STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office • 3190 160th Avenue SE • Bellevue, Washington 98008-5452 • (425) 649-7000

February 24, 2010

Ms. Kristy Hendrickson
Landau Associates Inc
130 2nd Avenue South
Edmonds, WA 98020

Re: Further Action at the following Site:

- **Site Name:** Haller Lake Texaco
- **Site Address:** 13401 Roosevelt Way North, Seattle
- **Facility/Site No.:** 25363417
- **VCP Project No.:** NW1933

Dear Ms. Hendrickson:

The Washington State Department of Ecology (Ecology) received your request for an opinion on your independent cleanup of the Haller Lake Texaco facility (Site). This letter provides our opinion. We are providing this opinion under the authority of the Model Toxics Control Act (MTCA), Chapter 70.105D RCW.

Issue Presented and Opinion

Is further remedial action necessary to clean up contamination at the Site?

YES. Ecology has determined that further remedial action is necessary to clean up contamination at the Site.

This opinion is based on an analysis of whether the remedial action meets the substantive requirements of MTCA, Chapter 70.105D RCW, and its implementing regulations, Chapter 173-340 WAC (collectively "substantive requirements of MTCA"). The analysis is provided below.

Description of the Site

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:

- Methyl tertiary-butyl ether (MTBE) and oil range petroleum hydrocarbons into the soil;
- Gasoline range petroleum hydrocarbons (tph-g) and benzene, ethylbenzene, toluene, and xylenes (BTEX) into the Soil and Groundwater.

Basis for the Opinion

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

Haller Lake Texaco UST Removal Project: dated August 21st 1998, prepared by Saltbush Environmental Services, Inc

Summary of Investigative Activities Former Haller Lake Texaco Site: dated May 8th 2006, prepared by Robinson Noble Saltbush Inc

Site Assessment Report, dated November 17th 2006, prepared by Budget Environmental Services

Site Assessment Report, dated December 6th 2006, prepared by Budget Environmental Services

Former Haller Lake Texaco Property, dated March 7th 2008, prepared by Landau Associates

Supplemental Remedial Investigation, dated January 5th 2010, prepared by Associated Environmental Group, LLC (AEG)

Those documents are kept in the Central Files of the Northwest Regional Office of Ecology (NWRO) for review by appointment only. You can make an appointment by calling the NWRO resource contact at 425.649.7239.

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

Analysis of the Cleanup

Ecology has concluded that **further remedial action** is necessary to clean up contamination at the Site. That conclusion is based on the following analysis:

1. Characterization of the Site.

Ecology has determined your characterization of the Site is not sufficient to establish cleanup standards and select a cleanup action.

- Groundwater conditions below the perched zone have not been defined.
- The lateral and vertical extent of petroleum hydrocarbon contamination in soil is not fully understood at this time.

- The lateral and vertical extent of petroleum hydrocarbon contamination in groundwater has not been defined.

2. Establishment of cleanup standards.

Substance-specific standards

Ecology has determined the cleanup levels and points of compliance you established for the Site do not meet the substantive requirements of MTCA.

The proposed MTCA Method B cleanup levels are not appropriate for this Site for the following reasons: Concentrations of tph-g and BETX have impacted soil to a depth of at least 36-feet bgs, and groundwater in contact with these soils contains elevated concentrations of tph-g and BTEX. Therefore the remaining soil is not protective of groundwater.

Method B cleanup levels for total petroleum hydrocarbon were developed using MTCA's retrofitting provisions (WAC 173-340-700(8)).

The use of retrofitting provisions in MTCA (WAC 173-340-700(8)(b)(D)(II)) cannot be used to develop petroleum hydrocarbon cleanup levels. This policy is a program decision that applies to all sites in Washington. The retrofitting provision was included in the 2001 update to MTCA to address sites in the middle of a cleanup action that had been initiated prior to the rule adopting. The intent was to provide a short-term transition period in which it would be unnecessary to redo site characterization work. The use of retrofitting at this point in time does not meet the intent of the rule.

3. Selection of cleanup action.

Ecology has determined the cleanup action you selected for the Site does not meet the substantive requirements of MTCA. The selected action was excavation and off-property disposal of contaminated soil Groundwater was deemed not present and was not addressed. The selected cleanup action is not adequate for the following reasons

- The characterization of the Site is not sufficient to conduct a feasibility study of cleanup alternatives as stated in Section 1.
- The cleanup standards selected for the Site do not meet the requirements of MTCA as stated in Section 2.

4. Cleanup.

Ecology has determined the cleanup you performed does not meet any cleanup standards at the Site.

