REMEDIAL INVESTIGATION / CLEANUP ACTION PLAN

7202 South Park Avenue
Tacoma, Washington 98408

May 17, 2016

Prepared For:

Paul Kuchenmeister
17815 40th Avenue East
Tacoma, Washington 98446

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2714
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ECI Project No.: 0603-01

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1.0 INTRODUCTION

On behalf of Mr. Paul Kuchenmeister, EcoCon Inc. (ECI) has prepared this Remedial Investigation/ Cleanup Action Plan (RI/CAP) for the parcel located at 7202 South Park Avenue in Tacoma, Washington (the Property) (Appendix A, Figures 1 and 2). This report was prepared for submittal to the Washington State Department of Ecology (Ecology) and was developed to meet the general requirements of a RI and CAP as defined by the Washington State Model Toxics Control Act (MTCA) Regulation in Chapters 173-340-350 through 173-340-410 of the Washington Administrative Code (WAC).

As established in WAC 173-340-200, the "Site" is defined by the full lateral and vertical extent of contamination that has resulted from the former use of six underground storage tanks (USTs) on the Property. Based on the findings of environmental investigations discussed within this report, the Site appears to be limited to petroleum contaminated soil to the northern portion of the Property, extending slightly into the right-of-way (ROW) of South 72nd Street, along with a small amount of contaminated soil traveling beneath the existing canopy.

1.1 Document Purpose

1.1.1 Remedial Investigation

The purpose of the RI is to collect data necessary to effectively characterize the contamination present in all effected media and develop a conceptual site model (CSM).

1.1.2 Feasibility Study

The purpose of a feasibility study is to develop and evaluate remedial alternatives for the Site and to select the most appropriate alternative based on the criteria specified in MTCA 173-340-360(2). However, the Site appears to qualify for a Model Remedy selection based on the criteria outlined in Ecology's Publication No. 15-09-043 *Model Remedies for Sites with Petroleum Contaminated Soils*, therefore a feasibility study was not completed for this Site.

1.1.3 Cleanup Action Plan

The purpose of the CAP is to outline the specifics of the proposed Site remedial action.

2.0 BACKGROUND

The following section provides a description of the Site, a summary of environmental investigations conducted on the Site, and a description of the physical characteristics of the Site.

2.1 Site Location and Description

According to the Pierce County Assessor, the Property currently consists of a commercial lot, 0.28 acres in size (Figure 3, Appendix A). The Property is currently occupied with one structure serving as a

restaurant, but was formerly occupied by a petroleum service station, with six associated USTs. Previous environmental investigations/remedial actions had confirmed the presence of diesel-range organics (DRO), gasoline-range organics (GRO), benzene, toluene, ethylbenzene, total xylenes (BTEX) and lead exceeding applicable Model Toxic Control Act (MTCA) Method A Cleanup Levels. These investigations are described below.

2.2 Environmental Investigations/Remedial Actions

2.2.1 AA Enviro Assessment, Inc – UST Decommissioning and Site Assessment

In October of 1998, AA Enviro Assessment, Inc. oversaw the decommissioning and removal of six USTs used to store petroleum products. UST 1 through UST 4 contained gasoline and were located on the southern portion of the Property; the tank capacities were 10,000-gallons, 3,000-gallons, 3,000-gallons, and 2,000-gallons, respectively. One heating oil tank was located south of the structure and was 500 gallons in capacity; and one waste oil tank was located north of the structure and was 300 gallons in capacity (Figure 3, Appendix A).

During the removal of the USTs and subsequent site assessment, eighteen (18) soil samples were collected from the sidewalls and the base of the excavations and analyzed for: DRO by NWTPH-Dx; GRO by NWTPH-Gx; and BTEX using EPA Method 8020. After the removal of approximately 721 tons of contaminated soil, only one soil sample, collected on the northern Property boundary adjacent to the South 72nd Street sidewalk, contained a concentration of GRO above its respective MTCA Method A Cleanup Level. The remaining seventeen samples contained concentrations of these contaminants below their respective laboratory detection limits and/or cleanup levels. Sample analytical results are summarized on Table 1 in Appendix B.

Due to the inaccessible material beneath the ROW of South 72nd Street, regulatory closure was never achieved.

2.2.2 ECI 2016 – Focused Subsurface Investigation

In early 2016, as part of a potential Property transaction, ECI was asked to review the environmental history of the Property, specifically with respect to the interim remedial action that took place in 1998. After review, ECI noted the following:

- One of the soil samples (E1) collected from the north sidewall of the main UST excavation, contained a concentration of benzene that was below the applicable cleanup levels in 1998, but above the current MTCA Method A Cleanup Levels.
- A performance soil sample (W01) which was subsequently overexcavated, also contained a concentration of benzene below applicable levels in 1998, but above current MTCA Method A

Cleanup Levels. This soil was removed, however the confirmation sample collected at the final limits of the excavation was not analyzed for benzene.

- Confirmation soil sample P4, collected from the bottom of the north pump island excavation, contained a concentrations of GRO below the applicable cleanup standards in 1998, but above the current MTCA Method A Cleanup Levels.

Based on this review, ECI recommended further investigation to evaluate the nature and extent of the release. Specifically to determine:

- If soil containing COC concentrations exceeding the MTCA Method A Cleanup Level is present in the locations described above. These values were only slightly above current standards and natural attenuation processes may have reduced these concentrations over time.
- The vertical and lateral extent of the release beneath the ROW of 72nd Street.
- Whether the release to soil has impacted the environmental quality of groundwater beneath the Site.

On May 4, 2016, Standard Environmental Probe of Tumwater, Washington, advanced five (5) borings (B1 through B5) using direct push drilling techniques under the supervision of an ECI environmental professional (Figure 4, Appendix A). The borings were advanced in strategic locations to evaluate the conditions described above. Boring B1 and B2 were advanced within the ROW of South 72nd Street to evaluate the northern extent of contamination; boring B3 was advanced adjacent to former soil sample P4 to evaluate current contaminant concentrations; boring B4 was advanced adjacent to former soil sample W01B to evaluate current contaminant concentrations; and boring B5 was advanced adjacent to former soil sample E1 to evaluate current contaminant concentrations.

Undisturbed soil samples were collected directly from the macro-core samplers extracted from the borings. Samples were transferred into new laboratory-provided analyte-specific sample containers and assigned a unique sample ID.

No groundwater was encountered in all five borings at depths ranging from 10.5 to 19.5 feet bgs. As a result, no groundwater samples were collected during this investigation.

The collected soil samples were placed in a climate controlled container and maintained at or below 4° Celsius until they were delivered to an Ecology accredited laboratory, Libby Environmental, of Olympia Washington, under industry standard chain of custody protocol.

Sample Results

Nine (9) soil samples were analyzed for GRO by Northwest Method NWTPH-Gx, and BTEX by EPA Method 8021b. Sample analytical results are summarized below and on Table 1 in Appendix B:

- The soil sample collected from B1 at a depth of 12 feet bgs contained a concentration of GRO above the MTCA Method A Cleanup Level.
- Two soil samples collected from boring B5 at depths of 11 and 13 feet contained concentrations of benzene slightly above the MTCA Method A Cleanup Level.
- The remaining soil samples contained COC concentrations below their respective laboratory reporting limits and/or MTCA Method A Cleanup Levels.

Laboratory analytical reports for ECI's Focused Subsurface Investigation are included in Appendix C.

2.3 Physical Setting

According to the United States Geological Survey (USGS) Tacoma South Quadrangle Geologic Map, the vicinity is underlain by relatively impermeable glacial till deposits that are present at or near the ground surface. The Site is located at an elevation of approximately 380 feet above mean sea level and is relatively flat.

2.3.1 Site Soil Conditions

During ECI's 2016 Focused Subsurface Investigation, soils were generally characterized as dense, fine to medium grained sandy silt to silty sand, with trace amounts of gravel to the maximum depth explored of 19 feet bgs. ECI's boring logs are included with this report in Appendix D.

