

**Cleanup Action Plan
Lakeview Auto Property
Lakewood Station
Lakewood, Washington**

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**CLEANUP ACTION PLAN
LAKEVIEW AUTO PROPERTY
LAKEWOOD STATION
LAKEWOOD, WASHINGTON**

1.0 INTRODUCTION

1.1 Purpose

This Cleanup Action Plan (CAP) has been prepared on behalf of Sound Transit to provide guidance on cleanup, sampling and analysis, and disposal of contaminated soils at the Lakeview Auto property, located at 11528 Pacific Highway SW, in Lakewood, Washington (Figure 1). The purpose of this plan is to assist Sound Transit in obtaining site closure with respect to environmental concerns identified in previous environmental investigations of the subject property, and will become a reference document to the project specifications. This property is located within the proposed Lakewood Station footprint (Figure 2).

1.2 Scope

This plan was developed in accordance with the Model Toxics Control Act (MTCA) requirements for cleanup actions and cleanup action plans. The objectives of this plan are to summarize the site history; describe site conditions, including the nature and extent of contamination encountered during previous environmental investigations; and describe proposed cleanup actions and cleanup/remediation levels for the property. This plan was prepared for submittal to, and discussions with, the Washington State Department of Ecology (Ecology). The goals of this plan are to perform appropriate cleanup actions under the guidance of Ecology (through the Voluntary Cleanup Program), and to obtain a No Further Action (NFA) designation from Ecology with respect to known contamination.

2.0 BACKGROUND INFORMATION

2.1 Subject Property

The Lakeview Auto property was historically occupied by a paint shop as early as 1959 (Shannon & Wilson, Inc., 2004b) followed by about 30 years of auto-wrecking/maintenance businesses (URS, 2003a). The site has apparently always been unpaved. The property has

historically included an adjacent 20-foot-wide section of railroad right-of-way (ROW), leased from Burlington Northern Santa Fe Railway (BNSF).

Currently, the property is developed with a gravel-covered lot and two metal-sided buildings, enclosed by a fence (Figure 3). The existing 100-foot-wide railroad ROW and tracks are located adjacent to the north of the property. The property and adjacent parcels south of the railroad tracks are zoned commercial. Properties on the opposite side of the railroad ROW are a mix of commercial, residential, and multi-unit apartment buildings.

2.2 Area History

The Lakeview line of the Northern Pacific Railway was constructed in 1873. The railroad was used primarily to transport people and goods through the Western Washington corridor. Outside of the Tacoma city limits, development along the rail corridor was sparse until the 1950s and 1960s, when commercial businesses began developing land in Lakewood. This development was limited primarily to areas adjoining main arterials including Lakeview Avenue SW, Pacific Highway South, and Union Avenue SW. Residential developments filled in vacant land between these main arterials.

3.0 PROPOSED SITE DEVELOPMENT

The Lakeview Auto property is the middle parcel within the Lakewood Station footprint (Figure 2). The station footprint, from south to north, is comprised of the Kwang, Lakeview Auto, and Sweeting properties, and is approximately 1,250 feet in the north-south direction and 120 feet in the east-west direction. The station footprint is bounded by Pacific Highway SW to the east, Sound Transit railroad ROW to the west, BNSF ROW to the north, and private property to the south (Figures 1 and 2). The Lakewood Station will serve as the south terminus of the Sounder Commuter Rail system (KPFF, 2005), and will be multi-modal, serving express bus, train, and local bus service along Pacific Highway SW. The facility will also include a structured parking lot, at the northern end of the station, which will serve as a park-and-ride. The long, narrow site will be laid out with the transit center at the south end of the site, including bus and train platforms, as well as a pull-out bus stop along Pacific Highway SW. To the north of the transit center, a pedestrian plaza will serve as a transition between the transit center and the parking garage. Fencing and signage will be placed on the opposite (north) side of the tracks to discourage pedestrians from crossing the tracks and accessing the station from the north.

Specific development on the Lakeview Auto property will primarily be the transit center and a portion of the pedestrian plaza (Figure 2). The property will be paved with sidewalks and thick concrete slabs to support pedestrian and bus traffic. Limited plantings (trees and shrub beds) are proposed within the platform and plaza areas.

Station construction will generally require demolition of existing buildings, clearing and grubbing (where applicable), and site excavation. Site excavation is expected to be limited to minor grading, excavation for garage footings and slabs-on-grade, utility installation, and excavation for the stormwater infiltration galleries.

4.0 SUBSURFACE SITE CONDITIONS

4.1 Soil

Test pits excavated at the Lakeview Auto property generally encountered about 1 foot of slightly silty to silty, gravelly sand, grading to dense, slightly silty to clean, sandy gravel with occasional to numerous cobbles to about 5 feet bgs (Shannon & Wilson, Inc., 2006). Moderate soil staining was observed in the upper 6 to 18 inches. Borings generally encountered similar material down to 26 feet bgs (URS, 2003b; Shannon & Wilson, Inc., 2004a).

4.2 Groundwater

Groundwater flow directions are typically westward or northwestward toward Puget Sound. However, local variations in groundwater flow direction are common, especially where groundwater pumping has disrupted the natural flow direction. In some cases, the groundwater flow in the upper aquifer has been reported to vary by 360 degrees, depending on the season and the status of nearby groundwater extraction. Previous site borings encountered groundwater between 15 to 21 feet bgs in May and November 2003 (URS, 2003b; Shannon & Wilson, Inc., 2004a). No groundwater was encountered in recent test pits.

5.0 ENVIRONMENTAL CONDITIONS

Soil and groundwater sampling were previously conducted on site to evaluate the recognized environmental conditions (RECs) identified in a Phase I Environmental Site Assessment (ESA) (URS, 2003a, 2003b), and to evaluate the potential for contamination beneath the leased portion

of the ROW (Shannon & Wilson, Inc., 2004a). Soil contamination was encountered during the studies. Additional sampling was conducted in October/November 2005 to supplement previous data, and to evaluate the extent of site contamination (Shannon & Wilson, Inc., 2006). The analytical results from the recent study are summarized in Tables 1 through 3. For comparison purposes, the tables also include the MTCA Method A industrial cleanup criteria for each analyte (where available), and low to moderate areawide metals concentrations (Ross and Associates, 2003). The analytical results from the 2003 and 2004 studies are provided as Tables 3-1 through 3-8, and Tables 8-1 and 8-2, respectively. Sample locations and contaminant concentrations exceeding industrial cleanup criteria detected during both sampling events are presented in Figure 3.

5.1 Documented Area of Contamination

Soil contamination was encountered on site and appears to be limited to the upper 6 to 12 inches of surficial dark brown/black soil on the north half of the property (Figure 3). The contamination, likely caused by local surface releases, appears to be limited in nature. This contaminated soil will be encountered during site excavation to support station development.

Soil contaminants above cleanup levels included oil-range petroleum hydrocarbons, ranging from 2,000 to 20,000 milligrams per kilogram (mg/kg); and diesel-range petroleum hydrocarbons at 2,500 mg/kg. The cleanup level for lube oil- and diesel-range petroleum hydrocarbons is 2,000 mg/kg. Cadmium was detected at 5.7 mg/kg (above its cleanup criterion of 2 mg/kg). Lead was detected at 1,700 and 1,800; its industrial cleanup criterion is 1,000 mg/kg.

No contaminants of potential concern were detected in site groundwater.

5.2 Suspect Contamination

Suspect areas of contamination are present at the site because unrestricted sampling could not be accomplished while Lakeview Auto Wrecking occupied the property. More specifically, soil adjacent to and beneath the shop building (Figure 3) may be contaminated because of historical site and building use (auto-related businesses); this area was unpaved prior to the building being constructed. We understand that the shop building will be demolished by Lakeview Auto Wrecking prior to vacating the property. Soil beneath the shop building will be screened for potential contamination and submitted for testing. Samples will be collected from this area to conduct disposal characterization and to document removal of contaminated soils. Samples will

be analyzed for arsenic, cadmium, and lead, polynuclear aromatic hydrocarbons (PAHs), and hydrocarbon identification with petroleum follow-up, as needed.

5.3 Contaminants of Potential Concern

Based on previous site data (historical site use and sampling), the following contaminants of concern in soil have been identified at the site.

- ▶ Petroleum hydrocarbons (diesel and lube oil ranges)
- ▶ Metals (cadmium and lead)

No contaminants of potential concern were detected in groundwater.

6.0 SELECTION OF CLEANUP/REMEDATION LEVELS

This section outlines the points of compliance and site-specific standards that will be applied in cleanup. These standards consider future site development and all likely exposure pathways. They are protective of both humans and the environment.

6.1 Points of Compliance

For source-area soil cleanup, the point of compliance is assumed to be the entire site, in accordance with the MTCA cleanup regulation (Ecology, 2001). Currently, no groundwater contamination has been identified. However, if applicable, the point of compliance for cleanup of groundwater is assumed to be at the downgradient property boundary because future use or contact with on-site shallow groundwater is very unlikely.

6.2 Cleanup Criteria

MTCA Method A industrial cleanup criteria have been selected for use at the Lakeview Auto property. Additionally, the property appears to be an areawide metals-contaminated site because of its location (smelter fallout is documented in Lakewood), and the presence of smelter-related metals in surface soils, specifically arsenic, cadmium, and lead. Current results indicate no impacts to groundwater have occurred, but in the event cleanup is required, MTCA Method A criteria is selected for groundwater.

The rationale for selecting industrial cleanup criteria, and a discussion of areawide contamination are provided below.

