STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office • 3190 160th Ave SE • Bellevue, WA 98008-5452 • 425-649-7000
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

January 24, 2019

Mr. Mike Nielson
BV Holdings, LLC
10672 NE 9th Place
Bellevue, WA 98004

Re: Opinion pursuant to WAC 173-340-515(5) on Proposed Remedial Action for the following Hazardous Waste Site:

- **Site Name:** Thinker Toys
- **Site Address:** 10610 NE 8th Street, Bellevue, WA 98004
- **Facility/Site No.:** 2462690
- **VCP No.:** NW 2338
- **Cleanup Site ID No.:** 2477

Dear Mike Nielson:

Thank you for submitting documents regarding your proposed remedial action for the **Thinker Toys** 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 releases at the Site:

- Tetrachloroethene (PCE), trichloroethene (TCE), cis1,2-dichloroethene (cis-DCE), gasoline-, diesel-, and oil-range petroleum hydrocarbons (TPH-G, TPH-D, TPH-O), ethylbenzene and xylenes into the Soil;

- PCE, TCE, cis-DCE, trans-1,2-DCE (trans-DCE), TPH-G and TPH-D into the Ground Water;

- PCE, TCE, cis-DCE, and trans-1,2-DCE into the 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.

Ecology's Toxics Cleanup Program has reviewed the following information regarding your proposed remedial actions:

1. G-Logics, 2018. *Operation and Monitoring Memo, Former Dry Cleaner Location, 106th Avenue NE and NE 8th Street, Bellevue, WA*. July 19.

2. G-Logics, 2017. *Confirmation Sampling, Former Dry Cleaner Location, 106th Avenue NE and NE 8th Street, Bellevue, WA 98004*. October 17.

3. G-Logics, 2017. *Operation and Monitoring Memo – Biannual 2017, Former Dry Cleaner Location, 106th Avenue NE and NE 8th Street, Bellevue, WA*. February 26.

The reports listed above will be kept in the Central Files of the Northwest Regional Office of Ecology (NWRO) for review by appointment only. You can make an appointment by completing a Request for Public Record form (https://www.ecology.wa.gov/About-us/Accountability-transparency/Public-records-requests) and emailing it to: publicrecordsofficer@ecy.wa.gov, or contacting the Public Records Officer at (360) 407-6040. A number of these documents are accessible in electronic format from the Site web page (https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=2477).

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

- PCE, TCE, cis-DCE, TPH-G, TPH-D, TPH-O, ethylbenzene and xylenes into the Soil.

- PCE, TCE, cis-DCE, trans-1,2-DCE (trans-DCE), TPH-G, and TPH-D into the Ground Water.

- PCE, TCE, cis-DCE, and trans-1,2-DCE into the Air.

The Site is more particularly described in Enclosure A to this letter, which includes a detailed Site diagram. 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 characterizing and addressing the releases at the Site, Ecology has determined:**

- Based on Graphs 1 and 2 in the 2018 Operation and Monitoring Memo, daily PCE vapor removal rates in the SVE system are nearing low and asymptotic levels, In addition, concentrations measured in the SVE wells show recent evidence of rebound as high as 150 micrograms per liter (150,000 $\mu g/m^3$).

  - As a result, Ecology requests that a remediation plan be developed that includes more aggressive measures to clean up the Site. The schedule for completing cleanup actions must be included in the plan and should include significant milestones, such as remedial investigation results, quarterly ground water compliance monitoring events, feasibility study evaluations, and anticipated submittal of documents and requests for Ecology opinions. Contingencies and alternative approaches should be identified if the cleanup is determined to be not progressing within the expected time frame.

- Ecology also requests a meeting at your earliest convenience to discuss the remedial options for this Site, a remediation schedule and whether or not VCP is the correct regulatory framework for cleanup of this Site.

- Please report and plot soil vapor data using units of micrograms per cubic meter ($\mu g/m^3$) to allow direct comparison to Ecology's soil gas screening levels.

- The vapor intrusion pathway must be considered during development of cleanup levels for Sites under MTCA. Due to elevated concentrations of PCE and related by-products such as TCE in soil and perched ground water on the Site, these contaminants potentially occur in soil gas on the Property and adjacent properties. Please investigate the soil vapor pathway and the potential for vapor intrusion into any buildings on and near the Site. Since TCE in particular poses a significant health risk through the vapor pathway, it is critical that this evaluation by completed as soon as possible.

- Monitoring well MW-15 was omitted from the June 19, 2018 ground water sampling round due to a parked car. Monitoring wells located in parking areas should be coned off ahead of time to allow access during sampling.

- Ground water elevation data should be collected in all Site monitoring wells in each round.

- It is Ecology's understanding that a ground water sampling event may be conducted on the Site in late 2019 or early 2020. Please revise this schedule. Current ground water analytical data is needed to determine the regulatory status of the Site.

- Please consider generating a second cross-section in addition to A-A' shown in Figure 4 of the Confirmation Sampling report dated 02/26/17. All of the soil borings including GL-3 and GL-4, which had samples containing PCE at concentrations above the Method A cleanup level, should be depicted on a cross-section if possible.

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. 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) 649-7064 or heather.vick@ecy.wa.gov.

