A.1 TITLE PAGE

SITE-SPECIFIC QUALITY ASSURANCE PROJECT PLAN

Highway 101 Former Mill Site
West of Intersection of Marine Drive

ACRES ID # 257735
CHA Project Number: 079705.000

January 2024

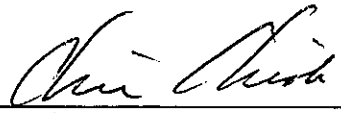
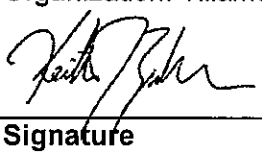
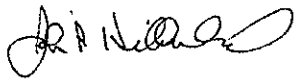
Prepared for:

County of Tillamook
201 Laurel Avenue
Tillamook, Oregon 97141

Prepared by:
CHA Consulting, Inc.
270 Peachtree Street NW
Atlanta, Georgia 30303-1283
Phone: (678) 954-5005

A.2 APPROVAL PAGE

Site-Specific Quality Assurance Project Plan [revision 0, 1/11/2024]
Highway 101 Former Mill Site
Highway 101 West of the Intersection at Marine Drive
Tillamook County, Oregon

Approvals Signature		
Signature	**Name**	**Date**
	Chris Chiola	1-16-24
Signature Title: Brownfields Grantee Project Manager Organization: Tillamook County	**Printed Name**	**Date**
	Keith Ziobron, PE	1/11/2024
Signature Title: Qualified Environmental Professional Project Manager Organization: CHA Consulting, Inc.	**Printed Name**	**Date**
	John Hildenbrand	1/11/2024
Signature Title: QA/QC Officer Organization: Terraphase Engineering, Inc.	**Printed Name**	**Date**
Signature Title: Brownfields Project Officer/Manager Organization: USEPA	**Printed Name**	**Date**
Signature Title: Region 10 QA Manager Organization: USEPA	**Printed Name**	**Date**
Signature Title: Brownfields Coordinator/Project Manager Organization: Oregon Department of Environmental Quality	**Printed Name**	**Date**

INTRODUCTION

Tillamook County (County) is required to obtain advance approval from the United States Environmental Protection Agency (USEPA) for its *Quality Assurance Project Plan* (QAPP) prior to performing any site work using the federal grant funds under its USEPA Brownfield Assessment Grant Cooperative Agreement Number 02J20601. The QAPP is a formal document describing in detail the necessary quality assurance (QA), quality control (QC), and other technical activities that will be implemented to ensure that the results of the site work performed will satisfy the stated performance criteria.

The County has prepared this Site Specific QAPP (SSQAPP) for the Highway 101 Former Mill Site located on Highway 101, west of the intersection at Marine Drive prior to the commencement of the site work.

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List of Acronyms & Abbreviations

Apex	Apex Analytical Laboratory
Bgs	Below Ground Surface
CHA	CHA Consulting, Inc.
DQI	Data Quality Indicators
DQOs	Data Quality Objectives
EPA	United States Environmental Protection Agency
ESA	Environmental Site Assessment
GPR	Ground Penetrating Radar
HASP	Health and Safety Plan
HOTs	Heating Oil Tanks
LCS	Laboratory Control Samples
MS/MSD	Matrix Spike/Matrix Spike Duplicate
NELAP	National Environmental Laboratory Accreditation Program
ODEQ	Oregon Department of Environmental Quality
OSHA	Occupational Safety and Health Administration
PAH	Polycyclic Aromatic Hydrocarbons
Parametrix	Parametrix, Inc.
PID	Photoionization Detector
PPE	Personal Protective Equipment
QA	Quality Assurance
QAM	Quality Assurance Manual
QAPP	Quality Assurance Project Plan
QC	Quality Control
RBCs	Risk-based Concentrations
RECs	Recognized Environmental Conditions
SSQAPP	Site-Specific Quality Assurance Project Plan
Terraphase	Terraphase Engineering Inc.
TPH	Total Petroleum Hydrocarbons
USTs	Underground Storage Tanks

A.4 PROJECT PURPOSE, DEFINITION, AND BACKGROUND

The Tillamook County Tax Assessor's office identifies the Highway 101 Former Mill Site property herein referred to as the "Site" as five tax parcels totaling approximately 7.79 acres, identified by tax parcel identification numbers 2N1002BC04700, 2N1002BC04800, 2N1002BB00400, 2N1002BB00300, and 2N1002BB00301, currently owned by Bott Marsh LLC with controlling interest by Kenneth Ulbricht (Figure 1). The Site is located along U.S. Highway 101, west of the intersection at Marine Drive, and borders the Nehalem River to its west in Wheeler, Oregon. The Site is currently vacant and undeveloped.

Previous environmental investigations at the Site include the following:

- Phase I Environmental Site Assessment (ESA) conducted by Parametrix, Inc. (Parametrix) in 2016 as part of the United States Environmental Protection Agency (EPA) Brownfields Assessment Grant (Cooperative Agreement BF-00J94201-0) for the Salmonberry Trail.
- Phase II ESA conducted by Parametrix in 2017.
- Phase I ESA conducted by Terraphase Engineering Inc. (Terraphase) in October 2023 as part of the EPA Community-wide Assessment Grant BF-02J20601-0.

The most recent Phase I ESA completed by Terraphase in October 2023 identified environmental impacts on the Site warranting further investigation and corrective actions. Historically the Site was a former sawmill, shingle mill, and lumber yard from at least the 1920s through the 1960s. When the sawmill/shingle mill was in operation, the Site consisted of a dry kiln, planer, machine shop, conveyor line, burn pit, and other associated structures. While the exact date when operations ceased is unknown, according to historical resources reviewed during the Phase I ESA, by 1970, most of the structures had been demolished and the Site had been graded. The Phase I ESA concluded that the historical use of the Site constituted a REC due to concerns associated with sawmills and shingle mills including the use of lubricating oils, other oils for industrial use and maintenance of industrial equipment, residue, and waste from operating burn pits, and chemicals associated with wood treatment operations. Additionally, the Phase I ESA conducted by Terraphase noted that the Phase II ESA conducted by Parametrix in 2017 identified total petroleum hydrocarbons (TPH) and polycyclic aromatic hydrocarbons (PAH) in both the soil and groundwater of the Site. One soil boring near the former machine shop and one groundwater sample had several PAH exceedances above the Oregon Department of Environmental Quality (ODEQ) residential Risk-Based Concentrations (RBCs). TPH was detected in two groundwater samples at concentrations above ODEQ residential RBCs.

