

To: Mark Pugh
Oregon Department of Environmental
Quality - Northwest Region

From: Robert McAlister, RG

Project/File: 185705769

Date: November 7, 2024

Reference: Site-Specific Sampling and Analysis Plan Addendum Revision 1, Underground Storage Tank Area, Former Blue Heron Paper Mill, Oregon City

On behalf of the Confederated Tribes of the Grand Ronde Community of Oregon (CTGR), Stantec Consulting Services Inc. (Stantec) submits this Site-Specific Sampling and Analysis Plan (SAP) Addendum to the Oregon Department of Environmental Quality (DEQ) to address data gaps identified in the former Underground Storage Tank (UST) area at the former Blue Heron Paper Mill site (Property). The scope of this SAP addendum was developed to address comments received from the DEQ in response to the Draft Soil and Groundwater Focused Remedial Investigation Report submitted on February 26, 2024 by WSP USA Environment & Infrastructure Inc. (WSP).

The proposed work will be funded through CTGR's United States Environmental Protection Agency (EPA) Brownfield Multipurpose Grant (EPA Cooperative Agreement Number BF-01J99101). All work described herein will be completed in accordance with the Master Quality Assurance Project Plan (QAPP, Stantec, 2022) prepared for CTGR's Brownfield Project approved by the DEQ on May 17, 2022 and by the EPA on May 23, 2022.

General Background

The Property is located at 419 - 427 Main Street, Oregon City, Oregon 97045. The Property location is shown on **Figure 1**. A Property Layout showing buildings, roadways, and notable Property features, is shown on **Figure 2**.

The Property is located on the southeast bank of the Willamette River, abutting Willamette Falls. The Property is occupied by multiple vacant buildings with limited vegetation along the shore of the Willamette River. Regionally, the Property is in a valley carved by the Willamette River. Property geology is dominated by Columbia River Basalt (CRB), which is present at or near the ground surface. CRB flows are characterized as dense, hard to very hard, locally vesicular, fine-grained, and black to dark gray in color with oxidized fractures. The Property itself sits on the Sentinel Bluffs Member of the Grand Ronde Basalt Formation. The Sentinel Bluffs Member is approximately 400 feet thick with interflow zones defining multiple flows that comprise this CRB Member. Soil is sparse at the Property and largely consists of pockets of fill present at varying thicknesses from a few feet up to 30 feet (Wood, 2021).

Between March and October 2023 Stantec and WSP completed a focused remedial investigation (RI) at the Property to implement the assessment activities proposed in the Overarching Work Plan (Wood, 2021). Stantec was responsible for RI activities in the northern portion of the Property and identified contamination in seven areas. Although each of these areas of contamination were not fully delineated, no additional sampling is recommended in these areas because there is no known point source of contamination in these

Reference: Site-Specific Sampling and Analysis Plan Addendum Revision 1, Underground Storage Tank Area, Former Blue Heron Paper Mill, Oregon City

areas. Further, the nature and magnitude of contamination in these areas indicates a low potential for contaminants to migrate to the Willamette River. Additional findings and results from the RI are summarized in WSP's Draft Soil and Groundwater Focused Remedial Investigation Report (WSP, 2024a), submitted to the DEQ on February 26, 2024.

Stantec completed UST decommissioning by removal activities in October 2023 for two 12,000-gallon tanks located beneath the floor slab of the former Millwright Shop (**Figure 2**). Results of the UST decommissioning are summarized below and presented in full in Stantec's Underground Storage Tank Removal Report, Revision 1 (Stantec, 2024), submitted to the DEQ on April 10, 2024. In addition, soil and groundwater sample results from the UST removal were summarized in WSP's draft focused RI report as follows.

"Based on the Maul, Foster & Alongi, Inc. (MFA, 2017), Stantec (2023), and WSP (2023) sampling, soil and groundwater contamination remain near the former USTs (**Appendix A**). It is expected that soil contamination extends radially outward from the former tank cavity, and after several feet distance becomes confined to the "smear" zone (estimated to extend from about 5 feet below ground surface [bgs] to the top of the basalt). The lateral extent of soil contamination has not been defined to the north, west, or south, and this represents a data gap. Groundwater contamination is expected to be limited to the shallow/perched water present on top of the basalt and to extend in the presumed bedrock downslope direction toward the Willamette River. The groundwater plume is not defined in any direction, and this constitutes a data gap." (WSP, 2024a)."

Based on analytical results from the 2023 UST removal and detected compounds in historical samples collected in the vicinity of the USTs, contaminants of concern (COCs) identified for the former UST system include total petroleum hydrocarbons (TPH) as diesel/heavy oil, lead and polycyclic aromatic hydrocarbons (PAHs). No DEQ Risk-Based Concentration (RBC) exceedances were reported in a groundwater sample collected from within the UST cavity. Individual RBC exceedances in soil samples collected during RI and UST removal activities are presented on **Figure 3**. Additional assessment is recommended in this area as described below to evaluate the extent of contaminant migration sourced from the two USTs, and to evaluate whether contamination from the USTs may migrate via perched groundwater to the Willamette River.

Proposed Scope of Work

To further define the lateral extent of COCs in soil Stantec proposes advancing six direct-push borings (BH-RI-S68 through BH-RI-S73) to the west and south of the former UST pit. Proposed boring locations are depicted on **Figure 3**. If gross contamination is observed in borings BH-RI-68 through BH-RI-71, "step-out" borings will be advanced approximately 25 feet to the northwest (on an array straight toward the Willamette River). A second "step-out" will be implemented if initial "step-out" borings again exhibit gross contamination. "Step-out" borings will not be utilized for borings BH-SI-72 or BH-SI-73 as multiple borings have already been advanced southwest of these two borings. No borings will be advanced to the north of the former UST pit due to the presence of a basement beneath the former "Mill O Pulper/Raw Material Storage" building directly north of the pit.

In addition, two groundwater monitoring wells (MW-4 and MW-5) are proposed to evaluate the potential for groundwater impacts sourced from the former UST system to migrate to the Willamette River. Proposed monitoring well locations are depicted on **Figure 4**. Also depicted on **Figure 4** are three monitoring wells (MW-1, MW-2, and MW-3) proposed by WSP.

Reference: Site-Specific Sampling and Analysis Plan Addendum Revision 1, Underground Storage Tank Area, Former Blue Heron Paper Mill, Oregon City

Prior to any intrusive subsurface activities, a public and private utility locate will be completed to clear the proposed boring locations of any subsurface utilities and/or objects. All investigative-derived waste (IDW) will be placed in appropriately labeled 55-gallon drums and staged at the Property pending profiling and disposal.

Direct-Push Soil Borings and Soil Sample Collection

Soil borings will be advanced in the manner described in Stantec's previously-approved June 12, 2023 Site-Specific Sampling and Analysis Plan, Revision 2 – Focused Remedial Investigation, Former Blue Heron Mill Property, North Portion. All soil borings will be advanced to a maximum depth of 15 feet bgs or until drilling refusal is encountered, whichever occurs first.

