Contaminated Media Management Plan
Hydraulic Hoist Replacement Project

Bus Maintenance Facility
2710 Lincoln Avenue SE
Port Orchard, Washington 98366

Prepared for:
South Kitsap School District
Facilities and Operations Department
1650 SE Cedar Road
Port Orchard, WA 98367

March 8, 2019
Project No. 41419.002

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TABLE OF CONTENTS

Attachments

1. INTRODUCTION

This Contaminated Media Management Plan (CMMP) provides information and describes procedures regarding management of contaminated media during the hoist replacement project scheduled at 2710 Lincoln Avenue SE, Port Orchard, Washington (site or subject property). This CMMP was prepared by PBS Engineering and Environmental (PBS) on behalf of South Kitsap School District (SKSD).

It is understood that SKSD will replace two hydraulic hoists (each consisting of two lift cylinders) servicing a school bus maintenance facility on the Property. The existing lifts will be removed from the ground and replaced with Diamond 64F-13 Framed In-Ground telescopic piston lifts specifically engineered for concrete foundations. Construction of Stertil-Koni Diamond 64F pits will include removal of existing lifts and lift components, saw cutting of the floor to facilitate excavation of existing pits, installation of new frame, backfill, and installation of finished floor.

Proposed depth of excavation for removal and replacement of hoists is seven feet below ground surface (bgs). Depth to groundwater on-site is as shallow as 4 feet bgs. Thus, dewatering of excavations to facilitate hoist installation and backfill is expected.

1.1 Background

SKSD operates a bus maintenance facility on the subject property which services the district's school buses and other fleet vehicles. The bus maintenance facility is a single-story structure approximately 8,500 square feet in area and is part of SKSD's larger transportation department complex.

The subject property is listed on the Washington State Department of Ecology's (Ecology's) online database of contaminated sites (https://fortress.wa.gov/ecy/neighborhood/) under Cleanup Site ID 6692 and Facility Site ID 80637945 due to a former gasoline release from fuel dispensers used to refuel school buses and fleet vehicles. Following discovery of the release in 1999, Ecology was notified, and cleanup activities at the site were conducted under Ecology's Voluntary Cleanup Program (VCP). Cleanup actions resulted in concentrations of total petroleum hydrocarbons (TPH) and benzene, toluene, ethylbenzene and xylene (BTEX) constituents in soil and groundwater remaining at the site which exceeded Model Toxics Control Act (MTCA) cleanup levels adopted for the site (Ecology, 2010 and Ecology, 2017).

Ecology issued a No Further Action letter for the site in 2003 after a restrictive covenant was recorded for the site with Kitsap County. The following limitations were imposed on the site as part of the restrictive covenant, and are considered applicable to the hoist replacement project:

- The owner shall not alter, modify or remove the existing structure in any manner that may result in the release or exposure to the environment of contaminated soil or create a new exposure pathway without prior written approval from Ecology.
- Any activity on the property that may result in the release or exposure to the environment of the contaminated soil that was contained as part of the Remedial Action, or create a new exposure pathway, is prohibited. Some examples of prohibited activities in the capped areas include: drilling, digging, placement of any objects or use of any equipment which deforms or stresses the surface beyond its load bearing capability, piercing the surface with a rod, spike or similar item, bulldozing or earthwork.
- Any activity on the property that may interfere with the integrity of the Remedial Action and continued protection of human health and the environment is prohibited.
- Any activity on the property that may result in the release or exposure to the environment of a hazardous substance that remains on the property as part of the Remedial Action, or create a new exposure pathway, is prohibited without prior written approval from Ecology.

1.2 Soil and Groundwater Characterization

PBS conducted limited soil and groundwater characterization at the property on December 6, 2018 (PBS, 2018). The purpose of the characterization was to assess subsurface contaminant concentrations in the vicinity of hydraulic hoists proposed for removal and replacement (the work area). Soil boring locations are presented in Figure 3. Groundwater was encountered in all four borings at depths ranging from 4 to 7 feet below ground surface (bgs). Results of soil and groundwater analyses performed are included as Attachment II and summarized below.

Soil:

- Total Petroleum Hydrocarbons as Heavy Oil (TPH-HO) was detected in soil samples SK02-6 (7,660 milligrams per kilogram), SK04-4 (412 mg/kg) and SK04-7 (3,070 mg/kg). TPH-HO was not detected above laboratory reporting limits in other samples collected from the work area.
- Lead was detected above laboratory reporting limits in all eight soil samples collected from the site at a maximum concentration of 3.13 mg/kg.
- Toluene was detected in soil sample SK02-8 at a concentration of 0.0232 mg/kg.

Groundwater:

- TPH as Gasoline (TPH-G) was detected in the three groundwater samples analyzed ranging from 95.1 to 1,960 micrograms per liter (µg/L).
- TPH-HO was detected in the three groundwater samples analyzed ranging from 107 to 276,000 µg/L.
- Lead was detected in all three groundwater samples collected from the site at a maximum concentration of 22.2 µg/L.
- Toluene was detected in the groundwater sample from boring SK04 at a concentration of 4.81 µg/L.

1.3 Objective

The objective of the CMMP is to provide information regarding the location, type and source of contaminated media (soil, groundwater, soil gas) present at the site, to assist the selected contractor with its proper media management and disposal, if needed. The CMMP provides information to enable the contractor to create a Health and Safety Plan that is appropriate to protect site workers from exposure to contaminants.

The CMMP also provides guidance for preventing human contact with contaminated material (left in place on site) once the lift replacement project is complete.

This CMMP contains:

- Information on current environmental conditions and contaminants of concern.
- Roles and responsibilities of project team members for the CMMP.
- Procedures for the storage of contaminated soil or debris in stockpile or staging piles awaiting sampling, classification, load-out, and disposal (should temporary storage occur).
- Required documentation for contaminated material handling, storage, loading, and disposal.

2. PROJECT INFORMATION

2.1 Project Location

The site is located at 2710 Lincoln Avenue SE in Port Orchard, Washington (Figure 1). The site is developed with a single-story structure occupied by the SKSD Transportation Department. A portion of the structure is operated as the bus maintenance facility.

