INTERIM CLEANUP ACTION PLAN & ENGINEERING DESIGN REPORT— AOC 4

FORMER NORTHERN STATE HOSPITAL
SEDRO-WOOLLEY, WASHINGTON

AGREED ORDER NO. DE 16309
CLEANUP SITE ID: 10048

Prepared for
PORT OF SKAGIT
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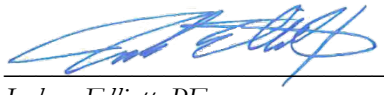
The material and data in this plan were prepared under the supervision and direction of the undersigned.



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TABLES AND ILLUSTRATIONS

FOLLOWING REPORT

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ACRONYMS AND ABBREVIATIONS

AO	Agreed Order DE 16309
AOC	area of concern
bgs	below ground surface
CRZ	critical root zones
CUL	cleanup level
Ecology	Department of Ecology (Washington)
ESA	environmental site assessment
FP-XRF	field-portable X-ray fluorescence
HASP	health and safety plan
MFA	Maul Foster & Alongi, Inc.
MTCA	Model Toxics Control Act
the Plan	interim cleanup action plan and engineering design work plan
the Port	Port of Skagit
the Property	former Northern State Hospital also known as the Sedro-Woolley Innovation for Tomorrow Center property
QA/QC	quality assurance and quality control
SAP/QAPP	sampling and analysis plan and quality assurance project plan
TCLP	toxicity characteristic leaching procedure
USEPA	U.S. Environmental Protection Agency

1 INTRODUCTION

On behalf of the Port of Skagit (the Port), Maul Foster & Alongi, Inc. (MFA) has prepared this interim cleanup action plan and engineering design report work plan (the Plan) for the interim remedial action of arsenic and lead in shallow soil at the former ward building and athletic field area of concern 4 [AOC 4] at the former Northern State Hospital (also known as the Sedro-Woolley Innovation for Tomorrow Center property [the Property]), located at 2070 Northern State Road in Sedro-Woolley, Washington (see Figure 1-1). The Property is listed with the Washington State Department of Ecology (Ecology) under facility site ID 65415931 and cleanup site ID 10048.

1.1 Regulatory Framework and Purpose

The Property is currently under Agreed Order DE 16309 (AO) between the Port and Ecology. This Plan was prepared in accordance with the requirements specified in Exhibit B of the AO. The Port received a U.S. Environmental Protection Agency (USEPA) cleanup grant to support interim cleanup actions at the Property, including the interim remedial action proposed for AOC 4 in this Plan.

This interim action is intended to mitigate direct-contact exposure risk for occupants of the Property associated with concentrations of lead and arsenic above Model Toxics Control Act (MTCA) Method A cleanup levels (CULs). AOC 4 was first identified and defined during previous site investigations based on the locations of both surficial and deeper arsenic exceedances in the former ward building area and the athletic field. Additional investigations on the Property identified lead concentrations in shallow soil in the athletic field that have since been integrated into the description of AOC 4. The athletic field and former ward building area are open fields with a high potential of direct contact with surface soil. Remedial actions (i.e., excavation and off-site disposal) detailed in this Plan are intended eliminate the risk of direct-contact exposure in these areas of the Property.

This Plan defines the approach to implement the interim cleanup action, involving soil excavation and off-site disposal. The Plan follows the requirements of Washington Administrative Code 173-340-400 and 173-340-380 including:

- General information on the facility, including a summary of information on the previous environmental investigations (see Section 2).
- Contaminant and contaminated-media characteristics and relevant cleanup standards applied to the property (see Section 3).
- Identification of who will be responsible for the cleanup action during and following construction (see Section 4)
- The proposed interim remedial action, including design assumptions and calculations as well as sampling specifications. (see Section 5)

- Appendices, including preliminary construction plans (see Drawings) detailing the work to be performed; a health and safety plan (HASP) (see Appendix A); and a sampling and analysis plan/quality assurance project plan (SAP/QAPP) (see Appendix B).

2 SITE BACKGROUND

2.1 Property Description

The approximately 210-acre Property is located at 2070 Northern State Road, in the northeast corner of Sedro-Woolley, Washington (Figure 1-1). The Property is bordered on the north, east, and south by the Northern State Recreation Area, a public open space owned and managed by Skagit County and historically associated with the Northern State Hospital.

The Property is bordered by Fruitdale Road and residential properties to the west. The Property is in sections 7, 8, 17, and 18 of township 35 north, range 5 east of the Willamette Meridian, on a small plateau with a downward topographic slope toward the east, south, and southwest in the direction of Hansen Creek (east) and Brickyard Creek (south/southwest). The Property currently comprises over 44 buildings and structures. Tenants occupy some of the buildings, but many buildings are currently vacant.

On July 1, 2018, the Port took title to the Property from Washington State. The Property is currently owned and managed by the Port, with buildings leased to multiple tenants, including the Cascade Job Corps, for on-site housing and educational services; the Pioneer Center North, as a drug and alcohol treatment facility with on-site housing; and the North Sound Evaluation and Treatment Center, a mental health and chemical-dependency-treatment facility.

2.2 Property History

The Property was developed in 1909 and operated as a treatment and residence facility and hospital for people with mental illness until its closure in 1973. After the facility's closure, the treatment and residential campus was transferred from the Washington State Department of Social and Health Services to the Washington State General Services Administration, which later became the Department of Enterprise Services. The adjacent farmland was transferred to the Department of Natural Resources, which later transferred ownership to Skagit County.

The Northern State Hospital was designed to be self-sustaining and included on-site patient and staff housing, dedicated water supply reservoirs and an associated potable water treatment facility, a fueling station for on-site vehicles, maintenance and paint shops, and a laundry facility. During the construction of the hospital, much of the Property was logged, graded, drained, and terraced to provide a suitable ground surface throughout the campus (Artifacts Consulting, 2008).

3 SITE CONDITIONS

3.1 Geology and Hydrogeology

According to the geologic map of the Sedro-Woolley North and Lyman 7.5-minute quadrangles, the Property and vicinity are underlain by Quaternary glaciomarine drift (Dragovich et al., 1999). The glaciomarine deposits typically consist of, "poorly sorted, poorly compacted diamicton consisting of silty, sandy, gravelly clay to clayey gravel; moderately well- to well-sorted sandy silt, sandy clay, clayey silt, and clay" (Dragovich et al., 1999). Geologic cross sections developed through the interpretation of a well log, geotechnical boring, and field information show approximately 100- to 130-foot-thick horizontally-oriented deposits of Quaternary glaciomarine drift in the vicinity of the Property (Dragovich et al., 1999).

Subsurface investigations indicate that in the athletic field subsurface soil generally consists of silt with sand from a depth of 0 to 1 foot below ground surface (bgs). A layer of silt was identified from 1 to 10 feet bgs, the maximum depth explored in the athletic field. Subsurface soils logged from borings in the former ward building area generally consist of sandy silt and gravelly sand from a depth of 0 to 1 foot bgs. Subsurface soils consisting of gravelly sand, silt, and silt with sand were logged up to 10 feet bgs, the maximum depth explored in the ward building area. Locations of soil borings relevant to the Plan are shown in Figure 3-1, and boring logs are included in Appendix C.

Groundwater levels on the Property measured on May 1, 2018, ranged from 5.20 to 13.41 feet bgs, consistent with previous observations (see Table 3-1). Groundwater across the northern portion of the Property was determined to flow east toward Hansen Creek, consistent with previous observations (MFA, 2015; SES, 2017). It is inferred that groundwater in other areas of the Property flows southeast, because of the gradual topographic slope of the area toward the Skagit River Valley; west toward Brickyard Creek; or east toward Hansen Creek, depending on the location at the Property. Because of the large size of the Property and the limited area represented by the monitoring wells, it is possible that the groundwater flow direction varies throughout the Property. It is unlikely that groundwater will be encountered during excavations.

