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January 17, 2019

Adapt Project No. WA18-21470-PH2

**Skyway Solutions**
P.O. Box 78580
Seattle, Washington 98178

Attention: Mr. Michael Majeed

Subject: Limited Phase II Screen
Skyway Commercial Property
12600 Renton Avenue South
Seattle, Washington 98178

Dear Mr. Majeed,

Adapt Engineering (Adapt) is pleased to provide you with the results of our Limited Phase II Screen for the above-referenced property. This report is provided for the Skyway Solutions and their agents. If this report is to be reproduced and/or transmitted to a third party, it must be reproduced and/or transmitted in its entirety. Any exceptions will be made only with the written permission of Adapt. This work was authorized via Adapt Proposal P-5075, dated December 7, 2018 through email correspondence from Michael Majeed on December 14, 2018.

Adapt appreciates the opportunity to be of service to you on this project. Should you have any questions concerning this report, or if we can assist you in any way, please feel free to contact us at (206) 654-7045.

Respectfully Submitted,

**Adapt Engineering**

John T. Bhend, L.G.
Senior Project Manager

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## 1.0 INTRODUCTION

This Limited Phase II Screen consists of soil, sub-slab soil gas, and groundwater sampling to assess potential impacts to the subject site (Site) from contaminant trespass associated with possible contaminant releases on the northwest-adjoining and south-adjoining properties.

## 2.0 PROPERTY DESCRIPTION AND BACKGROUND

The Site is located at 12600 Renton Avenue South in Renton, Washington (see Figure 1) and resides on King County tax parcel number 023100-0011 (see Figure 2). The Site is currently occupied by Holy Temple Evangelistic Center in the western tenant space and L.T. Trading in the eastern tenant space. The Site is also occupied by the Nevzat's Espresso drive-thru stand.

### 2.1 Prior Environmental Assessments

Phase I Environmental Site Assessment

Adapt completed a Phase I Environmental Site Assessment (ESA) report, dated December 5, 2018, for the Site (Adapt project number WA18-21470-PH1). The report's Findings section stated, in part, the following:

> *The Phase I ESA has revealed the following evidence of recognized environmental conditions at the Site:*
>
> - *The documented presence of chlorinated solvent impacts to soil along the Site's northern property boundary represent a significant risk to the Site with respect to MTCA and CERCLA liabilities and with respect to potential vapor intrusion impacts.*
>
> - *The presence of a former dry cleaner in the eastern side of the building located on the western south-adjoining property, with possible undocumented chlorinated solvent release(s), represents a significant risk to the Site with respect to MTCA and CERCLA liabilities and with respect to potential vapor intrusion impacts.*

The report's Conclusions section stated, in part, the following:

> *Based on the findings discussed above, two recognized environmental conditions were documented during the completion of this Phase I ESA. It is Adapt's professional opinion that it may be prudent to complete a subsurface environmental assessment at the Site to assess for the possible chlorinated solvent impacts to sub-slab soil gas, soil, and groundwater from the documented chlorinated solvent impacts associated with the former dry cleaner facility located on the northwest-adjoining property and from possible undocumented chlorinated solvent impacts associated with the former dry cleaner facility located on the western south-adjoining property.*

## 2.2 Scope of Work and Authorization

The purpose of the proposed Limited Phase II Screen is the following:

- Assess for possible contaminant trespass of a documented chlorinated solvent release to soil and groundwater at the northwest-adjoining property located at 12548 Renton Ave S.
- Assess for potential vapor intrusion impacts to the Site building from a documented chlorinated solvent release to soil and groundwater at the northwest-adjoining property addressed 12548 Renton Ave S.
- Assess potential vapor intrusion impacts to the Site building from possible undocumented chlorinated solvent releases(s) to soil and groundwater at the western south-adjoining property addressed 12620 Renton Ave S.

It should be understood that the proposed scope of work for this Limited Phase II Screen may not include the work scope required to fully delineate the exact lateral and vertical extent in soil and groundwater of possible contamination at the Site. In the event significant contamination is observed, additional subsurface assessment work may be needed to fully delineate the exact lateral and vertical extent of contamination.

This work was authorized via Adapt Proposal P-5075, dated December 7, 2018 through email correspondence from Michael Majeed on December 14, 2018.

# 3.0 ACTIVITIES

## 3.1 Drilling and Soil Sampling

On December 27, 2018, two (2) borings (SP-1 and SP-2) were completed through the use of direct push drilling methods to depths varying from approximately 12 to 17 feet below ground surface (bgs). Boring SP-1 was completed using a truck-mounted direct push drill rig owned and boring SP-2 was completed using a 90-pound jackhammer to advance the drilling rods and samplers, both operated by Standard Environmental Probe, under subcontract to our firm. These borings were supervised, sampled, and logged by an Adapt Licensed Geologist. Soil samples were collected continuously from the site explorations through the use of a Macro-Core® sampler, which consists of a stainless steel probe rod with an inner clear PVC liner in which the soil sample is collected. All sampling equipment was thoroughly cleaned prior to and after each sampling episode.

While soil samples were collected continuously from the site explorations, samples were segregated into discrete samples varying from 1.0 to 4.0 foot intervals for further field evaluation. Recovered discrete soil samples were collected from each exploration for description, screening, observation for field indications (visual and olfactory) of impact and quantitative laboratory analyses. Discrete soil samples for volatile compounds were collected in compliance with EPA Method 5035A. Samples were collected using a Power Stop Handle and Easy Draw Syringe. The syringe was pushed into the collected soil core to obtain an approximately 5-gram soil sample. The soil sample was then placed in an empty 40 ml glass vial with a Teflon® lined lid with septum. All collected samples were immediately stored at 4 degrees C and transported to Friedman & Bruya's laboratory in Seattle, Washington for analytical testing under Adapt's chain-of-custody procedures.

Figure 3 shows the approximate locations of the borings, property boundaries, and pertinent property features. Subsurface exploration logs and soil sampling procedures are described in Appendix B.

### 3.2 Groundwater Sampling

Groundwater samples were collected from the completed direct push borings using 0.75-inch diameter PVC screen installed at depths that intersected the observed upper groundwater surface. Samples were then extracted with a peristaltic pump and pumped until the water became relatively clear and free of sediment. Samples for volatile analyses were collected in laboratory prepared 40 mL glass containers (HCL preserved) with polyethylene closures and septums. The groundwater samples were stored at 4 degrees C, and transported as soon as possible to Friedman & Bruya's laboratory in Seattle, Washington under Adapt's chain-of-custody procedures.

### 3.3 Sub-Slab Soil Gas Sampling

On December 27, 2018, one sub-slab soil gas probe was advanced through the use of an electric powered roto-hammer to advance a 1½-inch diameter drill bit through the concrete surface cover. The proposed scope of work consisted of the completion of two sub-slab soil gas probes, one in the basement near the northern portion of the Site building and one near the southwestern portion of the Site building. However, the presence of groundwater directly beneath the concrete basement floor prevented the collection of a sub-slab soil gas sample at this location. The sub-slab soil gas probe was located in the southwestern portion of the Site building (Figure 3). The sub-slab soil gas probe was completed following the Environmental Protection Agency (EPA) recommendations outlined in the Technical Guidance for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air (2015).

A stainless steel AMS gas vapor tip, with Teflon® tubing attached, was driven approximately 2 inches into the soil beneath the bottom of the concrete slab. Hydrated powdered bentonite was used to seal the open space between the Teflon® tubing and the perimeter of the concrete drilled hole. As a leak-check, the sealed hole and sample tubing were then shrouded in an enclosure that was maintained with a concentration that exceeded 30% helium, as measured by a katharometer. Current guidelines in California indicate sample integrity is maintained if less than 5% (<5%) of the shrouded concentrations of helium is found in the analyzed sample while guidelines in other States indicate <10% is allowable. The soil gas sampling canister and purge canister had been evacuated by the laboratory to an initial vacuum reading of 30 inches of mercury (inHg). These canisters are evacuated 1 liter (L) Summa® stainless-steel canisters, obtained from a local laboratory (Friedman & Bruya) and setup with a sampling manifold according to the methods outlined in Appendix B.

A shut-in test was performed according to the procedure outlined in Appendix B. After the shut-in test, the sample lines were purged for a duration of approximately 30 seconds, respectively, using the additional Summa® canister (purge canister). After the lines were purged, the valve on the purge canister, and the ¼-turn valve leading to the purge canister, were completely closed and the sample canister valve was completely opened. The canister was calibrated to collect a continuous soil gas sample over an approximately 5 minute time period. Adapt sampled the sub-slab soil gas over a period of approximately 5 minutes, with a final canister vacuum readings of approximately 7 inHg. After completion of the sampling interval, the Summa® canister was transported to Friedman & Bruya in Seattle under Adapt's Chain-of Custody protocols. Following

sample collection, the sub-slab soil gas probe was removed and the concrete surface was repaired with a quick-setting concrete patch material.