2.2 Contaminants of Potential Concern

Based on characterization performed at the work area, the following contaminants of potential concern (COPCs) may be encountered in the Project Area:

- Total petroleum hydrocarbons (TPH) as heavy oil in soil and groundwater
- TPH as gasoline in groundwater
- Benzene, toluene, ethylbenzene and xylene (BTEX) constituents in soil and groundwater
- Lead in groundwater

2.3 Contaminated Media: Degree and Extent

2.3.1 Soil

Based on recent and historic site characterization, TPH contaminants of concern are expected to be encountered during hoist removal and replacement. Recent characterization identified TPH at concentrations in exceedance of Category 4 Reuse Criteria established in Ecology's Guidance for Remediation of Petroleum Contaminated Sites (Ecology, 2016) as depicted in Figure 3. Tables 12.1 and 12.2 from the guidance present Guidelines for Reuse of Petroleum-Contaminated Soil and are included as Attachment III.

Based on site characterization conducted by PBS in December 2018, the approximate area of petroleum contaminated soil (PCS) is limited to the northeast portion of the work area as demarcated in Figure 3. The depth of PCS is estimated to be from near surface to the total proposed excavation depth of 7 feet bgs.

2.3.2 Groundwater

Groundwater was encountered as shallow as 4 feet bgs in boring SK02 near the northeast end of bus bay 1 and as deep as 7 feet bgs in boring SK03 in the southwest end of bus bay 3 (Figure 3). Contaminants detected in grab groundwater samples collected from the borings include TPH in the gasoline and heavy oil ranges, toluene, xylene and lead.

3. CONTAMINATED MATERIAL DEFINITIONS

This section describes the classification and management of the contaminated material as follows:

3.1 Contaminated Soil Waste Disposal Classifications

The Ecology Guidelines for Reuse of Petroleum Contaminated Soil (PCS, Chapter 173-350 WAC) identify several categories of PCS for reuse or disposal options. The Ecology Re-Use Categories and information regarding disposal/reuse are presented in Attachment III. Waste soil generated from excavation activities will be sampled and analyzed for constituents of concern for the purposes of waste profiling and disposal.

Ultimately, waste classification and disposal will be based on results of soil samples collected from waste soil storage bins. Based on the analytical soil results collected on site, impacted material in the northeast portion of the work area is expected to be characterized as PCS and would be managed as Category IV Soil, meaning it may be reused as landfill daily cover or asphalt manufacturing. Material removed from excavation activities in the southwest portion of the work area is not expected to contain detectable concentrations of TPH, and would be managed as Category I Soil, meaning it may be reused on-site, or reused or disposed of at any facility willing to accept the material.

Landfills/disposal facilities typically have separate pricing based on the category groupings, providing a cost incentive to segregate the two types of soil waste. If The contractor decides not to segregate waste soil generated from different portions of the work area, the combined bulk waste would be managed as Category IV Soil. Final waste categories and management procedures will be based on analytical results of waste samples.

3.2 Contaminated Groundwater Waste Disposal Classifications

Concentrations of TPH, BTEX and metals constituents were detected in the groundwater samples collected and analyzed from the work area. Given the concentrations of these contaminants in groundwater, discharge of water generated from dewatering activities to storm sewer or surface waters is prohibited. Thus, water generated from dewatering activities must be containerized, sampled and profiled for offsite disposal or discharge to the sanitary sewer. Wastewater may only be discharged to the sanitary sewer if authorized by the receiving treatment facility under an industrial wastewater permit for the project.

3.3 Dangerous Waste

Soil/material/debris/liquid that has contaminant levels that potentially exceed the Washington State Dangerous Waste criteria in accordance with WAC 173-303 would be considered Dangerous Waste.

The project soil characterization found no material exceeding Washington State dangerous waste criteria in accordance with WAC 173-303. Encountering dangerous waste is NOT anticipated at this project site. Waste profile sampling will be conducted prior to offsite disposal to document the waste manifest.

4. PRE-EXCAVATION ACTIVITIES

This section describes the activities that will generally be conducted prior to the start of general excavation. The excavation contractor should be aware of this work as some of these activities may extend into the beginning of the excavation process or will affect the contractor's work.

4.1 Project Organization

Prior to site development, management roles will be identified and are detailed in the following table (subject to change):

Title	Name	Affiliation	E-mail	Phone Numbers
Owner: South Kitsap School District				
Lead Journeyman	John Garber	SKSD	garber@skschools.org	360.900.8288

Title	Name	Affiliation	E-mail	Phone Numbers
Site Superintendent	TBD	Contractor	TBD	TBD
Owner / Manager	Bob Dalton	SKSD	dalton@skschools.org	360.874.7087
Environmental Professional	James Welles	PBS	James.welles@pbsusa.com	206.348.6317

4.2 Health and Safety Plan

A site-specific Health and Safety Plan (HASP) shall be prepared by the contractor in accordance with applicable OSHA and Washington Industrial Safety and Health Act (WISHA) regulations. The HASP will provide information for site workers that address the health risks and hazards for each site task, employee training assignments to assure compliance with WISHA, personal protective equipment, site control measures, and decontamination procedures. The HASP must include procedures and controls that are site specific to the identified COPCs.

The contractor is responsible for conducting all on-site activities in accordance with the HASP. The contractor will review the contents of the HASP with all on-site workers and will ensure adequate training for all on-site workers in accordance with the HASP. Outside contractors or consultants participating in soil management activities have responsibility for their employee's health and safety while on site.

5. CONTAMINATED SOIL EXCAVATION AND HANDLING

This section summarizes the various construction activities that have the potential to generate contaminated media requiring proper management and disposal. Procedures for excavating, loading, and transporting the contaminated soil and/or water generated from each of the activities is discussed.

5.1 Activities with the Potential to Generate Contaminated Media

Construction activities that have the potential to generate contaminated soil and/or groundwater include the following:

- Excavation of pits to facilitate removal of old hoists and installation of new hoists;
- Dewatering of excavations/pits to facilitate installation of new hoists and backfill;
- Trenching for installation of subsurface utilities servicing the new hoists.

5.2 Contaminated Soil and groundwater Management Procedures

PCS will be excavated and disposed of at an approved facility or a Subtitle D landfill. The removal of affected soil will be conducted in accordance with the *Guidance for Remediation of Petroleum Contaminated Sites* (Ecology 2016). The contractor will determine the methods and means for the soil excavation and will develop the excavation sequence directly with PBS. Groundwater removed from excavations will be pumped directly into storage tanks. Waste water generated from dewatering of excavations will not be segregated by excavation, but combined into one tank, or multiple tanks depending on volume generated. Upon completion of all dewatering activities, a composite wastewater

sample will be collected from the tank or tanks. Results of the wastewater sample will be used to determine disposal methods for wastewater temporarily stored on-site.

