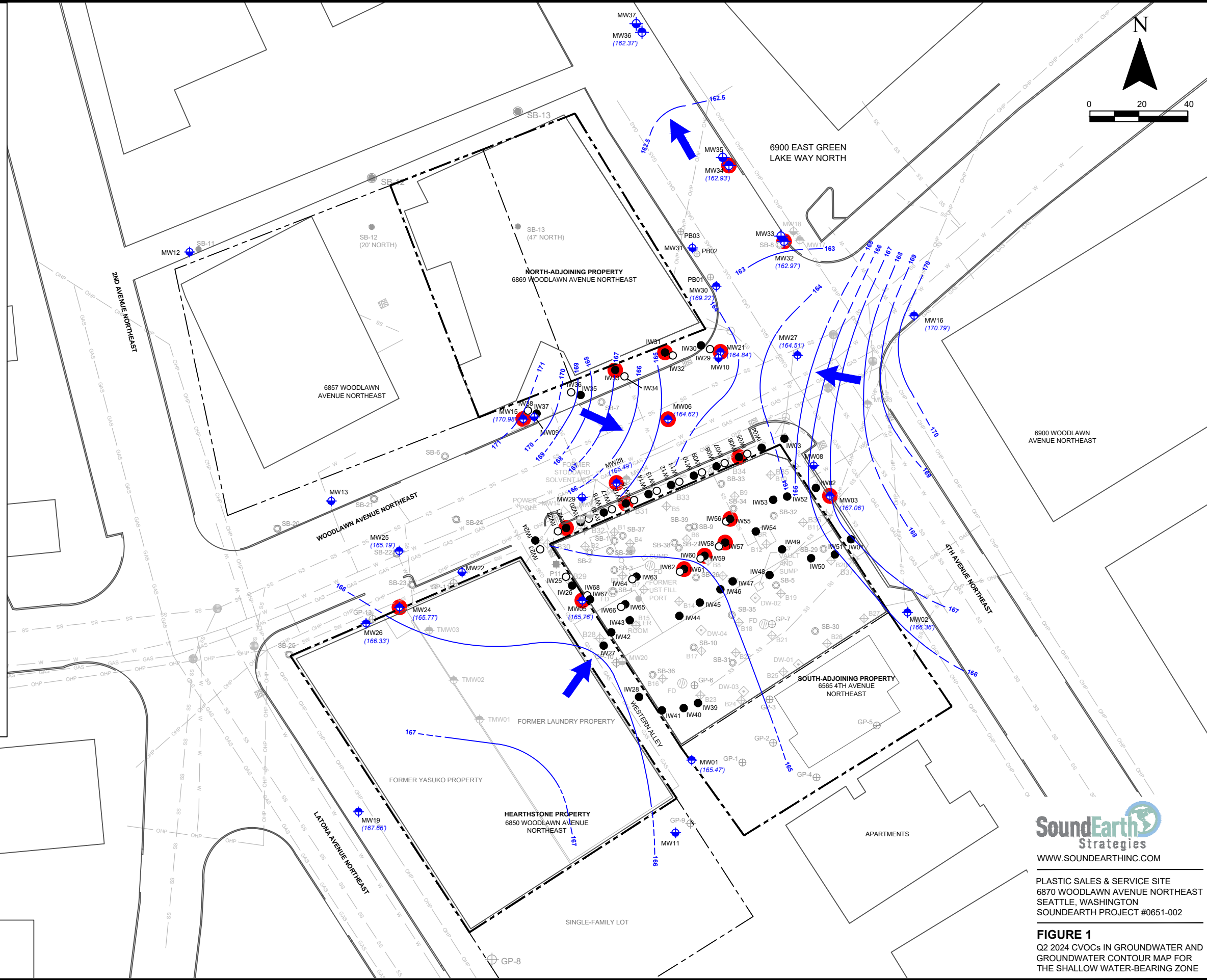
Attachments: Figure 1, Q2 2024 CVOCs in Groundwater and Groundwater Contour Map for the Shallow Water-Bearing Zone
Figure 2, Q2 2024 CVOCs in Groundwater and Groundwater Contour Map for the Deep Water-Bearing Zone
Table 1, Groundwater Analytical Results for CVOCs

