Site-Specific Sampling and Analysis Plan, Revision 2 - Focused Remedial Investigation

Former Blue Heron Mill Property
North Portion

US Environmental Protection Agency
Region 10

Brownfield Multipurpose Grant
Cooperative Agreement No. BF-01J99101

Prepared for:

Confederated Tribes of Grand Ronde
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June 12, 2023

Sign-off Sheet

Document Title:	Site-Specific Sampling and Analysis Plan, Revision 2 - Focused Remedial Investigation Former Blue Heron Mill Site – Northern Portion Cooperative Agreement No: BF-01J99101
Prepared by:	Stantec Consulting Services Inc. 601 SW 2nd Avenue, Suite 1400 Portland, Oregon 97204
Date:	June 12, 2023

Title	Name	Signature	Date of Approval
EPA Region 10 Brownfields Project Officer	Margaret Olson		
EPA Region 10 Quality Assurance Manager	Cindy Fields		
DEQ Project Manager	Mark Pugh		
Confederated Tribes of Grand Ronde Project Manager	Ryan Webb		
Stantec Project Manager	Leonard Farr Jr.		6/12/23
Stantec Field Manager	Robert McAlister		6/12/23

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Robert McAlister, RG
Associate Geologist

Leonard Farr Jr., RG, LG
Principal Geologist

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1.0 INTRODUCTION

On behalf of the Confederated Tribes of Grand Ronde (CTGR), Stantec Consulting Services Inc. (Stantec) is pleased to provide this Site-Specific Sampling and Analysis Plan (SAP) for a Focused Remedial Investigation (RI) at the Former Blue Heron Mill Property located at 427 Main Street in Oregon City, Oregon (the "Property"). This SAP was developed in accordance with the July 9, 2021 *Overarching Work Plan, Revision 1,* prepared by Wood Environment & Infrastructure Solutions, Inc. (Wood) (Wood 2021).

The RI 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 Oregon Department of Environmental Quality (DEQ) on May 17, 2022 and by the EPA on May 23, 2022.

An initial draft SAP was submitted on April 6, 2023 to the DEQ, and comments on the document were received from Project Manager (PM), Mr. Mark Pugh, on April 13, 2023. In response, Stantec submitted the SAP revision 1 to DEQ and EPA on April 20, 2023 with DEQ's comments addressed. On June 5, 2023 Ms. Margaret Olsen of the EPA provided comments to Revision 1 of the SAP. All DEQ and EPA comments have been addressed in this Revision 2 version of the SAP.

1.1 PROJECT ORGANIZATION

The RI implementation team will be led by Stantec PM Leonard Farr. Key team member roles and responsibilities are summarized below. If this organizational structure changes at any time during the project, the change will be documented in an amendment to this SAP.

EPA Region 10 Brownfields Project Officer: Margaret Olson
Phone: (503) 326-5874

The EPA is the lead funding agency for the project. The EPA Region 10 Brownfields Project Officer will review and approve the SAP and will monitor activities for this project.

EPA Region 10 Brownfields Quality Assurance Manager: Cindy Fields
Phone: **(206) 553-1893**

The EPA Region 10 Brownfields Quality Assurance Manager will review and approve the SAP.

DEQ Project Manager: Mark Pugh
Phone: **(503) 229-5587**

The DEQ, through its Voluntary Cleanup Program, is the lead regulatory agency for the project. The DEQ Project Manager will review and approve the SAP.

Confederated Tribes of Grand Ronde Grantee Project Manager: Ryan Webb, PE
Phone: (503) 879-2404

The CTGR Grantee PM is the primary point-of-contact for communications with the EPA, DEQ, and Stantec. The CTGR Grantee PM is responsible for overall project management, contract management, project cost accounting, and other business-related project tasks. The CTGR Grantee PM will coordinate all required reporting to the EPA Project Officer.

Stantec Project Manager and QA/QC Manager: Leonard Farr Jr., RG, LG
Phone: (503) 220-5443

The Stantec PM will coordinate project activities, provide technical support and oversight, and will coordinate with internal staff so that the resources necessary to complete the project are available when needed. The Stantec PM will communicate with team members, coordinate daily operations, and maintain control over the schedule, budget, and technical aspects of the project. The Stantec PM will be responsible for deliverables and manage subcontractor procurement activities. The Stantec PM will review all deliverables to ensure that high-quality work products are produced. The Stantec PM will be responsible for distributing the finalized, approved SAP to each of the key project personnel via email.

The Stantec Quality Assurance/Quality Control (QA/QC) Manager will manage the review of data and deliverables generated during this project in accordance with the QAPP.

Stantec Health and Safety Officer and Field Manager: Robert McAlister, RG
Phone: (714) 686-4435

The Health and Safety Officer (HSO) will be responsible for ensuring that all field sampling activities performed by Stantec personnel follow guidelines contained in the project Site-Specific Health and Safety Plan (HASP) prepared in accordance with Occupational Health and Safety Administration (OSHA) guidelines. The HSO will be responsible for 1) completing a hazard analysis specific to the field activities described herein, 2) ensuring that Stantec field personnel have received appropriate levels of site-specific and general training; and 3) making sure that subcontractors receive a pre-work safety briefing (a.k.a. tailgate meeting), and that through this briefing and other communications, subcontractors are equipped to ensure their employees operate in a safe manner while on the project site, including the preparation of their own HASP. Subcontractor employees will sign-off that they have fulfilled their safety obligations by signing a certification form included in the project HASP.