The contaminated soil and groundwater management procedures have been developed to:

- Potentially segregate PCS by Ecology Category (Cat. I - II or Cat. III - IV) for soil disposal.
- Allow direct loading of contaminated soil into storage or roll-off bins and minimize soil stockpiling to the extent possible.
- Prohibit release of contaminated soil or groundwater to the environment.

5.3 Stockpiling

There may be occasions where stockpiling is required for the temporary storage of contaminated soil in a clean area pending analytical test results or loading into storage bins. Stockpiles in these circumstances shall adhere to the following:

- Prior to earthworks, the contractor will designate a location where contaminated soil can be stockpiled for up to two weeks. The contractor will have the supplies to prepare a stockpile location (see below), so that the project schedule is not delayed in the event that stockpiling of contaminated soil is required.
- Stockpiles shall be lined with plastic sheeting with a minimum thickness of 6 mils, with adjacent sheeting sections overlapping a minimum of 3 feet.
- The perimeter of the stockpiles shall be surrounded by a berm to prevent run-on and/or run-off of precipitation.
- Stockpiles shall be covered to prevent runoff from precipitation when not in use, and the cover should be anchored to prevent it from being disturbed by wind.

5.4 Soil Storage Bins

Soil will be directly loaded into roll-off style storage bins whenever possible to avoid stockpiling. Storage bins may remain open during active work hours but shall be closed for storage overnight or upon completion of activities producing waste soil. Storage bins shall be located and covered such that waste soils are not in contact with rain or storm water, and cannot be exposed to on-site personnel, or released to the environment.

5.5 Decontamination Procedures

The following procedures will be undertaken upon completion of the project, or prior to removal from the work area of any equipment that has been in contact with contaminated media:

Soil residue on equipment and excavator tracks/tires and truck tires will be removed using dry methods. Because the work will be conducted indoors, wet weather conditions are not expected to be encountered. During dry conditions, soil residues will be removed by dry brushing. If equipment that has been in contact with contaminated media is to be stored outdoors, it must first be decontaminated to avoid contact with rain and stormwater runoff.

5.6 Waste Soil and Water Sampling

A PBS Environmental Professional will conduct sampling of waste soil and water upon completion of waste generating activities. A minimum of three samples will be collected from excavated and stockpiled soil prior to off-site transport and disposal, to determine waste classification. At minimum one water sample will be collected from containerized waste water prior to disposal to determine waste classification. Due to the current management-in-place strategy being implemented for known contamination at the site, PBS does not intend to collect confirmation samples from soil "left in place," typically from excavation bases and sidewalls.

5.6.1 Sampling Analysis Procedures

In coordination with the contractor, the Environmental Professional shall collect waste samples. Samples will be collected in laboratory-provided containers and placed on ice in a cooler immediately after collection. Sample analysis will include the following:

- TPH as gasoline by Method NWTPH-Gx
- TPH as diesel/oil range by Method NWTPH-Dx
- BTEX by EPA Method 8260C
- Resource Conservation and Recovery Act (RCRA) 8 Metals by Method 6010/6020
- Toxicity Characteristic Leaching Procedure (TCLP) extraction by Method SW-846 and analysis for lead by Method 6010/6020
- TCLP extraction by Method SW-846 and analysis for Benzene by Method 8260C

All non-disposable components of the sampling equipment (e.g., hand augers, shovels, spoons, or other equipment used to collect samples that contact the soil) will be decontaminated prior to, and in between, collection of individual samples as follows:

- Scrub with potable water containing Alconox/Liquinox detergent
- Potable water rinse/deionized (DI) water rinse

Chain-of-custody documentation will be prepared and will accompany the samples at all times. Analytical requests will be prepared that will clearly identify the compositing to be performed by the laboratory, if required.

5.6.2 Evaluation of Analytical Results

The analytical results of waste samples will be reviewed by the environmental professional. The analytical results will be compared to the criteria defined for the types of wastes this plan addresses: "Dangerous Waste" and "Petroleum Contaminated Solid Waste." Management of the soils will be based on the material meeting the following conditions:

- Petroleum-contaminated soils that are not dangerous wastes are regulated under the Solid Waste Handling Standards, Chapter 173-350 WAC. "Guidance for Remediation of Petroleum Contaminated Sites," Toxics Cleanup Program Publication No. 10-09-057 – Revised June 2016 Table 12.1-Guidelines for Reuse of Petroleum-Contaminated Soil (Attachment III).
- Dangerous waste characteristic WAC 173-303-090: Soils that fail a TCLP for metals or constituents such as benzene must be disposed of as dangerous waste.

- Persistent waste criteria WAC 173-303-100(6): WAC 173-303-100(5) requires wastes/soil with halogenated organic compounds content greater than 100 ppm, and PAH content of 10,000 ppm to be handled as dangerous waste.
- Excluded categories of waste WAC 173-303-071 (3)(t): Petroleum-contaminated media and debris that fail the test for the toxicity characteristic of WAC 173-303-090(8) (dangerous waste numbers D018 through D043 only) and are subject to the corrective action regulations under 40 C.F.R. Part 280.
- Wastewater analytical results will be compared to dangerous waste thresholds per WAC 173-303. Analytical results for wastewater that is not designated as dangerous waste will be provided to a waste disposal contractor for profiling and acceptance at a receiving disposal facility.

6. CONTAMINATED SOIL AND WATER TRANSPORT AND OFF-SITE DISPOSAL

Transport of soil and water to the appropriate disposal facilities will be performed by haulers licensed to transport contaminated media.

6.1 Waste Profile and Manifest

Prior to transport of PCS material or waste water, the waste material must be properly profiled and/or manifested and approved for acceptance by the selected disposal facility. The contractor shall provide the Environmental Professional with copies of the waste profile manifest and approval notification from the selected disposal facility 3-days prior to removal of waste from the project site.

6.2 PCS and Wastewater Transport

PCS shall be directly loaded into bins for storage on-site pending profiling, transport and disposal. Soil may be temporarily stockpiled in circumstances where direct loading of soil into bins is not possible based on the procedures outlined in Section 5.3. Wastewater shall be pumped directly to an appropriate storage container which prevents exposure or release of the water to humans or the environment. The contractor shall provide the Environmental Professional with copies of shipping records (manifest or bill of lading) and weight (soil) or volume (water) tickets for all shipped wastes, indicating each waste shipment has been received at a disposal facility. Provide copies to the Environmental Professional within 7 working days of removal.

