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**Subject**: Remedial Investigation/Feasibility Study Work Plan Addendum for Supplemental 2<sup>nd</sup>

Street Right-of-Way Soil Investigation at the Quiet Cove Site, Anacortes, Washington

Ecology Agreed Order No. DE 11346

This memorandum presents an addendum to the Washington State Department of Ecology (Ecology)-approved Remedial Investigation/Feasibility Study (RI/FS) Work Plan (GeoEngineers 2017a) and Sampling and Analysis Plan (SAP; GeoEngineers 2017b) for further characterization of the 2<sup>nd</sup> Street Right-Of-Way (ROW) located at the Quiet Cove Site (Site) located in Anacortes, Washington. This RI/FS Work Plan Addendum is being provided on behalf of the Port of Anacortes (Port) at the request of Ecology and describes additional soil sample collection and chemical analysis activities that will be completed at the Site to fill data gaps identified by Ecology to further define the nature and extent of Site contaminants within the 2<sup>nd</sup> Street ROW.

In accordance with the Ecology-approved RI/FS Work Plan and as required by Agreed Order No. DE 11346 (Agreed Order), remedial investigation activities are being performed by the Port to collect sufficient environmental data to evaluate cleanup action alternatives to address Site contamination. Pursuant to the Agreed Order, the Port has completed RI sampling and analysis in accordance with the RI/FS Work Plan and recently completed an Interim Action to remediate a portion of the Site to facilitate development of the property for commercial purposes. Based on review of the RI and Interim Action soil, groundwater and sediment data, Ecology identified at a March 3, 2022 meeting that additional sampling and analysis is required to more completely define the nature and extent of contamination at the Site for the purposes of completing the RI. The following areas were identified by Ecology as containing data gaps:

- 2nd Street ROW located north of the Interim Action area where residual contamination remains in place following remedial excavation.
- Riparian Area located west of the Interim Action area above mean higher high water (MHHW).
- Southern Property Boundary Area located southwest of the Interim Action area where residual contamination remains in place following remedial excavation.
- Sediment Area located west of the Riparian Area below MHHW.

This Work Plan addendum is intended to address Ecology's requirement for further characterization of the 2<sup>nd</sup> Street ROW only. Future Work Plan Addenda will be developed to fill identified data gaps in other portions of the Site as indicated above. The purpose of this RI/FS Work Plan addendum is to describe the sample collection and analysis that will be completed within the 2<sup>nd</sup> Street ROW to address identified data gaps in the characterization of soil contamination. The additional characterization within the 2<sup>nd</sup> Street

RI/FS Work Plan Addendum for Supplemental 2<sup>nd</sup> Street ROW Soil Investigation April 12, 2022 Page 2

ROW is being expedited in advance of paving activities that are being planned by the Port to further develop the Site. Environmental data collected as part of this addendum will be integrated into the RI Report for Ecology approval and used in the evaluation and selection of cleanup actions for the upland portion of the Site.

### **BACKGROUND**

### **Location and Description**

The 0.8-acre Quiet Cove property is located between 2<sup>nd</sup> and 3<sup>rd</sup> Streets west of O Avenue and is being used by the Port to support operations and services for the Curtis Wharf International Shipping Terminal facility (Curtis Wharf). The ground surface within the property boundary is generally flat with an approximate elevation of 13 feet above mean lower low water (MLLW). Within the surrounding area, the ground surface gently slopes to the northwest toward the southern shoreline of Guemes Channel.

Historically, the Quiet Cove property was used for bulk fuel storage and distribution from approximately 1909 to at least 1977. Between 1997 and 2013, the property operated a storage yard for marine vessels and recreational vehicles, and warehouse space for lease to various tenants for commercial purposes. In 2013, the property was purchased by the Port to support terminal operations at Curtis Wharf.

