Lower Wapato Creek Habitat Project

SWPPP Addendum

Preconstruction Phase - Slag/Arsenic Impacted Material Removal

The purpose of this Addendum is to address slag and arsenic impacted soil removal prior to the start of the habitat construction project. The material removal work is anticipated to take 15 working days. The impacted material will be removed directly into trucks and transported to LRI for land disposal. There will be no stockpiling of this material. All impacted areas have been delineated and a map is attached.

There will be **zero discharge** from this site as part of this work. All stormwater will be infiltrated within the excavations on site. As a **contingency**, baker tanks will be mobilized to store any unanticipated stormwater events. Stormwater, if encountered and cannot infiltrate will be stored and metered back into the excavation.

Element 1: Preserve Vegetation / Mark Clearing Limits: A map of the material removal areas and depth is attached. Areas will be well defined prior to removal activities.

- BMP C101 Preserve Natural Vegetation
- BMP 102 Buffer Zones
- BMP C103 High Visibility Plastic Fencing

Installation Schedules: Prior to land-disturbing activities

Inspection and Maintenance plan: Daily

Responsible Staff: KLB Foreman-Jason Vanulle/CESCL- Kevin Ruiz

Element 2: Establish Construction Access: Ingress/Egress to the area of material removal will be controlled using established route

- BMP C105 Stabilized Construction Entrance

Installation: During site preparation

Inspection and Maintenance plan: Daily

Responsible Staff: KLB Foreman-Jason Vanulle/CESCL- Kevin Ruiz

Element 3: Control Flow Rates: Not applicable – site is flat and vegetated, all stormwater is infiltrated

Element 4: Install Sediment Controls: All material removal activity will be done in late July, in the dry.

- BMP C233: Silt Fence
- Direct dig and haul, no stockpiling of material will occur

Installation Schedules: Prior to material removal activities

Inspection and Maintenance plan: Daily

Responsible Staff: KLB Foreman-Jason Vanulle/CESCL- Kevin Ruiz

Element 5: Stabilize Soils: All material removal activities will be done in dry weather, site is completely vegetated.

West of the Cascade Mountains Crest

Season	Dates	Number of Days Soils Can be Left Exposed
During the Dry Season	May 1 – September 30	7 days
During the Wet Season	October 1 – April 30	2 days

Soils must be stabilized at the end of the shift before a holiday or weekend if needed based on the weather forecast.

Anticipated project dates: Start date: August 1, 2021 End date: August 31, 2021

NOTE: The physical work is only anticipated to take 15 days.

Will you construct during the wet season? No

The specific BMPs for soil stabilization that shall be used on this project include:

- BMP C140: Dust Control

Installation Schedules: During mobilization and as necessary

Inspection and Maintenance plan: Daily

Responsible Staff: KLB Foreman-Jason Vanulle/CESCL- Kevin Ruiz

Element 6: Protect Slopes: Not applicable, site is flat and completely vegetated.

Element 7: Protect Drain Inlets: Not applicable, there is no existing stormwater conveyance within the material removal areas.

Element 8: Stabilize Channels and Outlets: Not applicable, there is no existing stormwater conveyance within the material removal areas.

Element 9: Control Pollutants

The following pollutants are anticipated to be present on-site:

Table 2 – Pollutants

Pollutant (and source, if applicable)
Arsenic impacted soil from slag
Slag material

See attached map for locations and depth of excavations.

Impacted material will be controlled by using a direct dig and haul method of removal.

Installation Schedules: Throughout material removal activities

Inspection and Maintenance plan: Daily

Responsible Staff: KLB Foreman-Jason Vanulle/CESCL- Kevin Ruiz

Element 10: Control Dewatering: Not applicable. Depth of excavation at the deepest point is 48". Based on the 2010 GeoEngineers groundwater testing data, the shallowest depth of groundwater is expected to be no less than 6 feet below the depth of the deepest planned slag-removal excavation at this time of year (typically 10 feet below ground surface in summer; deepest slag removal excavation 4 ft). Report reference below:

> Site Investigation
> Port of Tacoma Parcel 14
> Tacoma, Washington
> *By: GeoEngineers*
> *For:* Grette Associates LLC
> and Port of Tacoma
> December 6, 2010

There was no groundwater encountered during pot holing activities.