FIGURES

LEGEND

-  CATCH BASIN
-  MANHOLE
-  SHALLOW-ZONE MONITORING WELL
-  DEEP-ZONE MONITORING WELL
-  DEEP DEWATERING WELL
-  SHALLOW INJECTION WELL
-  DEEP INJECTION WELL
-  APPROXIMATE DIRECTION OF GROUNDWATER FLOW (SHALLOW ZONE)
-  SHALLOW ZONE POTENTIOMETRIC SURFACE CONTOUR (APRIL 12, 2024)
-  DASHED WHERE INFERRED
-  GROUNDWATER ELEVATION
-  DECOMMISSIONED WELL
-  DIRECT-PUSH BORING (GEOENGINEERS 2004)
-  DIRECT-PUSH BORING (GEOENGINEERS 2002/2003)
-  DIRECT-PUSH BORING (FARALLON 2004)
-  DIRECT-PUSH BORING (FARALLON 2006/2007)
-  DIRECT-PUSH BORING (FARALLON 2010)
-  DIRECT-PUSH BORING (SOUNDEARTH 2008)
-  DIRECT-PUSH BORING (SOUNDEARTH 2009)
-  HOLLOW-STEM AUGER (SOUNDEARTH 2009)
-  POST-ELECTRICAL RESISTANCE HEATING BORING LOCATION
-  STORMWATER LINE
-  GAS LINE
-  SANITARY SEWER LINE
-  WATER LINE
-  OVERHEAD POWER LINE
-  PROPERTY BOUNDARY LINE
-  PARCEL BOUNDARY
-  FLOOR DRAIN
-  UNDERGROUND STORAGE TANK
-  DENOTES CVOC CONCENTRATION IN GROUNDWATER THAT EXCEEDS MTCA METHOD A OR B CLEANUP LEVEL

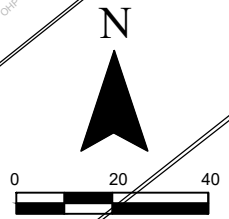
- NOTES:**
1. FIGURE DERIVED FROM BASEMAP BY FARALLON CONSULTING, 2010.
 2. MW30 WAS NOT INCLUDED IN GROUNDWATER FLOW AND CONTOUR CALCULATIONS.



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PLASTIC SALES & SERVICE SITE
 6870 WOODLAWN AVENUE NORTHEAST
 SEATTLE, WASHINGTON
 SOUNDEARTH PROJECT #0651-002