6.2.1 MTCA Method A Industrial Cleanup Criteria

To qualify as an industrial site, the property must meet the criteria outlined in Washington Administrative Code (WAC) 173-340-745 (Ecology, 2001). These criteria include:

- ▶ Does the site meet the definition of an industrial property?
- ▶ Will the proposed cleanup action limit potential exposure?
- ▶ Will hazardous substances remaining at the property pose a threat to human health or the environment or in adjacent non-industrial areas?

Based on our understanding of the regulations, “industrial” site use is based on an adult worker scenario. Proposed site development will meet an adult worker scenario, in that people will not live on the property; access to the general public will be limited in part by the adjacent railroad (innate caution associated with railroad tracks), and anticipated use of the property (short term periods waiting for transportation); no food is, or will be, grown on the property; the property may be characterized by noise and traffic (transit, rail); and lastly, the property surface will mostly be covered by buildings and paved access roads.

The second criterion involves limiting potential exposure to contaminants that may remain, if any, following remedial action. The long-term use or ownership of the property is not expected to change, therefore, if required, Sound Transit can place a covenant on the property restricting site use.

Lastly, any residual contamination that could remain at the property should not pose a threat to human health or the environment. The potential for access is limited by the railroad corridor and proposed fencing and signage. As a result of station construction, the direct soil contact pathway is incomplete based on placement of transit roads and platforms. Contaminants of concern (oil-range hydrocarbons) are not volatile, therefore an air pathway is not complete. Groundwater is apparently not contaminated and soil contamination appears limited to no deeper than about 24 inches bgs; therefore, there does not appear to be a potential for groundwater to become contaminated, or for on- to off-site contaminant migration.

In the event differing conditions are encountered during construction, institutional controls will be installed to prevent future contact. Additionally, groundwater monitoring may be performed to evaluate the potential for off-site impacts. These institutional controls/post-

construction items are discussed in Sections 8.0 and 9.0. Long-term use of the property is not expected to change.

This site qualifies as an industrial property; the three criteria have been met.

6.2.2 Areawide Soil Contamination

In many areas of Washington State, surficial soils have low-to-moderate levels of arsenic and lead due to historical emissions from metal smelters located in Tacoma, Harbor Island, Everett, Northport, and Trail, British Columbia. The Departments of Agriculture, Ecology, and Health, and the Office of Community Development decided to examine the issues and concerns associated with arsenic and lead, and formed the Areawide Soil Contamination Task Force.

A report was completed by the task force in 2003 and presented to the four agencies (Ross and Associates, 2003). The report indicates that for properties where exposure of children is less likely or less frequent, such as commercial properties, parks, and camps, arsenic concentrations of up to 200 mg/kg, and lead concentrations of up to 700 to 1,000 mg/kg are within the low-to-moderate range of detected concentrations. The range of possible actions to address this contamination includes land-use controls, physical barriers, and contamination reduction. The report further states that “For commercial properties potentially affected by areawide soil contamination, the Task Force recommends that where commercial areas are covered with surfaces such as buildings, parking lots, or other effective soil cover, no further response actions are necessary to address areawide soil contamination.”

An additional footprint study to evaluate the magnitude and spatial extent of soil contamination was conducted for western Pierce County (north and west of Interstate 5) (Glass, 2004). In Pierce County, lead was detected up to 6,670 mg/kg; arsenic was also found up to 1,050 mg/kg.

Prior to formation of the task force, a study was performed on Vashon/Maury Island to examine metals in soil downwind from the Tacoma smelter (Public Health – Seattle & King County [PHSKC], 2000). The report indicated that “Screening-level exposure and risk analyses have generally shown arsenic, lead, and cadmium to be the principal concerns for possible human health threats.” During the course of the study, PHSKC decided to reduce cadmium analyses during the study based on the observed maximum magnitude and relatively high

frequency of non-detect values. The maximum detected concentration of cadmium was 15 mg/kg. So although cadmium may not be present at levels as elevated as arsenic and lead, cadmium is a metal associated with smelter fallout.

For station development, areawide metals contamination will be addressed with land-use controls, physical barriers, and if needed, contamination reduction (see Section 9.0, Institutional Controls). Land-use controls may include zoning, permits and licenses, covenants, easements, deed and plat notices, and real estate disclosure. Physical barriers will include fences, vegetation, grass cover, wood chips, clean soil cover, geotextile fabric barriers, and/or pavement. Contamination reduction may include soil blending or tilling.

6.3 Discussion

At the Lakeview Auto property, no arsenic was detected; however, cadmium was detected between 0.62 and 5.7 mg/kg, exceeding MTCA Method A cleanup criteria (2 mg/kg). Lead was detected between 65 and 1,800 mg/kg. Some lead detections exceed residential cleanup criteria, all but two detections are below industrial cleanup criteria. Both cadmium and lead were detected below the maximum concentrations measured in Vashon Island and Pierce County (PHSKC, 2000; Glass, 2004). Based on the location of the properties, the shallow depth of the detections, and the data collected to support areawide contamination studies, it is very likely the metals are associated with smelter fallout. Therefore, metals-contaminated soil (above residential criteria) will be handled as areawide metals contaminants, with land-use controls, physical barriers, and/or contamination reduction.

7.0 INITIAL REMEDIAL ACTIVITIES

Proposed cleanup actions, as required, will occur in phases:

- ▶ Excavation
- ▶ Capping and In Situ Remediation (if needed)
- ▶ Monitoring (if needed)

The initial step (excavation) is discussed below. Additional remedial actions, if warranted based on field conditions, are discussed in Section 8.0. No deep soil or groundwater contamination has been detected, so excavation is likely to be all that is required. However, additional actions are

presented to provide contingencies so station construction will not experience potential delays by remedial activities.

7.1 General Remedial Approach

Excavation will be required to support construction, and contamination appears to be limited to surface soil. Therefore excavation is the selected method for remediation. Based on the contaminants of concern, the cleanup criteria selected, and areawide metals contamination, petroleum is the primary contaminant of concern.

An effort will be made to excavate contaminated soil until proposed cleanup levels are achieved. However, contaminated soil may be left in place because of field conditions (proximity to City or railroad ROW, significant depth of contamination, depth to groundwater, significant groundwater contamination). Residual contamination, if any, will be addressed by monitoring or another remedial measure, such as capping, blending, and/or in situ bioremediation.

7.2 Site Excavation

Contaminated soil on the north half of the property will be excavated up to about 12 inches bgs and removed from the property (Figure 4). An effort will be made to excavate contaminated soil until proposed cleanup levels are achieved. Observation tasks include determining the horizontal and vertical limits of the contamination through field screening and confirmation sampling. Petroleum hydrocarbon contamination is anticipated to be cleaned up to concentrations below the MTCA Method A cleanup levels for industrial use.

Once the limits of the contamination have been reached, based on field screening or requirements for construction, confirmation samples will be collected by the Owner's Representative. A minimum of five samples will be collected from the excavation, one from each sidewall (or one per 100 lineal feet of excavation), and one from the excavation floor. In addition, approximately one sample will be collected for every 200 square feet of excavation. Sample results will be used to evaluate remaining conditions and determine if contaminated soils above cleanup criteria remain in the ground. Excavations will remain open until receipt of analytical results. Samples will be tested for petroleum by Method Northwest Total Petroleum Hydrocarbons as Diesel-Extended (NWTPH-Dx), PAHs (U.S. Environmental Protection Agency [EPA] 8270C/SIM); and arsenic, cadmium, and lead (EPA 6010B/7471A). Sample testing will be conducted at a frequency to support construction activities.

If all soil with contaminant concentrations above industrial cleanup criteria is removed based on confirmation sample analytical results, construction of the proposed station will begin. If sampling results indicate that contaminated material remains, the residual contamination will be addressed as discussed in Section 8.0.

7.3 Soil Disposal

Soil that exceeds industrial cleanup criteria will be disposed of offsite at a permitted treatment facility or landfill. The Contractor will be responsible for collecting soil samples for chemical analysis to determine disposal options. Treatment or disposal options will depend on levels of contamination found. Petroleum-contaminated soil, even at concentrations below MTCA cleanup criteria, may require additional sampling and thermal treatment or disposal at a landfill that is permitted to accept petroleum-contaminated soil. Disposal of soil containing metals at concentrations above the MTCA cleanup criteria will require coordination with a qualified, designated facility.

8.0 SECONDARY REMEDIAL ACTIVITIES

In addition to petroleum, surface soil is likely to contain carcinogenic PAHs and metals concentrations below industrial criteria, but above residential criteria. If this impacted soil is not removed during initial remedial activities and remains on site based on confirmation sampling, additional action (capping and/or blending) will be required. Additionally, contamination may extend off the property and cannot be addressed by excavation, or field conditions (i.e., deep contamination, utilities) may not allow for complete removal of on-site contamination. If so, secondary remedial actions may be required to meet cleanup levels and groundwater monitoring may also be necessary. The following sections describe procedures that will be followed only if residual contamination remains.

8.1 Soil Preparation

Pre-remedial test results indicate that carcinogenic PAHs and metals were detected in surface soil. Excavation to accomplish site development will remove the majority of this soil, but some may remain. If this soil remains, regulations require the soil be capped to prevent exposure (Ecology, 2001), or addressed with land-use controls, physical barriers, and if needed, contamination reduction (Ross & Associates, 2003). Land-use controls (see Section 9.0) may

include zoning, permits and licenses, covenants, easements, deed and plat notices, and real-estate disclosure. Physical barriers may include fences, vegetation, grass cover, wood chips, clean soil cover, geotextile fabric barriers, and/or pavement. Contamination reduction may include soil blending or tilling. The majority of the property will be paved as part of site development, reducing the majority of potential exposure. Therefore, minimal action is expected to be required. Any additional soil preparation action will be selected based on actual site conditions, and discussions with Sound Transit and Ecology.

