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DEPARTMENT OF ECOLOGY

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April 28, 2022

Paul Fairbairn  
Stantec Consulting Services, Inc.  
Maplewood Building  
1687 114<sup>th</sup> Avenue SE, Suite 100  
Bellevue, WA 98004  
([Paul.Fairbairn@stantec.com](mailto:Paul.Fairbairn@stantec.com))

**Re: Opinion Pursuant to WAC 173-340-515(5) on Remedial Action for the Following Hazardous Waste Site:**

- **Site Name:** 7-Eleven 21464
- **Site Address:** 1215 Second Street, Snohomish, WA 98290
- **Facility/Site No.:** 85327563
- **Cleanup Site ID No.:** 6767
- **VCP Project No.:** NW2672

Dear Paul Fairbairn:

The Washington State Department of Ecology (Ecology) received your request for an opinion on your *Soil Gas Evaluation*, dated January 25, 2022 for the **7-Eleven 21464** facility (Site). This letter provides our opinion. We are providing this opinion under the authority of the Model Toxics Control Act (MTCA), Chapter 70A.305 RCW.

#### Issue Presented and Opinion

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Pursuant to implementation of the activities specified in the *Soil Gas Evaluation*, has the collected information and assessment assisted in resolving Vapor Intrusion (VI) assessment data gaps previously identified in Ecology's 10/23/2019 opinion?

YES. Ecology has determined that the *Soil Gas Evaluation* resolved identified data gaps by assessing and determining that there is currently no vapor intrusion pathway potential to any new building on the Property and to current businesses in the vicinity of the Property.

Additional soil and groundwater sampling and evaluation will continue to be necessary to complete a comprehensive Site characterization, and to select a final, effective cleanup action that meets MTCA requirements.

This opinion is based on an analysis of whether the described evaluation meets the substantive requirements of MTCA, Chapter 70A.305 RCW, its implementing regulations, Chapter 173-340 WAC (collectively

“substantive requirements of MTCA”), and Ecology’s guidance documents associated with petroleum releases. The analysis is provided below.

### **Description of the Site**

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

- TPH-G (gasoline-range petroleum hydrocarbons), TPH-O (oil-range petroleum hydrocarbons), and benzene into the Soil.
- TPH-G, TPH-O, benzene, and lead into the Groundwater

**Enclosure A** includes a detailed description and diagrams of the Site, as currently known to Ecology.

Please note a parcel of real property can be affected by multiple sites. At this time, we have no information that the parcel associated with this Site are affected by other sites.

### **Basis for the Opinion**

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This opinion is based on the information contained in the following documents:

1. Washington Department of Ecology, *VCP Opinion on Remedial Investigation Work Plan; 7-Eleven Store 21464; 1215 Second Street, Snohomish, WA*, VCP No. NW0052, March 25, 1998.
2. Stantec Consulting, Inc., *Underground Storage Tank System Removal and Third Quarter 2012 Groundwater Monitoring Report; 7-Eleven Store 21464; 1215 Second Street, Snohomish, WA*, December 13, 2012.
3. Stantec Consulting, Inc., *7-Eleven Store 21464 Semi-Annual Groundwater Monitoring and Sampling Report*, September 17, 2013.
4. Stantec Consulting, Inc., *7-Eleven Store 21464 Semi-Annual Groundwater Monitoring and Sampling Report – Third Quarter 2013 and Fourth Quarter 2013*; May 22, 2015.
5. Stantec Consulting, Inc., *7-Eleven Store 21464 Annual 2014 Groundwater Monitoring and Sampling Report*, October 15, 2015.
6. Stantec Consulting, Inc., *7-Eleven Store 21464 Subsurface Investigation and Groundwater Monitoring and Sampling Report*, February 23, 2016.
7. Stantec Consulting, Inc., *7-Eleven Store 21464, Third and Fourth Quarter 2015 Groundwater Monitoring and Sampling Report*, April 28, 2016.
8. Stantec Consulting, Inc., *7-Eleven Store 21464 Annual 2016 and 2017 Groundwater Monitoring and Sampling Report*, April 17, 2018.
9. Stantec Consulting, Inc., *Work Plan for Confirmation Soil Sampling and Well Maintenance; 7-Eleven Store 21464*, August 21, 2019.
10. Stantec Consulting, Inc., *7-Eleven Store 21464; 2018 First and Second Quarters Groundwater Monitoring and Sampling Report*; August 20, 2019.