CHA's review of the previous environmental investigations by Terraphase and Parametrix identified the following environmental conditions associated with the Site that require additional investigation:

- Potential contamination of TPHs, PAHs, and metals in the soil and groundwater in the following areas related to the historical use of the Site as detected in the past Phase II:
    - Former shingle mill and lumber yard in the northern portion of the Site
    - Former log dump, burn pit, and machine shop in the central portion of the Site.
- Potential presence of contaminants of concern (TPHs and PAHs) in the Nehalem River sediment located on the western portion of the Site.
- Potential presence of heating oil tanks (HOTs) or other underground storage tanks (USTs) associated with the past offices and a residence on the Site.

Tillamook County is preparing to complete investigations related to the environmental concerns noted in Terraphase Phase I ESA and prepare the site for redevelopment. The scope of work detailed in this SSQAPP will collect the data needed to:

1. Fill in data gaps associated with the Site's environmental conditions by further investigating the extent of known contamination and the potential of further contamination.

A.5 PROJECT TASK DESCRIPTION

Based on the environmental conditions identified in previous investigations described in A4, the following actions will be conducted to assess the potential presence of contamination and guide any necessary remedial action.

Data Gap: Potential presence of HOTs and USTs associated with the former offices on the Site (southeast corner and central portion of the Site).

Task: Geophysical Survey

Tillamook County proposes to perform a geophysical survey conducted by a subcontractor using ground penetrating radar (GPR) and an Electromagnetic Metal Detector to identify buried metal objects that might include HOTs and HOT/UST excavation cavities in the vicinity of the past offices in the central and southern portions of the Site and a residence on the central-eastern property boundary.

Task: Install Soil Borings & Collect Soil Samples

Tillamook County proposes to collect additional soil samples if UST cavities are detected by the geophysical survey. If UST excavation cavities are detected, one boring will be advanced to a depth of one (1) foot below the base of the cavity where a soil sample will be collected and analyzed for the following:

- TPHs by NWTPH-HCID
- TPH quantification by NWTPH-Gx or NWTPH-Dx, depending on the results of the NWTPH-HCID analysis.

If the geophysical survey concludes HOT(s) or UST(s) are present, soil sampling will be performed adjacent to the tanks. In accordance with Oregon regulation OAR 340-122-0340, a minimum of two samples will be collected from soil borings, one from each end of the identified HOT(s)/UST(s).

Data Gap: Incomplete delineation of the following areas for contaminants of concern (TPHs, PAHs, and metals) in the soil and groundwater as detected in the 2017 Phase II ESA.

- **Former shingle mill and lumber yard in the northern portion of the Site**
- **Former log dump, burn pit, and machine shop in the central portion of the Site.**

Task: Install Soil Borings & Collect Soil Samples

Tillamook County proposes to delineate the extent of the presence of TPHs, PAHs, and metals in the soil for the areas listed above. Soil samples will be collected continuously for lithologic logging and screening for contaminants using visual observations and a photoionization detector (PID). Sampling will follow the procedures outlined in the EPA's guidance document *Compendium of Superfund Field Operations Methods (EPA/540/P-87/001),* as described in B2. The results of the borings will be compared to Oregon's RBCs

for soil to determine the extent of contamination. Figure 2 shows the locations of the proposed borings. Soil borings will be advanced at the following depths in the following areas:

- **Former shingle mill and lumber yard:** Four soil borings will be advanced to 10 feet below ground surface (bgs), first groundwater, or refusal. Samples retained for chemical analysis will be selected based on field evidence of contamination. However, if no contamination is observed, samples will be collected from the following depths: 0-5 and 5-10 feet bgs.
- **Former log dump, burn pit, and machine shop:** Four soil borings will be advanced to 10 feet bgs, first groundwater, or refusal. Samples retained for chemical analysis will be selected based on field evidence of contamination. However, if no contamination is observed, samples will be collected from the following depths: 0-5 and 5-10 bgs.

Soil samples will be transported to Apex Analytical Laboratory (Apex) of Tigard, Oregon, using chain-of-custody procedures. All soil samples will be analyzed for the following:

- TPHs by NWTPH-HCID
- TPH quantification by NWTPH-Gx or NWTPH-Dx, depending on the results of the NWTPH-HCID analysis
- PAHs and Pentachlorophenol (PCP) using EPA Method 8270E.

Task: Install Temporary PVC Wells & Collect Groundwater Samples

Tillamook County proposes to delineate the extent of TPHs, PAHs, and metals in the groundwater for the northern and central areas where data gaps were identified. Groundwater samples will be collected from temporary PVC wells installed in the soil borings. Samples will be collected from wells installed in the soil borings in the following areas:

- Former lumber yard
- Former log dump, burn pit, and machine shop.

Samples will be collected using a peristaltic pump and analyzed for the following:

- TPH by NWTPH-HCID
- TPH quantification using NWTPH-Gx or NWTPH-Dx, depending on the results of the NWTPH-HCID analysis
- PAHs and PCP using EPA Method 8270E.

Investigation-derived waste (i.e. excess soil cuttings and decontamination water) will be contained in a 55-gallon drum and removed from the Site for disposal at an appropriately permitted facility. After collection, all borings will be backfilled with hydrated bentonite chips, and the surface restored to match the existing grade to the extent feasible.

Data Gap: Unknown presence or extent of contamination in the riverbank sediment for contaminants of concern (TPHs, PAHs, and metals)

Task: Collect Sediment Samples

Tillamook County proposes to collect sediment samples along the Nehalem riverbank. Sediment samples will be collected at low tide using hand tools from 0-1 and 2-3 feet bgs. Samples will be analyzed for the following:

- x TPH by NWTPH-HCID
- x TPH quantification using NWTPH-Gx or NWTPH-Dx, depending on the results of the NWTPH-HCID analysis
- x PAHs and Pentachlorophenol (PCP) using EPA Method 8270E

Health and Safety Plan:

Prior to sampling in any of the locations described above, a Health and Safety Plan (HASP) will be prepared for all project personnel in accordance with the requirements of the Occupational Safety and Health Administration (OSHA) Standard 1910.120. The HASP will include a full job hazard analysis and describe all necessary levels of personal protective equipment (PPE) that will be needed.

