STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office • 3190 160th Ave SE • Bellevue, WA 98008-5452 • 425-649-7000
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October 14, 2013

Ms. Terri Young
Main Street Gateway, LLC
9 103rd Avenue NE, Suite 204
Bellevue, WA 98004

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

- **Name:** Main Street Former Mobil Station
- **Address:** 10328 Main St, Bellevue, WA
- **Facility/Site No.:** 10321
- **VCP No.:** NW2772
- **Cleanup Site ID No.:** 12187

Dear Ms. Young:

Thank you for submitting documents regarding your proposed remedial action for the Main Street Former Mobil Station 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(s) at the Site:

- Total gasoline-range petroleum hydrocarbons (TPHg) in Soil;
- TPHg in Groundwater
- Tetrachloroethene (PCE) in Groundwater

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. PBS Engineering and Environmental, *Geophysical Survey and Limited Subsurface Investigation, Main Street Gateway Properties, 10328 Main Street & 31 Bellevue Way NE, Bellevue, WA 98004*, March 2011.
2. PBS Engineering and Environmental, *Remedial Investigation and Feasibility Study for Remedial Action (RI/FS), Main Street Gateway Block Development, Bellevue WA, Former Chevron Service Station #0587, 5 Bellevue Way NE, Bellevue WA, Former Mobil Station, 10328 Main Street, Bellevue WA, Former Texaco Station, 31 Bellevue Way NE, Bellevue, WA,* July 2013.

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 email to nwro_public_request@ecy.wa.gov.

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

- Total gasoline-range petroleum hydrocarbons (TPHg) in Soil;
- TPHg in Groundwater
- PCE in Groundwater

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 following release(s) at the Site, Ecology has determined:**

- The Remedial Investigation (RI) at this Site is not complete. A comprehensive RI that summarizes all previous investigations and shows the nature and extent of contamination in all media must be provided. The RI must also provide summaries of the former Site

uses that could have resulted in releases. Cross-sections and plan-view graphics are needed to show the relationship of the contamination in each media with current and former Site features, parcel boundaries, Site geology, and the points of compliance. Note that the contaminated area encompasses anywhere contaminants of concern are detected, not just where they exceed MTCA cleanup levels. It is therefore especially important to provide the bounding data, and graphics and tables should provide data that bounds the extent of contamination in each media.

The Site is located on the southwestern most parcel (Property) within the Main Street Gateway Block Development (MSGBD) which encompasses the full city block between Bellevue Way NE to the east, 103rd Avenue NE to the west, Main Street to the South, and NE 1st Street to the north. A total of six parcels make up the MSGBD. Boring logs for all borings, including geotechnical borings, and ground water monitoring wells logs advanced within the MSGBD need to be included with the RI evaluation and appended to the RI to provide a complete evaluation of the geology and hydrogeology in the vicinity of the Site.

Summary tables should include all compounds that have been detected, and the proposed cleanup level for each compound. An annotated outline of an RI Report is presented in **Enclosure B** to provide an understanding of Ecology's expectations for conducting and documenting the RI. Ecology cannot review or comment on the FS before completion of the RI.

- The Environmental Setting section of the RI needs to include a description of ecological conditions in the vicinity of the Site.
- Based on the information presented in the RI, the vertical and lateral extent of contamination in soil has not been determined at the Site.
- It is unclear in the RI if the PCE present in groundwater has an on-Site source. Soil and groundwater samples collected at the Site should be analyzed for PCE and its degradation products until the source is identified and characterized.
- Soil samples should be analyzed according to Table 830-1 of the MTCA regulation and Table 7.2, page 95, in the ***Guidance for the Remediation of Petroleum Contaminated Sites***, Ecology Publication No. 10-09-057, September 2011. Because of the reported auto repair activities and the fact that the contents of the former tanks are unknown, soil samples collected at the Site should be analyzed for TPH in the diesel and oil ranges as well as TPHg and BTEX. Where hydrocarbons are detected, the additional parameters listed on Table 830-1 of the MTCA regulation should then be analyzed in the samples with the greatest TPH concentrations.
- The areal extent of ground water contamination has not been defined surrounding B-3, where the only ground water sample was collected and contained concentrations of TPHg above MTCA Method A cleanup level at 2,100 micrograms per liter (µg/l). No data is presented for the one monitoring well (MW-1) that was installed in 2012 near B-3.