11. Department of Ecology, *VCP Opinion on Work Plan for Confirmation Soil Sampling and Well Maintenance; 7-Eleven Store 21464*; October 23, 2019.

12. Stantec Consulting Services, Inc., *Soil Gas Evaluation, 7-Eleven Store 21464, January 25, 2022*.

A number of these documents are accessible in electronic form from the [Site webpage](#)<sup>1</sup>. The complete records are stored in the Central Files of the Northwest Regional Office of Ecology (NWRO) for review by appointment only. Visit our [Public Records Request page](#)<sup>2</sup>, to submit a public records get more information about the process. If you require assistance with this process, you may contact the Public Records Officer at [publicrecordsofficer@ecy.wa.gov](mailto:publicrecordsofficer@ecy.wa.gov) or 360-407-6040.

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

## Analysis and Opinion

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### 1. VI Assessment.

Based on a review of the *7-Eleven Soil Gas Evaluation*, and other Site documents listed, Ecology has determined that currently no significant VI risk to on-site buildings or neighboring businesses in the vicinity, or potential future buildings on the Site, exists.

Ecology's [Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action](#)<sup>3</sup> (most recently revised March 2022) for assessing and addressing soil vapor issues was utilized.

Four soil gas probes (SVP-1, SVP-2, SVP-3 and SVP-4) were installed and five soil gas samples (four primary and one duplicate) were collected. The objective was to evaluate areas of the property overlying historical soil and groundwater impacts where construction of buildings might occur in the future to determine if there is evidence that vapor intrusion may be possible at levels representing a potential human health risk.

Based on the data collected (soil gas samples compared to [Ecology VI screening levels](#)<sup>4</sup>) and analysis of atmospheric gases (which indicate the biodegradation of petroleum constituents has or is occurring near all sampled locations), vapor intrusion is not a pathway of concern.

### 2. Continued soil and groundwater characterization.

Based on a review of supporting documentation listed above, Ecology has determined that additional soil and groundwater sampling and evaluation is necessary to complete the data gap resolution process, and to select an effective, final cleanup action.

## Site Characterization

- Your characterization of the Site documented impacts to soil and groundwater beneath the Site, due to releases from underground storage tanks (USTs) and piping on the southern portion of

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<sup>1</sup> <https://apps.ecology.wa.gov/gsp/Sitepage.aspx?csid=6767>

<sup>2</sup> <https://ecology.wa.gov/About-us/Accountability-transparency/Public-records-requests>

<sup>3</sup> <https://apps.ecology.wa.gov/publications/SummaryPages/0909047.html>

<sup>4</sup> <https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Contamination-clean-up-tools/CLARC/Data-tables>

the Property, associated with a prior retail fueling station located on the Site. TPH-G, TPH-O and benzene contamination was present in the soil above MTCA Method A cleanup levels. Five UST removals, including excavation and off-Site disposal of petroleum-contaminated soil, were conducted. A remedial cleanup strategy and ongoing assessment for the Site was developed and implemented with the installation of soil vapor extraction (SVE) and air sparge (AS) wells. The bioremediation technology of BOS-200 with conditioned bacteria was also applied to the USTs pit prior to backfilling.