### **Previous Investigations and Cleanup Actions**

Environmental investigations to evaluate impacts from historical property and adjacent property operations included a soil and groundwater investigation by ThermoRetec in 2000 to characterize the type and extent of petroleum contamination located within the N Avenue ROW southwest of the Site in conjunction with a public beach access and parking area development project being completed by the City (ThermoRetec 2000), a focused site investigation of the Quiet Cove property by GeoEngineers through an Integrated Planning Grant (IPG) in 2014 (GeoEngineers 2014) and the initial RI sampling completed by the Port in accordance with the Ecology-approved RI/FS Work Plan.

Between August and November 2020 an interim action cleanup (Interim Action) was performed in accordance with the Ecology-approved Interim Action Work Plan (IAWP; GeoEngineers 2020) to address petroleum contaminated soil resulting from historical bulk fueling operations to clear environmental encumbrances prior to development of the Port-owned property at the Site. The Interim Action resulted in decommissioning existing monitoring wells located within the remedial excavation footprint, demolishing existing building structures and paved surfaces and excavation of petroleum hydrocarbon-related contaminants resulting from historical land use. Details of the Interim Action are described in the Interim Action Construction Completion Report (GeoEngineers 2021a). Currently, quarterly groundwater monitoring is being performed to document changes in groundwater conditions resulting from the Interim Action in accordance with the Ecology-approved Post-Interim Action Construction Monitoring Plan (GeoEngineers 2021b).

#### **Regulatory Framework**

On February 11, 2016, the Port entered Agreed Order No. DE 11346 with Ecology. Under the Agreed Order, RI activities are being completed by the Port in accordance with the Ecology-approved RI/FS Work Plan to supplement and fill identified data gaps in existing data for the Site, and to determine the nature and extent



of contamination in site mediums, and to complete the RI/FS for the Site as required by the Agreed Order. An Interim Action was completed by the Port in 2020 to address petroleum contaminated soil resulting from historical land use and clear environmental encumbrances prior to development of the Port-owned property at the Site.

Following Ecology's determination that sufficient data has been collected to address identified data gaps, post-interim action groundwater monitoring results in conjunction with other existing environmental data will be used to support completion of the RI/FS as required by the Agreed Order to screen and select a remedial alternative to address the remaining contamination at the Site.

## SUPPLEMENTAL SOIL SAMPLING AND ANALYSIS - 2ND STREET ROW

Additional soil sampling and analysis is proposed to further characterize contaminated soil in the upland portion of the Site within the 2<sup>nd</sup> Street ROW. The proposed sample locations are presented on Figure 1. Additional sampling and analysis as part of this supplemental investigation include:

- Completion of eight soil borings using direct-push (DP) drilling methods.
- Collection of continuous soil cores at each location to document soil conditions.
- Submittal of selected soil samples for chemical analysis to define the nature and extent of contamination with the 2<sup>nd</sup> Street ROW.

The soil sample collection and analysis that will be completed as part of this RI/FS Work Plan Addendum is summarized in the following sections. Note that the positioning of the sampling locations may need to be adjusted in the field to avoid utilities, structural obstruction and/or minimize impacts to Curtis Wharf operations. GeoEngineers will coordinate the positioning of the proposed sample locations with the Port in advance of drilling to ensure that the sampling locations are accessible, free of utility conflicts and do not impact Curtis Wharf operations. Sampling locations that require repositioning by more than 10 feet from the target location will be approved by Ecology prior to sample collection to ensure that the sampling objectives are being met.

#### **Soil Sample Collection and Processing**

DP borings for obtaining soil samples will be collected using a track- or truck-mounted DP drilling rig. It is anticipated that the DP borings at the Site will be advanced at least 3 feet into the native soil or up to approximately 20 feet below ground surface (bgs), whichever occurs first. If evidence of petroleum contamination is observed, the boring will be advanced to at least 3 feet below the observed depth of contamination, or until refusal. DP borings will be completed by a licensed driller in the State of Washington.

A representative from GeoEngineers' staff will be present to examine and classify the soils encountered and prepare a detailed boring log of each exploration. Continuous soil samples in 2-foot intervals will be obtained from the DP borings using a "macrocore" sampler or equivalent in direct pushes up to 5 feet in length. A 2-foot interval is required to collect sufficient soil volume for chemical analysis. The boring push length may be reduced if recovery is poor. Soil from each sample interval will be visually classified, field screened and logged in a similar manner as described in the RI/FS Work Plan.



