1147 DOCK STREET SITE:
CLEANUP REPORT FOR REMOVAL FROM THE HAZARDOUS SITES LIST

Date: December 10, 2007
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Contents

1.0 Introduction

The Department of Ecology (Ecology) proposes to remove the 1147 Dock Street Site from the Hazardous Sites List. The site has also been known as the Investco/Pacific Trustee Site. The site was put on the Hazardous Sites List in 1997 because a mercury-laden fill material was found along the property's shoreline with Thea Foss Waterway. Ecology discovered the fill material during an inspection program to control sources of contamination to the Commencement Bay Nearshore/Tideflats federal Superfund site, which includes the sediments of Thea Foss Waterway. The site ranking is "0" on the Hazardous Sites List, indicating a high priority for Ecology action because of its status as a source of mercury contamination to the Superfund Site.

No Cleanup Action Plan was prepared for the site. Instead, several interim actions and investigative efforts have occurred between 1992 and the present, both voluntarily and under an Ecology Agreed Order. Based on the information provided, Ecology has determined the cleanup actions performed at the site meet the requirements of the Model Toxics Control Act, and that the site is eligible to be removed from the Hazardous Sites List. Ecology is requesting public comment on the removal from the Hazardous Sites List through January 16, 2008.

2.0 Site History

In 1997, Ecology conducted an interim action to prevent the contaminated fill material from contacting Thea Foss Waterway, using $179,562 in state of Washington Toxics Control Account funds. Approximately 1,000 tons of fill/sediment were removed and remaining contaminants were isolated beneath a geotextile layer covered with several feet thickness of quarry spalls, rip-rap, and gravel. This area is within the Thea Foss Waterway cleanup area of the Commencement Bay Nearshore/Tideflats federal Superfund site, and is subject to a restrictive covenant and long term monitoring under the requirements of a consent decree between the city of Tacoma and the U.S. EPA.

Ecology has entered into an agreement with the current owner for Ecology to recover the initial costs for the interim action, plus accumulated interest.

In 2005, additional investigations were performed by the site owner (Federal Asset Recovery) to determine if the site uplands were contaminated. Two small areas where mercury was identified above the state cleanup standard were excavated.

In 2007, Ecology entered into Agreed Order DE 3373 with Federal Asset Recovery to summarize existing information, place a restrictive covenant on the shoreline capped

area, perform additional investigations to confirm the site uplands meet cleanup standards, and recover past costs.

Documents summarizing site investigations and remedial activities

- Bunker C Oil Undergound Tank Removal and Closure Assessment, Former Tacoma Steam Plant. HartCrowser. May 4, 1993, letter report.
- Monitoring Well Installation and Groundwater Assessment, Former Tacoma Steam Plant. HartCrowser. November 21, 1994, letter report.
- Pacific Trustee (1147 Dock Street), Interim Action Cleanup Report. Department of Ecology. March 30, 1998.
- Phase Two Environmental Site Assessment, Investco/Looney Site. V Environmental. October 6, 2005.
- Phase Two Site Investigation, Investco/Looney Site. V Environmental. December 5, 2005.
- Site Summary Report, 1147 Dock Street, Tacoma, Washington. V Environmental. February 15, 2007.
- Subsurface Soil Investigation Report, Follow-up to Site Summary Report Dated February 15, 2007. V Environmental. September 14, 2007.

3.0 Site Description

The site consists of a 0.7 acre vacant property located at 1147 Dock Street in Tacoma, Washington, Pierce County tax parcel number 8950001971 (Figure 1). The Colonial Fruit and Produce warehouse is adjacent to the property on the south property line. To the north is a parking lot located upon the site of an historic City of Tacoma steam plant.

From 1923 until 1980, the Consumers Central Heating Company steam heat generating plant was located on the property. Prior to 1923 the property was used as a building supply warehouse. The heating plant burned mill tailings and sawdust from local woodworking mills until 1965 when it began using bunker C oil. All structures on the Site were demolished in 1980, and the Site has been unused except for parking since then. Two, 35,000 gallon Bunker C oil tanks were removed from the site in 1992 by the Investco Financial Corporation, a previous site owner.

Approximately three-fourths of the property consists of a flat gravelled lot with remnant concrete slabs and foundation walls in the north part. The eastern 20-40 feet of the property consists of the sloping shoreline and subtidal area to the Inner Harbor Line of

Thea Foss waterway, which is the eastern property boundary. A concrete bulkhead divides the upland and shoreline of the site on the northern half of the property. A stout concrete pad is present adjacent to the middle part of the shoreline.

The shoreline area and subtidal areas are included in the Thea Foss/Wheeler Osgood problem area of the Commencement Bay Nearshore/Tideflats federal Superfund site. Based on the remedial investigation studies, it appears that the extent of the contamination does not extend beyond the property boundaries except toward the waterway which was remediated under the jurisdiction of the U.S. Environmental Protection Agency.

4.0 Documentation of Interim Cleanup Actions

The Site Summary Report (V Environmental, February 15, 2007) summarizes historic investigations and cleanup actions that have occurred at the site. These are described here in chronological order. Maps and tables from the relevant reports are found in Appendix A.

4.1 Underground tank removal

In October of 1992, Hart Crowser, on behalf of Investco Financial Corporation, removed two 35,000 gallon underground tanks located in the approximate center of the site that had contained Bunker C heating oil. Six sidewall samples were obtained just above the groundwater (11 feet below ground surface), and two samples were taken from the bottom of the excavation.

The two bottom samples and one sidewall sample contained petroleum hydrocarbons at relatively high levels, up to 10,000 parts per million (ppm) compared to the state cleanup standard of 2,000 ppm. One of the sidewall samples with the higher levels of petroleum was also tested for metals, PAH, PCBs and Volatile Organics. PCBs, metals and volatile organics were either not detected (PCBs, mercury) or detected at levels well below the MTCA cleanup standards. Carcinogenic PAH above the MTCA cleanup standard were detected in that sample.

The sidewall with elevated petroleum and PAH was overexcavated. The new sidewall was sampled and the results confirmed that the petroleum extent had been removed (low or no detection of petroleum). This sidewall was not tested for PAH but the absence of petroleum indicates that the PAH were also removed on this sidewall. The bottom of the UST excavation was also overexcavated to the extent practicable below the groundwater, and 850 gallons of oily water were removed from the pit.

After backfilling the hole, Hart Crowser installed four monitoring wells around the site and one soil boring in the tank footprint. No petroleum was detected in the soils from any of the monitoring well borings. The soil boring beneath the tank footprint (at 16 feet depth) contained low levels of petroleum hydrocarbons (141 ppm, compared to state cleanup standard of 2000 ppm). It also contained carcinogenic PAH at 0.158 ppm (toxicity equivalent to benzo(a)pyrene) compared to the MTCA, Method A soil cleanup level of 0.1 ppm. No petroleum hydrocarbons were detected in water from any of the monitoring wells. Later water samples obtained during the 2005 and 2007 investigations confirmed the absence of petroleum products in groundwater.

4.2 Ecology Interim Action – Shoreline Remediation

In 1993 Ecology discovered a man-made fill material containing mercury along the banks of the northern approximately two-thirds of the property. The fill extended from close to the top of the embankment to below the lowest tide level. It was found to contain up to 38.3 ppm of mercury, compared to the Commencement Bay Sediment Quality Objective of 0.59 ppm. Ecology's attempt to gain cooperation from site owners for remediation of the shoreline was unsuccessful. In 1997, Ecology used Washington State Toxics Control Account funds to conduct an interim remedial action to remove and contain the fill to control the source of contamination to Thea Foss Waterway. The project was designed by an Ecology staff registered professional engineer. The interim action is described in the report entitled *Pacific Trustee (1147 Dock Street) Interim Action Cleanup Report*, March 30, 1998, located in Ecology's file.

Approximately 1,000 tons of contaminated fill and soils were removed and disposed of at the Olympic View Landfill. The excavation extended to the 0 foot mean lower low water tide level (0' MLLW) but did not remove all of the fill material, which extended below the footprint of the excavation and also extended down the bank slope into the Thea Foss Waterway. A nonwoven geotextile fabric was placed over the excavated surface to prevent migration of fine sediments into the waterway. The slope was then backfilled with 900 tons of 8 inch quarry spalls anchored with 500 tons of 24 inch rip-rap, and then covered with smaller rock and gravel to provde a improved habitat substrate over the rip-rap.

Performance samples obtained from the excavated surface before backfilling, at a tide level of 0' MLLW, contained elevated mercury up to 29 parts per million. The elevated mercury is due to the remaning fill material that could not be removed below the water, at the lowest tide conditions.

Some PAH were also detected above the Commencement Bay Sediment Quality Objectives in one sample. The PAH exceedance is believed to be a very localized result of remnant creosote from a piling that was removed during the excavation project, therefore Ecology does not believe the PAH are of concern in the capped area.

The sample with the PAH and the sample with the highest mercury were subjected to a

leaching test to determine the potential for the remaining contaminants to leach through the capped area. Mercury and PAH were not detected in the leachate.

The excavated slope was then covered with a geotextile fabric and backfilled with 1,400 tons of quarry spalls and rip-rap. The remnant contaminants are confined beneath the fabric and backfill.

One month after the cleanup was complete, Ecology obtained a sample from a tiny seep emanating from low on the embankment at 0' MLLW. This sample did not contain detectable mercury or PAH. Ecology also obtained a sample of turbid marine water that was present near the lower capped embankment, and appeared to be turbid from fine sediments emanating from the bank (this phenomenon had also been observed at other areas throughout the tideflats). That sample did not contain detectable levels of mercury.

The shoreline remediation area is now under the jurisdiction of the Thea Foss Waterway Superfund Remediation, which is being managed by the City of Tacoma through an Administrative Order on Consent with the U.S. EPA.