8.2 Groundwater Remediation

Based on existing data, metals, petroleum and carcinogenic PAHs have been detected in site soil. Metals and PAHs are not likely to migrate to groundwater as they are generally not soluble and like to bind to organics. Therefore, petroleum remains as the contaminant that could impact groundwater. If significant petroleum contamination is found to extend deeper than excavation to accomplish station construction, groundwater will be evaluated.

If groundwater is found to be contaminated, in situ bioremediation, or other appropriate method, will be the proposed remediation method to treat soil and groundwater. Bioremediation may consist of the injection of bacteria that removes petroleum hydrocarbons, or the installation of oxygen release compound (ORC) “socks” within monitoring wells. Installation and operation of an in situ bioremediation system, if necessary, will occur concurrent with or soon after site development. The system will be designed based on conditions after excavation; therefore, specifics are not stated here. In situ bioremediation will likely occur for a period of two months. Closure sampling (soil and groundwater) will be conducted at the end of the two-month period.

8.3 Monitoring Well Installation

If in situ bioremediation is required, three groundwater monitoring wells will be installed on site or within the City or railroad ROW adjacent to the property. The wells will be installed to monitor groundwater flow direction, to collect data to ensure that cleanup criteria are being met, to evaluate effectiveness of in situ bioremediation, if performed, and to act as points-of-compliance. These monitoring wells may be installed as part of the remediation phase. Soil sampling will be conducted during the installation of the wells; water sampling will occur immediately thereafter.

Monitoring wells will be 2-inch-diameter, polyvinyl chloride (PVC) pipe and screened across the water table. Four-inch monitoring wells may be installed to facilitate the use of ORC socks if bioremediation is warranted.

8.4 Groundwater Monitoring

Based on confirmation sampling conducted, several rounds of groundwater monitoring may be appropriate. For this plan, groundwater sampling on a quarterly basis for one year is proposed. Groundwater samples will be analyzed for petroleum only, unless other contaminants of concern are determined during site remediation work.

9.0 INSTITUTIONAL CONTROLS

Institutional controls will be required where industrial soil cleanup levels are established and contaminant concentrations are present greater than residential criteria, to limit or prohibit activities that may interfere with the integrity of the remedial action. Institutional controls will be determined based on actual conditions encountered during construction. However, for review purposes, institutional controls may include: physical measures such as fences, a physical cap (clean soil, pavement, geotextile fabric); use restrictions; and/or maintenance requirements. Because of Sound Transit's anticipated use of the property, the likelihood of site conditions changing is minimal.

10.0 HEALTH AND SAFETY

Worker health and safety is governed by the Occupational Safety and Health Administration (OSHA) Title 29 Labor Part 1910 regulations and Washington Labor and Industries (L&I). The Contractor will be required to prepare a Site-Specific Health and Safety Plan (SSHSP) that will include sections on anticipated work conditions, exposure assessment, personal protective equipment (PPE), air monitoring requirements, emergency procedures, and notification requirements. Prior to starting the field investigation, all Contractor personnel will be required to read and understand the SSHSP. The Contractor will be responsible for identifying the proper health and safety requirements at the work sites and properly implementing them.

11.0 DOCUMENTATION

11.1 Voluntary Cleanup Report

Following completion of site remediation (excavation, capping and/or blending, and/or installation of the in situ bioremediation system and groundwater monitoring wells [if necessary]), a Voluntary Cleanup Report will be prepared to summarize remedial actions conducted on the property. The report will describe and depict soil removal areas; present confirmation sampling results; document off-site disposal of soil and groundwater, if any; and indicate compliance with cleanup standards. The cleanup report will be submitted to Ecology for review under the Voluntary Cleanup Program. If contamination extends onto City or railroad property, the report should also be issued to the City for their files.

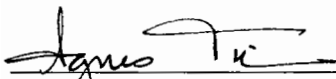
11.2 Groundwater Monitoring Reports

Currently, no groundwater contamination has been identified. In the event groundwater needs to be evaluated, brief groundwater monitoring reports will be prepared after receipt of analytical results following each quarterly monitoring event. The report will summarize analytical results, field observations, and recommendations, if any. The reports will be issued to Ecology for their information. The City should also receive a copy if contamination extends into the City ROW, or if wells are located within the ROW.

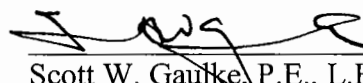
12.0 PROJECT ORGANIZATION AND RESPONSIBILITIES

The Contractor, analytical laboratory, and personnel responsible for completing site remediation are to be determined. Tasks will include mobilization of equipment, contaminated soil excavation and disposal, groundwater removal and disposal of contaminated (if applicable), and preparation of submittals for obtaining required site permits. The analytical laboratory will be responsible for the completing chemical analyses of the environmental samples collected from the site. Personnel collecting samples will be required to adhere to this CAP.

SHANNON & WILSON, INC.


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ACT:SWG/act


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13.0 REFERENCES

- Glass, Gregory L, 2004, Tacoma smelter plume site, Pierce County footprint study: Soil, arsenic, and lead contamination in western Pierce County, final report: Report prepared by Gregory L. Glass, Seattle, Wash., for the Tacoma-Pierce County Health Department and Washington State Department of Ecology, April.
- KPFF, 2005, Lakewood Station, 30% basis of design: Report prepared by The KPFF Team, for Sound Transit, Seattle, Wash., project no. 104622, August 23.
- Public Health – Seattle & King County (PHSKC), Environmental Health Division, and Glass, Gregory L, 2000, Final report, Vashon/Maury Island soil study, 1999-2000: Report prepared by PHSKC, July.
- Ross and Associates Environmental Consulting, Ltd., Landau Associates, Inc., and Hubbard Gray Consulting, Inc., 2003, Areawide soil contamination task force report: Report Submitted to the Washington State Department of Agriculture, The Washington State Department of Ecology, the Washington State Department of Health, and the Washington State Department of Community, Trade and Economic Development, June 30.
- Shannon & Wilson, Inc., 2004a, Limited phase II environmental site assessment, South Tacoma segment – initial phase, Sound Transit Commuter Rail, Tacoma through Lakewood, Washington: Report prepared by The Shannon & Wilson Team, for Sound Transit Real Estate Division, Seattle, Wash., project no. 21-1-16409-200, August 20.
- Shannon & Wilson, Inc., 2004b, Alignment screening report, South Tacoma segment, Sound Transit Commuter Rail, Pierce County, Washington: Report prepared by The Shannon & Wilson Team, for Sound Transit Real Estate Division, Seattle, Wash., project no. 21-1-16402-003, August 26.
- Shannon & Wilson, Inc., 2006, Environmental report, Lakeview Auto property, Lakewood Commuter Rail Station, Lakewood, Washington: Report prepared by Shannon & Wilson, Inc., Seattle, Wash., for KPFF, Seattle, Wash., project no. 21-1-12180-007, January 24.
- URS, 2003a, Phase I environmental site assessment, Lakeview Auto Wrecking property, 11528 Pacific Highway SW, Lakewood, Washington: Report prepared by URS, Seattle, Wash., for the Central Puget Sound Regional Transit Authority, Seattle, Wash., project no. 33755401, May 19.
- URS, 2003b, Phase II environmental site investigation report, Lakeview Auto Wrecking property, 11528 Pacific Highway SW, Lakewood, Washington: Report prepared by URS, Seattle, Wash., for the Central Puget Sound Regional Transit Authority, Seattle, Wash., project no. 33755401, August 5.

Washington State Department of Ecology (Ecology), 2001, Model Toxics Control Act cleanup regulation, chapter 173-340 Washington Administration Code (WAC): Olympia, Wash., Washington State Department of Ecology, publication No. 94-06, amended February 12.

TABLE 1
PETROLEUM AND METALS
ANALYTICAL RESULTS
LAKEVIEW AUTO WRECKING PROPERTY

Sample ID	Petroleum							Metals					TCLP
	Gasoline	Diesel	Oil	Benzene	Toluene	Ethyl benzene	Xylenes	Arsenic	Cadmium	Chromium	Lead	Mercury	
CTTP-5	ND	ND	ND	ND	ND	ND	ND	ND	ND	14	6.5	ND	--
CTTP-6	ND	ND	150	ND	ND	ND	ND	ND	ND	12	41	ND	--
LV-1-0.5	--	ND	310	--	--	--	--	ND	ND	14	32	ND	--
LV-1-1	--	--	--	--	--	--	--	--	--	--	--	--	--
LV-1-2.5	--	--	--	--	--	--	--	--	--	--	--	--	--
LV-2-0.5	--	ND	ND	--	--	--	--	ND	ND	14	7.8	ND	--
LV-2-1	--	--	--	--	--	--	--	--	--	--	--	--	--
LV-3-0.5	--	ND	1,300	--	--	--	--	ND	ND	23	510	ND	4.3
LV-3-1	--	--	--	--	--	--	--	--	--	--	280	--	--
LV-3-1.5	--	--	--	--	--	--	--	--	--	--	14	--	--
LV-4-0.5	--	200	2,000	--	--	--	--	ND	0.85	26	210	ND	ND
LV-4-1	--	--	--	--	--	--	--	--	--	--	--	--	--
LV-4-1.5	--	--	--	--	--	--	--	--	--	--	--	--	--
LV-5-0.5	--	ND	380	--	--	--	--	ND	ND	18	200	ND	--
LV-5-1	--	--	--	--	--	--	--	--	--	--	--	--	--
LV-5-1.5	--	--	--	--	--	--	--	--	--	--	--	--	--
MTCA Method A	100	2,000	2,000	0.03	7	6	9	20	2	2,000 ¹	1,000	2	--
Industrial Land Use													
Areawide Metals													
Concentrations (Low to													
Moderate)	--	--	--	--	--	--	--	up to 200	--	--	700 -	--	--
Dangerous Waste Criteria													
(mg/L)	--	--	--	--	--	--	--	--	--	--	--	--	5.0

¹ Cleanup criterion for chromium III.

mg/kg = milligrams per kilogram

mg/L = milligrams per liter

MTCA = Washington Model Toxics Control Act

ND = Not Detected

PAHs = polynuclear aromatic hydrocarbons

TCLP = Toxicity Characteristic Leachate Procedure

Sample results measured in mg/kg, except TCLP results, which are reported in mg/L.

