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Environmental Media Management Plan
Water Street Lift Station Generator Replacement
220 Water Street Northwest
Olympia, Washington

April 1, 2020

Prepared for

City of Olympia
P.O. Box 1967
Olympia, Washington 98507

LANDAU ASSOCIATES

955 Malin Lane SW, Suite B
Tumwater, WA 98501
(360) 791-3178

Environmental Media Management Plan
Water Street Lift Station Generator Replacement
220 Water Street Northwest
Olympia, Washington

This document was prepared by, or under the direct supervision of, the technical professionals noted below.

Document prepared by: _____ David Johnson, PE
Project Manager

Document reviewed by: _____ Jeffrey Fellows, PE
Quality Reviewer

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Project Coordinator:	MCS

LANDAU ASSOCIATES

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FIGURES

APPENDICES

LIST OF ABBREVIATIONS AND ACRONYMS

AST ..... aboveground storage tank
bgs ..... below ground surface
BMP ..... best management practice
CFR ..... Code of Federal Regulations
City ..... City of Olympia
COPC ..... chemical of potential concern
DRO ..... diesel-range organics
Ecology ..... Washington State Department of Ecology
EMMP ..... environmental media management plan
EPA ..... U.S. Environmental Protection Agency
GPC ..... General Petroleum Corporation
GRO ..... gasoline-range organics
HASP ..... health and safety plan
LAI ..... Landau Associates, Inc.
MLLW ..... mean lower low water
ORO ..... oil-range organics
OSHA ..... Occupational Safety and Health Administration
PID ..... photoionization detector
RI/FS ..... remedial investigation/feasibility study
SWPPP ..... stormwater pollution prevention plan
UST ..... underground storage tank
VCP ..... Voluntary Cleanup Program
VOC ..... volatile organic compound
WAC ..... Washington Administrative Code

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1.0 INTRODUCTION AND PURPOSE

Landau Associates, Inc. (LAI) has prepared this Environmental Media Management Plan (EMMP) in support of the Water Street Lift Station Generator Replacement project, located at 220 Water Street Northwest in Olympia, Washington (Site; Figure 1).

Numerous environmental investigations have been performed at the Site under the Washington State Department of Ecology's (Ecology) Voluntary Cleanup Program (VCP). During the investigations, chemicals of potential concern (COPCs) were identified at the Site; COPC concentrations exceed Model Toxic Control Act cleanup levels. Site investigation and cleanup are ongoing.

Lift stations feature complex mechanical and electrical systems that are susceptible to chronic or acute failure, and must be kept in good working order to prevent sewage overflow, wastewater spills, and associated impacts to human health and the environment.

The emergency backup power generator at the Site has exceeded its service life. Backup power is critical to lift station infrastructure, and the generator will be replaced to ensure reliable operation of the lift station and to prevent sewage overflow to streets and Budd Inlet. To accommodate installation of a new generator, the City of Olympia (City; project owner) proposes limited demolition of existing buildings, foundations, and associated equipment as well as shallow soil removal. The new generator will be installed outside the existing lift station, within a sound enclosure. Other proposed improvements include electrical and control upgrades as well as asphalt and building restoration and landscaping post-demolition.

In this EMMP, LAI has provided methods and procedures for managing known and potentially contaminated media that may be encountered at the Site. The EMMP identifies COPCs that may be encountered during construction of the proposed improvements, and provides protocols for identification, temporary stockpiling, transportation, removal, and disposal of media contaminated with COPCs as well as appropriate response actions and communications.

The EMMP has been prepared to:

- Facilitate coordination between the City and contractors to ensure construction activities are protective of human health and the environment.
- Provide protocols, best management practices (BMPs), and procedures for proper handling, management, relocation, or disposal of known and potentially contaminated media.
- Provide contractors with information regarding areas of the Site with known and potentially contaminated media and with guidance for identifying potentially contaminated media.
- Detail the requirements of the health and safety plan (HASP) and set forth general provisions for responding to unanticipated site conditions.
- Provide protocols for sampling and analysis of potentially contaminated media, if warranted.

- Outline the requirements for documenting contaminated media encountered during construction of the proposed improvements.

2.0 SITE DESCRIPTION AND BACKGROUND

The following sections provide an overview of the Site, including a description of the Site geology and hydrogeology, a summary of previous environmental investigations, and a discussion of known and potentially contaminated media (based on the results of those investigations).

2.1 Site Description

The Site encompasses Thurston County Tax Parcels No. 78507200100 (Former General Petroleum Corporation [GPC] property, referred to as the "GPC property," currently owned by the City of Olympia Parks, Arts and Recreation Department) and No. 78507200500 (Water Street Lift Station property, currently owned by the City of Olympia Public Works Department; Figure 2). The Site also includes Washington State-owned aquatic lands, located west of the City-owned parcels and managed by the Washington State Department of Natural Resources.