The Field Manager (FM) will be responsible for implementing the field activities, including scheduling, collecting samples, documentation, and delivery of samples to the laboratory.

Analytical Laboratory: Apex Laboratories LLC
Project Manager: Philip Nerenberg
Phone: 503-718-2323

Apex Laboratories LLC (Apex) will be responsible for providing analytical testing services for samples described in this SAP. The Apex PM assigned to this project will report to the Stantec PM.

1.2 PROJECT BACKGROUND

The Property is located approximately 15 miles south of Portland on a 23-acre rocky outcrop along the Willamette River, wedged between downtown Oregon City and Willamette Falls. The Property has an extensive history of development and industrial use dating back to at least 1884. Portland General Electric (PGE) has operated a hydroelectric dam at Willamette Falls for over 100 years, and the dam's foundation forms part of the Property's southeastern boundary. Past industrial uses included various paper mills, a woolen mill, a tannery, a flour mill, wood mill, small manufacturing facilities, an automotive repair shop, warehouses, boarding houses/hotels, and small retail operations. The Property was most recently occupied by the Blue Heron Paper Mill, which ceased operation in 2011. The Property has been vacant since that time.

Vacant buildings, industrial structures, roadways, and infrastructure remain at the Property. Portions of the Property have been filled to create buildable land. The subsurface mill tailraces that provided drainage along natural pathways were improved over time and became part of the Property's water discharge system. In addition to above-grade buildings and structures, the Property includes below-grade spaces, basements, equipment areas, drainageways, and pipe corridors.

1.3 PROPERTY LOCATION AND SETTING

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**. A Proposed Sample Location Map is provided as **Figure 3**.

The Property is identified in Clackamas County tax assessment records with the following tax lot numbers:

Tax Lot	Address	Acres
22E31BD500	427 Main Street	0.63
22E31BD390	428 Water Street	0.27
22E31BD600	part of parking lot associated with office building, no address	0.26
22E31BD300	419 Main Street	22.0

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).

1.4 PRIOR ENVIRONMENTAL ASSESSMENT ACTIVITIES

Previous environmental investigations at the Property have been completed in 2008, 2011, 2012, 2018 and 2019 as summarized in Wood's *Phase I Environmental Site Assessment* report dated August 22, 2019 (Wood 2019a), and *Initial Summary Report* dated October 15, 2019 (Wood 2019b).

In 2019, CTGR signed a Prospective Purchaser Agreement (PPA) with the DEQ agreeing to complete assessment and cleanup actions at the Property in exchange for environmental liability protections. In line with PPA requirements, CTGR must now conduct assessment and cleanup activities including: 1) high priority assessment and cleanup needed to contain known and suspected areas of contamination, prevent contamination from spreading via the Property's stormwater system and other preferential pathways, and prepare the on-Property office building for near-term use by the CTGR; and 2) additional areas where environmental data gaps must be assessed and where focused cleanup is needed to prepare the Property for reuse.

Property contaminants of concern (COCs) consist of heavy metals, petroleum hydrocarbons, polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) including polycyclic aromatic hydrocarbons (PAHs), and/or dioxins/furans in soil and groundwater (Wood, 2019a).

Soil and groundwater data collected during previous investigations indicated additional investigation of Property COCs is warranted in the following locations in the northwestern portion of the Property:

1. Near previous sampling locations F01-01 and F01-02 in the parking lot west of Building 01 and west of former underground storage tanks (USTs) (PAHs and/or lead);
2. Near previous sampling location F07-01 at the northeast corner of Building 07 (PAHs and naphthalene);
3. Near previous sampling locations B-16 and GP-17 north and northeast of former Building 15 (Mill D, demolished) (PAHs and/or lead);
4. Near previous sampling locations GP07 and F16-01 in vacated Front Street/Building 16 (PAHs, arsenic and lead);
5. Near previous sampling location GP15 in vacated Main Street east of Building 25/26 (PAHs);
6. Near previous sampling locations B-2 through B-5 east of Buildings 41/42A/44 (arsenic and lead);
7. Near previous sampling locations TD-01 and TD-02 in the parking lot north of the former chip storage area and west of former USTs (PAHs);
8. Near previous sampling location B-19 in Main Street west of the former service station (petroleum hydrocarbons, VOCs and lead).

Historical sample locations are presented on Figures 4 through 22 in **Appendix A**.

2.0 SCOPE OF WORK

Stantec is collaborating with WSP Global (WSP, formerly Wood) to implement the Overarching Work Plan (Wood, 2021). The RI in total consists of 87 borings, with WSP completing 45 borings in the southern half of the Property and Stantec completing 42 borings in the northern half of the Property as described in

the following Sections. Figures depicting the line dividing the northern and southern portions of the Property are provided in **Appendix B**.