Groundwater data for monitoring wells screened at or close to the water table are necessary to determine the nature and extent of the plume near B-3. Once additional data is collected, the vertical and lateral boundaries of the contaminant plumes as far as they are known need to be defined in writing, and supported with illustrations and comprehensive data tables.

- The Geology section needs a more complete description and interpretation of geologic conditions for the Property and the MSGBD.
- The RI document needs a description of subsurface utilities at and surrounding the Site that could provide a preferential pathway for contaminant movement.
- The Hydrogeology section needs a description and interpretation of hydrogeologic conditions for the Property and for the Site vicinity. Based on the descriptions in the RI of the hydrogeology at this Property and adjacent parcels, there may be two water bearing zones underlying the Site vicinity. A perched zone at approximately 13 feet bgs has been observed and a more continuous zone has been observed at approximately 30 feet bgs at the former Chevron Service Station 0587 adjacent to this Property. It is especially important to define any perched ground water and the aquifer encountered at 30 feet bgs, identify whether the aquifer is confined or unconfined, and then discuss lateral and vertical flow. Because a large quantity of groundwater flow data is available for the adjacent former Chevron Service Station 0587, historic data for groundwater flow should be summarized on a rose diagram and included with the RI.
- Section 2.4.2 of the RI states that a groundwater sample from the "northeast corner of the property" contained PCE, and that an active dry cleaner was located "one block to the north". The RI figures do not show a boring in the northeast corner of the Property, and the text does not provide the name or depth of the sample collected. Provide text that indicates the boring name and depth of samples collected and ensure that all sample locations are shown on the figures and all results presented on tables. It is not clear if the source of the PCE in groundwater is at the Parcel or is the dry cleaner north and up-gradient of the Site. PCE has been detected in monitoring wells with water levels at approximately 30 feet bgs at the adjacent former Chevron Service Station 0587. Based on PCE detections in groundwater at and immediately adjacent to this Site, additional characterization for PCE and its degradation products is required to determine the source and nature and extent of PCE in groundwater. Consideration of multiple water-bearing zones and potential on- and off-Property sources must be included in the characterization. Appropriate drilling and installation methods should be used during this assessment to prevent cross-contamination of the water-bearing zones.
- The potential impact of the dry cleaner north of the MSGBD has not been investigated both on the Property and at the remaining parcels within the MSGBD. Data collected in relation to the dry cleaner within the MSGBD at the southeast corner of NE 1st Street and Bellevue Way NE indicates that PCE has been detected in groundwater at the north end of the MSGBD, in the Property, and at the adjacent former Chevron Service Station

0587. These data indicate that there may be commingled contaminant plumes at the Site and within the MSGBD. Groundwater sampling is necessary in all potentially-impacted water-bearing zones at the Site and the MSGBD to determine the potential presence of and the nature and extent of PCE and related degradation product contamination.

- It is not clear if all the potential sources of contamination at the Texaco Station formerly located at 31 Bellevue Way NE have been investigated. It is unclear from the RI if soil below the floor drain where high concentrations of TPH, copper, lead and zinc were detected in floor drain solids has been sampled. There is also no mention as to whether the floor drain system was tested to determine if it was leaking to the subsurface. The figures should show the location of the former floor sump and associated floor drain system. If soil samples have not been collected immediately adjacent to and below the former floor drain, additional sampling is required to determine if the floor drain system is a source of contamination.
- The Conceptual Site Model section needs a discussion regarding the potential for preferential contaminant movement through or along subsurface utility lines. It also should include an overview of lateral and vertical ground water movement and contaminant transport discussion.
- All potential contaminants of concern (COCs) in each media need to be discussed in the Conceptual Site Model and data analysis sections of the RI, and appropriate cleanup levels identified for comparison. Additional sampling may result in additional COCs. Once the RI is complete and each potential COC is discussed, Ecology will comment on the final COCs for the Site and the MSGBD.
- The Terrestrial Ecological Evaluation (TEE) point of compliance exemption ("all soil contamination is, or will be, at least 15 feet below the ground surface') may not be applicable at this Site. This exemption is applicable for sites with cleanup levels protective of ecological receptors, as outlined in Tables 749-2 and 749-3 of the MTCA regulation. In addition, the TEE "barrier to exposure" exemption requires the implementation of an environmental covenant requiring ongoing inspection and maintenance of the barrier(s). However, the Site appears to qualify for the undeveloped land exemption. Please describe any undeveloped land in the vicinity of the Site and re-submit the revised TEE exemption checklist with a map showing the 500-foot radius surrounding the Site boundary with the RI.
- The 1997 PBS Engineering and Environmental report referenced in the RI should be submitted to Ecology and appended to the report.
- Before further work is completed, Ecology encourages the development of a work plan to insure that sufficient data for the soil and ground water is collected to avoid unnecessary expenditure of time and money.