3.2 Environmental Conditions

Previous investigations have identified seven areas of concern at the Property, which are described in the 2018 phase II environmental site assessment (ESA) (MFA, 2018a).

This Plan focuses on the implementation of an interim remedial action at AOC 4. AOC 4 consists of elevated concentrations of arsenic and lead in surface soil above their respective MTCA Method A CULs within the athletic field and former ward building (see Figure 3-1). No records of lead arsenate pesticide use were located during previous investigations; however, the presence of arsenic (and lead in the athletic field) at concentrations above MTCA Method A CULs in soil indicates that pesticides containing these metals may have been used to maintain the grounds during historical operations of

the Property. However, the exact source of these lead and arsenic impacts is unknown, and the impacts appear isolated to the two areas on the Property.

Multiple investigations were completed to assess the nature and extent of contamination on the Property (MFA, 2014, 2015, 2018a). However, an additional investigation was conducted in December 2019 to further delineate the elevated concentrations of arsenic in the former ward building area, as described below in Section 3.3. Arsenic and lead concentrations associated with AOC 4 suggest that elevated concentrations of these metals are present within the top 1 foot of soil. Sample locations and exceedances associated with the athletic field are shown in Figures 3-2 and 3-3 respectively. Boring logs associated with AOC 4 are provided in Appendix C. Proposed CULs are summarized in the Table 3-2. Cleanup standards for the Property were developed based on the conceptual site model presented in the phase II ESA (see Figure 3-4) (MFA, 2018a).

The following chemicals of concern in soil were identified in shallow soil for AOC 4 at the Property:

- Arsenic (former ward building only)
- Lead (athletic field only)

Analytical results for soil samples collected in AOC 4 are provided in Table 3-3.

3.3 Supplemental Arsenic Sampling

On December 5, 2019, MFA collected 32 soil samples in the area near the former ward building area to further define the interim action excavation area associated with elevated arsenic concentrations. Soil sampling was conducted under an existing remedial action grant from Ecology to support characterization of the Property.

The fieldwork consisted of sixteen hand auger locations to a maximum depth of 1.0 foot bgs. Hand auger locations were separated as Tier I and II locations (see Figure 3-3). Tier I locations were analyzed immediately, and Tier II locations were only analyzed if an adjacent Tier I location had a concentration above the MTCA Method A CUL for arsenic. Each hand auger location was completed to 1.0 foot bgs for collection of one shallow soil sample from 0 to 0.5 feet bgs and one deeper soil sample from 0.5 to 1.0 foot bgs. Deeper soil samples were archived for analysis based on the results of the corresponding shallow soil sample.

Soil samples were analyzed for arsenic by USEPA 6020 at OnSite Environmental, Inc of Redmond, Washington. Hand auger locations were located using a hand-held global positioning system device. Sample collection, handling, and quality assurance / quality control procedures followed a previously approved SAP/QAPP for this Property (MFA, 2018).

Analytical results are provided in Appendix D. The following locations had concentrations of arsenic in soil above the MTCA Method A CUL of 20 milligrams per kilogram:

- HA43, at 0.5 and 1.0-foot bgs
- HA48, at 0.5 and 1.0-foot bgs

- HA49, at 0.5 and 1.0-foot bgs
- HA50, at 0.5-foot bgs

The locations of these samples have been used to inform the anticipated excavation extent associated with the former ward building area (see Drawings). However, confirmation soil samples will be collected from the base and sidewalls of the excavation during excavation activities as described in Section 5.2.1.

4 PROJECT ORGANIZATION AND SCHEDULE

4.1 Project Organization

The following organization shall apply to the project:

- Regulator—Ecology
- Owner—Port
- Funder and Reviewer—USEPA and Port
- Engineer—MFA
- Sitework Contractor—to be determined through formal bid process

Responsibilities of project personnel are described in Section 2.1 of the SAP/QAPP (see Appendix A).

4.2 Schedule

The following schedule is anticipated to complete the work outlined in this report:

Task	Duration (Weeks)	Anticipated Start Date	Anticipated End Date
Interim CAP & EDR			
Draft interim CAP & EDR	60	November 1, 2019	December 15, 2020
Regulatory review	44	January 29, 2020	November 30, 2020
Incorporate regulatory comments and Finalize Interim CAP & EDR	22	June 29, 2020	December 15, 2020
Project permitting and subcontractor selection			
Project permitting (grading and SEPA)	8	July 6, 2020	August 30, 2020
Prepare bid documents	8	August 10, 2020	October 12, 2020
Out to public bid	2	March 1, 2021	March 15, 2021
Select contractor	2	March 15, 2021	March 29, 2021
Interim cleanup action fieldwork			
Implement interim action and perform sampling[a]	TBD based on contractor availability	June 2021	July 2021
Laboratory analysis & follow-up analyses	TBD based sample results	June 2021	TBD pending sample results
Data review	4	Immediately upon receipt of final data packages	--
Reporting			
Draft Interim Action Completion Report	12	After completion of fieldwork and final data packages received	--
Regulatory review	8	After submittal of draft interim action report	--
Incorporate regulatory comments and finalize Interim Action Completion Report	4	After receipt of regulatory comments	--

5 REMEDIAL ACTION ENGINEERING DESIGN BASIS

The selected remedial action involves removal of soil exceeding MTCA Method A, unrestricted land use, CULs (see Table 3-2). As outlined in Section 3.2, the following chemicals were identified in shallow soil for AOC 4 above MTCA Method A CULs:

- Arsenic (former ward building only)
- Lead (athletic field only)

As an interim action, the final cleanup levels have not been selected for the Property. MTCA Method A CULs were selected as preliminary CULs to mitigate immediate health concerns, consistent with the Agreed Order, associated with use of these areas by students at the Cascade Job Corps. However, final CULs will also account for ecological receptors at the Property. Therefore, the interim action will target for removal concentrations of lead above 118 mg/kg (based on protection of wildlife and protective of soil biota and plants), as feasible. If removal of concentrations of lead between 118 and 250 mg/kg is not achieved, additional assessment or mitigation of these concentrations may be needed.

Soils exceeding MTCA Method A CULs will be excavated and transported off site to a permitted disposal facility. The selected remedial action will address the following objectives:

- Preventing or minimizing direct contact with or ingestion of contaminated soil by humans or ecological receptors
- Preventing or minimizing the potential for migration of contaminants from soil to groundwater

Anticipated lateral and vertical excavation extents have been established based on analytical results from the field investigations (MFA, 2014, 2015, 2018a). These approximate excavation extents are shown on the attached plan sheets (see Drawings, Sheets C3.0 and C3.1).

Excavated materials will be temporarily stockpiled on-site, then transported off-site for disposal. Historical concentrations of lead in the athletic field were identified above the 20 times the toxicity characteristic leaching procedure (TCLP) regulatory limit. Although TCLP data for lead at the Property has been historically non-detect, on-site treatment of soil for lead may be required for off-site disposal if waste characterization samples (i.e., stockpile samples above TCLP limits) identify the soil as hazardous waste. If on-site treatment for lead is not feasible because of cost, the contaminated soil will be disposed of at a permitted Subtitle C landfill facility. Historical concentrations of arsenic in soil in the former ward building area have not exceeded the 20 times TCLP regulatory limit.

The objective of the remedial action is to remove all soil with impacts exceeding MTCA Method A CULs. The volume of removed material is estimated to 1,050 cubic yards (1,800 tons) based on the stated assumptions in the Assessment of Brownfield Cleanup Alternatives report (MFA, 2018b).