Shading indicates concentration exceeds MTCA industrial cleanup criterion.

See Tables 2 and 3 for a summary of detected PAHs.

TABLE 2
POLYNUCLEAR AROMATIC HYDROCARBON ANALYTICAL RESULTS
LAKEVIEW AUTO WRECKING PROPERTY

Sample ID	Naphthalene	2-Methylnaphthalene	1-Methylnaphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Carcinogenic PAHs								Benzo [ghi]perylene	SVOCs ³ (cPAHs)
											Benzo [a]anthracene	Chrysene	Benzo [b]fluoranthene	Benzo [k]fluoranthene	Benzo [a]pyrene	Indeno (1,2,3-cd)pyrene	Dibenz [a,h]anthracene			
CTTP-5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.01
CTTP-6	ND	ND	ND	ND	ND	ND	ND	ND	0.013	0.017	ND	ND	0.0092	ND	ND	ND	ND	ND	0.010	0.01
LV-1-0.5	0.035	0.069	0.029	ND	ND	ND	ND	ND	0.0087	0.012	ND	0.022	0.022	ND	0.013	0.011	ND	ND	0.020	0.02
LV-2-0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.02
LV-3-0.5	ND	ND	ND	ND	0.21	ND	1.2	0.27	1.2	1.2	0.49	0.50	1.2	0.33	0.17	0.47	0.27	0.37	0.68	
LV-3-1	0.080	0.10	0.12	ND	0.36	0.29	2.4	0.57	2.2	2.2	0.94	1.1	1.0	0.33	0.91	0.43	0.15	0.59	1.25	
LV-3-1.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.02
LV-4-0.5	0.0080	0.011	ND	0.014	ND	ND	0.014	0.019	0.061	0.085	0.061	0.099	0.16	0.040	0.099	0.052	0.023	0.099	0.14	
LV-4-1	ND	ND	ND	ND	ND	ND	ND	ND	0.027	0.065	0.018	0.038	0.066	0.017	0.054	0.041	ND	0.12	0.07	
LV-5-0.5	ND	ND	ND	ND	ND	ND	0.023	ND	0.047	0.054	0.022	0.030	0.034	0.013	0.030	0.018	ND	0.042	0.04	
MTCA Method A Industrial Land Use	5 ²	5 ²	5 ²	***	***	***	***	***	***	***	See cPAHs	See cPAHs	See cPAHs	2	See cPAHs	***	2 ¹			

¹ Sum of the toxic equivalency factor (TEF) for each carcinogenic polynuclear aromatic hydrocarbon (cPAH).

² Total value for naphthalene, 1-methyl naphthalene, and 2-methyl naphthalene.

³ See Table 3 for TEF calculations.

*** No MTCA Method A cleanup criterion is established for this analyte.

MTCA = Washington Model Toxics Control Act

ND = not detected

Soil sample results reported in milligrams per kilogram (mg/kg).

TABLE 3
TOXICITY EQUIVALENCY FACTOR ADJUSTED POLYNUCLEAR AROMATIC
HYDROCARBON CONCENTRATIONS
LAKEVIEW AUTO WRECKING PROPERTY

ADJUSTED TEF CONCENTRATION FOR SAMPLE CTPP-5

Analyte	Result for Sample CTPP-5 (mg/kg)	Method Detection Limit (mg/kg)	1/2 Method Detection Limit	Toxic Equivalency Factor	Adjusted Concentration ^a (mg/kg)
Benzo(a)anthracene	ND	0.0078	0.0039	0.1	0.00078
Chrysene	ND	0.0078	0.0039	0.01	0.000078
Benzo(b)fluoranthene	ND	0.0078	0.0039	0.1	0.00078
Benzo(k)fluoranthene	ND	0.0078	0.0039	0.1	0.00078
Benzo(a)pyrene	ND	0.0078	0.0039	1	0.0078
Indeno(1,2,3-c,d)pyrene	ND	0.0078	0.0039	0.1	0.00078
Dibenz(a,h)anthracene	ND	0.0078	0.0039	0.4	0.00312
Sum^b					0.01
MTCA Method A Cleanup Level for Industrial Land Use					2.000

ADJUSTED TEF CONCENTRATION FOR SAMPLE CTPP-6

Analyte	Result for Sample CTPP-6 (mg/kg)	Method Detection Limit (mg/kg)	1/2 Method Detection Limit	Toxic Equivalency Factor	Adjusted Concentration ^a (mg/kg)
Benzo(a)anthracene	ND	0.0080	0.004	0.1	0.0008
Chrysene	ND	0.0080	0.004	0.01	0.00008
Benzo(b)fluoranthene	0.0092	0.0080	0.004	0.1	0.00092
Benzo(k)fluoranthene	ND	0.0080	0.004	0.1	0.0008
Benzo(a)pyrene	ND	0.0080	0.004	1	0.008
Indeno(1,2,3-c,d)pyrene	ND	0.0080	0.004	0.1	0.0008
Dibenz(a,h)anthracene	ND	0.0080	0.004	0.4	0.0032
Sum^b					0.01
MTCA Method A Cleanup Level for Industrial Land Use					2.000

ADJUSTED TEF CONCENTRATION FOR SAMPLE LV-1-0.5

Analyte	Result for Sample LV-1-0.5 (mg/kg)	Method Detection Limit (mg/kg)	1/2 Method Detection Limit	Toxic Equivalency Factor	Adjusted Concentration ^a (mg/kg)
Benzo(a)anthracene	ND	0.0081	0.00405	0.1	0.00081
Chrysene	0.022	0.0081	0.00405	0.01	0.00022
Benzo(b)fluoranthene	0.022	0.0081	0.00405	0.1	0.0022
Benzo(k)fluoranthene	ND	0.0081	0.00405	0.1	0.00081
Benzo(a)pyrene	0.013	0.0081	0.00405	1	0.013
Indeno(1,2,3-c,d)pyrene	0.011	0.0081	0.00405	0.1	0.0011
Dibenz(a,h)anthracene	ND	0.0081	0.00405	0.4	0.00324
Sum^b					0.02
MTCA Method A Cleanup Level for Industrial Land Use					2.000

TABLE 3
TOXICITY EQUIVALENCY FACTOR ADJUSTED POLYNUCLEAR AROMATIC
HYDROCARBON CONCENTRATIONS
LAKEVIEW AUTO WRECKING PROPERTY

ADJUSTED TEF CONCENTRATION FOR SAMPLE LV-2-0.5

Analyte	Result for Sample LV-2-0.5 (mg/kg)	Method Detection Limit (mg/kg)	1/2 Method Detection Limit	Toxic Equivalency Factor	Adjusted Concentration^a (mg/kg)
Benzo(a)anthracene	ND	0.0097	0.00485	0.1	0.00097
Chrysene	ND	0.0097	0.00485	0.01	0.000097
Benzo(b)fluoranthene	ND	0.0097	0.00485	0.1	0.00097
Benzo(k)fluoranthene	ND	0.0097	0.00485	0.1	0.00097
Benzo(a)pyrene	ND	0.0097	0.00485	1	0.0097
Indeno(1,2,3-c,d)pyrene	ND	0.0097	0.00485	0.1	0.00097
Dibenz(a,h)anthracene	ND	0.0097	0.00485	0.4	0.00388
Sum^b					0.02
MTCA Method A Cleanup Level for Industrial Land Use					2.000

ADJUSTED TEF CONCENTRATION FOR SAMPLE LV-3-0.5

Analyte	Result for Sample LV-3-0.5 (mg/kg)	Method Detection Limit (mg/kg)	1/2 Method Detection Limit	Toxic Equivalency Factor	Adjusted Concentration^a (mg/kg)
Benzo(a)anthracene	0.49	0.15	0.075	0.1	0.049
Chrysene	0.500	0.15	0.075	0.01	0.005
Benzo(b)fluoranthene	0.53	0.15	0.075	0.1	0.053
Benzo(k)fluoranthene	0.17	0.15	0.075	0.1	0.017
Benzo(a)pyrene	0.47	0.15	0.075	1	0.47
Indeno(1,2,3-c,d)pyrene	0.27	0.15	0.075	0.1	0.027
Dibenz(a,h)anthracene	ND	0.15	0.075	0.4	0.06
Sum^b					0.68
MTCA Method A Cleanup Level for Industrial Land Use					2.000

ADJUSTED TEF CONCENTRATION FOR SAMPLE LV-3-1

Analyte	Result for Sample LV-3-1 (mg/kg)	Method Detection Limit (mg/kg)	1/2 Method Detection Limit	Toxic Equivalency Factor	Adjusted Concentration^a (mg/kg)
Benzo(a)anthracene	0.94	0.015	0.0075	0.1	0.094
Chrysene	1.10	0.015	0.0075	0.01	0.011
Benzo(b)fluoranthene	1	0.015	0.0075	0.1	0.1
Benzo(k)fluoranthene	0.33	0.015	0.0075	0.1	0.033
Benzo(a)pyrene	0.91	0.015	0.0075	1	0.91
Indeno(1,2,3-c,d)pyrene	0.43	0.015	0.0075	0.1	0.043
Dibenz(a,h)anthracene	0.15	0.015	0.0075	0.4	0.06
Sum^b					1.25
MTCA Method A Cleanup Level for Industrial Land Use					2.000