- An approved certified trucking company will haul soil from the site. Soil will be transported to the pre-approved landfill or facility permitted for such material.
- The Ecology's Guidelines for Reuse of Petroleum Contaminated Soil (Chapter 173-350 WAC) identifies several categories of PCS for reuse or disposal options. Any PCS to be exported will first be categorized based on the analytical soil results collected from the project site soils.
- An approved certified trucking company will haul wastewater from the site, if sample results of wastewater indicate that a certified trucking company is required based on local, state and federal regulations.
- Any wastewater exported will first be categorized based on the analytical results of wastewater samples collected from the project wastewater.

6.3 PCS Off-Site Disposal

Soil with detectable concentrations of petroleum hydrocarbons must be managed as PCS and disposed of at a permitted solid waste facility. Example facilities that may be used for disposal of PCS and water include:

- Waste Management Columbia Ridge Commercial Landfill (for PCS)
- PRS Group Inc. Water Treatment Plant (for water)
- Other approved and permitted facility

Disposal of contaminated soil as "dangerous" per WAC 173-303 is NOT expected to be included in the work. Based on previous investigations, disposal of contaminated soils as Ecology defined Category I-IV PCS may be included in the Work and is the responsibility of SKSD and its waste disposal contractor. PBS will provide analytical results to SKSD and/or its waste disposal contractor for waste profiling purposes. PBS may also review bills of lading, waste profiles and waste manifests at the request of SKSD.

7. POST CONSTRUCTION MANAGEMENT

This CMMP was created as guidance related to contamination expected to be encountered during the removal and replacement of hydraulic hoists. It is understood that additional management related to contamination is required based on the land covenant associated with the site. Land covenant and ongoing compliance concerns related to management of contaminated media in place are not addressed in this CMMP.

8. REPORTING AND DOCUMENTATION

Contractors managing contaminated media will maintain all necessary permits and approvals related to the excavation, management, storage, transportation, and treatment/disposal of the contaminated soil that might be generated during excavation. Permits may include, but are not limited to, excavation permits, transportation permits and manifests, and approvals and permits for treatment or disposal of contaminated waste. Copies of permits and disposal receipts should be retained for future reporting by the Owner.

Procedures for reporting and recordkeeping are addressed under submittals as required by Project Specifications. In summary, documentation will include:

- Quantity by volume in bank yards as determined by contractor measurements during excavation.
- Quantity by weight as determined by number of truckloads and disposal facility weight tickets.
- Physical characteristics including analytical results when applicable
- Disposal facility for each material disposed
- Disposal facility receipts
- Weight and/or volume truck tickets
- Manifests / Bills of Lading
- Fee receipts
- Certification from each receiving facility owner that the facility's operating permit conditions were met for materials disposed
- Copies of all analytical data will be provided to the landfill operator and/or waste hauler upon request.

The documentation shall be presented to the SKSD. All laboratory data will be attached. An accompanying narrative will describe the soil removal and any deviations to the procedures that occurred. Corrective actions will be identified as needed, and the resolution of any discrepancies will be reported.

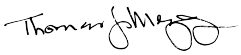
9. SIGNATURES

PBS Engineering and Environmental Inc.

Digitally signed by James Welles
Date: 2019.03.08 11:08:35 -08'00'

March 8, 2019
Date

James Welles, LG
Project Geologist



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March 8, 2019
Date

Thomas Mergy, LHG
Senior Hydrogeologist
Environmental Services Manager

10. REFERENCES

(Ecology, 2010a) *Guidance for Remediation of Petroleum Contaminated Sites,* Washington State Department of Ecology, 2010.

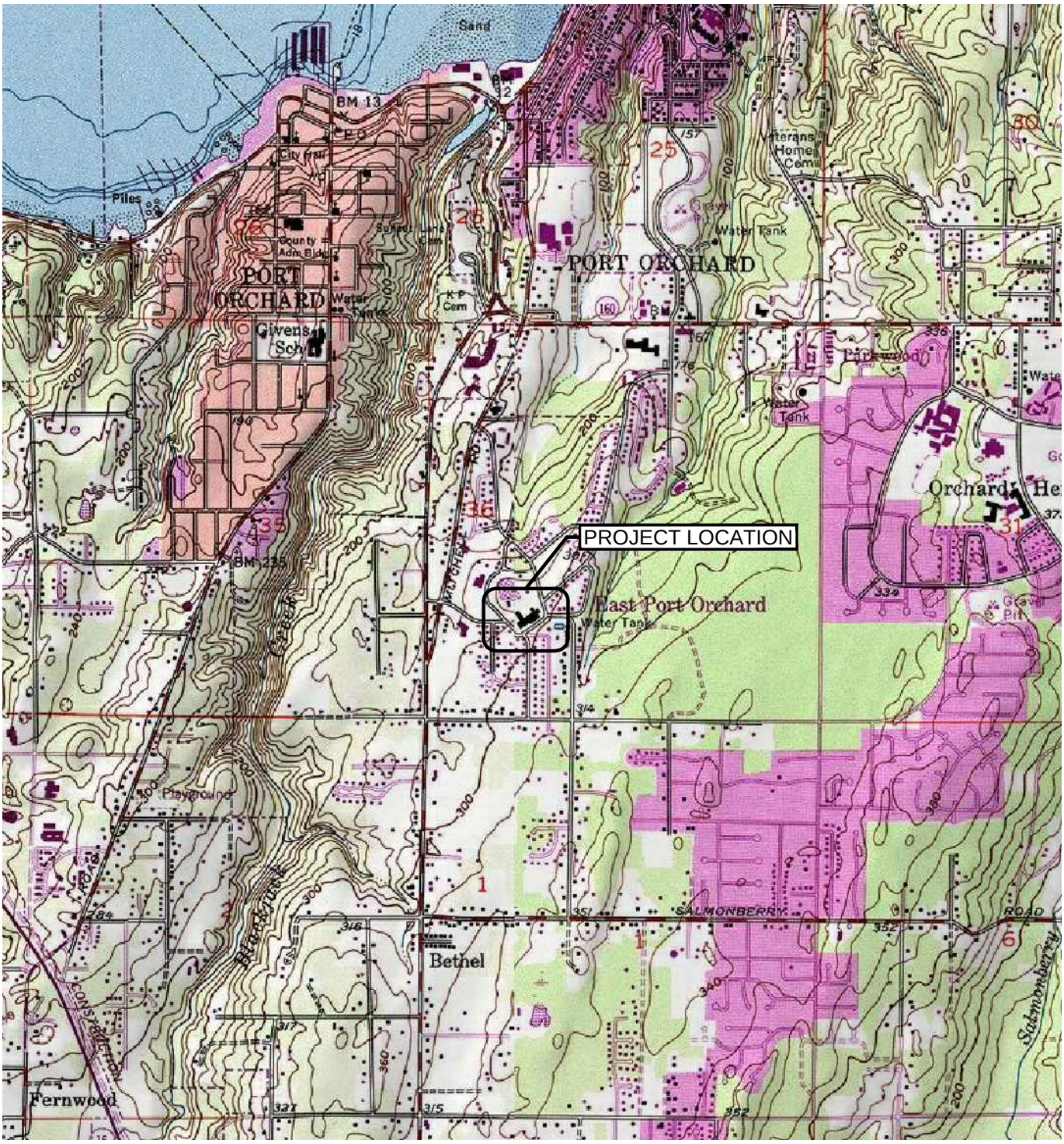
(Ecology, 2010) *Periodic Review – South Kitsap School District School Bus Maintenance Facility – Facility Site ID#: 80637945,* Washington State Department of Ecology, September 2010.