Project Schedule:

Tillamook County anticipates that fieldwork will be completed over three (3) to four (4) business days beginning in Quarter 1 of 2024. In accordance with the Generic QAPP, a report summarizing the completed field activities and available sample results will be submitted to Tillamook County, Oregon DEQ, and EPA in accordance with the distribution list.

The proposed schedule for the work described in this SSQAPP is included in the following table.

Table #1. Proposed Project Schedule & Deliverables

Task	Approximate Start Date	Approximate End Date	Deliverable/Output
HASP	Q1 2024	Q1 2024	Health and Safety Plan
Fieldwork	Q1 2024	Q1 2024	Field Notes
Laboratory Analysis	Q1 2024	Q2 2024	Laboratory Report
Completion Reporting	Q2 2024	Q2 2024	Phase II ESA Report

A.6 INFORMATION/DATA QUALITY OBJECTIVES & PERFORMANCE/ACCEPTANCE CRITERIA

The following qualitative and quantitative statements are used to define the project's Data Quality Objectives (DQOs) criteria for this SSQAPP. The performance/acceptance criteria and Data Quality Indicators (DQIs) used to achieve the objectives are defined in the following statements.

As described in the Generic QAPP, the following seven steps are used to determine the criteria for project-specific DQOs when performing assessment projects funded under this EPA Community-wide Assessment Grant BF-02J20601-0.

1. **Problem to be resolved:**
   The scope of work presented in the SSQAPP was developed to investigate the data gaps discussed in Section A5. Specifically, CHA and Tillamook County have identified the following problems:
   - The presence of HOTs and USTs is unknown but suspected due to the historical presence of offices and a residence at the Site. A geophysical survey is needed to determine the potential presence of HOTs and USTs so additional sampling can be performed to determine the presence and extent of contamination.
   - Further delineation of the extent and presence of the contaminants of concern in the soil and groundwater is needed in order to determine if additional remedial actions must be performed to meet ODEQ human health soil and groundwater RBCs for the future planned Site use.
   - The extent and presence of the contaminants of concern in the Nehalem riverbank sediment is unknown. Sampling and analysis are required to determine if additional remedial actions such as excavation and removal of contaminated sediment is needed to meet ODEQ human health and ecological soil RBCs for the future planned Site use.
   - The end goal of delineating the extent and presence of contamination is to facilitate the future development at the Site in compliance with Oregon Administrative Rules (OAR) 340-122.
2. **Decision to be made:**
   - A geophysical survey will be performed to investigate the potential presence of HOTs and USTs associated with the former offices and residence.
   - Soil and groundwater samples will be collected throughout the Site as described in A5 to determine the extent and presence of contamination. If HOTs and/or USTs are detected, further sampling will be required to determine the presence and extent of contamination from the tanks.
   - Riverbank sediment samples will be collected to the extent and presence of the contaminants of concern.
3. **Inputs to the decision:**
   - GPR data will be reviewed for subsurface anomalies.
   - Field observations will be recorded to identify organic vapor analyzer readings (OVA), sheens, staining, and/or odors indicative of release(s) from onsite features (HOTs and USTs, etc.)

- Laboratory analytical results from soil samples collected from soil borings will be compared to ODEQ's RBCs to determine the contamination level and extent.
- Laboratory analytical results from groundwater samples collected from temporary wells will be compared to ODEQ's RBCs to determine the contamination level and extent.
- Laboratory analytical results from riverbank sediment samples collected will be compared to ODEQ's RBCs to determine the contamination level and approximate extent.

4. **Boundaries of the study:**
The Site is approximately 7.79 acres and is located along U.S. Highway 101, west of the intersection at Marine Drive in Wheeler, Oregon. A Site Location Map is included as Figure 1 and a Site Layout Map is included as Figure 2.

5. **Development of a decision rule:**
CHA was approved to develop the SSQAPP for the assessment and investigation activities described in A6 by Tillamook County and the EPA on December 16, 2023.

6. **Determine tolerable limits on decision errors:**
The Generic QAPP describes the data gaps associated with analytical sampling in B9.

7. **Determine the optimum design for obtaining site-specific data:**
The optimum design for obtaining site-specific data is described in B1.

The following DQIs will be applied to the collection and analysis of data from this project.

Precision:
Precision is the measure of agreement among repeated measurements of the same media under similar conditions. This will be measured through the analysis of field duplicate samples collected during this project and compared to the relative percent difference (RPD) between duplicate samples. Field duplicates will be collected at a rate of no less than 5% (or one duplicate per 20 samples) for each media analyzed under this project and reviewed for RPD, specifically:

- Soil: ±50%
- Sediment: ±50%
- Water/liquid: ±35%
- Air: ±35%
- Oil: ±35%

A summary of planned samples and associated duplicates is provided in B1.

Accuracy:
Accuracy is the measure of a known value to results derived during this project. The following methods will be implemented to document accuracy:

- Laboratory-provided trip blanks will accompany each sample cooler.
- In the event non-dedicated equipment is used, equipment blanks will be collected and

analyzed. Collection methods will consist of collecting laboratory-provided or deionized rinsate water from sampling equipment (after decontamination procedures are complete). Equipment blank samples will be collected at a rate of one (1) per 20 samples or one (1) per day and analyzed for the same constituents as samples collected from the equipment.

- Laboratory accuracy will be assessed in accordance with the laboratory's QAQC procedures such as percent recovery from laboratory control samples (LCSs), and matrix spike/matrix spike duplicate (MS/MSD) samples. MS/MSD samples will be collected at a frequency of no less than 5% (or one duplicate per 20 samples).

Representativeness:

Representativeness is the measure of the degree to which data accurately and precisely represent the environmental conditions at the subject property. This will be measured by collecting data from appropriate sampling locations, following the sample collection and preservation methods, and adhering to analytical procedures.

Comparability:

Comparability of data collected during this project will be achieved by the use of standard operating procedures for sample collection in accordance with the QAPP and analysis of samples using approved laboratory analytical methods.