Using the same approach as the RI field investigations, samples will be collected that are representative of contaminated or potentially contaminated materials and/or different material types. For each full-length core (GEI-46 through GEI-53), samples will be collected continuously on 2-foot intervals. A minimum of three samples will be initially submitted for analysis as summarized in Table 1 and described below:

- Non-saturated fill material.
- Saturated fill material at the water table level.
- Native material without evidence of petroleum contamination and at least 1 foot below the fill/native soil interface.

Samples collected from the borings that are not submitted for initial chemical analysis will be archived for potential follow-up testing. Sample intervals will be individually homogenized and placed into the appropriate laboratory-supplied sample containers. Samples for volatile analysis (i.e., gasoline and/or volatile organic compounds [VOCs]) will be collected from the center of the sampling interval from undisturbed soil sample prior to homogenization using United States Environmental Protection Agency (EPA) Method 5035A sampling procedures consistent with Ecology guidance to reduce volatilization and biodegradation of the sample constituents. Immediately upon collection of the samples, the samples will be placed into a cooler with ice and logged on the chain-of-custody using quality assurance and control procedures in accordance with the RI/FS Work Plan.

The proposed sample locations shown on Figure 1 have been selected to supplement existing RI data to provide aerial coverage across 2<sup>nd</sup> Street to further evaluate soil conditions and define the nature and extent of contamination. Sample intervals for initial chemical analysis (summarized in Table 1) were selected to correlate with previous sample intervals collected as part of the RI as well as the elevation of interim action verification sidewall samples.

### **Soil Sample Laboratory Analysis**

Soil samples will be submitted to OnSite Environmental, Inc. (OnSite) of Redmond, Washington, for chemical analysis. Table 1 identifies the proposed sample locations, target sample horizons, laboratory analysis and rationale for the data that will be collected to further characterize the nature and extent of contamination of soil in the 2<sup>nd</sup> Street ROW. Table 2 summarizes the analytical methods, sample size, containers, preservation and holding times for laboratory analysis. Sufficient material will be collected from each sample interval to perform each of the listed analysis in accordance with the RI/FS Work Plan and SAP. Selected soil samples as identified in Table 1 will be submitted for a combination of the following:

- Gasoline-range total petroleum hydrocarbons (TPH) by NWTPH-Gx.
- Heavy oil- and diesel-range TPH by NWTPH-Dx.
- Benzene, ethylbenzene, toluene and xylenes (BTEX) by EPA 8260.
- Ethylene dibromide (EDB), ethylene dichloride (EDC), methyl tert-butyl ether (MTBE) and n-Hexane by EPA 8260.
- Metals (arsenic, cadmium, chromium, lead and mercury) by EPA 6000/7000.
- Polycyclic aromatic hydrocarbons (PAHs) by EPA 8270-SIM.



Additional samples may be submitted for initial analysis based on field screening evidence of contamination. Samples for initial volatile chemical analysis (i.e., gasoline-range hydrocarbons, BTEX, EDB, EDC, MTBE and n-hexane) will be submitted on an expedited 3-day turnaround time to ensure that hold times are not exceeded should archive sample analysis be performed. Samples not submitted for initial analysis will be archived for potential follow up testing based on the initial soil sample results. Follow-up analysis of archive samples will be completed from a given investigation location when supplemental data is needed to characterize and/or delineate contamination if present in the initial sample(s) submitted for chemical analysis.

## **Underground Utility Locate**

Prior to drilling, an underground utility locate will be conducted in the area of the proposed soil boring locations to identify any subsurface utilities and/or potential underground physical hazards.

### Surveying

GeoEngineers field personnel will record the soil boring locations, and other pertinent information, using hand-held Trimble global positioning system (GPS) unit (or similar device) during sampling activities. The accuracy of measured and recorded horizontal coordinates will be within approximately 3 feet.