4.3 Thea Foss Waterway Superfund Remediation

In 2006, the city of Tacoma completed construction of a remediation project throughout the Thea Foss Waterway north of the Highway 509 bridge, under a consent decree with the U.S. EPA. The shoreline in the vicinity of the 1147 Dock Street site received a 'slope cap' during this Superfund remediation, consisting of a minimum of 15 inches of gravelly sand covered with 15 inches of light rip-rap. The slope cap covers the shoreline of the southernmost part of the site (which was not found to be contaminated during Ecology's initial investigations of the site), and also blends with and overlaps the lower part of the Ecology interim action cap. The slope cap extends underwater to about 15 feet below the lowest tide.

All of the Thea Foss Waterway below the high tide line (approximately 13 feet MLLW) is now under the jurisdiction of the U.S. EPA as part of the Thea Foss and Wheeler Osgood Waterways remediation project.

The slope cap is subject to confirmational monitoring under the Operations, Maintenance, and Monitoring Plan (OMMP) for the Thea Foss and Wheeler Osgood Waterways Remediation Project required under the City of Tacoma Agreed Order on Consent with the EPA for the Superfund Remediation. Monitoring intervals #8 and #9 are located at the 1147 Dock Street site. The OMMP requires monitoring of the integrity and physical stability of the sloped capped areas in 2006, 2008, 2010, 2013, and 2016. The first year monitoring report (February, 2007) did not find any cap integrity or stability concerns for the monitoring intervals at the site.

4.4 Upland Soil Removal Action by V Environmental

In 2005, V Environmental conducted a phase two site assessment and soils investigation. The soils and groundwater data generated under this work are discussed in more detail in in Section 5.0 below. V Environmental installed eight soil borings at the site. Borings B-4 and B-8 contained mercury at 2.9 ppm and 2.1 ppm, respectively. These levels are greater than the MTCA Method A cleanup standard of 2.0 ppm[1]. The exceedances were identified at 7 feet below ground surface. Samples taken from 4 feet below ground surface at both locations did not contain detectable mercury. Samples from 11 feet below ground surface at B-4 did not contain detectable mercury. No sample was taken from below 7 foot depth at B-8 due to refusal of the boring equipment.

V Environmental excavated soils around B-4 and B-8. The excavation pit at the B-4 location was ten feet square by eight feet deep; the other was eight by eight by eight feet. Performance samples consisted of four sidewall and one bottom sample obtained from each pit. One sample, on the north sidewall of the southerly excavation (at the B-8 location) contained 1.7 ppm mercury. Mercury was not detected in any of the other sidewall or bottom samples.

On December 3, 2007, approximately 46 cubic yards of soils from the excavations that had been stockpiled on the site were removed and disposed of at the Olympic View Landfill in Kitsap County, Washington. The excavated areas were backfilled with clean pit run gravels obtained from Walraith Trucking in Pierce County.

5.0 Site Remedial Investigation

Ecology has determined that the various stages of site characterization completed for the underground tank removal, shoreline remediation, and independently (V Environmental, 2005) and under the Agreed Order (V Environmental, 2007) meet the equivalent requirements of a site Remedial Investigation.

In addition to the investigations described in Section 4, additional site investigatons were conducted by V Environmental in 2005 and 2007. As noted above, the 2005 investigation included installation of eight soil borings. In 2007, Under Agreed Order No. DE 3373, V Environmental summarized existing information about the site. Ecology reviewed the information and determined that additional investigations were needed to complete the remedial investigation. Based on Ecology's comments on the site summary report, V Environmental completed six additional soil borings and obtained soil and groundwater samples.

[1] The Method A cleanup standard for soils is based on the protection of groundwater (from leaching of contaminants from soil to groundwater) for drinking water use. No mercury has been detected in site groundwater. The MTCA, Method B calculated value for mercury for protection of human health from ingestion is 24 ppm.

5.1 Soils Investigations

- 2005: B1 through B7 soils tested at 4, 7, and 11 feet depth; B8 soils tested at 4 and 7 feet deep. All samples analyzed for heavy metals. B-5 (near former UST excavation) tested for gasoline, diesel, benzene, toluene, ethylbenzene, and xylenes. B3, 5, and 8 tested for PAH.
- 2007: B9 through B14 soils tested at depths from 8 – 14 feet deep for mercury and lead.

Soils Results:

- Heavy Metals. Of forty soil samples obtained, mercury was detected in five samples, with two samples exceeding the MTCA, Method A soil cleanup level of 2 ppm. [B1, 1.8 ppm mercury at 7 feet; B5, 0.5 ppm mercury at 11 feet; B7, 1.4 ppm mercury at 4 feet deep. B8 and B4, 2.1 and 2.9 ppm at 7 feet.] Soils around B4 and B8 were later excavated. Mercury was not detected in performance samples from the sidewalls or bottom of the excavation areas except 1.7 ppm in north sidewall of the southerly excavation pit. No samples contained other heavy metals at levels at or near the MTCA Method A cleanup level[2].
- Petroleum: Soils from varying depths within B 1, 4, 5, 6, 11, 12, and 13 were tested for diesel (19 samples). The sample from boring B11 at 14 foot depth contained 151 ppm diesel, compared to the MTCA, Method A cleanup level of 2000 ppm. Diesel was not detected in any other samples. Samples from boring B4 were also tested for gasoline and its constituents benzene, toluene, ethylbenzene, and xylenes (BTEX). No gasoline or BTEX was detected.
- Polyaromatic Hydrocarbons (PAH): B 3, 5, 8, 11 and 12 were tested for PAH. No PAH were detected in any samples.

5.2 Groundwater

In the 2005 V Environmental Site Assessment, groundwater grab samples were obtained from seven of the eight Geoprobe soil borings. Groundwater was found at approximately 11 feet below ground surface. One groundwater sample contained lead at 24 parts per billion (ppb), which is above the MTCA, Method A groundwater cleanup level of 15 ppb, and also above the Washington State marine chronic water quality criteria for protection of marine life of 8.1 ppb. One other sample, at 12 ppb, was also above the marine water quality criteria.

In 2007, Ecology requested three additional groundwater samples be analyzed for total and dissolved lead, allowing for more careful field techniques to avoid high turbidity

[2] The Method A cleanup standard for soils is based on the protection of groundwater (from leaching of contaminants from soil to groundwater) for drinking water use. No mercury has been detected in site groundwater. The MTCA, Method B calculated value for mercury for protection of human health from ingestion is 24 ppm.

commonly found in Geoprobe grab groundwater samples. Samples from three borings did not contain detectable levels of dissolved lead. The level of total lead in one sample was 9.8 ppb, slightly above the marine water quality criteria. Ecology believes this to be an artifact of the sampling methodology and not representative of potential for groundwater to cause pollution to the Thea Foss Waterway.

Water from B1, B5 and B6 was tested for diesel. Water from B5 was also tested for gasoline and BTEX. No petroleum hydrocarbons or BTEX were detected. Samples from B3, B4, and B5 were analyzed for PAH. No PAH were detected in groundwater.

Based on the results, Ecology does not believe groundwater from this site is a possible source of contamination to surface water of Thea Foss Waterway, or a risk to human health.

6.0 Cleanup Levels and Points of Compliance

6.1 Groundwater

The chemical of potential concern for groundwater at this site was lead. No other constituents, including mercury, were detected in groundwater at levels approaching MTCA groundwater cleanup levels or water quality criteria for protection of marine waters. The groundwater cleanup levels for lead that apply to this site are the MTCA, Method A Cleanup Level for Groundwater of 15 ppb and the Washington State Marine Water Quality Chronic Exposure Criteria for protection of aquatic life of 8.1 ppb.

The EPA has not promulgated a Water Quality Criteria for lead, for protection of human health. The point of compliance is groundwater throughout the site. Groundwater results for lead from the 2007 investigation confirmed that elevated lead in initial groundwater samples was due to highly turbid conditions from the sampling method, and that lead in groundwater meets the relevant cleanup levels.

6.2 Soils

The chemicals at levels of potential concern that were identified in the soils of this site include mercury, diesel/heavy oil, and carcinogenic PAH. The point of compliance for soils are the soils throughout the site, to a depth of 15 feet below ground surface.

The MTCA, Method A soil cleanup level for mercury is 2.0 ppm. The Method A soil cleanup level for mercury is based on protection of groundwater from potential leaching of soil contaminants. No mercury was detected in groundwater samples from this site, therefore it is appropriate to compare the soil mercury concentrations to the human health risk criteria. The MTCA, Method B calculated concentration of mercury for protecting

human health from ingestion of contaminated soil is 24 ppm.

After removal of soils from the northeast corner of the site, all soil samples fall below the Method A soil cleanup level of 2 ppm as well as the Method B cleanup level of 24 ppm.

Carcinogenic PAH above the MTCA, Method A cleanup standard of 0.1 ppm (toxicity equivalent to benzo(a)pyrene) were identified in one sample beneath the footprint of the tank excavation in 1994 at a depth of 16 feet. PAH were not detected in any of the samples from the 2005 and 2006 investigations, and Ecology believes PAH are no longer a chemical of concern at the site.

Diesel/heavy oil were detected at levels above the MTCA, Method A cleanup standard of 2000 ppm during the underground heating oil tank removal in 1994. Diesel was detected in only one of 19 soil samples, at 151 ppm. No odor or visual evidence of petroleum was detected in any of the other soil borings.

6.3 Sediments

The chemical of potential concern for sediments at this site is mercury. The cleanup level for mercury in Thea Foss Waterway is 0.59 ppm. The point of compliance for the for sediments is within the top 0 – 10 centimeters of surface sediments, and for deeper sediments that could become exposed through erosion or could cause the surface sediments to become contaminated through leaching. Approximately 1000 tons of fill material with elevated mercury was removed from the site shoreline, which was then covered with geotextile fabric and several foot thickness of quarry spalls and rip-rap. The shoreline remediation is protected from future disturbance by the placement of a restrictive environmental covenant on this portion of the property. The shoreline sediments meet the cleanup standard at the point of compliance.