2.3.2 Site Groundwater Conditions

Groundwater was not encountered in any of ECI's soil borings to a maximum depth of 19 feet bgs. Ecology well logs were also reviewed for the vicinity which indicate dry conditions to a depth of at least 20 feet bgs.

3.0 CONCEPTUAL SITE MODEL

This section provides a summary of the conceptual site model, which includes a discussion of the COCs, the media of concern, the distribution of contamination in soil, and the potential exposure pathways for the Site.

3.1 Contaminants of Concern and Cleanup Levels

Based upon the results of previous investigations, the contaminants of concern (COCs) and respective cleanup levels for the Site are presented below:

MTCA Method-A Cleanup Levels for Soil and Groundwater (MTCA Cleanup Regulation 173-340-900: Tables 720-1 and 740-1)		
Contaminant of Concern (COCs)	**Soil Cleanup Levels (CUL) mg/kg**	**Groundwater Cleanup Levels µg/L**
Gasoline Range Organics (GRO)	30	800
Benzene	0.03	5
Toluene	7	1,000
Ethylbenzene	6	700
Total Xylenes	9	1,000

3.2 Media of Concern

Based upon the results of previous investigations soil is the only media of concern for the Site. Soil containing concentrations of COCs in excess of the respective MTCA Method A Cleanup Levels was limited to 13 feet below ground surface, while groundwater was not encountered on the Property and in the vicinity to depths of at least 20 feet bgs.

3.3 Distribution of Contamination in Soil

Based on the results of ECI's Focused Subsurface Investigation, it appears that petroleum contaminated soil is limited to the following areas on site:

- The sidewalk ROW of South 72nd Street, at a depth of approximately 12-14 feet bgs. This contamination is laterally bound to the north by soil boring B2, which was advanced in the first lane of east bound South 72nd Street, and contained non-detectable concentrations of COCs.
- The middle area of the site, extending beneath the building canopy. Soil boring B5 contained concentrations of benzene slightly above the MTCA Method A Cleanup Level between 11 and 13 feet bgs. This area was the northern extent of the initial gasoline UST excavation, and based on contaminant concentrations, appears to be the very leading edge of the contaminant plume.

3.4 Exposure Pathways

The following section discusses the confirmed and potential human and ecological exposure pathways at the Site.

3.4.1 Soil Pathway

Potential exposure pathways for soil contamination include direct dermal contact or ingestion. This exposure pathway will remain complete until such time that engineering and/or institutional controls prevent contact with contaminated material. Such controls could include asphalt or pavement, along with the implementation of an environmental covenant.

3.5 Points of Compliance

The point compliance is the location where the enforcement limits will be measured and cannot be exceeded.

3.5.1 Point of Compliance for Soil

The point of compliance for direct contact is throughout the Site, from ground surface to 15 feet bgs. This is the depth at which one would reasonably assume workers could encounter contaminated soil during construction or development activities. In situations where achieving the standard point of compliance is not practicable, conditional points of compliance may be established, or institutional controls implemented to prevent direct contact and protect human health and the environment.

3.6 Terrestrial Ecological Evaluation

A terrestrial ecological evaluation (TEE) form was completed for the Site, which indicates that the Site qualifies for an exclusion from further evaluation using the criteria in WAC 173-340-7491 (Appendix D). Specifically, there is less than 1.5 acres of contiguous undeveloped land on or within 500 feet of any area of the Site.

4.0 REMEDY SELECTION

In accordance with the criteria outlined in Ecology's Publication No. 15-09-043 *Model Remedies for Sites with Petroleum Contaminated Soils*, the Site qualifies for the selection of Model Remedy 3.

This Model Remedy Applies to situations where MTCA Method A Cleanup Levels are selected but the soil removal action is not sufficient to fully comply with the specified concentrations at all locations on the source property or within the ROW, due to the presence of one or more structural impediments. The site must specifically meet the following standards:

- The soil removal action was implemented to the greatest degree practicable. - As detailed in Section 2.2.1, soil was excavated within the Property boundary until concentrations of COCs were below MTCA Method A Cleanup Levels at the time. A total of 721 tons of petroleum contaminated soil was removed from the Site, however the excavation could not continue beneath the public ROW due to the presence of large utilities and structural concerns for the roadway.

  Three other areas where concentrations of COCs were below the 1998 MTCA Method A Cleanup Levels, but above the current MTCA Method A Cleanup Levels were investigated by ECI in 2016 to evaluate current conditions. The results of ECI's 2016 Focused Subsurface Investigation suggests a limited amount of petroleum contaminated soil remains extending beneath the building canopy, however the concentrations of benzene have reduced from 0.05 mg/kg to 0.039 mg/kg since 1998, which indicates an aerobic environment capable of reducing contaminant concentrations to below MTCA Method A Cleanup Levels in a reasonable restoration time frame. ECI believes it would be impractical to excavate this limited amount of contamination based on the structural impediments and relatively small benefit to human health and the environment.

- The Site characterization confirms that no other pathway has or can reasonably be expected to be impacted. – Results from ECI's 2016 investigation and research of available Ecology records indicate that shallow groundwater is not present in the area at depths above 20 feet bgs. Soil contamination on the property is limited to approximately 11 to 13 feet bgs, therefore it is unlikely that the remaining contamination in soil could impact groundwater given the relatively dense Site geology.

  ECI also proposed to cover the property with asphalt and/or pavement to prevent any downward migration of the contamination from rainwater infiltration.

- An environmental covenant is filed to ensure the remedy remains protective. – Upon approval from Ecology for the selection of Model Remedy 3, ECI will assist in the completion and filing of an Environmental Covenant on the Property.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the information provided in this report, ECI recommends no additional active remediation be performed on the Property. ECI also requests that Ecology approve the selection of Model Remedy 3, which will include the implementation of an Environmental Covenant on the Property to protect human exposure to the remaining soil contamination located beneath the building canopy and ROW of South 72nd Street. Once the environmental covenant is filed, ECI shall request that Ecology issue a Determination of No Further Action for the Site.

6.0 REFERENCES

AA Enviro Assessment Inc. 1999. *Underground Storage Tank Site Characterization Report*. April 20.