The existing lift station was originally constructed in 1961 and upgraded in 1975. LAI was not able to find documentation regarding Site use before 1961. Currently, the Site layout includes an access area, enclosed by a chain-link fence, and a parking lot to the north. The Site is bounded by commercial properties to the south and east, by Budd Inlet and Puget Sound to the west, and by Percival Landing Park to the north. A subsurface sheet pile wall is located along the shoreline west of the Site. Site topography is generally flat.

2.2 Geology and Hydrogeology

According to the 2016 Supplemental Work Plan prepared by Integral Consulting, the Site and the surrounding area were once a mudflat. Between 1909 and 1911, approximately 2.3 million cubic yards of sediment was removed from Budd Inlet and redeposited to create 29 city blocks, including Percival Landing. This project is known as the Carlyon Fill.

The soil profile at the Site includes three distinct strata:

- Surficial fill soils containing slightly gravelly to silty, medium dense sand, approximately 12 to 18 feet thick. Surficial soils extend to an approximate elevation of 6 to 0 feet mean lower low water (MLLW).
- Loose sand with a bottom elevation of approximately −6 to −15 feet MLLW, approximately 5 to 20 feet thick.
- Medium dense to dense sand and silt, extending below elevation −6 to −15 feet MLLW. Density increases with depth.

Based on Anchor QEA's 2013 draft Remedial Investigation/Feasibility Study (RI/FS), groundwater flow direction at the Site is assumed to be to the west toward Budd Inlet. Anchor QEA reports an approximate depth-to-groundwater of 5 to 10 feet below ground surface (bgs). In 2018, LAI installed a groundwater monitoring well (MW-1) near the existing lift station, at the western edge of the Site. In

monitoring well MW-1, groundwater was observed at 8 feet bgs, and 0.5-foot, tidally influenced groundwater fluctuations were noted during a 7-day monitoring period in February 2020 (LAI 2018).

2.3 Summary of Environmental Investigations

Since 1998, the City has performed several environmental investigations and interim cleanup actions at the Site under Ecology's VCP, Project No. SW1134.

From the 1920s to at least 1948, GPC operated a bulk fuel-storage facility in the northern portion of the Site (Thurston County Tax Parcel No. 78507200100). The facility housed several aboveground storage tanks (ASTs), underground storage tanks (USTs), and underground pipelines. In, or around, 1966, GPC became the Mobil Oil Company and City Fuel Oil Service; it continued operations at the Site until at least 1978. The City purchased the northern portion of the Site in 1978, and began the first phase of the Percival Landing Park redevelopment (Integral Consulting 2016).

The Water Street Lift Station property (Thurston County Tax Parcel No. 78507200500) features a 600-square-foot, concrete structure (part of the lift station) that is currently in use. A leaking UST at the lift station was investigated in 1998, and decommissioned in-place in 1999 (Anchor QEA 2013).

As noted in its 2017 Opinion Letter, Ecology understands that the former GPC property and the Water Street Lift Station property are separate facilities with distinct environmental releases; however, data collected to date suggest that releases from the facilities have comingled. As a result, the Ecology VCP treats the two properties as one cleanup site. In other documents (Integral Consulting 2016), the City-owned parcels and State-owned aquatic land have been referred to collectively as "South Percival Landing," but are referred to herein as "the Site."

The City has conducted the following interim actions at the Site:

- In-place closure of the Water Street Lift Station UST in 1999.
- Excavation of petroleum-contaminated soil along the western shoreline and installation of a sheet pile wall in 2010 and 2011 during reconstruction of the Percival Landing Park shoreline walkway.

The City submitted a draft RI/FS to Ecology in 2013 (Anchor QEA), and provided a supplemental work plan in 2016 (Integral Consulting) to address data gaps. In 2018, LAI installed monitoring well MW-1 in support of the City's Water Street Tide Gate project. During installation of the well, a sheen was observed between 10 and 12.5 feet bgs, and a petroleum-like odor was noted between 10 and 20 feet bgs (LAI 2018).

In its 2017 Opinion Letter, Ecology determined that the nature and extent of contamination at the Site had not been fully defined, and that cleanup standards and points of compliance had yet to be established. As such, Ecology concluded that selection of a final cleanup remedy could not be completed, and additional investigations would be required to complete Site cleanup (2017). Ecology

reiterated this conclusion in its State Environmental Policy Act Comment Letter (2019), written in response to the Water Street Lift Station Generator Replacement project.

Site soils contain known contamination from petroleum releases related to the former GPC structures and UST. Additionally, a City-owned property directly north of the Site, referred to as "North Percival Landing," includes known contamination, and has been the subject of significant remedial cleanup actions (Integral Consulting 2016).