Sincerely,

Heather Vick

Heather Vick, LHg
NWRO Toxics Cleanup Program

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

cc: Dan Hatch, G-Logics
Sonia Fernandez, VCP Coordinator, Ecology

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 associated with contaminant releases from two service stations and a dry cleaning facility formerly located at 10610 Northeast 8th Street in Bellevue, Washington (Property). The Site is named for a toy store (Thinker Toys) that previously occupied the Property during the 1990s. The Property corresponds to King County parcel number 0685700055 which is 0.30 acre in size.

The Site is defined primarily by tetrachloroethylene (PCE) contamination in soil, ground water, and air. PCE breakdown products including trichloroethylene (TCE) as well as petroleum hydrocarbons are also present. The Site extends off the Property to the north, south, east, and west, as shown on the enclosed Site and Property Map.

Area and Property Description: The Property is in the Bellevue central business district, surrounded by commercial land uses and multi-story condominium developments. A fitness facility (23 Fit Club) is located east of the Property; the Property is bordered to the south by NE 8th Street. The Property is bordered to the west by 106th Avenue NE. North of the Property is WP & Associates Realty. Single-family residential housing begins about 1,500 feet further to the north.

Property History and Current Use: The Property was the location of a retail gasoline station and automobile repair facility between 1955 and 1968. The gas station was demolished in 1968 and replaced with a second gasoline station, which operated until 1976. At that time, One-Hour Martinizing, a dry cleaning business, operated on the Property until 1986, using PCE as a dry cleaning solvent. After 1986, there was a succession of small retail businesses including a pet store and a toy store (Thinker Toys). As of 2007, the existing building on the Property was demolished and the surface paved over for parking; the Property is currently used for a parking lot.

Sources of Contamination: Potential contaminant sources for this Site include petroleum hydrocarbon releases from service station and automobile repair operations and dry cleaning fluid releases at the cleaners. The dry cleaning fluid used was PCE; however, there is no record of reported specific spills or releases of this contaminant at the Property.

Physiographic Setting: The Site is located within the Puget Sound Lowland Physiographic Province, a north-south trending structural and topographic depression that is bordered on its west side by the Olympic Mountains, and to the east by the Cascade Mountain foothills. The Puget Sound Lowland is underlain by Tertiary volcanic and sedimentary bedrock, and has been filled to the present day land surface with Pleistocene-aged glacial and nonglacial sediments.

The Site is situated near the middle of the Interlake Drift Upland, a topographic highland bordered by Lake Washington on the west and the Lake Sammamish/Sammamish River Valley on the east. The upland surface is molded into a series of north-south trending ridges and valleys, and near the Site slopes gently to the southwest. Elevations at the Site range from about 150 to 160 feet above mean sea level.

Surface/Storm Water System:
Surface water runoff from the Property and surrounding area is captured in the City of Bellevue's storm water drainage system. The runoff is likely directed to the southwest towards Meydenbauer Creek. This creek, and its tributaries historically drained much of downtown Bellevue, but now that drainage is mostly underground in culverts. The creek daylights about 2,000 feet to the southwest, where it continues flowing to the south and then west before discharging into Lake Washington.

Ecological Setting: The densely-developed downtown area near the Property has little ecological habitat, except for limited landscaping around commercial buildings. The closest area of significant potential terrestrial habitat is the strip park that encircles downtown Bellevue and the landscaped yards beyond. This area is about 1,500 feet north of the Property.

Geology: The Property is underlain by approximately 40 to 60 feet of glacial till, a dense, unsorted mixture of clay, silt, sand, and gravel. The till contains some sandier zones, particularly at 20 to 35 feet below the ground surface (bgs). Below the till is a glacial drift deposit of silt, sand, and gravel that has been interpreted as a glacial outwash deposit. This deposit extends to at least 101 feet bgs, the maximum depth of exploration on the Site.

Ground Water: The uppermost ground water at the Site occurs in sand-rich lenses within the low-permeability glacial till. This shallow water-bearing zone occurs at depths between 20 and 35 feet bgs, whereas static water levels in monitoring wells screened in the zone are generally 10 to 25 feet bgs, indicating some confinement by the overlying till. The ground water flow direction in the shallow water-bearing zone is to the south and south/southwest.

A lower aquifer has also been identified within the glacial outwash at a depth below 75 feet bgs (static water levels are at about 75 feet bgs). The boring logs are inconclusive as to the thickness of the lower aquifer, and whether it is confined. The lack of clarity suggests it may be slightly confined within more permeable zones, much like the perched interval within the till. The lower aquifer appears to have a greater saturated thickness and would be more productive than the overlying perched interval. The ground water flow direction in the lower aquifer has not been assessed.

Water Supply: Drinking water is provided to the Site area by the Cascade Water Alliance, an association of districts and cities, including Bellevue. Cascade purchases drinking water from

Seattle which is obtained from the Cedar and South Fork Tolt River watersheds. Ecology's well log database shows two deep water supply wells completed within the same Township, Range, and Section as the Property. The wells were drilled in the mid-1940s by King County Water District #68 to depths of over 1,000 feet, and screened at some depth below 250 feet. The exact locations of these wells are unknown and whether they are still in use.

Release and Extent of Contamination - Soil: A 2009 soil vapor study concluded that chlorinated solvents were present on the Property. In 2010, two subsurface investigations confirmed that soil and ground water on the Property were also contaminated with chlorinated solvents, specifically PCE and its associated degradation products. The highest concentrations were detected near the Property in the general area of former dry cleaning operations.