FIGURE 1
 Q2 2024 CVOCs IN GROUNDWATER AND
 GROUNDWATER CONTOUR MAP FOR
 THE SHALLOW WATER-BEARING ZONE

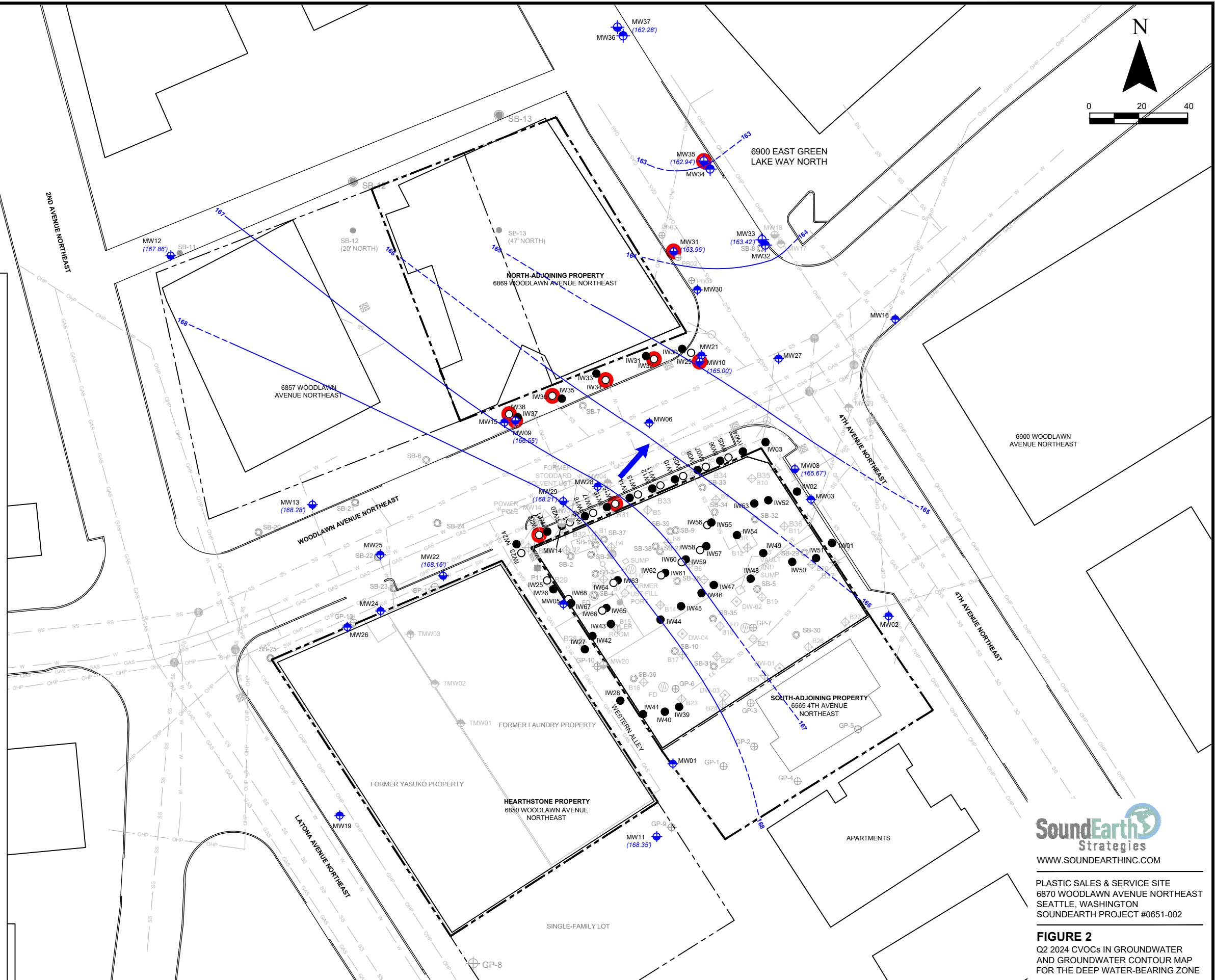


LEGEND

- CATCH BASIN
- MANHOLE
- SHALLOW-ZONE MONITORING WELL
- DEEP-ZONE MONITORING WELL
- DEEP DEWATERING WELL
- SHALLOW INJECTION WELL
- DEEP INJECTION WELL
- APPROXIMATE DIRECTION OF GROUNDWATER FLOW (DEEP ZONE)
- DEEP ZONE POTENTIOMETRIC SURFACE CONTOUR (APRIL 12, 2024)
DASHED WHERE INFERRED
- GROUNDWATER ELEVATION
- DECOMMISSIONED WELL
- DIRECT-PUSH BORING (GEOENGINEERS 2002/2003)
- DIRECT-PUSH BORING (GEOENGINEERS 2004)
- DIRECT-PUSH BORING (FARALLON 2004)
- DIRECT-PUSH BORING (FARALLON 2006/2007)
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- DENOTES CVOC CONCENTRATION IN GROUNDWATER THAT EXCEEDS MTCA METHOD A OR B CLEANUP LEVEL

NOTES:

1. FIGURE DERIVED FROM BASEMAP BY FARALLON CONSULTING, 2010.



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FIGURE 2
 Q2 2024 CVOCs IN GROUNDWATER AND GROUNDWATER CONTOUR MAP FOR THE DEEP WATER-BEARING ZONE

