



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

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October 6, 2014

COPY

Mr. Tom Smith
EcoCon, Inc.
PO Box 153
Fox Island, WA 98333

Re: Opinion Pursuant to WAC 173-340-515(5) Regarding the Following Hazardous Waste Site:

- **Name:** Twin Lakes Shopping Center
- **Address:** 2311 SW 336th Street, Federal Way, WA
- **Facility/Site No.:** 16461
- **VCP No.:** NW2747
- **Cleanup Site ID No.:** 12154

Dear Mr. Smith:

Thank you for submitting documentation regarding remedial actions accomplished at the Twin Lakes Shopping Center facility (Site) for review by the Washington State Department of Ecology (Ecology) under the Voluntary Cleanup Program (VCP). Ecology appreciates your initiative in pursuing this administrative option for cleaning up hazardous waste sites under the Model Toxics Control Act (MTCA), Chapter 70.105D RCW.

This letter constitutes an advisory opinion regarding a review of submitted documents/reports pursuant to requirements of MTCA and its implementing regulations, Chapter 70.105D RCW and Chapter 173-340 WAC, for characterizing and addressing the following release at the Site:

- Tetrachloroethylene (PCE) into the Soil and Air.

Ecology is providing this advisory opinion under the specific authority of RCW 70.105D.030(1)(i) and WAC 173-340-515(5).

This opinion does not resolve a person's liability to the state under MTCA or protect a person from contribution claims by third parties for matters addressed by the opinion. The state does not have the authority to settle with any person potentially liable under MTCA except in accordance with RCW 70.105D.040(4). The opinion is advisory only and not binding on Ecology.



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Ecology's Toxics Cleanup Program has reviewed the following information regarding remedial actions accomplished at the Site:

1. ECI Environmental Consulting, Supplemental Focused Subsurface Investigation (SFSI), August 30, 2013.
2. ECI Environmental Consulting, Cleanup Action Plan (CAP), June 26, 2013.
3. ECI Environmental Consulting, Additional Ambient Air Investigation Letter Report, June 7, 2013.
4. ECI Environmental Consulting, Vapor Intrusion Letter Report, April 8, 2013.
5. ECI Environmental Consulting, Interim Remedial Investigation / Feasibility Study, January 29, 2013.
6. ECI Environmental Consulting Focused Subsurface Investigation (FSI), July 2, 2012.
7. ECI Environmental Consulting, Phase I Environmental Assessment (ESA), June 8, 2012.

The reports listed above will be kept in the Central Files of the Northwest Regional Office of Ecology (NWRO) for review by appointment only. Appointments can be made by calling the NWRO resource contact at (425) 649-7235 or sending an e-mail to nwro_public_request@ecy.wa.gov.

The Site is defined by the extent of contamination caused by the following release:

- PCE into the Soil and Air.

The Site is more particularly described in Enclosure A to this letter. The description of the Site is based solely on the information contained in the documents listed above.

Based on a review of supporting documentation listed above, pursuant to **requirements contained in MTCA and its implementing regulations, Chapter 70.105D RCW and Chapter 173-340 WAC, for addressing the releases at the Site, Ecology has determined:**

1. During 2012, eighteen borings were completed to characterize soil and ground water contamination associated with the Sun Cleaners facility. Four shallow borings (one foot to 5.5 feet below ground surface (bgs)) were placed inside the facility building at and adjacent to former dry cleaning equipment locations to sample soil directly beneath the cement floor. Five soil samples were acquired from the interior borings.

Fourteen deeper borings were placed throughout areas adjacent to the building. The exterior borings were completed to individual depths ranging from 25 feet to 110 feet bgs. Ground water was not encountered in any of the borings. Forty soil samples were acquired from the exterior borings at depths ranging from 10 feet to 110 feet. The locations of soil samples in each boring were selected utilizing field screening techniques (screen testing, olfactory indication, staining, and moisture content). The soil samples were analyzed for volatile organic compounds (VOCs), which included tetrachloroethene, trichloroethene, cis-1,2-dichloroethene, trans-1,2-dichloroethene, 1,1-dichloroethene, and vinyl chloride. PCE was the only compound detected.