Completeness:

Project completeness will be measured by comparing field data points with valid analytical data (bulk building material, soil, or air samples) to applicable guidance documents and the sampling design process describing B1. Specifically:

- Soil, sediment, and groundwater sampling will be deemed complete if field data points are collected in accordance with the sampling design process outlined in Section B1.

Sensitivity:

For this project sensitivity is the ability of instruments to detect constituents of concern at concentrations at or below applicable regulatory screening levels.

Laboratories analyzing samples collected under this Cooperative Agreement all have a quality system that meets the requirements in the standards developed by The NELAC Institute (TNI) and adopted by the Environmental Laboratory Accreditation Program (NELAP) (http://www.nelac-institute.org).

A.7 DISTRIBUTION LIST

The following individuals will/may receive copies of the approved SSQAPP and any subsequent revisions:

- **Madison Sanders-Curry**, Brownfield Project Manager, USEPA, Region 10
  1200 Sixth Avenue, Suite 155, Seattle, WA 98101
  Office Phone: (206) 553-1889; Email: sanders-curry.madison@epa.gov
- **Margaret Olson**, Land Revitalization Coordinator, Oregon State Lead, USEPA, Region 10
  805 SW Broadway, Suite 500, Portland, OR 97205
  Office Phone: (503) 326-5874, Email: Olson.Margaret@epa.gov

- **Kara Master,** Brownfields Coordinator/Project Manager, Oregon Department of Environmental Quality, DEQ NWR Cleanup Program
  700 NE Multnomah Street, Suite 600, Portland, OR 97232
  Direct: (503) 229-5585, Mobile: (503) 686-3903, Email: kara.e.master@deq.oregon.gov
- **Sarah Absher, CBO, CFM**, Director, Tillamook County Community Development
  1510-B Third Street, Tillamook, OR 97141
  Phone: (503) 842-3408 ext. 3412; Email: sabsher@co.tillamook.or.us
- **Chris Chiola**, Environmental Program Manager, Tillamook County Community Development
  1510-B Third Street, Tillamook, OR 97141
  Phone: (503) 842-3408 ext. 3409; Email: cchiola@co.tillamook.or.us
- **Rachel Hagerty**, Board of Commissioners' Chief of Staff, Tillamook County
  201 Laurel Avenue, Tillamook, OR 97141
  Phone: (503) 842-3408; Email: rhagerty@co.tillamook.or.us
- **Shawn Blanchard**, Treasurer, Tillamook County
  201 Laurel Avenue, Tillamook, OR 97141
  Phone: (503) 842-3404; Email: sblancha@co.tillamook.or.us
- **Keith Ziobron**, PE, QEP Project Manager, CHA Consulting, Inc.
  270 Peachtree Street, Suite 1500, Atlanta, GA 30303
  Phone: (678) 405-3125; Email: kziobron@chasolutions.com
- **Sam Urban**, QEP Assistant Project Manager, CHA Consulting, Inc.
  270 Peachtree Street, Suite 1500, Atlanta, GA 30303
  Phone: (678) 301-5127; Email: surban@chasolutions.com
- **James Farrow**, RG (State of Oregon), QEP Field Team Leader, Terraphase Engineering, Inc. 610 SW Broadway, Suite 405 Portland, OR 97205
  Phone: (503) 889-0367; Email: james.farrow@terraphase.com
- **John Hildenbrand**, QA/QC Officer, Terraphase Engineering, Inc.
  2105 South C Street Tacoma, WA 98402
  Phone: (253) 732-7426; Email: john.hildenbrand@terraphase.com
- **Kara Master,** Brownfields Coordinator/Project Manager, Oregon Department of Environmental Quality, DEQ NWR Cleanup Program (As necessary)
  700 NE Multnomah Street, Suite 600, Portland, OR 97232
  Direct: (503) 229-5585, Mobile: (503) 686-3903, Email: kara.e.master@deq.oregon.gov
- Laboratories (upon request): Apex Laboratories, LLC. (others to be specified based on need and competitive pricing).

A.8 PROJECT ORGANIZATION

The Quality Assurance Project Organization Chart is shown in Figure #A-10. The individuals participating in the project and their specific roles and responsibilities are provided below:

Madison Sanders-Curry, Brownfield Project Manager, USEPA Region 10 Brownfields Project Officer/Manager & Designated Approving Official. The USEPA Project

Officer/Manager, Designated Approving Official, has the responsibility to oversee and monitor the grant and will provide technical reviews of the Generic QAPPs, SSQAPP addendum, or addenda that are generated. This includes the approval of the Generic QAPP and SSQAPP addenda, respectively, and any revisions.

Kara Master, Brownfields Coordinator/Project Manager, ODEQ, DEQ NWR Cleanup Program. As appropriate, Ms. Master will be contacted when the County or a landowner intends to enter a site into the State of Oregon's Brownfield or Voluntary Remediation programs. Ms. Master will also be contacted to verify eligibility for properties when a petroleum concern is present or anticipated to be present.

Chris Chiola, Authorized Representative/Brownfield Project Manager; Housing Coordinator, Tillamook County. Under the role of the grantee Authorized Representative/Brownfield Manager, this individual will oversee day-to-day project operations and will be responsible for technical oversight of assessment-related activities of the contracted qualified environmental professional (QEP)[2]. Mr. Chiola is responsible for providing approvals for all programmatic reporting (including quarterly, annual, and closure documents) and ensuring the process described in the work plan is followed and the terms and conditions of the grant are met. Duties will include ensuring the project schedule and budget are implemented according to plan. In addition, Mr. Chiola (or his assign) will coordinate site eligibility determinations and provide project updates to the USEPA Project Officer and ODEQ Brownfields Coordinator (as required) on a regular basis.

Shawn Blanchard, Brownfield Payee; Treasurer, Tillamook County. This individual will assist the Brownfield Manager. Duties will include ensuring the project schedule and budget are implemented according to plan, as well as being responsible for United States Department of Treasury Automated Standard Application for Payments (ASAP) drawdowns and fiscal management.