The use of the retrofitting provision in MTCA (WAC 173-340-700(8)(b)(D)(II)) cannot be used to develop petroleum hydrocarbon cleanup levels. This policy is a program wide decision that applies to all sites in Washington. The retrofitting provision was included in the 2001 update to MTCA to address sites in the middle of a cleanup action that had been initiated prior to the rule adoption. The intent was to provide a short-term transition period in which it would be unnecessary to redo site characterization work. The use of retrofitting at this point in time does not meet the intent of the rule.

- During the mass excavation of the Site performed in 2006 by Budget, excavation was stopped by a court order leaving soils above MTCA Method A cleanup standards along Roosevelt Way North and along the west wall of the excavation pit. The highest concentration of tph-g was 1,500mg/kg in sample number F-9 along Roosevelt Way.

- Confirmational samples collected in 2006 at a depth of 30-feet bgs along the west wall and northeast wall (Roosevelt Way) exceeded MTCA Method A cleanup levels.

- Confirmational base sample collected in 2006 at a depth of 32-feet bgs exceeded the cleanup level for benzene.

- Results of AEG's Supplemental Remedial Investigation performed in November 2009 demonstrates that elevated levels of tph-g and BTEX still remain in soil to a depth of at least 36-feet bgs (maximum depth explored).

- Results of AEG's Supplemental Remedial Investigation performed in November 2009 demonstrate that elevated levels of tph-g and BTEX still remain in groundwater.

Therefore, it is in Ecology's opinion that MTCA Method B is not appropriate for this Site. Concentrations of tph-g and BETX have impacted soil to a depth of at least 36-feet bgs, and groundwater in MW-1 and MW-2 contain elevated concentrations of tph-g and BTEX. Therefore the remaining soil is not protective of groundwater.

Limitations of the Opinion

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 70.105D.030(1)(i).

Contact Information

Thank you for choosing to clean up the Site under the Voluntary Cleanup Program (VCP). After you have addressed our concerns, you may request another review of your cleanup. Please do not hesitate to request additional services as your cleanup progresses. We look forward to working with you.

For more information about the VCP and the cleanup process, please visit our web site: www.ecy.wa.gov/programs/tcp/vcp/vcpmain.htm. If you have any questions about this opinion, please contact me by phone at 425.649.4446 or e-mail at damy461@ecy.wa.gov.

Sincerely,

Dale R. Myers
Site Manager
NWRO Toxics Cleanup Program

dm/kp

cc: Ms. Yen-Vy
Associated Environmental Group
1728 State Avenue NE, Suite 101
Olympia, WA 98506-4557

Enclosure A

Description and Diagrams of the Property

Property Description

VCP ID# NW1933, the Former Haller Lake Texaco (Property) is located at 13401 Roosevelt Way North. The property has been used as a retail gasoline service station since at least 1948, and is currently a Velcro Station. The Haller Lake Texaco occupies King County Tax Parcel ID# 6414600331.

Soil contamination at the property was confirmed in 1998 when three underground storage tanks (UST) were removed and replaced with larger capacity USTs.

Site Description

The Site is associated with the current Valero station property described above, and consists of soil and ground water contaminated with gasoline-range petroleum hydrocarbons. The lateral extent of the contamination is shown on the attached Site Map. As illustrated, the Site extends some unknown distance into the Roosevelt Way North right-of-way.

The Property is located in the Haller Lake area of north Seattle. The area is a well-established residential neighborhood, but the Valero station is part of a small cluster of businesses on Roosevelt Way. Also located within a few blocks of the Property are two schools, Lakeside Middle School and Ingram High School, and a large park, North Acres Park. This park is largely forested. The only other area of natural habitat or parkland in the area is associated with Haller Lake.

Shallow geologic conditions at the site consist of glacial till to the depth explored, about 37 feet. Up to 20 feet of fill is present where underground store tanks have been removed and the excavation backfilled. The till consists of a dense mixture of silt, sand, and gravel, with thin sand layers or sandy zones occasionally present. The deposits underlying the till have not been determined at the Site, but in the area are typically glacial outwash sands.

The uppermost ground water at the Site appears to occur as discontinuous, perched, slightly confined water-bearing zones in the till. The ground water is first encountered at depths ranging from 20 to 30 feet below ground surface (bgs), whereas the static water levels are slightly higher at 17 to 23 feet bgs. Shallow ground water flow in the till should be down slope to the southwest. The one set of water level data available for the Site suggests flow to the north. This data is probably not an accurate representation of flow because of the discontinuous nature of the water-bearing zones and because vertical flow is also likely occurring.