During August 2013, two deep borings were completed at locations adjacent to the building on the north and south sides. The borings were located where the highest and/or deepest concentrations of PCE in soil exterior to the building had previously been detected. Both borings were advanced until ground water was encountered at 118 feet bgs in both borings (elevation of the Site is 340 feet above msl). A soil sample was acquired from each boring (110 feet bgs and 114 feet bgs), and also a grab ground water sample was acquired from each boring. All samples were analyzed for VOCs, and no VOC compounds were detected in either the soil or ground water.

2. The characterization of soil and ground water described above established that PCE is the contaminant of concern, and that the medium of concern is soil. The highest concentrations of PCE were directly beneath the cement floor inside the building (maximum 0.6 ppm). The data demonstrated that PCE concentrations in soil exterior to the building were located adjacent to the building to the north, west, and south; with higher concentrations on the south side of the building. Characterization of soil was not completely accomplished east of the cleaners facility because of adjacent businesses in the strip mall. PCE concentrations in soil at depth ranged from one to three times the Method A soil cleanup level for PCE (0.05 ppm) down to ~30 feet bgs. There was one detection of PCE (0.024 ppm) at 45 feet bgs, and none below 45 feet bgs. There are at least 70 feet of clean soil between the deepest possible detectable concentrations of PCE in soil and the clean ground water below at 118 feet bgs.
3. Vapor intrusion was evaluated by sampling sub slab soil gas and ambient air inside the building in February and May during 2013. Four sub slab soil gas samples were acquired, two inside the cleaners facility and two located inside adjacent businesses to the east. One sub slab sample taken directly beneath the former dry cleaning equipment exceeded the screening level for PCE (96.2 ug/m^3) specified in Ecology's draft Vapor Intrusion (VI) Guidance dated October 2009. Four samples of ambient air were acquired, two inside the cleaners facility and two located inside adjacent businesses to the east. None of the samples of ambient indoor air exceeded the Method B cleanup level for PCE in indoor air (9.62 ug/m^3). A sample taken near the location of former dry cleaning equipment had the highest concentration (6.8 ug/m^3).

4. PCE concentrations in soil at the Site must be protective of ground water, direct contact with humans and wildlife, and vapors in indoor air. There are PCE concentrations in soil at the Site that exceed the Method A cleanup level for protection of ground water (0.05 ppm). However, the substantial vertical distance (~ 70 feet) of ground water beneath the deepest levels reached by detectable PCE contamination in soil at the Site (and lack of impact to ground water) demonstrates that the leaching pathway is not a concern. There are no PCE concentrations detected in soil at the Site (maximum 0.6 ppm) that exceed the Method B level for PCE (480 ppm) protective of direct human contact. PCE is not a listed chemical compound of ecological concern for protection of terrestrial wildlife receptors. The indoor air data acquired to date indicate that the concentrations of PCE in soil could be protective of the vapor pathway, but the data are not conclusive.
5. The Decision Matrix Guidelines for Tier II Vapor Intrusion Assessment (Table E-1 in the VI Guidance) indicate that repeat sampling of both indoor air and sub slab soil gas is needed to conclude that the PCE concentrations in soil are permanently protective of indoor air at the Site. Additional indoor air samples should be acquired at the worst-case location near the former dry cleaning equipment where the highest concentration of PCE in indoor air was detected (sample ABDC-2). The indoor air samples should be augmented by simultaneous testing of soil gas at this location, where the highest concentration of PCE in soil gas was detected (sample V1-1).
6. The VI Guidance stipulates that buildings within 100 feet of the edge of the contamination should be evaluated for vapor intrusion. An evaluation of vapor intrusion into the apartment building west of the Site is needed. Initial Tier I testing could include sampling of sub-slab soil gas inside the apartment building or sampling of shallow soil gas near to but outside the apartment building (as per Appendix C in the VI Guidance). If PCE concentrations in these samples do not exceed the sub slab screening level for PCE, the evaluation would be complete.
7. The practice of geology is regulated under RCW 18.220, and persons engaged in this profession are required to be licensed. Licensed persons are required to obtain a seal and stamp professional reports prepared for others (Chapter 308-15 WAC Sections 070&075). Some of the reports prepared and submitted by ECI contain geological / hydrological descriptions and interpretations, but no reports were stamped. The final cleanup report for the Site must reference applicable previous reports prepared by ECI and be approved and stamped by a licensed geologist / hydrogeologist.