7.0 Confirmational Monitoring

Performance monitoring and leaching tests conducted by Ecology shortly after completion of the shoreline interim remedial action confirmed that the removal and shoreline cap had effectively contained the contamination. The shoreline cap is subject to long term confirmational monitoring under the requirements of the Agreed Order on Consent between the city of Tacoma and the U.S. EPA for the federal Superfund remediation of Thea Foss Waterway. The first year of confirmational monitoring (2006) found the cap integrity to be satisfactory.

8.0 Institutional Controls

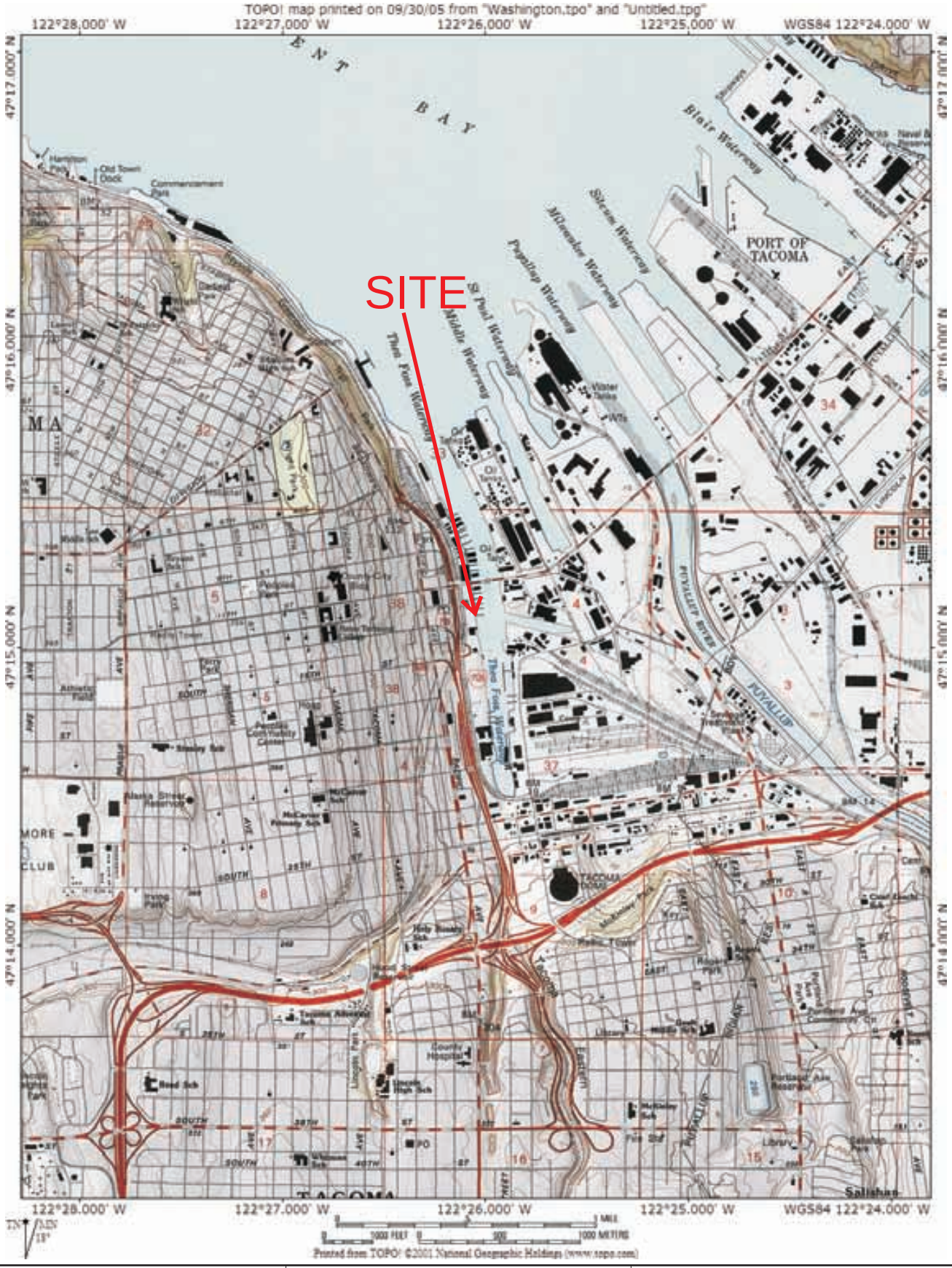
Institutional controls for the Superfund remediation include a requirement for protective covenants to be placed upon the capped portion of all properties along the waterway. A restrictive covenant for the waterward portion of this parcel was recorded with the Pierce County Auditor October 6, 2006 (Recording number 200610060691). The area covered by restrictive covenant is shown in Figure 2.

9.0 Public Participation

A fact sheet, public notice, and request for public comment were issued for the initial Enforcement Order in 1996 that was followed by the Ecology interim shoreline remedial action. In 1997, Ecology issued a Declaration of Nonsignificance and request for public comment under the State Environmental Policy Act in preparation for conducting the shoreline remedial action.

Ecology issued a fact sheet, public notice, and request for public comment for the more recent Agreed Order No. DE 3373 in October 2006.

A final fact sheet, public notice, and request for public comment is now being issued in preparation for removing the site from the Hazardous Sites List. A 30-day comment period will be held and Ecology will respond to questions and comments before delisting the site. Residents and businesses within a half mile of the site will be notified. A notice will also be posted in Ecology's Site Register and in the Tacoma News Tribune.



VE Project Number: 213-1 Drawn by: Verna Lee Teller	**1147 Dock Street** **Tacoma, Washington**	**FIGURE 1** **SITE LOCATION MAP** V ENVIRONMENTAL, LLC

ATTACHMENT 2: Restrictive Covenant, Federal Asset Recovery, Inc., Parcel Number 8950001971, Pierce County, Washington