The Site is defined primarily by gasoline-range petroleum hydrocarbon releases to soil and ground water, as described above. MTBE has been detected at the Site, but lead and the other fuel additives or oxygenates have not been detected or are present at concentrations below cleanup levels. The releases to soil have been documented primarily in the former UST nest in the eastern portion of the Property. The vertical extent of contamination in this area has not been determined, but has reached a depth of at least 36 feet. The lateral extent of contamination has also not been determined to the north, southeast, and off-Property to the east (beneath the Roosevelt Way N. right-of-way). There is also some question whether the contamination extends westward beneath the pump islands.

A small area of soil has also been impacted by hydraulic oil leaks. The leaks are associated with hydraulic lifts within the service station.

Data on impact to perched ground water beneath the Site is limited to three samples from three wells. One of the samples was obtained from a well screened in native soil below the former UST excavation backfill. This well was screened from approximately 20 to 35 feet bgs, and the ground water at this location contained elevated gasoline-range hydrocarbons (including 240 mg/L tph-g and 31.6 mg/L benzene).

In summary, it appears gasoline leaked into the ground in the area of the former USTs and has penetrated to some unknown depth below 36 feet. It has also spread some unknown distance to the east, north, and southeast. The leaked gasoline has impacted perched ground water in the area. Any impact on underlying aquifers has not been determined. Hydraulic oil also leaked into soils surrounding one or more of the hydraulic lifts. The extent of contamination associated with this kind of release is typically very small and limited to the area immediately adjacent to the hydraulic lift.

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Site History

During a mass excavation performed in 2006, over 2,400 tons of gasoline range petroleum hydrocarbons were removed from the site. Excavation was stopped by a court order leaving soils above MTCA Method A cleanup standards along Roosevelt Way North and along the west wall of the excavation pit. The highest concentration of tph-g was 1,500mg/kg in sample number F-9 along Roosevelt Way.

Haller Lake Texaco UST Removal Project: dated August 21st 1998, prepared by Saltbush Environmental Services, Inc.
Report details analytical results ***after*** the removal of three underground storage tanks (USTs) during the dry season (July 1998).

- Excavation area is depicted in the attached figure (Saltbush figure).
- Saltbush was not on-site during the UST removal.
- Measured base of the excavation pit was 16-feet below ground surface (bgs).
- Concentrations of tph-g & benzene at 16-feet bgs (6,000-gal tank) was 1,533mg/kg and 0.83mg/kg respectively.
- Concentrations of tph-g & benzene at 14-feet bgs (8,000-gal tank) was 5,889mg/kg and 16.6mg/kg respectively.
- Concentrations of tph-g & benzene at 14-feet bgs (west wall) was 138mg/kg and < 0.25mg/kg respectively.
- Depth of contamination was not identified at this time.
- Only the west wall was available for analysis since the north, south, and east walls had been backfilled already.

Summary of Investigative Activities Former Haller Lake Texaco Site: dated May 8th 2006, prepared by Robinson Noble Saltbush Inc.
Report details sampling activities performed on March 11th 2006. Sampling was performed during wet season (March 2006).

- Nine direct-push soil borings were placed on the Site to determine the extent of soil contamination and to determine if groundwater had been impacted (refer to Robinson Noble figure 3).
- Groundwater was only found in one boring (HL-9) at a depth of 15-feet bgs.
- Contaminates of concern tph-g and benzene were not detected in soil above approximately 14-feet bgs.
- Contaminates of concern tph-g and benzene above MTCA Method A were detected in soil below approximately 14-feet bgs to the maximum depth explored of 21-feet bgs.
- Groundwater from boring HL-9 exhibited concentrations of tph-g and benzene at 72,500*ug*/L and 1,990*ug*/L respectively.

Site Assessment Report, dated November 17th 2006, prepared by Budget Environmental Services