Element 11: Maintain BMPs

All temporary and permanent Erosion and Sediment Control (ESC) BMPs shall be maintained and repaired as needed to ensure continued performance of their intended function.

Maintenance and repair shall be conducted in accordance with each particular BMP specification (see Volume II of the SWMMWW).

Visual monitoring of all BMPs installed at the site will be daily and during any unanticipated stormwater event to ensure no discharges from the site occur.

Element 12: Manage the Project

Project is phased to remove all impacted soils and conduct confirmation sampling prior to moving to the next phase of the project.

Inspection and monitoring will be conducted daily during material removal activities.

Inspection, maintenance and repair of all BMPs will occur as needed to ensure performance of their intended function.

Site inspections and monitoring will be conducted in accordance with Special Condition S4 of the CSWGP. No sampling is required during this portion of the work as no discharge will occur.

Maintain an updated SWPPP.

The SWPPP will be updated, maintained, and implemented in accordance with Special Conditions S3, S4, and S9 of the CSWGP.

As site work progresses the SWPPP will be modified routinely to reflect changing site conditions. The SWPPP will be reviewed monthly to ensure the content is current.

Table 5 – Management

X	Design the project to fit the existing topography, soils, and drainage patterns
X	Emphasize erosion control rather than sediment control
X	Minimize the extent and duration of the area exposed
	Keep runoff velocities low
X	Retain sediment on-site
X	Thoroughly monitor site and maintain all ESC measures
X	Schedule major earthwork during the dry season
X	**Other: Ensure no discharge during the material removal work.**

Element 13: Protect Low Impact Development (LID) BMPs: Not applicable during this phase of the project.