Keith Ziobron, PE, QEP[2] Project Manager, CHA. As the QEP Project Manager, Mr. Ziobron and/or his assign (for site-specific assessments) will oversee each environmental assessment activity and will be the primary user of the data to determine/recommend whether or not further action is required at a project site. He will also coordinate the activities for each environmental assessment project. Mr. Ziobron's specific responsibilities include the following:

1. Approving the Generic QAPP and subsequent revisions in terms of Brownfields-specific requirements; distribution of the Generic QAPP document to the Field Team Leader and project team members.
2. Overall responsibility for the investigation.
3. Coordinating field and laboratory activities.
4. Overseeing the preparation of SSQAPPs and assessment documents (such as Phase II Environmental Site Assessments [ESAs]).
5. Conducting project activities in accordance with the QAPP and work order.
6. Reporting to the County Brownfields Manager regarding the project status per the work order and preparing interim and final reports.
7. Making final project decisions, subject to the approval of the County Brownfields Manager, to commit the necessary resources to conduct the project.
8. Instituting corrective actions for problems encountered in the field sampling activities.

9. Communicating corrective actions to the Field Team Leader to remedy problems encountered in the field and coordinate with the Lab Director to correct any corresponding problems encountered in the chemical analyses.
10. Compile documentation detailing any corrective actions and provide them to the QA/QC Officer and County Brownfields Manager.

Sam Urban, QEP[2] Assistant Project Manager, CHA. The QEP Assistant Project Manager will assist the QEP Project Manager in his roles and responsibilities; specifically, the QAPP and subsequent revisions regarding Brownfield-specific requirements, coordinating and overseeing field and laboratory activities, and relaying corrective actions to the Field Team Leader and/or the Lab Director.

John Hildenbrand, QA/QC Officer, Terraphase. The QA/QC Officer will remain independent of the activities included in data generation and will provide QA/QC technical assistance to the applicable Project Manager. The QA/QC Officer will also be responsible for the internal review and approval of the QAPP documents, internal QA audits, and QC implementation of the Brownfields projects. The QA/QC Officer will report audit results to the Project Manager and review all implemented corrective actions.

James Farrow, RG (State of Oregon), Field Team Leader, Terraphase. The Field Team Leader (to be assigned on a project/site basis) will perform the following duties:

1. Select the field sampling team and discuss project details with the Project Manager.
2. Conduct field activities per the approved QAPP documents and supervise the field sampling team.
3. Upon receipt from the Project Manager, make available the approved QAPP documents and subsequent revisions to the members of the field sampling team.
4. Report problems in the field to the Project Manager.
5. Implement corrective actions in the field as directed by the Project Manager. Corrective actions will be documented in the field logs and provided to the Project Manager.

Field Team Technicians, CHA, and/or Terraphase. These individuals will perform the actual fieldwork per the QAPP documents and at the direction of the Field Team Leader. The field team typically consists of two to four people and will be named at a later date by the Field Team Leader.

Laboratory Director (Phillip Nerenberg, Apex Laboratories, LLC). This individual will be responsible for coordinating the analysis of the samples and laboratory verification of the data. He/she will coordinate the receipt of the samples at the laboratory, select the analytical team, ensure internal laboratory audits are conducted per the laboratory's QA manual, and distribute the applicable sections of the Generic QAPP and subsequent revisions to members of the analytical team. This individual is responsible for instituting corrective actions for problems encountered in the chemical analyses and will also report laboratory problems affecting the project data to the Project Manager and QA/QC officer. Corrective actions for chemical analyses will be detailed in a QA report that will be provided to the Project Manager via electronic and/or conventional mail.

Notes:

1. All laboratories listed in the Distribution List are aware of and accepted their inclusion in this Generic QAPP.

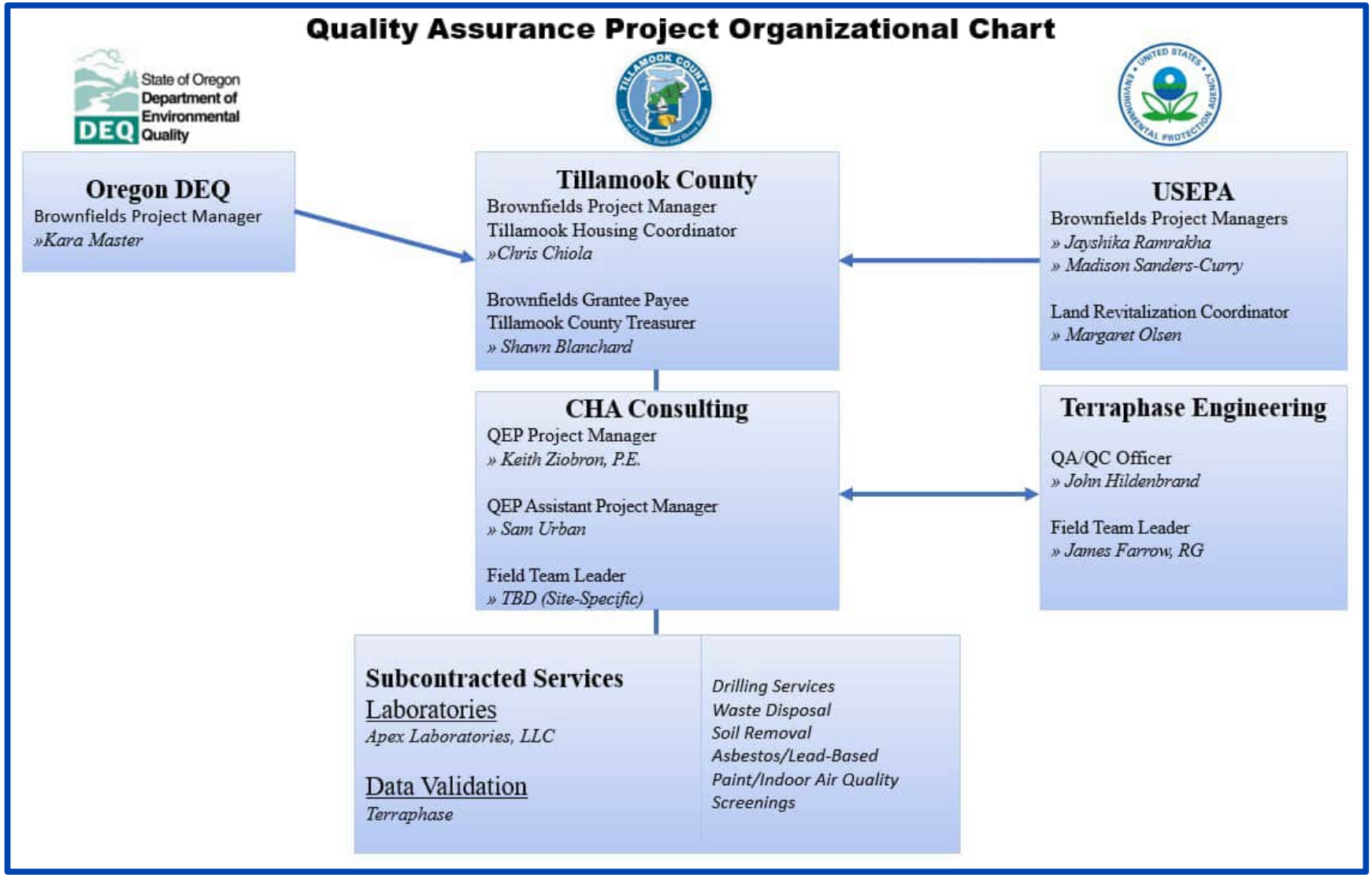
2. A QEP is defined as someone who possesses sufficient specific education, training, and experience necessary to exercise professional judgment to develop opinions and conclusions regarding environmental contamination. In addition, this individual must have a state-issued certification/license or a Baccalaureate degree in science or engineering and five years of relevant full-time work experience or ten years of full-time work experience.