### 3.4 Analytical Testing

The soil and groundwater samples collected from the completed direct push borings were analyzed for chlorinated volatile organic compounds (cVOCs) by EPA Method 8260C.

Analytical test results are summarized in Tables 1 through 3 and the laboratory analytical data reports are included in Appendix D.

## 4.0 RESULTS

### 4.1 Subsurface Conditions - Soil

The surface cover consisted of asphalt at boring location SP-1 and concrete at boring location SP-2. The completed boring for SP-1 generally disclosed moist gravelly sand directly beneath the asphalt surface cover to a depth of approximately 1 foot bgs; moist, brown to gray, silty / clayey sand with large gravel from approximately 1 to 4 feet bgs; moist light brown fine sand with trace gravel from approximately 4 to 8 feet bgs; dry compact light brown fine sand with trace silt and gravel from approximately 8 to 12 feet bgs; and moist compact, gray to dark gray, fine sand with silt and trace gravel from approximately 12 to the maximum depth explored of approximately 17 feet bgs, which became wet at a depth of approximately 16 feet bgs. The completed boring for SP-2 started at a depth of approximately 8 feet bgs and disclosed wet, light brown, silty sand with trace gravel from a depth of approximately 8 to 12 feet bgs.

All recovered soil samples were field screened using a MiniRae Photoionization Detector (PID). Soil samples collected from boring SP-2 exhibited possible chlorinated solvent odors with slightly elevated PID readings varying from 2.6 to 8.1 parts-per-million (ppm). Soil samples collected from boring SP-1 did not exhibit obvious signs of contaminant impacts such as stains or odors and measurable PID readings were relatively low at levels varying between 0.3 to 1.3 ppm.

### 4.2 Subsurface Conditions - Groundwater

Groundwater levels were measured in borings SP-1 and SP-2 at depths ranging from approximately 8 feet to 15 feet bgs at the time of drilling.

While the measured groundwater levels were not collected from monitoring wells with surveyed well top elevations to aid in assessing the groundwater flow direction, based on the observed surface topography in the Site vicinity, Adapt has inferred that the predominant groundwater flow direction is likely toward the southwest.

### 4.3 Analytical Results

The soil and groundwater samples collected from boring SP-1 and SP-2 were analyzed for cVOCs. The sub slab soil gas sample collected from probe SG-1 was analyzed for cVOCs.

### 4.3.1 Soil

Tetrachloroethene (PCE) was detected in soil sample SP-2:10-12' at a concentration of 1.7 ppm, which is above the Ecology Model Toxics Control Act (MTCA) Method A Soil Cleanup Level (CUL) for Unrestricted Land Uses of 0.05 ppm. No other cVOC analytes were detected at concentrations above the laboratory reporting limits in the submitted soil samples collected from borings SP-1 and SP-2.

Soil analytical test results are summarized in Table 1. The analytical laboratory reports are included in Appendix C.

### 4.3.2 Groundwater

PCE was detected in the groundwater sample collected from boring SP-2 at a concentration of 770 parts-per-billion (ppb), which is above the Ecology MTCA Method A Groundwater CUL of 5 ppb. Trichloroethene (TCE) was detected in the groundwater sample collected from boring SP-2 at a concentration of 150 ppb, which is above the Ecology MTCA Method A Groundwater CUL of 5 ppb. Cis-1,2-dichloroethene (DCE) was detected in the groundwater sample collected from boring SP-2 at a concentration of 550 ppb, which is above the Ecology MTCA Method B Non-Carcinogen Standard Formula Value of 16 ppb. Vinyl chloride was detected in the groundwater sample collected from boring SP-2 at a concentration of 1,900 ppb, which is above the Ecology MTCA Method A Groundwater CUL of 0.2 ppb. 1,10dichloroethene and trans-1,2-dichloroethene were also detected in the groundwater sample collected from boring SP-2, but the detected concentrations were below their respective Ecology MTCA Method B Non-Carcinogen Standard Formula Values.

No cVOCs were detected at concentrations above the laboratory reporting limits in the submitted groundwater sample collected from boring SP-1.

Groundwater analytical test results are summarized in Table 2. The analytical laboratory reports are included in Appendix C.

### 4.3.3 Sub Slab Soil Gas

<u>VOCs</u>
TCE was detected in sample SG-1 at concentration of 2.1 micrograms per cubic meter ($\mu g/m^3$), which is below the Ecology MTCA Method B Cancer 2015 Sub-Slab Soil Gas Screening Level of 12.3 $\mu g/m^3$.

As previously mentioned in Section 3.3, the proposed scope of work consisted of the completion of two sub-slab soil gas probes, one in the basement near the northern portion of the Site building and one near the southwestern portion of the Site building. However, the presence of groundwater directly beneath the concrete basement floor prevented the collection of a sub-slab soil gas sample at this location. The analytical testing results for the groundwater sample collected from boring SP-2, collected in the basement near the northern portion of the Site building, indicated that PCE, TCE, and vinyl chloride were detected at concentrations above their respective Ecology MTCA Method B Cancer 2015 Groundwater Screening Levels.

Sub slab soil gas analytical test results are summarized in Table 3, and the analytical laboratory report is included in Appendix B.

## 5.0 CONCLUSIONS

The purpose of the proposed Limited Phase II Screen is to assess for the following:

- Assess for possible contaminant trespass of a documented chlorinated solvent release to soil and groundwater at the northwest-adjoining property located at 12548 Renton Ave S.
- Assess for potential vapor intrusion impacts to the Site building from a documented chlorinated solvent release to soil and groundwater at the northwest-adjoining property addressed 12548 Renton Ave S.
- Assess potential vapor intrusion impacts to the Site building from possible undocumented chlorinated solvent releases(s) to soil and groundwater at the western south-adjoining property addressed 12620 Renton Ave S.

### 5.1 Soil

Based on the soil testing results, Adapt did not document obvious indications of a significant chlorinated solvent release to unsaturated soils in the areas assessed. The PCE detection in the saturated soil sample collected from boring SP-2 appears to be more indicate of impacts to groundwater, based on the groundwater sampling results at this location.

### 5.2 Groundwater

Based on the groundwater testing results, Adapt documented a significant chlorinated solvent release to groundwater at the location of boring SP-2. The detected contaminants are likely associated with contaminant trespass from the documented release on the northwest-adjoining property (i.e., Boathouse Inc Renton Skyway / Kens Skyway Cleaners facility). The lateral extent of the chlorinated solvent impacts to groundwater on the Site were not documented by the completed scope of work associated with this Limited Phase II Screen.

While these sampling results appear to indicate that a contaminant release has impacted groundwater beneath the Site at the location of boring SP-2, it should be noted that the groundwater samples collected from the temporary well points placed within open borings should only be considered to be a preliminary screening of contaminant levels as groundwater samples collected from open borings generally have higher reported contaminant concentrations due to increased turbidity levels of the sample[1]. It should also be noted that Ecology considers groundwater sampling results from open borings to be preliminary and will generally only use groundwater data for samples collected from monitoring wells to assess compliance with groundwater cleanup levels.

### 5.3 Sub Slab Soil Gas

Based on the completed groundwater sampling results from boring SP-2, there appears to be a significant vapor intrusion impact from the documented chlorinated solvent release on the northwest-adjoining property as the detected TCE, PCE, and vinyl chloride concentrations were above their 2015 Groundwater Screening Levels.

[1] Higher turbidity results from additional suspended sediment present in samples collected from open borings tends to increase the detected contaminant levels as the laboratory instruments detect the contaminants that are adsorbed to the soil particles in addition to the contaminants dissolved in the groundwater.

Based on the sub-slab soil gas testing results, Adapt documented a low level vapor intrusion impact (i.e., detectable concentration of TCE) from a possible chlorinated solvent release associated with the historic dry cleaner on the western south-adjoining property. However, the detected TCE concentrations were below the Ecology MTCA Method B Cancer 2015 Sub-Slab Soil Gas Screening Level of 12.3 $\mu g/m^3$.

## 6.0 RECOMMENDATIONS

Adapt has been informed by Skyway Solutions that the proposed future redevelopment plans for the Site include demolition of the existing onsite buildings. If the proposed redevelopment plans include the excavation and removal of soil within the area surrounding boring SP-2 where chlorinated solvents impacts were documented, additional costs associated with assessment, segregation, and offsite disposal of any impacted soils at a properly licensed facility would likely be incurred. It would be prudent to consider screening, segregating and monitoring soils during mass excavation of the Site; temporarily stockpile the potentially affected soils on-site; sample the temporary stockpile for potential contaminants (e.g., chlorinated solvents) to characterize the soils for an acceptable treatment and/or disposal facility; and collect confirmatory samples from the excavation limits in areas where potentially impacted soils were encountered to document final post-excavation site conditions. Also, if the footprint of any new buildings covers the area surrounding the location of boring SP-2 where chlorinated solvent impacts were documented, additional vapor intrusion mitigation practices would likely need to be implemented at an additional cost.