BINDING EDGE

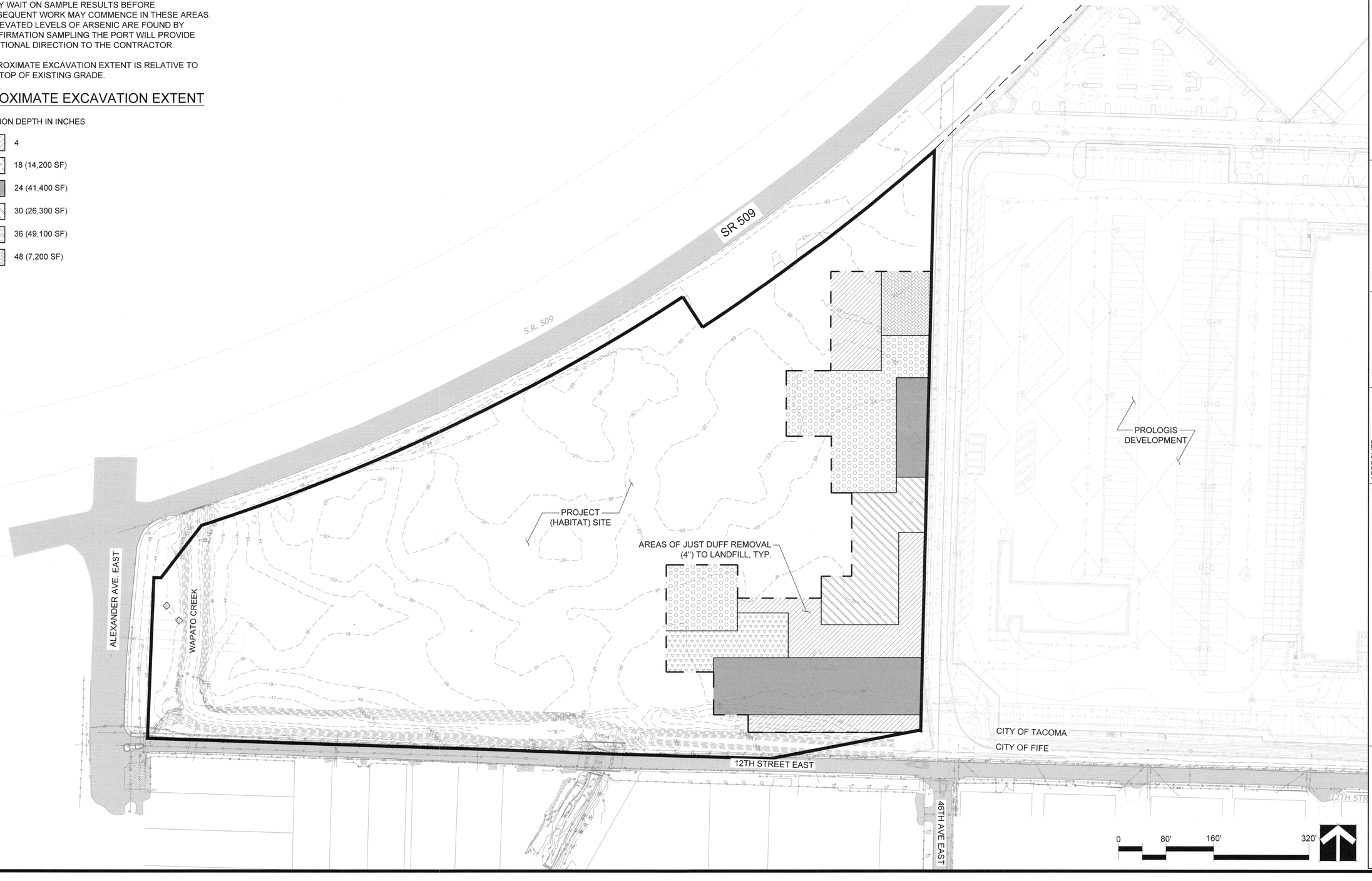
NOTES

1. ALL ARSENIC CLEANUP SOILS SHALL BE REMOVED IN AREAS SHOWN AND DISPOSED OF AT LRI.
2. CONFIRMATION SAMPLING WILL NEED TO BE ACCOMPLISHED BY THE PORT ONCE AREAS ARE EXCAVATED OUT. CONTRACTOR SHOULD ANTICIPATE A 5 DAY WAIT ON SAMPLE RESULTS BEFORE SUBSEQUENT WORK MAY COMMENCE IN THESE AREAS. IF ELEVATED LEVELS OF ARSENIC ARE FOUND BY CONFIRMATION SAMPLING THE PORT WILL PROVIDE ADDITIONAL DIRECTION TO THE CONTRACTOR.
3. APPROXIMATE EXCAVATION EXTENT IS RELATIVE TO THE TOP OF EXISTING GRADE.

APPROXIMATE EXCAVATION EXTENT

EXCAVATION DEPTH IN INCHES

- 4
- 18 (14,200 SF)
- 24 (41,400 SF)
- 30 (26,300 SF)
- 36 (49,100 SF)
- 48 (7,200 SF)



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MARK:	REVISION:	BY:	APPR:	DATE:

JOHN CLARK DAWSON — STATE OF WASHINGTON — 18151 — REGISTERED PROFESSIONAL ENGINEER — 5/28/21

APPROVED:

DIRECTOR ENG. DATE

LOWER WAPATO CREEK HABITAT PROJECT

ARSENIC CLEANUP AND DISPOSAL PLAN

J. Dawson	5/28/21		
CHECKED BY	DATE		
A. Mitchell	5/28/21		
PROJ. ENGR	DATE		
PRINTED BY:	MOR69830 May 27, 2021		
PORT ADDRESS:	1 SITCOM PLAZA		
TACOMA, WA 98421			