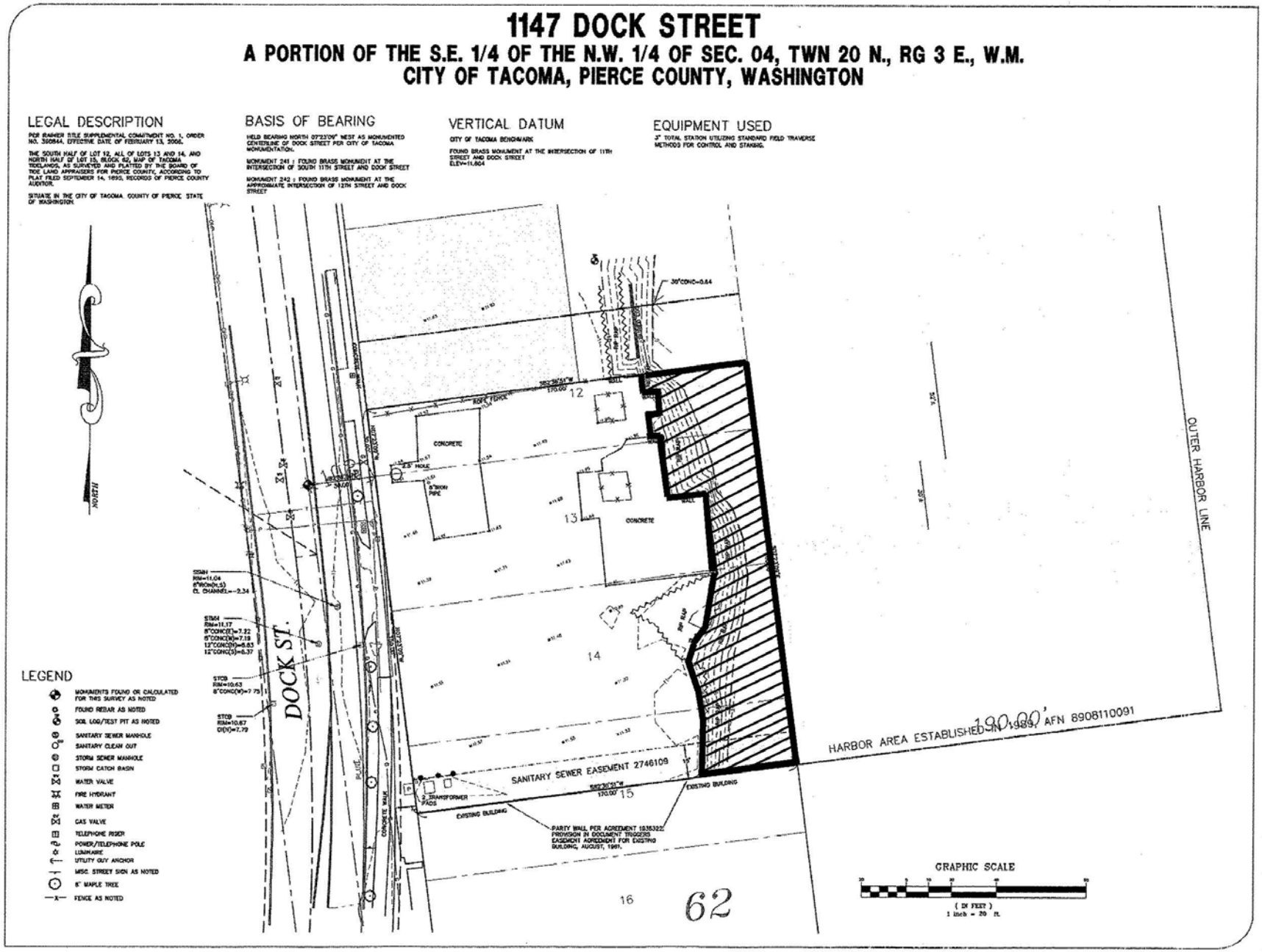


Figure 2 – Restrictive Covenant

APPENDIX A

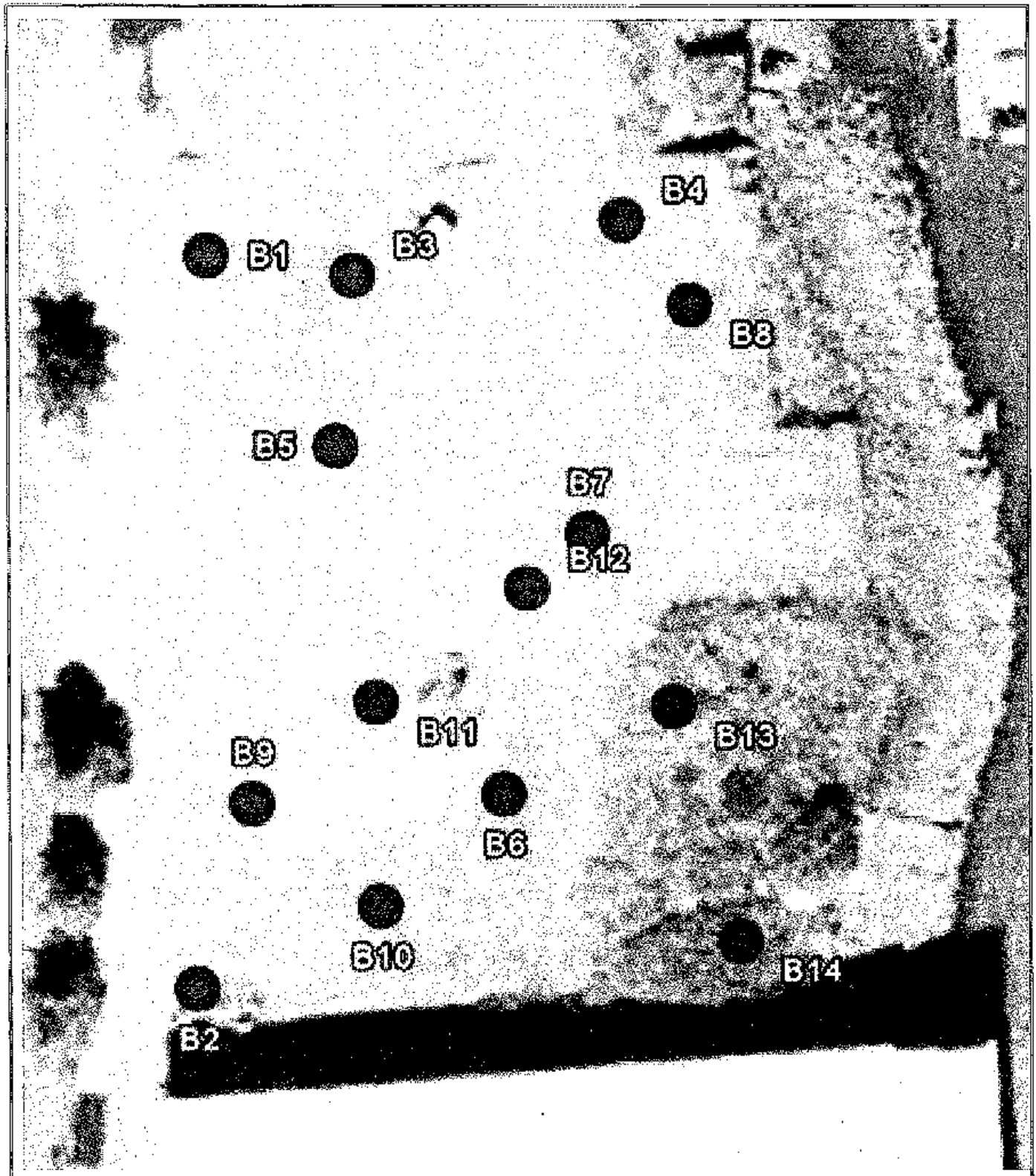
EXCERPTS FROM SITE INVESTIGATION AND REMEDIATION REPORTS
1147 DOCK
TACOMA, WASHINGTON

Environmental Site Assessments by V Environmental

Phase Two Environmental Site Assessment, Investco/Looney Site. V Environmental. October 6, 2005.

Phase Two Site Investigation, Investco/Looney Site. V Environmental. December 5, 2005.

Subsurface Soil Investigation Report, Follow-up to Site Summary Report Dated February 15, 2007. V Environmental. September 14, 2007.



Boring Locations	DRAWING NOT TO SCALE N↑
Environmental	Site Name: 1147 Dock Street Tacoma, Washington
	Project Number: 213-4

Table 1. Investco/Looney
Laboratory Analytical Results for Soil

	Cleanup Levels	B-1-4	B-1-7	B-1-11	B-2-4	B-2-7	B-2-11	B-3-4	B-3-7	B-3-11	B-3-11DUP	B-4-4	B-4-7	B-4-11	B-5-4	B-5-7.5	B-5-11	B-6-4	B-6-7	B-6-12	B-7-4	B-7-7	B-7-11	B-8-4	B-8-7	B-8-7DUP
Metals (mg/kg)																										
Lead	250	20	40	9.1	<1.0	<1.0	<1.0	2.2	<1.0	<1.0	<1.0	6.9	2	1.9	<1.0	16	<1.0	63	1.7	<1.0	9.3	<1.0	1.6	11	1.2	1.1
Chromium		<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	1.5	<2.0	<2.0	<2.0
Cadmium		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Barium		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Silver		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Arsenic		<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Selenium		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Mercury	2	<0.4	1.8	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	**2.9**	<0.4	<0.4	0.4	0.5	<0.4	<0.4	<0.4	1.4	<0.4	<0.4	<0.4	**2.1**	**2.1**
TPH (mg/kg)																										
Benzene															<0.02	<0.02	<0.02									
Toluene															<0.05	<0.05	<0.05									
Ethylbenzene															<0.05	<0.05	<0.05									
Xylenes															<0.05	<0.05	<0.05									
Gasoline															<10	<10	<10									
Diesel		<20	<20	<20								<20	<20	<20	<20	<20	<20	<20	<20	<20						
PAHs (mg/kg)																										
Napthalene		na	na	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	na	na	<0.10	<0.10	na
acenaphtylene		na	na	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	na	na	<0.10	<0.10	na
acenaphthene		na	na	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	na	na	<0.10	<0.10	na
Fluorene		na	na	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	na	na	<0.10	<0.10	na
Phenanthrene		na	na	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	na	na	<0.10	<0.10	na
Antrhacene		na	na	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	na	na	<0.10	<0.10	na
Fluoranthene		na	na	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	na	na	<0.10	<0.10	na
Pyrene		na	na	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	na	na	<0.10	<0.10	na
Benzo(a)anthracene		na	na	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	na	na	<0.10	<0.10	na
Chrysens		na	na	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	na	na	<0.10	<0.10	na
Benzo(b)fluoranthene		na	na	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	na	na	<0.10	<0.10	na
Benzo(a)pyrene		na	na	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	na	na	<0.10	<0.10	na
Indeno(1,2,3-cd)pyrene		na	na	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	na	na	<0.10	<0.10	na
Dibenzo(a,h)anthracene		na	na	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	na	na	<0.10	<0.10	na
Benzo(ghi)perylene		na	na	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	<0.10	<0.10	<0.10	na	na	na	na	na	na	<0.10	<0.10	na
PCBs (mg/kg)		na	na	na	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	na	na	na	na	na	na	na	na	na	na	<0.20	<0.20	<0.20	na	na	na

V Environmental LLC
PO Box 18612
Spokane, Washington 99228

Table 2. Investco/Looney
Laboratory Analytical Results for Groundwater

	Cleanup Levels	B-1	B-2	B-3	B-4	B-5	B-6	B-7	B-7DUP	B-8
Metals (µg/L)										
Lead	15	8	24	6	12	9	2	2	2	A groundwater sample could not be collected from this boring.
Chromium	50	10	20	<0.1	30	40	<0.1	<0.1	<0.1	
Cadmium		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
Barium		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Silver		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Arsenic		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
Selenium		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Mercury		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
TPH (µg/L)										
Benzene						<1.0				
Toluene						<1.0				
Ethylbenzene						<1.0				
Xylenes						<1.0				
Gasoline						<100				
Diesel		<200				<200	<200			
PAHs (µg/L)										
Napthalene		na	na	<1.0	<1.0	<1.0	<1.0	na	na	na
acenaphtylene		na	na	<1.0	<1.0	<1.0	<1.0	na	na	na
acenaphthene		na	na	<1.0	<1.0	<1.0	<1.0	na	na	na
Fluorene		na	na	<1.0	<1.0	<1.0	<1.0	na	na	na
Phenanthrene		na	na	<0.1	<0.1	<0.1	<0.1	na	na	na
Antrhacene		na	na	<1.0	<1.0	<1.0	<1.0	na	na	na
Fluoranthene		na	na	<1.0	<1.0	<1.0	<1.0	na	na	na
Pyrene		na	na	<1.0	<1.0	<1.0	<1.0	na	na	na
Benzo(a)anthracene		na	na	<1.0	<1.0	<1.0	<1.0	na	na	na
Chrysens		na	na	<1.0	<1.0	<1.0	<1.0	na	na	na
Benzo(b)fluoranthene		na	na	<1.0	<1.0	<1.0	<1.0	na	na	na
Benzo(a)pyrene		na	na	<0.1	<0.1	<0.1	<0.1	na	na	na
Indeno(1,2,3-cd)pyrene		na	na	<1.0	<1.0	<1.0	<1.0	na	na	na
Dibenzo(a,h)anthracene		na	na	<1.0	<1.0	<1.0	<1.0	na	na	na
Benzo(ghi)perylene		na	na	<1.0	<1.0	<1.0	<1.0	na	na	na

surface at each boring consisted primarily of sandy gravel. Borehole logs are presented in Appendix B.

3.2 ANALYTICAL RESULTS

Analytical results are summarized in Table 1, 2 and 3. A copy of the laboratory report is presented in Appendix A.

Boring locations and laboratory analytes were selected based on discussions with WDOE and on previous environmental investigations. To conform to Ecology regulations for properties located on the Thea Foss, laboratory analyses for soil and groundwater were based on Table 830-1 in the Model Toxics Control Act Cleanup Regulation Chapter 173-340 WAC amended February 12, 2001 and included selected metals.