Historically, the North Percival Landing property included the former Unocal Bulk Plant and Hulco Property. Operated from 1910 to 1993, the Unocal Bulk Plant housed several USTs and ASTs as well as a loading dock that extended from Olympia Avenue to Budd Inlet. From approximately 1924 to 1980, the Hulco Property was a bulk fuel-storage facility, operated by different companies, including Shell Oil Company and Atlantic Richfield Company (Integral Consulting 2016).

The City acquired the former Unocal Bulk Plant and Hulco Property in 1996, and began developing Percival Landing Park. In 1995 and 2001, voluntary cleanups were conducted at the North Percival Landing property to remove soil contaminated with petroleum hydrocarbons (Anchor QEA 2013). Following the 2001 cleanup, Ecology issued a no further action letter for the property, with a restrictive environmental covenant to address residual soil and groundwater contamination that exceeded applicable cleanup levels.

3.0 MEDIA MANAGEMENT PLAN

The following sections include general protocols for managing media during construction of the proposed improvements. Because the nature and extent of Site contamination has not been fully defined, LAI has assumed that contamination could be present throughout the Site. This conservative approach should be used, pending additional Site investigation and characterization.

Construction activities are planned in areas of known petroleum-contaminated soil and groundwater, and could result in the discovery of additional contamination associated with previously unknown/undiscovered waste materials. The site has been characterized as being contaminated with petroleum hydrocarbons and various byproducts, and there is potential for other sources of contamination to be present. Construction personnel should be aware of the presence of petroleum-contaminated soil and groundwater, and should be able to recognize other potentially contaminated materials. Protocols set forth in the EMMP should be implemented during project-related intrusive work to maintain work zone health and safety and to mitigate further impact to the environment.

3.1 Chemicals of Potential Concern

Based on available data (Anchor QEA 2013), primary COPCs at the site are petroleum hydrocarbons, including gasoline-range organics (GRO) and diesel/oil-range organics (DRO/ORO); volatile organic compounds (VOCs), including benzene, toluene, ethylbenzene, and total xylenes; and total naphthalene compounds.

3.2 Media of Concern

As a conservative measure, LAI has assumed that contamination could exist throughout the Site, and may be encountered during construction of the proposed improvements. Soil and groundwater are the primary media of concern at the Site. The nature and extent of Site contamination has not been fully defined or characterized (Ecology 2017). Prior investigations have identified areas of known contamination at the Site, as shown on figures in the 2013 draft RI/FS (Anchor QEA) and the 2016 Supplemental Work Plan (Integral Consulting). Approximate areas of petroleum-impacted soil and groundwater are shown on Figure 2. COPC concentrations exceed applicable cleanup levels.

3.2.1 Soil

Based on available data (Anchor QEA 2013), COPCs are likely to be present between approximately 4.5 and 15 feet bgs. The highest concentrations are likely located in the western portion of the Site, adjacent to the City-owned UST that was decommissioned and closed in-place in 1999 and in the vicinity of the former GPC petroleum tanks and product pipeline (Figure 2). Overlying pavement, landscaping, boardwalk, and shoreline habitat cover limit the potential for exposure to contaminated soils. Contaminated soil in the western portion of the Site will be exposed only during construction or infrastructure-maintenance activities. Soil contamination above 4.5 feet bgs is not well documented. The contractor should assume that soils at this elevation are contaminated, and should manage the

soils in accordance with the conditions outlined herein. During construction, all excavated soil should be considered petroleum contaminated and managed in accordance with the conditions outlined herein.

3.2.2 Soil Vapor

COPCs are likely present in soil vapor at the Site, with the highest concentrations in the western portion of the Site, adjacent to the City-owned UST and former GPC petroleum tanks and product pipeline (Figure 2). Vapor intrusion into the indoor air space of existing buildings is a pathway of concern; however, vapor intrusion is not a concern during intermittent periods of Site construction and/or maintenance activities. Overlying pavement, landscaping, boardwalk, and shoreline habitat cover limit the potential for exposure to contaminated soil vapor. The Site does not include occupied buildings, and management of vapor intrusion will not be required during construction of the replacement generator. In the future, if the Site is developed with occupied structures, additional characterization will be required.

3.2.3 Groundwater

COPCs are likely present in Site groundwater, but there has been limited characterization of the shallow groundwater-bearing zone. Based on the draft RI/FS (Anchor QEA 2013), groundwater flow direction at the Site is assumed to be to the west toward Budd Inlet. Anchor QEA reports an approximate depth-to-groundwater of 5 to 10 feet below ground surface (bgs).

Given the depth to groundwater and the proposed scope of construction, Site groundwater is not expected to be impacted during construction. LAI anticipates that groundwater management will not be required. If encountered in excavations, groundwater should be controlled with dewatering well points or pumped via sumps. Groundwater will likely require treatment prior to sanitary or storm sewer discharge. If potentially contaminated groundwater will be treated and discharged to a sanitary sewer, an industrial waste discharge authorization and a permit from the City and LOTT Clean Water Alliance will be required. If groundwater will be routed to stormwater-drainage infrastructure, City authorization and an Ecology National Pollutant Discharge Elimination System permit will be required. Offsite disposal is an alternative if only small or *de minimus* quantities of groundwater are encountered.