### Soil

- The collection and analysis of confirmation soil samples in the vicinity of the soil removal activities was conducted, first in 1995, and later in 2015. These data indicated that concentrations of petroleum hydrocarbons above MTCA Method A cleanup levels for TPH-G, TPH-O and benzene were present in soil, in the areas of the former UST cavity and the former dispenser island and associated product piping. Approximately 918 tons of petroleum-contaminated soil were excavated from the Site and removed.
- BOS-200 and conditioned bacteria was applied to the USTs pit prior to backfilling to enhance bioremediation. In 2015, two additional soil borings were advanced and four additional groundwater monitoring wells were installed to further characterize the remaining soil contamination. Soil sample analytical results indicated that petroleum impacts exceeding MTCA Method A cleanup levels extend further to the south and to the west, requiring off-property delineation.
- Additional assessment borings near previously impacted soil locations were proposed in the August 2019 Work Plan to further delineate the lateral extent of soil contamination at the Site. The assessment borings also need to be located near monitoring wells MW-2, MW-5 and MW-6. (see **Enclosure A, Figure 3**), in order to complete characterization of soil impacts at the Site.

### Groundwater

- TPH-G, TPH-O, benzene and lead contamination was determined to be present in Site groundwater above MTCA Method A cleanup levels. A Site assessment, a soil vapor survey, and well installation activities were conducted in 1995, 1996, 1998, and 1999. Additional site assessment, and monitoring well installation occurred in 2015. Groundwater sampling activities continue.
- There are currently eleven active groundwater monitoring wells (MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-8, MW-9, MW-10, MW-11 and MW-12) associated with the Site. Quarterly groundwater monitoring and analysis was initiated during the first quarter of 2015. Groundwater flow direction is toward the southwest with a gradient of approximately 0.055 feet per foot, which is consistent with historical data.

Consecutive quarterly groundwater monitoring reports have been prepared and submitted to Ecology through 4<sup>th</sup> quarter 2020. The groundwater monitoring wells with exceedances of MTCA Method A cleanup levels since first quarter 2019 are: on-Property well MW-2 (TPH-O); and off-Property wells MW-5 (TPH-G) and MW-6 (TPH-D+O)

### 3. Cleanup Standards and Cleanup Action Requirements.

The Site does not meet the MTCA definition of an industrial property; therefore, soil cleanup levels suitable for unrestricted land use are appropriate. For unrestricted land use, soil cleanup levels protective of groundwater and direct contact (either MTCA Method A or Method B) cleanup levels can be used. MTCA Method A soil and groundwater cleanup levels have been selected.

The MTCA Method A soil cleanup levels for unrestricted uses are appropriate (WAC 173-340-900, Table 740-1), with the standard point of compliance is soil throughout the Site (for protection of groundwater) and soil to a depth of 15 feet below the ground surface for direct contact (WAC 173-340-740(6)).

Please note that evaluation of compliance with the Method A soil and groundwater cleanup levels for TPH-D and TPH-O requires adding concentrations of the two fractions and comparing the result to the cleanup level, per [Implementation Memorandum #4, Determining Compliance with Method A Cleanup Levels for Diesel and Heavy Oil](#)<sup>5</sup>, and [Guidance for Remediation of Petroleum Contaminated Sites](#)<sup>6</sup>.

A Terrestrial Ecological Evaluation (TEE) has not been performed at this Site. The TEE is necessary to meet substantive requirements of MTCA, and to set cleanup levels that are protective of terrestrial species, and to determine an appropriate cleanup action. Please conduct the TEE in accordance with [Ecology guidance](#)<sup>7</sup> and provide the associated documentation forms to Ecology.

The MTCA Method A cleanup levels for groundwater (WAC 173-340-900) at the standard point of compliance, throughout the Site from the uppermost level of the saturated zone extending vertically to the lowest depth which could potentially be affected, are appropriate for this Site.

The selected action must meet applicable minimum requirements for cleanup actions stipulated in WAC 173-340-360: protect human health and the environment, comply with cleanup standards, use permanent solutions, and provide for reasonable restoration time frames. If the Site cleanup qualifies for a [Groundwater Model Remedy](#)<sup>8</sup>, a Feasibility Study is not needed to select a cleanup action.

A minimum of four or more consecutive quarters of groundwater monitoring data from all on-Site and off-Site monitoring wells, demonstrating contaminant of concern concentrations below their respective cleanup levels is required to evaluate the effectiveness of the cleanup actions conducted at the Site. The number of required quarters of data may be increased if concentrations rebound after remediation is apparent. The monitoring data will determine if the cleanup action is likely to result in soil and groundwater cleanup standards being met in a reasonable timeframe.