This RI scope of work consists of soil and/or groundwater sampling in 42 borings located on the north portion of the Property (**Figure 3**) – 29 borings for collection of soil samples only, nine borings for collection of soil and groundwater samples, and four borings (W-20 through W-23) for collection of grab groundwater samples only (**Table 1** and **Table 2**, and **Figure 3**). All exploration locations have been designated in accordance with the Overarching Work Plan, except for proposed sample locations re-located during the utility clearance. Grab groundwater samples will additionally be collected from selected borings as indicated on **Table 2**. These boring locations can generally be described as follows:

1. Borings S28 through S30 and S65 through S67 located west of Building 01;
2. Borings S25 through S27 (PAHs above screening levels were detected in previous boring F07-01 [see Figure 11 in **Appendix A**] so if field evidence [staining and/or petroleum-like odor] of PAH contamination extending to groundwater is identified in any of these borings, a groundwater sample also will be collected from that boring and tested for PAHs);
3. W16 at the northeast corner of Building 07;
4. Borings S23, S24, S24A, and S59 through S64 north located northeast of Building 15 (the Overarching Work Plan previously contained two borings identified as S22 in the cluster in Vacated Main Street and the cluster north of Building 15; therefore, Stantec redesignated the boring north of Building 15 to S24A);
5. Borings S17 through S19 and W8 through W10 in vacated Front Street/Building 16;
6. Borings S20 through S22 and W15 in vacated Main Street east of Buildings 25/26;
7. Borings S35 through S41 and S43 and W14 east of Buildings 41/42A;
8. S30A through S30F and W17 through W19 in the parking lot north of the former chip storage area and west of former USTs; and
9. Borings W20 through W23 in Main Street west of the former retail gas station.

2.1 OBJECTIVES

This SAP provides a scope of work intended to achieve the following objectives:

1. Evaluate the presence and concentration of COCs identified during previous Property environmental assessments;
2. Evaluate lateral and/or vertical extent of COCs identified during previous Property environmental assessments; and
3. Collect data to evaluate potential remedial actions to mitigate any COCs that may pose an unacceptable risk to human health or the environment.

2.2 PRE-FIELDWORK ACTIVITIES

2.2.1 Ground Disturbance Verification

Prior to any intrusive work at the Property, Stantec will call the Utility Notification Center to request an underground utility locate of Property environmental assessment areas.

Stantec field staff mobilized to the Property in January 2023 for pre-RI borehole locating and possible underground utility conflict screening. Utility clearance was completed at all accessible proposed boring locations by Pacific Geophysics of Portland, Oregon using a combination of magnetic, conductive, and ground penetrating radar surveys.

All proposed borehole locations were established without requiring repositioning due to subsurface utilities and/or surface obstructions with the following exceptions:

- Borings S21, S26, S27, S30B, S30C, S30F, S59, S62, S63, S65 and S67 were relocated due to proximity to subsurface utility conflicts;
- Boring locations S24A and S60 were obstructed by concrete Jersey barriers and utility clearance could not be completed; and
- Boring location S30E was obstructed by a Conex box, therefore the boring was relocated 3.5 feet to the south of the original boring location.

Adjusted boring locations are shown on **Figure 3**. Boring coordinates are provided in **Table 1** and **Table 2**.

2.2.2 Health and Safety Planning

Stantec will complete a complete a hazard analysis specific to the field activities described herein and amend the project HASP if hazards not covered by the project HASP are identified, prior to mobilizing to the Property for any field activities. Daily safety meetings will be completed during implementation of RI field sampling activities. All subcontractors will be informed regarding potential Property chemical hazards and will operate under their own project HASPs.

Supplemental to the HASP, Stantec will complete a project-specific Task Specific Safety Form as required by CTGR for any intrusive work completed at the Property.

2.2.3 Archaeological Permitting

Stantec will submit an Archaeological Permit Application to the Oregon Historic Preservation Office (SHPO) a minimum of 30 days prior to planned RI field sampling activities. Said permit is required by Oregon law (ORS 390.235 and 358.905-961) to complete subsurface activities from an archaeological site on private land. The Inadvertent Discovery Plan developed for the project is provided in **Appendix C**.

2.3 SUBSURFACE ASSESSMENT

The subsurface assessment, as described in the following sections, will include advancement of 42 boreholes using a combination of hand auger and direct-push drilling methods in the locations shown on **Figure 3**. Actual sample locations may be adjusted in the field based on observations and obstructions. A hand auger may be utilized for locations in close proximity to subsurface utilities and/or inaccessible to the direct-push drilling rig. The rationale for each sampling location, and a listing of analytical testing methods planned for each sample, is provided in **Table 1** and **Table 2**.

2.3.1 Soil Sampling

Stantec will subcontract with an Oregon-licensed driller to facilitate borehole advancement for the collection of soil samples to address the objectives indicated in Section 2.1.

Soil sampling procedures will be performed consistent with QAPP SOP-02 as summarized below:

- Retrieve the disposable acetate sleeve from the direct-push system and cautiously slice the sleeve open with a clean utility knife or sleeve knife so as not to disturb the soil;
- First collect soil sample(s) for volatile COCs (VOCs and gasoline-range hydrocarbons) using a disposable, small-diameter core sampler (i.e., EnCore®) placing a minimum of a 5-gram sample into a 40-milliliter volatile organic analysis vial; and
- Place the remainder of the soil planned for analysis into appropriate sample containers.

A new pair of disposable Nitrile gloves must be donned for the collection of each soil sample.

Soil samples will be tested for the COCs listed in **Table 1**.

2.3.2 Groundwater Sampling

Groundwater sampling procedures will be performed consistent with QAPP SOP-04 if groundwater is observed in soil borings, as summarized below:

- Installation of a temporary polyvinyl chloride well screen/casing to facilitate groundwater sample collection;
- Measure the depth to top of groundwater relative to the ground surface;
- Purge the temporary well using low-flow sampling techniques using a peristaltic pump equipped with new disposable high density polyethylene tubing; and
- Once purging is determined sufficient based on field indicator measurements, collect a groundwater sample using low-flow techniques using the disposable down-hole tubing utilized for purging.

