



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

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October 8, 2012

Mr. Joshua Clarke
Public Works, City of Tacoma
747 Market Street, Room 744
Tacoma, WA 98402

Re: Further Action at the following Site:

- **Site Name:** Pacific Plaza Garage
- **Site Address:** 1250 Pacific Avenue, Tacoma, WA
- **Facility/Site No.:** 19267
- **Cleanup Site ID No.:** 11864
- **VCP Project No.:** SW1230

Dear Mr. Clarke:

The Washington State Department of Ecology (Ecology) received your request for an opinion on your independent cleanup of the Pacific Plaza Garage 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 release:

- Petroleum hydrocarbons and related constituents into the Soil.



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

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

Basis for the Opinion

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

1. Geoengineers, Inc., Technical Memorandum (Letter Report to Tacoma Public Works, Facility Management), December 18, 2009.
2. Geoengineers, Inc., Underground Storage Tank Removal Report, December 31, 2008.
3. Tacoma/Pierce County Health Department, Underground Storage Tank (UST) Removal: Site Closure Determination Letter, August 20, 2011.
4. Southwest Regional Office of Ecology, Initial Investigation Report (ERTS # 605007).

Those documents are kept in the Central Files of the Southwest Regional Office of Ecology (SWRO) for review by appointment only. You can make an appointment by calling the SWRO resource contact at (360) 407-6365.

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 sufficient to establish cleanup standards and select a cleanup action. The Site is described above and in **Enclosure A**.

The property is currently owned by the City of Tacoma and managed by the City's Public Works Services. The property is occupied by a parking structure called Pacific Plaza Garage built in the 1970s. The original parking garage was at least five stories, and went through remodeling activities in April 2008 to add additional office space on top of the

parking structure. During the remodeling activities, a single wall underground storage tank (UST) was encountered at the east side of the property along Pacific Avenue. Part of the UST was buried within the City of Tacoma sidewalk right of way (ROW). The UST was approximately 12 feet long and 5 feet in diameter with a capacity of 1,750 gallons, and was buried approximately 4 feet below the existing street elevation. The use of the UST was unknown, and it was not in use at least since the 1970s.

The UST still contained petroleum product at the time of discovery. Laboratory analysis indicated that the product from the UST was a heavy oil range petroleum hydrocarbon that resembled degraded Bunker-C oil. Approximately 700 gallons of oil and 100 gallons of sludge from the UST were removed on April 10, 2008, and the UST was then removed and disposed of on April 11, 2008. Multiple discernable holes that ranged in size from approximately 1/8 inch to 1.5 inches were observed throughout the UST. Blue-gray wet soils were observed on the walls and bottom of the UST and a petroleum odor was noted. Soil was excavated between April 11 and 15, 2008.

Confirmation soil samples were collected after the soil excavation was completed, including five samples from four walls and four samples from the bottom of the excavation pit (see Fig. 2 within the Enclosure A). Another soil sample was collected from beneath the former product lines (which were also removed) that connected to the UST.

Among the five soil samples from the excavation pit walls and the one soil sample from beneath the former product lines, only one soil sample detected diesel-range total petroleum hydrocarbon (TPH-Dx) and heavy oil TPH but at concentrations below MTCA cleanup levels, all other samples were non-detect for TPH-Dx and heavy oil TPH. However, as indicated by GeoEngineers, "additional potentially contaminated soil was not removed along the eastern portion of the excavation adjacent to Pacific Avenue because of caving of the sidewalls adjacent to the footings and the underground Comcast utility line."

Among the four soil samples collected from the bottom of the excavation pit, one sample was from the southwest corner where the excavation reached 10.5 feet bgs. This sample was non-detect for TPH-Dx and heavy oil TPH.

Second bottom soil sample was collected along the east side of the excavation pit at 10.5 feet bgs and detected both TPH-Dx (5,790 mg/kg) and heavy oil TPH (9,030 mg/kg), which were above MTCA Method A cleanup levels. Further excavation was conducted at this location and another confirmation soil sample at the new excavation bottom at 11 feet bgs was collected. The new sample detected both TPH-Dx and heavy oil TPH, but below MTCA Method A cleanup levels. However, the further excavation was only conducted in the middle portion along the east side of the bottom due to limited access

constraints. GeoEngineers indicated that "potential petroleum-contaminated soil may exist along the eastern portion of the excavation at a depth of 10.5 to 11 feet bgs."

The fourth bottom soil sample was collected from the northwest corner of the excavation pit and detected heavy oil TPH at 2,010 mg/kg, and TPH-Dx at 1,340 mg/kg. The combined value of 3,350 mg/kg for diesel/heavy oil in this sample exceeds the MTCA Method A cleanup level of 2,000 mg/kg.