3.2.4 Stormwater

During construction, stormwater likely will not be managed as potentially contaminated media, if proper measures are taken by the contractor. The contractor should take measures to prevent stormwater from coming into contact with petroleum-contaminated soils (potential and known). Stormwater that comes into contact with contaminated soils must be treated as contaminated media. A project-specific stormwater pollution prevention plan (SWPPP) should be instituted, if required by a construction stormwater general permit. The SWPPP should include methods for administering

stormwater BMPs, and should identify erosion- and sediment-control measures for minimizing accumulation of potentially contaminated stormwater.

3.3 Plan Implementation

This section describes protocols for worker safety, Site preparation, identification of potentially contaminated soil, confirmation sampling and analysis, and proper handling and management of known and potentially contaminated soil. Management of known and potentially contaminated soil will be performed by the contractor at the City's direction or at the direction of the City's authorized environmental professional.

The protocols in this section should be implemented by workers who may be exposed to known and potentially contaminated soil, including City personnel, construction contractors, and utility contractors.

3.3.1 Managing Known or Potentially Contaminated Media

Excavation and associated subsurface activities with the potential to encounter known or potentially contaminated media must be conducted by personnel certified by the Occupational Safety and Health Administration (OSHA) and the Washington Industrial Safety and Health Act to work at hazardous waste sites.

Work involving the excavation and handling of known or potentially contaminated media must be performed under a contractor-prepared, Site-specific HASP. The HASP must satisfy Code of Federal Regulations (CFR) 29.1926.120 requirements, and must be approved by the City.

Each contractor will be responsible for ensuring the safety of its employees, including compliance with applicable OSHA regulations and project plans and specifications. As a conservative measure, LAI has assumed that soil encountered during the Water Street Lift Station Generator Replacement project will be managed as petroleum-contaminated soil.

3.3.2 Instructing Workers

Excavation crews, including supervisors and workers, must be provided with the EMMP. Personnel are required to receive training regarding the characteristics of hazardous substances that may be encountered and the identification of suspect contaminated media. If potentially contaminated media are encountered, personnel should have the authority to halt excavation and carry out the required procedures for identification and screening. Contractors excavating known or potentially contaminated soil will have successfully completed the 40-hour Hazardous Waste Operations and Emergency Response training, in accordance with 29 CFR 1910.120. All contractors will prepare a site-specific HASP that will be available to, and implemented by, each worker. A copy of the contractor-provided HASP must be maintained on site, in accordance with CFR 29.1926.120.

3.3.3 Field Screening

This section describes procedures that may be used by the City or its authorized environmental professional to field-screen and characterize known or potentially contaminated media at the Site. The following field-screening methods can be used to evaluate potentially contaminated soils:

- Petroleum sheen testing and
- Vapor screening with a photoionization detector (PID) or similar equipment.

Sheen testing can be used on soil that exhibits characteristics of petroleum hydrocarbon contamination. A sheen test is conducted by submerging a sample of the soil in tap water in a clear glass jar. After agitating the jar, observe and record the amount of sheen detected (i.e., light, medium, or heavy). Sheen results must be interpreted by an authorized environmental professional, who can make a determination of petroleum hydrocarbon contamination. Soils with a positive sheen test should be considered contaminated, unless the result is demonstrably contradicted by analytical sampling.

PID screening can be used on soils exhibiting petroleum- or chemical-like odors. PID field-screening is conducted by sealing a representative soil sample in a plastic bag, and thoroughly agitating the bag before leaving it to rest for 5 minutes. After the soil has rested, a PID probe is inserted into the bag headspace, and allowed to equilibrate with the sample vapor. A sustained detection, or a reading above ambient conditions, generally indicates VOC contamination. The selected PID should use a 10.6-electron volt lamp capable of detecting most common aromatic and aliphatic hydrocarbon compounds, and should be calibrated daily with a 100-parts per million isobutylene standard to support accurate detection. Additional field-screening equipment, including explosive gas or dust meters, can be used, depending on observed contaminants and prior field-screening results.

3.3.4 Excavation

Foundation excavation or utility trenching should be completed with hydraulic excavating equipment appropriate for spatially sensitive extraction of potentially contaminated soil.

Excavation should be performed in a manner that limits the potential for contaminated soil to mix with uncontaminated soil. As a conservative measure, LAI has assumed that excavated soil will be managed as petroleum-contaminated soil.

3.3.5 Stockpiling

Excavated soil should be stockpiled and segregated for waste characterization and determination of proper disposal requirements. Immediately after excavation, the contractor should place potentially contaminated soil in stockpiles. Pending the results of laboratory analysis, potentially contaminated soil should remain in stockpiles. The contractor should maintain separate stockpiles to prevent comingling of imported project materials, imported soil, and miscellaneous construction debris. The

contractor shall be responsible for preventing known clean import soil from coming into contact with potentially contaminated soil.