6656

D2.0

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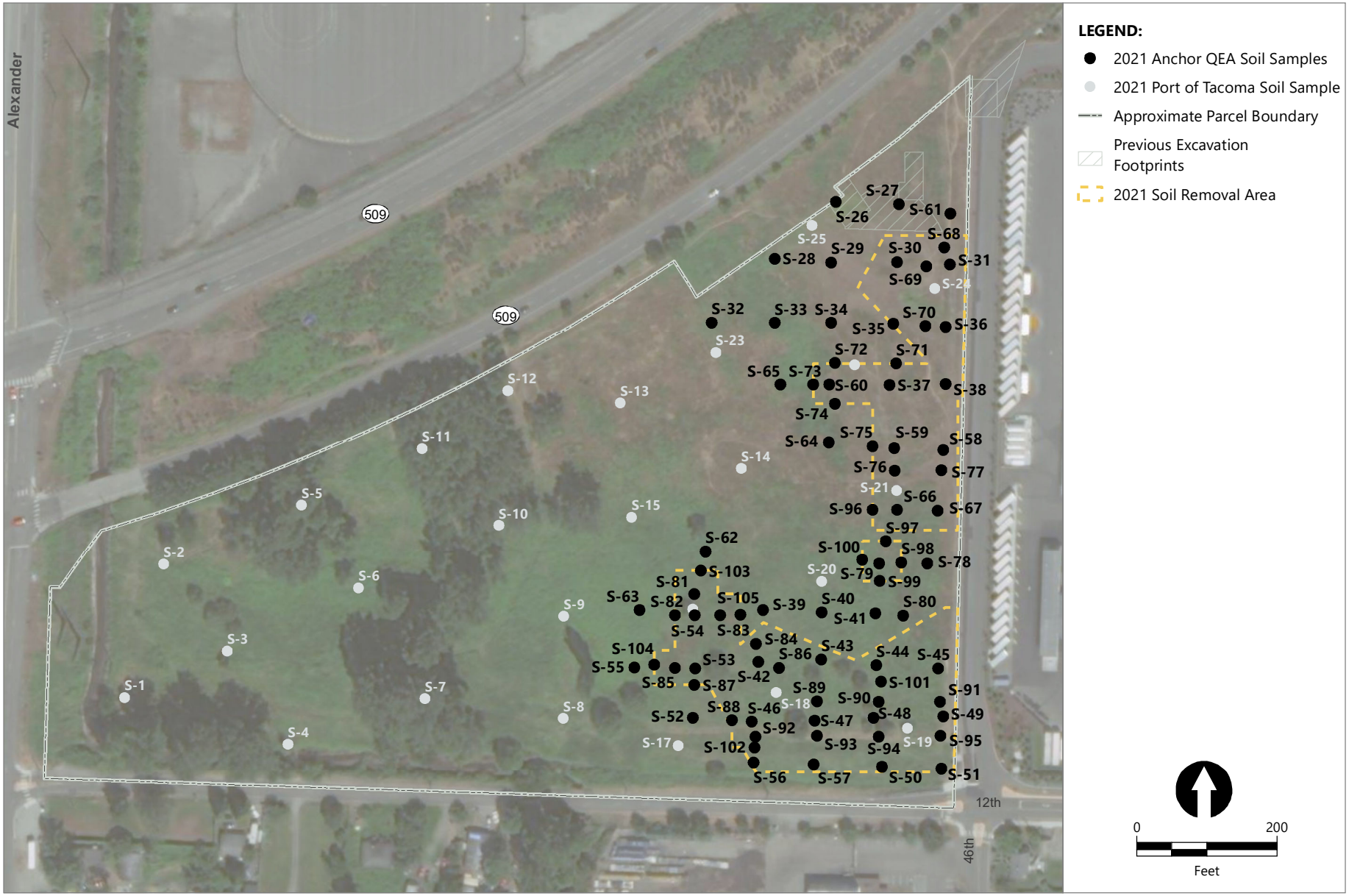
CONT/CONS:	071447	TOWNSHIP: 20N	RANGE: 3E
M. ID:	101449.01	DAT-HRZ: WA83-SF	VERT: MLLW (PORT OF TACOMA TIDAL)
PHASE:	BID SET	PARCEL: 14	DRAWING SCALE: AS NOTED

SECTION: 1

PORT OF TACOMA FILE: C:\pwworking\hmm\ports_harbors\mor69830\dms48094\Wapato Creek Habitat - Arsenic Plans



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ANCHOR QEA

Figure 1
Site Overview
Parcel 14 Data Report and Cleanup Plan
Port of Tacoma

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ANCHOR QEA

Figure 2
Duff Material Cleanup Areas
Parcel 14 Data Report and Cleanup Plan
Port of Tacoma