If soil exceeding MTCA Method A CULs of arsenic or lead is encountered outside the excavation extents shown on the attached drawings, the material will be excavated and disposed of off-site, if allowed by the project budget. If budget funds are not available, a contingency plan will be developed with Ecology that may include capping metals-impacted soils exceeding MTCA Method A CULs. Soil with remaining metals impacts would be placed under a demarcation fabric and documented in a soil management plan. Any soils remaining on the Property with concentrations above MTCA Method A CULs will be documented in a soil management plan. Future action regarding any remaining concentrations above MTCA Method A CULs in the AOC will be determined after finalization of the remedial investigation and feasibility study and cleanup action plan for the Property.

Design elements for the remedial action are described below.

5.1 Mobilization and Site Preparation

Anticipated excavation extents will be located and painted by the contractor and will be verified by the engineer. The final extent of the excavation will be confirmed by a combination of field-portable X-ray fluorescence (FP-XRF) screening and laboratory-analyzed confirmation samples for lead and arsenic concentrations. Before excavation, the locations of subsurface utilities within 50 feet of the excavation areas will be identified by "One Call" public notification and a private utility locating company.

Exclusion zones using temporary fencing and warning tape, as well as any additional appropriate site controls necessary, will be established in accordance with the site-specific HASP (Appendix A). The site will be secured and locked when the engineer or contractor is not present.

Equipment will be mobilized to the Property and is expected to include, but not be limited to, the following:

- Trackhoe excavator, or equivalent
- Front-end loader
- Dump truck
- Water truck
- Support vehicles and equipment

Erosion-control measures will be installed by the contractor and are also shown on Sheets C3.0, C3.1 and C3.2 of the attached drawings. The erosion and sediment control plan requires a silt fence to be maintained on site and soil stockpiles to be covered when not in use, overnight, and during rain or wind events. All erosion-control measures will be installed before excavation activities begin and will be maintained throughout the construction effort.

Based on site data, groundwater is not expected to be encountered in the excavations.

5.2 Soil Excavation and Management

The remedial action includes the excavation of soils with arsenic and lead concentrations exceeding MTCA Method A CULs. The anticipated horizontal extents of excavation for both excavation areas are defined on Sheets C3.0 and C3.1 in the attached drawings.

Oversight and monitoring for consistency with this Plan will be performed under the direction of a professional engineer registered in the state of Washington. Field screening will be performed during excavation activities using a FP-XRF instrument. Confirmation sampling will be conducted upon reaching apparent contaminant boundaries using a FP-XRF and verified with results by an analytical laboratory. Field screening and sampling techniques for lead and arsenic may include, but are not limited to:

- FP-XRF instrument
- Analytical (total metals analysis)

Field XRF results may over- or underestimate actual chemical concentrations in soil. Therefore, to ensure the FP-XRF is accurately identifying exceedances, at least one field screened soil sample with an exceedance of lead or arsenic, will be split and submitted to an analytical laboratory to confirm the exceeding concentration.

Additionally, confirmation soil samples will be submitted to an analytical laboratory for analysis and will be compared to XRF screening results prior to extending the planned excavation footprint or depth. Analytical testing may be used to supplement field screening results; however, analytical testing will be performed on confirmation samples in accordance with the procedure outlined in the SAP/QAPP (Appendix B).

5.2.1 Excavation

The vertical extent of the excavation activities in both areas will begin with a maximum depth of 1.0-foot bgs, and the lateral extent will be initially limited to the extent shown on Sheets C3.0 and C3.1 of the attached drawings. Following this excavation, newly exposed soils will be screened using an FP-XRF; any remaining contamination above MTCA Method A CULs will be removed.

The horizonal extents shown on Sheets C3.0 and C3.1 represent the anticipated extent of soil concentrations above MTCA Method A CULs based on previous environmental investigations. Contractors will start excavations at the previous boring locations where exceedances were identified and dig outward toward the anticipated excavation boundaries. Soil from the sidewalls will be regularly screened in the field at approximately 10 foot intervals along every new sidewall length exposed as excavation proceeds with an FP-XRF to inform horizontal extent of soils above MTCA Method A CULs.

The final horizontal and vertical limits of the excavations consist of lead and arsenic soil concentrations below MTCA Method A CULs. Once confirmation samples collected from the sidewalls and base of the excavation indicate that the MTCA Method A CULs have been met, the excavation will be considered complete with approval of the engineer. A minimum of one sample

every 400 square feet will be collected from the floor of the excavation for analysis (Ecology, 2016). Discrete confirmation soil samples will be collected every 20 linear feet along the sidewalls of the excavation for submittal to an analytical laboratory. Sidewall confirmation samples from the excavation area will be collected approximately halfway between the floor of the excavation and the original ground surface. One field duplicate sample will be collected for every 20 confirmation samples analyzed. Soil sampling and analysis are described further in the SAP/QAPP (Appendix B).

The results of the initial excavation confirmation sampling may be reviewed with Ecology to determine whether any adaptive management (e.g., placement of a demarcation fabric) is required before backfilling if elevated concentrations of arsenic or lead remain above MTCA Method A CULs. This could include additional removal, further evaluation of risk, and/or management through institutional controls. If a concentration of lead or arsenic is left in place that indicates a potential exceedance of TCLP criteria, analysis of the sample by TCLP may be conducted. In the event that additional excavation is conducted after evaluation of the confirmation samples, the sampling procedures described above will be followed for these newly developed excavation limits.

There is an established grove of trees north of the athletic field which includes several trees with trunks 2-3 feet in diameter. Several trees also border Hub Drive near the proposed excavation of the former ward building area. Based on the preliminary horizontal excavation extents, the critical root zones (CRZs) for these trees may extend into the excavation area. For purposes of this remediation effort, CRZs are anticipated to coincide with the breadth of the branch canopy (i.e., the drip line). If excavation requires activity within the CRZ of these trees, special construction techniques and/or field assessment by an arborist, landscape architect, or other qualified individual may be implemented during excavation to limit the potential damage to established roots.

During excavation efforts, trees will be preserved when preservation does not prevent the removal of impacted material. The following practices may be used to protect CRZs of viable trees if removal is determined unnecessary to remove contaminated soil:

- Delineation of the CRZ by construction fencing
- Prohibition of construction equipment entry into and transit within the CRZ
- Hand and/or vactor truck excavation of soil in the CRZ
- Restoration of soil near roots (following excavation and survey of post-excavation grade)
- Additional precautions as recommended by a certified arborist, landscape architect, or other qualified individual.

If based on field observations of tree roots and FP-XRF readings, it appears removal of all contaminated soil will likely cause tree mortality, then representatives from Ecology, the Port, the contractor, and an arborist, landscape architect or other individual qualified to assess tree health will meet to determine whether the tree should be removed or whether contamination should be left in place. If contamination is left in place within the CRZ, the area will be covered with woodchips, geotextile fabric and/or construction fencing as a visual and physical barrier.

The estimated volume of removed soil is 1,050 cubic yards (1,800 tons). Because of the uncertainty associated with estimating the true size of the excavations, a 15 percent volume contingency above the estimated volume has been assumed for the purposes of cost estimating.

5.2.2 Dust Mitigation

The excavation process will disturb soil and has the potential to generate dust. Appropriate dust-control methods will be employed during excavation as necessary to prevent the generation of airborne contaminants. These control methods will include soil wetting and misting, at a minimum. The excavation area may be wetted before excavation, should the work be completed during excessively dry weather, by spraying the area immediately around the excavation and spraying newly-exposed soil during excavation so that visible dust emissions are controlled.

The contractor will locate a nearby water source (e.g., fire hydrant) to fill a water tank/truck and keep water readily available during the construction activities. Soil will be kept wet during handling until the soil is placed in haul trucks and covered, pending transport to an off-site permitted landfill. Dry excavation, dry shoveling, or dry sweeping of soil will not be allowed.

5.2.3 Stockpiling

All excavated soils will be placed into approximately 100 cubic yard stockpiles adjacent to the excavations to facilitate analytic testing, as applicable.