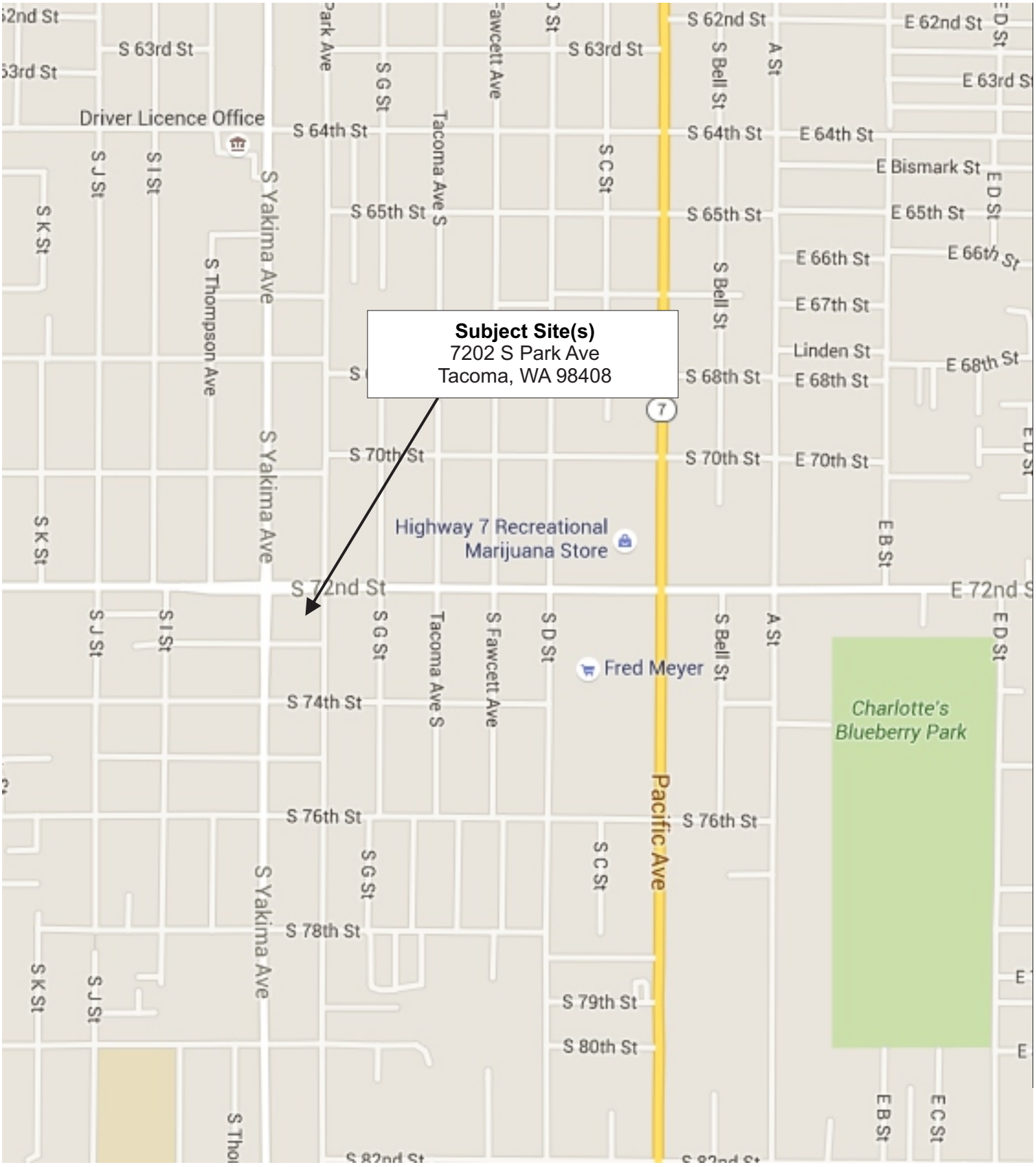
Pierce County Assessor. 2016. *Current Appraisal Data for Parcel #6545000011*. Reviewed May 9.

Washington State Department of Ecology. 1995. *Guidance for Remediation of Petroleum Contaminated Soils*. Publication No. 91-30. November.

Washington State Department of Ecology. 2015. *Model Remedies for Site with Petroleum Contaminated Soils*. Publication No. 15-08-043. September.

Appendix A

Project Figures



Not To Scale

Site Vicinity Map
Focused Subsurface Investigation
7202 S Park Ave
Tacoma, WA 98408

Date:	May 13, 2016
Completed By:	K. Spencer
Reviewed By.:	B. Dixon
Version:	ECI-001
Project No.:	0603-01-01

Figure No.: 01

Sheet 01 of 05

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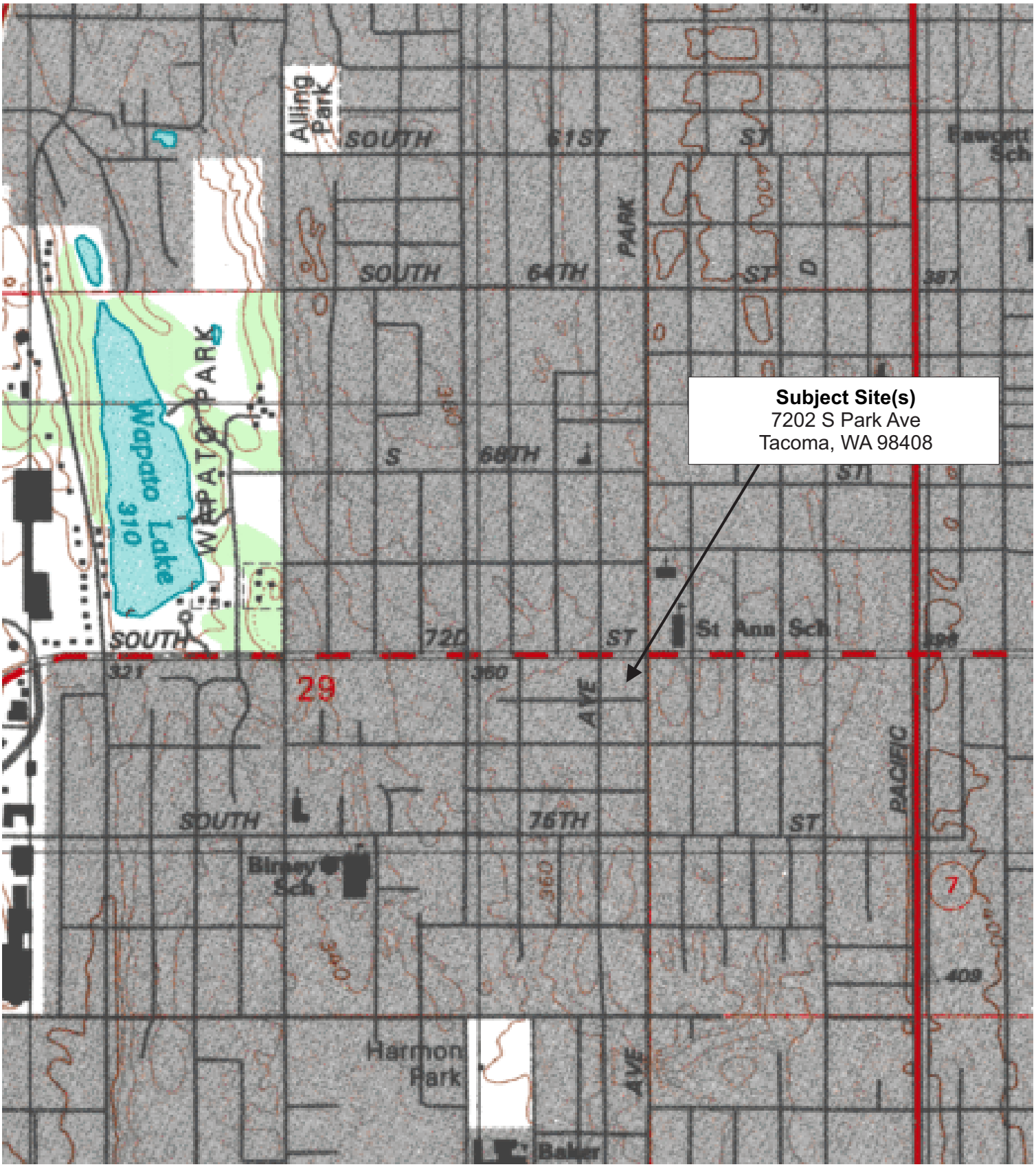

N
Not To Scale

Site Topographic Map
Focused Subsurface Investigation
7202 S Park Ave
Tacoma, WA 98408

Date:	May 13, 2016
Completed By:	K. Spencer
Reviewed By.:	B. Dixon
Version:	ECI-001
Project No.:	0603-01-01