It is Adapt's professional opinion that it may be prudent to obtain the advice of a qualified environmental attorney regarding questions of law pertaining to establishment of a responsible part for the contamination documented above MTCA Method A CULs at the Site that originate from the northwest-adjoining property (i.e., Boathouse Inc Renton Skyway / Kens Skyway Cleaners facility). If legal actions are undertaken to establish a responsible party for the documented groundwater contamination at the Site, additional sampling and testing work, including the installation and sampling of monitoring wells, may be necessary to provide additional data to more definitively document the inferred groundwater flow direction and source of the documented on-site groundwater contamination. It is also Adapt's opinion that it may be prudent to obtain the advice of a qualified environmental attorney regarding questions of law pertaining to Washington State reporting requirements for the groundwater contaminant impacts revealed by the present Limited Phase II Screen.

## 7.0 LIMITATIONS

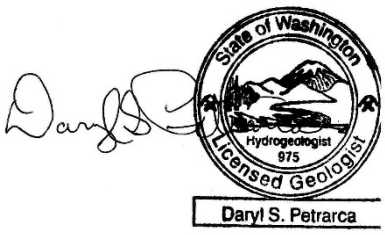
Information contained in this report is based upon subsurface characterization, field observations, and the laboratory analyses completed for this study. Conclusions presented are professional opinions based upon our interpretation of the analytical laboratory test results, as well as our experience and observations during the field activities. The location and depth of the exploration, as well as the analytical scope were completed within the Site and proposal constraints. Adapt's observations and the analytical data are limited to the vicinity of the test location and do not necessarily reflect conditions across the entire Site. No other warranty, express or implied is made. In the event that additional information regarding either the Site or surrounding properties becomes known, or changes to existing conditions occur, the conclusions in this report should be reviewed, and if necessary, revised to reflect the updated information. Project specific limitations are presented in the appropriate sections of this report.

This report has been prepared for the exclusive use of Skyway Solutions and their agents for specific application to the Site. Use or reliance upon this report by a third is at their own risk. Adapt does not make any representation or warranty, express or implied, to such other parties as to the accuracy or completeness of this report or the suitability of its use by such other parties for any purpose whatever, known or unknown, to Adapt.

Adapt appreciates the opportunity to be of service to you on this project. Should you have any questions concerning this report, or if we can assist you in any way, please contact us at (206) 654-7045.

**Adapt Engineering**


John T. Bhend, L. G.
Senior Project Manager




Daryl S. Petrarca, L.H.G.
Senior Reviewer

# APPENDIX A

# FIGURES AND TABLES

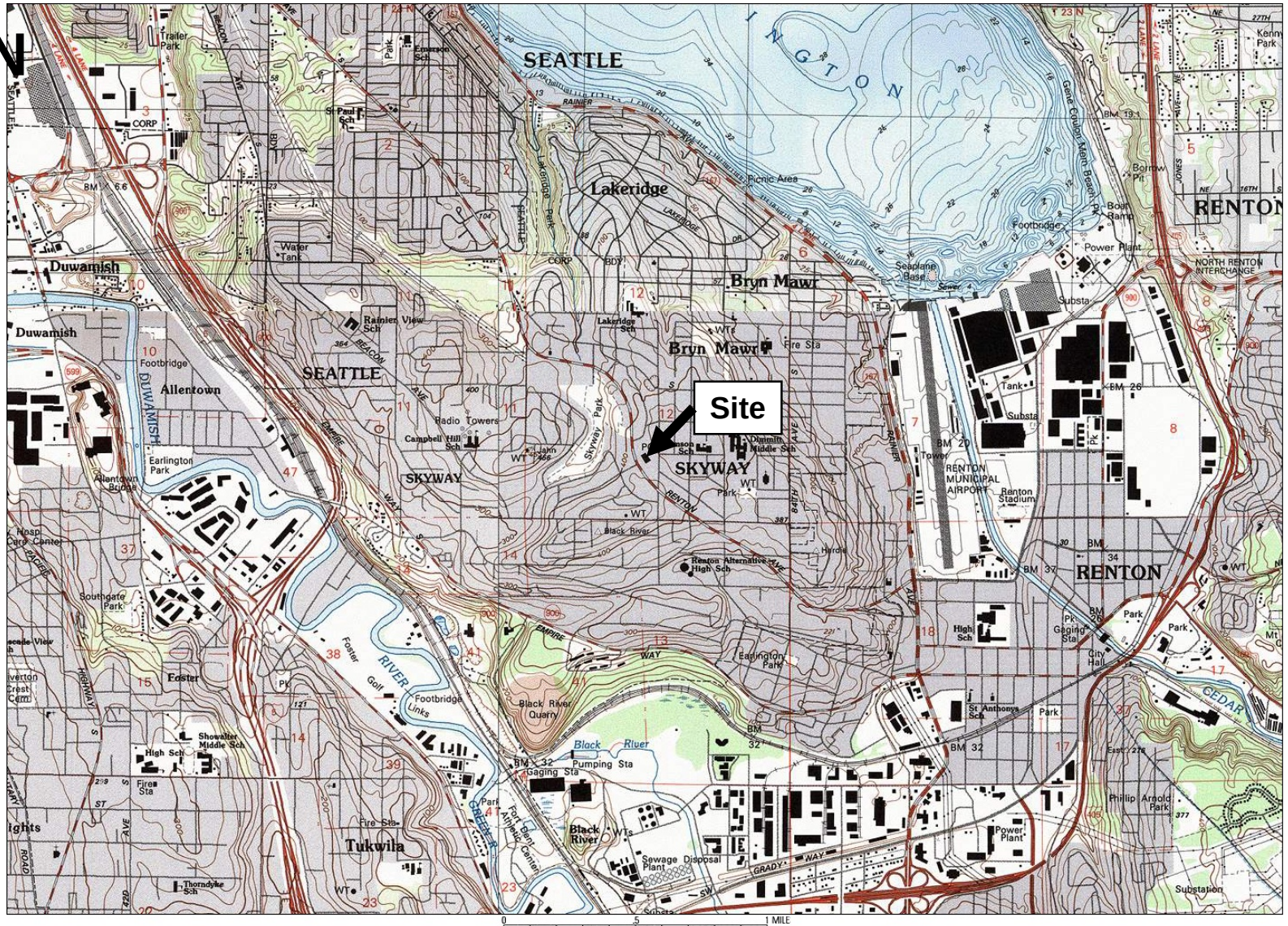



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**FIGURE 1 – Location/Topographic Map**
**Location:** Skyway Commercial Property
12600 Renton Avenue South
Seattle, WA 98178
**Client:** Skyway Solutions
**Date:** January 17, 2019 **Job #:** WA18-21470-PH2