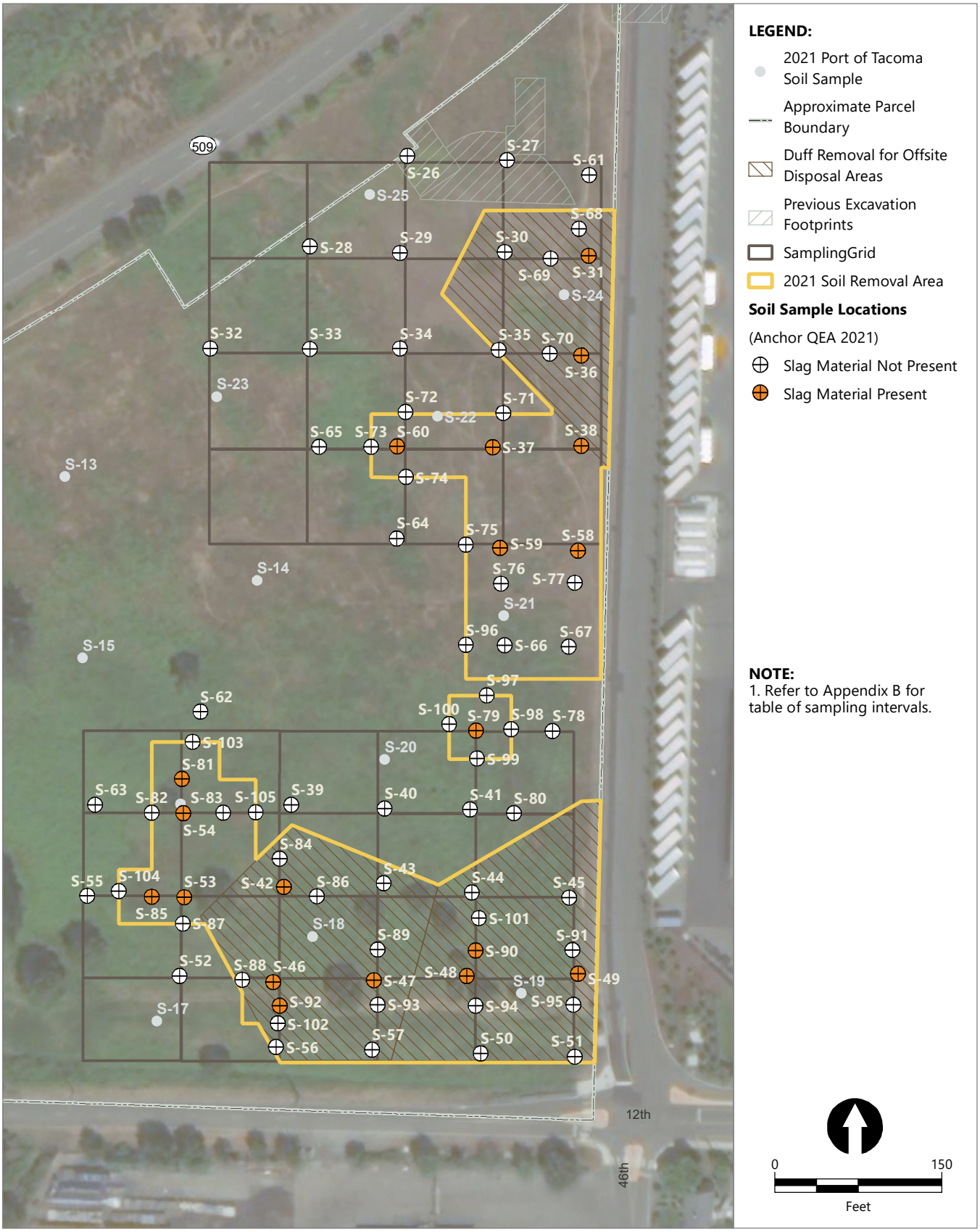

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Figure 3
Proposed Soil Removal Areas
Parcel 14 Data Report and Cleanup Plan
Port of Tacoma