TABLE



Table 1
Groundwater Analytical Results for CVOCs
Plastic Sales and Service Site
6870 Woodlawn Avenue Northeast
Seattle, Washington

Well ID	Sample ID	Sampled By	Sample Date	Sample Point Depth (feet bgs)	Analytical Results ⁽¹⁾ (micrograms per liter)				
					PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride
IW22	IW22-20200212*	SoundEarth	02/12/20	32.00	< 0.20	< 0.20	1.5	< 0.20	30
	IW22-20200526*	SoundEarth	05/26/20	32.00	< 0.50	< 0.50	4.8	< 0.50	91
	IW22-20200720*	SoundEarth	07/20/20	32.00	< 1.0	< 1.0	8.5	< 1.0	160
	IW22-20201019*	SoundEarth	10/19/20	32.00	< 1.0	< 1.0	8.2	< 1.0	150
	IW22-20210127*	SoundEarth	01/27/21	32.00	< 1.0	< 1.0	12	< 1.0	180
	IW22-20210419*	SoundEarth	04/19/21	32.00	< 2.0	< 2.0	17	< 2.0	210
	IW22-20210726*	SoundEarth	07/26/21	32.00	< 2.0	< 2.0	16	< 2.0	250
	IW22-20211011*	SoundEarth	10/11/21	32.00	< 2.0	< 2.0	20	< 2.0	240
	IW22-20220425*	SoundEarth	04/25/22	32.00	< 4.0	< 4.0	30	< 4.0	280
	IW22-20221115*	SoundEarth	11/15/22	32.00	< 1.0	< 1.0	33	< 1.0	190
IW22-20230417*	SoundEarth	04/17/23	32.00	< 1.0	< 1.0	37	< 1.0	170	
IW22-20231023*	SoundEarth	10/23/23	32.00	< 1.0	< 1.0	36	< 1.0	72	
IW22-20240412*	SoundEarth	04/12/24	32.00	< 0.20	< 0.20	4.0	< 0.20	12	
IW29	IW29-20240412*	SoundEarth	04/12/24	32.00	0.21	< 0.20	15	< 0.20	0.71
IW32	IW32-20200212*	SoundEarth	02/12/20	33.00	< 40	950	7,100	73	250
	IW32-20200526*	SoundEarth	05/26/20	32.00	< 50	370	5,700	< 50	250
	IW32-20200720*	SoundEarth	07/20/20	32.00	< 50	260	5,400	< 50	250
	IW32-20201019*	SoundEarth	10/19/20	32.00	23	200	4,600	35	240
	IW32-20210127*	SoundEarth	01/27/21	32.00	45	320	5,800	45	320
	IW32-20210419*	SoundEarth	04/19/21	32.00	< 40	170	6,100	53	430
	IW32-20210726*	SoundEarth	07/26/21	32.00	< 50	160	10,000	89	1,300
	IW32-20211011*	SoundEarth	10/11/21	32.00	< 40	130	7,000	55	1,200
	IW32-20220425*	SoundEarth	04/25/22	32.00	< 50	120	5,400	< 50	960
	IW32-20221114*	SoundEarth	11/14/22	32.00	< 30	130	6,100	32	1,000
IW32-20230417*	SoundEarth	04/17/23	32.00	< 40	130	7,100	< 40	1,400	
IW32-20231023*	SoundEarth	10/23/23	32.00	46	150	9,600	< 40	2,000	
IW32-20240415*	SoundEarth	04/15/24	32.00	< 2.0	< 2.0	110	< 2.0	73	
IW34	IW34-20190312	SoundEarth	03/12/19	32.00	10,000 ^{ve}	150	23	< 1	4.9
	IW34-20190409*	SoundEarth	04/09/19	33.00	230	21	11	< 1.0	1.0
	IW34-20200212*	SoundEarth	02/12/20	33.00	360	3,100	4,100	50	100
	IW34-20200526*	SoundEarth	05/26/20	32.00	310	2,400	7,700	83	160
	IW34-20200720*	SoundEarth	07/20/20	32.00	290	2,300	11,000	110	220
	IW34-20201019*	SoundEarth	10/19/20	32.00	230	1,400	13,000	140	280
	IW34-20210127*	SoundEarth	01/27/21	32.00	< 200	990	17,000	< 200	360
	IW34-20210419*	SoundEarth	04/19/21	32.00	170	650	20,000	240	480
	IW34-20210726*	SoundEarth	07/26/21	32.00	< 200	230	24,000	320	460
	IW34-20211011*	SoundEarth	10/11/21	32.00	< 200	< 200	26,000	330	560
	IW34-20220425*	SoundEarth	04/25/22	32.00	< 10	< 10	34,000	500	810
	IW34-20221114*	SoundEarth	11/14/22	32.00	< 300	< 300	36,000	600	860
IW34-20230417*	SoundEarth	04/17/23	32.00	< 200	< 200	37,000	620	860	
IW34-20231023*	SoundEarth	10/23/23	32.00	< 200	< 200	5,600	510	16,000	
IW34-20231117	SoundEarth	11/17/23	32.00	< 200	< 200	4,400	450	15,000	