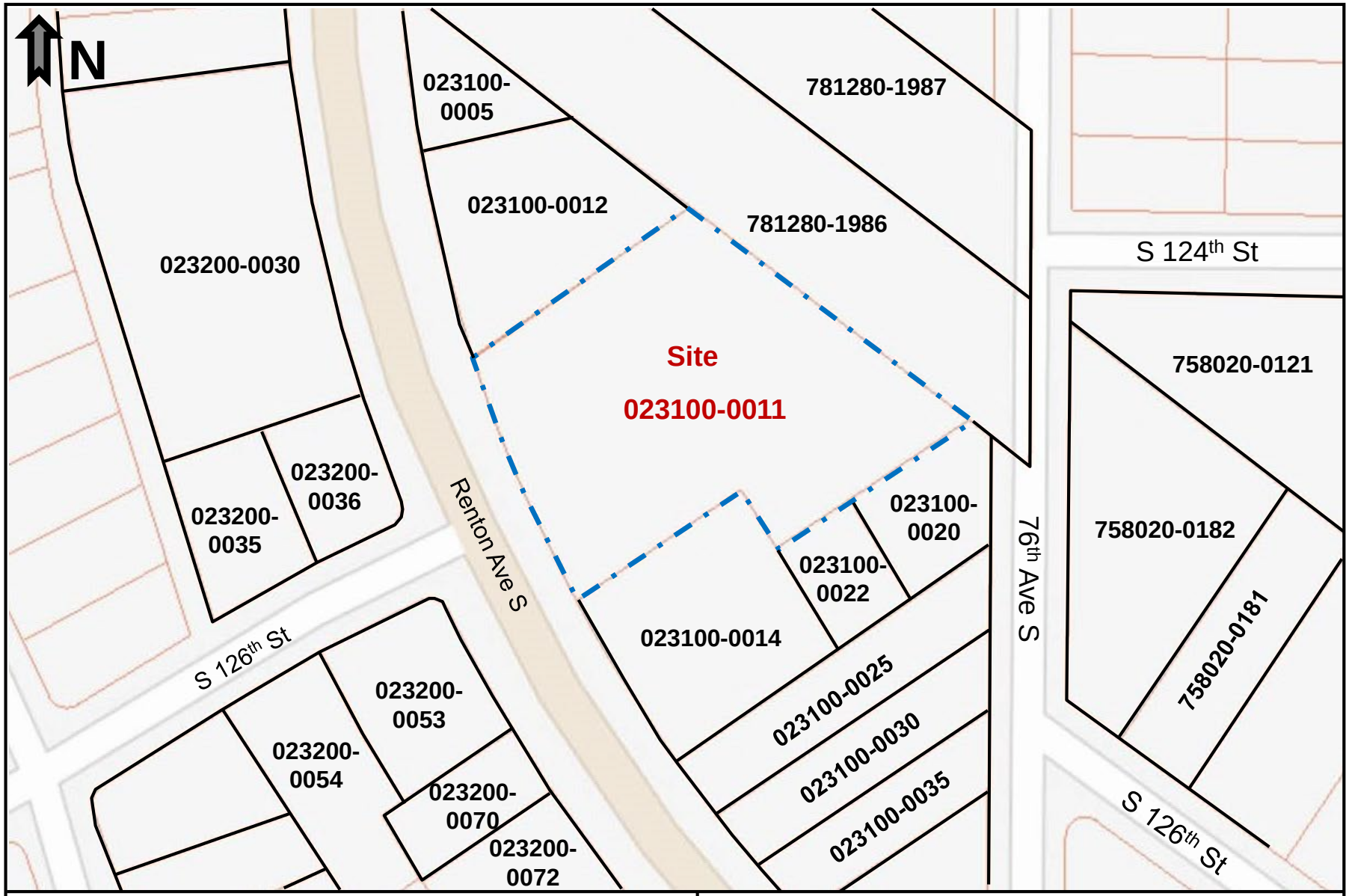


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**FIGURE 2 – Parcel Map / 2017 Aerial**
**Location:** Skyway Commercial Property
12600 Renton Avenue South
Seattle, WA 98178
**Client:** Skyway Solutions
**Date:** January 17, 2019 **Job #:** WA18-21470-PH2

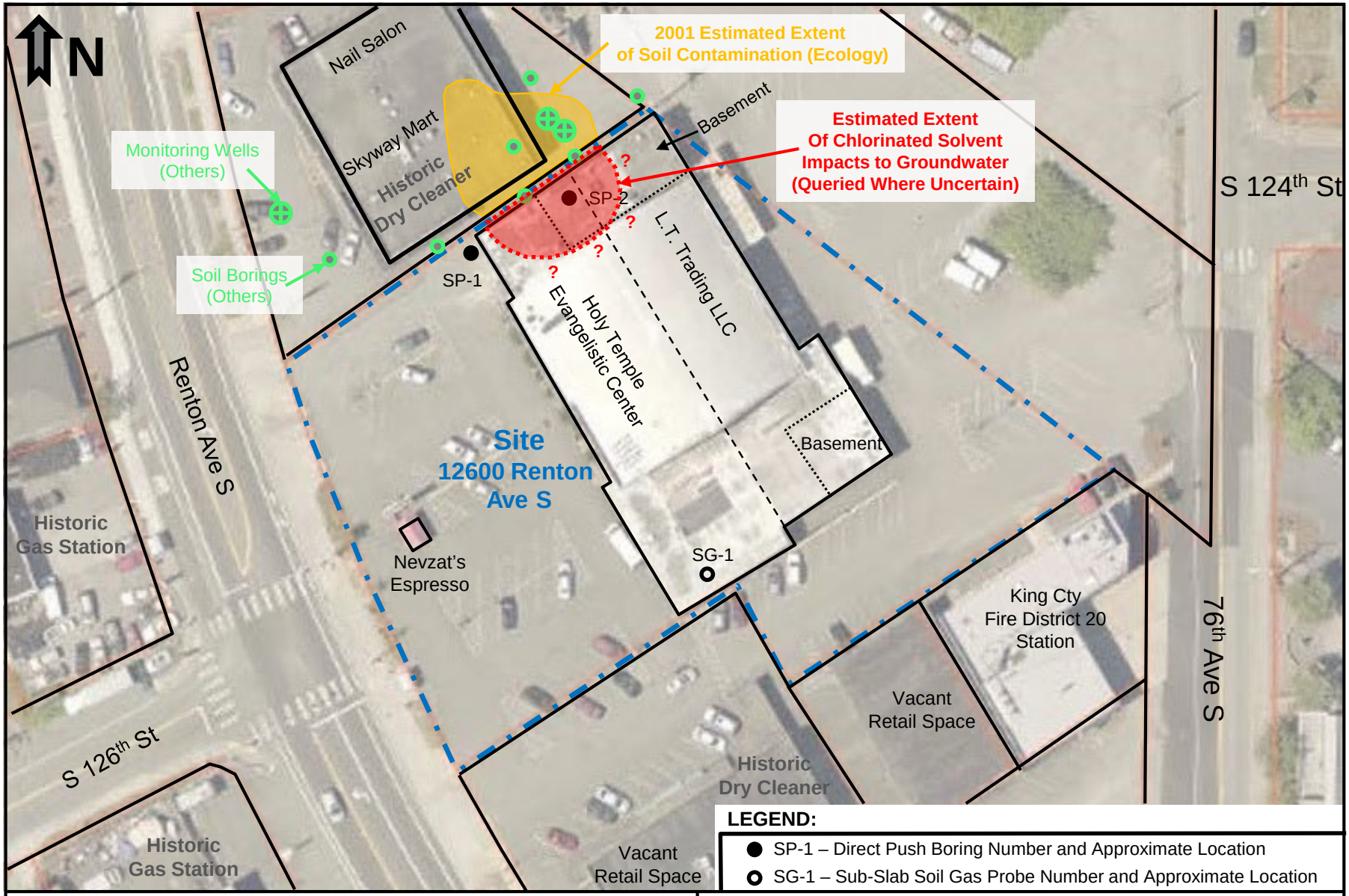


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**FIGURE 3 –Exploration Plan / 2017 Aerial**
**Location:** Skyway Commercial Property
12600 Renton Avenue South
Seattle, WA 98178
**Client:** Skyway Solutions
**Date:** January 17, 2019 **Job #:** WA18-21470-PH2

**Table 1 - Summary of Soil Analytical Results**

| Sample ID | SP-1 | SP-2 | MTCA Method A Cleanup Level |
|---|---|---|---|
| Depth | 16-17 | 10-12 | |
| PID (ppm) | 1.1 | 8.1 | NV |
| Vinyl Chloride | ND(<0.05) | ND(<0.05) | 240 (b) |
| Chloroethane | ND(<0.5) | ND(<0.5) | NV |
| 1,1-Dichloroethene | ND(<0.05) | ND(<0.05) | 4,000 (b) |
| Methylene chloride | ND(<0.5) | ND(<0.5) | 0.02 |
| trans-1,2-Dichloroethene | ND(<0.05) | ND(<0.05) | 1,600 (b) |
| 1,1-Dichloroethane | ND(<0.05) | ND(<0.05) | 16,000 (b) |
| cis-1,2-Dichloroethene | ND(<0.05) | ND(<0.05) | 160 (b) |
| 1,2-Dichloroethane | ND(<0.05) | ND(<0.05) | 480 (b) |
| 1,1,1-Trichloroethane | ND(<0.05) | ND(<0.05) | 2 |
| Trichloroethene | ND(<0.05) | ND(<0.05) | 0.03 |
| Tetrachloroethene | ND(<0.025) | **1.7** | 0.05 |

MTCA = Model Toxics Control Act (Method A Soil Cleanup Levels for Unrestricted Land Uses shown unless otherwise noted)
All laboratory concentrations given in micrograms per kilogram (mg/kg)
(b) = Method B Non-carcinogen Standard Formula Value
Shaded values exceed cleanup level
ND = Not detected above the laboratory reporting limit
NV = No value has been established

**Table 2: Summary of Groundwater Analytical Results**

| Sample No. | SP-1:GW | SP-2:GW | | MTCA Method A Cleanup Level | 2015 Groundwater Screening Level |
|---|---|---|---|---|---|
| Vinyl Chloride | ND(<0.2) | **1,500 (ve)** | **1,900** | 0.2 | 0.347 |
| Chloroethane | ND(<1) | ND(<1) | ND(<20) | NV | 18,286 |
| 1,1-Dichloroethene | ND(<1) | **5.9** | ND(<20) | 400 (b) | 130 |
| Methylene chloride | ND(<5) | ND(<5) | ND(<100) | 5 | 4,434 |
| trans-1,2-Dichloroethene | ND(<1) | **2.3** | ND(<20) | 160 (b) | NV |
| 1,1-Dichloroethane | ND(<1) | ND(<1) | ND(<20) | 1,600 (b) | 4.2 |
| cis-1,2-Dichloroethene | ND(<1) | **440 (ve)** | **500** | 16 (b) | NV |
| 1,2-Dichloroethane | ND(<1) | ND(<1) | ND(<20) | 5 | 4.2 |
| 1,1,1-Trichloroethane | ND(<1) | ND(<1) | ND(<20) | 200 | 5,238 |
| Trichloroethene | ND(<1) | **150** | **150** | 5 | 1.5 |
| Tetrachloroethene | ND(<1) | **740 (ve)** | **770** | 5 | 22.9 |