This opinion does not represent a determination by Ecology that a proposed remedial action will be sufficient to characterize and address the specified contamination at the Site or that no further remedial action will be required at the Site upon completion of the proposed remedial action.

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To obtain either of these opinions, you must submit appropriate documentation to Ecology and request such an opinion under the VCP. **This letter also does not provide an opinion regarding the sufficiency of any other remedial action proposed for or conducted at the Site.**

Please note that this opinion is based solely on the information contained in the documents listed above. Therefore, if any of the information contained in those documents is materially false or misleading, then this opinion will automatically be rendered null and void.

The state, Ecology, and its officers and employees make no guarantees or assurances by providing this opinion, and no cause of action against the state, Ecology, its officers or employees may arise from any act or omission in providing this opinion.

Again, 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.

If you have any questions regarding this opinion, please contact me at (425) 649-7251 or e-mail to rnye461@ecy.wa.gov.

Sincerely,



Roger K. Nye
Toxics Cleanup Program

Enclosure (1): A-Site Description and Diagrams

By Certified Mail [7011 0470 0003 3682 5384]

cc: Phillip Kirkwood, Property Owner
Stephen Spencer, Project Consultant
Sonia Fernandez, VCP Coordinator, Ecology

Enclosure A

Site Description and Diagrams

Site Description

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

Site: The Site is comprised of soil contaminated with tetrachloroethylene (PCE) beneath and adjacent to the Sun Cleaners facility, and is associated with the historical operation of the facility. PCE in indoor air is a component of the Site.

Property and Area Description: The Site is situated within Property known as the Twin Lakes Shopping Center located at 2311 Southwest 336th Street in Federal Way, WA. The Property is 2.18 acres in size and consists of a single tax parcel (King County Parcel # 8732170040). The Property is just west of the intersection of 21st Avenue SW and 336th Street ~2.5 miles southwest of downtown Federal Way. The surrounding land is completely developed with commercial and residential areas and mostly covered with buildings and paved surfaces.

Property History and Current Use: A single story slab-on grade building ~10,200 sq. feet in size was built on the Property, and the rest of the Property paved during 1979. The Property was undeveloped prior to 1979. The building is a strip mall and has contained a variety of businesses over time. A clothes cleaning facility has always occupied the west end of the building.

Sources of Contamination: Solvents were utilized by a dry cleaning facility from 1979 until approximately 2007. Since 2007, the current Sun Cleaners facility has been a "drop shop". PCE was released directly from dry cleaning equipment inside the building, and also possibly from spilling or dumping dry cleaning condensate outside the rear door of building. A sewer leak during 2007 may have facilitated the transport of PCE into adjacent underground utility trenches west and south of the building, and also vertically in the soil.

Physiographic Setting: The elevation of the Property is ~340 feet above mean sea level, and the topography in the area is generally flat. Except for a body of water ~600 feet northwest of the Property (which is dry at times), there are no bodies of surface water in the area.