IW34-20240415*	SoundEarth	04/15/24	32.00	< 30	< 30	2,600	84	3,800	
IW36	IW36-20190409*	SoundEarth	04/09/19	33.00	0.37	< 0.20	< 0.20	< 0.20	< 0.20
	IW36-20240415*	SoundEarth	04/15/24	32.00	< 2.0	< 2.0	73	< 2.0	130
IW38	IW38-20240415*	SoundEarth	04/15/24	32.00	< 0.40	< 0.40	57	< 0.40	2.4
IW60	--	--	02/12/20	--	--	--	--	--	--
	IW60-20200526*	SoundEarth	05/26/20	20.00	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
	IW60-20200720*	SoundEarth	07/20/20	20.00	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
	IW60-20201019*	SoundEarth	10/19/20	20.00	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
	IW60-20210127*	SoundEarth	01/27/21	20.00	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
	IW60-20210419*	SoundEarth	04/19/21	20.00	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
	IW60-20210726*	SoundEarth	07/26/21	20.00	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
	IW60-20211011*	SoundEarth	10/11/21	20.00	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
	IW60-20220425*	SoundEarth	04/25/22	20.00	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
	IW60-20221115*	SoundEarth	11/15/22	20.00	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
IW60-20230417*	SoundEarth	04/17/23	20.00	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	
IW60-20231023*	SoundEarth	10/23/23	20.00	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	
IW60-20240412*	SoundEarth	04/12/24	20.00	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	
DZ-B01	DZ-B01-20-30	SoundEarth	07/20/21	25.00	3,600	520	5,900	< 30	1,800
	DZ-B01-40-50	SoundEarth	07/20/21	45.00	10,000	160	310	< 50	67
DZ-B02	DZ-B02-20-30	SoundEarth	07/22/21	25.00	10,000	980	1,900	< 100	180
	DZ-B02-40-50	SoundEarth	07/22/21	45.00	1,300	180	420	< 10	32
DZ-B03	DZ-B03-20-30	SoundEarth	07/22/21	25.00	22,000	1,500	6,600	< 200	590
	DZ-B03-35-45	SoundEarth	07/22/21	40.00	12,000	420	920	< 100	62
DZ-B04	DZ-B04-20-30	SoundEarth	07/23/21	25.00	130	3.9	270	< 2.0	280
	DZ-B04-40-50	SoundEarth	07/23/21	45.00	80	0.75	1.0	< 0.40	0.50
DZ-B05	DZ-B05-20-30	SoundEarth	02/24/22	25.00	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
	DZ-B05-40-50	SoundEarth	02/25/22	45.00	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
	DZ-B05-60-70	SoundEarth	02/25/22	65.00	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
DZ-B06	DZ-B06-20-30	SoundEarth	02/28/22	25.00	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
	DZ-B06-40-50	SoundEarth	02/28/22	45.00	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
	DZ-B06-60-70	SoundEarth	03/01/22	65.00	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
DZ-B07	DZ-B07-20-30	SoundEarth	03/03/22	25.00	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
	DZ-B07-40-50	SoundEarth	03/03/22	45.00	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
	DZ-B07-60-70	SoundEarth	03/03/22	65.00	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
MTCA Cleanup Levels for Groundwater					5 ⁽²⁾	5 ⁽²⁾	16 ⁽³⁾	160 ⁽³⁾	0.2 ⁽²⁾
Commercial Remediation Levels for Groundwater					120 ⁽⁴⁾	12 ⁽⁴⁾	NE	650 ⁽⁴⁾	1.6 ⁽⁴⁾
Roadway Excavation Remediation Levels for Groundwater					760 ⁽⁴⁾	40 ⁽⁴⁾	NE	4,200 ⁽⁴⁾	9.9 ⁽⁴⁾