In 2010/2011, a Remedial Investigation/Feasibility Study (RI/FS) was conducted and an Interim Cleanup Action Plan (ICAP) was prepared for the Property.

PCE contamination in soil extends to a depth of about 45 feet bgs over an area about 150 feet wide and over 300 feet long. The full lateral extent of contamination has not been determined. The most contaminated area noted to date occurs at the Property below the location of a former sump. Prior interpretation of subsurface conditions showed soil contamination on either side of NE 8th Street, but not in between. Ecology believes it is more likely the contamination is continuous across the right-of-way, and does not terminate at the Property line.

Extent of Contamination – Ground Water: Ground water samples obtained from a number of monitoring wells show a broad PCE plume in the shallow water-bearing zone extending off-Property to the south and southwest. Exceptionally high PCE concentrations, close to 10,000 ug/L in two wells on the Property, suggest the potential for liquid product to be present. The full extent of the plume has not been determined, but it does not appear to be preferentially following subsurface utilities as these are generally above the ground water.

Ground water investigations completed to date have focused on the shallow water-bearing zone , which generally occurs at a depth of 20 to 30 feet below ground surface. An underlying aquifer (lower aquifer) is also present beneath the Property, with static water levels at a depth of about 75 feet. While water quality data is available from 24 monitoring wells completed in the shallow water-bearing zone, similar data is only available from 3 wells completed in the lower aquifer-bearing zone. Of these three, only one (MW-7D) appears to be located in an area potentially impacted by PCE.

Monitoring well MW-7D is located directly in the most contaminated area of the Property, and showed no PCE in two sampling rounds in 2010. This data suggested the glacial till between the shallow water-bearing zone and the lower aquifer may be an effective barrier to vertical PCE

Migration in ground water on the Property. However, one appropriately situated well in the lower aquifer is insufficient given the high concentrations of PCE in the overlying shallow water-bearing zone.

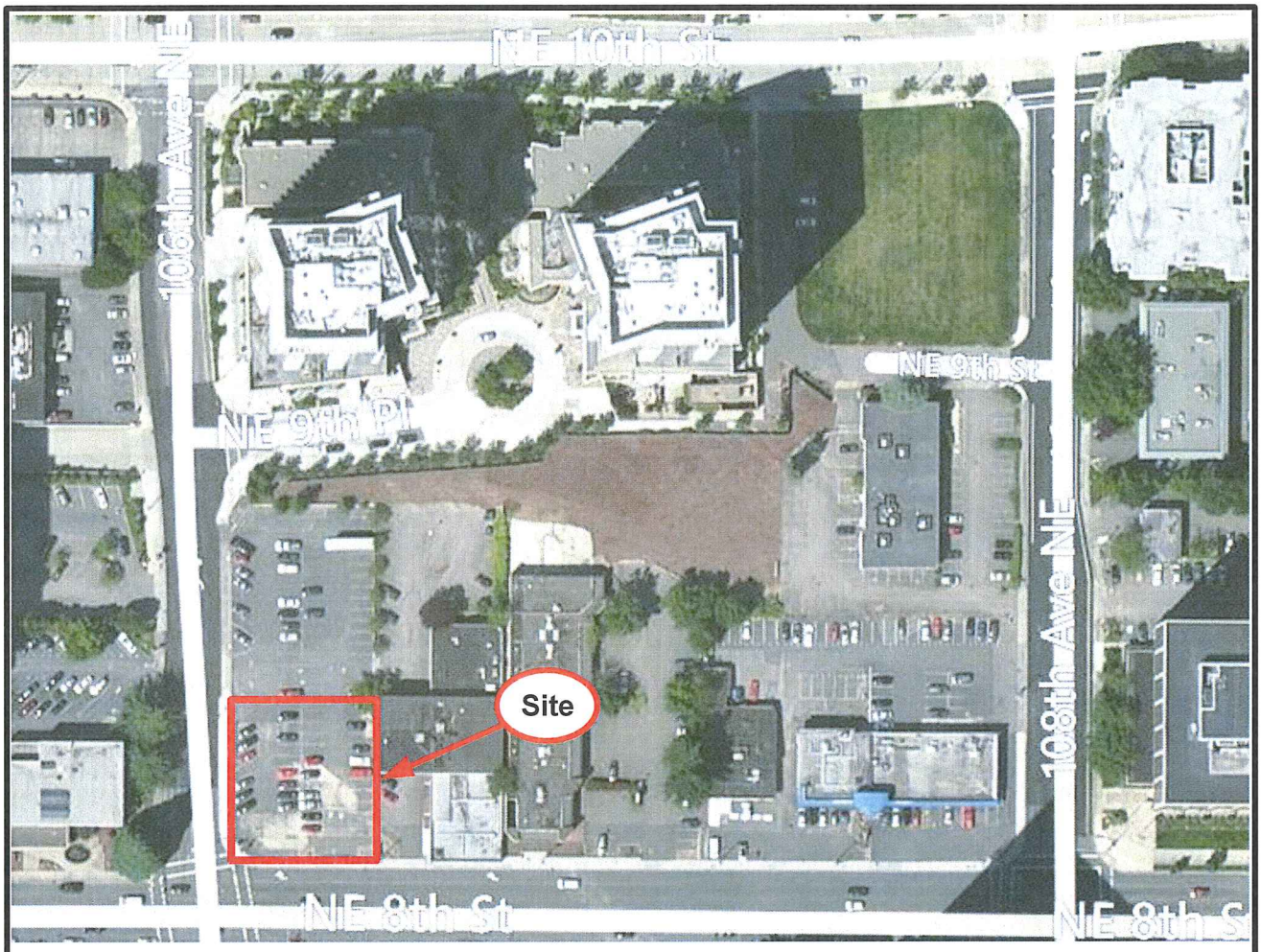
Remediation: In 2012, an air sparging/soil vapor extraction (AS/SVE) system was installed in an Interim Action to reduce PCE concentrations on the Property. The AS system was found to not function properly due to low soil permeability and was shut down in June 2014. The SVE system continues to operate and consists of one regenerative blower, one rotary-vane compressor, related electrical equipment and a moisture-reduction (knockout tank). The blower produces a vacuum to remove subsurface vapors from the vadose zone. The blower operates on a pulsed schedule, running for two 6-hour periods every 24 hours. The system includes SVE wells GL-SVE-1 through GL-SVE-9.