Two of the soil samples, one each from the bottom and from the wall of the excavation pit, were also analyzed for volatile organic compounds (VOCs) and Resource Conservation and Recovery Act required metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver). Results indicated that these contaminants were below the MTCA Method A cleanup levels.

A minor amount of water was observed within the eastern side of the excavation pit at the depth of approximately 8 feet bgs and dissipated during excavation. The water was likely related to an isolated area of perched groundwater as the aquifer in this area is about 50 feet deep. The soil below the excavation zone is dense glacial deposits typically consisting of very dense silty sand with gravel. Groundwater contamination is not a concern for this Site considering the combination of following factors: 1) less mobility of the Bunker-C oil (a tank not in use since 1970s still contained 700 gallons of product and 100 gallons of sludge); 2) the depth of groundwater was 50 feet bgs while the contamination was mostly found at about 10 feet bgs in soil; and 3) the dense glacial deposits between soil contamination and groundwater was more than 30 feet thick at the Site.

The above information suggested that the soil under the Site was contaminated by TPH-Dx and heavy oil TPH in limited areas only adjacent to the former UST. The contamination was caused by the leak of petroleum product through the holes on the UST. The confirmation sampling was adequate to define the boundary and level of contamination. Ecology has determined that the Site characterization is sufficient.

However, the following tasks shall be completed:

1. A Terrestrial Ecological Evaluation (TEE) needs to be completed for the Site. Please fill out the form on our website and submit it to Ecology (along with any supporting documentation, as appropriate) for review. The form can be found at: <http://www.ecy.wa.gov/biblio/ecy090300.html>.
2. In accordance with WAC 173-340-840(5) and Ecology Toxics Cleanup Program Policy 840 (Data Submittal Requirements), data generated for Independent Remedial Actions shall be submitted simultaneously in both a written and electronic format. For additional information regarding electronic format

requirements, see the website <http://www.ecy.wa.gov/eim>. Be advised that according to the policy, any reports containing sampling data that are submitted for Ecology review are considered incomplete until the electronic data has been entered. Please ensure that data generated during on-site activities is submitted pursuant to this policy. **Data must be submitted to Ecology in this format for Ecology to issue a No Further Action determination.** Please be sure to submit all data in this format. Data collected prior to August 2005 (effective date of this policy) is not required to be submitted; however, you are encouraged to do so if it is available. Be advised that Ecology requires up to two weeks to process the data once it is received.

2. Establishment of cleanup standards.

Ecology has determined the cleanup levels and points of compliance you established for the Site meet the substantive requirements of MTCA.

MTCA Method A cleanup levels for soil were used for the Site. Standard points of compliance were used for the Site. For soil cleanup levels based on human exposure via direct contact or other exposure pathways where contact with the soil is required to complete the pathway, the point of compliance was established in the soils throughout the Site from the ground surface to 15 feet bgs.

3. Selection of cleanup action.

Ecology has determined the cleanup actions you selected for the Site have not met the substantive requirements of MTCA.

Cleanup actions selected for the Site included removal and disposal of the UST, removal and proper disposal of the remaining product (Bunker-C oil) and sludge within UST prior to the removal of the UST, excavation and off-Site disposal of the contaminated soil. No further cleanup action was proposed. Because the excavation pit was backfilled with controlled density fill (CDF), the isolated pockets of residual contamination were covered beneath the concrete surface and on-Site parking structure, and the contamination appears to be stable and not migrating off the property. Ecology has determined that an Environmental Covenant (EC) on the property will be the most feasible alternative to control and minimize any future impact to human health and environment.

4. Cleanup.

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

Cleanup actions conducted to date have included source removal and disposal activities as follows:

- 700 gallons of petroleum product and 100 gallons of sludge contained in the UST were removed and disposed of, thereafter, the emptied UST was removed. Three product lines connected to the UST were also removed. The UST was properly transported to Phoenix Environmental in Tacoma for disposal.
- Most of the contaminated soil found adjacent to the UST was excavated. A total of 472 tons of contaminated soil was removed and properly disposed of at Landfilling and Recycling Inc. (LRI) landfill located in Graham, Washington.

Confirmation samples collected from the four walls and from the bottom of the excavation pit indicated that contaminated soil was left at the bottom of the northwest corner of the excavation pit, and potentially left on the eastern wall and bottom of the excavation pit (see Section 1 of this letter for details). Contaminated soil at these localized pockets was not removed due to limited access for excavation equipment.