Stockpiles will be managed in a manner that minimizes erosion, contact with stormwater runoff, dust generation, and worker and public contact, unless the soil is immediately loaded into trucks for off-site disposal.

Soil stockpiles will be placed on plastic sheeting liners and will be covered with plastic sheeting at the end of each workday to minimize erosion, dust generation, and direct contact by humans. The plastic sheeting that covers the pile must be regularly inspected to ensure that it remains functional and protective of human health and the environment. Temporary stockpiles of contaminated soil must be properly managed and disposed of off site within 60 days of completion of excavation work.

5.2.4 Waste Characterization and Designation

During previous investigations, two out of nine surface soil sample in the athletic field excavation area had lead concentrations above the 20 times the TCLP regulatory limit (i.e., 100 mg/kg for lead) at 576 and 900 mg/kg. These concentrations are considered hazardous waste without analyzing the samples for lead by TCLP. Historical TCLP data collected from soil at the Property have not had detections of lead (or arsenic), indicating that lead in soil at the Property is not leachable. However, stockpiles from the athletic field will be analyzed for lead by the TCLP to further confirm the excavated soil is non-hazardous. A ten-point composite sample will be collected from each 100 cubic yard stockpile in the athletic field area and analyzed for lead by TCLP. One field duplicate will be collected for every 20 composite stockpile samples submitted to the analytical laboratory.

Once the TCLP data for the stockpiled soil have been received, the following process will be implemented:

- If concentrations pass TCLP (Lead TCLP concentration less than 5 mg/L):
  - Stockpiled soil will be disposed of off-site as a special waste (i.e., non-hazardous) at a Subtitle D landfill.
- If concentrations fail TCLP (Lead TCLP concentrations greater than 5 mg/L)[1]:
  - Stockpiled soil will be treated on-site to stabilize any leachable lead and reduce concentrations below TCLP criteria. Stabilization will consist of the addition of Portland cement to the stockpile material to reduce the leachability of lead in the waste material in accordance with Ecology guidance (Ecology, 2002). After amendment, a 10-point composite sample will be collected and analyzed for lead by the TCLP. If detections of lead by TCLP are below 5 mg/L the material will be sent to a Subtitle D landfill for disposal.
  - If after stabilization, the material does not pass the TCLP, the process will be repeated with additional amendment until concentrations of lead by TCLP are reduced below 5 mg/L.

There have been no detections of arsenic in shallow soil in the former ward building excavation area above the 20 times the TCLP regulatory limit (i.e., 100 mg/kg for arsenic). The sample frequency and depth in the former ward building is extensive and can reasonably be assumed to be representative of material that will be removed from the excavation area. Therefore, a waste profile will be generated from the existing analytical data for the area and stockpile sampling for disposal purposes is not anticipated.

Laboratory quality assurance and quality control (QA/QC) data, along with sample results, will be validated before disposal requirements are determined for any soil. This review will be conducted as laboratory reports are received so that soil management may proceed efficiently. Specifics regarding soil sampling, handling, and QA/QC requirements are provided in the SAP/QAPP (Appendix B).

5.3 Backfill, Compaction, and Final Grade

Following confirmation sampling, authorization to proceed with backfill operations will be provided by the engineer. If confirmation sampling indicates that soil in the base of the excavation exceeds MTCA Method A CULs for lead and arsenic, the engineer will require that a demarcation layer of orange construction fencing, or approved equivalent, be placed in the base of the excavation prior to backfilling.

Excavations will be backfilled using clean soil from a local source. One ten-point composite sample of imported soil will be sampled and analyzed prior to delivery to the Property, following applicable USEPA test methods, to ensure that the soil does not contain contaminant concentrations exceeding natural background values. Additionally, a fill source statement will be required from the landowner

[1]All steps will be taken to comply with Dangerous Waste regulations in WAC 173-303.

for each proposed off-site soil borrow source, indicating the location and the current and previous land uses, and confirming that to the best of the landowner's knowledge there has never been contamination of the borrow source site with hazardous or toxic materials.

Clean soil backfill will be placed in the excavated areas and compacted in accordance with project specifications (see Drawings). The final grade will match the existing grades of the areas prior to excavation.

Disturbed areas shall be reseeded with grass matching the surrounding field to stabilize soils and restore initial conditions.

5.4 Inadvertent Discovery Plan

Under the Washington State Governor's Executive Order 05-05, archaeological and cultural resources must be evaluated to satisfy federal regulations 36 CFR 800. RCW 27.44 (Indian Graves and Records) addresses the need to protect graves, cairns, and glyptic marks, and provides associated penalties, civil actions, and procedures. RCW 27.5 (Archaeological Sites and Resources) lays out the State of Washington's interest in protecting archaeological resources and establishes and empowers the Washington State Department of Archaeology and Historic Preservation to complete an inventory, conduct studies, make National Register of Historic Places nominations, and identify and excavate the "state's archaeological resources" (RCW 27.53.020). WAC 25-48 establishes procedures for implementing the permit sections of RCW 27.53. WAC 25-46 establishes regulation procedures for historic archaeological resources on, in, or under aquatic lands owned by the state; RCW 79.105.600 deals with "archaeological activities" on state aquatic lands and addresses shoreline management (via RCW 79.105). RCW 42.56.300 exempts disclosure of the location of archaeological sites.

An IDP detailing procedures to ensure that cultural resources are identified if encountered during soil disturbing activity, and appropriate procedures in such an event, has been provided as Appendix E.

LIMITATIONS

The services undertaken in completing this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this report.

REFERENCES

Artifacts Consulting. 2008. North Cascades Gateway Center (Northern State Hospital) cultural resources assessment for Washington State Department of General Administration. Artifacts Consulting, Inc., Tacoma, Washington. February.

Curtis Hinman and Bruce Wulkan. 2012. Low Impact Development Guidance Manual for Puget Sound, Puyallup, Washington. Washington State University Extension Facility, Puyallup, Washington.

Dragovich, J. D., D. K. Norman, T. J. Lapen, and G. Anderson. 1999. Geologic map of the Sedro-Woolley North and Lyman 7.5-minute quadrangles, Western Skagit County, Washington. Geology and Earth Resources, Washington Division.

Ecology. 2002. Solidification: treatment specific guidance. Publication number 96-416. Washington State Department of Ecology. Revised December.

Ecology. 2016. Guidance for remediation of petroleum contaminated sites, Toxics Cleanup Program Publication No. 10-09-057. Washington State Department of Ecology, Lacey, Washington. Revised June.

MFA. 2014. Final focused site assessment work plan for Northern State Hospital property, Sedro-Woolley, Washington. Maul Foster & Alongi, Inc., Bellingham, Washington. September 9.

MFA. 2015. Preliminary remedial investigation and feasibility study for Northern State Hospital property, Sedro-Woolley, Washington. Maul Foster & Alongi, Inc., Bellingham, Washington. June 30.

MFA. 2018a. Phase II environmental site assessment, former Northern State Hospital, Sedro-Woolley, Washington. Maul Foster & Alongi, Inc., Bellingham, Washington. October 29.

MFA. 2018b. Analysis of brownfield cleanup alternatives, former Northern State Hospital, Sedro-Woolley, Washington. Maul Foster & Alongi, Inc., Bellingham, Washington. October 26.

SES. 2017. Preliminary planning assessment. Prepared for Pollution Liability Insurance Agency, Lacey, Washington. Sound Earth Strategies, Inc., Seattle, Washington. October 25.