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) 649-7257 or bye email at masa461@ecy.wa.gov.

Sincerely,

Maureen Sanchez
Site Manager
Toxics Cleanup Program

Enclosures: A: Description and Diagrams of the Site
B: Remedial Investigation Outline

cc: Thomas Mergy, PBS Engineering and Environmental, Inc.
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 defined by TPHg and PCE releases to soil and groundwater. The Site is located on King County tax parcel 1545600005 at 10328 Avenue NE in Bellevue, WA (Property). Groundwater on the Property may also be impacted by contamination from up-gradient, off-Site sources, including a dry cleaner one block north of the Property and a former Texaco station northeast of the Property. The Site is located on the southwestern most parcel within the Main Street Gateway Block Development (MSGBD) which encompasses the full city block between Bellevue Way NE to the east, 103rd Avenue NE to the west, Main Street to the South, and NE 1st Street to the north. A total of six parcels make up the MSGBD.

Area and Property Description: The Property is located within a commercial strip of businesses within the MSGBD. The Property is located along the north side of Main Street, immediately west of the 103rd Avenue NE in Bellevue, WA. The Property location relative to the MSGBD is shown on **Figure 2.**

Site History and Current Use: Three USTs (two 550-gallon and one 280-gallon) were reportedly used at the Site during the operation of the Property as a Mobil-branded service station from approximately 1928 to 1966. No records have been identified regarding the substance stored in or the removal of the USTs. The Property was developed in 1967 as a 7-Eleven convenience store and associated parking lot, and remains in this use currently. There is no evidence that gasoline sales occurred at the Property associated with the 7-Eleven store. Locations of current Site features are shown on **Figure 3B.**

Sources of Contamination: The primary sources of contamination at the Site are the former USTs and associated product piping and dispensers. According to a ground penetrating radar (GPR) survey conducted in 2011, the location of one of the former tanks is believed to be at the southwest corner of the Property. Potential up-gradient sources of contamination at the Property include a dry cleaner one block north of the Property, and a former Texaco station northeast of the Property.

Physiographic Setting: The Site is situated at an elevation of approximately 80 feet above mean sea level. The land surface at the Site slopes gently to the south. There is approximately 25 feet of topographic relief from an approximate elevation of 105 feet above mean sea level at the north of the MSGBD to the Site.

Surface/Storm Water System: Stormwater from the Property and adjoining properties likely flows to municipal storm drains. Meydenbauer Creek reportedly formerly flowed through this location, but it has been piped and buried. The location of the buried creek is not clear from the documentation provided. The nearest surface water body to the Site is Lake Washington's Meydenbauer Bay located approximately ½ mile west of the Site.

Ecological Setting: A landscaped city park is located one block northwest of the Site. There are no areas of natural habitat on or adjacent to the Site. The Property is paved with asphalt and concrete and is surrounded by roadways and commercial properties.

Geology: Boring logs vary widely between the reports provided. According to the 2012 geotechnical report appended to the RI for the 10328 Main Street parcel, the Site is underlain by sand and silty sand to the total depth of exploration of 35 feet bgs. According to the limited investigation conducted by PBS in 2011 to a maximum depth of 20 feet bgs, the Site is underlain by sandy soils that terminate at depths between four and 10 feet bgs, which are underlain by inferred glacial till. The till is described in one boring log as sand to clayey sand. The vicinity of the Site has been mapped as glacial deposits.