MTCA = Model Toxics Control Act (Method A Cleanup Levels for Groundwater shown unless otherwise noted)
All concentrations given in parts per billion (ppb), which is equivalent to micrograms per liter
(a) = Method B Non-carcinogen Standard Formula Value
Shaded values exceed cleanup level
ND = Not detected above the method detection limit
NT = Not tested

**Table 3 - Summary of Sub-Slab Soil Gas Analytical Results**

| Sample No. | SG-1 | MTCA Method B 2015 Sub-Slab Soil Gas Screening Level (ug/m^3) |
|---|---|---|
| Vinyl Choride | ND(<0.43) | 9.3 |
| Chloroethane | ND(<4.5) | 152,381 |
| 1,1-Dichloroethene | ND(<0.67) | 3,048 |
| trans-1,2-Dichloroethene | ND(<0.67) | NV |
| 1,1-Dichloroethane | ND(<0.69) | 52.1 |
| cis-1,2-Dichloroethene | ND(<0.67) | NV |
| 1,2-Dichloroethane | ND(<0.069) | 3.21 |
| 1,1,1-Trichloroethane | ND(<0.93) | 76,190 |
| Trichloroethene | **2.1** | 12.3 |
| 1,1,2-Trichloroethane | ND(<0.19) | 5.21 |
| Tetrachloroethene | ND(<12) | 320 |

MTCA = Model Toxics Control Act
All concentrations, unless specified, given in micrograms per cubic meter (ug/m^3)
NV = No value has been established for this analyte
ND = Not detected above the laboratory reporting limit; NT = Not tested; n/a = non-applicable

# APPENDIX B

# SOIL GAS MANIFOLD INSTRUCTIONS

# APPENDIX B

## SOIL GAS MANIFOLD INSTRUCTIONS

### Initial Setup

1) Attach a section of FEP tubing to the well point.
2) Attach the other end of the well point tubing to a ¼ turn valve.
3) Attach 3 sections of FEP tubing to the vinyl tee using a 1"-2" piece of silicon tubing on each end of the tee. Push the FEP tubing in all the way against the sample tee.
4) Attach a piece of FEP tubing to the well point ¼ turn valve, a second piece as the sample line and a third piece as the purge line.
5) Attach a ¼ turn valve to the purge line.
6) Make sure the cap is on the sample canister flow controller and quickly open and close the sample canister to measure the initial vacuum. The initial vacuum should read 30" of Hg. If the vacuum is below 25" of Hg, do not use – contact the laboratory (206)285-8282.
7) Ensure the sample canister valve is closed and remove the flow controller end cap.
8) Attach the sample line tubing to the flow controller on the canister using a ¼" nut and a PTFE ferrule. Do not open the sample canister.
9) Attach a pump or purge canister to the ¼ turn valve using a short piece of FEP tubing.
10) Attach the purge can using a ¼" nut and a PTFE ferrule.

### Shut-In Test Procedure

1) Close the well point ¼ turn valve.
2) Open the purge line ¼ turn valve.
3) Open the purge canister or turn on purge line pump until the vacuum gauge on the sample canister reads 10" of Hg or greater.
4) Close the purge line ¼ turn valve.
5) Let the system sit at >10" of Hg pressure for a minimum of 5 minutes.
6) If the pressure reading on the sample vacuum gauge does not change, then the manifold is not leaking.

### Leak Test Procedure

1) Encapsulate the entire system with a plastic bag or other shroud.
2) Fill the shroud with a minimum of 30% helium measured with a katharometer.
3) Open sample canister to begin taking the sample.
4) Typical sampling times are 5-10 minutes for a 1L sample.

# APPENDIX C

# SUBSURFACE EXPLORATION PROCEDURES AND BORING LOGS

# APPENDIX C

## SUBSURFACE EXPLORATION PROCEDURES

### Direct Push Borings

The field exploration work conducted for this limited subsurface environmental assessment consisted of the advancement of two (2) direct push borings. The approximate locations for the completed borings are illustrated on Figure 3. This location was obtained through taping from existing site features.

The direct push borings were advanced on December 27, 2018 by Standard Environmental Probe, a local exploration drilling company under subcontract to our firm. Each direct push method boring consisted of driving a 2.5-Inch outside diameter drill rod and attached sample barrel and probe tip with a limited access track-mounted drill rig. During the direct push boring drilling process, soil samples were continuously obtained using a four-foot long sampler. The borings were continuously observed and logged in the field by a geologist from our firm.

Prior to the start of each boring, the drilling equipment was pressure-washed with hot water and sampling tools were scrubbed with a stiff brush and a solution of Liquinox (a phosphate free detergent) and water, and then rinsed with potable water and deionized water.

### Characterization of Soil

Relatively undisturbed soil samples were collected continuously by using a four-foot long Macro-Core® sampler lined with an acetate liner. The Macro-Core® sampler was pushed to the desired depth and then pushed into undisturbed soil at the bottom of the boring.

All soil samples were field screened using a MiniRae 10.6ev Photoionization Detector (PID). Field screen samples were collected from the remaining soil in the sampled interval. A representative soil sample was placed in a Ziplock® type plastic bag and sealed. The sample was allowed to volatilize for approximately 5 to 10 minutes prior to obtaining a reading. The PID tip was inserted in small hole poked in the bag just prior to reading. The highest PID reading observed was recorded on the boring log sheet, as were any subjective olfactory impressions of the sample by the on-site geologist.

### Borehole Abandonment

All completed direct-push borings were backfilled with bentonite chips from a depth of approximately 2 feet bgs to the maximum depth explored of approximately 17 feet bgs. At the drilling locations with a concrete surface, the direct push borings were backfilled with a quick setting cement mix from a depth of approximately 2 feet bgs to the ground surface.

# BORING LOG

**Adapt Engineering**
615 8th Avenue South
Seattle, Washington 98104
TEL:206.654.7045 FAX: 206.654.7048

PROJECT : Skyway Commercial Property
12600 Renton Avenue South
Seattle, Washington 98178

Job Number: WA18-21470-PH2 Boring No.: **SP- 1**

Elevation Reference :
Ground Surface Elevation :

Well Completed : N.A.
Casing Elevation : N.A.

| DEPTH (feet) | | SAMPLE TYPE | SAMPLE NUMBER | SAMPLE REC. | PID READING | WELL SKETCH | GROUND WATER | OBSERVATIONS | TESTING |
|---|---|---|---|---|---|---|---|---|---|
| 0 | Surface cover - asphalt, underlain by moist, brown gravelly SAND | | | | | | | | |
| | Moist, brown to gray, silty/clayey SAND with trace large gravel | | 0 - 4 | 24" | 0.3<br>0.3 | | | | |
| 5 | Moist, tan to light brown, fine SAND with trace gravel | | 4 - 8 | 17" | 0.6<br>1.3 | | | | |
| | Becomes dry, compact fine SAND with trace silt and gravel | | 8 - 12 | 34" | 1.3 | | | | |
| 10 | | | 10 - 14 | 34" | 1.3 | | | | |
| 15 | Becomes moist,gray to dark gray, compact fine SAND with little silt and gravel | | 14 - 16 | 34" | 1.2 | | ATD | | |
| | Becomes wet | | 16 - 17 | 34" | 1.1 | | | SP-1:16-17'<br>SP-1:GW | |
| 20 | Boring drilled to approximately 17 feet bgs, groundwater observed @ approximately 15 feet bgs | | | | | | | | |
| 25 | | | | | | | | | |

## LEGEND

- 2-inch O.D. Split-Spoon Sample
- 2-inch O.D. Geoprobe
- Sample not Recovered
- DATE ▽ Static Water Level at Drilling
- DATE ▽ Static Water Level
- Perched Groundwater
- Grab Sample
- WTPH-D Ext 8010 — Type of Analytical Testing Used
- NR — No Recovery
- ATD — At Time of Drilling



Drilling Start Date: 12/27/18 Drilling Completion Date: 12/27/18 Logged By: JTB

# BORING LOG

**Adapt Engineering**
615 8th Avenue South
Seattle, Washington 98104
TEL:206.654.7045 FAX: 206.654.7048

PROJECT : Skyway Commercial Property
12600 Renton Avenue South
Seattle, Washington 98178

Job Number: WA18-21470-PH2 Boring No.: **SP- 2**

Elevation Reference :
Ground Surface Elevation :

Well Completed : N.A.
Casing Elevation : N.A.