#### **Decontamination**

The drilling equipment will be decontaminated before beginning each exploration using a pressure washer. In addition, reusable sampling/monitoring equipment (spoons, bowls, core barrels, etc.) that comes in contact with soil will be decontaminated before each use. Decontamination procedures for this equipment will consist of the following:

- Wash with non-phosphate detergent solution (Liqui-Nox® and distilled water),
- Rinse with distilled water, and
- Place the decontaminated equipment on clean plastic sheeting or in a plastic bag.

Field personnel will limit cross-contamination by changing gloves between sampling events. Wash water used to decontaminate the sampling equipment will be stored on site in labeled drums for subsequent characterization and disposal.

#### **Disposal of Investigation Derived Materials**

Soil cuttings from borings completed during this investigation will be placed in labeled and sealed drums. The drums will be stored temporarily at a secure location pending receipt of analytical results and until appropriate final disposal is completed.

Incidental waste generated during sampling activities includes items such as gloves, plastic sheeting, paper towels and similar expended and discarded field supplies. These materials are considered de minimis and will be disposed of at a local trash receptacle or county disposal facility.



## **DATA QUALITY OBJECTIVES**

The specific data quality objectives (DQOs) for soil and groundwater sampling and analysis are detailed in the Ecology-approved RI/FS Work Plan. An EPA-defined Stage 2B validation will be performed on organic and inorganic analytical data in general accordance with EPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (EPA 2004) and EPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (EPA 2008). Data packages will be checked for completeness immediately upon receipt from the laboratory to ensure that data and quality assurance/quality control (QA/QC) information requested are present. At a minimum, the following items will be reviewed to verify the data as applicable:

- Data Package Completeness
- Chain-of-Custody Documentation
- Holding Times and Sample Preservation
- Surrogate Recoveries
- Method Blanks
- Matrix Spikes/Matrix Spike Duplicates
- Laboratory Control Samples/Laboratory Control Sample Duplicates
- Laboratory and Field Duplicates
- Initial Calibrations (ICALs)
- Continuing Calibrations (CCALs)
- Internal Standards
- Instrument Tunes
- Reporting Limits

### **INADVERTENT DISCOVERY OF CULTURAL RESOURCES**

This work is being conducted under an Ecology remedial action grant. As such, Ecology initiated a 05-05 cultural resource consultation with Department of Archaeology and Historic Preservation (DAHP). Based on the findings of a cultural resources assessment completed prior to the 2020 Interim Action (Lenz 2019), Ecology determined that any ground disturbing activities would require oversight by an archeologist to document the inadvertent discovery of cultural resources, if encountered.

Following completion of the Interim Action and subsequent installation of new monitoring wells to perform post-interim action groundwater activities, DAHP's Washington Information System for Architectural and Archaeological Records Data (WISAARD) database was updated to document the observed Site conditions and provide recommendations for future monitoring and procedures to be followed at the Site during any future work (Lenz 2021 and 2022). Based on the cultural resource assessments completed to date, cultural resource consultation with DAHP and as determined by Ecology, the proposed supplemental investigation activities that will result in ground disturbances will be performed with oversight from an



archaeologist to observe and document the potential discovery of cultural materials, if encountered. The Port will coordinate with Ecology, DAHP, and other relevant parties regarding any requirements for the inadvertent discovery of cultural resources as outlined in the RI/FS Work Plan.

## **REPORTING**

Upon completion, supplemental data collection activities and laboratory results will be transmitted to Ecology. Depending on timing and Ecology's preference, this supplemental data will be included in the Draft RI Report or provided as a separate memorandum. Chemical analytical data for soil and groundwater samples will be submitted to Ecology in electronic format in accordance with Ecology's Environmental Information Management (EIM) Policy 840 within 90 days following review and validation.

#### **SCHEDULE**

This supplemental sampling and analysis will be performed following Ecology approval of this RI/FS Work Plan Addendum. Pending Ecology approval, driller availability, and Port operations, it is anticipated that field sampling will occur in June/July 2022.