A.9 PROJECT QUALITY ASSURANCE MANAGER INDEPENDENCE

The project's QA/QC manager, John Hildenbrand with Terraphase will maintain autonomy by remaining independent from directing, participating, or otherwise influencing field decisions, sample collection, and sample analysis.

A.10 PROJECT ORGANIZATION CHART

Figure #A-10. Quality Assurance Project Organizational Chart



A.11 SPECIAL TRAINING REQUIRMENTS/CERTIFICATION

The training and certifications required for CHA, Terraphase, and Tillamook County personnel working on this project are described in A8 of the Generic QAPP.

Laboratories

The following laboratory will be utilized for soil, groundwater, and sediment assessments under this program:

- Apex Laboratories, LLC

The above-listed laboratory analyzing samples have a quality system that meets the requirements in the standards developed by The NELAC Institute (TNI) and adopted by the NELAP (http://www.nelac-institute.org).

A.12 DOCUMENTS AND RECORDS

The required documentation, record keeping, and documentation correction procedures for this Project are described in A9 of the Generic QAPP. All project documents will be filed per CHA's standardized project filing system, with all original documents held by CHA's Atlanta, Georgia, office and available to the public at the Tillamook County Office. Documents will be maintained electronically and/or via hard copy for at least five years. records management, and how long specific types of records or documents will be maintained.

B.1 ENVIRONMENTAL INFORMATION OPERATIONS

The following environmental media and site features will be investigated and/or sampled during this project to investigate for adverse impacts on the Site from the problems discussed in Sections A.4 and A.6 and prepare the Site for remedial actions.

Soil Borings

Tillamook County proposes installing soil borings in the areas associated with the historical use of the Site. These areas include the following:

- Former shingle mill and lumber yard - four borings.
- Former log dump, burn pit, and machine shop - four borings.

All proposed soil boring locations are shown in Figure 2. The locations of soil borings performed during previous investigations are shown in Figure 2. Soil samples will be collected at the depths described in A5. An estimated total of eight borings are expected to be made in the areas identified above. All soil sampling will be performed in accordance with the sampling methodology/guidance outlined in the QAPP with QA/QC samples collected at a frequency outlined in Table 1 of Section B2.

Groundwater Samples

Tillamook County proposes installing two temporary 1-inch PVC wells in the soil borings at the following locations:

- Former shingle mill and lumber yard – one temporary well.
- Former log dump, burn pit, and machine shop – one temporary well.

All proposed and previous groundwater sampling locations are shown in Figure 2.

All groundwater sampling will be performed in accordance with the sampling methodology/guidance outlined in the QAPP with QA/QC samples collected at a frequency outlined in Table 1 of Section B2. Groundwater level and parameter readings will be collected at a frequency of at least every five (5) minutes during the monitoring well purge. The purge will be considered complete and sample collection can begin when NTU readings have stabilized for three (3) consecutive readings of NTUs <10 or ± 10% if the purge exceeds 30 minutes or 3-well volumes. In the event the well is purged dry, samples will be collected upon recharge.

Purge water will be stored in DOT-approved 55-gallon drums, labeled, and temporarily stored onsite in a secure location. Upon receipt of analytical laboratory results, the drum will be removed from the Site for proper off-site disposal.

Sediment Samples

Tillamook County proposes collecting six (6) sediment samples from along the riverbank on the western portion of the Site at low tide. All sediment samples will be collected using hand tools at three locations from depth of0-1 and 2-3 feet bgs. All sediment sampling will be performed in accordance with the sampling methodology/guidance outlined in the QAPP with QA/QC samples collected at a frequency outlined in Table 1 of Section B2.

All sampling will be collected using SOPs and submitted for laboratory analysis following the procedures and methods detailed throughout this QAPP. Adherence to these procedures will achieve the DQOs outlined in Section A.6.

B.2 METHODS FOR ENVIRONMENTAL INFORMATION ACQUISITION

Samples will be collected in accordance with referenced standard operating procedures and submitted to the selected laboratories for the following analysis:

Table #2. Sample Matrix

Sample ID	Number of Samples	Media	Purpose	Standard Operating Procedure	Analysis
WP-SB-1 -Depth through WP-SB-8- Depth	16, one (1) field duplicate, and one equipment blank per workday	Soil	Determine the presence and extent of contamination in the soil in areas of the Site associated with the historical use as a sawmill/shingle mill/lumber yard	EPA LSADPROC -300-R5 Weblink	TPHs in accordance with NWTPH-HCID. TPH quantification by NWTPH-Gx or NWTPH-Dx, depending on the results of the NWTPH-HCID analysis. PAHs and PCP using EPA Method 8270E.
WP-SBT-1-Depth and WP-SBT-2-Depth	2 & one (1) field duplicate	Soil	If HOTs, USTs, or UST cavities are detected during the geophysical survey then two soil samples will be taken to determine the presence and extent of contamination from	EPA LSADPROC -300-R5 Weblink	TPHs in accordance with NWTPH-HCID. TPH quantification by NWTPH-Gx or NWTPH-Dx, depending on the results of the NWTPH-HCID analysis.