- Excavation was performed during the dry season (June 2006)
- Report details a mass excavation performed in 2006 over 2,400 tons of gasoline range petroleum hydrocarbons were removed from the Site (refer to budget Appendix A dated 07/17/06).
- Excavation was stopped by a court order leaving soils above MTCA Method A cleanup standards along Roosevelt Way North and along the west wall of the excavation pit. The highest concentration of tph-g was 1,500mg/kg in sample number F-9 along Roosevelt Way.
- The excavation extended to about 40-feet bgs in most of the excavation, and to about 32-feet bgs in the northwest portion.
- Pockets of perched groundwater was encountered at the Site, these did not appear to recharge.
- Confirmational samples at depth of 30-feet bgs along the west wall and northeast wall (Roosevelt Way) exceeded MTCA Method A cleanup levels.
- Confirmational base sample for benzene F-4 at a depth of 32-feet bgs exceeded the cleanup level.
- No confirmational samples were taken at the base of the excavation pit near soil boring B-6 (depth of 25-feet bgs) which had the highest concentration of tph-g (2,800mg/kg)
- It is unknown if Methyl tert-butyl ether (MTBE) exceeded MTCA's Method A cleanup level (0.1mg/kg) in confirmational soil sample F-2 at 30-feet bgs. Concentration found was reported as < 4mg/kg
- Diesel extended/motor oil range was found inside the building under hydraulic oil lifts at concentrations ranging from 290mg/kg to 1,700mg/kg (this area was not excavated but left in place as being below cleanup level

Site Assessment Report, dated December 6th 2006, prepared by Budget Environmental Services.

- Site assessment was performed during dry season (September 2006)
- Report details site assessment of a 500-gallon waste oil UST that had been removed from the property in 1998.
- Three soil borings were advanced to a depth of 7-feet bgs.
- Analysis determined that this former waste oil UST had not leaked.

Former Haller Lake Texaco Property, dated March 7th 2008, prepared by Landau Associates.

- Report summarized previous environmental investigations and remedial activities.
- On page four of this report, Landau states that sample number HL-9 as described in the report *Summary of Investigative Activities Former Haller Lake Texaco Site*: dated May 8th 2006, prepared by Robinson Noble Saltbush Inc. was "most likely collected from a discontinuous perched zone and does not represent actual groundwater conditions." **Ecology does not concur with this assumption.**
- Landau proposed MTCA Method B as the cleanup level for the site.

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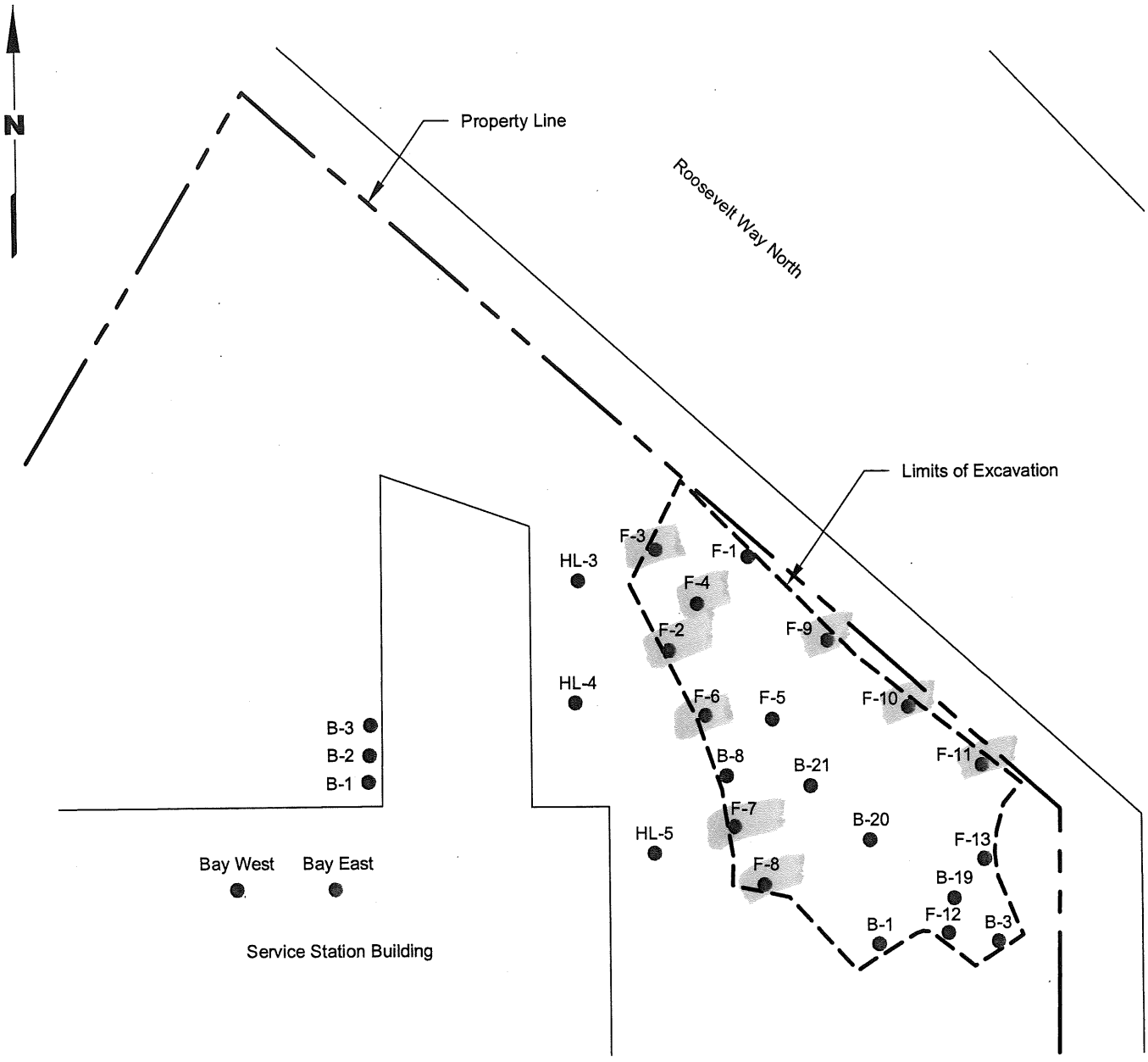
Supplemental Remedial Investigation, dated January 5th 2010, prepared by Associated Environmental Group, LLC (AEG)