Where contamination is suspected, the contractor should place soil in staging areas for disposal characterization. The contractor should use standard roll-off boxes intended for soil waste containment. Standard roll-off box sizing is typically 15, 20, 25, 30, or 40 cubic yards; the contractor shall select the appropriate size for the estimated soil volume produced during construction. The roll-off boxes should be lined with plastic sheeting, at least 6 millimeters thick; when not in use, the boxes should be covered to prevent stormwater cross-contamination. The cover should be weighted or otherwise secured/sealed to prevent wind removal or tearing. The contractor should cover and anchor each stockpile at the end of the workday. The contractor should periodically inspect the stockpiles and perform maintenance as necessary. The contractor shall restrict the spread of contaminated soil over the general project area. The quality, volumes, and aspects of the stockpiles should be kept in a contractor inventory. The contractor shall anticipate delays to the disposal or reuse of soil; such delays could be caused by sampling, testing, or review of analytical results.

3.3.6 Waste Characterization

Soil confirmed to contain contaminants in excess of the regulatory limits (defined in Appendix A and Section 3.3.8) must be sampled to provide a waste-characterization profile. Characterization should be performed in accordance with relevant regulatory requirements and the disposal facility's acceptance criteria. Waste should be characterized before it is transported for offsite disposal or reuse.

Samples collected for characterization should be analyzed in a manner consistent with the type of contamination suspected (e.g., petroleum hydrocarbons) and in accordance with disposal/treatment requirements. The following contaminants have been identified at the Site:

- **Petroleum hydrocarbons:** Petroleum hydrocarbon products, including gasoline-, diesel-, and oil-range hydrocarbons and associated volatile organic compounds. Contamination present in soil and groundwater would exhibit one or more of the following characteristics: iridescent sheen; black, oily, tarry, or greasy appearance; petroleum-like (gas, diesel, motor oil, or kerosene) odor; and dark or grey staining in soil.
- **Other:** The above list is not exhaustive. Construction personnel should be diligent in looking for excavated soils or materials with an appearance and/or behavior different from typical soil/groundwater. Soils or materials with chemical or unidentifiable odors; viscous or odd-colored liquids; colored powders/dusts/crystals; or discarded, industrial-type equipment or containers should be assumed to be potentially contaminated and handled with caution.

If the above conditions are observed during construction activities, work should be suspended in the affected area(s), and the City should be notified immediately. Similar procedures are to be followed if other indications of contamination, such as soil with an unusual appearance or odor, are observed during construction activities.

Beyond those outlined here, discrete contamination or other potential sources of contamination, with specialized management and disposal requirements, have not been encountered at the Site. (Contaminant sources with specialized management and disposal requirements may include chlorinated solvents; industrial wastes, including drums and tanks; chemically treated wood products, including creosote-treated poles and other chemical pressure-treated lumber; and/or other regulated materials/hazardous substances that may be a health and safety risk.) These materials could be encountered during construction, and special procedures may be required to identify and manage the materials appropriately.

3.3.7 Characterization Sampling

LAI anticipates that less than 30 cubic yards of soil will be excavated during construction of the proposed improvements. Table 6.9 in Ecology's *Guidance for Remediation of Petroleum Contaminated Sites* (2016) provides general guidelines for the number of samples to be collected from stockpiles of contaminated soil. Hand tools should be used to collect discrete grab samples from 6 to 12 inches beneath the pile surface. Samples should be preserved in accordance with Ecology requirements. Sampling locations should be based on field instrument readings; samples should be collected from areas of the stockpile where contamination is most likely to be present. If field screening does not indicate contamination, divide the pile into sections, and sample each section.

Based on an assumed volume of less than 30 cubic yards, three discrete samples should be collected from soil stockpiled in a single roll-off bin (per Ecology's 2016 guidance and as outlined above) and composited into one sample. Waste characterization stockpile sampling will include:

- Logging information for each soil sample, including the approximate sample location, the Unified Soil Classification System description, physical evidence (visual observations and olfactory indications of potential contamination), and field screening results.
- Transferring soil samples into laboratory-supplied containers in accordance with proper sample-handling procedures. Each sample container should be labeled with the media type, collection date and time, sample identification and number, project name and number, and sampler's initials.
- Completing and maintaining the required chain-of-custody laboratory forms and placing samples in a chilled cooler for transport to an analytical laboratory accredited by Ecology.

Based on the results of previous environmental investigations and field screening, samples will be analyzed for the following COPCs. (Analysis may include additional COPCs, depending on the requirements of the disposal facility):

- GRO by Northwest gasoline-range total petroleum hydrocarbon extended (NWTPH-Gx),
- DRO/ORO by Northwest diesel-range total petroleum hydrocarbon extended (NWTPH-Dx),
- VOCs by U.S. Environmental Protection Agency (EPA) Method 8260, and
- Resource Conservation and Recovery Act 8 Metals by EPA Method 6000/7000.