TABLE 3
TOXICITY EQUIVALENCY FACTOR ADJUSTED POLYNUCLEAR AROMATIC
HYDROCARBON CONCENTRATIONS
LAKEVIEW AUTO WRECKING PROPERTY

ADJUSTED TEF CONCENTRATION FOR SAMPLE LV-3-1.5

Analyte	Result for Sample LV-3-1.5 (mg/kg)	Method Detection Limit (mg/kg)	1/2 Method Detection Limit	Toxic Equivalency Factor	Adjusted Concentration^a (mg/kg)
Benzo(a)anthracene	ND	0.0091	0.00455	0.1	0.00091
Chrysene	ND	0.0091	0.00455	0.01	0.000091
Benzo(b)fluoranthene	ND	0.0091	0.00455	0.1	0.00091
Benzo(k)fluoranthene	ND	0.0091	0.00455	0.1	0.00091
Benzo(a)pyrene	ND	0.0091	0.00455	1	0.0091
Indeno(1,2,3-c,d)pyrene	ND	0.0091	0.00455	0.1	0.00091
Dibenz(a,h)anthracene	ND	0.0091	0.00455	0.4	0.00364
Sum^b					0.02
MTCA Method A Cleanup Level for Industrial Land Use					2.000

ADJUSTED TEF CONCENTRATION FOR SAMPLE LV-4-0.5

Analyte	Result for Sample LV-4-0.5 (mg/kg)	Method Detection Limit (mg/kg)	1/2 Method Detection Limit	Toxic Equivalency Factor	Adjusted Concentration^a (mg/kg)
Benzo(a)anthracene	0.061	0.0075	0.00375	0.1	0.0061
Chrysene	0.099	0.0075	0.00375	0.01	0.00099
Benzo(b)fluoranthene	0.16	0.0075	0.00375	0.1	0.016
Benzo(k)fluoranthene	0.04	0.0075	0.00375	0.1	0.004
Benzo(a)pyrene	0.099	0.0075	0.00375	1	0.099
Indeno(1,2,3-c,d)pyrene	0.052	0.0075	0.00375	0.1	0.0052
Dibenz(a,h)anthracene	0.023	0.0075	0.00375	0.4	0.0092
Sum^b					0.14
MTCA Method A Cleanup Level for Industrial Land Use					2.000

ADJUSTED TEF CONCENTRATION FOR SAMPLE LV-4-1

Analyte	Result for Sample LV-4-1 (mg/kg)	Method Detection Limit (mg/kg)	1/2 Method Detection Limit	Toxic Equivalency Factor	Adjusted Concentration^a (mg/kg)
Benzo(a)anthracene	0.018	0.014	0.007	0.1	0.0018
Chrysene	0.038	0.014	0.007	0.01	0.00038
Benzo(b)fluoranthene	0.066	0.014	0.007	0.1	0.0066
Benzo(k)fluoranthene	0.017	0.014	0.007	0.1	0.0017
Benzo(a)pyrene	0.054	0.014	0.007	1	0.054
Indeno(1,2,3-c,d)pyrene	0.041	0.014	0.007	0.1	0.0041
Dibenz(a,h)anthracene	ND	0.014	0.007	0.4	0.0056
Sum^b					0.07
MTCA Method A Cleanup Level for Industrial Land Use					2.000

TABLE 3
TOXICITY EQUIVALENCY FACTOR ADJUSTED POLYNUCLEAR AROMATIC
HYDROCARBON CONCENTRATIONS
LAKEVIEW AUTO WRECKING PROPERTY

ADJUSTED TEF CONCENTRATION FOR SAMPLE LV-5-0.5

Analyte	Result for Sample LV-5-0.5 (mg/kg)	Method Detection Limit (mg/kg)	1/2 Method Detection Limit	Toxic Equivalency Factor	Adjusted Concentration^a (mg/kg)
Benzo(a)anthracene	0.022	0.0078	0.0039	0.1	0.0022
Chrysene	0.03	0.0078	0.0039	0.01	0.0003
Benzo(b)fluoranthene	0.034	0.0078	0.0039	0.1	0.0034
Benzo(k)fluoranthene	0.013	0.0078	0.0039	0.1	0.0013
Benzo(a)pyrene	0.03	0.0078	0.0039	1	0.03
Indeno(1,2,3-c,d)pyrene	0.018	0.0078	0.0039	0.1	0.0018
Dibenz(a,h)anthracene	ND	0.0078	0.0039	0.4	0.00312
Sum^b					0.04
MTCA Method A Cleanup Level for Industrial Land Use					2.000

^a Calculated as the detected concentration times the TEF,
or as the method detection limit (if analyte is not detected) times the TEF.

^b Sum of the TEF-adjusted carcinogenic PAHs.

MTCA = Washington Model Toxics Control Act

ND = not detected

PAHs = polynuclear aromatic hydrocarbons

TEF = toxicity equivalency factor

Results are reported in milligrams per kilogram (mg/kg).

Table 3-1
Soil and Groundwater Sampling Rational

Soil Boring Location	Rationale For Boring and Samples	Approximate Depth (ft, bgs)	Analyses Performed	Blind Duplicate
SB-1	To assess soil and groundwater conditions in the location of the auto disassembly shed.	0.5	diesel/oil, metals, ethylene and propylene glycol, gas/BTEX	
		10	-	
		15	-	
SB-2	To evaluate soil conditions in storage areas and to evaluate the potential for onsite migration of contaminants from adjacent properties to the south.	Groundwater	diesel/oil, gas/BTEX, PAHs, metals	
		0.5	diesel/oil, metals, ethylene and propylene glycol, gas/BTEX	
		10	-	
		15	-	
SB-3	To evaluate soil conditions in storage areas and to evaluate the potential for onsite migration of contaminants from adjacent properties to the north.	Groundwater	diesel/oil, gas/BTEX	
		0.5	diesel/oil, metals, gas/BTEX	
		10	-	
		15	-	
		Groundwater	diesel/oil, gas/BTEX, VOCs w/ MTBE	X

Table 3-2
Soil Sample Results for Gasoline/Diesel/Oil/BTEX

Sample ID Sample depth (ft bgs) Sample date	MTCA Industrial Cleanup Level		LASB-1-0.5 0.5 5/9/2003	LASB-2-0.5 0.5 5/8/2003	LASB3-0.5 0.5 5/8/2003
BTEX (mg/kg)	Method A	Method B			
Benzene	0.03	18.2	0.011 U	0.022 U	0.022 U
Toluene	7	16,000	0.053 U	0.11 U	0.11 U
Ethylbenzene	6	8,000	0.053 U	0.11 U	0.11 U
m,p-xylene	9	160,000	0.053 U	0.11 U	0.11 U
o-xylene	9	160,000	0.053 U	0.11 U	0.11 U
TPH (mg/kg)					
Gasoline	100	NE	5.3 U	11 U	11 U
Diesel	2,000	NE	130 U	130 U	2,500
Oil	2,000	NE	1,600	15,000	20,000

Notes:

ft bgs - feet below ground surface

mg/kg - milligrams per kilogram

U- analyte not detected above the reporting limit.

NE- Not Established

Bold- indicates that results is above the MTCA Cleanup Level

Table 3-3
Soil Sample Results for Metals

Sample ID	MTCA Industrial Cleanup Level		LASB-1-0.5	LASB-2-0.5	LASB3-0.5
Sample depth (ft bgs)			0.5	0.5	0.5
Sample date			5/9/2003	5/8/2003	5/8/2003
Analyte (mg/kg)	Method A	Method B			
Arsenic	20	0.667	11 U	11 U	11 U
Barium	NE	5,600	76	47	76
Cadmium	2	80	5.7	1.3	5
Chromium	2,000 (Cr ³⁺), 19 (Cr ⁶⁺)	120,000 (Cr ³⁺)	30	30	38
Lead	1,000	NE	1,700	280	1,800
Mercury	2	24	0.27 U	0.27 U	0.27 U
Selenium	NE	400	11 U	11 U	11 U
Silver	NE	400	2.5	0.54 U	0.55 U

Notes:

ft bgs - feet below ground surface

mg/kg - milligrams per kilogram

U - analyte not detected above the reporting limit.

NE - Not Established

Bold - indicates that results is above the MTCA Cleanup Level

Table 3-4
Soil Sample Results for Ethylene/Proylene Glycol

Sample ID	MTCA Cleanup Level		LASB-1-0.5	LASB-2-0.5
Sample depth (ft bgs)			0.5	0.5
Sample date			5/9/2003	5/8/2003
Analyte (mg/kg)	Method A	Method B		
Propylene glycol	NE	NE	2.02 U	1.95 U
Ethylene glycol	NE	160,000,000	2.02 U	1.95 U

Notes:

ft bgs - feet below ground surface

mg/kg - milligrams per kilogram

U- analyte not detected above the reporting limit.

NE- Not Established

Bold- indicates that results is above the MTCA Cleanup Level

Table 3-5
Groundwater Sample Results for Gasoline/Diesel/Oil/BTEX

Sample ID Sample date	MTCA Industrial Cleanup Level		LASB-1-GW 5/9/2003	LASB-2-GW 5/9/2003	LABS-3-GW 5/8/2003
BTEX (ug/L)	Method A	Method B			
Benzene	5	0.795	1 U	1 U	1 U
Toluene	1,000	1,600	1 U	1 U	1 U
Ethylbenzene	700	800	1 U	1 U	1 U
m,p-xylene	1,000	16,000	1 U	1 U	1 U
o-xylene	1,000	16,000	1 U	1 U	1 U
TPH (ug/L)					
Gasoline	800 / 1,000*	NE	100 U	100 U	100 U
Diesel	500	NE	0.25 U	0.26 U	0.26 U
Oil	500	NE	0.41 U	0.42 U	0.42 U

Notes:

ug/L - micrograms per liter

U- analyte not detected above the reporting limit.