Table 1. Upland Soil Samples from Borings – Metals and TPH

Sample ID	Date Collected	Lead	Mercury	Diesel
B9-8	7/10/07	<5.0	<0.5	
B9-12	7/10/07	<5.0	<0.5	
B9-14	7/10/07	<5.0	<0.5	
B10-8	7/10/07	<5.0	<0.5	
B10-12	7/10/07	<5.0	<0.5	
B10-14	7/10/07	<5.0	<0.5	
B11-8	7/10/07	na	<0.5	<25
B11-10	7/10/07	na	<0.5	<25
B11-14	7/10/07	na	<0.5	151
B12-5	7/10/07	na	<0.5	<25
B12-8	7/10/07	na	<0.5	<25
B12-13	7/10/07	na	<0.5	<25
B13-8	7/10/07	<5.0	<0.5	na
B13-12	7/10/07	na	<0.5	<25
B13-12 dup	7/10/07	na	<0.5	<25
B14-7	7/10/07	<5.0	<0.5	
B14-10	7/10/07	na	<0.5	
MTCA A (mg/kg)		250	2.0	2,000

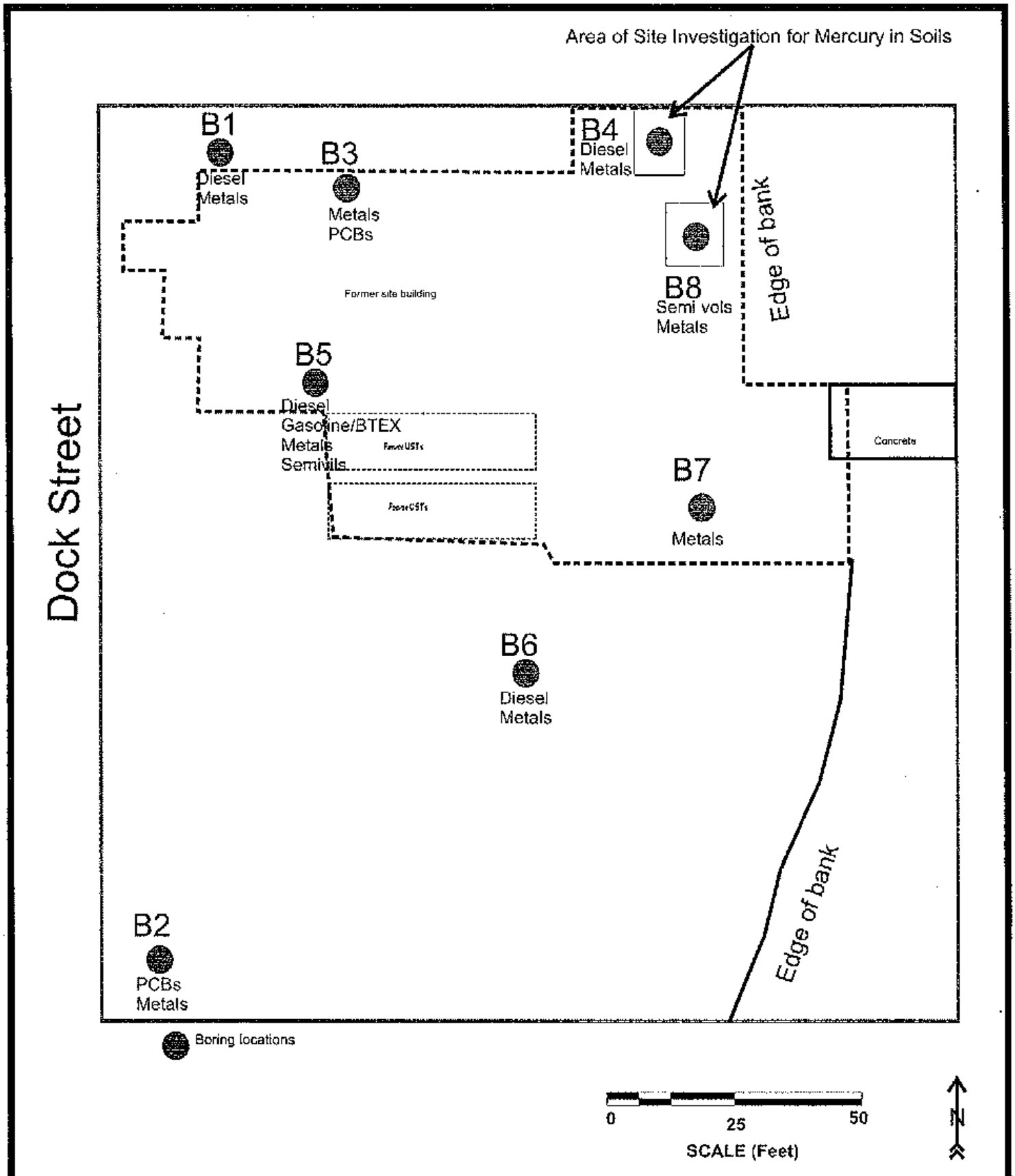
na: not analyzed; * MTCA Method A standards not available and MTCA Method B standards used.

Table 2. Upland Groundwater Samples – Total and Dissolved Lead

		MTCA A µg/L	Date	B-10	B-13	B-14
Metals	Total Lead	15	7/10/07	<2.5	2.5	9.8
TPH	Dissolved Lead	15	7/10/07	<2.5	<2.5	<2.5

Table 3. Upland Soil Samples - cPAHs (Method 8270C) revised 11/21/07

Sample Name	Date	Benzo(a) Anthracene	Chrysene	Denzo(b) fluoranthene	Benzo-Fluoranthene	Benzo(a) Pyrene	Indeno (123cd) Pyrene	Dibenzo(ah) Anthracene
B9-8	7/10/07	na	na	na	na	na	na	na
B9-12	7/10/07	na	na	na	na	na	na	na
B9-14	7/10/07	na	na	na	na	na	na	na
B10-8	7/10/07	na	na	na	na	na	na	na
B10-12	7/10/07	na	na	na	na	na	na	na
B10-14	7/10/07	na	na	na	na	na	na	na
B11-8	7/10/07	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
B11-10	7/10/07	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
B11-14	7/10/07	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
B12-5	7/10/07	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
B12-8	7/10/07	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
B12-13	7/10/07	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
B13-8	7/10/07	na	na	na	na	na	na	na
B13-12	7/10/07	na	na	na	na	na	na	na
B14-7	7/10/07	na	na	na	na	na	na	na
B14-10	7/10/07	na	na	na	na	na	na	na
MTCA B (µg/kg)		0.137	0.137	0.137	0.137	0.137	0.137	0.137



Environmental	Site Summary Report February 15, 2007 VE Project Number: 213-3 Drawn by: Verna Lee Teller	**FIGURE 6** **Location of Borings** Phase II ESA and Site Investigation 1147 Dock Street Tacoma, Washington

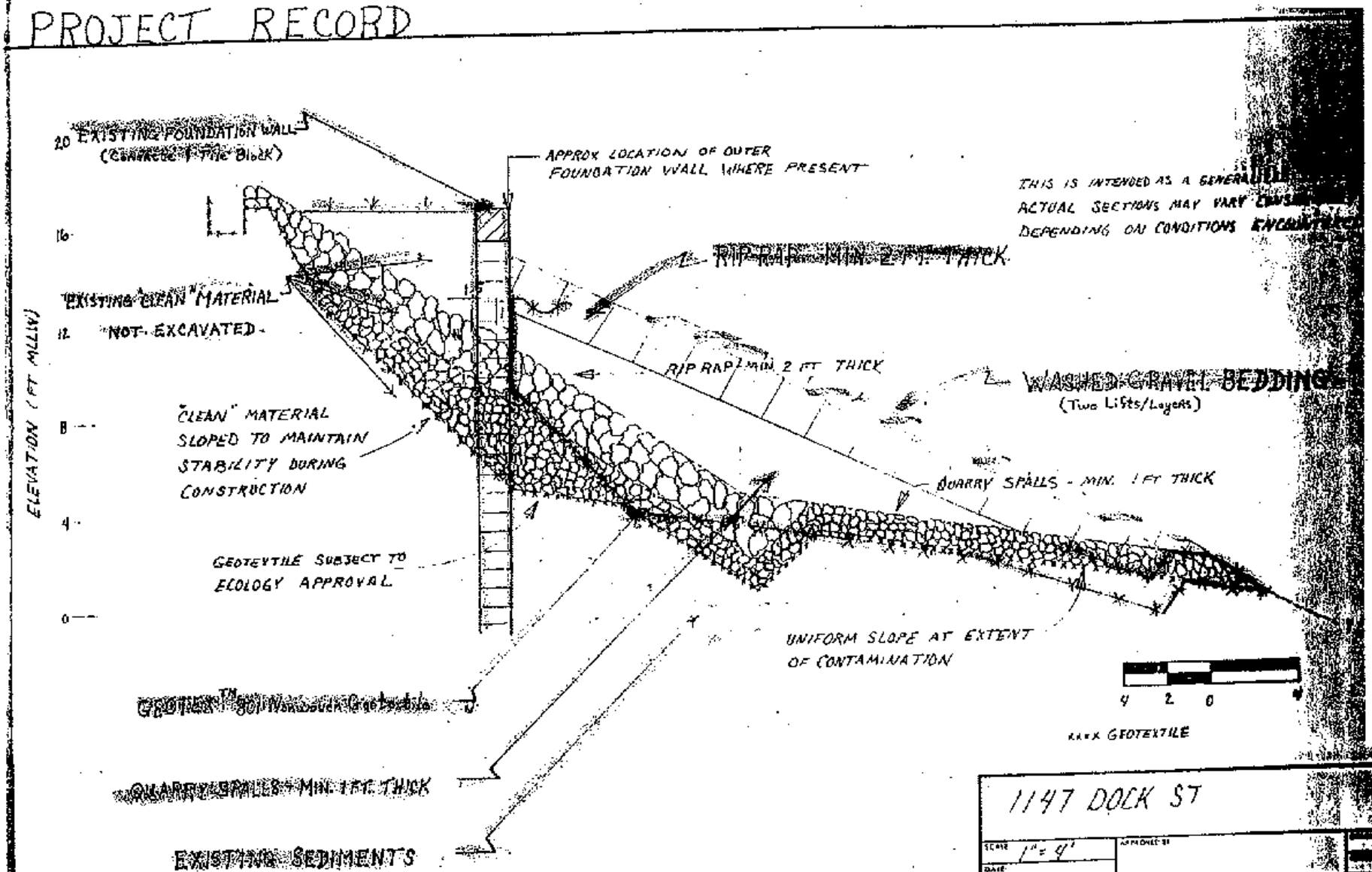
Table 1. Soil Analytical Results

Sample ID	Mercury (mg/kg)
TP1-B	<0.05
TP1-N	<0.05
TP1-S	<0.05
TP1-E	<0.05
TP1-W	<0.05
TP2-B	<0.05
TP2-N	1.7
TP2-S	<0.05
TP2-E	<0.05
TP2-W	<0.05
MTCA Method A Cleanup Levels	2.0

Ecology Interim Action for Shoreline Remediation

Pacific Trustee (1147 Dock Street), Interim Action Cleanup Report. Department of Ecology. March 30, 1998.