(Ecology, 2017) *Periodic Review – South Kitsap School District School Bus Maintenance Facility – Facility Site ID#: 80637945,* Washington State Department of Ecology, May 2017.

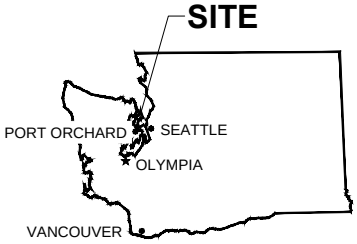
(PBS, 2018) *Bus Maintenance Facility Soil and Groundwater Characterization,* PBS Engineering and Environmental, December 2018.

ATTACHMENT I

SITE PLANS



SOURCE: USGS BREMERTON WEST, WA QUADRANGLE 1978, PHOTO REVISED 1981.



WASHINGTON

SCALE 1" = 2000'

0' 1,000' 2,000' 4,000'

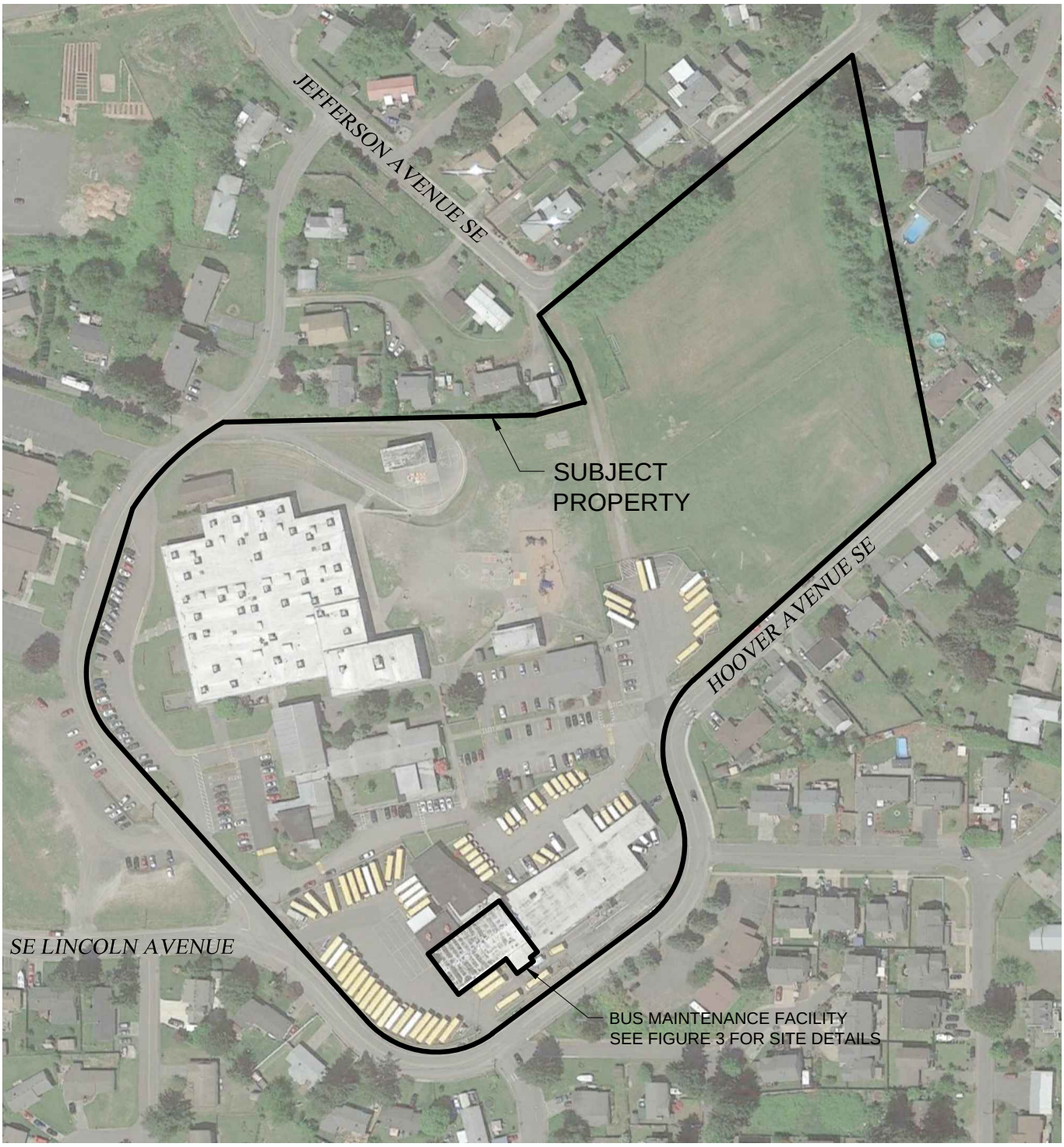
PREPARED FOR: SOUTH KITSAP SCHOOL DISTRICT