Figure No.: 02
Sheet 02 of 05

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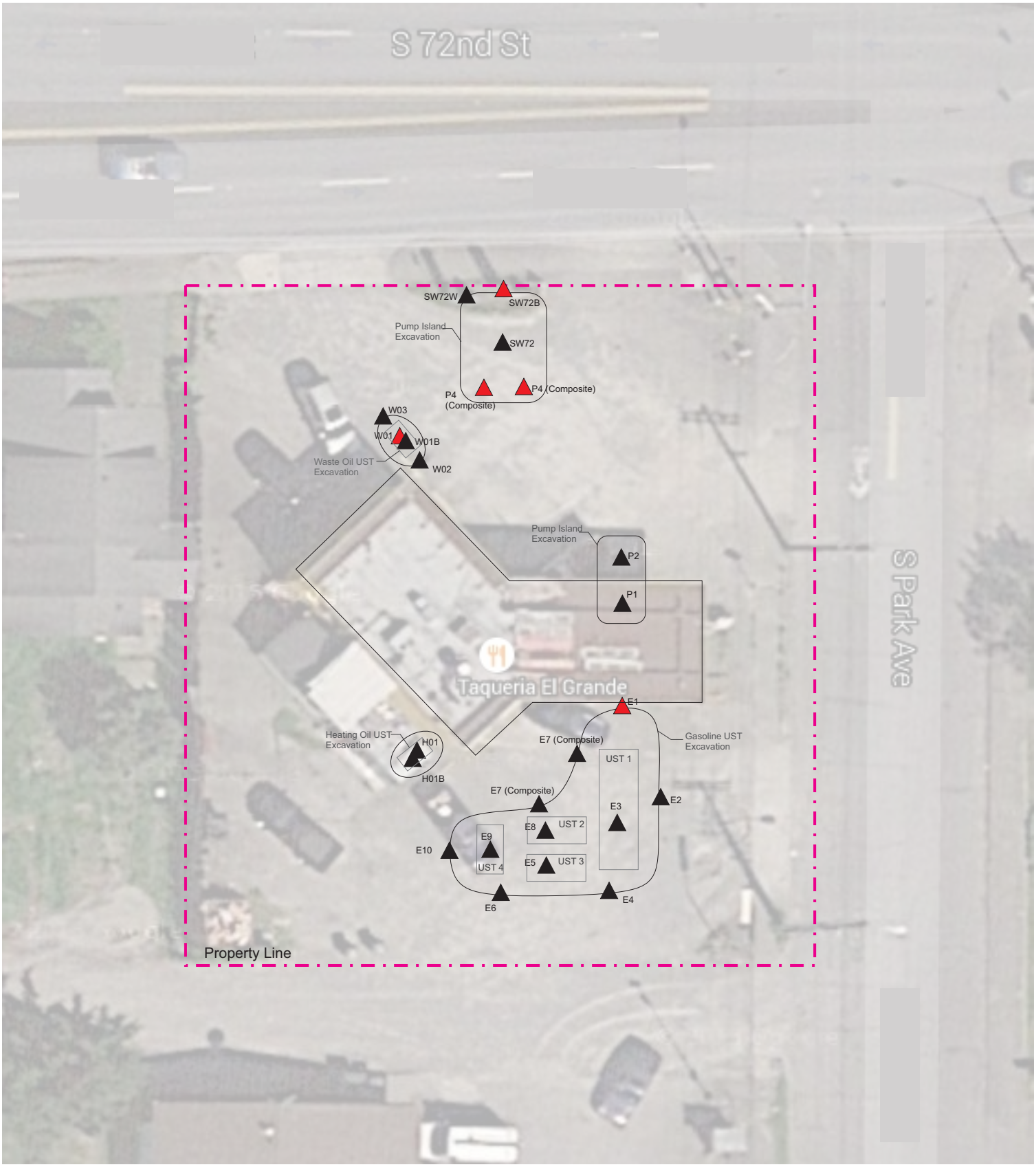

Not To Scale

▲ Soil Sample Location

▲ Concentration Exceeds MTCA Method A Cleanup Level

Historical Soil Sample Location Map
Focused Subsurface Investigation
7202 S Park Ave
Tacoma, WA 98408

Date:	May 13, 2016
Completed By:	K. Spencer
Reviewed By.:	B. Dixon
Version:	ECI-001
Project No.:	0603-01-01

Figure No.: 03

Sheet 03 of 05

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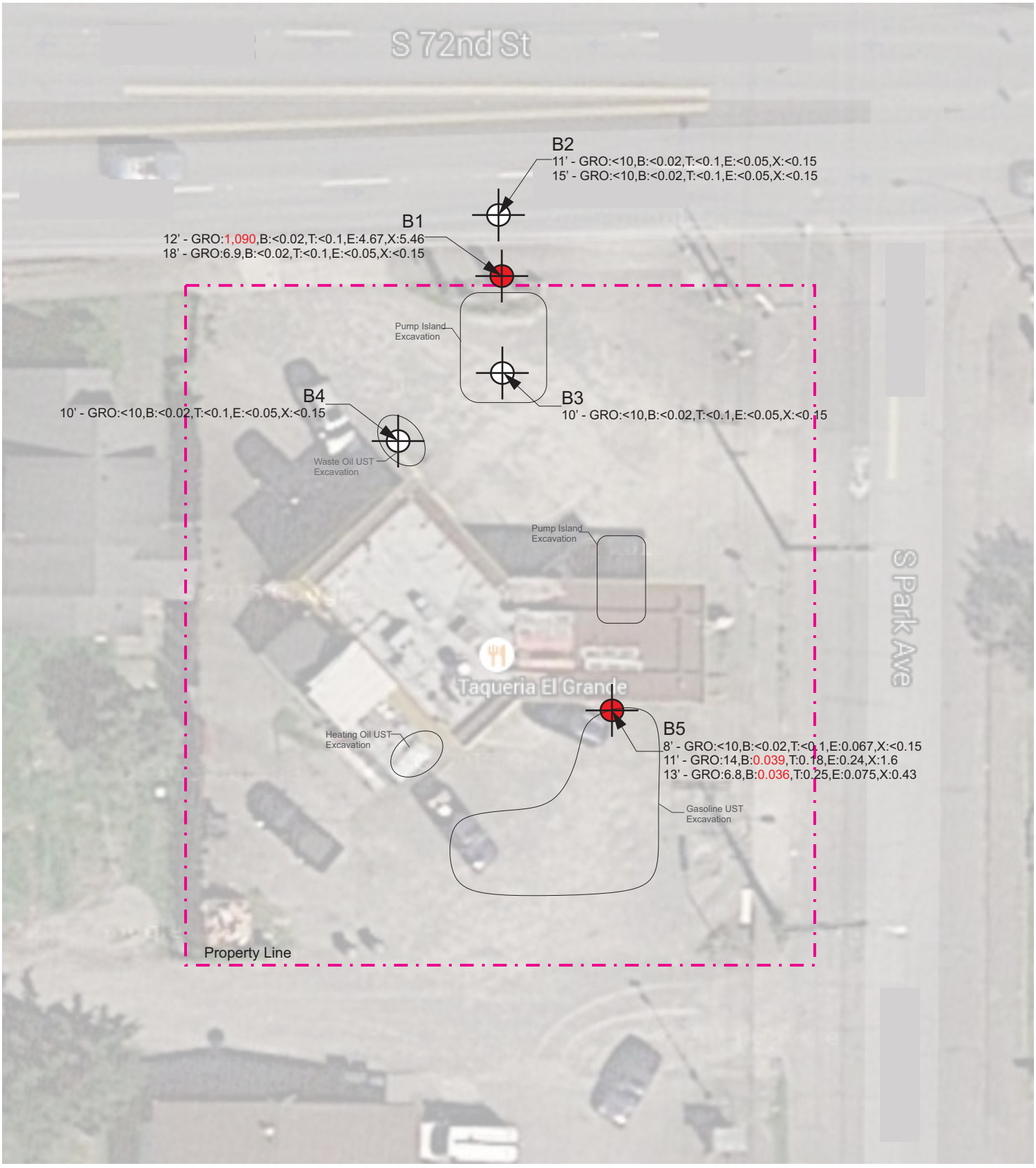

N
Not To Scale

Soil Sample Location

Concentration Exceeds MTCA Method A Cleanup Level

Boring Location Map
Focused Subsurface Investigation
7202 S Park Ave
Tacoma, WA 98408

Date:	May 13, 2016
Completed By:	K. Spencer
Reviewed By.:	B. Dixon
Version:	ECI-001
Project No.:	0603-01-01