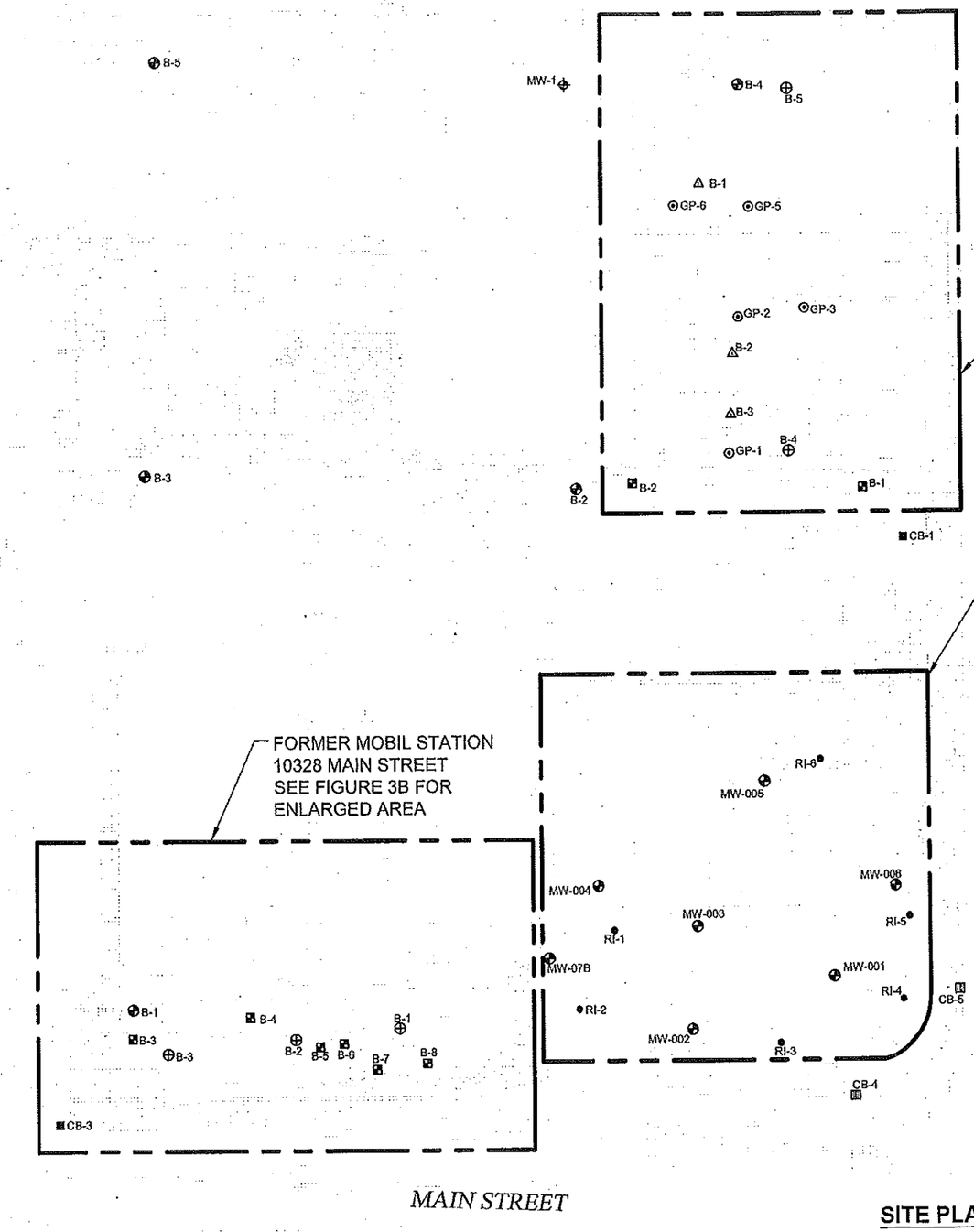
Groundwater: Based on the descriptions in the RI of the hydrogeology at the MSGBD, there may be two water bearing zones at the MSGBD – a perched zone at approximately 13-feet bgs and a more continuous zone observed at approximately 30-feet bgs at the adjacent former Chevron Service Station 0587 located immediately east of the Site. Additional evaluation needs to be done to determine the groundwater flow direction at the Site and whether there are multiple water-bearing zones at the MSGBD.

Release and Extent of Soil and Groundwater Contamination: During a geophysical survey at the Site in 2011, an anomaly was identified that is believed to be one of the three former USTs. No other anomalies were identified, and excavation has not been conducted to confirm the presence of a UST at this location. Gasoline-range petroleum hydrocarbons (TPHg) have been identified in the immediate vicinity of the anomaly in soil and groundwater. The nature and extent of the TPHg-impacted soil and groundwater has not been determined. PCE has also reportedly been detected in groundwater at the Property.