TABLES

Table 3-1
Water Levels
Former Northern State Hospital
Sedro-Woolley, Washington

Well ID	MP Elevation (feet NGVD29)	Date	Time	DTW (feet)	DTB (feet)	Groundwater Elevation (feet)
MW01	133.81	05/01/2018	9:30 AM	13.41	24.55	120.40
MW02	131.03	05/01/2018	10:15 AM	16.35	19.45	114.68
MW03	125.86	05/01/2018	10:05 AM	9.28	19.00	116.58
MW04	117.39	05/01/2018	10:20 AM	9.32	19.43	108.07
MW05	117.6163	05/01/2018	10:30 AM	6.55	17.10	111.07
MW06	129.7132	05/01/2018	9:45 AM	--[a]	--[a]	--[a]
MW07	127.0996	05/01/2018	9:58 AM	7.75	16.95	119.35
MW08	128.0230	05/01/2018	9:55 AM	--[a]	--[a]	--[a]
MW09	131.1042	05/01/2018	9:25 AM	5.95	28.92	125.15
MW10	130.4096	05/01/2018	9:15 AM	5.20	29.34	125.21
MW11	130.1546	05/01/2018	9:20 AM	6.30	26.55	123.85

NOTES:

DTW and DTB are measured from top of well casing.

-- = not measured.

DTB = depth to bottom.

DTW = depth to water.

ESA = environmental site assessment.

ID = identification.

MP = measuring point (i.e., top of well casing).

NGVD29 = National Geodetic Vertical Datum of 1929.

[a]Unable to remove well cap to measure water level.

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Table 3-2
Proposed Preliminary Cleanup Levels - AOC 4
Former Northern State Hospital
Sedro-Woolley, Washington

Chemical of Concern	Soil CUL (mg/kg)	Soil CUL Basis
Arsenic	20	MTCA Method A CUL
Lead	250	MTCA Method A CUL

NOTES:
AOC 4 = area of concern 4.
CUL = cleanup level.
mg/kg = milligrams per kilogram.
MTCA = Model Toxics Control Act.

Table 3-3
Soil Sampling Analytical Summary - AOC 4
Former Northern State Hospital
Sedro-Woolley, Washington

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Location	Sample Name	Collection Date	Collection Depth (ft bgs)	Metals	
				Arsenic	Lead
			Units	mg/kg	mg/kg
			MTCA Method A Cleanup Level	20	250
GP16	GP16-S-0.5	4/20/2015	0.5	**11**	**900**
	GP16-S-6.0	4/20/2015	6	**12**	**10**
	GP16-S-9.0	4/20/2015	9	**22**	**11**
GP36	GP36-S-0.5	4/23/2015	0.5	**71**	**15**
	GP36-S-3.5	4/23/2015	3.5	**10**	**6.9**
	GP36-S-8.0	4/23/2015	8	**6.7**	6.3 U
GP45	GP45-S-0.5	6/9/2015	0.2 - 0.7	--	**75**
	GP45-S-2.0	6/9/2015	1.8 - 2.2	--	**9.7**
	GP45-S-9.0	6/9/2015	8.7 - 9.3	**8.5**	--
GP46	GP46-S-0.5	6/9/2015	0.2 - 0.6	--	**29**
	GP46-S-2.0	6/9/2015	1.7 - 2.1	--	**8.7**
	GP46-S-9.0	6/9/2015	8.7 - 9.2	**9.8**	--
GP47	GP47-S-0.5	6/9/2015	0.3 - 0.7	--	**18**
	GP47-S-2.0	6/9/2015	1.8 - 2.3	--	**8.8**
	GP47-S-9.0	6/9/2015	8.6 - 9.2	**14**	--
SS06-S-0.5	SS06-S-0.5	04/24/2018	0-0.5	--	**27.7**
SS07-S-0.5	SS07-S-0.5	04/24/2018	0-0.5	--	**36.7**
SS08-S-0.5	SS08-S-0.5	04/24/2018	0-0.5	--	**572**
SS09-S-0.5	SS09-S-0.5	04/24/2018	0-0.5	--	**59.3**
SS10-S-0.5	SS10-S-0.5	04/24/2018	0-0.5	--	**34.4**
HA12	HA12-S-1.0	6/10/2015	0.5-1.0	**21**	--
HA13	HA13-S-0.5	6/10/2015	0.0 - 0.5	**61**	--
	HA13-S-1.0	6/10/2015	0.5 - 1.0	**51**	--
HA14	HA14-S-0.5	6/10/2015	0.0 - 0.5	**43**	--
	HA14-S-1.0	6/10/2015	0.5 - 1.0	**18**	--
HA38	HA38-S-0.5	12/05/2019	0.5	**13**	--
HA39	HA39-S-0.5	12/05/2019	0.5	**12**	--
HA41	HA41-S-0.5	12/05/2019	0.5	**13**	--
HA43	HA43-S-0.5	12/05/2019	0.5	**31**	--
HA42	HA42-S-0.5	12/05/2019	0.5	**17**	--
HA43	HA43-S-1	12/05/2019	1	**37**	--
HA44	HA44-S-0.5	12/05/2019	0.5	**13**	--
HA46	HA46-S-0.5	12/05/2019	0.5	**12**	--
HA48	HA48-S-0.5	12/5/2019	0.5	**66**	--
	HA48-S-1.0	12/5/2019	1	**60**	--
HA49	HA49-S-0.5	12/5/2019	0.5	**37**	--
	HA49-S-1.0	12/5/2019	1	**29**	--
HA50	HA50-S-0.5	12/5/2019	0.5	**33**	--
	HA50-S-1.0	12/5/2019	1	**13**	--
HA51	HA51-S-0.5	12/05/2019	0.5	**19**	--

Table 3-3
Soil Sampling Analytical Summary - AOC 4
Former Northern State Hospital
Sedro-Woolley, Washington

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NOTES:
Detected results are indicated by **bold font**.
Exceedances are highlighted as follows:
Results that exceed MTCA Method A cleanup levels for unrestricted land use.
-- = no value
ft bgs = feet below ground surface.
mg/kg = milligrams per kilogram.
MTCA = model toxics control act.
U = the result is non-detect.

FIGURES

Source: Aerial photograph obtained from Esri ArcGIS Online; parcels and roads and streams datasets obtained from Skagit County; city limits dataset obtained from City of Sedro-Woolley.

Legend

- Property Parcel and Parcel Name
- Northern State Recreational Area
- Sedro-Woolley City Limits (Post Annexation)
- Stream

Figure 1-1
Property Vicinity
Former Northern State Hospital
Port of Skagit
Sedro-Woolley, Washington

0 500 1,000
Feet

Source: Aerial photograph obtained from Esri ArcGIS Online; parcels and streams datasets obtained from Skagit County.

NOTES:
All property features are approximate.
AOC = area of concern.

Legend

- Boring Location
- Discrete Soil Sample Location
- Hand Auger Location
- Arsenic in Soil
- Arsenic and Lead in Soil
- Stream

Figure 3-1
AOC 4 Vicinity

Northern State Hospital Property
Port of Skagit County
Sedro-Woolley, Washington

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0 100 200
Feet

Project: 0624.04.01-01
Produced By: aguse
Approved By: mstringer
Print Date: 1/6/2020

Location	Sample Name	Collection Date	Collection Depth (ft bgs)	Metals	
				Arsenic	Lead
			Units	mg/kg	mg/kg
MTCA Method A Cleanup Level				20	250
GP16	GP16-S-0.5	4/20/2015	0.5	**11**	**900**
	GP16-S-6.0	4/20/2015	6	**12**	**10**
	GP16-S-9.0	4/20/2015	9	**22**	**11**
GP45	GP45-S-0.5	6/9/2015	0.2 - 0.7	--	**75**
	GP45-S-2.0	6/9/2015	1.8 - 2.2	--	**9.7**
	GP45-S-9.0	6/9/2015	8.7 - 9.3	**8.5**	--
GP46	GP46-S-0.5	6/9/2015	0.2 - 0.6	--	**29**
	GP46-S-2.0	6/9/2015	1.7 - 2.1	--	**8.7**
	GP46-S-9.0	6/9/2015	8.7 - 9.2	**9.8**	--
GP47	GP47-S-0.5	6/9/2015	0.3 - 0.7	--	**18**
	GP47-S-2.0	6/9/2015	1.8 - 2.3	--	**8.8**
	GP47-S-9.0	6/9/2015	8.6 - 9.2	**14**	--
SS06-S-0.5	SS06-S-0.5	04/24/2018	0 - 0.5	--	**27.7**
SS07-S-0.5	SS07-S-0.5	04/24/2018	0 - 0.5	--	**36.7**
SS08-S-0.5	SS08-S-0.5	04/24/2018	0 - 0.5	--	**572**
SS09-S-0.5	SS09-S-0.5	04/24/2018	0 - 0.5	--	**59.3**
SS10-S-0.5	SS10-S-0.5	04/24/2018	0 - 0.5	--	**34.4**