| DEPTH (feet) | SAMPLE TYPE | SAMPLE NUMBER | SAMPLE REC. | PID READING | WELL SKETCH | GROUND WATER | OBSERVATIONS | TESTING |
|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | |
| | | | | | | | Basement space - open air | |
| 5 | | | | | | | | |
| | | | | | | ATD | Surface cover - concrete | |
| | | | | 2.6 | | | Wet, light brown, silty SAND with trace small gravel | |
| 10 | | 8 - 12 | 24" | | | | Becomes compact | |
| | | | | 8.1 | | | SP-2:10-12' | |
| | | | | | | | SP-2:GW | |
| | | | | | | | Boring drilled to approximately 10 feet bgs, groundwater observed @ approximately 3.5 feet bgs | |
| 15 | | | | | | | | |
| 20 | | | | | | | | |
| 25 | | | | | | | | |

## LEGEND

- 2-inch O.D. Split-Spoon Sample
- 2-inch O.D. Geoprobe
- Sample not Recovered
- DATE ▽ DATE — Static Water Level at Drilling / Static Water Level / Perched Groundwater
- Grab Sample
- WTPH-D Ext 8010 — Type of Analytical Testing Used
- NR — No Recovery
- ATD — At Time of Drilling



Drilling Start Date: 12/27/18 Drilling Completion Date: 12/27/18 Logged By: JTB

# APPENDIX D

# LABORATORY DATA REPORTS

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

January 7, 2019

John Bhend, Project Manager
Adapt Engineering
615 8th Avenue South
Seattle, WA 98104

Dear Mr Bhend:

Included are the results from the testing of material submitted on December 27, 2018 from the Skyway Property WA18-21470-PH2, F&BI 812376 project. There are 11 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
ADP0107R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on December 27, 2018 by Friedman & Bruya, Inc. from the Adapt Engineering Skyway Property WA18-21470-PH2, F&BI 812376 project. Samples were logged in under the laboratory ID's listed below.

| Laboratory ID | Adapt Engineering |
|---|---|
| 812376 -01 | SP-1:16-17' |
| 812376 -02 | SP-1:GW |
| 812376 -03 | SP-2:10-12' |
| 812376 -04 | SP-2:GW |

The 8260C methylene chloride matrix spike duplicate and the associated relative percent difference exceeded the acceptance criteria. The laboratory control sample met the acceptance criteria, therefore the data were likely due to sample matrix effect.

All other quality control requirements were acceptable.

## Analysis For Volatile Compounds By EPA Method 8260C

| | | | |
|---|---|---|---|
| Client Sample ID: | SP-1:16-17' | Client: | Adapt Engineering |
| Date Received: | 12/27/18 | Project: | Skyway Property WA18-21470-PH2 |
| Date Extracted: | 12/28/18 | Lab ID: | 812376-01 |
| Date Analyzed: | 12/31/18 | Data File: | 123113.D |
| Matrix: | Soil | Instrument: | GCMS4 |
| Units: | mg/kg (ppm) Dry Weight | Operator: | MS |

| Surrogates: | % Recovery: | Lower Limit: | Upper Limit: |
|---|---|---|---|
| 1,2-Dichloroethane-d4 | 102 | 62 | 142 |
| Toluene-d8 | 106 | 55 | 145 |
| 4-Bromofluorobenzene | 100 | 65 | 139 |

| Compounds: | Concentration mg/kg (ppm) |
|---|---|
| Vinyl chloride | <0.05 |
| Chloroethane | <0.5 |
| 1,1-Dichloroethene | <0.05 |
| Methylene chloride | <0.5 |
| trans-1,2-Dichloroethene | <0.05 |
| 1,1-Dichloroethane | <0.05 |
| cis-1,2-Dichloroethene | <0.05 |
| 1,2-Dichloroethane (EDC) | <0.05 |
| 1,1,1-Trichloroethane | <0.05 |
| Trichloroethene | <0.02 |
| Tetrachloroethene | <0.025 |

## Analysis For Volatile Compounds By EPA Method 8260C

| | | | |
|---|---|---|---|
| Client Sample ID: | SP-2:10-12' | Client: | Adapt Engineering |
| Date Received: | 12/27/18 | Project: | Skyway Property WA18-21470-PH2 |
| Date Extracted: | 12/28/18 | Lab ID: | 812376-03 |
| Date Analyzed: | 12/31/18 | Data File: | 123114.D |
| Matrix: | Soil | Instrument: | GCMS4 |
| Units: | mg/kg (ppm) Dry Weight | Operator: | MS |

| Surrogates: | % Recovery: | Lower Limit: | Upper Limit: |
|---|---|---|---|
| 1,2-Dichloroethane-d4 | 101 | 62 | 142 |
| Toluene-d8 | 104 | 55 | 145 |
| 4-Bromofluorobenzene | 100 | 65 | 139 |

| Compounds: | Concentration mg/kg (ppm) |
|---|---|
| Vinyl chloride | <0.05 |
| Chloroethane | <0.5 |
| 1,1-Dichloroethene | <0.05 |
| Methylene chloride | <0.5 |
| trans-1,2-Dichloroethene | <0.05 |
| 1,1-Dichloroethane | <0.05 |
| cis-1,2-Dichloroethene | <0.05 |
| 1,2-Dichloroethane (EDC) | <0.05 |
| 1,1,1-Trichloroethane | <0.05 |
| Trichloroethene | <0.02 |
| Tetrachloroethene | 1.7 |

## Analysis For Volatile Compounds By EPA Method 8260C

| | | | |
|---|---|---|---|
| Client Sample ID: | Method Blank | Client: | Adapt Engineering |
| Date Received: | Not Applicable | Project: | Skyway Property WA18-21470-PH2 |
| Date Extracted: | 12/28/18 | Lab ID: | 08-2863 mb |
| Date Analyzed: | 12/28/18 | Data File: | 122809.D |
| Matrix: | Soil | Instrument: | GCMS4 |
| Units: | mg/kg (ppm) Dry Weight | Operator: | MS |

| Surrogates: | % Recovery: | Lower Limit: | Upper Limit: |
|---|---|---|---|
| 1,2-Dichloroethane-d4 | 103 | 62 | 142 |
| Toluene-d8 | 103 | 55 | 145 |
| 4-Bromofluorobenzene | 98 | 65 | 139 |

| Compounds: | Concentration mg/kg (ppm) |
|---|---|
| Vinyl chloride | <0.05 |
| Chloroethane | <0.5 |
| 1,1-Dichloroethene | <0.05 |
| Methylene chloride | <0.5 |
| trans-1,2-Dichloroethene | <0.05 |
| 1,1-Dichloroethane | <0.05 |
| cis-1,2-Dichloroethene | <0.05 |
| 1,2-Dichloroethane (EDC) | <0.05 |
| 1,1,1-Trichloroethane | <0.05 |
| Trichloroethene | <0.02 |
| Tetrachloroethene | <0.025 |

## Analysis For Volatile Compounds By EPA Method 8260C

| | | | |
|---|---|---|---|
| Client Sample ID: | SP-1:GW | Client: | Adapt Engineering |
| Date Received: | 12/27/18 | Project: | Skyway Property WA18-21470-PH2 |
| Date Extracted: | 12/31/18 | Lab ID: | 812376-02 |
| Date Analyzed: | 12/31/18 | Data File: | 123123.D |
| Matrix: | Water | Instrument: | GCMS9 |
| Units: | ug/L (ppb) | Operator: | JS |

| Surrogates: | % Recovery: | Lower Limit: | Upper Limit: |
|---|---|---|---|
| 1,2-Dichloroethane-d4 | 99 | 50 | 150 |
| Toluene-d8 | 102 | 50 | 150 |
| 4-Bromofluorobenzene | 96 | 50 | 150 |

| Compounds: | Concentration ug/L (ppb) |
|---|---|
| Vinyl chloride | <0.2 |
| Chloroethane | <1 |
| 1,1-Dichloroethene | <1 |
| Methylene chloride | <5 |
| trans-1,2-Dichloroethene | <1 |
| 1,1-Dichloroethane | <1 |
| cis-1,2-Dichloroethene | <1 |
| 1,2-Dichloroethane (EDC) | <1 |
| 1,1,1-Trichloroethane | <1 |
| Trichloroethene | <1 |
| Tetrachloroethene | <1 |

## Analysis For Volatile Compounds By EPA Method 8260C

| | | | |
|---|---|---|---|
| Client Sample ID: | SP-2:GW | Client: | Adapt Engineering |
| Date Received: | 12/27/18 | Project: | Skyway Property WA18-21470-PH2 |
| Date Extracted: | 12/31/18 | Lab ID: | 812376-04 |
| Date Analyzed: | 12/31/18 | Data File: | 123124.D |
| Matrix: | Water | Instrument: | GCMS9 |
| Units: | ug/L (ppb) | Operator: | JS |

| Surrogates: | % Recovery: | Lower Limit: | Upper Limit: |
|---|---|---|---|
| 1,2-Dichloroethane-d4 | 97 | 50 | 150 |
| Toluene-d8 | 103 | 50 | 150 |
| 4-Bromofluorobenzene | 96 | 50 | 150 |

| Compounds: | Concentration ug/L (ppb) |
|---|---|
| Vinyl chloride | 1,500 ve |
| Chloroethane | <1 |
| 1,1-Dichloroethene | 5.9 |
| Methylene chloride | <5 |
| trans-1,2-Dichloroethene | 2.3 |
| 1,1-Dichloroethane | <1 |
| cis-1,2-Dichloroethene | 440 ve |
| 1,2-Dichloroethane (EDC) | <1 |
| 1,1,1-Trichloroethane | <1 |
| Trichloroethene | 150 |
| Tetrachloroethene | 740 ve |