A new pair of disposable Nitrile gloves must be donned for the collection of each groundwater sample.

Groundwater samples will be tested for the COCs listed in **Table 2**.

2.3.3 Quality Assurance/Quality Control

All quality assurance/quality control (QA/QC) samples will be collected, handled, and submitted for analysis in accordance with the USEPA-approved QAPP (Stantec 2021), as summarized below.

- One field duplicate will be collected for every 20 samples or less per sample matrix.
- Equipment blanks will be collected by pouring laboratory-prepared water or distilled water over or through reusable field sampling equipment and collecting the rinsate for laboratory analysis. One equipment blank will be submitted to the laboratory with investigative samples and analyzed for the same parameters as the investigative samples.
- Trip blanks will be submitted at the rate of one trip blank per environmental sample shipment for laboratory VOC analysis.

- Additional sample volume will be collected and submitted for laboratory matrix spike/matrix spike duplicate (MS/MSD) analysis. An MS/MSD sample will be collected for organic and inorganic analyses at a minimum frequency of one per 20 or fewer samples per matrix.

2.4 ARCHAEOLOGICAL MONITORING

It is anticipated that the Section 106 consultation currently being conducted for this project will result in a requirement that all subsurface activities conducted at the Property include monitoring for archeological objects. As such, Stantec is planning to 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 also will be prepared for the project following Section 106 consultation completion and will be implemented during this project.

2.5 LABORATORY TESTING

All RI soil and groundwater samples will be submitted under chain of custody protocol to Apex Laboratories in Tigard, Oregon. Laboratory testing and procedures will be completed consistent with Section 4 and 5 of the QAPP to meet project data quality objectives.

A Stantec project chemist will complete data validation of all project analytical data to ensure data usability.

2.6 BORING ABANDONMENT AND INVESTIGATIVE DERIVED WASTE

Borings will be backfilled with granular bentonite hydrated in-place. The uppermost 1-foot of each boring will be backfilled with gravel topped with 3-6 inches of concrete or cold-patch asphalt, depending on the surrounding ground surface cover.

Soil cuttings, decontamination water, and purged groundwater will be placed into 55-gallon steel drums and stored on-Property pending the results of soil/groundwater laboratory testing. Once lab data is received, investigative derived waste (IDW) will be transported off-Property to an appropriate disposal facility.

3.0 SCHEDULE AND REPORTING

Upon approval of this SAP, Stantec will coordinate with CTGR and all project subcontractors to complete RI activities. It is anticipated that RI sampling activities will require up to two weeks to complete. Sample laboratory analysis will require up to three weeks. Upon receiving sample testing data, Stantec will coordinate with WSP (formerly Wood) in completing a Focused Remedial Investigation Report.

The report will include, at a minimum:

- A summary of field investigation methods.
- Updated figures indicating boring locations.

- Borings logs with lithologic and soil/groundwater environmental sample collection data.
- A discussion of deviations from this SAP.
- Laboratory analytical reports and tables summarizing all analytical data. The tables will also include, for comparison purposes, the following screening values:
  - DEQ risk-based concentrations (RBCs, DEQ 2018), including those for total PCBs, and benzo(a)pyrene toxic equivalent (TEQ);
  - Resource Conservation and Recovery Act toxicity characteristic waste screening levels, including application of the "20-times rule" to soil samples (40 Code of Federal Regulations 261.24);
  - DEQ ecological risk screening values (DEQ 2020b); and
  - Portland Harbor remedial action levels and principal threat waste screening values (these screening values were not listed in the QAPP, and therefore are provided in **Appendix D**).
- A data validation memorandum.
- Remedial action recommendations, as appropriate.

4.0 LIMITATIONS

This document was prepared by Stantec for CTGR. The material in it reflects Stantec's best judgment in light of the information available to it at the time of preparation. Any use which a third party makes of this SAP, or any reliance on or decisions made based on it, are the responsibilities of such third parties. Stantec accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this SAP.

5.0 REFERENCES

Maul, Foster & Alongi, Inc. (MFA), 2018. Focused Subsurface Investigation Report, Willamette Falls Riverwalk, Phase 1, Oregon City, Oregon. April 2, 2018.

Oregon Department of Environmental Quality, 2017. Risk-Based Decision Making for the Remediation of Contaminated Sites. Updated October 2, 2017.

Oregon Department of Environmental Quality, 2018. Risk-Based Concentrations for Individual Chemicals Table. Updated May 2018.

Oregon Department of Environmental Quality, 2020. Conducting Ecological Risk Assessments. September 14, 2020.