As a result, Ecology has determined that it will be cost-prohibitive to do any further remedial action at the Site, and that the most feasible alternative is to place restrictions on usage of the property via an EC based on the following reasons:

- The UST with source petroleum product, and product lines were all removed. Most of the contaminated soil was also excavated, and only localized pockets of petroleum contaminated soil were left at the Site.
- The Site has dense glacial deposits at least 30 feet thick between the former UST and groundwater table, which may effectively contain the remaining soil contamination from leaching into groundwater.
- The TPH was aged Bunker-C oil, which has limited mobility in soil and the remaining contamination in soil will not be readily mobile and lead to further soil and groundwater contamination. The 1,750-gallon UST was not in use at least since the 1970s, yet it still contained 700 gallons of Bunker-C oil and 100 gallons of sludge at the time of discovery in 2008, even though multiple discernable holes that ranged in size from approximately 1/8 inch to 1.5 inches were observed throughout the UST.
- The excavation pit was backfilled with CDF, and covered by paved parking surface, located within a parking structure, which will serve as an institutional control and minimize the impact to human health through direct contact pathway.

- The aged Bunker-C oil has limited potential to produce vapors. VOCs were detected in soil at concentrations lower than MTCA Method A cleanup levels (see Section 1 of this letter for details) and therefore, VOCs are not a concern.

Because groundwater contamination is not a concern for this Site, no long-term groundwater monitoring is necessary. The process for placing an EC on the property is outlined below:

1. Conduct a title search to identify all persons holding a prior interest in the real property subject to the covenant. To save time later, you should conduct the search as early in the process as possible. Generally, Ecology will not sign the covenant unless all prior interest holders are willing to sign on as grantors or subordinate their interests. See step 5 below.
2. Draft the covenant using the boilerplate document available on the VCP web site: www.ecy.wa.gov/programs/tcp/vcp/vcp2008/vcpRequirements.html. Please note that any changes to the boilerplate language in the covenant must be approved by the Attorney General's Office.
3. Submit the draft covenant for review and comment to the appropriate land use planning authority in your jurisdiction. When requesting such review, please do the following:
 - Send Ecology a copy of your written request.
 - Provide the authority with Ecology contact information.
 - Request that the authority send Ecology a copy of any written response.

Ecology will not approve the covenant unless the authority has been adequately consulted.

4. Upon completing your consultations with the local land use planning authority, submit the draft covenant to Ecology for review and approval. Unless already submitted, also submit to Ecology any comments provided by the planning authority or, if none were provided, documentation of your consultation.
5. Upon Ecology approval, obtain the signatures of all grantors of the covenant and obtain subordination agreements with any persons holding a prior interest in the real property subject to the covenant who are not signing the covenant as a grantor.
6. Upon obtaining the signatures of the grantors and any necessary subordination agreements, submit the covenant to Ecology for its signature as the grantee.

7. Upon obtaining Ecology's signature, record the covenant in every county where the real property subject to the covenant is located. For detailed recording instructions, please refer to Chapter 65.04 RCW.
8. Upon recording, return the original signed and recorded covenant to Ecology and provide a copy of the recorded covenant to the following persons:
 - Each person that signed the covenant.
 - Each person holding a recorded interest in the real property subject to the covenant.
 - Each person in possession of the real property subject to the covenant at the time the covenant is executed.
 - Each municipality or other unit of local government in which real property subject to the covenant is located.
 - Any other persons Ecology requires.

The copy must be legible and the recording number must be evident.

For more information on how to create an environmental covenant, please refer to the Uniform Environmental Covenants Act (UECA), Chapter 64.70 RCW, and WAC 173-340-440 of the MTCA Cleanup Regulation.

Once Ecology receives the original signed and recorded covenant, the NFA letter for the Site will be provided to you.

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.

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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.

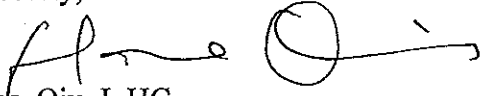
The state, Ecology, and its officers and employees are immune from all liability, and no cause of action of any nature may arise from any act or omission in providing this opinion. *See* RCW 70.105D.030(1)(i).

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 (360) 407-6265 or by e-mail at hqiu461@ecy.wa.gov.

Sincerely,


Hans Qiu, L.H.G.
Site Manager
SWRO Toxics Cleanup Program

HQ/ksc:Site FA Pacific Plaza SW1230 10082012

Enclosures: A – Description and Diagrams of the Site

By certified mail: (7010 0780 0002 3400 8297)

cc: Tricia De Ome, GeoEngineers
Rob Olsen, Tacoma/Pierce County Health Department
Dolores Mitchell – Ecology
Scott Rose – Ecology

Enclosure A

Description and Diagrams of the Site

Site Description

The Site is located within downtown Tacoma. Pacific Avenue, South 13th and Commerce Street bound the Site to the east, south, and west, respectively. The Site is bound to the north by a stairway and existing building (Fig. 1). The entire Site is occupied by the existing parking structure owned by the City of Tacoma and managed by the City's Public Works Services.