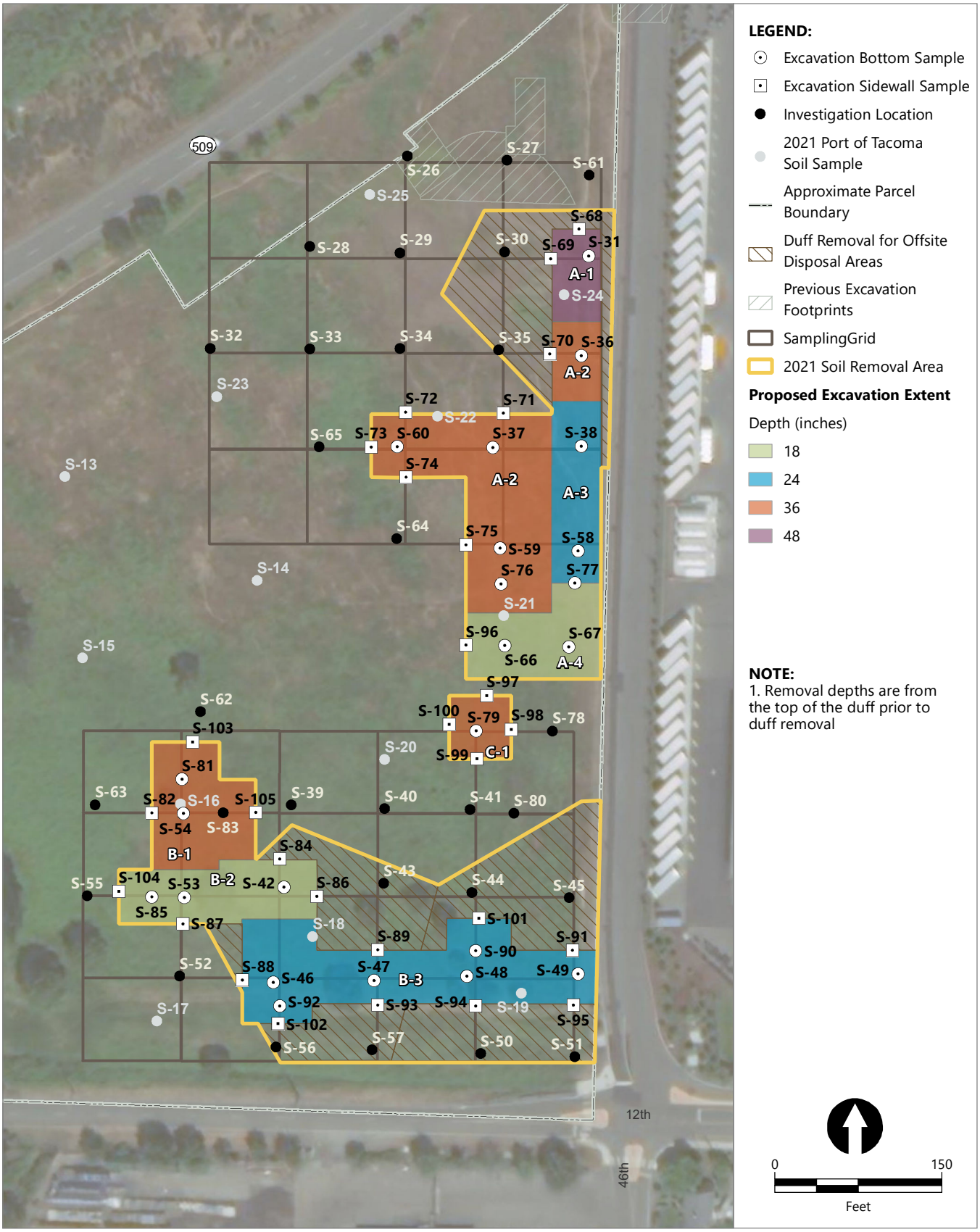

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Figure 4
Proposed Cleanup Plan
Parcel 14 Data Report and Cleanup Plan
Port of Tacoma

Table 1
Arsenic Distribution in Duff Material

Sample Type	Port Sample ID	Analytical Results for Total Arsenic (mg/kg)
Duff Samples from Non-Impacted Areas [1]	S-1	3.0
	S-2	<2.5
	S-3	3.4
	S-4	4.6
	S-5	3.1
	S-6	<2.5
	S-7	2.8
	S-8	2.8
	S-9	6.1
	S-10	3.2
	S-11	<2.5
	S-12	<2.5
	S-13	<2.5
	S-14	7.6
	S-15	<2.5
	S-16	18.6
	S-17	2.8
	S-20	18.4
	S-21	11.0
	S-22	6.5
	S-23	3.5
	S-25	28.4
	No. of Samples	**22**
	Mean	**6.1 mg/kg**
	95% UCL [2]	**8.8 mg/kg**
Duff Samples from Impacted Areas (To Be Removed for Landfill Disposal)	S-18	34.2
	S-19	45.4
	S-24	52.4

Notes:

mg/kg: milligram per kilogram

MTCA: Model Toxics Control Act

UCL: upper confidence limit

Refer to Figure 1 for sample locations.