Figure No.: 04

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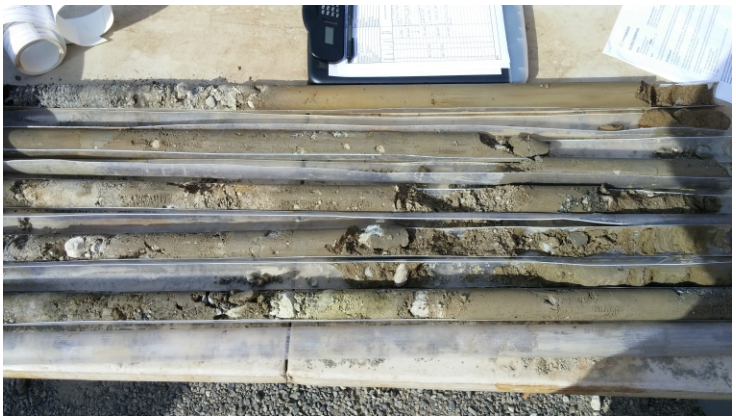
Photograph One: Boring B2

Photograph Two: Boring B1

Photograph Three: Boring B5

Photograph Four: Boring B3

Photograph Five: Boring B1



Photograph Six: Example of sample core

N
Not To Scale

Site Photographs
Focused Subsurface Investigation
7202 S Park Ave
Tacoma, WA 98408

Date:	May 13, 2016
Completed By:	K. Spencer
Reviewed By.:	B. Dixon
Version:	ECI-001
Project No.:	0603-01-01

Figure No.: 05
Sheet 05 of 05

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Appendix B

Project Tables

Table 1: Summary of Soil Analytical Results

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Table 1: Summary of Soil Analytical Results

Sample ID	Sample Date	Sample Depth	Total Petroleum Hydrocarbons (mg/kg)			Select Volatile Organic Compounds (mg/kg)				PCB Mixtures (mg/kg)	Select Metals (mg/kg)				
			Gasoline-Range Organics	Diesel-Range Organics	Oil-Range Organics	Benzene	Toluene	Ethylbenzene	Xylenes		Arsenic	Cadmium	Chromium	Mercury	Lead
AA Enviro Assessment, Inc. 1998 - UST Decommissioning and Site Assessment															
E1	10/21/1998	7'-8'	<10	--	--	0.05	<0.05	<0.05	<0.05	--	--	--	--	--	--
E2	10/21/1998	9'	<10	--	--	<0.05	<0.05	<0.05	<0.05	--	--	--	--	--	--
E3	10/21/1998	13'	<10	--	--	<0.05	<0.05	<0.05	<0.05	--	--	--	--	--	<5
E4	10/21/1998	8'-9'	<10	--	--	<0.05	<0.05	<0.05	<0.05	--	--	--	--	--	--
E5	10/21/1998	14'	<10	--	--	<0.05	<0.05	<0.05	<0.05	--	--	--	--	--	<5
E6	10/21/1998	9'-10'	<10	--	--	<0.05	<0.05	<0.05	<0.05	--	--	--	--	--	--
E7	10/21/1998	9'	<10	--	--	<0.05	<0.05	<0.05	<0.05	--	--	--	--	--	--
E8	10/21/1998	14'	<10	--	--	<0.05	<0.05	<0.05	<0.05	--	--	--	--	--	<5
E9	10/21/1998	14'-15'	--	<20	--	--	--	--	--	--	--	--	--	--	--
E10	10/21/1998	9'	--	<20	--	--	--	--	--	--	--	--	--	--	--
P3	10/21/1998	U	--	<20	--	--	--	--	--	--	--	--	--	--	--
W01	10/21/1998	7'	--	--	**930**	0.24	<0.05	<0.05	<0.05	<0.05	<88	<18	**46**	<0.1	**52**
W02	10/21/1998	7'	--	--	<40	--	--	--	--	--	--	--	--	--	--
W03	10/21/1998	7'	--	--	<40	--	--	--	--	--	--	--	--	--	--
H01	10/21/1998	8'	--	--	**210**	--	--	--	--	--	--	--	--	--	--
L1	10/22/1998	U	<10	<20		<0.05	<0.05	<0.05	<0.05	--	--	--	--	--	--
P1	10/22/1998	U	<10	--	--	<0.05	<0.05	<0.05	<0.05	--	--	--	--	--	--
P4	10/22/1998	10'	71	--	--	<0.05	**0.14**	**0.47**	**1.62**	--	--	--	--	--	--
SW72	10/22/1998	5'-8'	**D**	<50	<100	--	--	--	--	--	--	--	--	--	--
P2	10/22/1998	10'	--	--		--	--	--	--	--	--	--	--	--	--
H01B	10/26/1998	9'	--	--	**84**	--	--	--	--	--	--	--	--	--	--
W01B	10/26/1998	10'	--	--	**130**	--	--	--	--	--	--	--	--	--	--
SW72W	10/26/1998	5'-8'	--	--	<40	--	--	--	--	--	--	--	--	--	--
SW72B	10/28/1998	5'	770	--	--	0.1	**0.6**	**2.7**	**15**	--	--	--	--	--	<5
ECI 2016 - Focused Subsurface Investigation															
B1-12	5/5/2016	12	1,090	--	--	<0.02	<0.1	**4.67**	**5.46**	--	--	--	--	--	--
B1-18	5/5/2016	18	**6.9**	--	--	<0.02	<0.1	<0.05	<0.15	--	--	--	--	--	--
B2-11	5/5/2016	11	<10	--	--	<0.02	<0.1	<0.05	<0.15	--	--	--	--	--	--
B2-15	5/5/2016	15	<10	--	--	<0.02	<0.1	<0.05	<0.15	--	--	--	--	--	--
B3-10	5/5/2016	10	<10	--	--	<0.02	<0.1	<0.05	<0.15	--	--	--	--	--	--
B4-10	5/5/2016	10	<10	--	--	<0.02	<0.1	<0.05	<0.15	--	--	--	--	--	--
B5-08	5/5/2016	8	<10	--	--	<0.02	<0.1	0.067	<0.15	--	--	--	--	--	--
B5-11	5/5/2016	11	**14**	--	--	0.039	**0.18**	**0.24**	**1.6**	--	--	--	--	--	--
B5-13	5/5/2016	13	**6.8**	--	--	0.036	**0.25**	**0.075**	**0.43**	--	--	--	--	--	--
MTCA Method A Cleanup Levels			30	2,000	2,000	0.03	7	6	9	1	20	2	2,000*	2	250

<: Not detected above laboratory reporting limit

U: Unknown

*: Chromium III

Appendix C

Laboratory Analytical Reports

Libby Environmental, Inc.
4139 Libby Road NE • Olympia, WA 98506-2518

May 11, 2016

Brian Dixon
ECI
P.O. Box 153
Fox Island, WA 98333

Dear Mr. Dixon:

Please find enclosed the analytical data report for the 7202 S Park Ave Project located in Tacoma, Washington.

The results of the analyses are summarized in the attached tables. Applicable detection limits and QA/QC data are included. The sample(s) will be disposed of in 30 days unless we are contacted to arrange long term storage.

Libby Environmental, Inc. appreciates the opportunity to have provided analytical services for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

Sherry L. Chilcutt
Senior Chemist
Libby Environmental, Inc.