As stated in previous opinions, once cleanup has been completed, the project will need completion of a final Cleanup Action Report (CAR), which summarizes all work conducted at the Site as well as results, interpretations, and conclusions. If the CAR meets MTCA requirements for Site cleanup, Ecology can then issue a final No Further Action (NFA) opinion for the Site.

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<sup>5</sup> <https://apps.ecology.wa.gov/publications/SummaryPages/0409086.html>

<sup>6</sup> <https://apps.ecology.wa.gov/publications/SummaryPages/1009057.html>

<sup>7</sup> <https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Terrestrial-ecological-evaluation>

<sup>8</sup> <https://apps.ecology.wa.gov/publications/SummaryPages/1609057.html>

#### **4. Upload of Site data to EIM**

Electronic submittal of all sampling data into Ecology's electronic [Environmental Information Management \(EIM\) database](https://ecology.wa.gov/Research-Data/Data-resources/Environmental-Information-Management-database)<sup>9</sup> is a requirement in order to receive a final Ecology opinion for this Site. As of the date of this letter, data for this Site has been uploaded to EIM through field collection end date September 25, 2021. Note that all data must be uploaded into the Ecology EIM system upon submission of each report to Ecology. This allows the Ecology Site Manager to access data to check results or perform additional analyses with those data. Gaylen Sinclair (email [gsin461@ecy.wa.gov](mailto:gsin461@ecy.wa.gov)), or via telephone at 360-407-6496) is Ecology's contact and resource on entering data into EIM.

#### **Limitations of the Opinion**

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##### **1. Opinion does not settle liability with the state.**

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

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

To settle liability with the state and obtain protection from contribution claims, a person must enter into a consent decree with Ecology under RCW 70.105D.040(4).

##### **2. Opinion does not constitute a determination of substantial equivalence.**

To recover remedial action costs from other liable persons under MTCA, one must demonstrate that the action is the substantial equivalent of an Ecology-conducted or Ecology-supervised action. This opinion does not determine whether the action you performed is substantially equivalent. Courts make that determination. See RCW 70.105D.080 and WAC 173-340-545.

##### **3. State is immune from liability.**

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

#### **Contact Information**

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Thank you for choosing to clean up the Site under the Voluntary Cleanup Program (VCP). Ecology appreciates your initiative in conducting independent remedial action and requesting technical consultation under the VCP. As the cleanup of the Site progresses, you may request additional consultative services under the VCP, including assistance in identifying applicable regulatory requirements and opinions regarding whether remedial actions proposed for or conducted at the Site meet those requirements.

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<sup>9</sup> <https://ecology.wa.gov/Research-Data/Data-resources/Environmental-Information-Management-database>

Paul Fairbairn  
April 28, 2022  
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For more information about the VCP and the cleanup process, please visit our [VCP webpage](#)<sup>10</sup>. If you have any questions about this opinion, please contact me by phone at (425) 495-5436 or by email at [glynis.carrosino@ecy.wa.gov](mailto:glynis.carrosino@ecy.wa.gov).

Sincerely,



Glynis A. Carrosino  
Project Manager  
Toxics Cleanup Program, NWRO

Enclosures (1): A – Description and Diagrams of the Site

cc: Jennifer Dart, 7-Eleven, Inc. ([Jennifer.Dart@7-11.com](mailto:Jennifer.Dart@7-11.com))  
Sonia Fernandez, Ecology VCP Coordinator ([sonia.fernandez@ecy.wa.gov](mailto:sonia.fernandez@ecy.wa.gov))

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<sup>10</sup> <http://www.ecy.wa.gov/vcp>

**Enclosure A**

**Description and Diagrams of the Site**



## Site Description

*This section provides Ecology's understanding and interpretation of Site conditions, and is the basis for the opinions expressed in the body of the letter.*

**Site:** The Site is defined by TPH-G, TPH-O and benzene in the soil and groundwater. The Site is located on the southeastern corner of Second Street and Avenue D. The Property consists of Snohomish County tax parcel 0059500800900 which covers 0.35 acres at 1215 Second Street in Snohomish, Washington (the Property) (**Figure 1**).