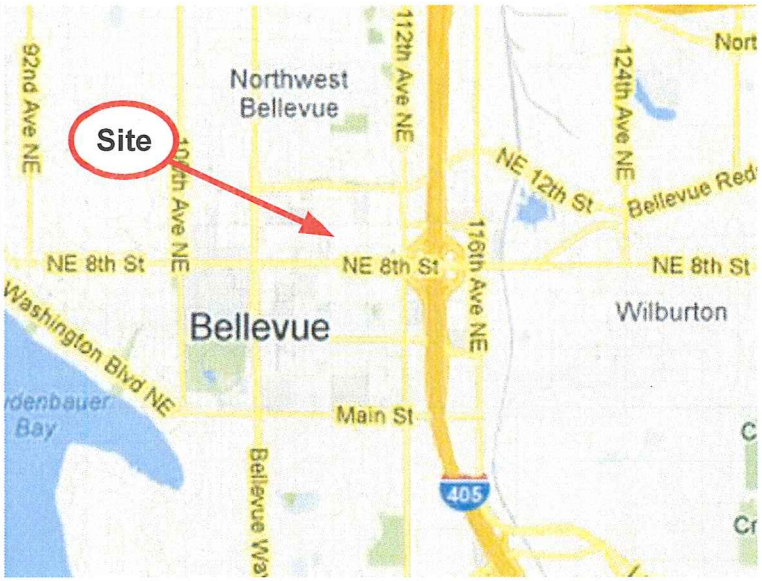
As of June 2018, the SVE system has removed approximately 106 pounds of PCE from the vadose zone of the Site.

Confirmation Soil Sampling: In 2016, nine soil borings (GL-1 through GL-9) were advanced using a hollow-stem auger drill rig to collect soil confirmation samples on the Site. In addition, borings GL-1 through GL-3 were advanced north of previously explored areas to close data gaps and to further delineate areas with detectable concentrations of chlorinated solvents. Borings GL-4 though GL-9 were sited to provide current analytical data in areas targeted by operation of the AS/SVE system. Borings GL-4 and GL-5 were advanced deeper to 50 feet bgs in an attempt to also provide vertical delineation of contamination. Soil samples collected from the borings were analyzed selectively for PCE and related degradation products using EPA Method 8260. Ground water was not encountered in any of the soil borings.

PCE was encountered in soil in all of the borings at various depths. Soil samples with concentrations of PCE exceeding the Method A cleanup level (up to 2.32 milligrams per kilogram) were collected in all soil borings except GL-1 and GL-5.