Two potential up-gradient sources for contamination have been identified: 1) Bellevue Way Dry Cleaner located one block north of the Site, and the former Texaco station located immediately northeast of the Site. Groundwater flow at the adjacent former Chevron Service Station 0587 appears to be to the southeast, so the Site appears to be up-gradient of the former Chevron Service Station 0587. Based on the information presented to date, the vertical and lateral extent of TPH contamination and its relationship to the Site geology, former Site features, contamination at adjacent and nearby sites, and the point of compliance is not clear.

The Site sampling locations within the Property are shown on **Figure 3B,** which is included in the Site Diagrams.

Site Diagrams



SITE PLAN

GENERAL NOTES

1. THIS DRAWING IS DIAGRAMMATIC. IT IS FOR GENERAL INFORMATION AND SAMPLE LOCATIONS. SITE FEATURES REPRESENT CURRENT CONFIGURATION (2012), BUT OCCUPANT INFORMATION MAY VARY.
2. THE MAIN STREET GATEWAY BLOCK ENCOMPASSES THE ENTIRE BLOCK FROM NE 1ST STREET TO NORTH, MAIN STREET TO SOUTH, BELLEVUE WAY TO EAST, AND 103RD AVENUE TO WEST.
3. THREE PARCELS, AS INDICATED BY ENLARGED AREAS CONTAIN PRIOR USE AS PETROLEUM SERVICE STATIONS.

LEGEND

- B-1 — GEOTECHNICAL BORING NUMBER AND LOCATION OCT 2012 (GEOTECH)
- RI-1 — GEOTECHNICAL BORING NUMBER AND LOCATION REMEDIAL INVESTIGATION, OCT 2012 (PBS)
- B-1 — BORING NUMBER AND LOCATION MARCH 2011 (PBS)
- GP-1 — GEOPROBE® BORING NUMBER AND LOCATION JULY 2006 (AES)
- B-1 — BORING NUMBER AND LOCATION DEC1997 (PBS)
- B-1 — BORING NUMBER AND LOCATION JUNE 1989 (J/K/C)
- MW-1 — MONITORING WELL NUMBER AND LOCATION FEB 2008 (EAI)
- CB-1 — CATCH BASIN

0' 20' 40' 60'

APPROXIMATE SCALE: 1" = 40'

PREPARED FOR: VANDER HOEK CORPORATION

PBS
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2517 Eastlake Ave East
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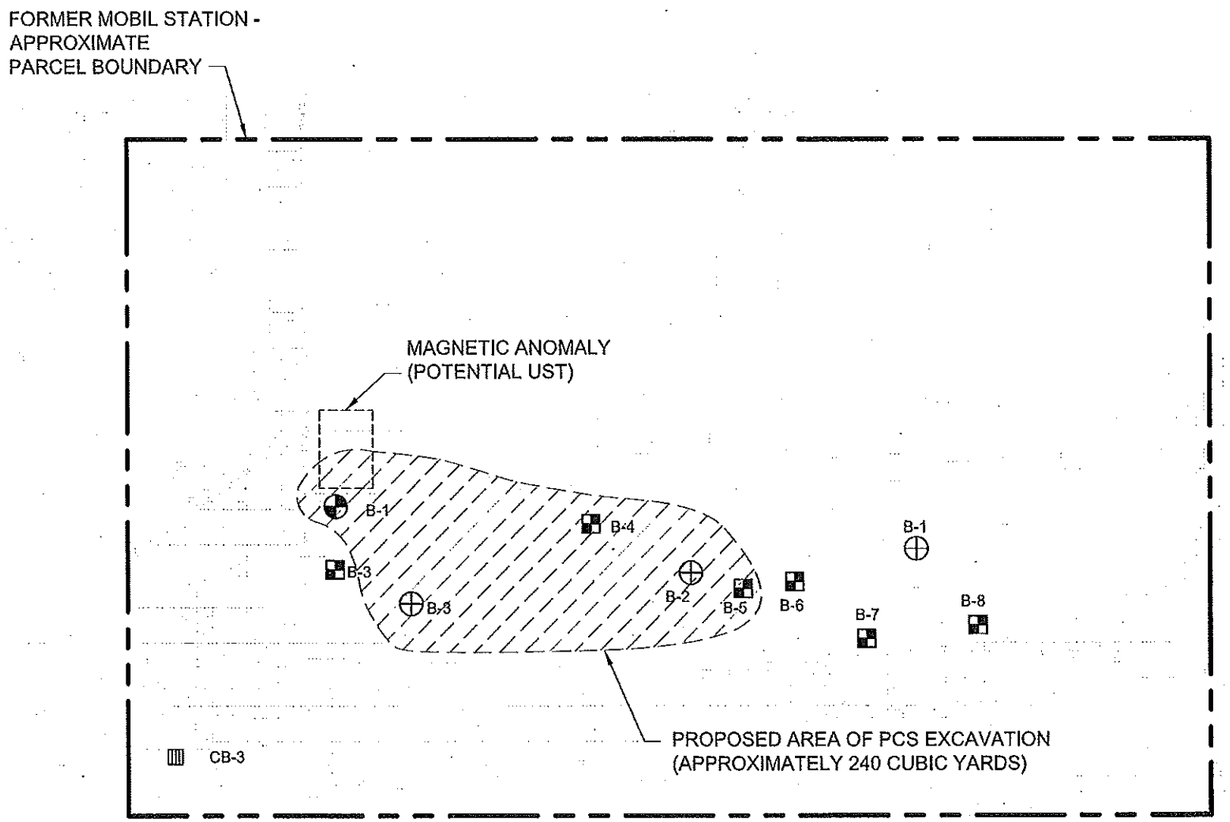
206.233.9639
www.pbsenv.com