**Area and Property Description:** The Property is located in an area of predominantly commercial and residential properties. Except for a few small, landscaped areas, the Property is covered with asphalt and concrete, and a single-story building. The Property is bordered to the south by an automotive repair facility, to the west by Avenue D, to the east by commercial office and residential properties, and to the north by Second Street (**Figures 1 and 2**).

**Site History and Current Use:** The Property was operated as a retail gasoline station facility from approximately 1953 to 1973. 7-Eleven operated the gasoline service station from 1979 until the gasoline dispensing system and USTs were removed in 2012. Two 750-gallon underground storage tanks (USTs) containing leaded gasoline were present on the Property around 1964 and were removed in 1995. Three 12,000-gallon, single-wall steel USTs containing unleaded gasoline were installed in 1979 and removed in 2012.

**Sources of Contamination:** The potential sources of contamination at the Site are petroleum impacts associated with the product lines in the dispenser area, and two single-wall 750-gallon USTs, which were unknown and discovered during a service upgrade.

**Physiographic Setting:** The Site is located within the Puget Lowland physiographic province, a broad, low-lying region situated between the Cascade Range to the east and the Olympic Mountains and the Willapa Hills to the west. The Site is located approximately 60 to 70 feet above mean sea level with a surface topography that slopes to the south towards the Snohomish River.

**Surface Water:** The Property is located approximately 600 feet north of the Snohomish River. Storm water runoff is routed to City catch basins located along Second Street and Avenue D.

**Water Supply:** Potable water is supplied by the City of Everett and the Snohomish Public Utility District. Washington State Department of Health maps indicate that no public water supply wells are located within 1 mile of the Site.

**Ecological Setting:** The Property is located in a developed area and is surrounded by roadways and commercial and residential properties. Land surfaces are primarily covered by buildings and concrete or asphalt pavement.

**Geology:** The Site is located on the Vashon Till (Qvt), a member of the Pleistocene Vashon Drift formation deposited during glaciation of the Puget Sound region. The Vashon Till varies in thickness from a few feet to 150 feet thick. It is comprised of gravelly, sandy silt to silty sand, with varied quantities of clay, cobbles, and boulders. Permeability of the Till is low, except in the sand and gravel lenses. Strata observed underlying the Site include fill material, fine sand with medium gravel, silty sand

with fine grained sand, and medium gray sand with trace fines, to a depth of 14 feet below the ground surface (bgs).

**Groundwater:** Shallow groundwater is present beneath the Site at approximately 12 feet bgs, and flows to the southwest at an average hydraulic gradient of approximately 0.055 feet per horizontal foot (ft/ft). Groundwater elevations have been measured during sampling events from Site groundwater monitoring wells since 2002. The cumulative groundwater flow direction is presented in a rose diagram. **(Figure 3).**

**Release and Extent of Soil and Groundwater Contamination:** The sources of releases of contamination to the soil and groundwater at the Site were the product piping associated with the former 7-Eleven gasoline distribution system, and perhaps two unused 750-gallon USTs (discovered and removed in 1995). The former gasoline facility and all fuel storage and distribution equipment was removed from the Site in 2012.

Petroleum-impacted soil was first discovered at the Site in 1995. A product line leak was discovered beneath the dispenser island. Subsequent investigations indicated that petroleum hydrocarbon concentrations in soil exceeded MTCA Method A cleanup levels for benzene, total xylenes, and TPH-G. Confirmation samples determined that petroleum hydrocarbon concentrations above MTCA Method A cleanup levels in soil remain at the Property.

Later in 1995, during an upgrade of product piping and dispensers, two 750-gallon USTs were discovered west of the service station. They were removed, and 15 tons of petroleum-contaminated soil was also excavated and taken off-site.

In 1996, four groundwater monitoring wells (MW-1 through MW-4) were installed to a depth of 17.5 feet bgs.