Up to three soil samples will be collected from the proposed borings: 1) one within three feet of the ground surface, 2) one from the depth interval exhibiting the highest field indications of contamination, and 3) one from the terminal depth of each boring if groundwater is not encountered. If the "step-out" boring option is exercised, Stantec will consult with the DEQ regarding potential modifications to the sampling testing program for both planned borings and "step-out" borings. All soil samples will be submitted to Apex Laboratories for analysis of diesel/heavy oil, lead, arsenic and PAHs (**Table 1**).

Groundwater Monitoring Well Installation and Groundwater Sample Collection

The two proposed groundwater monitoring wells (MW-4 and MW-5) will be advanced using sonic drilling technology to the upper elevation of the basalt bedrock surface, assumed to be located approximately 10 feet bgs for MW-4 and 16 feet bgs for MW-5, as indicated on **Figure 5**, which was prepared by WSP. All drilling and well installation will be completed under Oregon Water Resources Department (WRD) standards promulgated under Oregon Administrative Rule (OAR) 690-240.

Applicable Standard Operating Procedures (SOPs) for sonic drilling and well installation activities were provided in the project QAPP:

- ES2.03 – Environmental Borehole Drilling and Soil Sampling;
- ES3.01 – Monitoring Well Installation; and
- ES3.03 – Monitoring Well Development

Well installation services will be provided by Holt Services, Inc. (Holt) and will occur concurrently with wells proposed by WSP in their October 1, 2024 Groundwater Monitoring Well Installation – RI Southern Portion of Site – Addendum #1, CTGR Former Blue Heron Paper Mill, Oregon City (WSP, 2025).

Additional drilling and well installation details for MW-4 and MW-5 are as follows:

- All drilling and sampling activities will be completed under the direction of a Stantec Registered Geologist. Detailed boring logs and field notes will be completed during field activities to document date and time of drilling, site conditions, drill type and well material(s) used, lithology and groundwater conditions encountered, and static water levels during and after well installation.
- Both wells will be completed as two-inch diameter schedule 40 polyvinyl chloride (PVC) with a minimum of 5-feet of 0.010-inch slotted screen and flush-mounted well box as indicated on **Figure 6** (proposed groundwater monitoring well construction).

Reference: Site-Specific Sampling and Analysis Plan Addendum Revision 1, Underground Storage Tank Area, Former Blue Heron Paper Mill, Oregon City

- Holt will obtain well start cards for both monitoring wells from the Oregon Water Resources Department (WRD) in accordance with Oregon Administrative Rules 690-205-0205.
- Up to two soil samples will be collected during boring advancement for well installation: 1) one within three feet of the ground surface, and 2) one from the depth interval exhibiting the highest field indications of contamination. Soil samples will be submitted to Apex Laboratories for analysis of diesel/heavy oil, lead, arsenic and PAHs as summarized in **Table 1**.
- Well locations will be measured in the field using a hand-held global positioning system device. Relative top of casing elevations will be measured with a construction level and rod. These data will be utilized to measure groundwater elevation and flow direction.
- Wells will be surged and developed, if sufficient groundwater is present, in accordance with WRD standards at least 48 hours prior to sample collection. Water quality parameters (pH, specific conductance, oxidation reduction potential, temperature and turbidity) will be monitored during development in accordance with SOP ES3.03.
- If the well(s) are dewatered during development and/or pre-sampling purging, pumping will cease, and the well will be allowed to recharge to 80% of the pre-purge water level prior to sample collection.
- Groundwater samples collected from well MW-4 and MW-5 will be submitted to Apex Laboratories for analysis of diesel/heavy oil, total and dissolved lead, total and dissolved arsenic and PAHs as summarized in **Table 2**.
- Additional seasonal groundwater monitoring events will be completed as appropriate by the project team.

Note that WSP has proposed installation of MW-2 and MW-3 in the locations identified on **Figure 5** that will provide additional groundwater data points downgradient of the former UST pit.

Archaeological Monitoring

As with prior RI sampling activities, Stantec will have an archaeologist present during all subsurface activities associated with this project. The archaeologist will have stop work authority but is expected only to exercise this authority if human remains or archeological objects of substantial significance are discovered. An Inadvertent Discovery Plan detailing protocols to be followed should human remains or archeological objects of substantial significance be discovered is provided in **Appendix B**.

Reference: Site-Specific Sampling and Analysis Plan Addendum Revision 1, Underground Storage Tank Area, Former Blue Heron Paper Mill, Oregon City

Closing

Stantec is submitting this SAP addendum to address data gaps identified following RI and UST removal activities. The work described herein will be completed in parallel with WSP's recently submitted SAP Addendum (WSP, 2024b). Drilling and well installation activities are anticipated to occur in November or December 2024. Groundwater sampling will occur in late 2024 or early 2025.

Regards,

STANTEC CONSULTING SERVICES INC.



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Associate Geologist
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Mobile: 714-686-4435
bob.mcalister@stantec.com

Attachments:

- Figure 1 – Property Location Map
- Figure 2 – Property Layout Map
- Figure 3 – UST Area Map with RBC Exceedances and Proposed Soil Sample Locations
- Figure 4 – Proposed Monitoring Well Locations
- Figure 5 – Depth to Bedrock
- Figure 6 – Proposed Groundwater Monitoring Well Construction
- Table 1 – Sampling Design and Rationale – Soil
- Table 2 – Sampling Design and Rationale – Groundwater
- Appendix A – Analytical Tables from 2023 Remedial Investigation Activities
- Appendix B - Inadvertent Discovery Plan

Reference: Site-Specific Sampling and Analysis Plan Addendum Revision 1, Underground Storage Tank Area, Former Blue Heron Paper Mill, Oregon City

References

Stantec 2022. Master Quality Assurance Project Plan (Revision 1), Former Blue Heron Mill Site, 419-427 Main Street, Oregon City, Oregon. May 13, 2022.