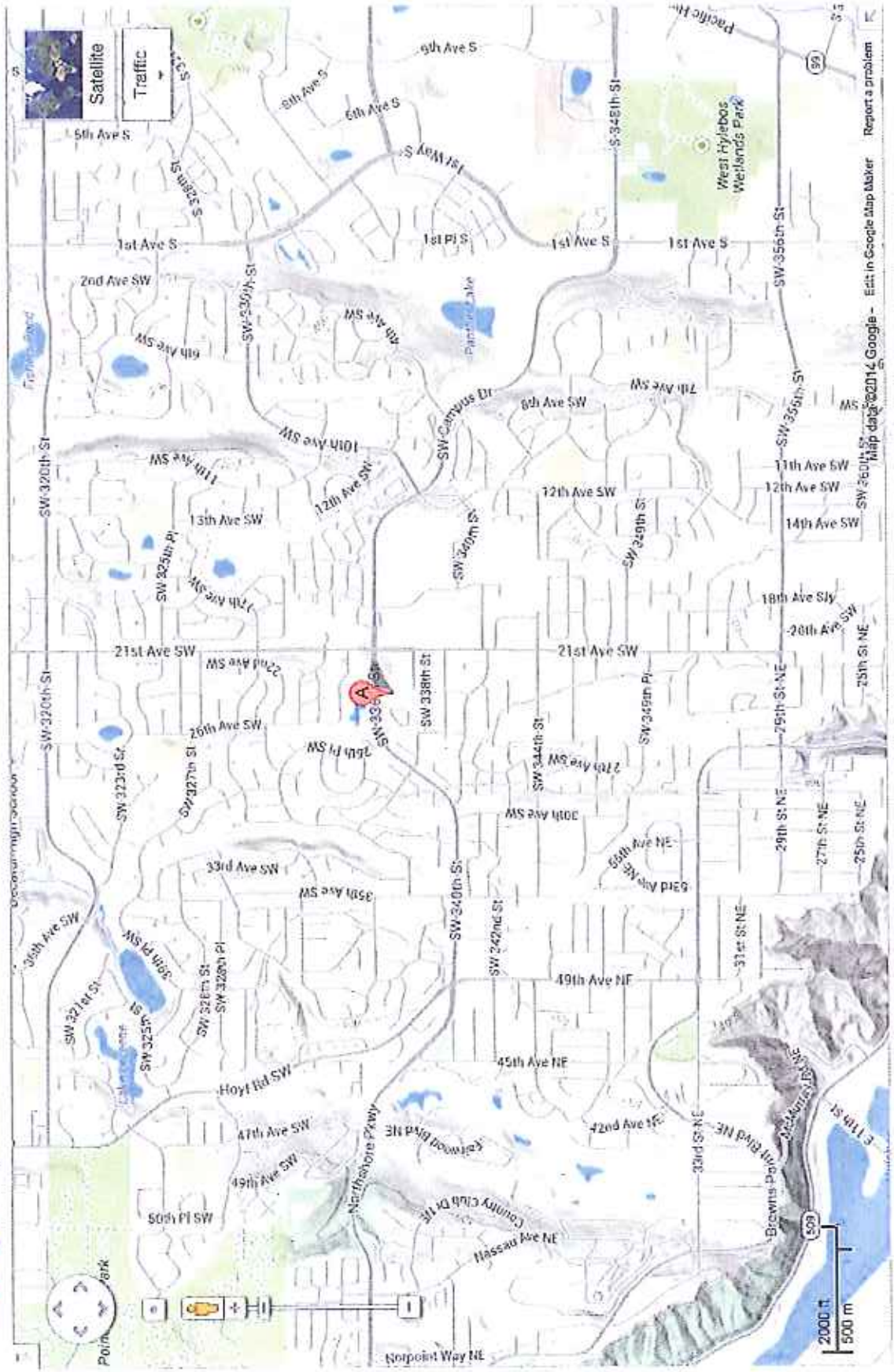
Ecological Setting: There are no areas of land on or near the Site that would provide significant habitat for terrestrial wildlife receptors.

Geology: A layer of surficial fill material two to four feet thick overlies the Site. The native soil consists of uniform sands and gravels of glacial origin to the maximum depth of exploration (120 feet). A layer of coarser sand ~six to eight feet thick was regularly encountered at ~20 feet bgs.