Site Diagrams





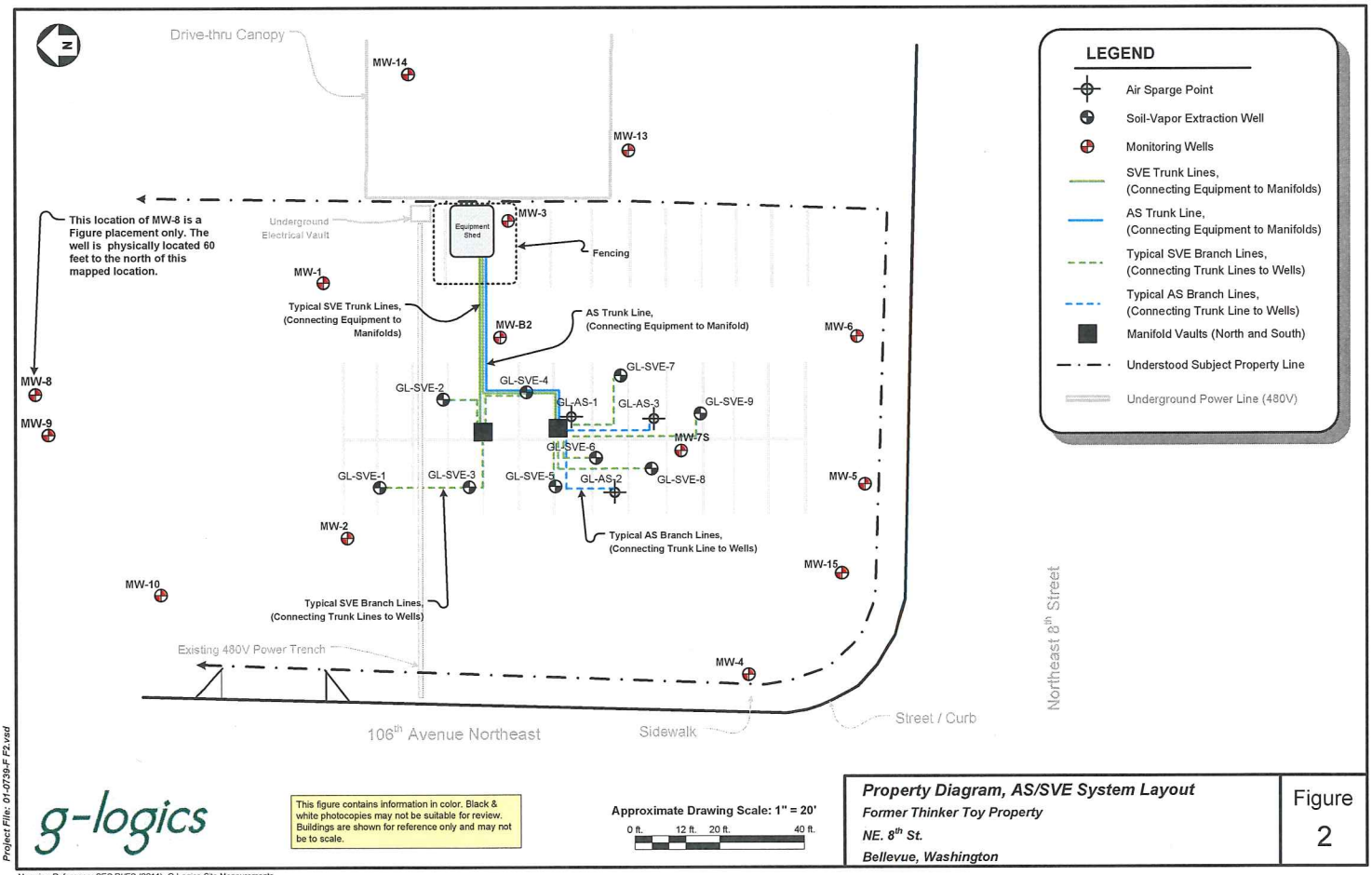
g-logics

Site Location Maps
Former Thinker Toy Property
10610 NE 8th Street
Bellevue, Washington

Figure
1

Project File: 01-0739-F F1.vsd

Mapping Reference: Google, Bing Maps



g-logics

This figure contains information in color. Black & white photocopies may not be suitable for review. Buildings are shown for reference only and may not be to scale.

Approximate Drawing Scale: 1" = 20'

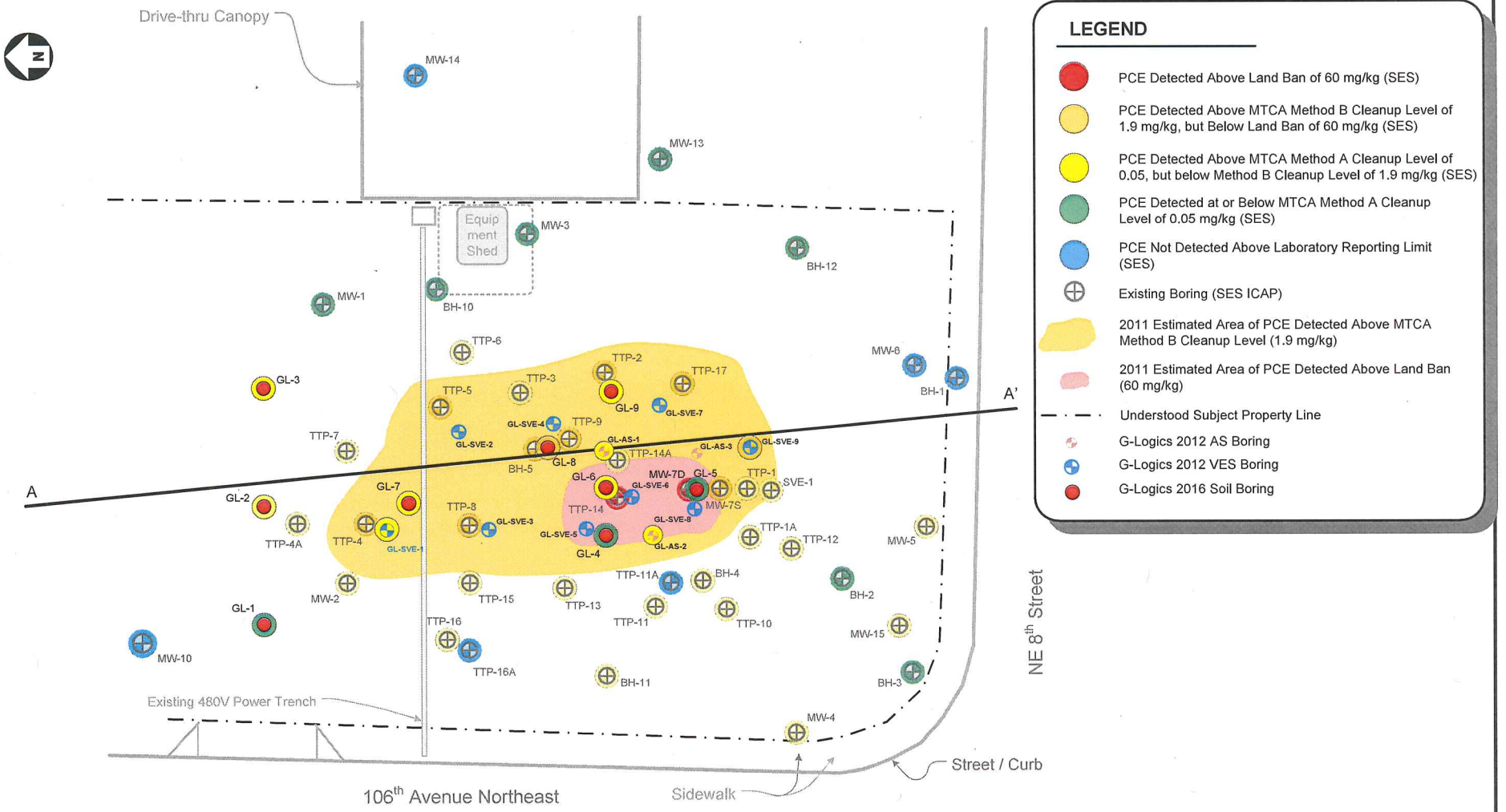
0 ft. 12 ft. 20 ft. 40 ft.