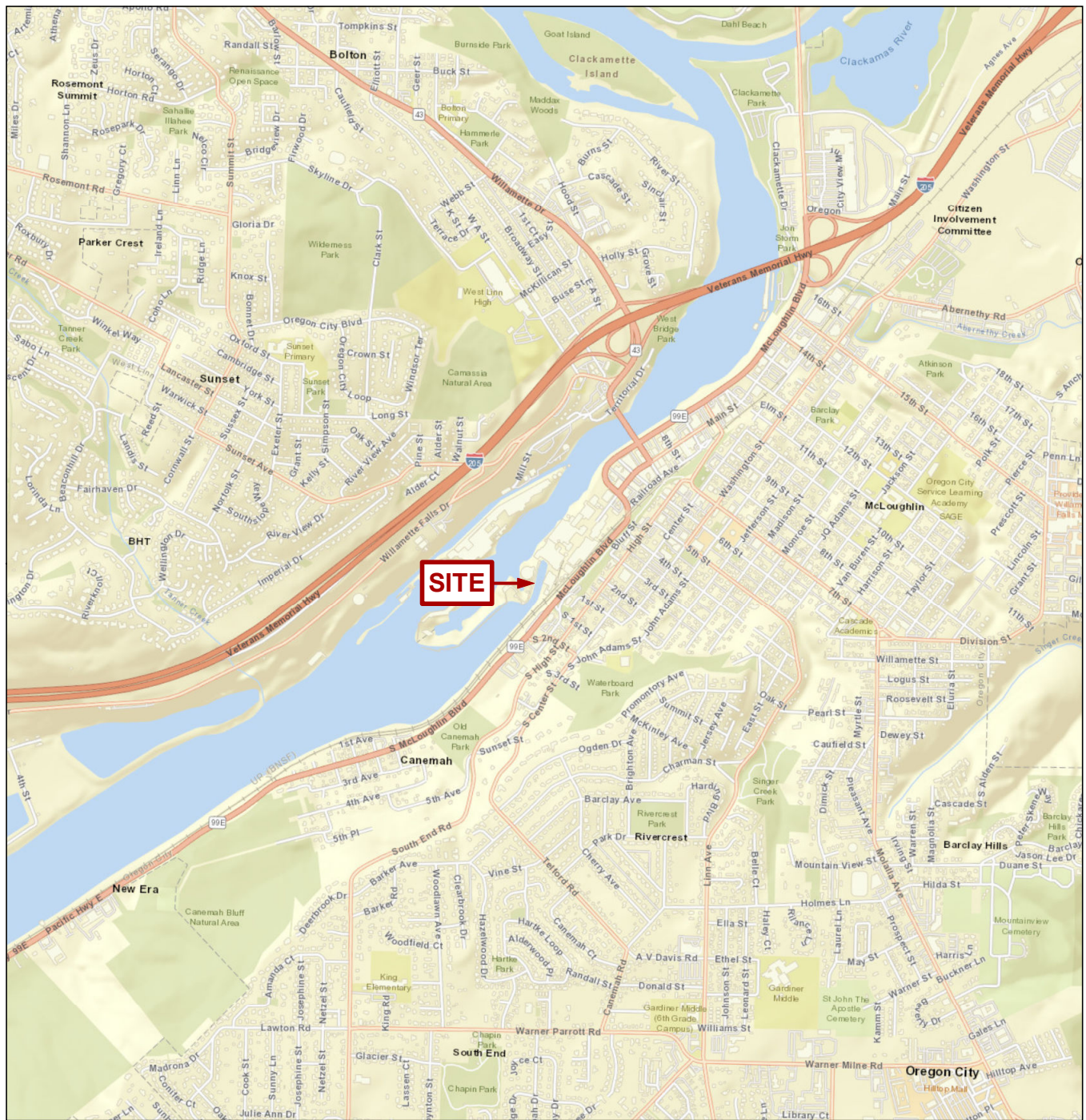
Stantec 2024. Underground Storage Tank Removal Report, Former Blue Heron Paper Mill, 419-427 Main Street, Oregon City, Oregon. January 22, 2024.

Wood 2021. Overarching Work Plan (Revision 1), Former Blue Heron Paper Company Mill. July 9, 2021.

WSP 2024a. Draft Soil and Groundwater Focused Remedial Investigation Report, Former Blue Heron Paper Company Mill, 419-427 Main Street, Oregon City, Oregon 97045, WSP Project No. 261M135588. February 26, 2024.

WSP 2024b. Groundwater Monitoring Well Installation – RI Southern Portion of Site - Addendum #1, CTGR Former Blue Heron Paper Mill, Oregon City, (PPA # 19-12; Former ECSI # 4811, EPA CA # BF-01J99101). October 1, 2024.

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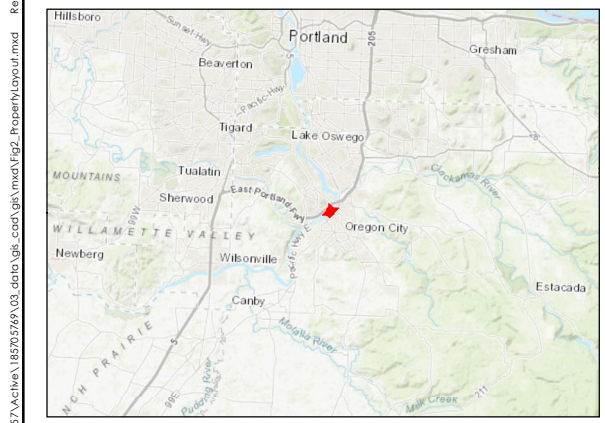
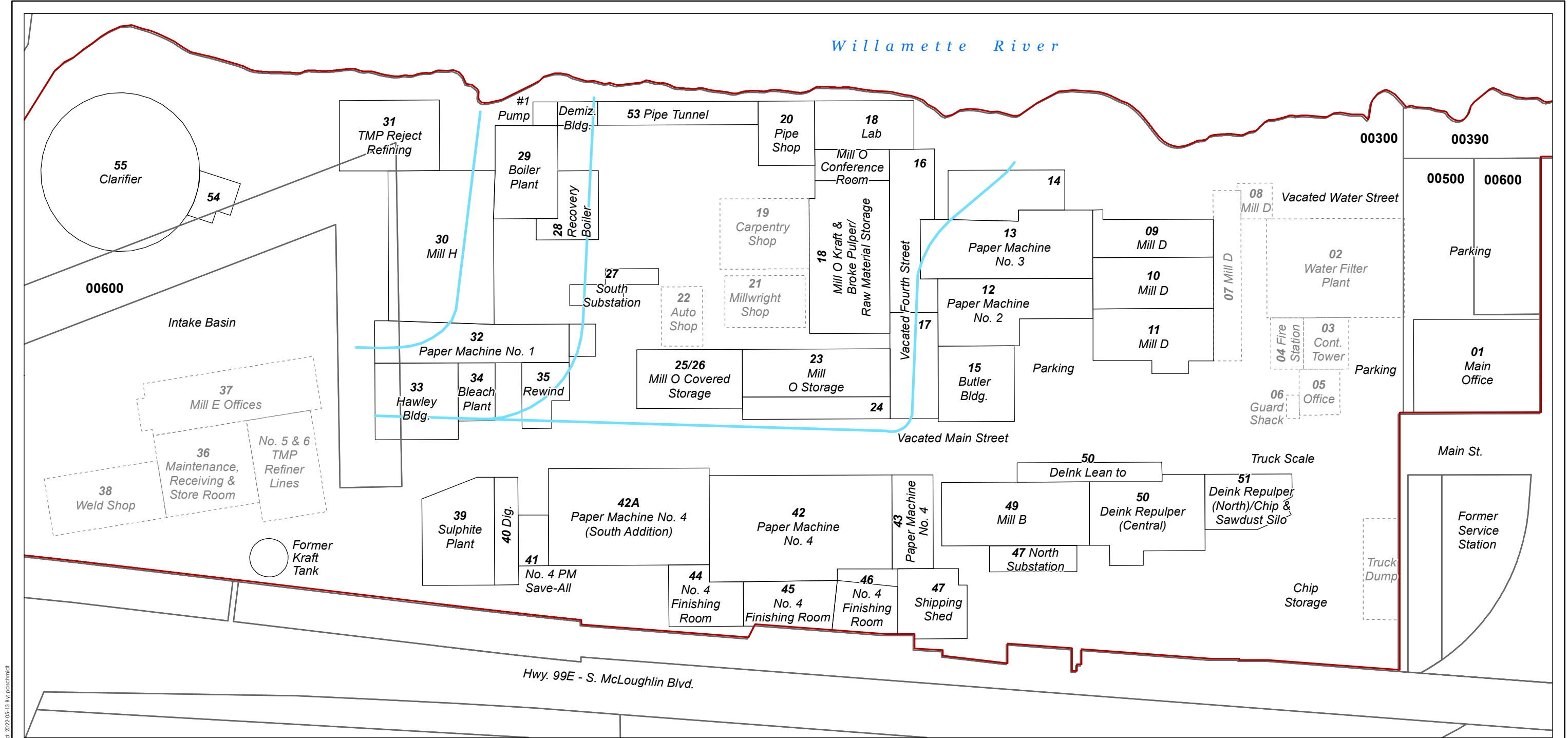