Phone (360) 352-2110 • Fax (360) 352-4154 • libbyenv@aol.com

ESN Northwest, Inc. Environmental Services Network

Libby

CHAIN-OF-CUSTODY RECORD

CLIENT: EcoCon Inc

ADDRESS: PO Box 153, Fox Island WA 98333

PHONE: 805 680-4286 FAX:

CLIENT PROJECT #: 0603-01-01 PROJECT MANAGER: B. Dixon

DATE: 5-5-16 PAGE 1 OF 1

PROJECT NAME: 7202 S Park Ave Tacoma, WA

LOCATION: Same

COLLECTOR: B. Dixon DATE OF COLLECTION 5/5/16

Sample Number	Depth	Time	Sample Type	Container Type	TPH-HCID	TPH - DIESEL & OIL	TPH - GASOLINE	BTEX	VOC 8260CL	VOC 8260	SemiVol 8270	PAH's 8270	PCB's 8082	CL Pesticides 8081	RCRA 8 Metals	MTCA 5 Metals	Pb	Asbestos-PLM	GRO Suite	DRO Suite	WO Suite	NOTES	Total Number of Containers	Laboratory Note Number
1. B1-05	5	0710	Soil	VOAs & 4oz																		HOLD		
2. B1-09	9	0725	Soil																			HOLD.		
3. B1-12	12	0730	Soil				X	X																
4. B1-18	18	0745	Soil				X	X																
5. B2-11	11	0900					X	X																
6. B2-15	15	0910					X	X																
7. B3-10	10	1055					X	X																
8. B4-10	10	1130					X	X																
9. B5-08	8	1145					X	X																
10. B5-11	11	1150					X	X																
11. B5-13	13	1205					X	X																
12.																								
13.																								
14.																								
15.																								
16.																								
17.																								
18.																								

RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME
	5/5/16 1:24	Thorley Gilley	5/5/16 1:24
RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME

SAMPLE DISPOSAL INSTRUCTIONS

☐ ESN DISPOSAL @ $2.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT	
TOTAL NUMBER OF CONTAINERS	55
CHAIN OF CUSTODY SEALS Y/N/NA	X
SEALS INTACT? Y/N/NA	Y
RECEIVED GOOD COND./COLD	Y
NOTES:	

LABORATORY NOTES:

Turn Around Time: 24 HR 48 HR 5 DAY

Libby Environmental, Inc.

4139 Libby Road NE
Olympia, WA 98506
Phone: (360) 352-2110
FAX: (360) 352-4154
Email: libbyenv@aol.com

7202 S PARK AVE PROJECT
ECI
Tacoma, Washington
Libby Project # L160505-7
Client Project # 0603-01-01

Analyses of Gasoline (NWTPH-Gx) & BTEX (EPA Method 8260C) in Soil

Sample Number	Date Analyzed	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Gasoline (mg/kg)	Surrogate Recovery (%)
Method Blank	5/9/16	nd	nd	nd	nd	nd	101
LCS	5/9/16	105%	103%				87
B1-12	5/9/16	nd	nd	4.67	5.46	1090	99
B1-18	5/9/16	nd	nd	nd	nd	6.9 J	81
B2-11	5/9/16	nd	nd	nd	nd	nd	100
B2-15	5/9/16	nd	nd	nd	nd	nd	102
B3-10	5/9/16	nd	nd	nd	nd	nd	74
B3-10 Dup	5/9/16	nd	nd	nd	nd	nd	79
B4-10	5/9/16	nd	nd	nd	nd	nd	80
B5-08	5/9/16	nd	nd	0.067	nd	nd	79
B5-11	5/9/16	0.039	0.18	0.24	1.60	14	103
B5-13	5/9/16	0.036	0.25	0.075	0.43	6.8 J	101
B5-13 MS	5/9/16	124%	114%				102
B5-13 MSD	5/9/16	125%	111%				80
Practical Quantitation Limit		0.02	0.10	0.05	0.15	10	

"J" Indicates analyte was positively indentified. The reported result is an estimate.
"nd" Indicates not detected at the listed detection limits.
"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Toluene-d8): 65% TO 135%

ANALYSES PERFORMED BY: Paul Burke

Appendix D

Boring Logs

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Project:	Focused Subsurface Investgation
Location:	7202 South Parck Avenue, Tacoma, Washington
Client:	Kuchenmeister

Boring ID: B1

Project Number: 0603-01-01

Date Start/Finish:	5/5/2016	**Drilling Method:**	Direct Push
Logged By:	Brian Dixon	**Auger ID/OD:**	--
Checked By:	Melissa Leone	**Borehole ID/OD:**	2 inches
Contractor:	Standard Environmental Probe	**Sampler:**	Brian Dixon
Operator:	Chris Ross	**Hammer Wt./Fall:**	--
Boring Location:	See boring location map	**Ground Elevation:**	--
Coordinates:	--	**Water Depth:**	--
Weather:	Sunny	**Boring Depth:**	19 feet

Unified Soil Classification System

NON-COHESIVE SOILS	GW	WELL-GRADED GRAVEL, FINE TO COARSE GRAVEL
	GP	POORLY-GRADED GRAVEL
	GM	SILTY GRAVEL
	GC	CLAYEY GRAVEL
	SW	WELL-GRADED SAND, FINE TO COARSE SAND
	SP	POORLY-GRADED SAND
	SM	SILTY SAND
	SC	CLAYEY SAND
COHESIVE SOILS	ML	SILT
	CL	CLAY
	OL	ORGANIC SILT, ORGANIC CLAY
	MH	SILT OF HIGH PLASTICITY, ELASTIC SILT
	CH	CLAY OF HIGH PLASTICITY, FAT CLAY
	OH	ORGANIC CLAY, ORGANIC SILT
	PT	PEAT

Depth (ft bgs)	Sample Number	Time	PID Reading	Remarks	Soil and Rock Description	Unified Classification	Graphical Representation
1				No odor	Brown, dense, fine grained, iron rich, sandy silt	ML	
2							
3							
4							
5	B1-5	7:10 AM					
6							
7				No odor	Gray, dense, fine grained, moist, silty sand	SM	
8							
9	B1-9	7:25 AM		No odor	Gray, dense, fine grained, moist, silty sand with trace gravel	SM	
10							
11							
12	B1-12	7:30 AM		Odor	Increased sand content		
13							
14							
15				Odor	Gray, dense, medium grained, silty sand with gravel	SM	
16							
17				No odor	Gray, fine grained, silty sand	SM	
18	B1-18	7:45 AM					
19				No odor	Gray, fine grained, sand with trace silt	SW	
20					Termination of boring. Backfilled with bentonite.		
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

Notes:

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Project:	Focused Subsurface Investgation
Location:	7202 South Parck Avenue, Tacoma, Washington
Client:	Kuchenmeister

Boring ID: B2

Project Number: 0603-01-01

Date Start/Finish:	5/5/2016	**Drilling Method:**	Direct Push
Logged By:	Brian Dixon	**Auger ID/OD:**	--
Checked By:	Melissa Leone	**Borehole ID/OD:**	2 inches
Contractor:	Standard Environmental Probe	**Sampler:**	Brian Dixon
Operator:	Chris Ross	**Hammer Wt./Fall:**	--
Boring Location:	See boring location map	**Ground Elevation:**	--
Coordinates:	--	**Water Depth:**	--
Weather:	Sunny	**Boring Depth:**	19.5 feet

Unified Soil Classification System

NON-COHESIVE SOILS	GW	WELL-GRADED GRAVEL, FINE TO COARSE GRAVEL
	GP	POORLY-GRADED GRAVEL
	GM	SILTY GRAVEL
	GC	CLAYEY GRAVEL
	SW	WELL-GRADED SAND, FINE TO COARSE SAND
	SP	POORLY-GRADED SAND
	SM	SILTY SAND
	SC	CLAYEY SAND
COHESIVE SOILS	ML	SILT
	CL	CLAY
	OL	ORGANIC SILT, ORGANIC CLAY
	MH	SILT OF HIGH PLASTICITY, ELASTIC SILT
	CH	CLAY OF HIGH PLASTICITY, FAT CLAY
	OH	ORGANIC CLAY, ORGANIC SILT
	PT	PEAT