MAIN STREET GATEWAY BLOCK
VANDER HOEK CORPORATION
MAIN STREET AND BELLEVUE WAY NE
BELLEVUE, WASHINGTON

SITE PLAN
MAIN STREET BLOCK
PROJECT: 41109.001
DATE: JULY 2013
FIGURE: 2

SELECTED SAMPLE DATA						
SAMPLE	DATE	MEDIA	UNITS	TPH-DX	TPH-GX	BENZENE
B-3 (11 FT)	11/1997	SOIL	MG/KG	<50	<20	-
B-4 (10 FT)	11/1997	SOIL	MG/KG	<50	**390**	<0.28
B-4 (11.5 FT)	11/1997	SOIL	MG/KG	<50	<20	-
B-5 (8 FT)	11/1997	SOIL	MG/KG	<50	**3,600**	-
B-6 (10.5 FT)	11/1997	SOIL	MG/KG	<50	<20	-
B-7 (12 FT)	11/1997	SOIL	MG/KG	<50	<20	<0.01
B-8 (12 FT)	11/1997	SOIL	MG/KG	<50	<20	-
B-1 (8 FT)	02/2011	SOIL	MG/KG	<50	<20	-
B-2 (11 FT)	02/2011	SOIL	MG/KG	<50	24	-
B-3 (11 FT)	02/2011	SOIL	MG/KG	<50	**9,300**	<0.05
B-3 (15 FT)	02/2011	SOIL	MG/KG	<50	<20	-
B-3 (13 FT)	02/2011	WATER	UG/L	<50	**2,100**	<1.0
B-1 (7-8 FT)	10/01/2012	SOIL	MG/KG	82	**331**	<0.01



SITE PLAN - FORMER MOBIL PARCEL

GENERAL NOTES

1. THIS DRAWING IS DIAGRAMMATIC. ALL DIMENSIONS INDICATED ARE APPROXIMATE AND MAY VARY.
2. ALL PETROLEUM CONTAMINATED SOILS (PCS) WILL REQUIRE DISPOSAL OR TREATMENT PER WASHINGTON DEPARTMENT OF ECOLOGY (WDOE) GUIDELINES FOR REUSE OF PETROLEUM CONTAMINATED SOIL (CHAPTER 173-350 WAC). PCS SHALL BE DISPOSED OF AT A PRE-APPROVED SUBTITLE D LANDFILL OR A PROPERLY PERMITTED TREATMENT FACILITY AS WDOE DEFINED PETROLEUM-CONTAMINATED SOIL.
3. PRELIMINARY ESTIMATED VOLUMES OF (PCS) COULD BE MORE OR LESS, BASED ON SOIL CONDITIONS ENCOUNTERED DURING EXCAVATION. ESTIMATED VOLUMES ARE NOT TO BE USED FOR CONTRACTOR PURPOSES. PCS TO BE REMOVED TO MEET MTCA METHOD A SOIL CLEANUP STANDARDS FROM THE SITE IS ESTIMATED TO BE 250 CUBIC YARDS.
4. ESTIMATED VOLUME OF PETROLEUM CONTAMINATED SOIL ASSUMES PCS LOCATED AT 8 TO 16 FEET BGS (8 FEET THICK) WITH APPROXIMATELY 8 FEET OF CLEAN OVERBURDEN SOIL.
5. SEASONAL PERCHED WATER WAS ENCOUNTERED AT APPROXIMATELY 13.5 FEET BGS IN BORING B-3 (2011) NEAR THE SOUTHWEST CORNER OF THE SUBJECT PARCEL.
6. THE ENVIRONMENTAL CONSULTANT WILL PROVIDE TESTING FOR WASTE PROFILING, PERIODIC TESTING OF WASTE PRIOR TO TRANSPORT, AND CONFIRMATION OF CLEANUP LEVELS FOLLOWING EXCAVATION. CONFIRMATION SAMPLING OF EXCAVATION ZONES WILL BE PERFORMED BY THE ENVIRONMENTAL CONSULTANT AT A FREQUENCY OF ONE (1) SAMPLING POINT FOR EVERY 150 SQUARE FEET OF EXCAVATED SURFACE (SIDEWALLS AND BOTTOM). ADDITIONAL SAMPLES MAY BE COLLECTED AT THE OWNER'S SOLE DISCRETION.