Project Location Prepared by PG on 2022-03-31
419 - 427 Main Street
Oregon City, Oregon TR by LF on 2022-03-31

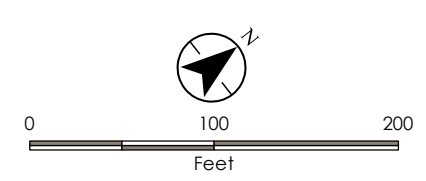
Confederated Tribes of the Grand Ronde
Former Blue Heron Property

Figure 1

Title
Property Location Map



- Site Boundary
- Demolished
- Extant
- Tailrace (approximate)
- Tax Lot



Project Location

Oregon City, Oregon

Client/Project

Confederated Tribes of the Grand Ronde
Former Blue Heron Property

Figure No.

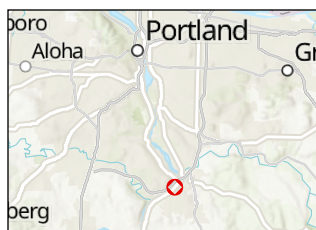
2

Title

Property Layout Map

Prepared by PG on 2022-03-31

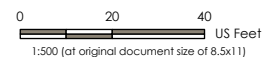
TR by LF on 2022-03-31



- Sample location with one or more RBC exceedances
- Sample location with no RBC exceedances
- Proposed boring locations
- UST Excavation Area
- Existing Building
- Demolished Building

Notes
1. Coordinate System: NAD 1983 2011 Oregon Statewide Lambert Ft Intl

Disclaimer: This document has been prepared based on information provided by others as cited in the Notes section. Stantec has not verified the accuracy and/or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result. Stantec assumes no responsibility for data supplied in electronic format, and the recipient accepts full responsibility for verifying the accuracy and completeness of the data.



Stantec



Project Location
419 - 427 Main Street
Oregon City, Oregon

Prepared by NZ on : 2024-10-08
TR by RM on 2024-10-08

Client/Project

Federated Tribes of the Grande Ronde
Blue Heron FY21 EPA Project

Figure No.
3

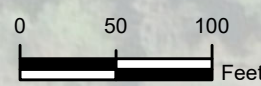
UST Area Map with RBC Exceedances and Proposed Soil Sample Locations



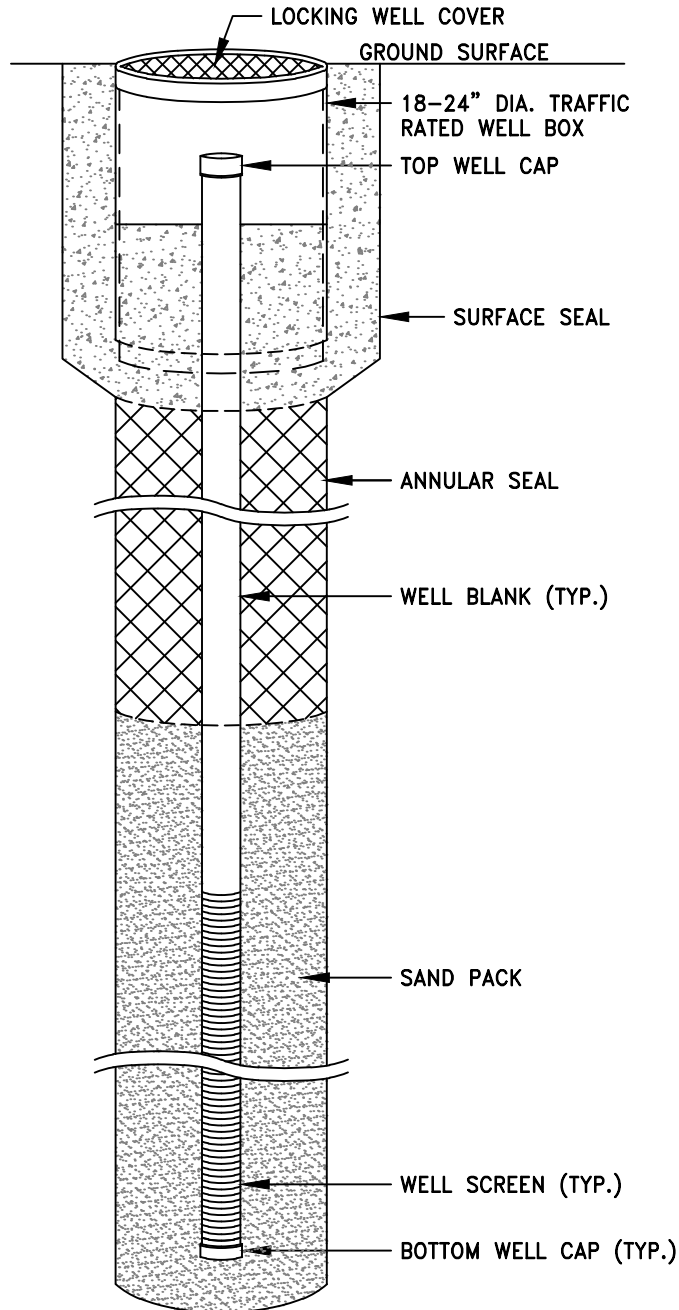
	CONFEDERATED TRIBES OF THE GRAND RONDE		REMEDIAL INVESTIGATION REPORT FORMER BLUE HERON PAPER MILL 419-427 MAIN STREET, OREGON CITY, OREGON	DATE OCTOBER 2024
	WSP USA 15862 SW 72nd Ave., Suite 150 Portland, OR 97224		PROPOSED MONITORING WELL LOCATIONS	SCALE 1" = 125'
				PROJECT NO. 961M13558.04 FIGURE X