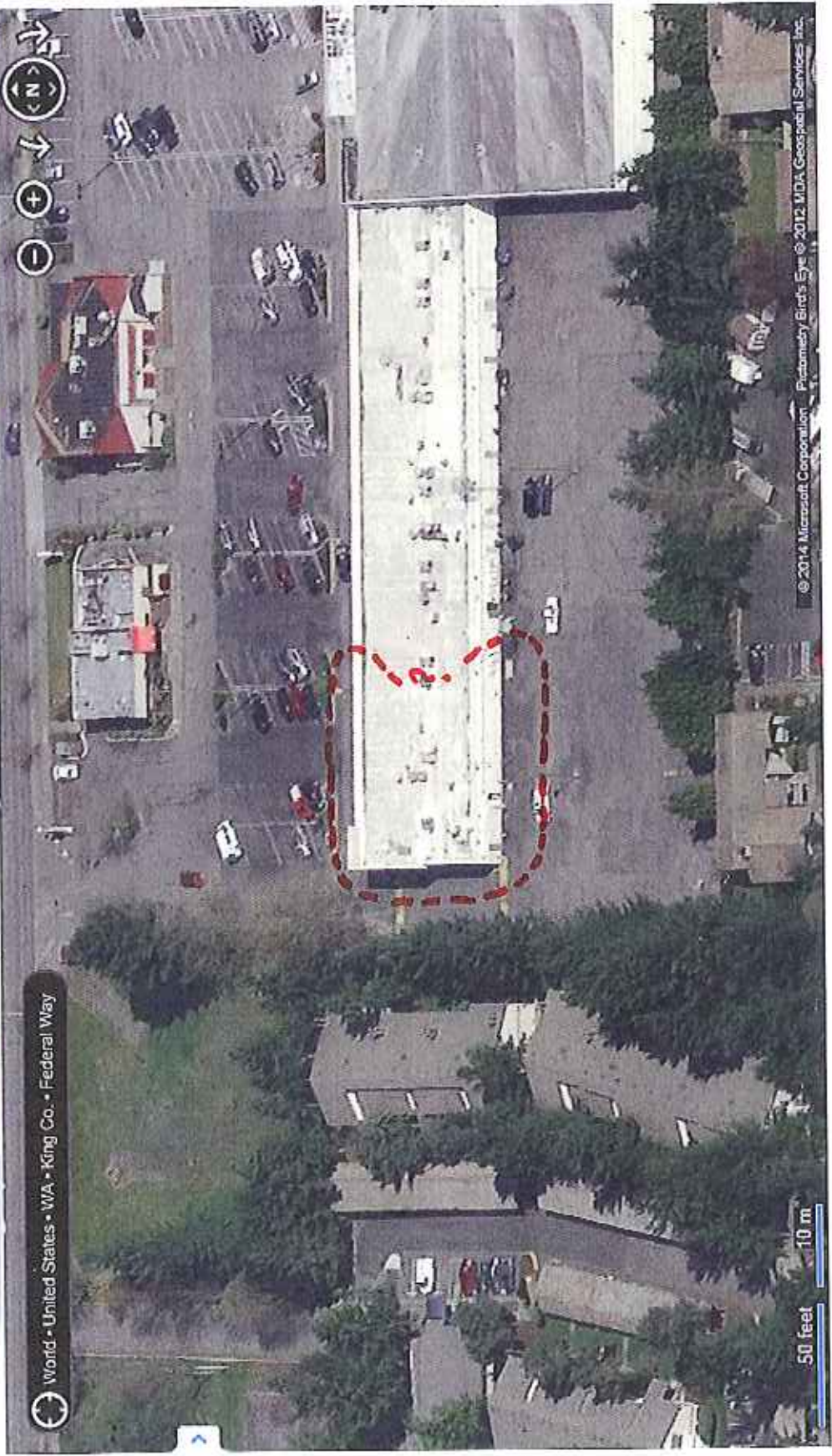
Ground Water: Ground water was found at 118 feet bgs. There were no indications of shallow zones of ground water. The flow direction of the ground water is unknown.

Extent of Soil and Ground Water Contamination: The distribution of PCE in soil is erratic because of different source locations and utility trenches, but the extent was mostly determined. The horizontal extent of PCE contamination is approximately 6,000 sq. feet. The maximum vertical extent of PCE in soil is ~45 feet bgs. Ground water was not contaminated by PCE.