Figure 3-2
Lead and Arsenic Concentrations in Soil - Athletic Field

Former Northern State Hospital
Port of Skagit
Sedro-Woolley, Washington

Legend

- Discrete Soil Sample
- Boring Location (MFA 2014 and 2015)
- Exceedance of the MTCA Mathod A CUL

NOTES:
Boring locations identified using a handheld global positioning system.
The MTCA Method A CUL for arsenic is 20 mg/kg.
The MTCA Method A CUL for lead is 250 mg/kg.
CUL = cleanup level.
mg/kg = milligrams per kilogram.
MTCA = Model Toxics Control Act.

0 25 50
Feet

Source: Aerial photograph obtained from Esri ArcGIS Online; streams dataset obtained from Skagit County.

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Path: X:\0624.04 Port of Skagit\17\Projects\Fig Lead_Arsenic_Soil Investigation_AthleticField.mxd
Print Date: 7/16/2020
Approved By: H. Hirsch
Produced By: sguse
Project: 0624.01

Location	Sample Name	Collection Date	Collection Depth (ft bgs)	Metals	
				Arsenic	Lead
			Units	mg/kg	mg/kg
MTCA Method A Cleanup Level				20	250
GP36	GP36-S-0.5	4/23/2015	0.5	**71**	**15**
	GP36-S-3.5	4/23/2015	3.5	**10**	**6.9**
	GP36-S-8.0	4/23/2015	8	**6.7**	6.3 U
HA12	HA12-S-1.0	6/10/2015	0.5-1.0	**21**	--
HA13	HA13-S-0.5	6/10/2015	0.0 - 0.5	**61**	--
	HA13-S-1.0	6/10/2015	0.5 - 1.0	**51**	--
HA14	HA14-S-0.5	6/10/2015	0.0 - 0.5	**43**	--
	HA14-S-1.0	6/10/2015	0.5 - 1.0	**18**	--
HA38	HA38-S-0.5	12/05/2019	0.5	**13**	--
HA39	HA39-S-0.5	12/05/2019	0.5	**12**	--
HA41	HA41-S-0.5	12/05/2019	0.5	**13**	--
HA43	HA43-S-0.5	12/05/2019	0.5	**31**	--
HA42	HA42-S-0.5	12/05/2019	0.5	**17**	--
HA43	HA43-S-1	12/05/2019	1	**37**	--
HA44	HA44-S-0.5	12/05/2019	0.5	**13**	--
HA46	HA46-S-0.5	12/05/2019	0.5	**12**	--
HA48	HA48-S-0.5	12/05/2019	0.5	**66**	--
	HA48-S-1.0	12/05/2019	1	**60**	--
HA49	HA49-S-0.5	12/05/2019	0.5	**37**	--
	HA49-S-1.0	12/05/2019	1	**29**	--
HA50	HA50-S-0.5	12/05/2019	0.5	**33**	--
	HA50-S-1.0	12/05/2019	1	**13**	--
HA51	HA51-S-0.5	12/05/2019	0.5	**19**	--

Figure 3-3
Arsenic Concentration in Soil- Former Ward Building

Former Northern State Hospital
Port of Skagit
Sedro-Woolley, Washington

Legend

- Tier I Hand Auger Location
- Tier II Hand Auger Location
- Previous Hand Auger Location (MFA 2015)
- Boring Location (MFA 2014 and 2015)
- Exceedance of the MTCA Mathod A CUL

NOTES:
All collection depths are in feet below ground surface.
All values are in mg/kg.
Hand auger locations are approximate.
Boring locations identified using a handheld global positioning system.
The MTCA Method A CUL for arsenic is 20 mg/kg.
AOC = area of concern.
CUL = cleanup level.
mg/kg = milligrams per kilogram.
MTCA = Model Toxics Control Act.
U = not detected at or above the method reporting limit.

0 50 100
Feet

Source: Aerial photograph obtained from Esri ArcGIS Online; streams dataset obtained from Skagit County.

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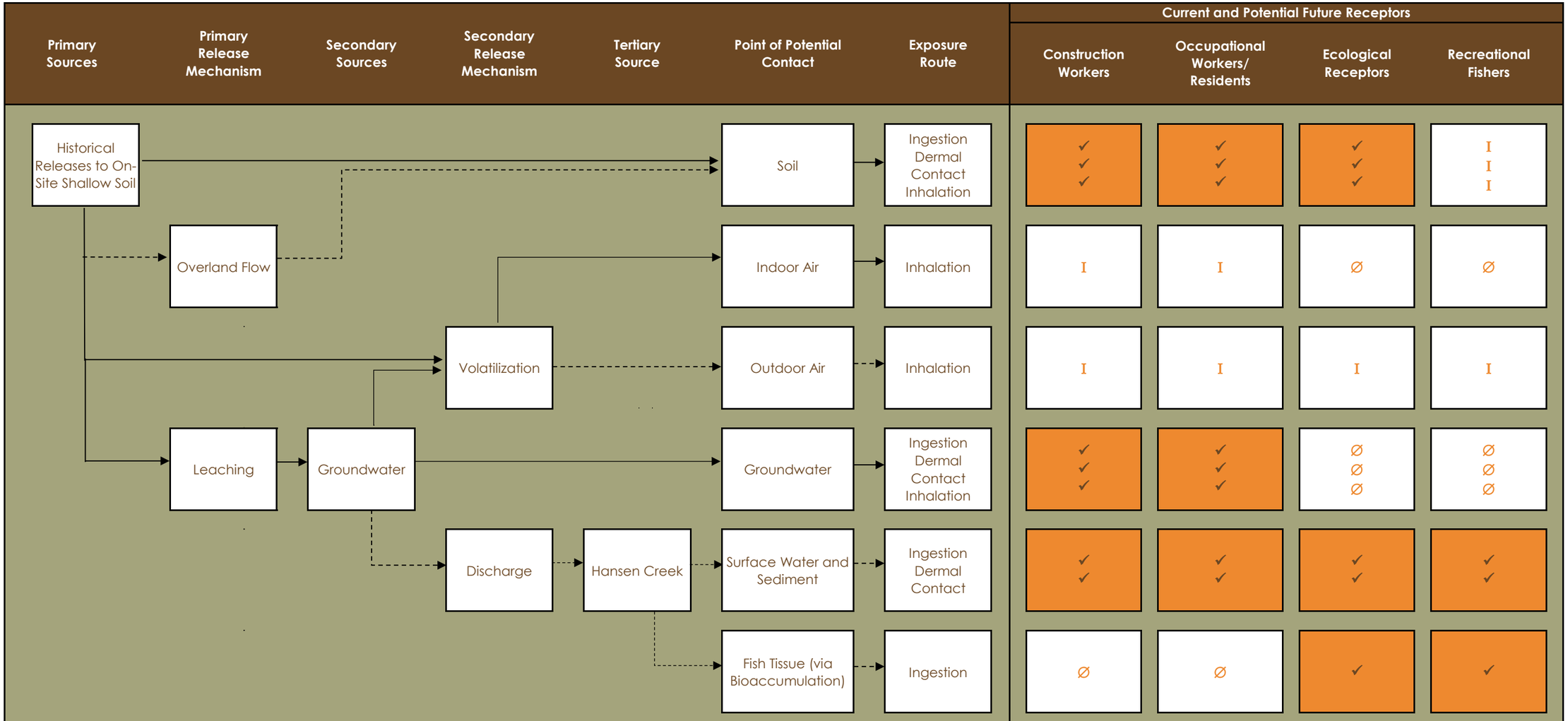
Figure 3-4
Conceptual Site Model
Former Northern State Hospital
Port of Skagit
Sedro-Woolley, Washington



Notes:

→ Primary pathway.