#### **REFERENCES**

- United States Environmental Protection Agency (EPA), "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review," EPA 540-R-04-004, Office of Emergency and Remedial Response, US Environmental Protection Agency, Washington, DC, dated October 2004.
- United States Environmental Protection Agency (EPA), 2008, "Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, EPA-540-R-08-01," Office of Emergency and Remedial Response, US Environmental Protection Agency, Washington, DC, dated June 2008.
- GeoEngineers, 2014. "Focused Environmental Site Investigation Data Report, Quiet Cove Property, Anacortes, Washington," GEI No. 5147-024-01, dated October 20, 2014.
- GeoEngineers 2017a. Final Remedial Investigation/Feasibility Study Work Plan, Quiet Cove Property, Anacortes Washington, Ecology Agreed Order No. DE 11346. Prepared for the Washington Department of Ecology on behalf of the Port of Anacortes. January 25, 2017.
- GeoEngineers 2017b. Final Sampling and Analysis Plan, Quiet Cove Property, Anacortes Washington, Ecology Agreed Order No. DE 11346. Prepared for the Washington Department of Ecology on behalf of the Port of Anacortes. January 25, 2017.
- GeoEngineers, 2020. Interim Action Work Plan; Quiet Cove Site; Anacortes, Washington; Ecology Agreed Order No. DE 11346, GeoEngineers File No. 5147-024-07, dated January 9, 2020.



RI/FS Work Plan Addendum for Supplemental 2<sup>nd</sup> Street ROW Soil Investigation April 12, 2022 Page 8

- GeoEngineers, 2021a. Interim Action Construction Completion Report; Quiet Cove Interim Action; Anacortes, WA; Ecology Agreed Order No. DE 11346, dated June 22, 2021.
- GeoEngineers, 2021b. Post-Interim Action Construction Groundwater Monitoring Plan, Quiet Cove Site, Anacortes, WA; Ecology Agreed Order No. DE 11346, dated August 19, 2021.
- Lenz, Brett R. "Cultural Resources Assessment for the Port of Anacortes Quiet Cove Property Cleanup, Skagit County, WA. May 19, 2019.
- Lenz, Brett R. "Cultural Resources Report; Monitoring of Well Installation at the Quiet Cove Cleanup, Skagit County, WA". March 26, 2021.
- Lenz, Brett R. "Cultural Resources Report; Monitoring of the Quiet Cove Cleanup, Skagit County, WA". March 14, 2022.
- ThermoRetec, "Results of Soil and Groundwater Sampling, Former Anacortes Terminal, Corner of 3<sup>rd</sup> Street and N-Avenue, Anacortes, Washington," dated May 26, 2000.

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#### Attachments:

Table 1. Soil Sampling and Analysis Plan Addendum for 2nd Street ROW

Table 2. Soil Test Methods, Sample Size, Containers, Preservation and Holding Times

Figure 1. Proposed Soil Boring Locations

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# Table 1

# Soil Sampling and Analysis Plan Addendum for 2nd Street ROW

Quiet Cove Property Anacortes, Washington

Sample Location <sup>1</sup>	Target Sample Interval2,3 (feet bgs)		n Hydrocarbons PH) Diesel- and Heavy Oil- Range (NWTPH-Dx)	_	nic Compounds OCs)  EDB, EDC,  MTBE and n-Hexane (EPA 8260)	MTCA Metals <sup>4</sup> (EPA 6000/ 7000 Series)	Polycyclic Aromatic Hydrocarbons (PAHs) (EPA 8270-SIM)	Purpose of Supplemental Data Collection Sampling Location		
Direct-Push (DP) Sam	iple Location 0-2	T v	. v	l v	. v	v	l v			
GEI-46 through -49	2-4	X A	<b>X</b> A	<b>X</b> A	<b>X</b> A	<b>X</b>	<b>X</b> A			
	4-6	X	X	X	X	X	X	Supplement existing soil quality data set to further delineate of the extent of		
	6-8	A	A	A	A	A	A			
	8-10	X	X	X	X	X	X			
	10-12	A	A	A	A	A	A	contamination adjacent to the northern		
	12-14	X	X	X	X	X	X	sidewall of the Interim Action within the 2nd		
	14-16	A	A	A	A	A	A	Street ROW.		
	16-18	A	A	A	A	A	A			
	18-20	A	A	A	A	A	A			
GEI-50 through -53	0-2	А	А	А	А	А	А			
	2-4	А	А	А	А	А	А			
	4-6	А	А	А	А	А	А			
	6-8	А	А	А	А	А	А	Supplement existing soil quality data set to further delineate of the extent of		
	8-10	А	А	А	А	А	А			
	10-12	А	А	А	А	А	А			
	12-14	А	А	А	А	А	А	contamination in the 2nd Street ROW.		
	14-16	А	А	А	А	А	А			
	16-18	А	А	А	А	А	А			
	18-20	А	А	А	А	A	А			