Depth (ft bgs)	Sample Number	Time	PID Reading	Remarks	Soil and Rock Description	Unified Classification	Graphical Representation
1				No odor	Gray, gravelly sand, fill	SW	
2				No odor	Light brown, silty sand with iron deposits	SM	
3							
4							
5				No odor	Dark brown, fine to medium grained, silty sand with gravel	SM	
6							
7							
8							
9				No odor	Gray, medium grained, sand with gravel and trace silt	SW	
10							
11	B2-11	9:00 AM					
12					Increased silt content		
13							
14				No odor	Gray, medium grained, sand with gravel and silt	SW	
15	B2-15	9:10 AM					
16							
17				No odor	Grayish brown, silty sand with gravel	SM	
18							
19							
20							
21					Termination of boring. Backfilled with bentonite.		
22							
23							
24							
25							
26							
27							
28							
29							
30							

Notes:

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Project:	Focused Subsurface Investgation
Location:	7202 South Parck Avenue, Tacoma, Washington
Client:	Kuchenmeister

Boring ID: **B3**

Project Number: **0603-01-01**

Date Start/Finish:	5/5/2016	**Drilling Method:**	Direct Push
Logged By:	Brian Dixon	**Auger ID/OD:**	--
Checked By:	Melissa Leone	**Borehole ID/OD:**	2 inches
Contractor:	Standard Environmental Probe	**Sampler:**	Brian Dixon
Operator:	Chris Ross	**Hammer Wt./Fall:**	--
Boring Location:	See boring location map	**Ground Elevation:**	--
Coordinates:	--	**Water Depth:**	--
Weather:	Sunny	**Boring Depth:**	10.5 feet

Unified Soil Classification System

NON-COHESIVE SOILS	GW	WELL-GRADED GRAVEL, FINE TO COARSE GRAVEL
	GP	POORLY-GRADED GRAVEL
	GM	SILTY GRAVEL
	GC	CLAYEY GRAVEL
	SW	WELL-GRADED SAND, FINE TO COARSE SAND
	SP	POORLY-GRADED SAND
	SM	SILTY SAND
	SC	CLAYEY SAND
COHESIVE SOILS	ML	SILT
	CL	CLAY
	OL	ORGANIC SILT, ORGANIC CLAY
	MH	SILT OF HIGH PLASTICITY, ELASTIC SILT
	CH	CLAY OF HIGH PLASTICITY, FAT CLAY
	OH	ORGANIC CLAY, ORGANIC SILT
	PT	PEAT

Depth (ft bgs)	Sample Number	Time	PID Reading	Remarks	Soil and Rock Description	Unified Classification	Graphical Representation
1				No odor	Fill, loose, gravelly sand with wood debris and brick fragments	SW	
2							
3							
4							
5							
6							
7				Slight odor	Gray, fine to medium grained, silty sand	SM	
8							
9				Slight odor	Gray, dense, fine to medium grained, silty sand	SM	
10	B3-10	10:55 AM					
11							
12					Termination of boring. Backfilled with bentonite.		
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

Notes:

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Project:	Focused Subsurface Investgation
Location:	7202 South Parck Avenue, Tacoma, Washington
Client:	Kuchenmeister

Boring ID: **B4**

Project Number: **0603-01-01**

Date Start/Finish:	5/5/2016	**Drilling Method:**	Direct Push
Logged By:	Brian Dixon	**Auger ID/OD:**	--
Checked By:	Melissa Leone	**Borehole ID/OD:**	2 inches
Contractor:	Standard Environmental Probe	**Sampler:**	Brian Dixon
Operator:	Chris Ross	**Hammer Wt./Fall:**	--
Boring Location:	See boring location map	**Ground Elevation:**	--
Coordinates:	--	**Water Depth:**	--
Weather:	Sunny	**Boring Depth:**	11.5 feet

Unified Soil Classification System

NON-COHESIVE SOILS	GW	WELL-GRADED GRAVEL, FINE TO COARSE GRAVEL
	GP	POORLY-GRADED GRAVEL
	GM	SILTY GRAVEL
	GC	CLAYEY GRAVEL
	SW	WELL-GRADED SAND, FINE TO COARSE SAND
	SP	POORLY-GRADED SAND
	SM	SILTY SAND
	SC	CLAYEY SAND
COHESIVE SOILS	ML	SILT
	CL	CLAY
	OL	ORGANIC SILT, ORGANIC CLAY
	MH	SILT OF HIGH PLASTICITY, ELASTIC SILT
	CH	CLAY OF HIGH PLASTICITY, FAT CLAY
	OH	ORGANIC CLAY, ORGANIC SILT
	PT	PEAT

Depth (ft bgs)	Sample Number	Time	PID Reading	Remarks	Soil and Rock Description	Unified Classification	Graphical Representation
1				No odor	Brown, loose, fill, sand with gravel	SW	
2							
3							
4							
5				No odor	Brownish gray, silty sand with trace gravel	SM	
6							
7							
8							
9				No odor	Brownish gray, silty sand with trace gravel	SM	
10	B4-10	11:30 AM					
11							
12							
13					Termination of boring. Backfilled with bentonite.		
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

Notes:

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Project:	Focused Subsurface Investgation
Location:	7202 South Parck Avenue, Tacoma, Washington
Client:	Kuchenmeister

Boring ID: **B5**

Project Number: **0603-01-01**

Date Start/Finish:	5/5/2016	**Drilling Method:**	Direct Push
Logged By:	Brian Dixon	**Auger ID/OD:**	--
Checked By:	Melissa Leone	**Borehole ID/OD:**	2 inches
Contractor:	Standard Environmental Probe	**Sampler:**	Brian Dixon
Operator:	Chris Ross	**Hammer Wt./Fall:**	--
Boring Location:	See boring location map	**Ground Elevation:**	--
Coordinates:	--	**Water Depth:**	--
Weather:	Sunny	**Boring Depth:**	13.5 feet

Unified Soil Classification System

NON-COHESIVE SOILS	GW	WELL-GRADED GRAVEL, FINE TO COARSE GRAVEL
	GP	POORLY-GRADED GRAVEL
	GM	SILTY GRAVEL
	GC	CLAYEY GRAVEL
	SW	WELL-GRADED SAND, FINE TO COARSE SAND
	SP	POORLY-GRADED SAND
	SM	SILTY SAND
	SC	CLAYEY SAND
COHESIVE SOILS	ML	SILT
	CL	CLAY
	OL	ORGANIC SILT, ORGANIC CLAY
	MH	SILT OF HIGH PLASTICITY, ELASTIC SILT
	CH	CLAY OF HIGH PLASTICITY, FAT CLAY
	OH	ORGANIC CLAY, ORGANIC SILT
	PT	PEAT

Depth (ft bgs)	Sample Number	Time	PID Reading	Remarks	Soil and Rock Description	Unified Classification	Graphical Representation
1				No odor	Dark gray to brown, fill, silty sand with gravel	SM	
2							
3							
4							
5				No odor	Gray, fine grained, sandy silt	ML	
6							
7				Odor	Gray, medium grained, sand with trace silt	SW	
8	B5-8	11:45 AM					
9							
10				Odor	Gray, silty sand with gravel	SM	
11	B5-11	11:50 AM		Strong odor			
12							
13	B5-13	12:05 PM		Slight odor	Gray, dense, silty sand with trace gravel	SM	
14							
15					Termination of boring. Backfilled with bentonite.		
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
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29							
30							

Notes:

Appendix E

Terrestrial Ecological Evaluation

Voluntary Cleanup Program

Washington State Department of Ecology
Toxics Cleanup Program

TERRESTRIAL ECOLOGICAL EVALUATION FORM

Under the Model Toxics Control Act (MTCA), a terrestrial ecological evaluation is necessary if hazardous substances are released into the soils at a Site. In the event of such a release, you must take one of the following three actions as part of your investigation and cleanup of the Site:

1. Document an exclusion from further evaluation using the criteria in WAC 173-340-7491.
2. Conduct a simplified evaluation as set forth in WAC 173-340-7492.
3. Conduct a site-specific evaluation as set forth in WAC 173-340-7493.