⇢ Potential pathway.

✓ Potentially-complete exposure route.

∅ Incomplete exposure route.

I Insignificant exposure route.

DRAWINGS

INTERIM REMEDIAL ACTION - SOIL REMOVAL

PREPARED FOR:

PORT OF SKAGIT

LOCATED IN SEC. 7,8,17,AND 18, T. 35 N., R. 5 E., W.M., SKAGIT COUNTY, SEDRO-WOOLLEY, WASHINGTON

PROJECT CONTACTS

CLIENT	CIVIL ENGINEER
PORT OF SKAGIT 15400 AIRPORT DRIVE BURLINGTON, WA 98233 P: 360-757-0011 HEATHER ROGERSON HEATHER@PORTOFSKAGIT.COM	MAUL, FOSTER & ALONGI, INC. 1329 N STATE ST. #301 BELLINGHAM, WA 98225 P: 503-501-5236 JOSHUA ELLIOTT JELLIOTT@MAULFOSTER.COM
SURVEYOR	
SKAGIT SURVEYORS 806 METCALF ST. SEDRO-WOOLLEY, WA 98284 P: 360-855-2121	

PROJECT SUMMARY

SITE ADDRESS:
2070 NORTHERN STATE ROAD
SEDRO-WOOLLEY, WA 98284

WORK DESCRIPTION:
THE REMEDIAL ACTION PLAN DETAILED IN THIS PLAN SET CONSISTS OF EXCAVATION AND OFF-SITE DISPOSAL OF LEAD- AND ARSENIC-IMPACTED SOIL IN TWO AREAS OF THE FORMER NORTHERN STATE HOSPITAL. EXCAVATION BOUNDS SHOWN ARE CONSIDERED TO BE ESTIMATED AND WILL BE CONFIRMED THROUGH LABORATORY SAMPLING AS DESCRIBED IN THE ENGINEERING DESIGN REPORT.

VICINITY MAP

NOT TO SCALE

SHEET INDEX

GENERAL NOTES

1. SURVEY PERFORMED BY SKAGIT SURVEYORS IN 2007. CONTOURS AND FEATURES SHOWN IN THIS PLAN SET ARE CONSIDERED TO BE APPROXIMATE AND SHOULD BE CONFIRMED PRIOR TO THE START OF CONSTRUCTION ACTIVITIES.
2. HORIZONTAL DATUM: WASHINGTON STATE PLANE COORDINATE SYSTEM NORTH ZONE, NAD 83/91. ELEVATION DATUM: NAVD 88
3. CONTRACTOR TO VERIFY ALL UTILITY LOCATIONS AND DEPTHS PRIOR TO CONSTRUCTION. A MINIMUM OF TWO FULL BUSINESS DAYS PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL CALL 811 (UTILITY NOTIFICATION CENTER) FOR LOCATION MARK-UP OF EXISTING UTILITIES.
4. ALL CONSTRUCTION, MATERIALS, AND WORKMANSHIP SHALL CONFORM TO THE LATEST STANDARDS AND PRACTICES OF THE CITY OF SEDRO-WOOLLEY AND THE LATEST EDITION OF THE "STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION" PREPARED BY WSDOT/APWA.
5. IN CASE OF A CONFLICT BETWEEN THE REGULATORY STANDARDS OR SPECIFICATIONS, THE MORE STRINGENT REQUIREMENT WILL PREVAIL.
6. ANY CHANGES TO THE DESIGN AND/OR CONSTRUCTION SHALL BE APPROVED BY THE OWNER AND THE ENGINEER.
7. APPROVAL OF THESE PLANS DOES NOT CONSTITUTE AN APPROVAL OF ANY OTHER CONSTRUCTION NOT SPECIFICALLY SHOWN ON THE PLANS. PLANS FOR STRUCTURES SUCH AS BRIDGES, BUILDINGS, TANKS, VAULTS, ROCKERIES, AND RETAINING WALLS MAY REQUIRE A SEPARATE REVIEW AND APPROVAL BY THE BUILDING DEPARTMENT PRIOR TO CONSTRUCTION.
8. A COPY OF THESE APPROVED PLANS SHALL BE ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS.
9. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN ALL CONSTRUCTION EASEMENTS AND PERMITS NECESSARY TO PERFORM THE WORK.
10. THE CONTRACTOR IS RESPONSIBLE FOR STAKING PRELIMINARY EXCAVATION BOUNDARIES.
11. PUBLIC AND PRIVATE DRAINAGE WAYS SHALL BE PROTECTED FROM POLLUTION. NO MATERIAL IS TO BE DISCHARGED TO OR DEPOSITED IN STORMWATER SYSTEMS IF IT MAY RESULT IN VIOLATION OF LOCAL, STATE, OR FEDERAL WATER QUALITY STANDARDS.
12. ALL CONSTRUCTION WITHIN THE PUBLIC RIGHT-OF-WAY SHALL HAVE AN APPROVED PUBLIC RIGHT-OF-WAY WORK PERMIT PRIOR TO ANY CONSTRUCTION ACTIVITY.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE SAFEGUARDS, SAFETY DEVICES, PROTECTIVE EQUIPMENT, FLAGGERS, AND ANY OTHER NEEDED MEASURES TO PROTECT THE LIFE, HEALTH, AND SAFETY OF THE PUBLIC, AND TO PROTECT PROPERTY IN CONNECTION WITH THE PERFORMANCE OF WORK COVERED BY THE CONTRACTOR. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST ADOPTED EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) PUBLISHED BY THE U.S. DEPARTMENT OF TRANSPORTATION. TWO-WAY TRAFFIC MUST BE MAINTAINED AT ALL TIMES ON THE ADJACENT PUBLIC STREETS.
14. ANY PUBLIC OR PRIVATE CURB, GUTTER, SIDEWALK, OR ASPHALT DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED TO CITY OF SEDRO-WOOLLEY STANDARDS.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE INTEGRITY OF ADJACENT UTILITIES, WHICH MAY INCLUDE, BUT ARE NOT LIMITED TO, WATER, SANITARY SEWER, STORMWATER, POWER, TELEPHONE, CABLE TV, GAS, IRRIGATION, AND STREET LIGHTING. THE CONTRACTOR SHALL NOTIFY RESIDENTS AND BUSINESSES 48 HOURS IN ADVANCE OF ANY WORK AFFECTING ACCESS OR SERVICE AND SHALL MINIMIZE INTERRUPTIONS TO DRIVEWAYS FOR RESIDENTS AND BUSINESSES ADJACENT TO THE PROJECT.
16. ALL DISTURBED LAWNS AND VEGETATED AREAS WILL BE RESTORED TO ORIGINAL CONDITION. ANY DISTURBANCE OR DAMAGE TO OTHER PROPERTY ON ADJACENT PARCELS OR IN THE PUBLIC RIGHT OF WAY SHALL ALSO BE REPAIRED OR RESTORED TO ORIGINAL CONDITION.