Property Diagram, AS/SVE System Layout
Former Thinker Toy Property
NE. 8th St.
Bellevue, Washington

Figure 2

Project File: 01-0739-F F2.vsd

Mapping Reference: SES RI/FS (2011), G-Logics Site Measurements



Project File: 01-0739-G F3.vsd

g-logics

This figure contains information in color. Black & white photocopies may not be suitable for review.

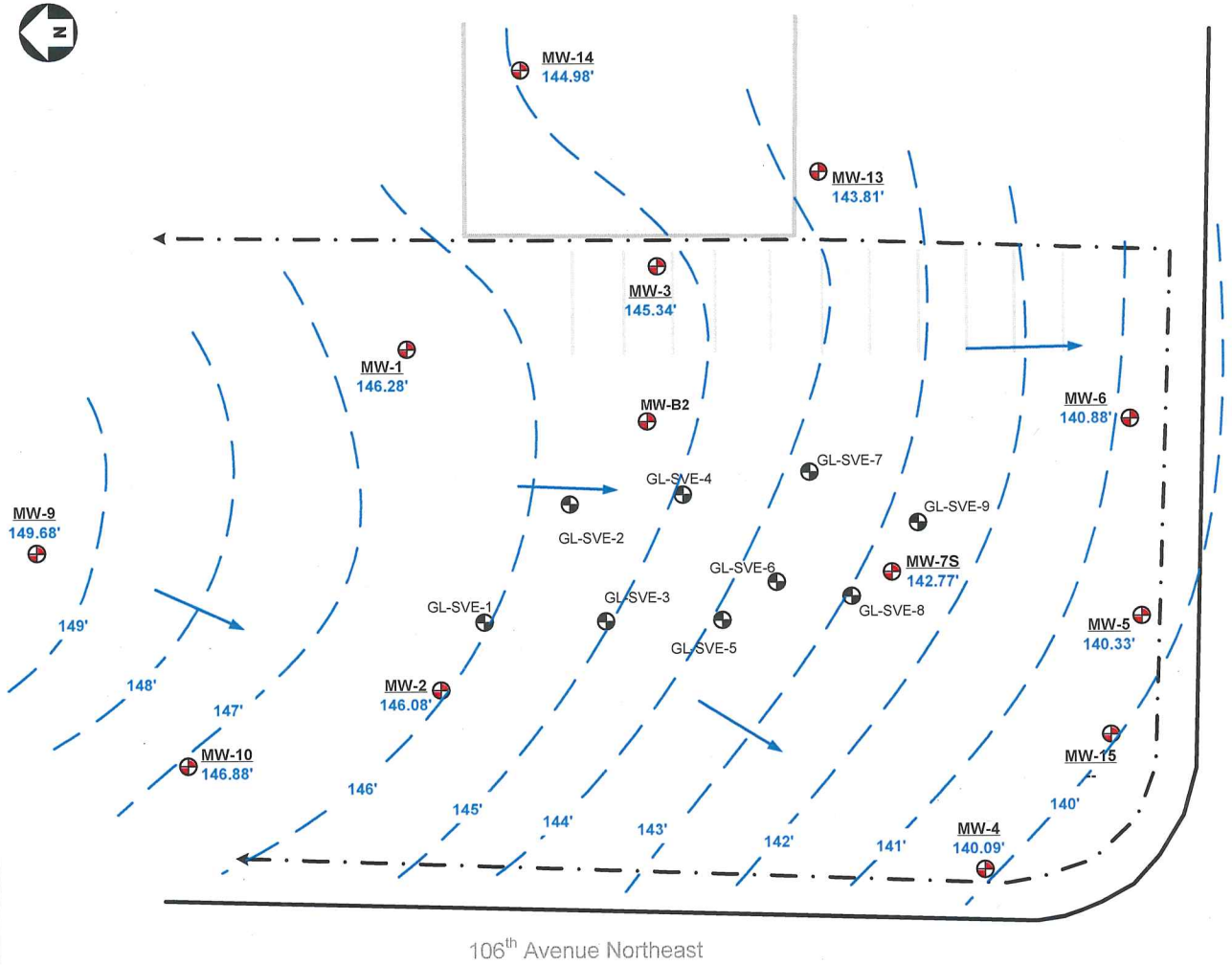
Approximate Drawing Scale: 1" = 20'

0.0 in. 144.0 in240.0 in. 480.0 in.