When requesting a written opinion under the Voluntary Cleanup Program (VCP), you must complete this form and submit it to the Department of Ecology (Ecology). The form documents the type and results of your evaluation.

Completion of this form is not sufficient to document your evaluation. You still need to document your analysis and the basis for your conclusion in your cleanup plan or report.

If you have questions about how to conduct a terrestrial ecological evaluation, please contact the Ecology site manager assigned to your Site. For additional guidance, please refer to www.ecy.wa.gov/programs/tcp/policies/terrestrial/TEEHome.htm.

Step 1: IDENTIFY HAZARDOUS WASTE SITE	
Please identify below the hazardous waste site for which you are documenting an evaluation.	
Facility/Site Name: 7202 South Park Avenue	
Facility/Site Address: 7207 South Park Avenue	
Facility/Site No: NA	VCP Project No.: NA

Step 2: IDENTIFY EVALUATOR			
Please identify below the person who conducted the evaluation and their contact information.			
Name: Brian Dixon		Title: Vice President	
Organization: EcoCon Inc.			
Mailing address: PO Box 153			
City: Fox Island		State: WA	Zip code: 98333
Phone: 253-238-9270	Fax:	E-mail: bdixon@ecocon.us	

Step 3: DOCUMENT EVALUATION TYPE AND RESULTS

A. Exclusion from further evaluation.

1. Does the Site qualify for an exclusion from further evaluation?

☒ Yes *If you answered **"YES,"** then answer **Question 2**.*

☐ No or Unknown *If you answered **"NO" or "UKNOWN,"** then skip to **Step 3B** of this form.*

2. What is the basis for the exclusion? *Check all that apply. Then skip to **Step 4** of this form.*

Point of Compliance: WAC 173-340-7491(1)(a)

☐ All soil contamination is, or will be,* at least 15 feet below the surface.

☐ All soil contamination is, or will be,* at least 6 feet below the surface (or alternative depth if approved by Ecology), and institutional controls are used to manage remaining contamination.

Barriers to Exposure: WAC 173-340-7491(1)(b)

☒ All contaminated soil, is or will be,* covered by physical barriers (such as buildings or paved roads) that prevent exposure to plants and wildlife, and institutional controls are used to manage remaining contamination.

Undeveloped Land: WAC 173-340-7491(1)(c)

☐ There is less than 0.25 acres of contiguous[#] undeveloped[±] land on or within 500 feet of any area of the Site and any of the following chemicals is present: chlorinated dioxins or furans, PCB mixtures, DDT, DDE, DDD, aldrin, chlordane, dieldrin, endosulfan, endrin, heptachlor, heptachlor epoxide, benzene hexachloride, toxaphene, hexachlorobenzene, pentachlorophenol, or pentachlorobenzene.

☒ For sites not containing any of the chemicals mentioned above, there is less than 1.5 acres of contiguous[#] undeveloped[±] land on or within 500 feet of any area of the Site.

Background Concentrations: WAC 173-340-7491(1)(d)

☐ Concentrations of hazardous substances in soil do not exceed natural background levels as described in WAC 173-340-200 and 173-340-709.

* An exclusion based on future land use must have a completion date for future development that is acceptable to Ecology.

[±] "Undeveloped land" is land that is not covered by building, roads, paved areas, or other barriers that would prevent wildlife from feeding on plants, earthworms, insects, or other food in or on the soil.

[#] "Contiguous" undeveloped land is an area of undeveloped land that is not divided into smaller areas of highways, extensive paving, or similar structures that are likely to reduce the potential use of the overall area by wildlife.

B. Simplified evaluation.

1. Does the Site qualify for a simplified evaluation?

☐ Yes *If you answered **"YES,"** then answer **Question 2** below.*

☐ No or Unknown *If you answered **"NO"** or **"UNKNOWN,"** then skip to **Step 3C** of this form.*

2. Did you conduct a simplified evaluation?

☐ Yes *If you answered **"YES,"** then answer **Question 3** below.*

☐ No *If you answered **"NO,"** then skip to **Step 3C** of this form.*

3. Was further evaluation necessary?

☐ Yes *If you answered **"YES,"** then answer **Question 4** below.*

☐ No *If you answered **"NO,"** then answer **Question 5** below.*

4. If further evaluation was necessary, what did you do?

☐ Used the concentrations listed in Table 749-2 as cleanup levels. *If so, then skip to **Step 4** of this form.*

☐ Conducted a site-specific evaluation. *If so, then skip to **Step 3C** of this form.*

5. If no further evaluation was necessary, what was the reason? *Check all that apply. Then skip to **Step 4** of this form.*

Exposure Analysis: WAC 173-340-7492(2)(a)

☐ Area of soil contamination at the Site is not more than 350 square feet.

☐ Current or planned land use makes wildlife exposure unlikely. Used Table 749-1.

Pathway Analysis: WAC 173-340-7492(2)(b)

☐ No potential exposure pathways from soil contamination to ecological receptors.

Contaminant Analysis: WAC 173-340-7492(2)(c)

☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 15 feet at concentrations that exceed the values listed in Table 749-2.

☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 6 feet (or alternative depth if approved by Ecology) at concentrations that exceed the values listed in Table 749-2, and institutional controls are used to manage remaining contamination.

☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 15 feet at concentrations likely to be toxic or have the potential to bioaccumulate as determined using Ecology-approved bioassays.

☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 6 feet (or alternative depth if approved by Ecology) at concentrations likely to be toxic or have the potential to bioaccumulate as determined using Ecology-approved bioassays, and institutional controls are used to manage remaining contamination.

C. Site-specific evaluation. A site-specific evaluation process consists of two parts: (1) formulating the problem, and (2) selecting the methods for addressing the identified problem. Both steps require consultation with and approval by Ecology. *See* WAC 173-340-7493(1)(c).

1. Was there a problem? *See* WAC 173-340-7493(2).

☐ Yes *If you answered **"YES,"** then answer **Question 2** below.*

☐ No *If you answered **"NO,"** then identify the reason here and then skip to **Question 5** below:*

- ☐ No issues were identified during the problem formulation step.
- ☐ While issues were identified, those issues were addressed by the cleanup actions for protecting human health.

2. What did you do to resolve the problem? *See* WAC 173-340-7493(3).

☐ Used the concentrations listed in Table 749-3 as cleanup levels. *If so, then skip to **Question 5** below.*

☐ Used one or more of the methods listed in WAC 173-340-7493(3) to evaluate and address the identified problem. *If so, then answer **Questions 3 and 4** below.*

3. If you conducted further site-specific evaluations, what methods did you use?
Check all that apply. See WAC 173-340-7493(3).

- ☐ Literature surveys.
- ☐ Soil bioassays.
- ☐ Wildlife exposure model.
- ☐ Biomarkers.
- ☐ Site-specific field studies.
- ☐ Weight of evidence.
- ☐ Other methods approved by Ecology. If so, please specify:

4. What was the result of those evaluations?

- ☐ Confirmed there was no problem.
- ☐ Confirmed there was a problem and established site-specific cleanup levels.

5. Have you already obtained Ecology's approval of both your problem formulation and problem resolution steps?

☐ Yes If so, please identify the Ecology staff who approved those steps:

☐ No

Step 4: SUBMITTAL

Please mail your completed form to the Ecology site manager assigned to your Site. If a site manager has not yet been assigned, please mail your completed form to the Ecology regional office for the County in which your Site is located.

Northwest Region: Attn: VCP Coordinator 3190 160th Ave. SE Bellevue, WA 98008-5452	**Central Region:** Attn: VCP Coordinator 15 W. Yakima Ave., Suite 200 Yakima, WA 98902
Southwest Region: Attn: VCP Coordinator P.O. Box 47775 Olympia, WA 98504-7775	**Eastern Region:** Attn: VCP Coordinator N. 4601 Monroe Spokane WA 99205-1295