## Analysis For Volatile Compounds By EPA Method 8260C

| | | | |
|---|---|---|---|
| Client Sample ID: | SP-2:GW | Client: | Adapt Engineering |
| Date Received: | 12/27/18 | Project: | Skyway Property WA18-21470-PH2 |
| Date Extracted: | 01/02/19 | Lab ID: | 812376-04 1/20 |
| Date Analyzed: | 01/02/19 | Data File: | 010220.D |
| Matrix: | Water | Instrument: | GCMS4 |
| Units: | ug/L (ppb) | Operator: | MS |

| Surrogates: | % Recovery: | Lower Limit: | Upper Limit: |
|---|---|---|---|
| 1,2-Dichloroethane-d4 | 104 | 57 | 121 |
| Toluene-d8 | 101 | 63 | 127 |
| 4-Bromofluorobenzene | 97 | 60 | 133 |

| Compounds: | Concentration ug/L (ppb) |
|---|---|
| Vinyl chloride | 1,900 |
| Chloroethane | <20 |
| 1,1-Dichloroethene | <20 |
| Methylene chloride | <100 |
| trans-1,2-Dichloroethene | <20 |
| 1,1-Dichloroethane | <20 |
| cis-1,2-Dichloroethene | 500 |
| 1,2-Dichloroethane (EDC) | <20 |
| 1,1,1-Trichloroethane | <20 |
| Trichloroethene | 150 |
| Tetrachloroethene | 770 |

## Analysis For Volatile Compounds By EPA Method 8260C

| | | | |
|---|---|---|---|
| Client Sample ID: | Method Blank | Client: | Adapt Engineering |
| Date Received: | Not Applicable | Project: | Skyway Property WA18-21470-PH2 |
| Date Extracted: | 12/31/18 | Lab ID: | 08-2864 mb |
| Date Analyzed: | 12/31/18 | Data File: | 123110.D |
| Matrix: | Water | Instrument: | GCMS9 |
| Units: | ug/L (ppb) | Operator: | JS |

| Surrogates: | % Recovery: | Lower Limit: | Upper Limit: |
|---|---|---|---|
| 1,2-Dichloroethane-d4 | 101 | 50 | 150 |
| Toluene-d8 | 102 | 50 | 150 |
| 4-Bromofluorobenzene | 95 | 50 | 150 |

| Compounds: | Concentration ug/L (ppb) |
|---|---|
| Vinyl chloride | <0.2 |
| Chloroethane | <1 |
| 1,1-Dichloroethene | <1 |
| Methylene chloride | <5 |
| trans-1,2-Dichloroethene | <1 |
| 1,1-Dichloroethane | <1 |
| cis-1,2-Dichloroethene | <1 |
| 1,2-Dichloroethane (EDC) | <1 |
| 1,1,1-Trichloroethane | <1 |
| Trichloroethene | <1 |
| Tetrachloroethene | <1 |

Date of Report: 01/07/19
Date Received: 12/27/18
Project: Skyway Property WA18-21470-PH2, F&BI 812376

## QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 812375-10 (Matrix Spike)

| Analyte | Reporting Units | Spike Level | Sample Result (Wet wt) | Percent Recovery MS | Percent Recovery MSD | Acceptance Criteria | RPD (Limit 20) |
|---|---|---|---|---|---|---|---|
| Vinyl chloride | mg/kg (ppm) | 2.5 | <0.05 | 60 | 63 | 10-138 | 5 |
| Chloroethane | mg/kg (ppm) | 2.5 | <0.5 | 70 | 74 | 10-176 | 6 |
| 1,1-Dichloroethene | mg/kg (ppm) | 2.5 | <0.05 | 71 | 75 | 10-160 | 5 |
| Methylene chloride | mg/kg (ppm) | 2.5 | <0.5 | 80 | 160 vo | 10-156 | 67 vo |
| trans-1,2-Dichloroethene | mg/kg (ppm) | 2.5 | <0.05 | 78 | 81 | 14-137 | 4 |
| 1,1-Dichloroethane | mg/kg (ppm) | 2.5 | <0.05 | 80 | 83 | 19-140 | 4 |
| cis-1,2-Dichloroethene | mg/kg (ppm) | 2.5 | <0.05 | 83 | 88 | 25-135 | 6 |
| 1,2-Dichloroethane (EDC) | mg/kg (ppm) | 2.5 | <0.05 | 84 | 88 | 12-160 | 5 |
| 1,1,1-Trichloroethane | mg/kg (ppm) | 2.5 | <0.05 | 82 | 88 | 10-156 | 7 |
| Trichloroethene | mg/kg (ppm) | 2.5 | <0.02 | 80 | 84 | 21-139 | 5 |
| Tetrachloroethene | mg/kg (ppm) | 2.5 | <0.025 | 80 | 83 | 20-133 | 4 |

Laboratory Code: Laboratory Control Sample

| Analyte | Reporting Units | Spike Level | Percent Recovery LCS | Acceptance Criteria |
|---|---|---|---|---|
| Vinyl chloride | mg/kg (ppm) | 2.5 | 95 | 22-139 |
| Chloroethane | mg/kg (ppm) | 2.5 | 102 | 10-163 |
| 1,1-Dichloroethene | mg/kg (ppm) | 2.5 | 100 | 47-128 |
| Methylene chloride | mg/kg (ppm) | 2.5 | 110 | 42-132 |
| trans-1,2-Dichloroethene | mg/kg (ppm) | 2.5 | 107 | 67-127 |
| 1,1-Dichloroethane | mg/kg (ppm) | 2.5 | 103 | 68-115 |
| cis-1,2-Dichloroethene | mg/kg (ppm) | 2.5 | 107 | 72-113 |
| 1,2-Dichloroethane (EDC) | mg/kg (ppm) | 2.5 | 98 | 56-135 |
| 1,1,1-Trichloroethane | mg/kg (ppm) | 2.5 | 107 | 62-131 |
| Trichloroethene | mg/kg (ppm) | 2.5 | 98 | 64-117 |
| Tetrachloroethene | mg/kg (ppm) | 2.5 | 98 | 72-114 |

Date of Report: 01/07/19
Date Received: 12/27/18
Project: Skyway Property WA18-21470-PH2, F&BI 812376

## QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 812373-01 (Matrix Spike)

| Analyte | Reporting Units | Spike Level | Sample Result | Percent Recovery MS | Acceptance Criteria |
|---|---|---|---|---|---|
| Vinyl chloride | ug/L (ppb) | 50 | <0.2 | 91 | 61-139 |
| Chloroethane | ug/L (ppb) | 50 | <1 | 99 | 55-149 |
| 1,1-Dichloroethene | ug/L (ppb) | 50 | <1 | 96 | 71-123 |
| Methylene chloride | ug/L (ppb) | 50 | <5 | 84 | 61-126 |
| trans-1,2-Dichloroethene | ug/L (ppb) | 50 | <1 | 95 | 72-122 |
| 1,1-Dichloroethane | ug/L (ppb) | 50 | <1 | 88 | 79-113 |
| cis-1,2-Dichloroethene | ug/L (ppb) | 50 | 10 | 90 | 63-126 |
| 1,2-Dichloroethane (EDC) | ug/L (ppb) | 50 | <1 | 92 | 70-119 |
| 1,1,1-Trichloroethane | ug/L (ppb) | 50 | <1 | 94 | 75-121 |
| Trichloroethene | ug/L (ppb) | 50 | <1 | 95 | 73-122 |
| Tetrachloroethene | ug/L (ppb) | 50 | <1 | 95 | 72-113 |

Laboratory Code: Laboratory Control Sample

| Analyte | Reporting Units | Spike Level | Percent Recovery LCS | Percent Recovery LCSD | Acceptance Criteria | RPD (Limit 20) |
|---|---|---|---|---|---|---|
| Vinyl chloride | ug/L (ppb) | 50 | 91 | 88 | 70-128 | 3 |
| Chloroethane | ug/L (ppb) | 50 | 97 | 93 | 66-149 | 4 |
| 1,1-Dichloroethene | ug/L (ppb) | 50 | 97 | 98 | 75-119 | 1 |
| Methylene chloride | ug/L (ppb) | 50 | 86 | 87 | 63-132 | 1 |
| trans-1,2-Dichloroethene | ug/L (ppb) | 50 | 97 | 96 | 76-118 | 1 |
| 1,1-Dichloroethane | ug/L (ppb) | 50 | 90 | 90 | 77-119 | 0 |
| cis-1,2-Dichloroethene | ug/L (ppb) | 50 | 92 | 93 | 76-119 | 1 |
| 1,2-Dichloroethane (EDC) | ug/L (ppb) | 50 | 94 | 95 | 78-114 | 1 |
| 1,1,1-Trichloroethane | ug/L (ppb) | 50 | 94 | 94 | 80-116 | 0 |
| Trichloroethene | ug/L (ppb) | 50 | 95 | 96 | 72-119 | 1 |
| Tetrachloroethene | ug/L (ppb) | 50 | 96 | 96 | 78-109 | 0 |

# Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

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

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

812376

# SAMPLE CHAIN OF CUSTODY

ME 12/27/18

VS1/VW2

Page # 1 of 1

Report To John Bhend

Company Adapt

Address 615 8th Ave South

City, State, ZIP Seattle, WA 98104

Phone 206-654-7045 Email johnbhend@adaptengr.com

SAMPLERS (signature) John Bhend

PROJECT NAME: Skyway Property

PO #: WA18-21470-PH2

REMARKS

INVOICE TO

TURNAROUND TIME
- [x] Standard Turnaround
- [ ] RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- [x] Dispose after 30 days
- [ ] Archive Samples
- [ ] Other

| Sample ID | Lab ID | Date Sampled | Time Sampled | Sample Type | # of Jars | TPH-HCID | TPH-Diesel | TPH-Gasoline | BTEX by 8021B | VOCs by 8260C | SVOCs by 8270D | PAHs 8270D SIM | cVOCs | | | | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | ANALYSES REQUESTED | | | | | | | | | | | |
| SP-1: 16-17' | 01 A-D | 12-27-18 | 1000 | soil | 4 | | | | | | | | X | | | | |
| SP-1: GW | 02 A-C | ↓ | 1020 | water | 3 | | | | | | | | X | | | | |
| SP-2: 10-12' | 03 A-D | | 1155 | soil | 4 | | | | | | | | X | | | | |
| SP-2: GW | 04 A-C | | 1200 | water | 3 | | | | | | | | X | | | | |
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| SIGNATURE | PRINT NAME | COMPANY | DATE | TIME |
|---|---|---|---|---|
| Relinquished by: | John Bhend | Adapt | 12-27-18 | |
| Received by: | DAVID NELSON | F&D EX | 12/27/18 | 4:15 |
| Relinquished by: | | | | |
| Received by: | JAMES BRUYA | F&D | Samples received at 4 °C 12/27 | |

*Friedman & Bruya, Inc.*
*3012 16th Avenue West*
*Seattle, WA 98119-2029*
*Ph. (206) 285-8282*

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
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(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

January 9, 2019

John Bhend, Project Manager
Adapt Engineering
615 8th Avenue South
Seattle, WA 98104

Dear Mr Bhend:

Included are the results from the testing of material submitted on December 27, 2018 from the Skyway Property WA18-21470-PH2, F&BI 812377 project. There are 5 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
ADP0109R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on December 27, 2018 by Friedman & Bruya, Inc. from the Adapt Engineering Skyway Property WA18-21470-PH2, F&BI 812377 project. Samples were logged in under the laboratory ID's listed below.

| Laboratory ID | Adapt Engineering |
|---|---|
| 812377 -01 | SG-1 |

All quality control requirements were acceptable.

## Analysis For Volatile Compounds By Method TO-15

| | | | |
|---|---|---|---|
| Client Sample ID: | SG-1 | Client: | Adapt Engineering |
| Date Received: | 12/27/18 | Project: | Skyway Property WA18-21470-PH2 |
| Date Collected: | 12/27/18 | Lab ID: | 812377-01 1/1.7 |
| Date Analyzed: | 01/04/19 | Data File: | 010416.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | MS/bat |

| Surrogates: | % Recovery: | Lower Limit: | Upper Limit: |
|---|---|---|---|
| 4-Bromofluorobenzene | 95 | 70 | 130 |

| Compounds: | Concentration ug/m3 | ppbv |
|---|---|---|
| Vinyl chloride | <0.43 | <0.17 |
| Chloroethane | <4.5 | <1.7 |
| 1,1-Dichloroethene | <0.67 | <0.17 |
| trans-1,2-Dichloroethene | <0.67 | <0.17 |
| 1,1-Dichloroethane | <0.69 | <0.17 |
| cis-1,2-Dichloroethene | <0.67 | <0.17 |
| 1,2-Dichloroethane (EDC) | <0.069 | <0.017 |
| 1,1,1-Trichloroethane | <0.93 | <0.17 |
| Trichloroethene | 2.1 | 0.40 |
| 1,1,2-Trichloroethane | <0.19 | <0.034 |
| Tetrachloroethene | <12 | <1.7 |

## Analysis For Volatile Compounds By Method TO-15

| | | | |
|---|---|---|---|
| Client Sample ID: | Method Blank | Client: | Adapt Engineering |
| Date Received: | Not Applicable | Project: | Skyway Property WA18-21470-PH2 |
| Date Collected: | Not Applicable | Lab ID: | 09-009 mb |
| Date Analyzed: | 01/04/19 | Data File: | 010408.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | MS/bat |

| Surrogates: | % Recovery: | Lower Limit: | Upper Limit: |
|---|---|---|---|
| 4-Bromofluorobenzene | 84 | 70 | 130 |

| Compounds: | Concentration ug/m3 | ppbv |
|---|---|---|
| Vinyl chloride | <0.26 | <0.1 |
| Chloroethane | <2.6 | <1 |
| 1,1-Dichloroethene | <0.4 | <0.1 |
| trans-1,2-Dichloroethene | <0.4 | <0.1 |
| 1,1-Dichloroethane | <0.4 | <0.1 |
| cis-1,2-Dichloroethene | <0.4 | <0.1 |
| 1,2-Dichloroethane (EDC) | <0.04 | <0.01 |
| 1,1,1-Trichloroethane | <0.55 | <0.1 |
| Trichloroethene | <0.27 | <0.05 |
| 1,1,2-Trichloroethane | <0.11 | <0.02 |
| Tetrachloroethene | <6.8 | <1 |

Date of Report: 01/09/19
Date Received: 12/27/18
Project: Skyway Property WA18-21470-PH2, F&BI 812377

## QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: Laboratory Control Sample

| Analyte | Reporting Units | Spike Level | Percent Recovery LCS | Acceptance Criteria |
|---|---|---|---|---|
| Vinyl chloride | ppbv | 5 | 109 | 70-130 |
| Chloroethane | ppbv | 5 | 109 | 70-130 |
| 1,1-Dichloroethene | ppbv | 5 | 116 | 70-130 |
| trans-1,2-Dichloroethene | ppbv | 5 | 114 | 70-130 |
| 1,1-Dichloroethane | ppbv | 5 | 110 | 70-130 |
| cis-1,2-Dichloroethene | ppbv | 5 | 113 | 70-130 |
| 1,2-Dichloroethane (EDC) | ppbv | 5 | 113 | 70-130 |
| 1,1,1-Trichloroethane | ppbv | 5 | 125 | 70-130 |
| Trichloroethene | ppbv | 5 | 91 | 70-130 |
| 1,1,2-Trichloroethane | ppbv | 5 | 84 | 70-130 |
| Tetrachloroethene | ppbv | 5 | 99 | 70-130 |

# Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

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

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

812377

# SAMPLE CHAIN OF CUSTODY

ME 12/27/18

Page # 1 of 1

Report To John Bhend

Company Adapt

Address 615 8th Ave South

City, State, ZIP Seattle, WA 98104

Phone 206-654-7045 Email johnbhend@adaptengr.com

SAMPLERS (*signature*)

PROJECT NAME: Skyway Property

PO #: WA18-21470-PH2

REPORTING LEVEL
- ☐ Indoor Air
- ☐ Deep Soil Gas
- ☒ Sub Slab/Soil Gas
- ☐ SVE/Grab

INVOICE TO

TURNAROUND TIME
- ☒ Standard
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☒ Dispose after 30 days
- ☐ Archive Samples
- ☐ Other

ANALYSIS REQUESTED

| Sample Name | Lab ID | Canister ID | Flow Contr. ID | Date Sampled | Field Initial Press. (Hg) | Field Initial Time | Field Final Press. (Hg) | Field Final Time | TO-15 Full Scan | TO-15 BTEXN | TO-15 cVOCs | | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SG-1 | 01 | 2302 | 257 | 12-27-18 | 28" | 1345 | 7" | 1349 | | | X | | |
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| | | | | | | | | | | | | | Samples received at 19 °C |
| | | | | | | | | | | | | | |

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*Ph. (206) 285-8282*
*Fax (206) 283-5044*

| | SIGNATURE | PRINT NAME | COMPANY | DATE | TIME |
|---|---|---|---|---|---|
| Relinquished by: | | John Bhend | Adapt | 12-27-18 | 4:15 |
| Received by: | | DAVID NEUMEIER | FED EX | 12/27/18 | 4:15 |
| Relinquished by: | | | | | |
| Received by: | | Jon Shimazu | FBI | 12/27/18 | 17:10 |