NE- Not Established

Bold- indicates that results is above the MTCA Cleanup Level

*If beneze is present, cleanup level is 800 ug/L. If there is no detectable benzene, cleanup level is 1,000 ug/L.

Table 3-6
Groundwater Sample Results for VOCs

Sample ID Sample date	MTCA Industrial Cleanup Level		LASB-3-GW 5/8/2003	LASB-DUP-GW 5/8/2003
Analyte (ug/L)	Method A	Method B		
1,1,1-Trichloroethane	200	7,200	0.20 U	0.20 U
1,1-Dichloroethane	NE	800	0.20 U	0.20 U
1,1-Dichloroethene	NE	0.0729	0.20 U	0.20 U
Chloroethane	NE	NE	0.20 U	0.20 U
Tetrachloroethene	5	0.858	0.20 U	0.20 U
Trichloroethene	5	3.98	0.20 U	0.20 U
cis-1,2-Dichloroethene	NE	80	0.20 U	0.20 U
trans-1,2-Dichloroethene	NE	160	0.20 U	0.20 U
Vinyl chloride	0.2	0.0292	0.20 U	0.20 U
Acetone	NE	800	5 U	5 U
Benzene	5	0.795	0.20 U	0.20 U
Bromodichloromethane	NE	0.706	0.20 U	0.20 U
Bromobenzene	NE	NE	0.20 U	0.20 U
Bromochloromethane	NE	NE	5 U	5 U
Bromoform	NE	5.54	1 U	1 U
Bromomethane	NE	11.2	0.20 U	0.20 U
2-Butanone	NE	4,800	0.20 U	0.20 U
n-Butylbenzene	NE	NE	0.20 U	0.20 U
sec-Butylbenzene	NE	NE	0.20 U	0.20 U
tert-Butylbenzene	NE	NE	0.20 U	0.20 U
Carbon disulfide	NE	800	0.20 U	0.20 U
Carbon tetrachloride	NE	0.337	0.20 U	0.20 U
Chlorobenzene	NE	160	0.20 U	0.20 U
2-Chloroethylvinyl ether	NE	NE	1 U	1 U
Chloroform	NE	7.17	0.20 U	0.20 U
Chloromethane	NE	3.37	0.20 U	0.20 U
2-Chlorotoluene	NE	NE	0.20 U	0.20 U
4-Chlorotoluene	NE	NE	0.20 U	0.20 U
Dibromochloromethane	NE	0.521	0.20 U	0.20 U
1,2-Dichlorobenzene	NE	720	0.20 U	0.20 U
1,3-Dichlorobenzene	NE	NE	0.20 U	0.20 U
1,4-Dichlorobenzene	NE	1.82	0.20 U	0.20 U
1,3-Dichloropropane	NE	NE	0.20 U	0.20 U
2,2-Dichloropropane	NE	NE	0.20 U	0.20 U
1,1-Dichloropropene	NE	NE	0.20 U	0.20 U
1,2-Dibromo-3-chloropropane	NE		1 U	1 U
1,2-Dibromoethane	NE	NE	0.20 U	0.20 U
Dibromomethane	NE	NE	0.20 U	0.20 U
Dichlorodifluoromethane	NE	1,600	0.20 U	0.20 U
1,2-Dichloroethane	NE	0.481	0.20 U	0.20 U
1,2-Dichloropropane	NE	0.643	0.20 U	0.20 U
cis-1,3-Dichloropropene	NE	0.243	0.20 U	0.20 U
trans-1,3-Dichloropropene	NE	0.243	0.20 U	0.20 U
Ethylbenzene	700	800	0.20 U	0.20 U
Hexachlorobutadiene	NE	1	0.20 U	0.20 U
2-Hexanone	NE	NE	2 U	2 U
Isopropylbenzene	NE	NE	0.20 U	0.20 U
p-Isopropyltoluene	NE	NE	0.20 U	0.20 U
Methylene chloride	5	5.83	1 U	1 U

Table 3-6
Groundwater Sample Results for VOCs

Sample ID Sample date	MTCA Industrial Cleanup Level		LASB-3-GW 5/8/2003	LASB-DUP-GW 5/8/2003
Analyte (ug/L)	Method A	Method B		
4-methyl-2-pentanone	NE	640	0.20 U	0.20 U
Naphthalene	160	160	7 U	7 U
n-Propylbenzene	NE	NE	0.20 U	0.20 U
Styrene	NE	1.46	0.20 U	0.20 U
1,1,1,2-Tetrachloroethane	NE	1.68	0.20 U	0.20 U
1,1,2,2-Tetrachloroethane	NE	0.219	0.20 U	0.20 U
Toluene	1,000	1,600	0.22	0.3
1,2,3-Trichlorobenzene	NE	1,600	0.20 U	0.20 U
1,2,4-Trichlorobenzene	NE	80	0.20 U	0.20 U
MTBE			0.20 U	0.20 U
1,1,2-Trichloroethane	NE	0.768	0.20 U	0.20 U
Trichlorofluoromethane	NE	2,400	0.20 U	0.20 U
Trichlorotrifluoromethane	NE	NE	0.20 U	0.20 U
1,2,4-Trimethylbenzene	NE	NE	0.20 U	0.20 U
1,3,5-trimethylbenzene	NE	NE	0.20 U	0.20 U
Vinyl acetate	NE	8,000	1 U	1 U
Total Xylenes	1,000	16,000	0.20 U	0.20 U

Notes:

ug/L - micrograms per liter

U- analyte not detected above the reporting limit.

NE- Not Established

Bold- indicates that results is above the MTCA Cleanup Level

Table 3-7
Groundwater Sample Results for Dissolved Metals

Sample ID Sample date	MTCA Industrial Cleanup Level		LASB-1-GW 5/9/2003
Analyte (ug/L)	Level A	Level B	
Arsenic	5	0.0583	3 U
Barium	NE	560	25 U
Cadmium	5	8	4 U
Chromium	50	24,000 (Cr ³⁺)	10 U
Lead	15	NE	1 U
Mercury	2	4.8	0.5 U
Selenium	NE	230	5 U
Silver	NE	80	10 U

Notes:

ug/L - micrograms per liter

U- analyte not detected above the reporting limit.

NE- Not Established

Bold- indicates that results is above the MTCA Cleanup Level

Table 3-8
Groundwater Sample Results for PAHs

Sample ID Sample date	MTCA Cleanup Level		LASB-1-GW 5/9/2003
Analyte (mg/kg)	Method A	Method B	
Naphthalene	160	NE	0.10 U
2-Methylnaphthalene	160	NE	0.10 U
1-Methylnaphthalene	160	NE	0.10 U
Acenaphthylene	NE	NE	0.10 U
Acenaphthene	NE	960	0.10 U
Fluorene	NE	640	0.10 U
Phenanthrene	NE	NE	0.10 U
Anthracene	NE	2,400	0.10 U
Fluoranthene	NE	640	0.10 U
Pyrene	NE	480	0.10 U
Benzo[a]anthracene	*	0.012	0.010 U
Chrysene	*	0.012	0.010 U
Benzo[b]fluoranthene	*	0.012	0.010 U
Benzo[k]fluoranthene	*	0.012	0.010 U
Benzo[a]pyrene	0.1	0.012	0.010 U
Indeno(1,2,3-c,d)pyrene	*	0.012	0.010 U
Dibenz[a,h]anthracene	*	0.012	0.010 U
Benzo[g,h,i]perylene	NE	NE	0.010 U

Notes:

U- analyte not detected above the reporting limit.

NE- Not established

*- Cleanup levels under 2001 MTCA are for total carcinogenic PAHs- groundwater 0.1 ug/L.

TABLE 8-1
SAMPLING LOCATIONS AND ANALYTICAL TESTING
LAKEVIEW AUTO WRECKING PROPERTY

Boring	Sampling Objectives	Sampling Method	Priority Pollutants	VOCs	Gx	Dx	TCLP Lead	Herbicides	PAHs	Cyanide
			soil	water	soil	water	soil	soil	soil	water
LA-1	Evaluate potential releases from auto body shop and former paint shop, long-term railroad use	hand auger	1	0	1	0	1	0	1	0
LA-2	Evaluate potential releases from auto body shop and former paint shop, long-term railroad use	hand auger	1	0	1	0	1	0	1	0
LA-3	Evaluate potential releases from auto body shop and former paint shop, long-term railroad use	hand auger	1	0	1	0	1	0	1	0
LA-4	Evaluate potential releases from auto body shop and former paint shop, long-term railroad use	soil boring /MW	2	1	2	1	1	1	1	1
LA-5	Evaluate potential releases from auto body shop and former paint shop, long-term railroad use	soil boring /MW	2	1	2	1	2	1	1	1

Dx = Northwest Total Petroleum Hydrocarbons as diesel-extended

Gx = Northwest Total Petroleum Hydrocarbons as gasoline

Herbicides = chlorinated acid herbicides

MW = monitoring well

PAHs = polycyclic aromatic hydrocarbons

Priority Pollutants = metals (silver, arsenic, beryllium, cadmium, chromium, copper, mercury, nickel, lead, antimony, selenium, thallium, zinc) and cyanide