W i l l a m e t t e R i v e r

 Boring Identification/Location
 Inferred Bedrock Depth (in Feet)
 Inferred Bedrock Depth Contour(in Feet)
 Site Boundary



DATE	SEPTEMBER 2024
SCALE	1" = 100'
PROJECT NO.	961M13558.04
FIGURE	5



SURFACE SEAL INTERVAL	0'-1'
TYPE OF SURFACE SEAL	Concrete
ANNULAR SEAL INTERVAL	1'-5'
TYPE OF ANNULAR SEAL	Bentonite
DIAMETER OF WELL CASING	2"
TYPE OF WELL CASING	Schedule 40 PVC
SAND PACK INTERVAL	5'-Total Depth
TYPE OF SAND PACK	10-20 Sand
SCREEN INTERVAL	5'
DESCRIPTION OF SCREEN	0.010" Slot
DEPTH OF WELL	Dependant on Bedrock Depth
DIAMETER OF BOREHOLE	6"
DEPTH OF BOREHOLE	Dependant on Bedrock Depth



601 SW Second Avenue Suite 1400
Portland OR 97204-3128
(503) 226-7377/226-0023 (Fax)

FOR:

CONFEDERATED TRIBES OF
THE GRAND RONDE
FORMER BLUE HERON PROPERTY

JOB NUMBER:
185705769

DRAWN BY:
JBL

PROPOSED GROUNDWATER MONITORING WELL CONSTRUCTION

CHECKED BY:
RM

APPROVED BY:
LF

FIGURE:

6

DATE:
10/21/24

Table 1
Site-Specific Sampling and Analysis Plan Addendum, UST Area, Sampling Design and Rationale - Soil
Former Blue Heron Paper Mill
427 Main Street, Oregon City, Oregon

Borehole ID	Total Proposed Boring Depth (feet bgs)	Sample Depth (feet bgs)	Rationale	Petroleum Hydrocarbons	PAHs (EPA 8270D-SIM)	Metals		North American Datum 1983	
				Diesel- and Heavy Oil-Range Organics (NWTPH-Dx)		Arsenic (EPA 6020B)	Lead (EPA 6020B)	Longitude	Latitude
BH-RI-S68	15	2-3	Delineate petroleum hydrocarbons, PAH, arsenic and lead impacts exceeding screening levels west of the former tank pit.	1	1	1	1	45.355157	-122.612574
		Dependant on field screening ¹		1	1	1	1		
		14-15 (if groundwater is not encountered)		*	*	*	*		
BH-RI-S69	15	2-3	Delineate petroleum hydrocarbons, PAH, arsenic and lead impacts exceeding screening levelswest of the former tank pit.	1	1	1	1	45.355110	-122.612626
		Dependant on field screening ¹		1	1	1	1		
		14-15 (if groundwater is not encountered)		*	*	*	*		
BH-RI-S70	15	2-3	Delineate petroleum hydrocarbons, PAH, arsenic and lead impacts exceeding screening levels west of the former tank pit.	1	1	1	1	45.355058	-122.612675
		Dependant on field screening ¹		1	1	1	1		
		14-15 (if groundwater is not encountered)		*	*	*	*		
BH-RI-S71	15	2-3	Delineate petroleum hydrocarbons, PAH, arsenic and lead impacts exceeding screening levels south of the former tank pit.	1	1	1	1	45.354988	-122.612650
		Dependant on field screening ¹		1	1	1	1		
		14-15 (if groundwater is not encountered)		*	*	*	*		
BH-RI-S72	15	2-3	Delineate petroleum hydrocarbons, PAH, arsenic and lead impacts exceeding screening levels south of the former tank pit.	1	1	1	1	45.354947	-122.612578
		Dependant on field screening ¹		1	1	1	1		
		14-15 (if groundwater is not encountered)		*	*	*	*		
BH-RI-S73	15	2-3	Delineate petroleum hydrocarbons, PAH, arsenic and lead impacts exceeding screening levels south of the former tank pit.	1	1	1	1	45.354904	-122.612481
		Dependant on field screening ¹		1	1	1	1		
		14-15 (if groundwater is not encountered)		*	*	*	*		
Step-Out Boring(s)	15	2-3	This contingent boring(s) will delineate petroleum hydrocarbons, PAH, arsenic and lead impacts outboard of borings BH-SI-68 through BH-SI-71 if gross contamination is observed.	1	1	1	1	TBD	TBD
		Dependant on field screening ¹		1	1	1	1		
		14-15 (if groundwater is not encountered)		*	*	*	*		
MW-4	Upper bedrock surface, anticipated to be 10 feet bgs	2-3	Groundwater monitoring well to evaluate groundwater conditions near former tank pit and provide groundwater elevation data point for calculation of groundwater flow and gradient.	1	1	1	1	45.354989	-122.612587
		Dependant on field screening ¹		1	1	1	1		
MW-5	Upper bedrock surface, anticipated to be 16 feet bgs	2-3	Groundwater monitoring well to evaluate groundwater conditions downgradient/cross gradient from former tank pit and provide groundwater elevation data point for calculation of groundwater flow and gradient.	1	1	1	1	45.355628	-122.612543
		Dependant on field screening ¹		1	1	1	1		
Total				18	18	18	18	--	--

Notes:

Proposed boring locations shown on Figure 3, proposed groundwater monitoring well locations shown on Figure 4

bgs = below ground surface

PAHs = Polycyclic Aromatic Hydrocarbons

EPA = United States Environmental Protection Agency analytical method

SIM = Selective Ion Monitoring

UST = Underground Storage Tank

TBD = To Be Determined

¹ = The depth interval exhibiting the highest field indicators of contamination (staining, odor and/or elevated photoionization detector response) will be collected for laboratory analysis. If no field indicators of contamination are observed, the depth interval 9-10 feet bgs will be collected and analyzed.

* = If no groundwater is encountered in the boring(s), the a soil sample will be collected from the 14-15 feet bgs depth interval will be collected and analyzed.