Sample ID	Number of Samples	Media	Purpose	Standard Operating Procedure	Analysis
			the identified feature.		PAHs and PCP using EPA Method 8270E.
WP-SB-1-GW-Depth through WP-SB-7-GW-Depth	7 & one (1) field duplicate	Ground-water	Determine the presence and extent of contamination in the groundwater in areas of the Site associated with the historical use as a sawmill/shingle mill/lumber yard	EPA SESDPROC-301-R1 Weblink	TPHs in accordance with NWTPH-HCID. TPH quantification by NWTPH-Gx or NWTPH-Dx, depending on the results of the NWTPH-HCID analysis. PAHs and PCP using EPA Method 8270E.
WP-RS-1-Depth through WP-RS-3-Depth	Six, one (1) field duplicate, and one equipment blank per workday	Sediment	Determine the presence of contamination in the riverbank sediment.	EPA SESDPROC-200-R2 Weblink	TPHs in accordance with NWTPH-HCID. TPH quantification by NWTPH-Gx or NWTPH-Dx, depending on the results of the NWTPH-HCID analysis. PAHs and PCP using EPA Method 8270E.

Laboratory results for soil, groundwater, and sediment samples will be compared to the ODEQ RBCs.

In addition to laboratory analytical results, field observations will be used to identify suspected contaminated media. Indications of staining, odors, and/or sheens will be noted in boring logs and used to direct soil sample collection intervals submitted for laboratory analysis.

The execution of all planning activities described above will not commence until this SSQAPP is approved by the EPA.

Sample Nomenclature

As described in Table 2, the nomenclature for each sample taken at the Site will be the following: "Wheeler Property – Media Specific ID – Depth". The media specific ID will indicate where the sample was taken (i.e. Boring ID, Sediment Location) and will reference the sample location map (Figure 2). The depth will indicate at what depth the soil sample, groundwater sample, or sediment sample was taken at.

B.3 INTEGRITY OF ENVIRONMENTAL INFORMATION

Sample handling and custody requirements for this project are outlined in B3 of the Generic QAPP.

B.4 QUALITY CONTROL

B4.1 Analytical Methods and Requirements

Analytical methods and requirements applicable to this project are described in B4 of the Generic QAPP. All samples taken during the field investigation/assessment activities will be submitted to the selected laboratories as described in B1. Laboratory analysis will be performed in a standard turn-around time of 14 days for electronic data and 21 days for hardcopy.

Currently, the use of non-standard or unpublished methodologies is not anticipated.

B4.2 Field Quality Control Requirements

Field quality control requirements for this project are described in B5 of the Generic QAPP. Field duplicates will be collected at a rate of one per 20 samples of each media (soil, water, and sediment) sampled per sampling event. Field duplicates are taken within five minutes of collecting the original samples and include all sub-samples. These samples are shipped back with the other sample bottles for analysis. One equipment blank will be collected by pouring laboratory supplied deionized water over non-dedicated sampling equipment for each day of sampling. Equipment blanks will be collected from re-usable drilling equipment (sampling shoe) and from hand augers used for sediment sample collection.

B4.3 Laboratory Quality Control Requirements

The selected laboratories will follow the laboratory quality control requirements outlined in B6 of the Generic QAPP. Data will be validated by either Terraphase or Alpha Geoscience.

B4.4 Field Equipment and Corrective Action

Field equipment calibration and inspection procedures that will be used for this project are described in B7 of the Generic QAPP. Field calibration logs are included in Appendix B.

B5. INSTRUMENT/EQUIPMENT CALIBRATION, TESTING, INSPECTION, AND MAINTENANCE

Appendix C includes the Quality Assurance Manuals (QAM) for the selected laboratory. The QAMs described the resting, inspection, and maintenance of all laboratory instruments as well as identifying a responsible individual. The lab will document any preventative or corrective maintenance conducted on laboratory equipment/instrumentation.

B6. ANALYTICAL SENSITIVITY AND PROJECT CRITERIA

Analytical method sensitivity and project criteria for the analytical methods used for this project are determined by the selected laboratories and included in their QAMs in Appendix C.

B7. DATA MANAGEMENT AND DOCUMENTS

Data management and documentation requirements for this Project are described in B10 of the Generic QAPP. Field data sheets are included in Appendix C of the Generic QAPP.

C1. ASSESSMENT AND RESPONSE ACTIONS

Assessment and response actions are described in C1 of the Generic QAPP. The Corrective Action Process Chart provided as Appendix D of the Generic QAPP outlines the standard process for communicating and will be utilized to resolve all problems that arise in the field, via corrective actions implementation.

C2. PROJECT REPORTS

Execution of proposed field activities will commence following the approval of this SSQAPP.

The procedures for the final report that will be prepared by the Project Manager following the completion of the proposed field activities are described in C2 of the Generic QAPP. Final reports will be forwarded to the EPA Project Officer/Manager, the Department's Brownfields Manager/Program Coordinator, and the State Brownfields Coordinator, as applicable.

D1. FIELD DATA EVALUATION

The field data evaluation procedures for this project are described in D1 of the Generic QAPP.

D2. LABORATORY DATA EVALUATION

The laboratory data evaluation procedures for this project are described in D2 of the Generic QAPP.

D3. DATA USABILITY AND PROJECT VERIFICATION

The data usability and project verification procedures for this project are described in D3 of the Generic QAPP. The 3rd Party validation will be performed by Terraphase.

REFERENCES

1) Oregon Department of Environmental Quality. November 2016. Quality Assurance Project Plan, Brownfield Program.

2) Oregon Department of Environmental Quality. November 2018. Source Sampling Manual, Volume 1.

3) U.S. Environmental Protection Agency. December 2002. Guidance for Quality Assurance Project Plans. EPA QA/G-5. EPA/240/R-02/009.

4) U.S. Environmental Protection Agency. February 2006. Guidance on Systematic Planning Using the Data Quality Objectives Process. EPA QA/G-4. EPA/240/B-06/001.

5) U.S. Environmental Protection Agency. February 2006. Data Quality Assessment: Statistical Methods for Practitioners. EPA QA/G-9S. EPA/240/B-06/003.

6) U.S. Environmental Protection Agency. March 2001. EPA Requirements for Quality Assurance Project Plans. EPA QA/R-5. EPA/240/B/01/003.