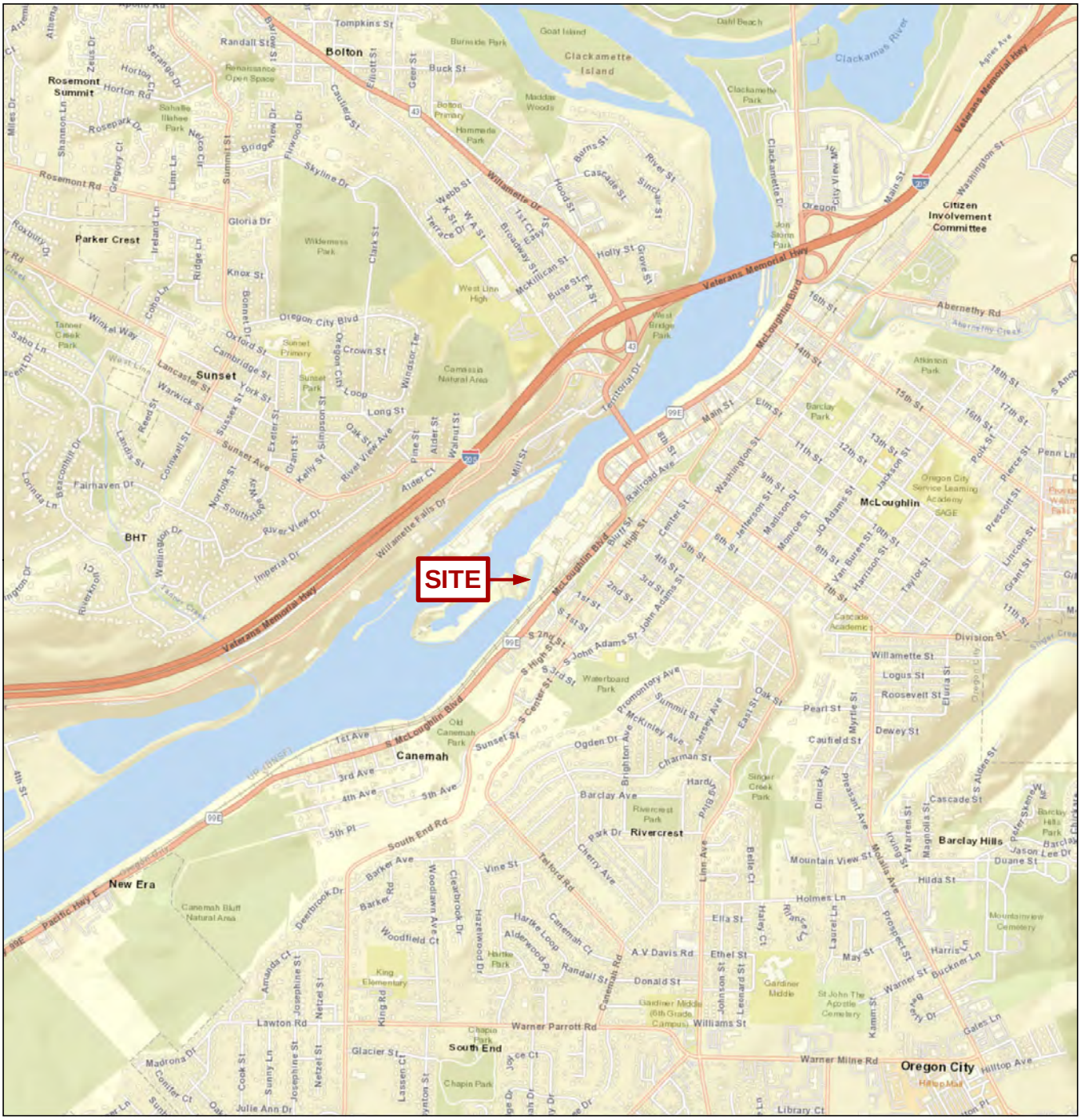
Stantec, 2022. Master Quality Assurance Project Plan (Revision 1), Former Blue Heron Mill Site, Cooperative Agreement No. BF-01J99101. May 13, 2022.

Wood, 2019a. Phase I Environmental Site Assessment, Former Blue Heron Paper Company Mill Site, 419 Main Street, Oregon City, Oregon 97045. August 22, 2019.

Wood, 2019b. Initial Summary Report, Former Blue Heron Paper Company Mill. October 15, 2019.

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

FIGURES



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Stantec

Project Location
419 - 427 Main Street
Oregon City, Oregon

Prepared by PG on 2022-03-31
TR by LF on 2022-03-31

Client/Project
Confederated Tribes of Grand Ronde
Former Blue Heron Mill Site
Focused Remedial Investigation SAP

Figure 1

Title
Property Location **Map**

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Willamette River

55 Clarifier
54
00600
Intake Basin
31 TMP Reject Refining
#1 Pump
Demiz. Bldg.
53 Pipe Tunnel
20 Pipe Shop
18 Lab
29 Boiler Plant
28 Recovery Boiler
Mill O Conference Room
16
00300
00390
00500
00600
30 Mill H
19 Carpentry Shop
18 Mill O Kraft & Broke Pulper/ Raw Material Storage
14
08 Mill D
Vacated Water Street
13 Paper Machine No. 3
09 Mill D
07 Mill D
02 Water Filter Plant
Parking
27 South Substation
22 Auto Shop
21 Millwright Shop
12 Paper Machine No. 2
10 Mill D
04 Fire Station
03 Cont. Tower
01 Main Office
Vacated Fourth Street
17
11 Mill D
32 Paper Machine No. 1
25/26 Mill O Covered Storage
23 Mill O Storage
15 Butler Bldg.
Parking
Parking
06 Guard Shack
05 Office
33 Hawley Bldg.
34 Bleach Plant
35 Rewind
24
Vacated Main Street
Main St.
37 Mill E Offices
36 Maintenance, Receiving & Store Room
No. 5 & 6 TMP Refiner Lines
38 Weld Shop
50 DeInk Lean to
Truck Scale
51 Deink Repulper (North)/Chip & Sawdust Silo
49 Mill B
50 Deink Repulper (Central)
47 North Substation
Former Service Station
Former Kraft Tank
39 Sulphite Plant
40 Dig.
42A Paper Machine No. 4 (South Addition)
42 Paper Machine No. 4
43 Paper Machine No. 4
41 No. 4 PM Save-All
44 No. 4 Finishing Room
45 No. 4 Finishing Room
46 No. 4 Finishing Room
47 Shipping Shed
Chip Storage
Truck Dump
Hwy. 99E - S. McLoughlin Blvd.