Table 2
Site-Specific Sampling and Analysis Plan Addendum, UST Area, Sampling Design and Rationale - Groundwater
Former Blue Heron Paper Mill
427 Main Street, Oregon City, Oregon

Sample Identification	Rationale	Diesel- and Heavy Oil-Range Organics (NWTPH-Dx)	PAHs (EPA 8270D-SIM)	Total and Dissolved Lead (EPA 6020B)	Total and Dissolved Arsenic (EPA 6020B)	North American Datum 1983	
						Longitude	Latitude
MW-4	Evaluate groundwater conditions near former tank pit and provide groundwater elevation data point for calculation of groundwater flow and gradient.	1	1	1	1	45.354989	-122.612587
MW-5	Evaluate groundwater conditions downgradient/cross gradient from former tank pit and provide groundwater elevation data point for calculation of groundwater flow and gradient.	1	1	1	1	45.355628	-122.612543
Total		2	2	2	2	--	--

Notes:

Boring locations shown on Figure 4

bgs = below ground surface

PAHs = Polycyclic Aromatic Hydrocarbons

EPA = United States Environmental Protection Agency analytical method

SIM = Selective Ion Monitoring

UST = Underground Storage Tank

TABLE 1
Soil Sample Analytical Results - TPH, Metals, and Detected VOCs
Former Blue Heron Mill Property, North Portion
Oregon City, Oregon

Sample ID		Date Sampled	Petroleum Hydrocarbons				Metals			VOCs				
			NWTPH-Gx (Gasoline)	NWTPH-Dx (Diesel)	NWTPH-Dx (Heavy Oil)	Total Diesel/Heavy Oil	Cadmium	Chromium	Lead	Iso-Propylbenzene	n-Butylbenzene	n-Propylbenzene	o-Xylene	sec-Butylbenzene
B21UST-N-2'		10/27/2023	7.60 U	365	53.8 U	365	0.288 U	19.6	21.1	0.076 U	0.076 U	0.038 U	0.038 U	0.076 U
B21UST-N-8'		10/27/2023	235	49,900	4,930 U	49,900	0.240 U	17.9	36.7	0.0734	0.392	0.153	0.0532	0.154
B21UST-W-2'		10/27/2023	--	115 U	510	510	0.234 U	15.2	10.3	--	--	--	--	--
B21UST-W-5'		10/27/2023	235	13,400	4,670 U	13,400	0.247 U	16.6	38.7	0.0578 U	0.332	0.0589	0.0381	0.213
FBH-DUP102723 (FD of B21UST-W-5')		10/27/2023	224	15,400	4,610 U	15,400	0.252 U	17.3	48.9	0.0617 U	0.302	0.0506	0.0339	0.193
B21UST-W-8'		10/27/2023	13.7	319 J+	60.7 U	319	0.317 U	18.9	83.1	0.087 U	0.087 U	0.0435 U	0.0435 U	0.087 U
B21UST-S-2'		10/27/2023	--	2,430 U	7,610	7,610	0.282	25.5	156	--	--	--	--	--
B21UST-S-6'		10/27/2023	--	2,270 U	16,100	16,100	0.262 U	20.8	85.0	--	--	--	--	--
B21UST-E-2'		10/27/2023	--	450 U	1,220	1,220	0.267	30.4	117	--	--	--	--	--
B21UST-E-8'		10/27/2023	--	2,480 U	23,000	23,000	0.297 U	21.2	79.1	--	--	--	--	--
Clean Fill/Background Screening Values			1,300 ¹	See Site-Specific Value	NA	1,300 ¹	0.63	76	28	96	190	72	1.0	350
Soil Ingestion, Dermal Contact, and Inhalation RBC - Residential			1,300 ¹	See Site-Specific RBC	NA	1,300 ¹	78	120,000	400	3,500	NA	NA	1,400.0	NA
Soil Ingestion, Dermal Contact, and Inhalation RBC - Occupational			20,000 ¹	See Site-Specific RBC	NA	20,000 ¹	1,100	NA	800	57,000	NA	NA	25,000	NA
Soil Ingestion, Dermal Contact, and Inhalation RBC - Construction Worker			6,900 ¹	See Site-Specific RBC	NA	6,900 ¹	350	530,000	800	27,000	NA	NA	20,000	NA
Soil Ingestion, Dermal Contact, and Inhalation RBC - Excavation Worker			>Max ¹	See Site-Specific RBC	NA	>Max ¹	9,700	NA	800	750,000	NA	NA	560,000	NA
RCRA TCLP Trigger Concentration (20x Rule)			NA	NA	NA	NA	20	100	100	NA	NA	NA	NA	NA
Portland Harbor Site Wide RAL			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Portland Harbor PTW Threshold			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Portland Harbor Navigation Channel RAL			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1. Site-Specific RBC calculated using procedure described in DEQ guidance
All results expressed as milligrams per kilogram, except for leachate samples which are reporting in milligrams per liter
bold = indicates concentrations detected above method reporting limits
shaded gray = indicates concentration exceeds clean fill/background screening value
highlighted yellow = indicates concentration exceeds background and residential direct contact RBC
highlighted orange = indicates concentration exceeds background and constuction worker direct contact RBC
highlighted red = indicates concentration exceeds background and occupational direct contact RBC
highlighted blue = indicates concentration exceeds TCLP Trigger Concentration
highlighted purple = indicates concentration exceeds Portland Harbor Site Wide RAL

FD = field duplicate
mg/L = milligrams per liter
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RCRA = Resource Conservation and Recovery Act
TCLP = Toxic Characteristic Leaching Procedure

J = The result is an estimated value; "+" indicates a potential positive bias
U = Not detected, the associated value is the method reporting limit

Clean Fill/Background Screening Values (Portland Basin), Oregon DEQ April 2019 revision
RBCs = Oregon DEQ Risk-Based Concentrations; May 2018, amended June 2023, except TPH RBCs, which are site-specific based on EPH/VPH testing
RCRA TCLP = Resource Conservation and Recovery Act toxicity characteristic waste screening levels (40 Code of Federal Regulations 261.24)
Portland Harbor Remedial Action Levels (RAL) and Principal Threat Waste (PTW) Screening Values; USEPA 2017, ammended May 2020