TCLP Metals = Toxicity Characteristic Leaching Procedure for metals

VOCs = volatile organic compounds

TABLE 8-2
ANALYTICAL RESULTS
LAKEVIEW AUTO WRECKING PROPERTY

Sample ID	Matrix *	Sample Depth (feet)	Lube Oil Range	Toluene	Metals						SVOCs		VOCs	
					Cadmium	Chromium	Copper	Lead	Nickel	Zinc	TCLP Lead	cPAHs	Methylene Chloride	PCE
LA1-S1	soil	2	ND	ND	ND	9.8	17	19	15	39	ND	ND	ND	
LA2-S1	soil	2	470	ND	0.62	12	14	100	14	530	--	0.038	ND	
LA3-S1	soil	2	150	ND	ND	9.7	18	23	14	52	--	0.092	ND	
LA4-S1	soil	2.5-4	140	ND	ND	14	29	110	20	140	ND	0.116	0.0078	
LA4-S7	soil	17.5-19	ND	ND	ND	13	33	ND	15	21	--	--	ND	
LA5-S1	soil	2.5-4	75	0.0013	ND	16	33	20	24	34	--	0.0161	0.0031	
LA5-S7	soil	17.5-18.4	ND	ND	ND	14	23	ND	17	22	--	--	ND	
MTCA Method A														
Unrestricted Land Use (soil)		--	2,000	7	2	2,000 ¹	***	250	***	***	5 ²	0.1	0.02	
MTCA Method A														
Industrial Land Use (soil)		--	2,000	7	2	2,000 ¹	***	1,000	***	***	5 ²	2	0.02	
Metals Background Levels ³		--	--	--	--	--	10-100	--	20->40	10-100	--	--	--	

PCE = tetrachloroethene

cPAHs = carcinogenic (cancer-causing) polycyclic aromatic hydrocarbons

-- = not analyzed

ND = not detected

Soil sample results reported in milligrams per kilogram (mg/kg)

MTCA = Washington Model Toxics Control Act

Shading indicates concentration exceeds MTCA cleanup criterion or metals background level

¹ Cleanup criterion for chromium III² Dangerous Waste criterion (mg/L)³ Background Range or 90th Percentile Value for Metals in Washington State Soil (C. San Juan, 1994; J. Dragun, and A. Chiasson, 1991)

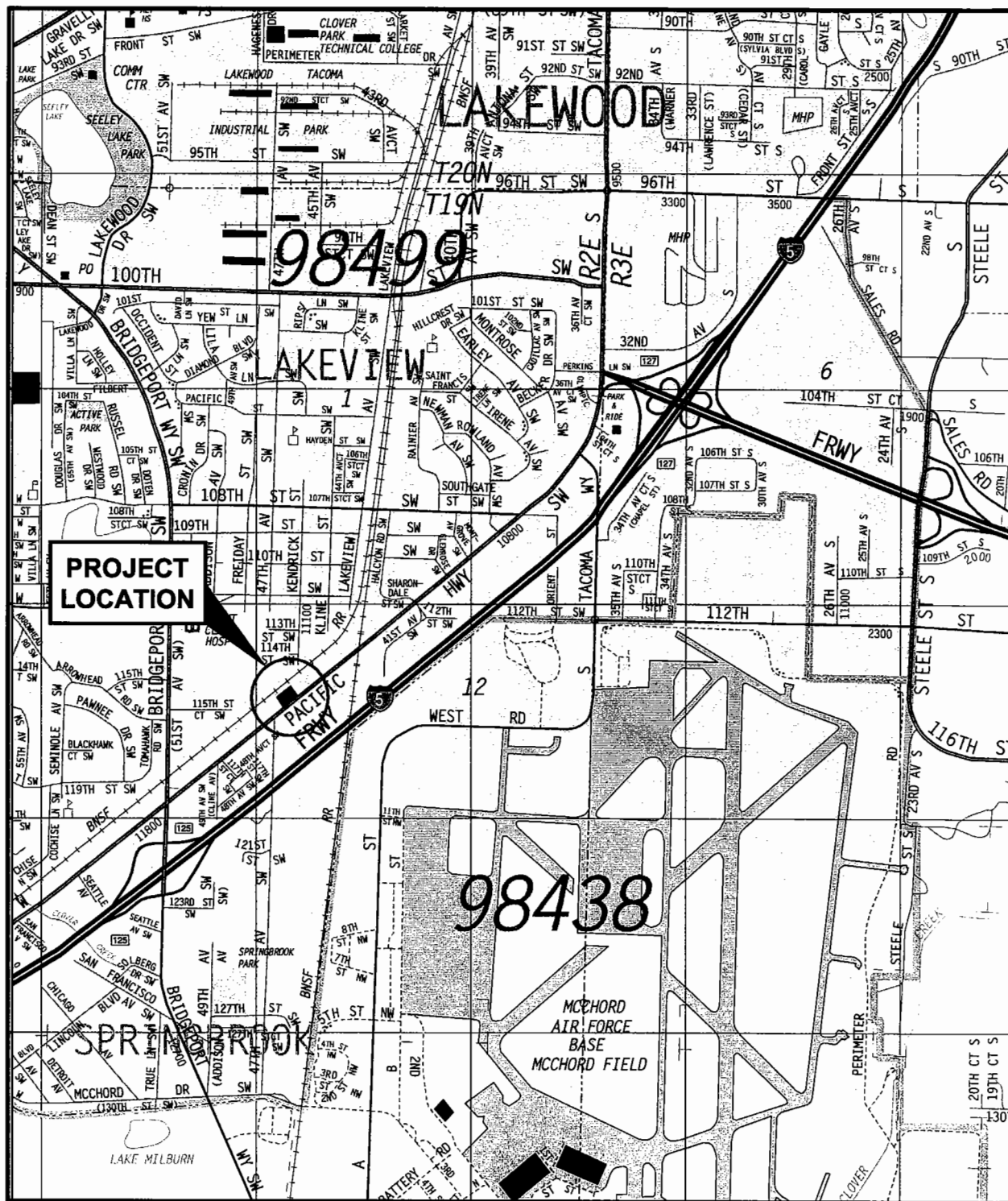
TCLP = Toxicity Characteristic Leaching Procedure (mg/L)

VOCs = volatile organic compounds

SVOCs = semi-volatile organic compounds

* No contaminants were detected in groundwater samples.

*** No MTCA Method A cleanup criterion is established for this analyte.



NOTE

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Cleanup Action Plan
Lakeview Auto Property
Lakewood, Washington