PROJECT RECORD



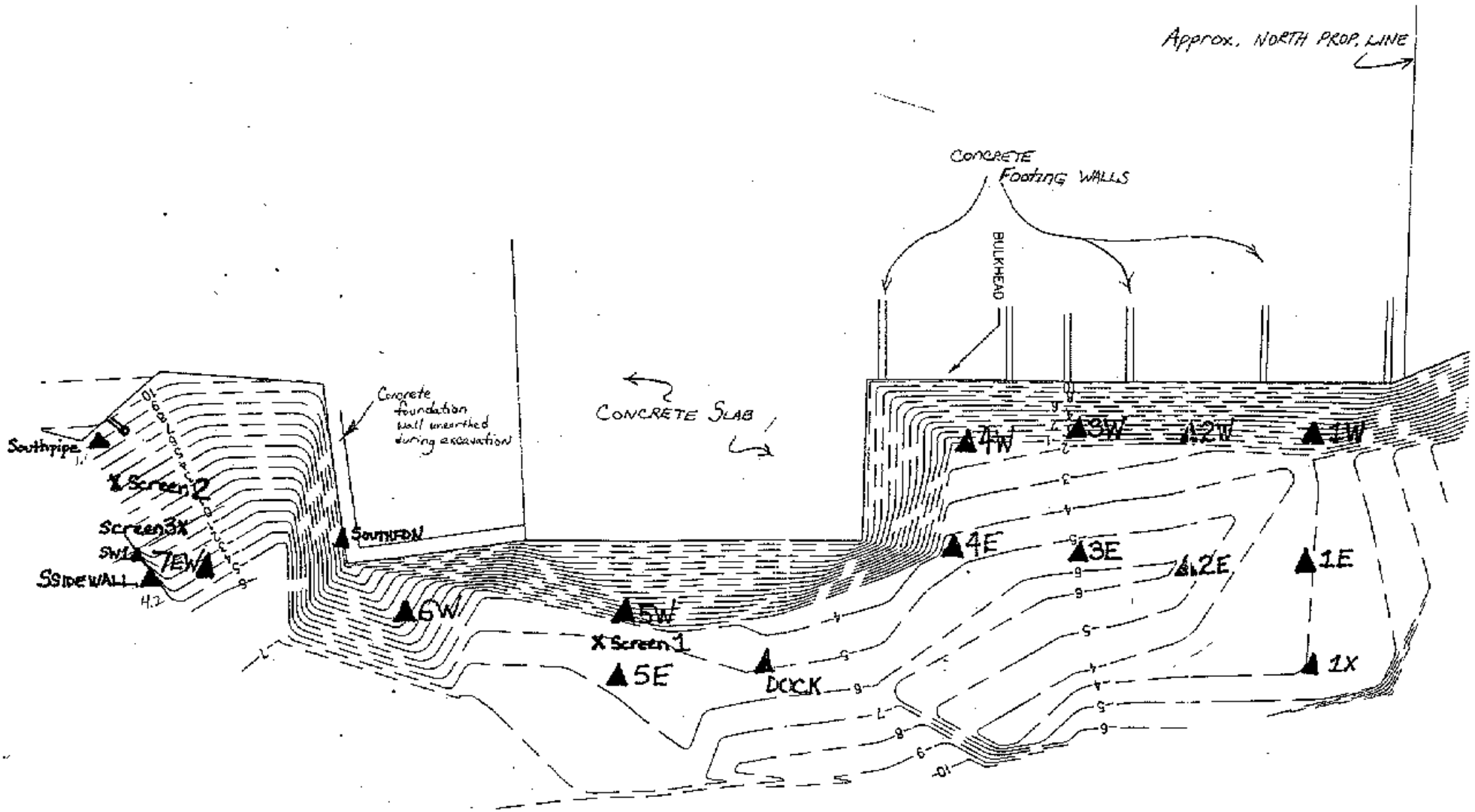
1147 DOCK ST

SCALE 1" = 4'

GENERALIZED SECTION OF CONSTRUCTED SLOPE

FIG. 5

RED LINE DRAWING



THEA FOSS WATERWAY

FIGURE 6

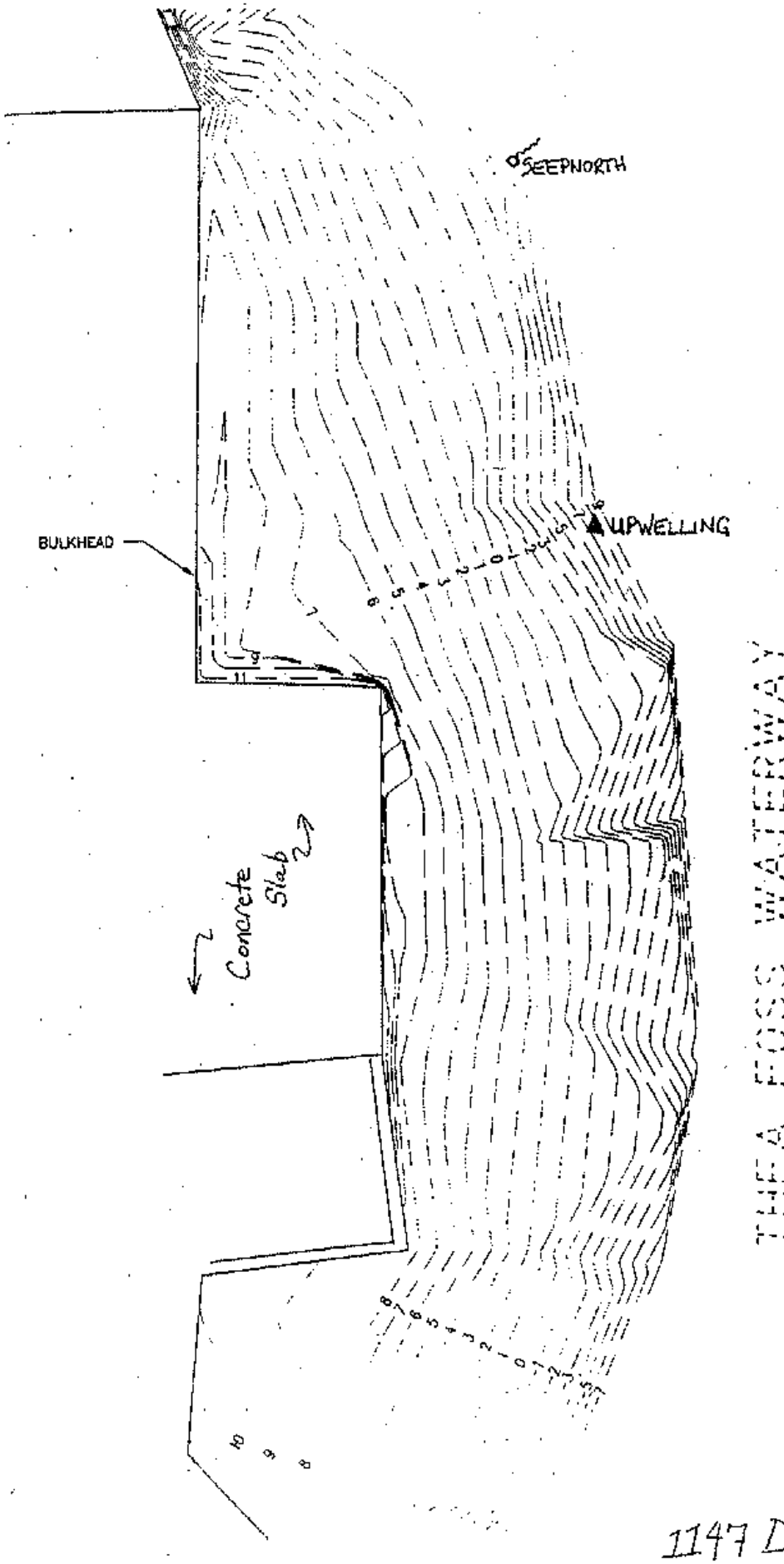
1147 DOCK STREET

POST-EXCAVATION SAMPLES AND SURVEY

-6.3 MEAN SEA LEVEL = 0' MLLW

1 INCH = 10 FEET

NORTH



1147 Dock Street

Figure 7

Post-Cleanup Samples and Survey

1 inch ≅ 15 ft

TABLE 11
CONFIRMATION SAMPLES - METALS
1147 DOCK STREET

	1	2	3	4	5	6	7
1	DATE	Sample Name	Sample #	Lead mg/kg	Mercury mg/kg	Zinc mg/kg	Comments
2	**Screening samples**						
3	8/17/97	SS1	66801-01		20		Composited of black silty/woody mud from disposal pile
4	8/17/97	Screen1			0.12		Brown silty sand about 10' from foundation wall edge. later overexcavated.
5	8/17/97	Screen2	66801-03		0.45		From south sidewall of partial excavation, about 4' bgs. Area was later excavated deeper. Sample is representative of upper soils at south wall of excavation.
6	8/17/97	Screen3	66801-04		2.8		From bottom of excavation on 8/17. Later overexcavated & 7EW sample obtained.
7	**Post-excavation confirmation samples**						
8	8/19/97	1W	66842-01	82	0.82	170	
9	8/19/97	1E	66842-02	na	1.2	na	
10	8/19/97	1X	66842-03	na	1.3	na	
11	8/19/97	2W	66842-04	na	2.8	na	
12	8/19/97	2E	66842-05	120	4.4	230	
13	8/19/97	3W	66842-06	37	1.7	78	
14	8/19/97	3E	66842-07	na	8	na	
15	8/19/97	4W	66842-08	na	1.8	na	
16	8/19/97	4E	66842-09	120	29	260	
17	8/19/97	5W	66842-10	170	26	460	
18	8/19/97	5E	66842-11	na	2.5	na	
19	8/19/97	6W	66842-12	92	18	280	
20	8/19/97	7EW	66842-13	330	2.5	380	
21	8/19/97	Dock	66842-14		0.35		below former concrete pier
22	8/19/97	SSidewall	66842-15	290	4.2	410	0-1 foot MLLW on south sidewall
23	8/19/97	SW1	66842-16		0.22		white/tan sand low on south sidewall near SSIDEWALL
24	8/21/97	Southfdn	66992-01		<.16		ash material within concrete box foundation adjacent to south edge of concrete slab
25	8/21/97	Southpipe	66992-02	51	1.1	60	3' below top of bank near metal pipe at south end of excavation.