All samples were collected April 2, 2021, from depths of 0 to 4 inches below ground surface (within the duff layer).

1. Under MTCA, compliance with the cleanup standard is met when the 95% UCL is less than the cleanup level, provided that no more than 10% of the individual samples exceed the cleanup level and no single sample exceeds the cleanup level by more than two times (WAC 173-340-7XX....)

2. The 95% UCL was determined using MTCA Stat 97.

Table 2
Results of Follow-up Soil Arsenic Testing Performed by the Port

Port Station ID	Sample Depth (inches bgs)	Analytical Results for Total Arsenic (mg/kg)
S-18	5-10	10.8
	11-22	15.4
S-19	5-10	21.5 *
	11-22	40.0 *
S-24	5-10	23.8 *
	11-22	16.8
S-25	5-10	5.8
	11-22	2.8

Notes:

bgs: below ground surface

mg/kg: milligram per kilogram

MTCA: Model Toxics Control Act

All samples were collected May 10, 2021. Refer to Figure 1 for sample locations.

* Value exceeds the MTCA Method A cleanup level of 20 mg/kg. Soil removal to be conducted in this area.

Table 3
Results of Soil Testing in Areas Free of Slag or Arsenic Impacts

Sample Station	Sample Date	Sample Depth (inches bgs)	Arsenic Concentration (mg/kg)
S-26	5/14/2021	5-10	2.2
S-27	5/14/2021	5-10	18
S-28	5/14/2021	5-10	2.1
S-29	5/14/2021	5-10	6.0
S-30	5/14/2021	5-10	1.7
S-32	5/14/2021	5-10	3.9
S-33	5/14/2021	5-10	6.7
S-34	5/14/2021	5-10	8.4
S-35	5/14/2021	5-10	4.2
S-39	5/14/2021	5-10	4.2
S-40	5/14/2021	5-10	7.7
S-41	5/14/2021	5-10	29
	5/14/2021	30-36	3.0
S-43	5/14/2021	5-10	8.5
S-44	5/14/2021	5-10	16
S-45	5/14/2021	5-10	1.7
S-50	5/14/2021	5-10	5.3
S-51	5/14/2021	5-10	4.7
S-52	5/14/2021	5-10	1.5
S-55	5/17/2021	5-10	2.8
S-56	5/17/2021	5-10	4.4
S-57	5/17/2021	5-10	3.8
S-61	5/17/2021	5-10	2.9
S-62	5/17/2021	5-10	2.2
S-63	5/17/2021	5-10	5.6
S-64	5/17/2021	5-10	6.1
S-65	5/17/2021	5-10	2.9
S-78	6/1/2021	5-10	5.8
	6/1/2021	18-24	8.6

Table 3
Results of Soil Testing in Areas Free of Slag or Arsenic Impacts

Sample Station	Sample Date	Sample Depth (inches bgs)	Arsenic Concentration (mg/kg)
Summary Statistics		**No. of Samples**	**29**
		Mean	**6.2 mg/kg**
		95% UCL [2]	**8.1 mg/kg**

Notes:

bgs: below ground surface

mg/kg: milligram per kilogram

MTCA: Model Toxics Control Act

UCL: upper confidence limit

Refer to Figure 3 for sample locations.

1. Under MTCA, compliance with the cleanup standard is met when the 95% UCL is less than the cleanup level, provided that no more than 10% of the individual samples exceed the cleanup level and no single sample exceeds the cleanup level by more than two times (Washington Administrative Code 173-340-740(7)(d) and (e)