TABLE 2 Soil Sample Analytical Results - Polycyclic Aromatic Hydrocarbons Former Blue Heron Mill Property, North Portion Oregon City, Oregon																		
Sample ID	Date Sampled	1-Methy-naphthalene	2-Methyl-naphthalene	Anthracene	Benzo(a)-anthracene	Benzo(a)-pyrene	Benzo(b)-fluoranthene	Benzo(g,h,i)-perylene	Benzo(k)-fluoranthene	Chrysene	Dibenz(a,h)-anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Phenanthrene	Pyrene	Total PAHs	Benzo[a]-pyrene TEQ
B21UST-N-2'	8/21/2023	0.0545	0.0128 U	0.0154 U	0.024	0.0167	0.0153	0.0149	0.0128 U	0.0499	0.0128 U	0.0249	0.0164	0.0128 U	0.0512	0.0784	0.346	0.021
B21UST-N-8'	8/21/2023	30.9	0.857	4.00 U	3.16	1.13	0.881	0.364	0.172	6.65	0.217	2.68	7.14	0.257	17	8.89	80.3	1.79
B21UST-W-2'	8/21/2023	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
B21UST-W-5'	8/21/2023	2.28	0.114 U	0.434 U	0.281	0.165	0.197	0.114 U	0.114 U	1.00	0.114 U	0.481	2.98	0.114 U	2.39	1.05	9.82	0.214
FBH-DUP102723 (FD of B21UST-W-5')	8/21/2023	1.94	0.338	0.356 U	0.243	0.135	0.156	0.0677	0.0584 U	0.771	0.0584 U	0.384	2.29	0.0584 U	2.12	0.815	9.26	0.176
B21UST-W-8'	8/21/2023	0.104	0.0172	0.0346	0.0392	0.0372	0.0461	0.0667	0.0145 U	0.0667	0.0145 U	0.0685	0.042	0.0477	0.179	0.104	0.853	0.0512
B21UST-S-2'	8/21/2023	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
B21UST-S-6'	8/21/2023	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
B21UST-E-2'	8/21/2023	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
B21UST-E-8'	8/21/2023	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Clean Fill Screening Values		0.36	11	6.8	0.73	0.11	1.1	25	11	3.1	0.11	10	3.7	1.1	5.5	10	NA	0.11
Soil Ingestion, Dermal Contact, and Inhalation RBC - Residential		NA	NA	23,000	1.10	0.11	1.1	NA	11	110	0.11	2,400	3,100	1.1	NA	1,800	NA	0.11
Soil Ingestion, Dermal Contact, and Inhalation RBC - Occupational		NA	NA	350,000	21	2.1	21	NA	210	2,100	2.1	30,000	47,000	21	NA	23,000	NA	2.1
Soil Ingestion, Dermal Contact, and Inhalation RBC - Construction Worker		NA	NA	110,000	170	17	170	NA	1,700	17,000	17	10,000	14,000	170	NA	7,500	NA	17
Soil Ingestion, Dermal Contact, and Inhalation RBC - Excavation Worker		NA	NA	NA	4,800	490	4,900	NA	49,000	490,000	490	280,000	390,000	4,900	NA	210,000	NA	490
Volatilization to Outdoor Air RBC - Urban Residential		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatilization to Outdoor Air RBC - Occupational		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RCRA TCLP Trigger Concentration (20x Rule)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Portland Harbor Site Wide RAL		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	30	NA
Portland Harbor PTW Threshold		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	774
Portland Harbor Navigation Channel RAL		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	170	NA

Notes:

All results expressed as milligrams per kilogram, except for leachate samples which are reporting in milligrams per liter

bold = indicates concentrations detected above method reporting limits

shaded gray = indicates concentration exceeds clean fill screening value

highlighted yellow = indicates concentration exceeds residential direct contact RBC

highlighted orange = indicates concentration exceeds occupational direct contact RBC

highlighted red = indicates concentration exceeds constuction worker direct contact RBC

highlighted purple = indicates concentration exceeds Portland Harbor Site Wide RAL

FD = field duplicate

mg/L = milligrams per liter

NA = Not Available, no screening value is listed for this analyte.

RCRA = Resource Conservation and Recovery Act

TCLP = Toxic Characteristic Leaching Procedure

J = The result is an estimated value; "+" indicates a potential positive bias

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Clean Fill/Background Screening Values (Portland Basin), Oregon DEQ April 2019 revision

RBCs = Oregon DEQ Risk-Based Concentrations; May 2018, amended June 2023

RCRA TCLP = Resource Conservation and Recovery Act toxicity characteristic waste screening levels (40 Code of Federal Regulations 261.24)

Portland Harbor Remedial Action Levels (RAL) and Principal Threat Waste (PTW) Screening Values; USEPA 2017, ammended May 2020

TABLE 3
Groundwater Sample Analytical Results - DRO, and Detected VOCs, Metals, and PAHs
Former Blue Heron Mill Property, North Portion
Oregon City, Oregon

Sample ID	Date Sampled	NWTPH-Dx (Diesel)	Benzene	o-Xylene	Chromium	Lead	Acenaphthene	Fluorene	1-Methylnaphthalene	Benzo[a]-pyrene TEQ
B21UST-Pit Water	10/30/2023	6.28	0.230	0.590	6.20	12.3	1.53	0.719	4.60	0.0
Ingestion & Inhalation from Tapwater RBC - Residential		100	2.1	190	250,000	15	2,500	3,100	NA	NA
Ingestion & Inhalation from Tapwater RBC - Urban Residential		NA	2.0	710	110,000	15	2,400	1,400	NA	NA
Ingestion & Inhalation from Tapwater RBC - Occupational		NA	2.1	830	250,000	15	2,500	1,300	NA	NA
Volatilization to Outdoor Air RBC - Residential		NA	3,100	NA	NA	NA	NA	NA	NA	NA
Volatilization to Outdoor Air RBC - Urban Residential		NA	7,400	NA	NA	NA	NA	NA	NA	NA
Volatilization to Outdoor Air RBC - Occupational		NA	14,000	NA	NA	NA	NA	NA	NA	NA
Chronic Vapor Intrusion RBC - Residential		400	12	NA	NA	NA	NA	NA	NA	NA
Chronic Vapor Intrusion RBC - Commercial		NA	52	NA	NA	NA	NA	NA	NA	NA
GW in Excavation RBC - Construction & Excavation Worker		NA	1,800	23,000	NA	NA	NA	NA	NA	NA
Ecological - Chronic RBC for Water		640	NA	NA	24	0.54	NA	NA	NA	0.06

Notes:
All results expressed as micrograms per liter
bold = indicates concentrations detected above method reporting limits
highlighted orange = indicates concentration exceeds Chronic Ecological RBC
FD = field duplicate
NA = Not Available, no screening value is listed for this analyte.
PAHs = polycyclic aromatic hydrocarbons
TEQ = Toxic Equivalence Quotient

J = The result is an estimated value

RBCs = Oregon DEQ Risk-Based Concentrations, Revision: May 2018 amended June 2023
Risk Based Concentrations for Water, DEQ Guidance for Conducting Ecological Risk Assessments (September, 2020)



The Confederated Tribes of Grand Ronde
Tribal Historic Preservation Office

Cultural Monitoring Summary for the
Inadvertent Discovery of Ancestral Remains and Cultural Materials

The following steps summarizing protocol that will be followed by all crew members in the event of a human remains/burial items or cultural materials discovery. Historic materials associated with the Blue Heron Paper Mill will be exempt from this process, unless the finds are unique and notably different from what is already known to be present at the facility.

STEP 1: Stop Work.