Table 1
Groundwater Analytical Results for CVOCs
Plastic Sales and Service Site
6870 Woodlawn Avenue Northeast
Seattle, Washington

Well ID	Sample ID	Sampled By	Sample Date	Sample Point Depth (feet bgs)	Analytical Results ⁽¹⁾ (micrograms per liter)				
					PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride
DZ-B08	DZ-B08-20-30	SoundEarth	03/01/22	25.00	33	0.51	< 0.20	< 0.20	< 0.20
	DZ-B08-40-50	SoundEarth	03/02/22	45.00	2.6	< 0.20	< 0.20	< 0.20	< 0.20
	DZ-B08-60-70	SoundEarth	03/02/22	65.00	0.40	< 0.20	< 0.20	< 0.20	< 0.20
DZ-B09	DZ-B09-20-30	SoundEarth	02/22/22	25.00	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
	DZ-B09-40-50	SoundEarth	02/22/22	45.00	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
	DZ-B09-60-70	SoundEarth	02/23/22	65.00	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
MTCA Cleanup Levels for Groundwater					5⁽²⁾	5⁽²⁾	16⁽³⁾	160⁽³⁾	0.2⁽²⁾
Commercial Remediation Levels for Groundwater					120⁽⁴⁾	12⁽⁴⁾	NE	650⁽⁴⁾	1.6⁽⁴⁾
Roadway Excavation Remediation Levels for Groundwater					760⁽⁴⁾	40⁽⁴⁾	NE	4,200⁽⁴⁾	9.9⁽⁴⁾

NOTES:

Red denotes concentration exceeds MTCA cleanup level for groundwater.

* denotes sample was collected using a passive diffusion bag sampler.

Samples analyzed by OnSite Environmental, Inc. of Redmond, Washington.

Green highlighting denotes samples collected as part of the 30 day post-pilot test groundwater monitoring.

⁽¹⁾Analyzed by EPA Method 8260B, 8260C, or 8260D.

⁽²⁾MTCA Cleanup Regulation, Chapter 173-340-900 of WAC, Table 720-1 Method A Cleanup Levels for Groundwater, revised November 2007, updated January 2023.

⁽³⁾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>>.

⁽⁴⁾Washington State Department of Ecology Toxics Cleanup Program Memorandum, Air, Soil Gas, and Groundwater Remediation Levels for Vapor Intrusion in Commercial and Excavation Scenarios, Table 1 Commercial Remediation Levels for Groundwater and Table 3 Roadway Excavation Remediation Levels for Groundwater, July, 18 2022.

-- = not analyzed

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

bgs = below ground surface

CLARC = cleanup levels and risk calculations

CVOC = chlorinated volatile organic compound

DCE = dichloroethene

DZ = deep zone temporary monitoring well

EPA = US Environmental Protection Agency

Farallon = Farallon Consulting, L.L.C.

GeoEngineers = GeoEngineers, Inc.

MTCA = Washington State Model Toxics Control Act

PCE = tetrachloroethene

SoundEarth = SoundEarth Strategies, Inc.

TCE = trichloroethene

WAC = Washington Administrative Code