Soil samples will be analyzed with an appropriate turnaround time to expedite proper disposal and minimize disruption to the construction schedule.

3.3.8 Analytical Results Evaluation

The City or its authorized environmental professional will complete a quality control/quality assurance review of laboratory analytical results. Analytical results will be used to determine appropriate methods of soil reuse and disposal. Petroleum-contaminated soil can be categorized as follows:

- Category 1: Soils with no detectable/quantifiable levels of petroleum hydrocarbons; soils not suspected of being contaminated with any other hazardous substances.
- Category 2: Soils with residual levels of petroleum hydrocarbons; in some circumstances, soils could have adverse impacts on the environment.
- Category 3: Soils with moderate levels of residual petroleum contamination; soils could have adverse effects on the environment, unless reused in controlled situations.
- Category 4: Soils with high levels of petroleum contamination; soils should not be reused except in very limited circumstances.

The information in Ecology's *Table 12.1 Guidelines for Reuse of Petroleum-Contaminated Soil* and *Table 12.2 Description and Best Management Practices for Soil Categories in Table 12.1* (2016), reproduced in Appendix A, should be used in conjunction with the laboratory analytical results to determine appropriate methods of offsite disposal or reuse. Soils confirmed to be contaminated at, or above, category 3 must be removed from the site within 90 days of confirmation.

3.3.9 Loading

Excavated soil will be loaded directly into a single roll-off bin or box, in accordance with Section 3.3.5. Once soil has been characterized for disposal or reuse, the roll-off bin can be scheduled for transport. Loaded soil should be managed to prevent added moisture, fugitive dust emission, and spills during transit.

3.3.10 Transport

Only a licensed waste hauler should transport excavated material. Applicable local, state, and federal cargo-transportation requirements should be adhered to in accordance with the waste characterization. Transport of hazardous or dangerous waste requires a hazardous waste manifest; a bill of lading is required for non-hazardous waste. The manifest or bill of lading shall conform to Washington State Department of Transportation regulations as well as applicable federal, state, and local requirements. The generator's portion of the manifest or bill of lading shall be signed by an authorized City representative.

3.3.11 Disposal Facilities

To characterize and profile incoming waste, disposal and recycling/reuse facilities require representative analytical data as well as information regarding the waste generator. Individual facility

permits have site-specific restrictions on accepted waste types; however, general profiling/analytical requirements are similar across facilities. Hazardous and non-hazardous waste transport must be documented via a hazardous waste manifest or bill of lading, respectively.

Treatment, disposal, recycling, or reuse of contaminated media shall be in accordance with applicable laws and regulations. If contaminated soil is to be disposed of in a landfill but is not characterized as dangerous waste, in accordance with Washington Administrative Code (WAC) 173-303, the contractor shall dispose of the soil in a licensed Subtitle D landfill, approved by the City or its authorized environmental professional. If the contaminated soil is characterized and designated as hazardous and dangerous waste, as outlined in WAC 173-303, the soil shall be sent to a Subtitle C Landfill, approved by the City or its authorized environmental professional. The contractor shall arrange transport of the contaminated soil with the facility operator.

3.3.12 Records and Documentation

The City or its authorized environmental professional shall maintain records of waste determinations, including the results of analyses performed, substances and sample locations, the time of collection, and other pertinent data. The contractor shall document transportation and disposal methods, dates, and quantities of waste as well as the names and addresses of each transporter and the disposal or reclamation facility. The contractor and the City's environmental professional shall maintain the waste manifests, waste profile sheets, and documentation of final disposal or reuse locations. Contractor and environmental professional records shall be provided to the City.

4.0 NOTIFICATIONS AND REPORTING

If unanticipated environmental conditions or unexpected materials are encountered, excavation or construction should be suspended, and the contractor should notify the City immediately. To satisfy applicable local, state, and federal regulations, findings, actions taken, and other relevant site conditions should be documented. Documentation may include a focused technical memorandum or other formats appropriate to regulatory requirements; the type of action/response taken; and the nature, extent, and location of the suspected contamination.

Regulatory agency notification will depend on the nature of the environmental conditions and materials. The City shall be notified immediately; its representatives will coordinate with regulatory agencies in accordance with applicable local, state, and federal regulations and requirements.

5.0 USE OF THIS PLAN

Landau Associates, Inc. (LAI) prepared this Environmental Media Management Plan for the exclusive use of the City of Olympia (City) for specific application to the Water Street Lift Station Generator Replacement project in Olympia, Washington. Use of this plan by third parties, for extensions of the project, or for any other project, without review and authorization by LAI, shall be at the user's sole risk. LAI warrants that within the limitations of scope, schedule, and budget, its services have been provided in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality, under similar conditions as this project. LAI makes no other warranty, either express or implied.