VICINITY MAP

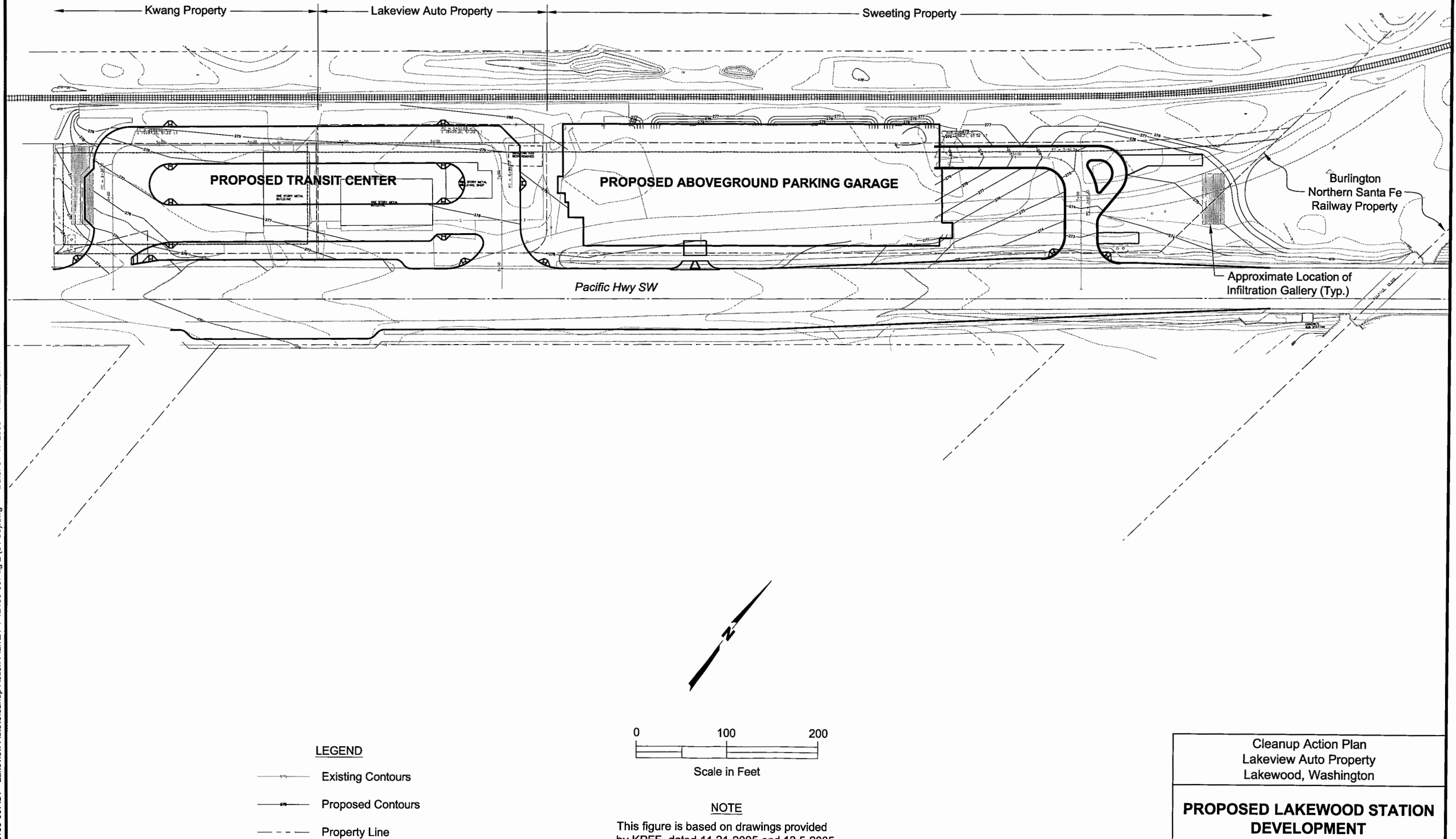
January 2006

21-1-12180-007

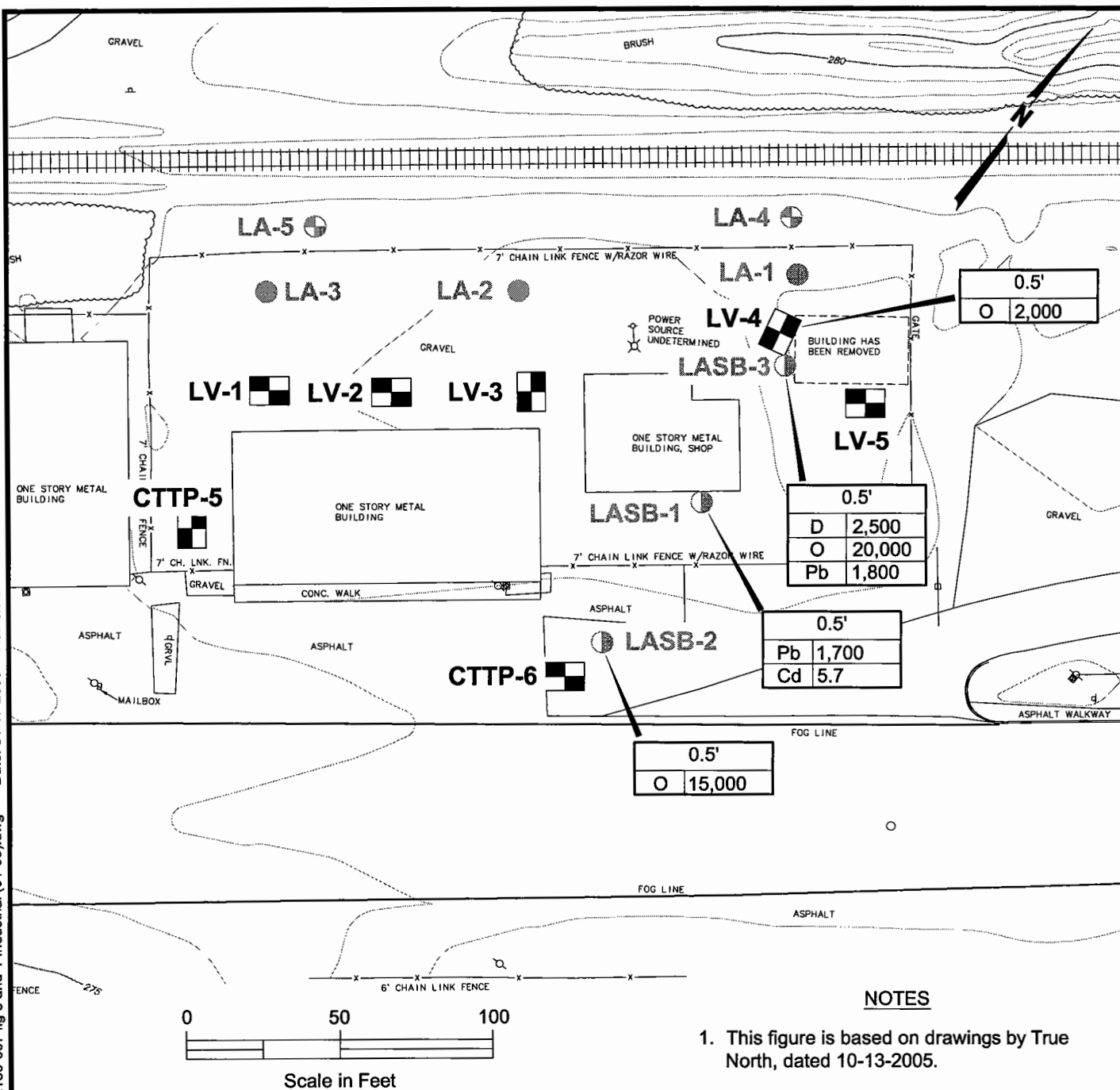
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FIG. 1

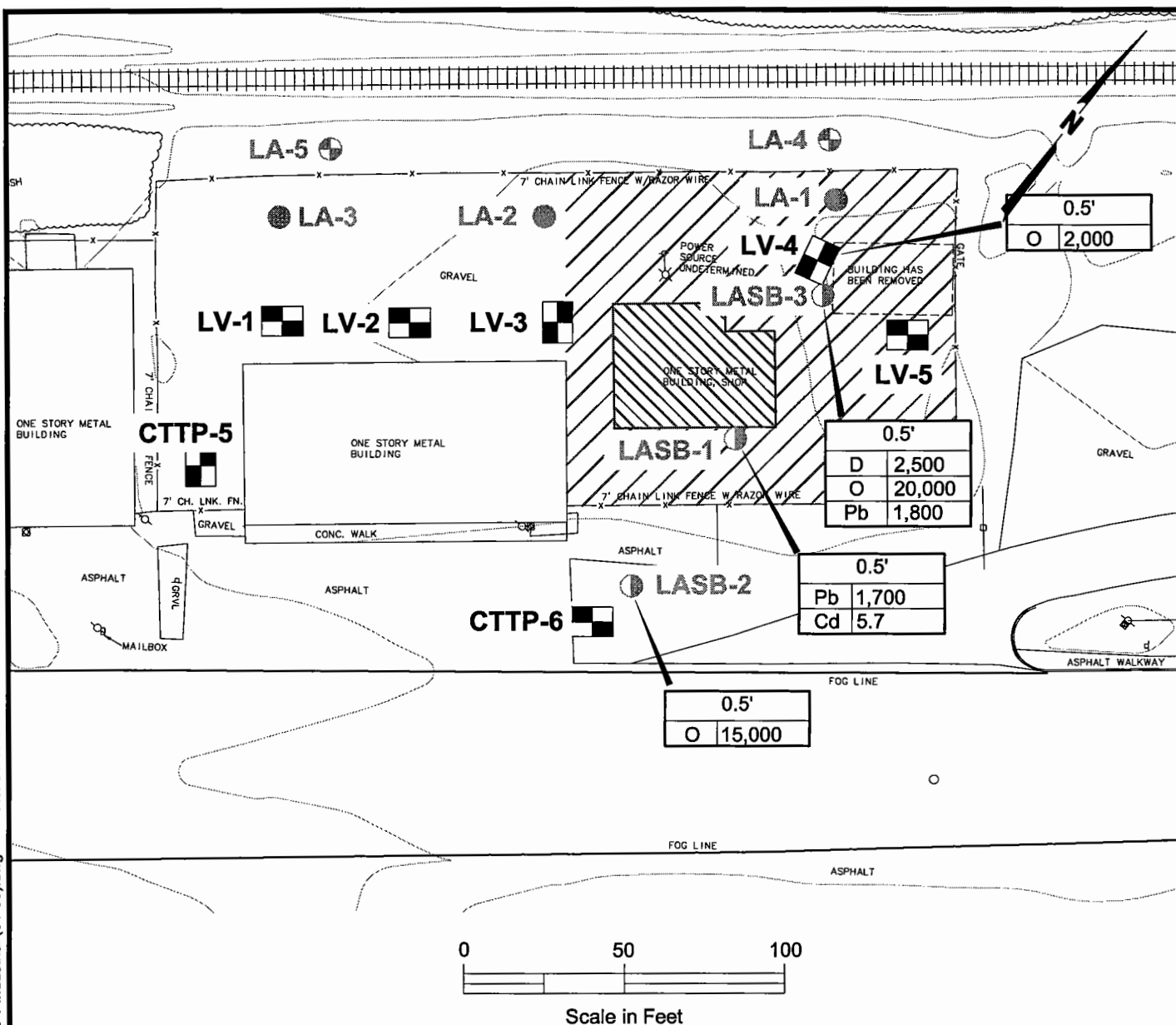
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Cleanup Action Plan Lakeview Auto Property Lakewood, Washington	
PROPOSED LAKEWOOD STATION DEVELOPMENT	
January 2006	21-1-12180-007
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Cleanup Action Plan Lakeview Auto Property Lakewood, Washington	
ANALYTICAL RESULTS EXCEEDING INDUSTRIAL CRITERIA	
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LEGEND

- LV-1** Test Pit Designation and Approximate Location
- LASB-1** Boring Designation and Approximate Location (URS, 2003)
- LA-1** Hand Boring Designation and Approximate Location (Shannon & Wilson Team, 2003)
- LA-4** Monitoring Well Designation and Approximate Location (Shannon & Wilson Team, 2003)
- O** Oil
- D** Diesel
- Cd** Cadmium
- Pb** Lead
- Excavate to 1 Foot and Dispose of Soil Off-Site
- Potentially Contaminated Soil, Depth Not Known

NOTES

1. This figure is based on drawings by True North, dated 10-13-2005.
2. Only contaminant concentrations exceeding cleanup criteria are shown. Concentrations are in milligrams per kilogram.
3. "CTTP - " test pits were excavated by CivilTech to support geotechnical site services on 10-20-2005.

Cleanup Action Plan
Lakeview Auto Property
Lakewood, Washington

REMEDIAL ACTION PLAN

January 2006

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FIG. 4