VICINITY MAP

BUS MAINTENANCE FACILITY
2710 LINCOLN AVENUE SE
PORT ORCHARD, WASHINGTON

MAR 2019
41419.002

FIGURE
1



SCALE 1" = 200'

0' 100' 200' 400'

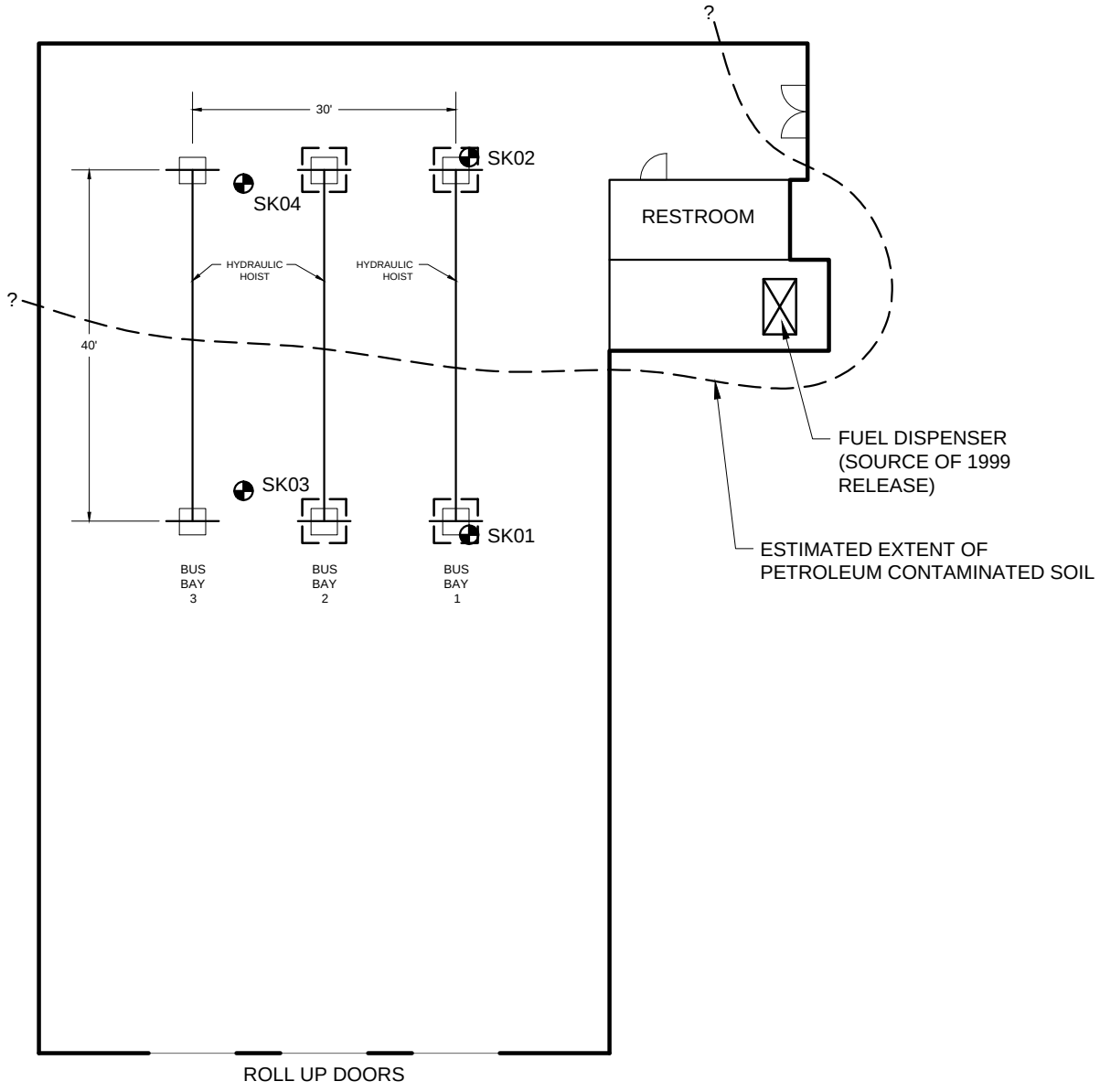
PREPARED FOR: SOUTH KITSAP SCHOOL DISTRICT

SITE PLAN

BUS MAINTENANCE FACILITY
2710 LINCOLN AVENUE SE
PORT ORCHARD, WASHINGTON

MAR 2019
41419.002

FIGURE
2



LEGEND

- SK01 — SOIL BORING (PBS 2018)
- LOCATION OF HYDRAULIC HOIST CYLINDER
- PROPOSED 5' X 5' EXCAVATION FOR HOIST REPLACEMENT
- ESTIMATED EXTENT OF PETROLEUM CONTAMINATED SOIL

SCALE 1" = 20'

0' 10' 20' 40'

PREPARED FOR: SOUTH KITSAP SCHOOL DISTRICT

HOIST REPLACEMENT AND SOIL BORING MAP

BUS MAINTENANCE FACILITY
2710 LINCOLN AVENUE SE
PORT ORCHARD, WASHINGTON

MAR 2019
41419.002

FIGURE
3

ATTACHMENT II

TABLES OF ANALYTICAL RESULTS

TABLE 1: SOIL ANALYTICAL RESULTS

Site: South Kitsap School District Bus Maintenance Facility
Project No: 41419.002

Location-depth	Description	Result mg/Kg							
		TPHs			VOCs				Metals
		Gx	Dx	Oil	Benzene	Toluene	Ethyl Benzene	Xylene	Lead
Subsurface Investigation Conducted on December 6, 2018									
SK01-5		<5.25	<22.4	<55.9	<0.0210	<0.0210	<0.0263	<0.0788	1.28
SK01-6		<3.25	<20.6	<51.5	<0.0129	<0.0129	<0.0162	<0.0486	1.68
SK02-6		<3.78	<20.7	**7,660**	<0.0151	<0.0151	<0.0189	<0.0567	1.44
SK02-8		<5.03	<21.1	<52.9	<0.0201	0.0232	<0.0251	<0.0754	1.63
SK03-4		<3.60	<21.6	<54.1	<0.0144	<0.0144	<0.0180	<0.0540	3.13
SK03-7		<3.24	<19.7	<49.2	<0.0130	<0.0130	<0.0162	<0.0486	1.64
SK04-4		<4.24	<20.9	412	<0.0118	<0.0118	<0.0148	<0.0443	2.31
SK04-7		<2.49	<20.2	**3,070**	<0.0118	<0.0118	<0.0148	<0.0444	1.11
Disposal Criteria	**Category 4 Reuse Criteria**[a]	100	500	500	b	6	7	9	b

[a] Washington State Department of Ecology Guidance for Remediation of Petroluem Contaminated Sites Table 12.1 - Guidelines for Reuse of Petroleum-Contaminated Soil. Soils with concentrations exceeding these values must be disposed of as Category 4 Petroleum Contaminated Waste

[b] Landfills require a Toxicity Characteristic Leachate Procedure (TCLP) analysis for lead and benzene. Based on the concentrations of lead and benzene detected in on-site soils, TCLP analysis for lead and benzene is not expected to effect disposal of on-site soils.