FIGURES

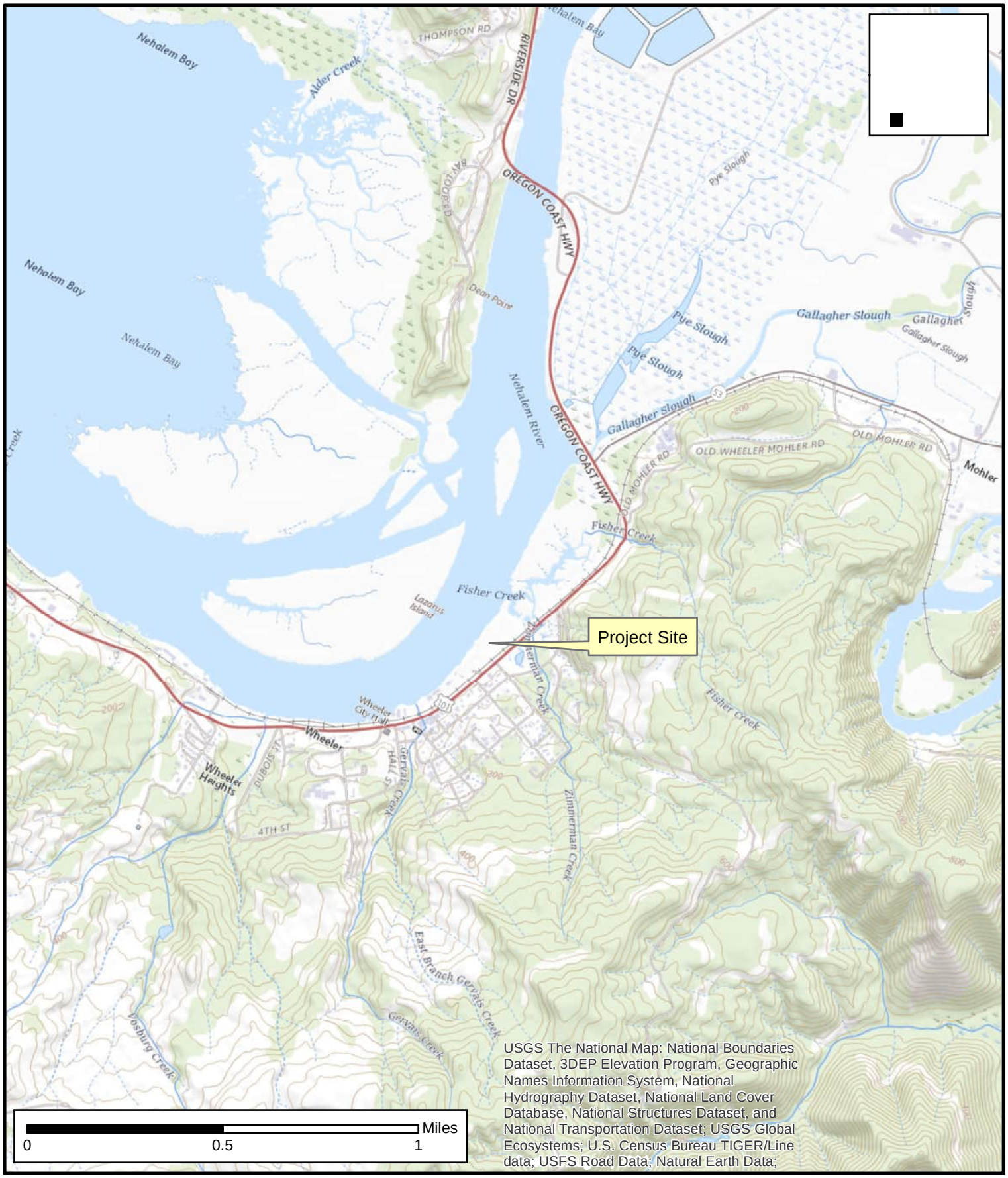


Figure 1	USGS Topographic Map	CHA
Project No: 079705	Highway 101 - Wheeler Property West of Marine Drive Intersection, Wheeler, Oregon	
Date: 12/2023		

270 Peachtree St. NW Suite 1500
Atlanta, GA 3030-1283
678.954.500 www.chacompanies.com

Bott's Marsh

2N1002BB00301

?

H

Shingle Mill
BM-B-1
A

Mill Building

BM-B-2
A

Dry Kiln

BM-B-3
A

2N1002BB00300

BM-B-5
A

Lumber Yard

Saw Mill
BM-B-4
A

BM-B-6
A

Oregon Coast Scenic Railroad

Highway 101

Nehalem River

Uplands

BM-B-7
A

?

Burn Pit

BM-B-8
A

BM-B-10
A

BM-B-9
A Office

2N1002BB00400

?

Log Dump

BM-B-11
A

BM-B-12
A

BM-B-13
A

Machine Shop

2N1002BC04800

BM-B-14
A

BM-B-15
A

Hemlock Street

2N1002BC04700

BM-B-16
A

Steam Dry Kiln

Mill Building

BM-B-17
A

BM-B-18
A

Shingle Mill

BM-B-20
A

Office

BM-B-19
A

Spruce Street

Marine Drive

Legend

- H Proposed Soil Boring Location
- Proposed Groundwater and Soil Boring Location
- ? Proposed River Bank Sample Location
- A Parametrix Soil Sampling Location
- A Parametrix Groundwater and Soil Sampling Location
- TPH Groundwater Impacts
- TPH Soil Impacts (Parametrix 2017)
- Potential Former HOTs
- Historical Features
- Subject Property

Ü

0 50 100 200 Feet

1 inch = 100 feet

Aerial Imagery Source: Nearmap (June 3, 2023)

SAFETY FIRST

CLIENT: Tillamook County

PROJECT: Wheeler Project
Highway 101, Wheeler, OR

PROJECT NUMBER: O053.005.001

Site Layout Map Showing Site Investigation Locations

FIGURE 2

File: N:\GIS\Prj\O053.00X_Tillamook County_Phl ESAs\.005 Wheeler\MXDs\(20231110) Figure 1 - Investigation Locations.mxd 11/10/2023 Created by: ALV

Coordinate System: NAD 1983 StatePlane Oregon North FIPS 3601 Feet