Site Diagram, Boring Locations, PCE Soil Concentrations
Former Thinker Toy Property
10610 NE. 8th St.
Bellevue, Washington

Figure 3

Mapping Reference: SES ICAP (2011), G-Logics Site Measurements



LEGEND

- Soil-Vapor Extraction Well
- Monitoring Wells
- Understood Subject Property Line
- Interpreted Groundwater Elevation Contour
- Interpreted Groundwater Flow Direction
- MW-6 / 140.88' — Monitoring Well Identification / Groundwater Elevation (ft.)

g-logics

This figure contains information in color. Black & white photocopies may not be suitable for review. Buildings are shown for reference only and may not be to scale.

Approximate Drawing Scale: 1" = 20'

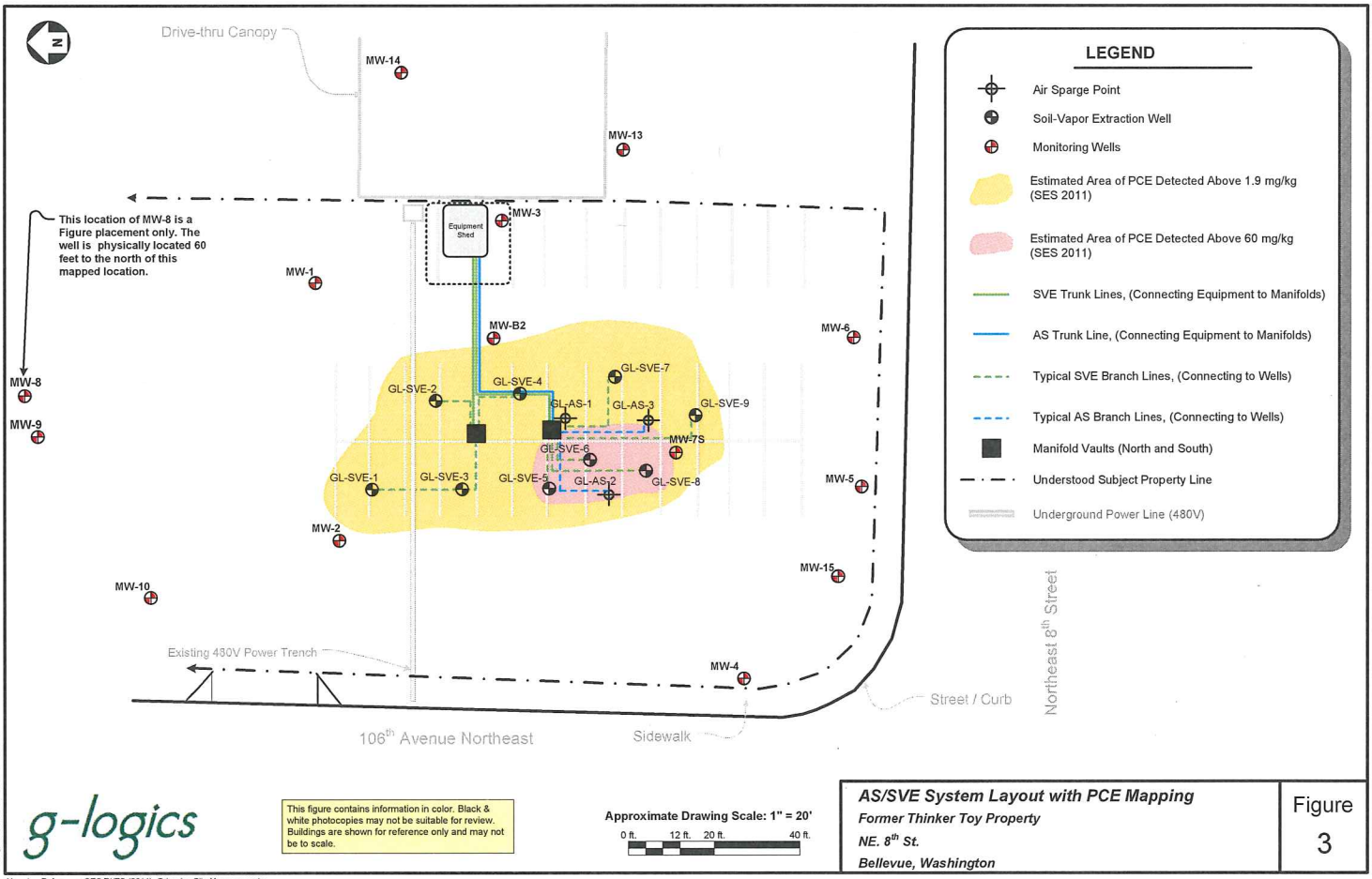
0 ft. 12 ft. 20 ft. 40 ft.

Site Diagram, Groundwater Contours (6/19/2018)
Former Thinker Toy Property
10610 NE 8th Street
Bellevue, Washington

Figure 3

Project File: 01-0739-H F3 GWC.vsd

Mapping Reference: SES RI/FS (2011), G-Logics Site Measurements



g-logics

This figure contains information in color. Black & white photocopies may not be suitable for review. Buildings are shown for reference only and may not be to scale.