Gx - gasoline range hydrocarbons analyzed by Method NWTPH-Gx

Dx - diesel range hydrocarbons analyzed by Method NWTPH-Dx, method also included reporting of TPH in the heavy oil range

Metals analyzed by US EPA Method 6020B.

VOCS - volotile organic compounds analyzed by US EPA Method 8260B

BOLD indicates concentration exceeds Category 4 Reuse Criteria

mg/kg - miligrams per kilogram

TPH - total petroleum hydrocarbons

<50 - less than the laboratory reporting limit

TABLE 2 : GROUNDWATER ANALYTICAL RESULTS

Site: South Kitsap School District Bus Maintenance Facility
Project No: 41419.002

Sample ID	Description	Result (µg/L)							
		TPHs			VOCs				Metals
		Gx	Dx	Heavy Oil	Benzene	Toluene	Ethyl Benzene	Xylene	Lead
Grab groundwater samples collected December 6, 2018									
SK02-W	Groundwater	366	<50.1	105,000	<1.00	<1.00	<1.00	<2.00	15.80
SK03-W	Groundwater	95.1[a]	<49.9	107	<1.00	<1.00	<1.00	<2.00	3.51
SK04-W	Groundwater	1,960[a]	<50.3	276,000	<1.00	4.81	<1.00	1.34	22.2

[a]Detection is of gasoline range organics (GRO) ranging from C6-C12

Gx - gasoline range hydrocarbons analyzed by Method NWTPH-Gx
Dx - diesel range hydrocarbons analyzed by Method NWTPH-Dx, method includes reporting TPH in the heavy oil range
Metals analyzed by US EPA Method 6020B
VOCs - volatile organic compounds analyzed by US EPA Method 8260B
MTCA - Washington State Department of Ecology Model Toxic Control Act
TPH - total petroleum hydrocarbons
µg/L - micrograms per litre
<50 - less than the laboratory reporting limit

ATTACHMENT III

ECOLOGY GUIDANCE FOR REUSE OF PCS
TABLES 12.1 – 12.2

Table 12.1 Guidelines for Reuse of Petroleum-Contaminated Soil

Parameter	Analytical Method	Soil Category (8)(9)(10)			
		1 No detectable Petroleum Components (mg/kg)	2 Commercial Fill Above Water Table (mg/kg)	3 Paving Base Material & Road Construction (mg/kg)	4 Landfill Daily Cover or Asphalt Manufacturing (mg/kg)
Total Petroleum Hydrocarbons (1)(2) See Table 7.1 for petroleum products that fall within these categories.					
Gasoline Range Organics	NWTPH-Gx	<5	5 - 30	>30 - 100	>100
Diesel Range Organics	NWTPH-Dx	<25	25 - 200	>200 - 500	>500
Heavy Fuels and Oils*	NWTPH-Dx	<100	100 - 200	>200 – 500	>500
Mineral Oil	NWTPH-Dx	<100	100 - 200	>200 – 500	>500
Volatile Petroleum Components					
Benzene	SW8260B	<0.005	0.005 - 0.03	0.03 or less	See Table 12.2
Ethyl benzene	SW8260B	<0.005	0.005 - 6	6 or less	>6
Toluene	SW8260B	<0.005	0.005 - 7	7 or less	>7
Xylenes (3)	SW8260B	<0.015	0.015 - 9	9 or less	>9
Fuel Additives & Blending Components					
(MTBE) Methyl Tert-Butyl Ether	SW8260B	<0.005	0.005 - 0.1	0.1 or less	>0.1
Lead	SW6010A	<17	17 - 50	>50 - 220	See Table 12.2
Other Petroleum Components					
Polychlorinated (4) Biphenyls (PCBs)	SW8082	<0.04	<0.04	<0.04	See Table 12.2
Naphthalenes (5)	SW8260B	<0.05	0.05 - 5	5 or less	>5
cPAHs (6)	SW8270C	<0.05	0.05 - 0.1	>0.1 - 2	>2
Other Petroleum Characteristics (Applies to soils contaminated with any petroleum product.)					
Odors	Smell	No detectable odor			
Staining	Visual	No unusual color or staining			
Sheen Test	See Footnote # 7	No visible sheen			

IMPORTANT: See Table 12.2 and the footnotes to this Table on the following pages!

Test soil for the parameters specified in Table 7.2.

****Does NOT include waste oil contaminated soils, which should be disposed of in a landfill.***

"<" means less than; ">" means greater than

Table 12.2 Description and Recommended Best Management Practices for Soil Categories in Table 12.1 (continues on next page)		
Category	**Acceptable Uses**	**Limitations**
Category 1 Soils: Soils with no detectable/ quantifiable levels of petroleum hydrocarbons or constituents using the analytical methods listed in Table 7.3 and are not suspected of being contaminated with any other hazardous substances.	• Can be used anywhere the use is allowed under other regulations. • Any use allowed for Category 2, 3 & 4 soils.	• These soils may have a slight petroleum odor, depending on the sensitivity of individuals, and this should be considered when reusing these soils.
Category 2 Soils: Soils with residual levels of petroleum hydrocarbons that could have adverse impacts on the environment in some circumstances.	• Any use allowed for Category 3 & 4 soils. • Backfill at cleanup sites above the water table. • Fill in commercial or industrial areas above the water table. • Road and bridge embankment construction in areas above the water table.	• Should be placed above the highest anticipated high water table. If seasonal groundwater elevation information is not available, place at least 10 feet above the current water table. • Should not be placed within 100 feet of any private drinking water well or within the 10 year wellhead protection area of a public water supply well. • Should not be placed in or directly adjacent to wetlands or surface water where contact with water is possible. • Should not be placed under a surface water infiltration facility or septic drain field. • Any other limitations in state or local regulations.
Category 3 Soils: Soils with moderate levels of residual petroleum contamination that could have adverse impacts on the environment unless re-used in carefully controlled situations.	• Any use allowed for Category 4 soils. • Use as pavement base material under public and private paved streets and roads. • Use as pavement base material under commercial and industrial parking lots.	• Should be placed above the highest anticipated high water table. If seasonal ground water elevation information is not available, place at least 10 feet above the water table. • Should be a maximum of 2 feet thick to minimize potential for leaching or vapor impacts. • Should not be placed within 100 feet of any private drinking water well or within the 10 year wellhead protection area of a public water supply well. • Should not be placed in or directly adjacent to wetlands or surface water. • Should not be placed under a surface water infiltration facility or septic drain field. • When exposed, runoff from area in use should be contained or treated to prevent entrance to storm drains, surface water or wetlands. • Any other limitations in state or local regulations.