Twin Lakes Shopping Center Site Location in Federal Way, WA

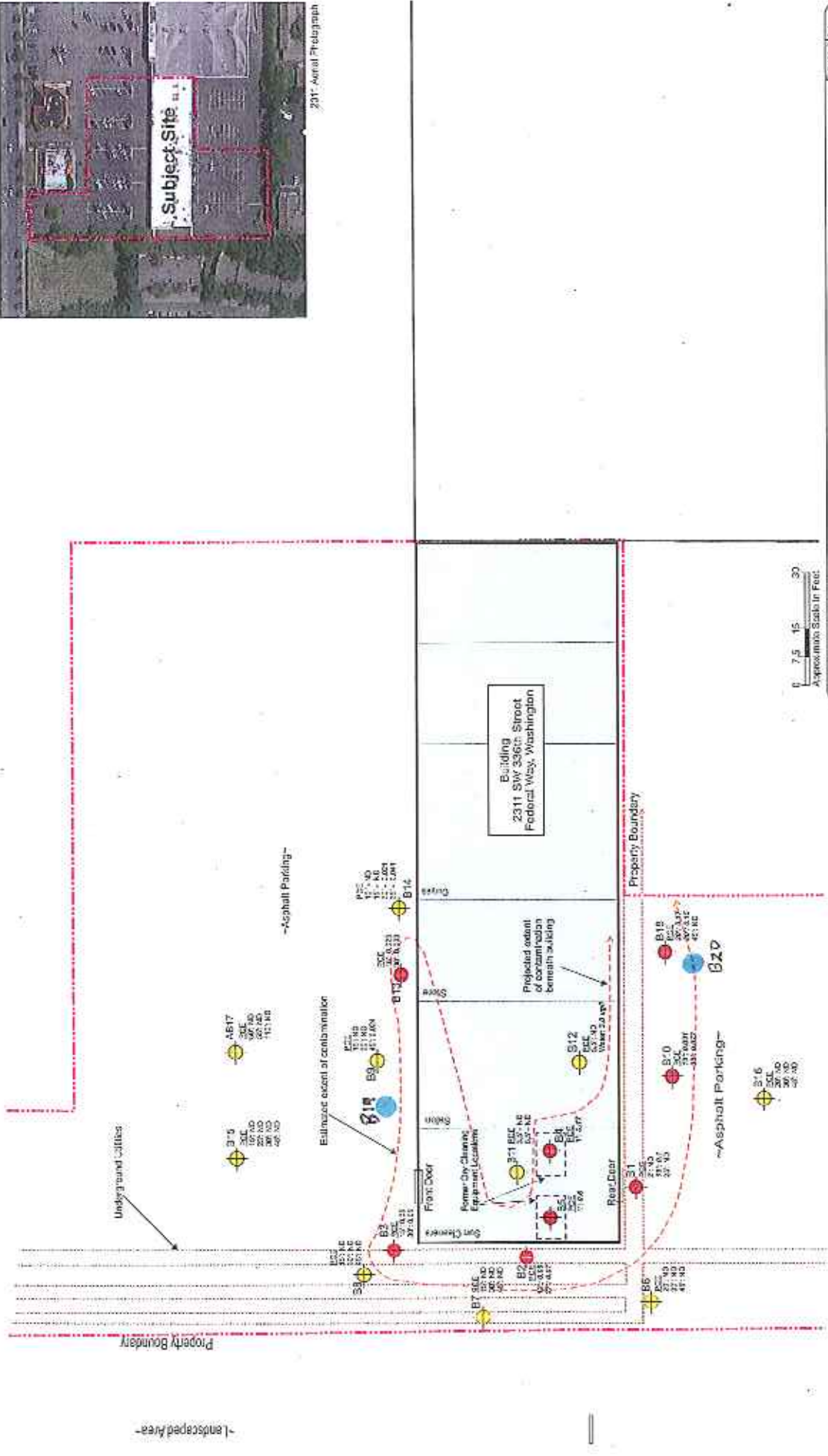


bing Twin Lakes Shopping Center Approximate extent of the Site





2311 Aerial Photograph

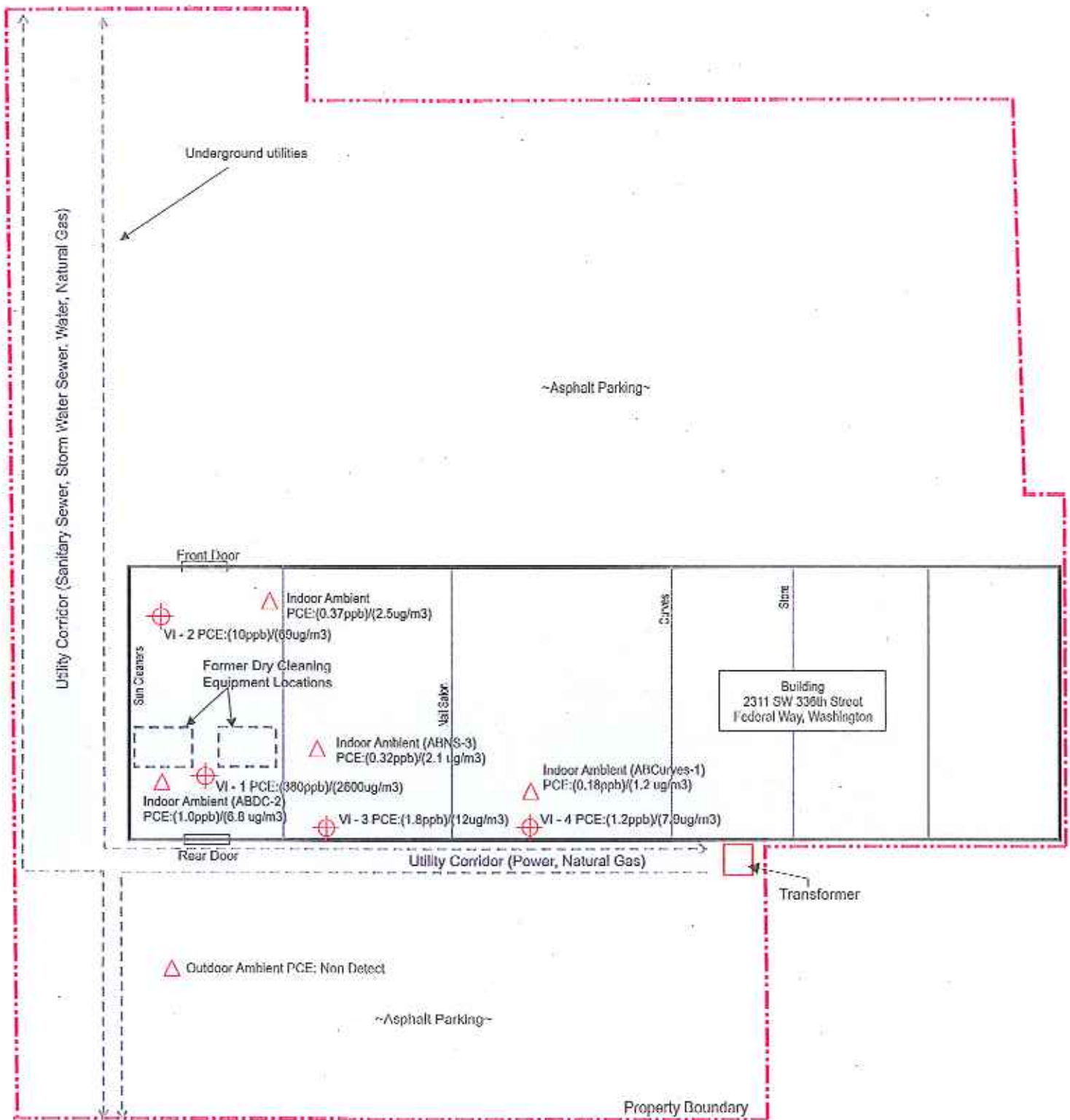




Date: September 11, 2012 Figure No.: 03
 Compiled By: K. Allegretti
 Reviewed By: T. Smith
 Version: ECI-201
 Project No.: 0428-05 Sheet: 05 of 03
ECI environmental consulting
 environmental consulting
 environmental consulting

Sample Location Map - PCE Concentration (Soil / Water)
 Focused Subsurface Investigation
 2311 SW 336th Street
 Federal Way, Washington
 Not To Scale

Legend
 Washington State Department of Ecology's (ECY) Most Toxic
 Central Act (MTC-A) Method A cleanup level for perchloroethylene,
 or perchloroethylene (PCE) for soil: 0.05 mg/kg
 ECY MTC-A Method A cleanup level for PCE in water: 5.0 µg/L

Deep Borings



-  Ambient Air Sample Location
-  Sub Slab Vapor Sample Location

VI Sample Location Map
Cleanup Action Plan
2311 SW 336th Street
Federal Way, Washington

Date: June 26, 2013
 Completed By: IWS
 Reviewed By: SMS
 Version: ECI-001
 Project No.: 0138-07

Figure No.:
04
 Sheet 04 of 04