In 1998, two additional groundwater monitoring wells (MW-5 through MW-6) were installed off-Site (in Avenue D). MW-5 and MW-6 are located west of the Site.

In 1999, a soil vapor extraction (SVE) system was installed at the Site. The system consisted of four SVE wells, VES-1 through VES-4.

In 2001, ammonium nitrate solution was injected into the groundwater in the VES wells to promote biodegradation of the dissolved petroleum hydrocarbons. Injection occurred on a quarterly basis. Also in 2001, two air sparge (AS) wells were installed (SP-1 and SP-2).

In 2004, the SVE system was modified to function as a combined SVE/AS system. The system operated until late 2005, and was decommissioned in 2012.

In 2012, three 12,000-gallon unleaded gasoline USTs, associated product piping, and dispenser islands were decommissioned at the Site by removal. Approximately 903 tons of petroleum-contaminated soil was also excavated and removed east of the dispenser island. Approximately 750 pounds of BOS-200™ and 2.5 gallons of conditioned bacteria was applied to the UST pit prior to backfilling.

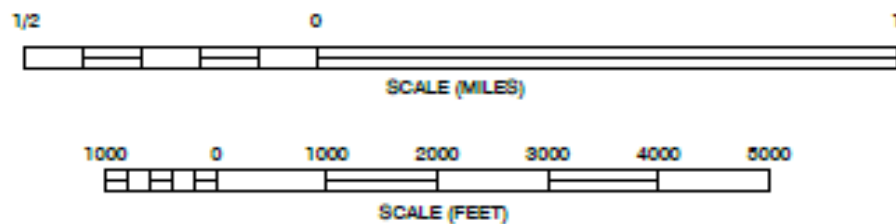
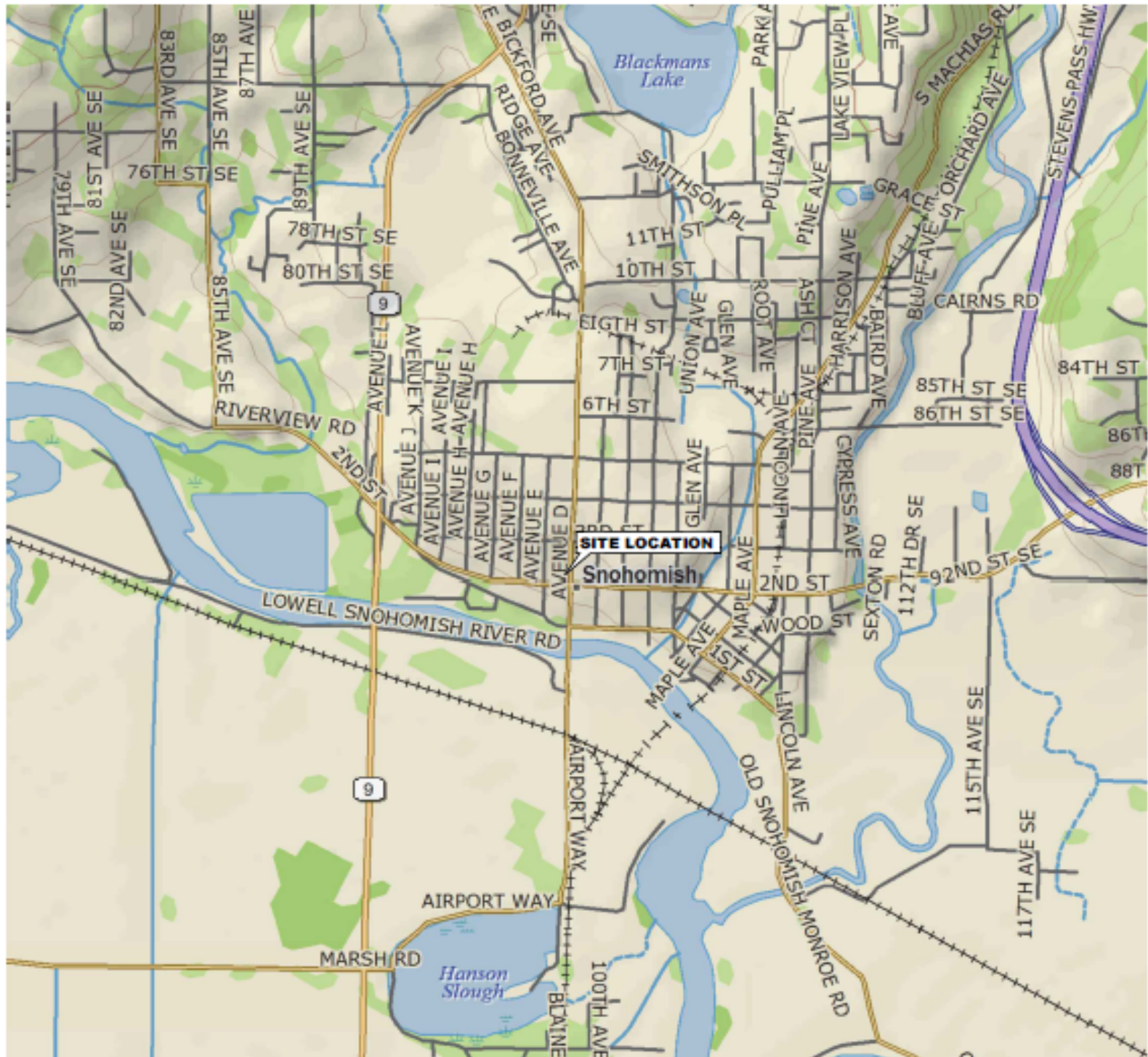
In 2015, soil sampling events and additional monitoring well installation occurred at the Site. Fifteen soil samples were collected from two borings (SB-1 and SB-2) and four monitoring well installations (MW-8, MW-9, MW-10, and MW-11), and analyzed for TPH-G, TPH-O, BTEX (benzene, toluene, ethylbenzene and xylenes), and lead. Impacts to soil and groundwater above MTCA Method A cleanup levels were confirmed.