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

N

0 100 200
Feet

Stantec

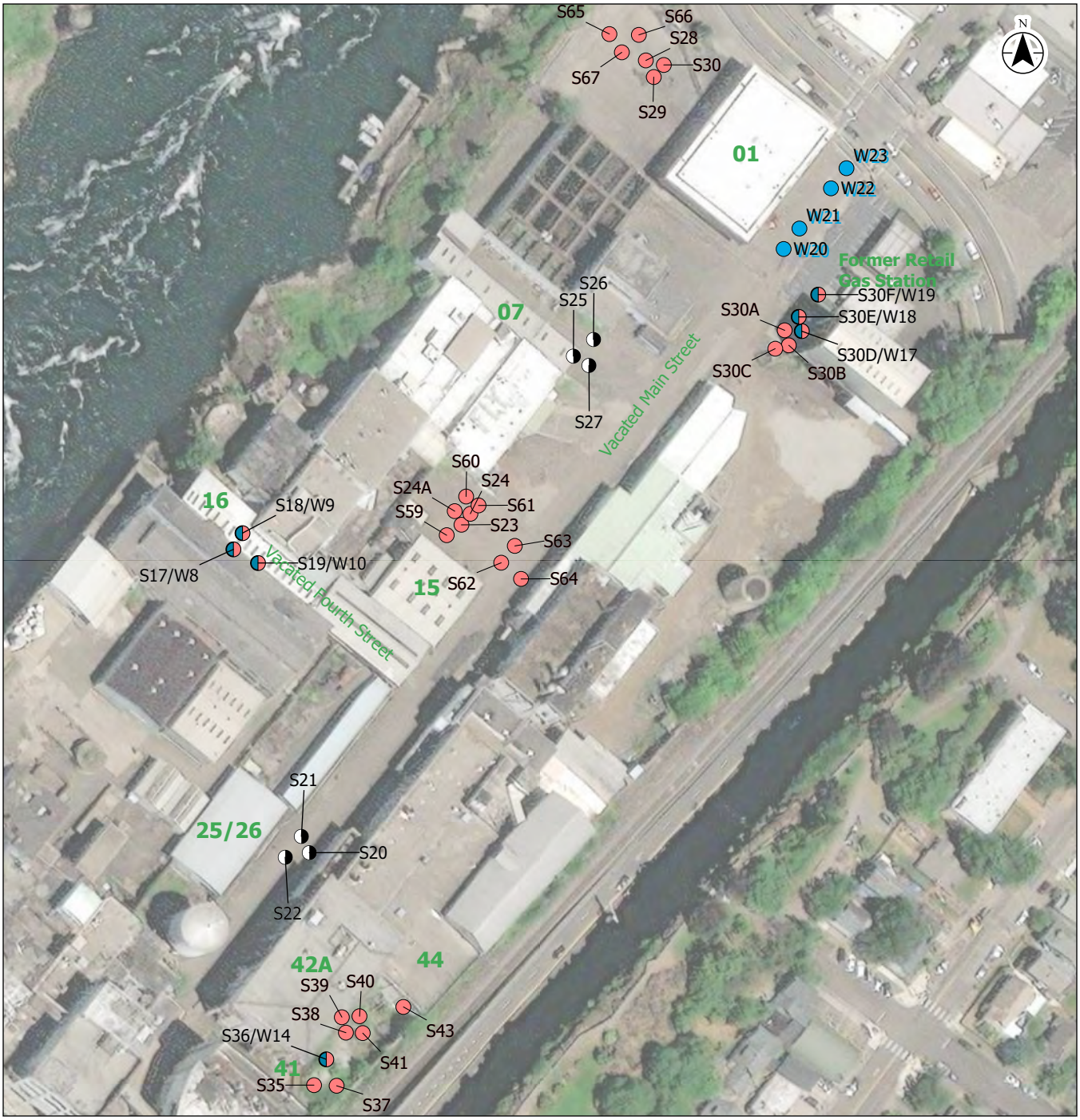
Project Location
Oregon City, Oregon

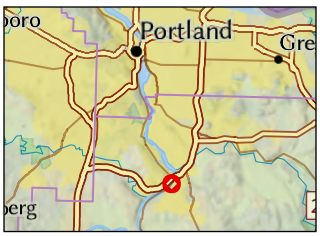
Prepared by PG on 2022-03-31
TR by LF on 2022-03-31

Client/Project
Confederated Tribes of Grand Ronde
Former Blue Heron Mill Site
Focused Remedial Investigation SAP

Figure No.
2

Title
Property Layout **Map**





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

Media Type
- Groundwater
- Soil
- Soil and Groundwater
- Soil and Potentially Groundwater

44 Building Label

Water sample W15 will be collected from boring S20, S21 or S22 depending on results of field screening.
Water sample W16 will be collected from boring S25, S26 or S27 depending on results of field screening.