- Site assessment was performed during wet season (November 2009)
- Report details the installation of three groundwater monitoring wells (MW-1 through MW-3) on the property during November 2009.
- Fill was found in well borings MW-2 and MW-3 to a depth of 23-feet and 10-feet bgs respectively. Weathered till was encountered at a depth of 10-feet bgs at MW-3, with dense glacial till extending to the maximum depth explored of 36.5-feet bgs.
- AEG noted that MW- 2 was placed approximately five feet inside the northern extent of the former excavation pit and MW-3 was placed approximately three feet inside the southeast extent of the former excavation pit. AEG also notes that in MW-2 fill associated with backfilling of the former excavation pit only extended to approximately 23-feet bgs with glacial till being encountered at 23-feet bgs. At MW-3 fill associated with the backfilling of the former excavation pit extended to 23-feet bgs where glacial till was encountered.
- This is contrary to the Budget report which stated that the depth of excavation was "40-feet bgs in most of the excavation, and to about 32-feet bgs in the northwest portion of the excavation". Additionally, photos included in the Budget report depict vertical (not sloped) excavation walls.
- MW-1 was advanced to approximately 35.5-feet with perched groundwater encountered at approximately 30-feet bgs.
- MW-2 was advanced to approximately 36.5-feet with groundwater during drilling.
- MW-3 was advanced to approximately 36.5-feet with groundwater found at approximately 19-feet bgs.
- The screened interval at all completed monitoring wells ranged from 20-feet to 35-feet bgs.
- Static groundwater ranged from 16.90-feet to 31.24-feet bgs during groundwater the December 9th 2009 monitoring events. The hydraulic gradient derived from this sampling event appeared to be in a northerly flow direction.
- At MW-1 soil was found to exceed the cleanup level for tph-g, benzene, and total xylenes at 25.5-feet bgs to 35.5-feet bgs (maximum depth of well boring).
- At MW-2 soil was found exceeding the cleanup level for tph-g and benzene, ethylbenzene, toluene, and xylenes (BTEX) at 36-feet bgs (maximum depth of well boring).
- No chemicals of concern in soil were detected in MW-3.
- Groundwater Analytical result show that tph-g and BTEX remain in groundwater at elevated levels in monitoring wells MW-1 and MW-2. Highest levels were found in MW-2 with tph-g at 240,000*ug*/L, benzene 31,600*ug*/L, toluene 83,500*ug*/L, ethylbenzene 14,600*ug*/L, and xylenes 97,000*ug*/L.
- The only exceedances found in MW-3 was for benzene at 5.7*ug*/L.

Site Diagrams



Not To Scale

Legend

- Soil sample location does not exceed MTCA Method A or Method B cleanup levels for any tested constituents.
- Soil sample location exceeds MTCA Method A cleanup levels for one or more constituents, but does not exceed MTCA Method B cleanup levels.

Note

1. This figure was modified from its original state. The original figure was presented in Budget Environmental 2006a. Sample information originates from several sources: Robinson, Nobel & Saltbush 2006, Budget Environmental 2006a, and Budget Environmental 2006b. The information is presented herein for site interpretation purposes.
2. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

GeoTech Report | V:\1028\001\010\Fig2_3.dwg (A) "Figure 4" 5/14/2007

LANDAU ASSOCIATES

Former Trier Property Seattle, Washington	**Soil Sample Locations that Represent Soil Remaining at the Property**	Figure 4