The Site is located among urban commercial and businesses properties. A waterway leading to Commencement Bay is located about 1,000 feet east of the Site. The ground surface along 13th street slopes down to the east and towards the waterway.

An underground storage tank (UST) was encountered, and 700 gallons of petroleum product and 100 gallons of sludge were removed from the UST prior to the removal of the UST.

Contaminated soil was excavated and confirmation soil samples were collected from the walls and bottom of the excavation pit (Fig. 2).

Groundwater was not encountered during the UST removal and soil excavation activities. A minor amount of perched water was observed within the excavation pit at the depth of approximately 8 ft bgs and later dissipated during excavation. The water may be related to a small isolated area of perched groundwater because aquifer in this area is about 50 feet deep. The soil below the excavation zone is dense glacial deposits typically consist of very dense silty sand with gravel.

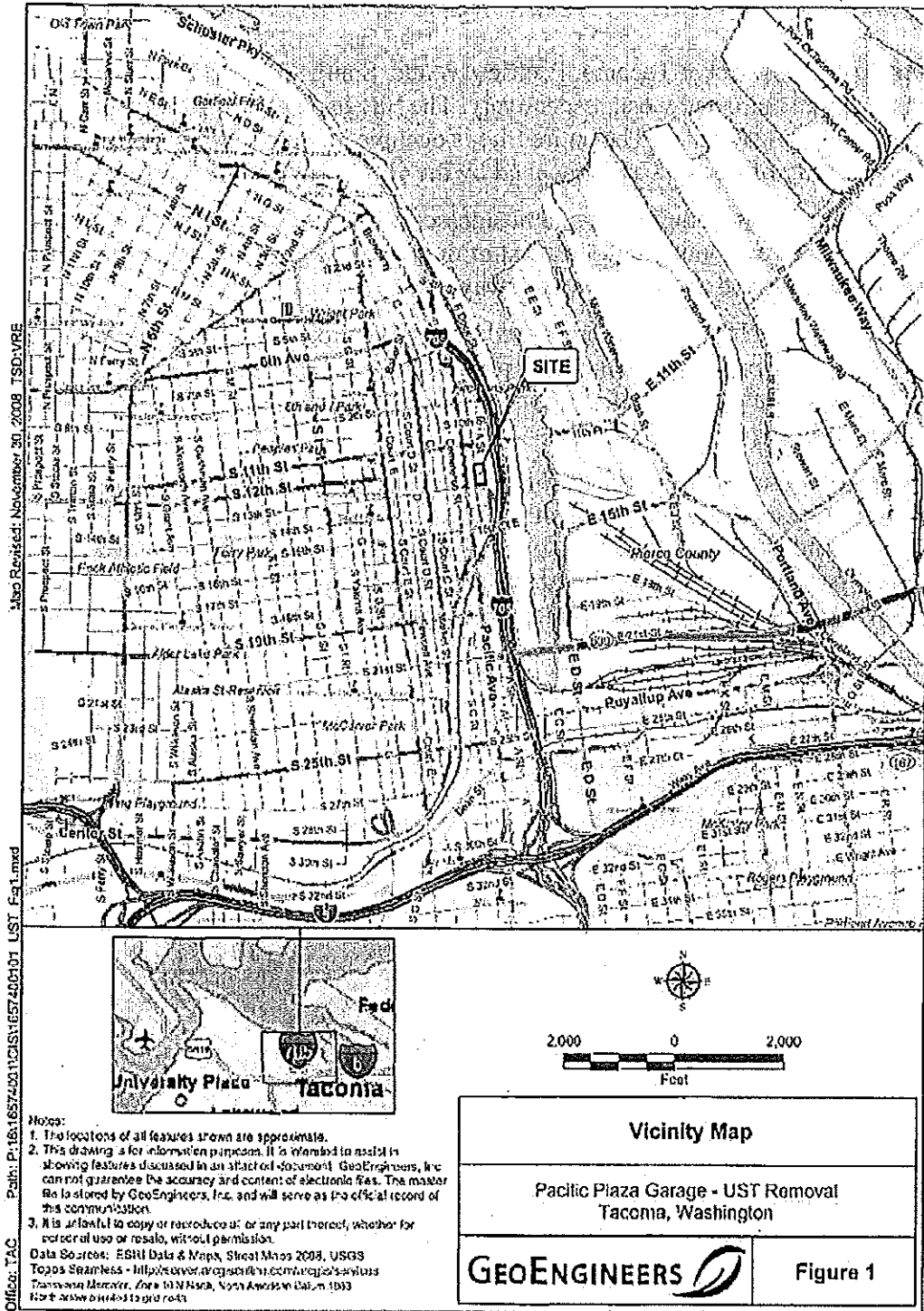


Fig. 1 Location of the Pacific Plaza Site in Tacoma, WA

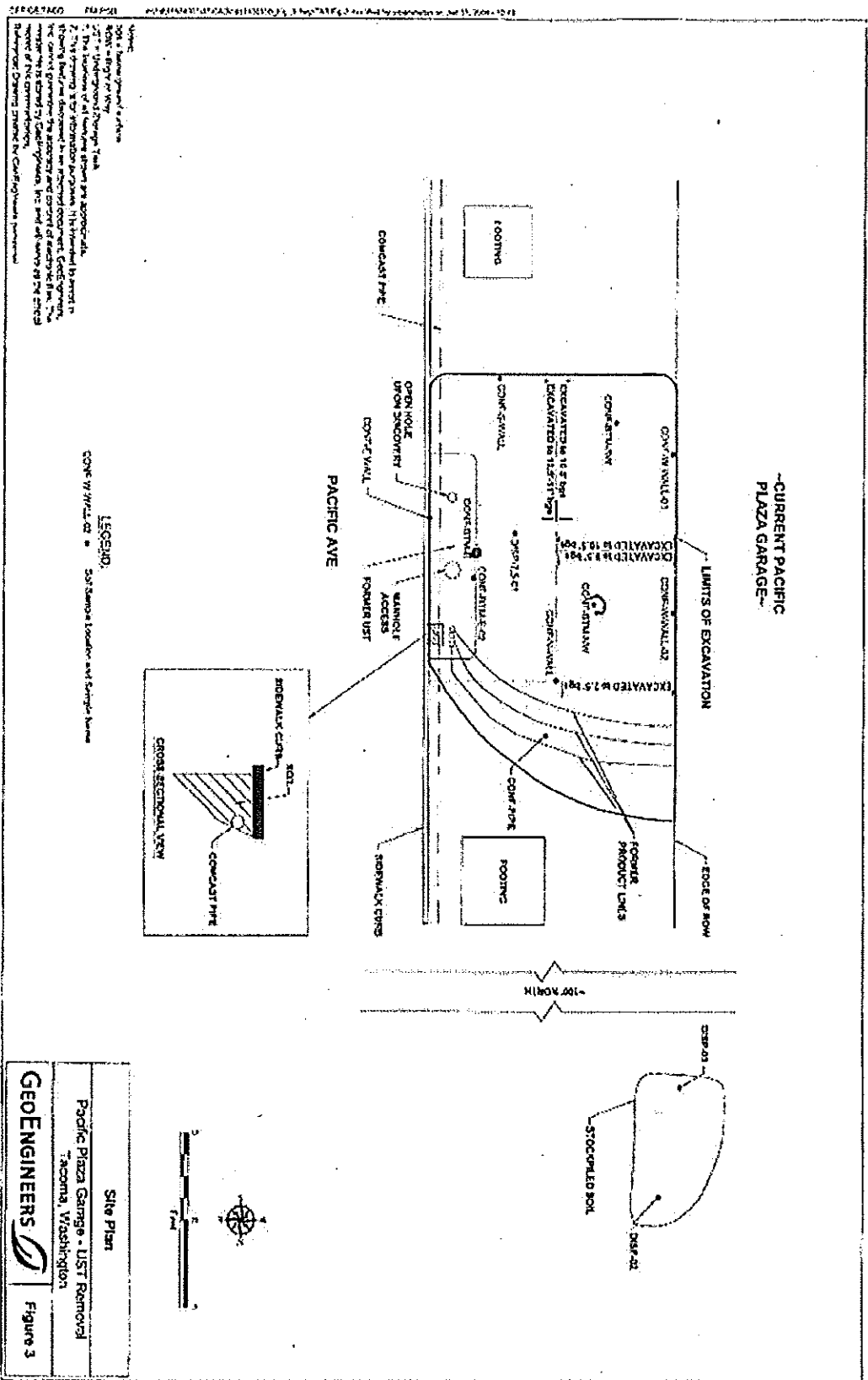


Fig 2. UST Removal, Soil Excavation, and Confirmation Sampling (soil & groundwater) Locations at the Pacific Plaza Site