Table 12.2 Description and Recommended Best Management Practices for Soil Categories in Table 12.1 (continued)		
Category	**Acceptable Uses**	**Limitations**
Category 4 Soils: Soils with high levels of petroleum contamination that should not be re-used except in very limited circumstances.	• Use in the manufacture of asphalt. • Use as daily cover in a lined municipal solid waste or limited purpose landfill provided this is allowed under the landfill operating permit.	**Landfill Limitations:** The soil should be tested for and pass the following tests: ➢ Free liquids test. Soils that contain free liquids cannot be landfilled without treatment. ➢ TCLP for lead and benzene. Unless exempt under WAC 173-303-071(3)(t), soils that fail a TCLP for lead or benzene must be disposed of as hazardous waste. ➢ Flammability test. Soils that fail this test must be disposed of as hazardous waste. ➢ Bioassay test under WAC 173-303-100(5). Soils that fail this test must be disposed of as hazardous waste. ➢ PCBs. Soils with a total PCB content of 2 ppm or more must be disposed of as hazardous waste. Soil used for daily cover should be stockpiled within the landfill lined fill area. Soil containing more than 10,000 mg/kg TPH should be buried immediately with other wastes or daily covered to limit potential worker exposure. Any additional limitations specified in the landfill permit or in other state or local regulations. **Asphalt Manufacturing Limitations:** Soil storage areas should be contained in a bermed area to minimize contact with surface water runoff from adjacent areas. Runoff from storage areas should be considered contaminated until tested to prove otherwise. Soil storage areas should also be lined and covered with a roof or secured tarp to minimize contact with precipitation and potential groundwater contamination. Leachate from storage areas should be considered contaminated until tested to prove otherwise. The soil should be tested for and pass the following tests: ➢ TCLP for lead and benzene. Unless exempt under WAC 173-303-071(3)(t), soils that fail a TCLP for lead or benzene must be disposed of as hazardous waste. ➢ Flammability test. Soils that fail this test must be disposed of as hazardous waste. ➢ Bioassay test under WAC 173-303-100(5). Soils that fail this test must be disposed of as hazardous waste. ➢ No detectable levels of PCBs in soil (<0.04 mg/kg). Precautions should be taken to minimize worker exposure to soil storage piles and any dust or vapors from these piles prior to feeding into the asphalt batch plant.
IMPORTANT: See the following page for additional information!		

Notes to Table 12.1:

Contaminated soils can be treated to achieve these concentrations but dilution with clean soil to achieve these concentrations is a violation of Washington State solid and hazardous waste laws.

(1) See Table 7.1 for a description of what products fall within these general categories. If the product released is unknown, use the limitations for gasoline range organics. If the soil is contaminated from releases from more than one product, use the limitations for both products. For example, if the release is a mixture of gasoline and diesel, the soil should be tested for components of both gas and diesel and the limitations for both fuels and their components used.

(2) The concentrations for diesel, heavy oil and mineral oil are not additive. Use the TPH product category most closely representing the TPH mixture and apply the limitations for that product to the mixture. ***The reuse of waste oil contaminated soil is not allowed due to the wide variety of contaminants likely to be present.***

(3) Value is total of m, o, & p xylenes.

(4) Value is the total of all PCBs. Only heavy oil and mineral oil contaminated soils need to be tested for PCBs. Soil contaminated with a spill from a regulated PCB containing device must be disposed of in a TSCA permitted landfill, regardless of the PCB concentration. Other PCB contaminated soils may be disposed of in a municipal solid waste landfill permitted to receive such materials, provided the concentration does not exceed 2 ppm PCBs (WAC 173-303-9904).

(5) Value is total of naphthalene, 1-methyl naphthalene and 2-methyl naphthalene. Only diesel and heavy oil contaminated soils need to be tested for naphthalenes.

(6) The value is the benzo(a)pyrene equivalent concentration of the following seven cPAHs, using the procedures in WAC 173-340-708(8). The seven cPAHs are as follows: benz(a)anthracene; benzo(b)fluoranthene; benzo(k)fluoranthene; benzo(a)pyrene; chrysene; dibenz(a,h)anthracene; and, indeno(1,2,3-cd)pyrene. Only diesel and heavy oil contaminated soils need to be tested for cPAHs. Soils contaminated with more than 1% polycyclic aromatic hydrocarbons, as that term is defined in WAC 173-303-040 (which is more expansive than the above list), must be disposed of as hazardous waste.

(7) No visible sheen observed on water when approximately one tablespoon of soil placed in approximately ½ liter of water held in a shallow pan (like a gold pan or similar container).

(8) A soil in a lower category can be used for uses specified in any higher category. This means that:

- A category 1 soil can be used for any use specified in categories 1, 2, 3 and 4.
- A category 2 soil can be used for any use specified in categories 2, 3 and 4.
- A categories 3 soil can be used for any use specified in categories 3 and 4.

(9) ***If an environmental site assessment or soil or groundwater analyses indicate contaminants other than common petroleum constituents and naturally occurring levels of metals are likely to be present in the soil of interest at the site (for example, solvents or pesticides), do not reuse the soil.*** The soil should instead be treated using appropriate technology to address all contaminants or landfilled at a solid waste or hazardous waste facility permitted to receive these materials.

(10) Soils in categories 2, 3 and 4 should be stockpiled consistent with the soil storage recommendations in Section 11.3 of this guidance.