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Stantec

Project Location
419 - 427 Main Street
Oregon City, Oregon

Prepared by NZ on : 2023-03-31

Client/Project
Confederated Tribes of Grand Ronde
Former Blue Heron Mill Site
Focused Remedial Investigation SAP

Figure No.
3

Title
Proposed Sample Locations Map

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TABLES

Table 1
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	
				Gasoline-Range Organics (NWTPH-Gx)	Gasoline-Range Organics (NWTPH-Gx)		Arsenic (EPA 6020B)	Lead (EPA 6020B)	Northing	Easting
S17	10	3	Delineate petroleum hydrocarbons, PAH, arsenic and lead impacts exceeding screening levels near GP07 and F16-01 in vacated Fourth Street/Building 16	1	1	1	1	1	7659130.003	622786.2835
		5		1	1	1	1	1		
		10		1	1	1	1	1		
S18	10	3	Delineate petroleum hydrocarbons, PAH, arsenic and lead impacts exceeding screening levels near GP07 and F16-01 in vacated Fourth Street/Building 16	1	1	1	1	1	7659158.074	622789.7549
		5		1	1	1	1	1		
		10		1	1			1		
S19	10	3	Delineate petroleum hydrocarbons, PAH, arsenic and lead impacts exceeding screening levels near GP07 and F16-01 in vacated Fourth Street/Building 16	1	1	1	1	1	7659158.115	622761.6186
		5		1	1	1	1	1		
		10		1	1			1		
S20	10	3	Delineate PAH impacts exceeding screening levels near GP15 in vacated Main Street			1			7659204.442	622489.6501
		10				1				
S21	10	3	Delineate PAH impacts exceeding screening levels near GP15 in vacated Main Street			1			7659196.598	622505.3710
		10				1				
S22	10	3	Delineate PAH impacts exceeding screening levels near GP15 in vacated Main Street			1			7659346.374	622823.3417
		10				1				
S23	10	3	Delineate PAH impacts exceeding screening levels near B-16 north of Building 15			1			7659352.967	622810.3532
		10				1				
S24	10	3	Delineate PAH impacts exceeding screening levels near B-16 north of Building 15			1			7659361.876	622820.8787
		10				1				
S24A	10	3	Delineate PAH impacts exceeding screening levels near B-16 north of Building 15			1			7659361.868	622820.8761
		10				1				
S25	10	3	Delineate PAH impacts exceeding screening levels near F07-01 at southeast corner of Building 07			1			7659462.613	622975.2421
		10				1				
S26	10	3	Delineate PAH impacts exceeding screening levels near F07-01 at southeast corner of Building 07			1			7659482.18	622991.4386
		10				1				
S27	10	3	Delineate PAH impacts exceeding screening levels near F07-01 at southeast corner of Building 07			1			7659477.699	622965.7904
		10				1				
S28	15	3	Delineate PAH and lead impacts exceeding screening levels near F01-01 in parking lot west of Building 01 and west of former USTs			1			7659533.392	623264.308
		15				1				
S29	15	3	Delineate PAH and lead impacts exceeding screening levels near F01-01 in parking lot west of Building 01 and west of former USTs			1			7659541.086	623247.9398
		15				1				
S30	15	3	Delineate PAH and lead impacts exceeding screening levels near F01-01 in parking lot west of Building 01 and west of former USTs			1		1	7659550.944	623259.747
		15				1		1		
S30A	15	3	Delineate PAH impacts exceeding screening levels near TD-01 and TD-02 in parking lot north of former chip storage area and west of former truck dump			1			7659669.126	623000.4775
		10				1				
		15				1				
S30B	15	3	Delineate PAH impacts exceeding screening levels near TD-01 and TD-02 in parking lot north of former chip storage area and west of former truck dump			1			7659673.206	622985.7654
		10				1				
		15				1				
S30C	15	3	Delineate PAH impacts exceeding screening levels near TD-01 and TD-02 in parking lot north of former chip storage area and west of former truck dump			1			7659660.068	622982.215
		10				1				
		15				1				
S30D	15	3	Delineate PAH impacts exceeding screening levels near TD-01 and TD-02 in parking lot north of former chip storage area and west of former truck dump			1			7659685.837	622999.415
		10				1				
		15				1				
S30E	15	3	Delineate PAH impacts exceeding screening levels near TD-01 and TD-02 in parking lot north of former chip storage area and west of former truck dump			1			7659683.01	623013.5512
		10				1				
		15				1				
S30F	15	3	Delineate PAH impacts exceeding screening levels near TD-01 and TD-02 in parking lot north of former chip storage area and west of former truck dump			1			7659702.115	623035.2793
		10				1				
		15				1				
S35	10	3	Delineate arsenic and lead impacts exceeding screening levels near B-4 east of Building 41/42A				1	1	7659209.005	622262.1937
		5					1	1		
		10					1	1		
S36	10	3	Delineate arsenic and lead impacts exceeding screening levels near B-4 east of Building 41/42A				1	1	7659220.762	622287.253
		5					1	1		
		10					1	1		
S37	10	3	Delineate arsenic and lead impacts exceeding screening levels near B-4 east of Building 41/42A				1	1	7659231.041	622261.4191
		5					1	1		
		10					1	1		
S38	10	3	Delineate arsenic impacts exceeding screening levels near B-2, B-3, B-5 and F42-01 east of Building 42A				1		7659240.096	622313.3739
		5					1			
		10					1			
S39	10	3	Delineate arsenic impacts exceeding screening levels near B-2, B-3, B-5 and F42-01 east of Building 42A				1		7659236.105	622328.6208
		5					1			
		10					1			
S40	10	3	Delineate arsenic impacts exceeding screening levels near B-2, B-3, B-5 and F42-01 east of Building 42A				1		7659253.377	622329.6821
		5					1			
		10					1			
S41	10	3	Delineate arsenic and lead impacts exceeding screening levels near B-2, B-3, B-5 and F42-01 east of Building 42A				1	1	7659256.488	622312.9653
		5					1	1		
		10					1	1		
S43	10	3	Delineate lead impacts exceeding screening levels near B-2 and B-3 south of Building 44					1	7659296.372	622338.6099
		5						1		
		10						1		
S59	3	3	Delineate lead impacts exceeding screening levels near B-16 north of Building 15					1	7659338.799	622799.8751
S60	3	3	Delineate lead impacts exceeding screening levels near B-16 north of Building 15					1	7659357.698	622837.9268
S61	3	3	Delineate lead impacts exceeding screening levels near B-16 north of Building 15					1	7659369.767	622828.9394
S62	3	3	Delineate lead impacts exceeding screening levels near GP-17 northeast of Building 15					1	7659391.996	622772.9547
S63	3	3	Delineate lead impacts exceeding screening levels near GP-17 northeast of Building 15					1	7659405.254	622789.5277
S64	3	3	Delineate lead impacts exceeding screening levels near GP-17 northeast of Building 15					1	7659411.436	622757.1438
S65	3	3	Delineate lead impacts exceeding screening levels near F01-02 in parking lot west of Building 01 and west of former USTs					1	7659498.732	623289.4591
S66	3	3	Delineate lead impacts exceeding screening levels near F01-02 in parking lot west of Building 01 and west of former USTs					1	7659526.517	623289.4507
S67	3	3	Delineate lead impacts exceeding screening levels near F01-02 in parking lot west of Building 01 and west of former USTs					1	7659509.84	623272.1074
Total				9	9	49	28	35	--	--