6.0 REFERENCES

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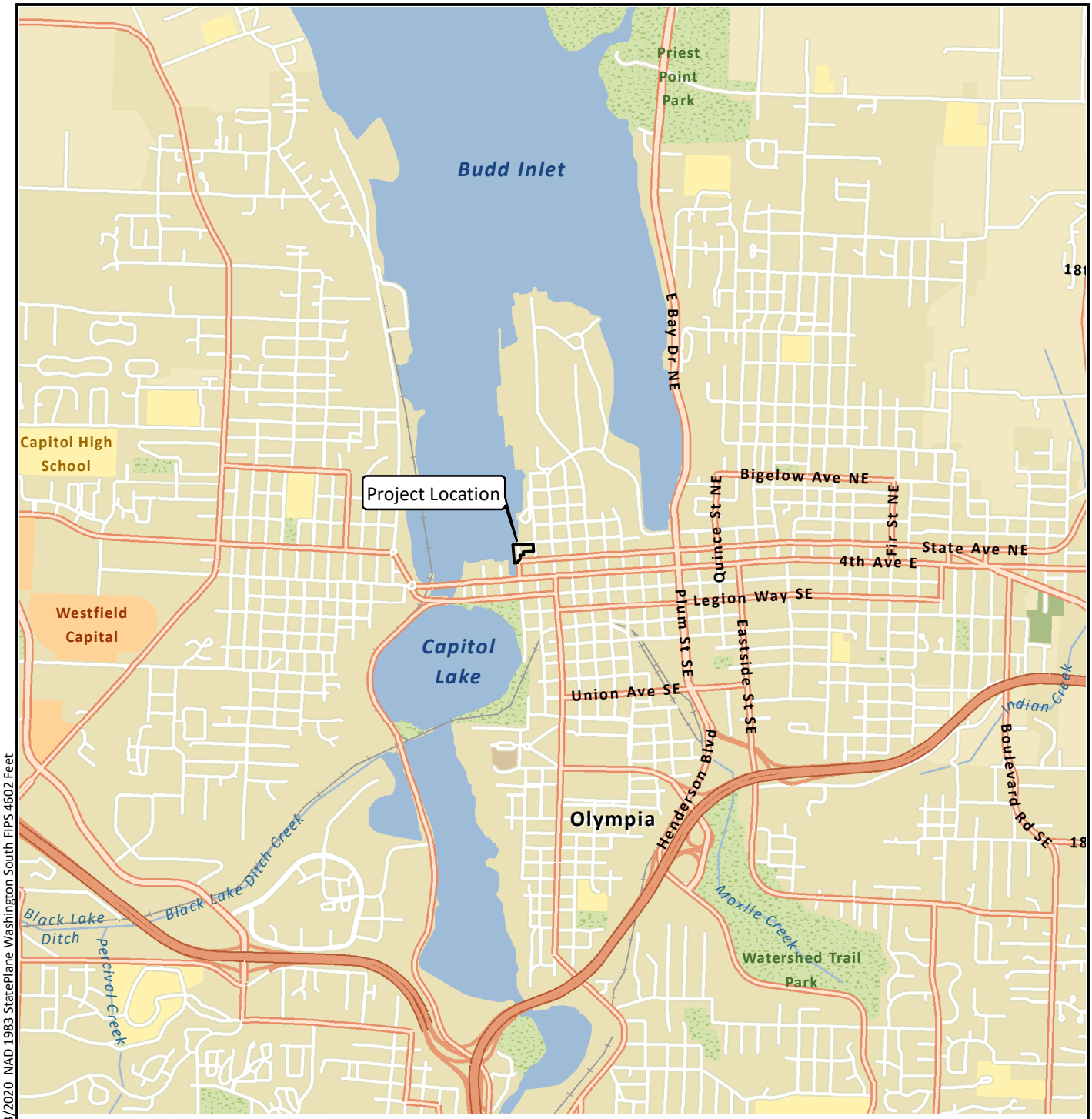

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City of Olympia
Water Street Lift Station
Generator Replacement EMMP
Olympia, Washington