#### Notes:

X = Submit Sample for initial analysis.

A = Archive sample for potential follow-up chemical analysis.

bgs = below ground surface

BTEX = Benzene, Ethylbenzene, Toluene and Xylenes

EDB = 1,2-Dichloroethane

EDC = 1,2-Dichloroethane

EPA = Environmental Protection Agency

MTBE = Methyl t-Butyl Ether

MTCA = Model Toxics Control Act



<sup>&</sup>lt;sup>1</sup>The approximate sample locations are shown on Figure 1.

<sup>&</sup>lt;sup>2</sup> Sample intervals may be adjusted based on observed field conditions to collect samples representative of the fill and native soil horizon, and interface between the saturated and vadose zone. Continuous samples will be collected in two foot intervals for each sample location. Samples for initial analysis based on (1) fill material above the water; (2) interval at the interface of the saturated and vadose zone and; (3) interval within native material. If field evidence indicates evidence of contamination additional sample intervals may be added to initial analysis. Sample intervals not identified for initial analysis will be collected and archived.

<sup>&</sup>lt;sup>3</sup> Field screening will be completed continuously for each boring in accordance with the approved RI/FS Work Plan.

<sup>&</sup>lt;sup>4</sup> MTCA metals include arsenic, cadmium, chromium (total), lead and mercury.

# Table 2

# Soil Sample Test Methods, Sample Size, Containers, Preservation and Holding Times

Quiet Cove Property Anacortes, Washington

Laboratory Analysis	Analytical Method	Minimum Sample Size	Sample Container	Sample Preservation	Holding Time <sup>1</sup>
Metals (As, Cd, Cr, Pb and Hg)	EPA 6010/6020/ 7470/7471	100 g	4-oz glass WM with Teflon-lined lid	Cool ≤6°C	180 days/28 days for Mercury
Gasoline-Range Hydrocarbons	NWTPH-Gx	5 g	Two 40mL glass vial (VOA)	Cool ≤6°C	14 days to extraction/analysis
Diesel- and Oil-Range Hydrocarbons	NWTPH-Dx	100 g	8-oz amber glass WM with Teflon-lined lid	Cool ≤6°C	14 days to extraction/analysis
VOCs including BTEX, EDB, EDC, MTBE and n-hexane	EPA 8260	0 5 g Three 40mL glass vial (VOA)		Cool ≤6°C Two VOAs - Sodium Bisulfate One VOA - Methanol	14 days to extraction/analysis
Polycyclic Aromatic Hydrocarbons (PAHs)	EPA 8270/SIM	100 g	8-oz amber glass WM with Teflon-lined lid	Cool ≤6°C	14 days to extraction, 40 days from extraction to analysis

#### Notes:

BTEX = Benzene, Ethylbenzene, Toluene and Xylenes

Dx = diesel-range extended

EDB = 1,2-Dichloroethane

EDC = 1,2-Dichloroethane

EPA = Environmental Protection Agency

Gx = gasoline-range extended

g = gram

mL = milliliter

MTBE = Methyl t-Butyl Ether

NWTPH = Northwest total petroleum hydrocarbons

oz. = ounce

PAHs = semi-volatile organic compound

SIM = selected ion mode

VOC = volatile organic compound

WM = wide mouth

<sup>&</sup>lt;sup>1</sup>Holding times are based on elapsed time from date of collection.