Notes:
Information in this table sourced from Table 1 - Soil Summary from Wood's July 9, 2021*Overarching Work Plan - Revision 1, Former Blue Heron Paper Company Mill*
Boring locations shown on Figure 3
bgs = below ground surface
PAHs = Polycyclic Aromatic Hydrocarbons
EPA = United States Environmental Protection Agency analytical method
SIM = Selective Ion Monitoring

Table 2
Sampling Design and Rationale - Groundwater
Former Blue Heron Paper Mill
427 Main Street, Oregon City, Oregon

Sample Identification	Total Proposed Boring Depth (feet bgs)	Rationale	Hydrocarbon Identification (NWTPH-HCID)[1]	PAHs (EPA 8270D-SIM)	Volatile Organic Compounds (EPA 8260)	Total and Dissolved Lead (EPA 6020B)	North American Datum 1983	
							Northing	Easting
W8	20	Collected from boring S17 to delineate lead impacts exceeding screening levels near GP07 in vacated Fourth Street/Building 16				1	7659130.003	622786.2835
W9	20	Collected from boring S18 to delineate lead impacts exceeding screening levels near GP07 in vacated Fourth Street/Building 16				1	7659158.074	622789.7549
W10	20	Collected from boring S19 to delineate lead impacts exceeding screening levels near GP07 in vacated Fourth Street/Building 16				1	7659158.115	622761.6186
W14	10	Collected from boring S36 to delineate lead impacts exceeding screening levels near B-4 east of Building 41/42A				1	7659220.762	622287.253
W15	15	Collected from boring S20, S21 or S22 (depending on results of field screening during boring advancement) to delineate PAH impacts exceeding screening levels near GP15 in vacated Main Street east of Building 25/26.		1	1		Dependant on paired soil boring	Dependant on paired soil boring
W16	15	Collected from boring S25, S26 or S27 (depending on results of field screening during boring advancement) to delineate PAH impacts exceeding screeing levels near F07-01 at northeast corner of Building 07		1			Dependant on paired soil boring	Dependant on paired soil boring
W17	10	Collected from boring S30D to delineate hydrocarbon, benzene and PAH impacts exceeding screening levels near TD-02 southeast of former retail gas station	1		1	1	7659685.837	622999.415
W18	10	Collected from boring S30E to delineate hydrocarbon, benzene and PAH impacts exceeding screening levels near TD-02 southeast of former retail gas station	1		1	1	7659683.01	623013.5512
W19	10	Collected from boring S30F to delineate hydrocarbon, benzene and PAH impacts exceeding screening levels near TD-02 southeast of former retail gas station	1		1	1	7659702.115	623035.2793
W20	15	Delineate hydrocarbons and related compounds west from former gas station	1		1	1	7659668.266	623080.032
W21	15	Delineate hydrocarbons and related compounds west from former gas station	1		1	1	7659683.641	623099.7458
W22	15	Delineate hydrocarbons and related compounds west from former gas station	1		1	1	7659714.389	623139.1732
W23	15	Delineate hydrocarbons and related compounds west from former gas station	1		1	1	7659729.764	623158.8867
Total			7	2	8	11	--	--

Notes:

Information in this table sourced from Table 2 - Groundwater Summary from Wood's July 9, 2021 Overarching Work Plan - Revision 1, Former Blue Heron Paper Company Mill

Boring locations shown on Figure 3

bgs = below ground surface

PAHs = Polycyclic Aromatic Hydrocarbons

EPA = United States Environmental Protection Agency analytical method

SIM = Selective Ion Monitoring

UST = Underground Storage Tank

[1] = Quantification of gasoline-, diesel- and/or residual-range hydrocarbons will be completed by the lab contingent on HCID detections