Vicinity Map

Figure
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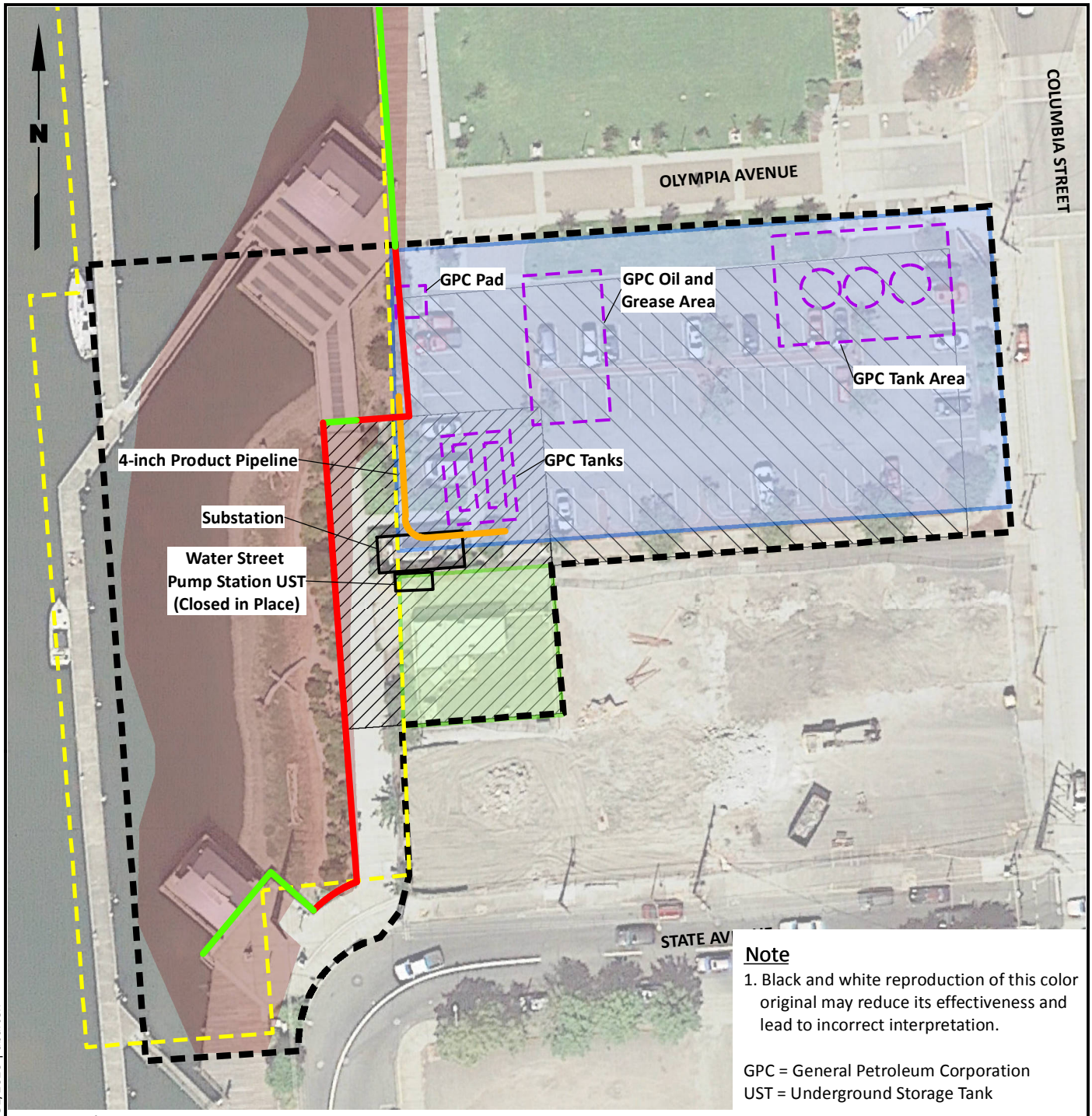

Note

1. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

GPC = General Petroleum Corporation
UST = Underground Storage Tank

Legend

- Sheetpile Wall: 12- to 20-ft Embedment
- Sheetpile Wall: 60-ft Embedment
- Approximate Area of Petroleum-Impacted Soil and Groundwater
- Approximate Area of Potentially Petroleum-Impacted Soil and Groundwater
- City of Olympia Public Works Property Boundary
- Historical General Petroleum Corporation Property Boundary
- 2011 Excavation Area
- Approximate Location of 1947 Historical Feature
- Approximate Site Boundary
- Approximate DNR Lease Boundary

0 60 120

Scale in Feet

Data Source: Integral Consulting, Inc. 2016; Anchor QEA 2013
Base Map Source: ©Google Earth Pro 2020

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City of Olympia Water Street Lift Station Generator Replacement EMMP Olympia, Washington	**Site Map**	Figure 2

APPENDIX A

Table 12.1 – Guidelines for Reuse of Petroleum-Contaminated Soil and *Table 12.2 – Description and Recommended Best Management Practices for Soil Categories in Table 12.1*

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
Ethylbenzene	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 12.1 Guidelines for reuse of petroleum-contaminated soil.

Table 12.2 Description and Recommended Best Management Practices for Soil Categories in Table 12.1 (continued 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 should be odor-free.
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.	• These soils may have a slight petroleum odor, depending on the sensitivity of the individual. This should be considered when reusing these soils. • 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 next page).

Table 12.2 (continued) Description and Recommended Best Management Practices for Soil Categories in Table 12.1

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. See Appendix C for how to calculate a toxic equivalent concentration. 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 Subsection 11.3 of this guidance.