LEGEND

- B-1 — GEOTECHNICAL BORING NUMBER AND LOCATION OCTOBER 2012 (GEOTECH)
- B-1 — BORING NUMBER AND LOCATION MARCH 2011 (PBS)
- B-1 — BORING NUMBER AND LOCATION DECEMBER1997 (PBS)
- CB-1 — CATCH BASIN

0' 10' 20' 40'

APPROXIMATE SCALE: 1" = 20'

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BELLEVUE, WASHINGTON

SITE PLAN
10328 MAIN STREET
PROJECT: 41109.001
DATE: JULY 2013
FIGURE: 3B

Enclosure B

Remedial Investigation Outline

Outline for Remedial Investigation Report
For Discussion Purposes

The following annotated outline is a suggested schematic for elements to be included in a Remedial Investigation report. It is not intended to replace MTCA's specific requirements as presented in 173-340-350(7) WAC.

The main purpose of the outline is to facilitate the preparation of a document that is clear, comprehensive, and to the point. A secondary, but important, purpose for this project is to make document preparation and review more efficient.

INTRODUCTION
(*concise, bulleted if possible*)

- Site name,VCP number, Name, address, and phone number of project consultant, Current owner/operator
- Purpose of document *(very brief restatement of what an RI is for, reference the WAC)*

SITE IDENTIFICATION AND DESCRIPTION
(*focus on defining the site in the context of its' location*)

- Site discovery and regulatory status (*describe how the site was identified and where it is in the MTCA process)*
- Site and property location/definition (*define actual MTCA site location relative to property or study area*)
- Neighborhood setting
- Physiographic setting/topography

Figure – Vicinity Map (*preferably with topography*)
Figure – Property/Site Map (*preferably with topography*)
Appendix – Legal description of property, present owner and operator, chronological listing of past owners and operators

PROPERTY DEVELOPMENT AND HISTORY
(*this section focuses on the built environment, both current and historical, and presents the sources of contamination and release mechanisms*)

- Past site uses and facilities
- Current site use and facilities
- Proposed or potential future site uses
- Zoning (*if appropriate)*
- Transportation/roads
- Utilities, water supply

- Potential sources of site contamination
- Potential sources of contamination from neighboring properties (*discuss nearby sources if known)*

Figure – Historical site features (*may be combined with Figure 2*)
Figure – Potential contaminant sources
Figure – Utilities (*may be combined with Figure 2*)
Table – Potential Contaminants

ENVIRONMENTAL INVESTIGATION/INTERIM ACTION SUMMARY

(*Concise summary presentation of the investigations that have been done at the site, along with prior remedial actions. Focused mostly on figures and tables. Details of and methods used in former investigations and remediation in appendices*)

- Constituents of Concern (*brief discussion about which specific compounds were chosen for analysis and why)*
- Soil
- Surface water
- Ground water
- Sediment
- Air/soil vapor
- Natural resources/wildlife
- Cultural history/archeology
- Interim actions (*brief intro to prior remediation activities*)

Figure – Soil investigation data points (*show potential source areas*)
Figure – Surface water/groundwater investigation data points (*show potential source areas*)
Figure – Air investigation data points (*show potential source areas*)
Figure – Prior remediation activities