Approximate Drawing Scale: 1" = 20'

0 ft. 12 ft. 20 ft. 40 ft.

AS/SVE System Layout with PCE Mapping

Former Thinker Toy Property

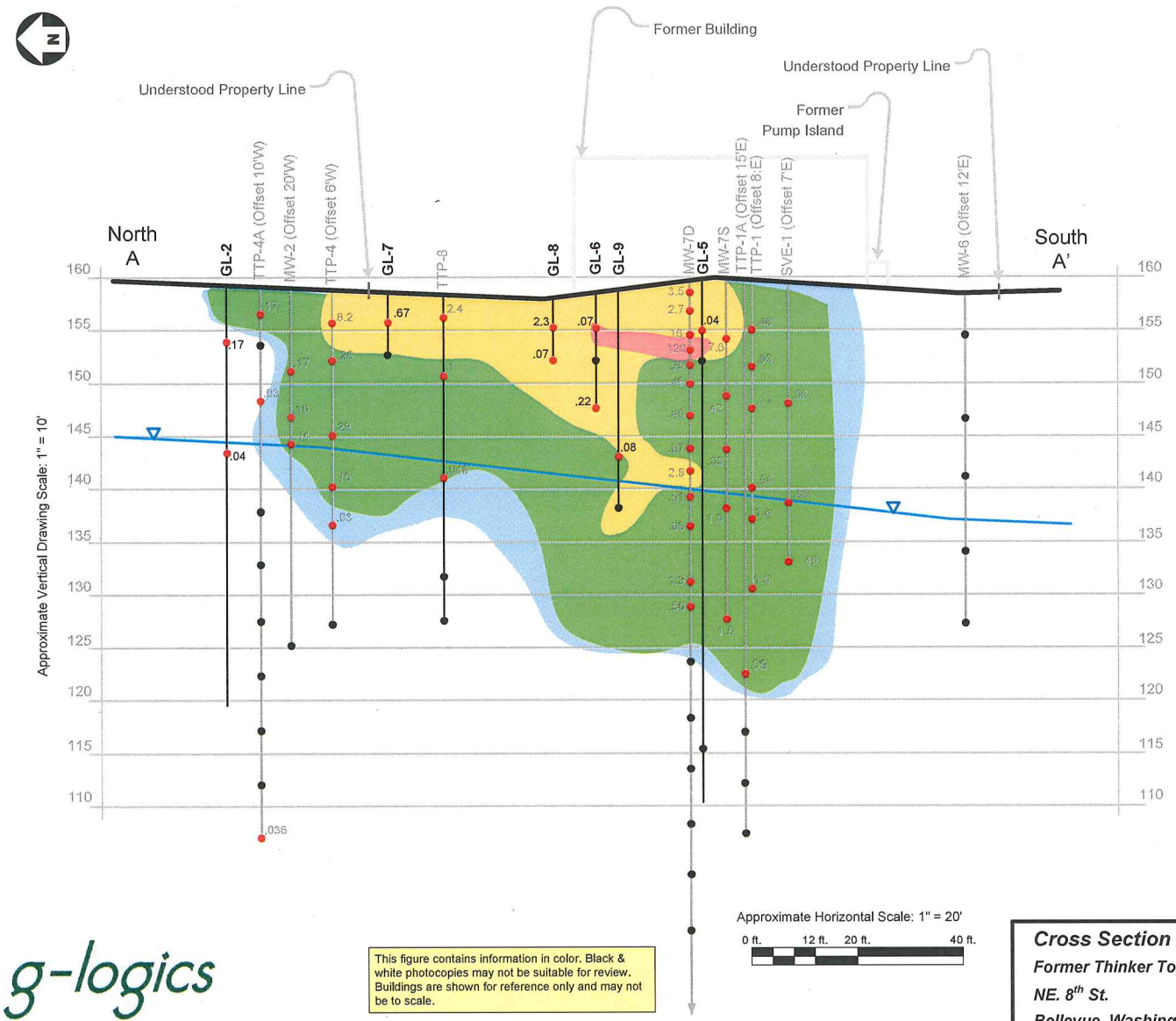
NE. 8th St.

Bellevue, Washington

Figure 3

Project File: 01-0739-F F3.vsd

Mapping Reference: SES RI/FS (2011), G-Logics Site Measurements



LEGEND

- **GL-8** G-Logics Boring, 2016
- MW-7D Farallon Boring, 2010
- 2011 PCE Concentrations Less than 0.05 mg/kg (SES)
- 2011 PCE Concentrations Greater than 0.05 mg/kg (SES)
- 2011 PCE Concentrations Greater than 1.9 mg/kg (SES)
- 2011 PCE Concentrations Greater than 60 mg/kg (SES)
- PCE – No Detectable Concentration
- PCE – Detected, Concentrations noted to the side
- Understood Groundwater Depth (SES, August 23, 2010)

Approximate Horizontal Scale: 1" = 20'

0 ft. 12 ft. 20 ft. 40 ft.

This figure contains information in color. Black & white photocopies may not be suitable for review. Buildings are shown for reference only and may not be to scale.

g-logics

Cross Section A-A', PCE Soil Data, 2010 and 2016

Former Thinker Toy Property

NE. 8th St.

Bellevue, Washington

Figure 4

Project File: 01-0739-G F4.vsd

Mapping Reference: Sound Earth Strategies, RI/FS 2011, G-Logics.