If any employee, contractor, or subcontractor believes that they have uncovered a cultural resource at any point in the project, all work must stop immediately. Notify the appropriate party(ies). Leave the surrounding area untouched, and provide a secured and protected buffer no less than 30 meters (100 ft.) around the discovery. The discovery location must be secured at all times by a temporary fence or other onsite security. Any temporary fence should not further impact the ground.

STEP 2: Notify the Cultural Resources Monitor.

If there is a Cultural Resources Monitor for the project, notify that person. If there is a monitoring plan in place, the monitor will follow the outlined procedure.

STEP 3: Notify the Project Manager.

The Project Manager or applicable staff will make all calls and necessary notifications. If a Cultural Resources Monitor is on the project, the Project Manager may delegate the responsibility of notification to the Cultural Resources Monitor.

If human remains are encountered, treat them with dignity and respect at all times. Cover the remains with a new clean tarp for temporary protection and to shield them from being photographed. **Do not call 911 or speak with the media. Do not take pictures. DO NOT CONTINUE DISTURBANCE!**

Project Manager's Responsibilities:

- **Protect Find:** The Project Manager is responsible for taking appropriate steps to protect the discovery site. All work will stop in an area adequate to provide for the total security, protection, and integrity of the resource. Vehicles, equipment, and unauthorized personnel will not be permitted to traverse the discovery site. Work in the immediate area will not resume until treatment of the discovery has been completed following provisions for treating cultural material as set forth in this document.
- **Direct Construction Elsewhere On-site:** The Project Manager may direct construction away from cultural resources to work in other areas if a cultural resources monitor is available to monitor said activities. .
- **Identify Find:** A professional archaeologist will examine the find to determine if it is archaeological.
 - If the discovery is determined to not be archaeological, work may proceed with no further delay.
 - If the discovery is determined to be archaeological, the Project Manager will continue with notification to the Historic Preservation Office.
 - If the discovery is human remains, the Project Manager will ensure that law enforcement is notified, and then notify the Historic Preservation Office.

Special Procedures for Human Remains

Any human skeletal remains, regardless of antiquity or ethnic origin, will at all times be treated with dignity and respect. Cover the remains with a new clean tarp for temporary protection and to shield them from being photographed. **Do not call 911 or speak with the media. Do not take pictures.**
Do not place ancestral human remains in plastic bags

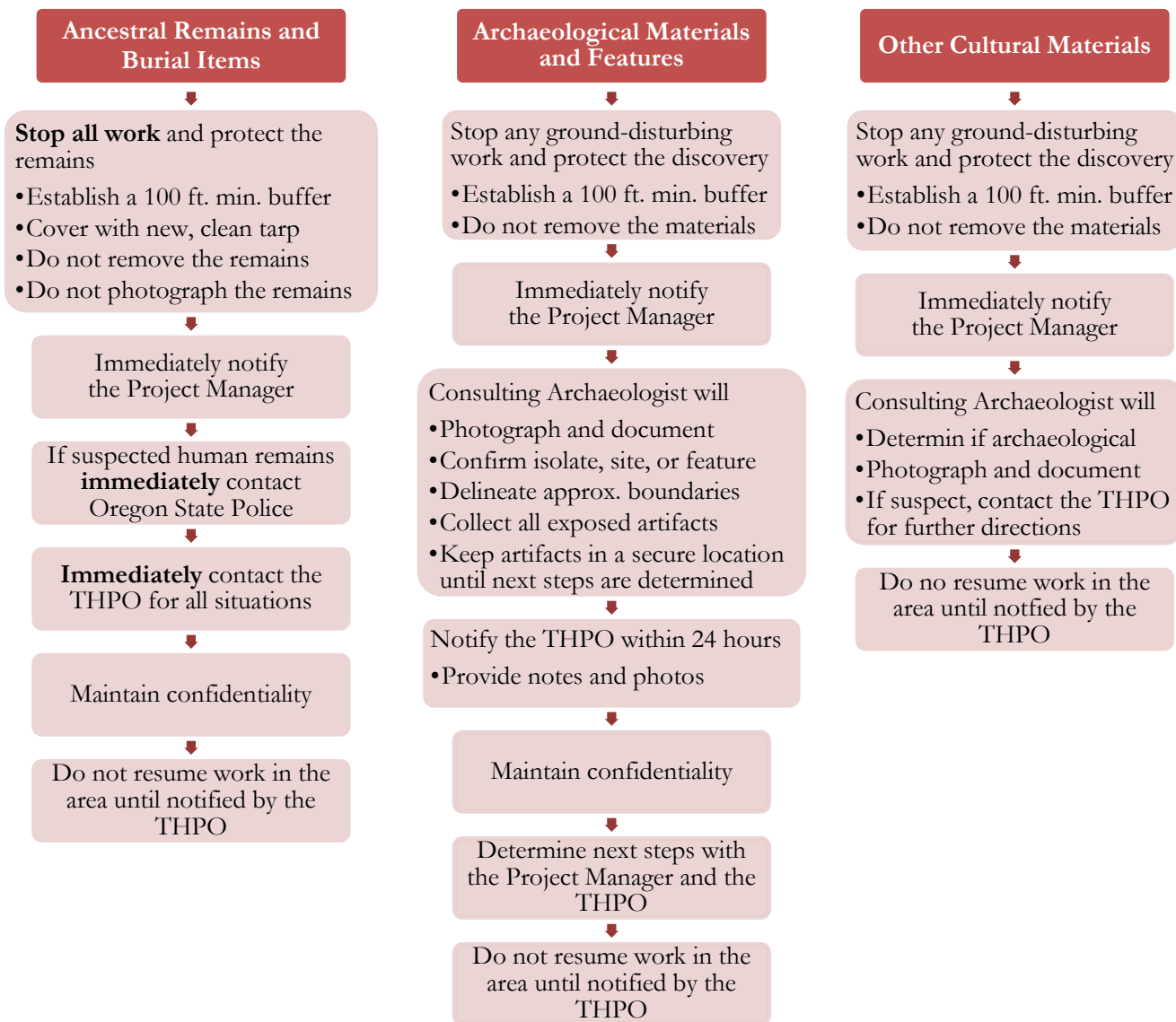


The Confederated Tribes of Grand Ronde Tribal Historic Preservation Office

Cultural Monitoring Summary for the Inadvertent Discovery of Ancestral Remains and Cultural Materials

Synthesis of Monitoring Protocol

The following flowchart summarizing protocol that will be followed by the monitoring archaeologist in the event of a human remains/burial items or cultural materials discovery. Historic materials associated with the Blue Heron Paper Mill will be exempt from this process, unless the finds are unique and notably different from what is already known to be present at the facility.



Contacts

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**The Confederated Tribes of Grand Ronde
Tribal Historic Preservation Office**

**Cultural Monitoring Summary for the
Inadvertent Discovery of Ancestral Remains and Cultural Materials**

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Tribal Police	Chief Jake McNight	(503) 879-1474