TABLE 11
CONFIRMATION SAMPLES - METALS
1147 DOCK STREET

	1	2	3	4	5	6	7
1	DATE	Sample Name	Sample #	Lead mg/kg	Mercury mg/kg	Zinc mg/kg	Comments
26							
27	Leach test samples				ug/l		
28	8/27/97	Seep *	67067-1	na	<.2	na	Seep water from adjacent site - filtered. Dissolved conductivity 35,000 umhos/cm
29	8/19/97	4E-leached	67075-1	na	<2	na	
30							
31	Post-cleanup water samples				ug/l		
32	9/15/97	SeepNorth	67426-01		<.2		Dissolved mercury. Sample filtered to eliminate interference from sampling method. Sample obtained at low tide from very small seep at approximately 0 ft.
33	9/15/97	Upwelling	67426-02		<.2		Total mercury. Sample obtained from cloudy water at approximate 0 ft tide during tidal phenomenon where fine sediments are mobilized on low outgoing tide

* Seep water used to leach sample 4E

TABLE 12

CONFIRMATION SAMPLES - SEMIVOLATILES

1147 DOCK STREET

	1	2	3	4	5	6	7	8	9	10	11
1	Date	Sample Name	Sample Number	Acenepthene 500 ug/kg	Acenaptylene 1300 ug/kg	Anthracene 960 ug/kg	Flourene 540 ug/kg	Napthalene 2100 ug/kg	Phenanthrene 1500 ug/kg	2-Methyl naphthalene 670 ug/kg	Total LPAH 5200 ug/kg
2	**Post-excavation confirmation samples**										
3	8/19/97	1W	66842-01	120U	1100	1600	440	160	4900	190U	8340
4	8/19/97	2E	66842-05	170U	310	370	260	220	1400	270U	2780
5	8/19/97	3W	66842-06	120U	280	310	140U	230U	790	190U	1705
6	8/19/97	4E	66842-09	150U	180	320	170U	280U	1200	230U	2115
7	8/19/97	5W	66842-10	180U	150U	270U	200U	340U	260	280U	970
8	8/19/97	6W	66842-12	190U	160U	290U	210U	370U	320U	300U	920
9	8/19/97	7EW	66842-13	170U	310	850	190U	330U	1600	270U	3240
10	8/19/97	SSidewall	66842-15	150U	130U	230U	170U	290U	320	240U	925
11	8/21/97	Southpipe	66992-02	66U	49U	51U	42U	44U	55U	63U	185
12											
13	**Leach test samples**			ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
14	8/28/97	Seep*	67067-1	.62U	.58U	.54U	.73U	.41U	.45U	.52U	
15	8/19/97	1W leached	67075-1	.63U	.59U	.54U	.74U	.42U	.45U	.53U	
16											
17	**Post-cleanup water samples**										
18	9/15/97	SeepNorth	67426-01	1.1U	1.1U	1.1U	1.1U	1.1U	1.1U	1.1U	
19											
20											
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											

U: Not detected at or above the level shown.
J: Analyte was identified, but quantity is estimated
B1: The analyte was detected in the associated method blank. The concentration was determined not to be significantly higher than the associated method blank (less than 10x the blank concentration)

* Seep water from adjacent steam plant (City-owned) site used for leach test

TABLE 12

CONFIRMATION SAMPLES - SEMIVOLATILES
1147 DOCK STREET

	1	2	12	13	14	15	16	17	18	19
1	Date	Sample Name	Benzo(a) Anthracene 1600 ug/kg	Benzo flouranthenes 3600 ug/kg	Benzo[ghi] perylene 720 ug/kg	Benzo(a) pyrene 1600 ug/kg	Chrysene 2800 ug/kg	Dibenzo[ah] anthracene 230 ug/kg	Flouranthene 2500 ug/kg	Indeno(123cd) Pyrene 690 ug/kg
2	Post-excavation conf									
3	8/19/97	1W	3800	6850	2600	6000	3300	610	6600	2700
4	8/19/97	2E	750	1870	740	1300	830	220U	2500	690
5	8/19/97	3W	700	1390	550	1100	740	150U	1600	510
6	8/19/97	4E	610	1200	430	710	730	180U	1800	450
7	8/19/97	5W	200U	340	310U	270	200	220U	490U	140U
8	8/19/97	6W	220U	890U	330U	230U	170U	240U	220U	150U
9	8/19/97	7EW	730	1990	860	1300	920	210U	2100	750
10	8/19/97	SSidewall	170U	370	240	270	210	190U	530	200
11	8/21/97	Southpipe	30U	92U	13U	34U	61U	32U	66U	32U
12										
13	Leach test samples		ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
14	8/28/97	Seep	.87U	1.32U	2.5U	.42U	.51U	.6U	.73U	.26U
15	8/19/97	1W leached	.88U	1.34U	2.6U	.42U	.51U	.61U	.73U	.26U
16										
17	Post-cleanup water s									
18	9/15/97	SeepNorth	1.1U	2.2U	1.1U	1.1U	1.1U	1.1U	1.1U	1.1U
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
31										

TABLE 12

CONFIRMATION SAMPLES - SEMIVOLATILES

1147 DOCK STREET

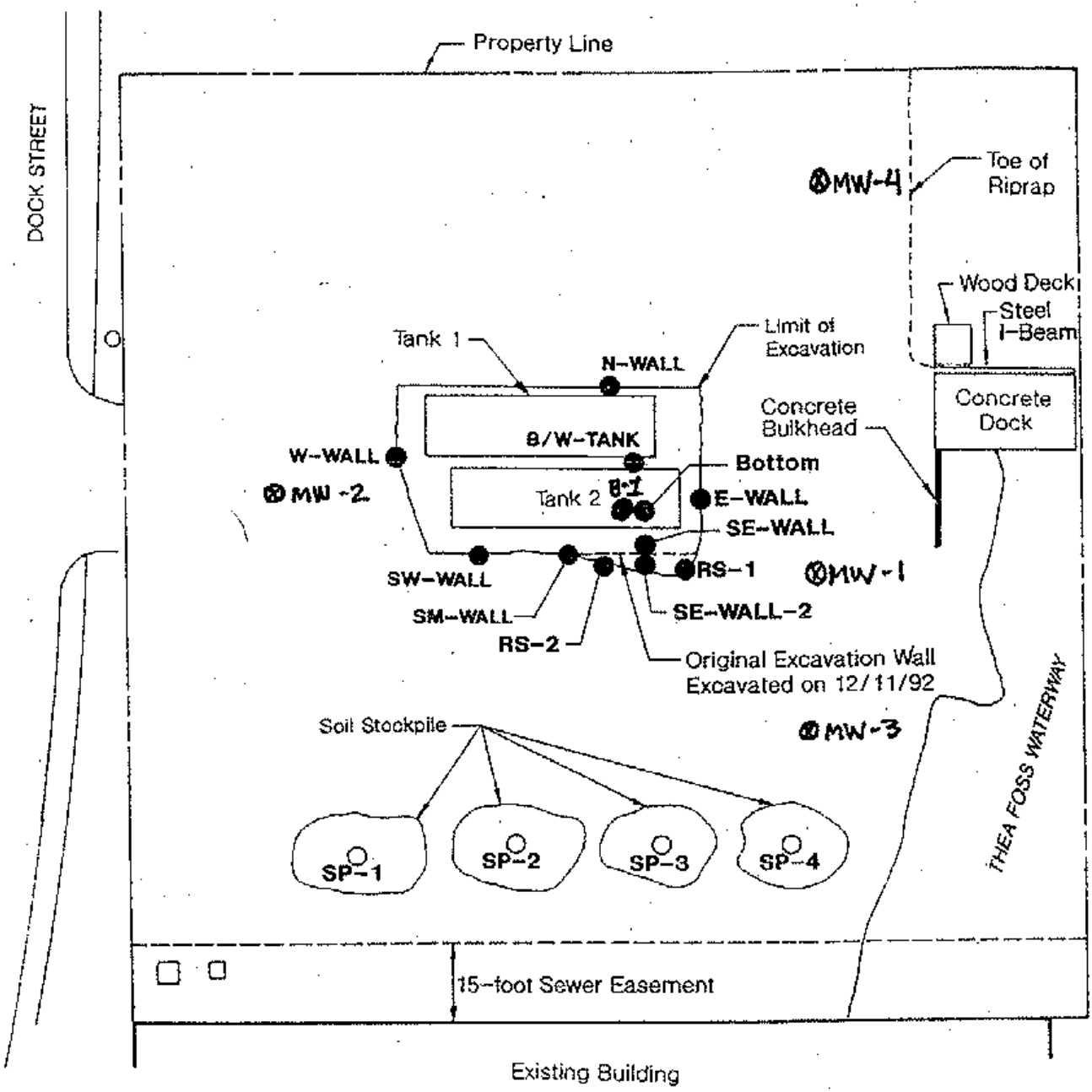
	1	2	20	21	22	23	24	25
1	Date	Sample Name	Pyrene 3300 ug/kg	Total HPAH* 17,000 ug/kg	B2EHP 1300 ug/kg	Di-n-butyl phthalate	Diethylphthalate	2,6-Dinitrotoluene
2	**Post-excavation conf**							
3	8/19/97	1W	8400	41045	150U	380		
4	8/19/97	2E	2300	11090	210U			
5	8/19/97	3W	2000	8665	150U			
6	8/19/97	4E	1500	7520	180U			
7	8/19/97	5W	490	1980	220U			
8	8/19/97	6W	290U	1370	230U			
9	8/19/97	7EW	2500	11255	210U			
10	8/19/97	SSidewall	500	2500	190U			
11	8/21/97	Southpipe	49U	205	180			
12								
13	**Leach test samples**		ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
14	8/28/97	Seep	.58U		.41JB1	.82JB1	1.6B1	.37J
15	8/19/97	1W leached	.59U		1JB1	1.3J	.67J	.83U
16								
17	**Post-cleanup water s**							
18	9/15/97	SeepNorth	1.1U		1.1U	1.1U	1.1U	1.1U
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								