Table – Exploration Summary
Table – Analytical Schedule per media (*include analytical methods and reporting limits,as possible)*

Appendix – Previous Investigations (*detailed discussion goes here)*
Appendix - Exploration and sampling methodology (*may combine with Previous Investigations)*
Appendix – Boring/ Well logs
Appendix - Prior Interim Actions

NATURAL CONDITIONS

- Geology
  (*focus on interpretation*)

  - Regional Setting (*brief*)
  - Property Geologic Conditions (*synthesis, not regurgitation of boring logs*)
  - Physical Properties (*unlikely to need this section, but in some cases may be useful to present data on soil adsorptive capacity, organic content, strength, etc.)*

  Figure – Plan view of geologic unit distribution (*if helpful*)
  Figure - Cross section A-A' (*show borings, wells, screened intervals, water levels*)
  Figure – Cross section B-B' (*if necessary*)

- Surface Water
  (*brief description of the surface water system*)

  - Property drainage
  - Area surface water/floodplain issues
  - Regulatory classifications, if any (*e.g surface water classification)*

  Figure – Surface water Conditions (*only if information not already in a prior figure*)

- Ground Water
  (*focus on interpretation, show on cross-sections*)

  - Occurrence (*aquifers, water levels, confinement, geometry, continuity, physical properties*)
  - Movement (*directions, gradient if important, seasonal fluctuations, tidal influence*)
  - Discharge
  - Recharge (*if significant for site*)
  - Regulatory classifications, if any (*e.g. sole source aquifer*)

  Figure – Cross section with ground water information (*if not already included above*)
  Figure – Water table/potentiometric surface maps (*for various seasons or tidal conditions, show surface water*)

  Appendix – Ground water elevation data (*a table)*

- Natural Resources and Ecological Receptors
  (*preparatory to a TEE*)

  - Greenbelts and other natural habitat
  - Wildlife
  - Other Information required to conduct evaluations under -7491, -7492, or if necessary -7493

Figure – showing natural areas, as appropriate

CONTAMINANT OCCURRENCE AND MOVEMENT
(*brief text, mostly figures and tables, main point is to provide easy-to-understand figures showing the depth and breadth of contamination*)

- Waste Material (*sludges, fluids, stockpiles)*
- Soil
- Surface Water
- Ground Water
- Sediment
- Air/Soil Vapor

Figures – Cross sections showing soil contamination with depth
Figures – Plan views showing soil contamination across site (*relative to releases if known*)
Figures – Cross section showing ground water contamination with depth (*if appropriate*)
Figures – Plan views showing ground water contamination in each aquifer (*relative to soil contamination and P-head map*)
Figures – XY plots of specific contaminants with time (*as appropriate*)
Figures – Others as appropriate to show the distribution of surface water, ground water, or air data

Tables – All of the analytical data against final cleanup levels (*exceedances highlighted, no need to develop screening levels*)
Tables – Summary of exceedances (*if helpful*)

Appendix – QA report
Appendix – Analytical lab reports

CONCEPTUAL MODEL
(*putting the whole story together, graphic illustrations are best*)

- Contaminant release/fate and transport/potential or actual receptors
- Data gaps (*is anything missing)*

CLEANUP STANDARDS
(*developing appropriate cleanup standards based on receptors and pathways*)

- Soil
  - Reasonable maximum exposure
  - Cleanup levels protective of contact, ground water, inhalation, terrestrial species, surface water, sediment
  - Points of compliance

- Regulatory classifications *(classification of soil as dangerous or solid waste)*

- Ground Water
  - Highest beneficial use/reasonable maximum exposure
  - Cleanup levels protective of potable use, inhalation, surface water, sediment
  - Points of compliance
- Other Media as appropriate
  - Cleanup levels protective of ....
  - Points of compliance

Table – Cleanup Levels (*all potentially applicable values with final selected cleanup level noted*)

AREAS REQUIRING CLEANUP

(*the final story detailing where the contamination exceeds an applicable cleanup standard, brief text, mostly tables, figures*)

- Constituents of Concern (*a brief summary of compounds that exceed cleanup levels or "indicator hazardous substances" under MTCA. For most service station sites, the COCs should be the same)*
- Soil – vertical and lateral
- Ground water – vertical and later
- Sediment –
- Surface Water
- Soil Vapor/air

Figures – Plan view and vertical sections of areas requiring cleanup

REFERENCES