Groundwater monitoring wells MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-8, MW-9, MW-10, and MW-11 are monitored and sampled quarterly. Groundwater sampling results from 2013 through 4<sup>th</sup> quarter 2020 are documented and reported. Groundwater samples were collected and analyzed for TPH-G, TPH-O, benzene and lead. The groundwater monitoring wells with exceedances of MTCA Method A cleanup levels since 1<sup>st</sup> quarter 2019 are: on-Property well MW-2 (TPH-O) and off-Property wells MW-5 (TPH-G) and MW-6 (TPH-D+O).

In 2019, additional confirmation soil sampling and analysis was conducted to more comprehensively delineate soil impacts associated with the release from the former 7-Eleven gasoline distribution system.

In 2021, vapor intrusion evaluation was conducted via soil gas probe installation, sampling, and analysis.

## Site Diagrams



REFERENCE: USGS 7.5 MINUTE QUADRANGLE, SNOHOMISH, WASHINGTON



11130 NE 33RD PLACE, SUITE 200  
BELLEVUE, WASHINGTON

Phone: (425) 869-9448 Fax: (425) 869-1190

For:



STORE NO. 21464  
1215 SECOND STREET  
SNOHOMISH, WASHINGTON

Job Number:

185703890

Drawn By:

AS

Checked By:

PF

Approved By:

PF

Figure:

1

Date:

JAN 2019

## SITE LOCATION MAP





**LEGEND:**

--- SUBJECT PROPERTY



0 100 200

APPROXIMATE SCALE IN FEET



11130 NE 33RD PLACE, SUITE 200  
BELLEVUE, WASHINGTON  
PHONE: (425) 869-9448 FAX: (425) 869-1190

FOR:



STORE NO. 21464  
1215 SECOND STREET  
SNOHOMISH, WASHINGTON

JOB NUMBER:  
185703890

DRAWN BY:  
MDR/STA

CHECKED BY:  
AS

APPROVED BY:  
PF

FIGURE:

**2**

**SITE VICINITY MAP**

DATE:  
APRIL 2018