2. The 95% UCL was determined using MTCA Stat 97.

Table 4
Lateral and Vertical Delineation of Arsenic Contaminated Soils

Sample Type	Sample Station	Sample Date	Sample Depth (inches bgs)	Arsenic Concentration (mg/kg)
Soils to be Removed Along With Slag	S-66	5/17/2021	5-10	57 *
	S-67	5/17/2021	5-10	38 *
	S-83	6/1/2021	21	85 *
Samples Defining Clean Soil at Lateral Limits of Contaminated Area	S-68	6/1/2021	27	3.1
	S-69	6/1/2021	27	7.2
	S-70	6/1/2021	21	6.8
	S-71	6/1/2021	21	3.0
	S-72	6/1/2021	21	1.6
	S-73	6/1/2021	21	3.2
	S-74	6/1/2021	21	1.8
	S-75	6/1/2021	21	7.5
	S-80	6/1/2021	5-10	15
		6/1/2021	18-24	15
	S-82	6/1/2021	21	11
	S-84	6/1/2021	12	7.1
	S-86	6/1/2021	12	12
	S-87	6/1/2021	12	3.9
	S-88	6/1/2021	15	4.6
	S-89	6/1/2021	15	8.0
	S-91	6/1/2021	15	1.4
	S-93	6/1/2021	15	1.8
	S-94	6/1/2021	15	1.8
	S-95	6/1/2021	15	1.5
	S-96	6/1/2021	18	2.3
	S-97	6/1/2021	5-10	3.6
		6/1/2021	18-24	10
	S-98	6/1/2021	5-10	8.3
		6/1/2021	18-24	4.6
	S-99	6/1/2021	5-10	7.4
		6/1/2021	18-24	14
	S-100	6/1/2021	5-10	4.0
		6/1/2021	18-24	2.5
	S-101	6/1/2021	15	7.8
	S-102	6/1/2021	15	3.2
	S-103	6/1/2021	21	1.7
	S-104	6/1/2021	12	2.6
	S-105	6/11/2021	Pending	Pending

Table 4
Lateral and Vertical Delineation of Arsenic Contaminated Soils

Sample Type	Sample Station	Sample Date	Sample Depth (inches bgs)	Arsenic Concentration (mg/kg)
Samples Defining Clean Soil Horizon Beneath Contaminated Soil	S-31	5/14/2021	48-54	6.6
	S-36	5/14/2021	36-42	3.4
	S-37	5/14/2021	36-42	16
	S-38	5/14/2021	28-34	5.2
	S-42	5/14/2021	18-24	2.0
	S-46	5/14/2021	24-30	1.4
	S-47	5/14/2021	26-32	3.6
	S-48	5/14/2021	28-34	8.2
	S-49	5/14/2021	24-30	1.8
	S-53	5/14/2021	19-25	4.32
	S-54	5/17/2021	41-47	17
	S-58	5/17/2021	24-30	2.3
	S-59	5/17/2021	41-47	6.3
	S-60	5/17/2021	40-46	7.2
	S-66	5/17/2021	30-36	2.0
	S-66	6/1/2021	18-24	2.1
	S-67	5/17/2021	30-36	4.9
	S-67	6/1/2021	18-24	1.9
	S-76	6/1/2021	21	2.8
	S-77	6/1/2021	18	2.4
	S-79	6/1/2021	36-40	3.1
Summary Statistics for Delineation Samples	**Summary Statistics**		**No. of Samples**	**55**
			Mean	**5.4 mg/kg**
			95% UCL [2]	**6.5 mg/kg**

Notes:

bgs: below ground surface

mg/kg: milligram per kilogram

MTCA: Model Toxics Control Act

UCL: Upper confidence limit

Analytical Method: 6020B

* Sample represents soil to be removed and was not included in summary statistics.

1. Under MTCA (Washington Administrative Code 173-340-740(7)(d) and (e)), compliance with the cleanup standard is met when the 95% UCL is less than the cleanup level, provided that no more than 10% of the individual samples exceed the cleanup level and no individual sample exceeds the cleanup level by more than two times.

2. The 95% UCL was determined using MTCA Stat 97.

Table 5
TCLP and SPLP Testing Results

Sample Station	Sample Date	Sample Depth (inches bgs)	TCLP Arsenic Concentration (mg/L)	SPLP Arsenic Concentration (mg/L)
			TCLP and Method 6010D	SPLP West and Method 6010D
S-41	5/14/2021	5-10	< 0.060	< 0.060
S-66*	5/17/2021	5-10	< 0.060	< 0.060

Notes:

bgs: below ground surface

mg/L: milligram per liter

SPLP: synthetic precipitation leaching procedure

TCLP: toxicity characteristic leaching procedure

* Soil represented by this sample will be removed for off-site landfill disposal.