Underground Tank Removal - Excerpts

Bunker C Oil Undergound Tank Removal and Closure Assessment, Former Tacoma Steam Plant. HartCrowser. May 4, 1993, letter report.

Monitoring Well Installation and Groundwater Assessment, Former Tacoma Steam Plant. HartCrowser. November 21, 1994, letter report.

Site and Soil Sampling Location Plan



● N-WALL Verification Soil Sample Location and Number

○ SP-1 Stockpile Characterization Soil Sample Location and Number

N

0 30 60

Scale in Feet

HARTCROWSER

FIGURE 3

1147 Dock Street UST Removal

Table 1 - Excavation and Stockpile Soil Sample Test Results

Sample ID	Sample Date	TPH Concentration in mg/kg
SP-1	11/5/92	130
SP-2	11/5/92	140
SP-3	11/5/92	99
SP-4	11/5/92	120
S-M-Wall	11/5/92	25U
~~SE-Wall*~~	11/5/92	10,000
SE-Wall-2	11/5/92	27
W-Wall	11/5/92	25U
N-Wall	11/5/92	210
E-Wall	11/5/92	25U
~~B/W Tank*~~	11/5/92	10,000
Bottom*	11/5/92	3,500
RS-1	12/11/92	50U
RS-2	12/11/92	82

U not detected at detection limit indicated.
* Subsequently removed during overexcavation.
BUNKERC1r

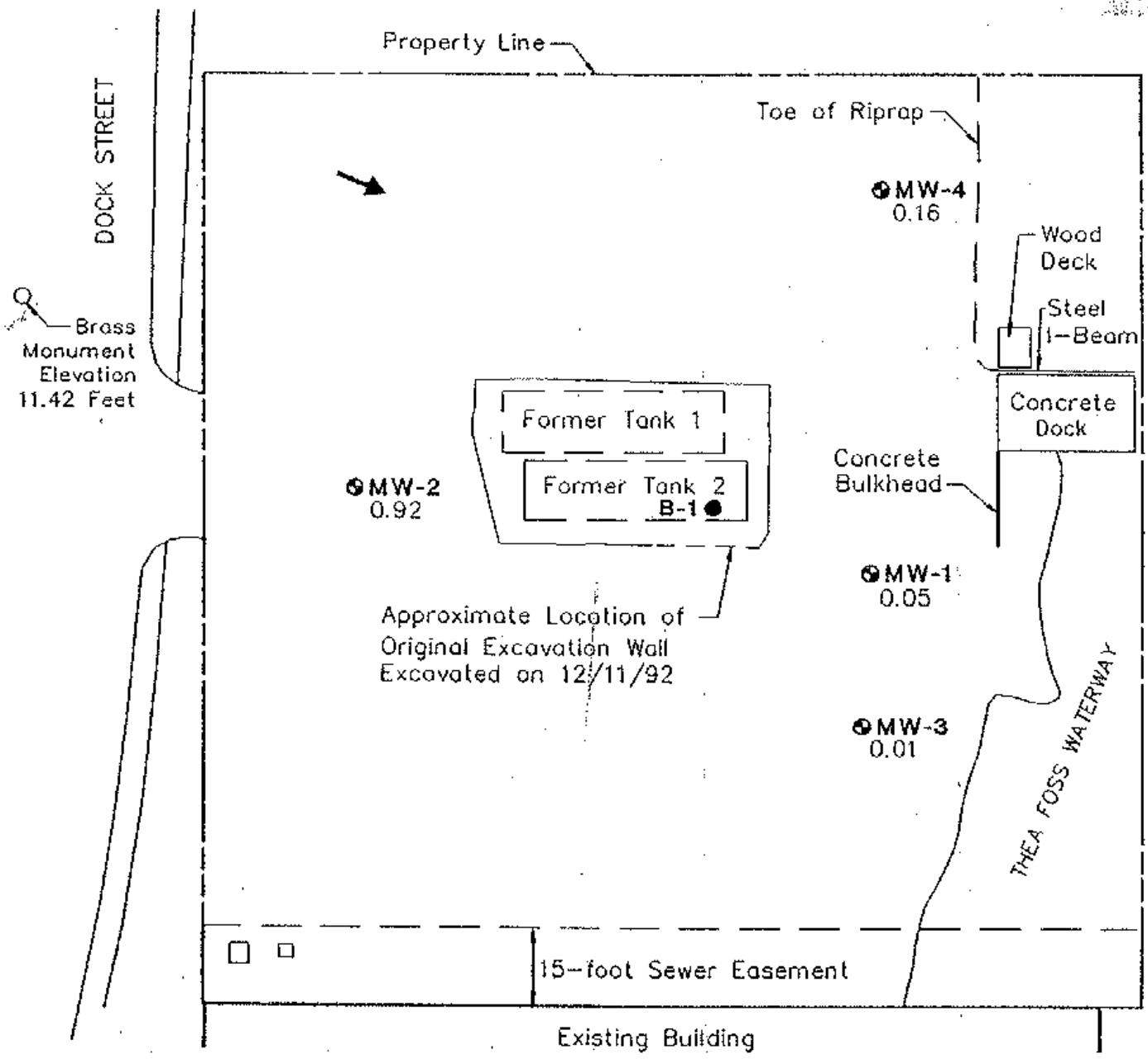
1147 Dock Street UST Removal

Table 2 - Split Soil Sample (Southeast Wall) Test Results

Detected Analyte	Concentration in mg/kg
EPA Method 8240	
Volatile Organics	
Ethylbenzene	0.46
Total Xylenes	0.46
EPA Method 8310	
PAHs	
Fluorene	7.8
Phenanthrene	11.0
Fluoranthene	14.0
Pyrene	8.3
*Benzo(A)Anthracene	33.0
*Chrysene	23.0.
*Benzo(B)Fluoranthene	13.0
*Dibenzo(A,H)Anthracene	6.0
Benzo(G,H,I)Perylene	10.0
Priority Pollutant Metals	
Antimony	3.4U
Arsenic	2.7
Beryllium	0.57U
Cadmium	0.57U
Chromium	8.5
Copper	8.8
Lead	2.2
Mercury	0.29U
Nickel	7.4
Selenium	1.1U
Silver	1.1U
Thallium	1.1U
Zinc	13.8

* cPAHs
U not detected at detection limit indicated.
BUNKERC.lr

Site and Exploration Plan



● B-1 Boring Location and Number

⊕ MW-1 Monitoring Well Location and Number

0.05 Groundwater Elevation in Feet

→ Groundwater Flow Direction

Note: Water level measurements collected September 15, 1994.

N

0 30 60

Scale in Feet

HARTCROWSER

J-3641-05 11/94

Figure 2

cvd 11/15/94 1=30 hc-pcp

36410500

Table 1 - Summary of Soil and Groundwater TPH Analytical Results

Sample Number	WTPH-418.1	WTPH-D	Sample Depth in Feet
Soil Samples - Concentration in mg/kg			
MW1-S3	50 U		12.5 to 14
MW2-S2	50 U		10 to 11.5
MW3-S3	50 U		12.5 to 14
MW4-S3		20 U (Diesel) 50 U (Oil)	12.5 to 14
B1-S1		31 (Diesel) 110 (Oil)	15 to 16.5
Water Samples - Concentration in mg/L			Groundwater* Elevation in Feet
MW-1	1.0 U		0.05
MW-2	1.0 U		0.95
MW-3	1.0 U		0.01
MW-4	1.0 U		0.16

Notes:

U = Not detected at detection limit indicated.

* = Based on groundwater elevations as measured on 8/15/94 relative to brass monument located in Dock Street.

Table 2 - Summary of Boring Soil Sample (B1-S1) PAH Analytical Results

Analyte	Concentration in mg/kg
Naphthalene	0.11 U
Acenaphthylene	0.22 U
1-Methylnaphthalene	0.34
2-Methylnaphthalene	0.22 U
Acenaphthene	0.22 U
Fluorene	0.022 U
Phenanthrene	0.35
Anthracene	0.13
Fluoranthene	1.6
Pyrene	0.30
Benzo (A) Anthracene*	0.022 U
Chrysene*	0.52
Benzo (B) Fluoranthene*	0.022 U
Benzo (K) Fluoranthene*	0.022 U
Benzo (A) Pyrene*	0.14
Dibenzo (A,H) Anthracene*	0.043 U
Benzo (G, H, I) Perylene	0.022 U
Indeno (1, 2, 3-CD) Pyrene*	0.022 U

U = Not detected at detection limit indicated.
* = cPAHs - PAHs identified.