PRELIMINARY NOT FOR CONSTRUCTION

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BELLINGHAM, WA 98225
360.594.6262
www.maulfoster.com

NORTHERN STATE HOSPITAL
INTERIM ACTION
PORT OF SKAGIT
SEDRO-WOOLLEY, WASHINGTON

ISSUE	DATE	DESCRIPTION

PROJECT: 0624.04.16
DESIGNED: E. LUNDEEN
DRAWN: E. LUNDEEN
CHECKED: J. ELLIOTT
SCALE
DRAWING NOT TO SCALE
SHEET TITLE
COVER
SHEET
C0.0

PLOTTED BY: Evelyn Lundeen FILENAME: G:\00_MFA Civil 3D\00_PROJECTS\0624.04 Port of Skagit\16_Interim Action\PLANS\C0.0 COVER.dwg
PLOTTED ON: 2020-01-29 12:39 PM

CONSTRUCTION NOTES

EROSION AND SEDIMENT CONTROL

1. ALL GRADING AND EROSION CONTROL MATERIALS, WORKMANSHIP AND METHODS OF CONSTRUCTION SHALL CONFORM TO THE CURRENT EDITION OF THE "STORMWATER MANAGEMENT MANUAL FOR WESTERN WASHINGTON" PREPARED BY THE WASHINGTON STATE DEPARTMENT OF ECOLOGY.

2. THE CONTRACTOR SHALL MAINTAIN AN ON-SITE WRITTEN DAILY LOG OF EROSION CONTROL AND MAINTENANCE.

3. DURING THE PERIOD FROM OCTOBER 1ST TO APRIL 30TH, NO SOIL SHALL BE EXPOSED FOR MORE THAN TWO (2) DAYS. FROM MAY 1ST TO SEPTEMBER 30TH, NO SOILS SHALL REMAIN EXPOSED FOR MORE THAN SEVEN (7) DAYS.

4. THE CONSTRUCTION ENTRANCE MAY BE REDUCED TO LESS THAN 100' WITH APPROVAL OF THE EROSION CONTROL INSPECTOR.

5. INLET PROTECTION FABRIC SHALL BE INSTALLED UNDER GRATES FOR INLETS IN LANDSCAPED AREAS.

6. THE CONTRACTOR WILL PROVIDE APPROPRIATE PROACTIVE EROSION CONTROL DURING CONSTRUCTION TO PREVENT THE EROSION CONTROL SYSTEMS FROM FAILING DUE TO SILT. THE CONTRACTOR SHALL ENSURE THAT SEDIMENT DOES NOT IMPACT THE ADJACENT PROPERTIES OR THE SURROUNDING PUBLIC ROADS DURING CONSTRUCTION.

7. THE IMPLEMENTATION OF THESE EROSION AND SEDIMENT CONTROL (ESC) PLANS AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE ESC FACILITIES ARE THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ALL CONSTRUCTION IS COMPLETED AND APPROVED, AND VEGETATION IS ESTABLISHED.

8. THE BOUNDARIES OF THE WORK AREA LIMITS SHOWN ON THIS PLAN SHALL BE CLEARLY FLAGGED IN THE FIELD PRIOR TO CONSTRUCTION. DURING THE CONSTRUCTION PERIOD, NO DISTURBANCE BEYOND THE FLAGGED WORK AREA LIMITS SHALL BE PERMITTED. THE FLAGGING SHALL BE MAINTAINED BY THE CONTRACTOR FOR THE DURATION OF CONSTRUCTION.

9. CARE SHOULD BE TAKEN NOT TO DISTURB MORE AREA THAN NEEDED FOR CONSTRUCTION REQUIREMENTS. ALL DISTURBED SOILS SURFACES ARE TO BE STABILIZED. STABILIZATION OF DISTURBED SOIL AREAS SHALL CONSIST OF: HYDROSEEDING OR HANDSEEDING, MULCHING, OR PLACING OF EROSION CONTROL BLANKETS OR PLASTIC IN LANDSCAPING SOIL AREAS. IT WILL ALSO CONSIST OF PAVING AND CONCRETE WORK IN DRIVING, PARKING, AND SIDEWALK AREAS. ALL SEEDED AREAS ARE TO BE FERTILIZED, WATERED, AND MAINTAINED TO ENHANCE THE IMMEDIATE REGROWTH OF VEGETATION.

10. MATERIAL STOCKPILES ARE TO BE PROTECTED FROM PRECIPITATION BY THE FOLLOWING MEANS:

    • TEMPORARY - COVER PILES WITH TARPS OR PLASTIC SHEETING WEIGHTED WITH TIRES, LUMBER, OR CONCRETE BLOCKS.

    • PERMANENT - COVER PILES WITH TARPS OR PLASTIC, OR RESEED. PERIMETER AREAS AROUND PILES ARE TO BE SURROUNDED WITH EROSION CONTROL FILTER FABRIC FENCES UNTIL SOILS SURFACE IS STABILIZED WITH RESEEDING.

10. THE ESC FACILITIES SHALL BE INSPECTED DAILY BY THE CONTRACTOR AND MAINTAINED AS NECESSARY TO ENSURE CONTINUOUS FUNCTIONING. INSPECTION AND MAINTENANCE SHALL INCLUDE, BUT NOT BE LIMITED TO:

    • VERIFYING THAT ALL AREAS ARE GRADED SUCH THAT ALL RUNOFF IS DIRECTED TO A SEDIMENTATION TRAP FACILITY BEFORE BEING DISCHARGED TO SURFACE.

    • REMOVAL OF TRAPPED SILTS AT SILT BARRIERS, SILT TRAPS, OR POINTS OF ACCUMULATION.

    • ADDITIONAL PROTECTIVE MEASURES, AS REQUIRED, DUE TO JOB SITE CONDITIONS.

    • STABILIZED CONSTRUCTION ENTRANCES INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. MONITORING OF VEHICLES LEAVING THE SITE TO MINIMIZE TRANSMISSION OF LOOSE SOILS TO THE PUBLIC ROADWAYS.

    • IF SEDIMENT IS TRANSPORTED ONTO A ROAD SURFACE, THE SURFACE IS TO BE CLEANED THOROUGHLY AT THE END OF EACH DAY.

11. THE ESC FACILITIES ON INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE A MONTH OR WITHIN THE 24 HOURS FOLLOWING A STORM EVENT.

12. AT NO TIME SHALL MORE THAN ONE FOOT OF SEDIMENT BE ALLOWED TO ACCUMULATE WITHIN A TRAPPED CATCH BASIN. ALL CATCH BASINS AND CONVEYANCE LINES SHALL BE CLEANED PRIOR TO PAVING. THE CLEANING OPERATION SHALL NOT FLUSH SEDIMENT-LADEN WATER INTO THE DOWNSTREAM SYSTEM.

13. SILT FENCE CONSTRUCTION SPECIFICATIONS:

    • THE HEIGHT OF A SILT FENCE SHALL NOT EXCEED 30 INCHES.

    • A MINIMUM 4 INCH WIDE BY 4 INCH DEEP TRENCH SHALL BE EXCAVATED ALONG THE LINE OF POSTS AND UPSLOPE OF THE BARRIER.

    • THE TRENCH SHALL BE BACKFILLED WITH CLEAN, NATIVE, OR IMPORTED SOIL.

    • SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT AND WHEN DEPOSITS REACH APPROXIMATELY ONE HALF THE HEIGHT OF THE BARRIER.

    • ANY SEDIMENT DEPOSITS COLLECTED SHALL BE DISPOSED OF WITH STOCKPILED MATERIAL.

14. THIS EROSION AND SEDIMENT CONTROL PLAN IS INTENDED TO BE USED AS A GUIDE TO CONTROL THE TRANSPORTATION OF LOOSE SOILS FROM THE PROPERTY THAT CAUSE WATER QUALITY AND NUISANCE PROBLEMS OUTSIDE THE CONSTRUCTION AREA.

15. DEPENDING ON THE CONTRACTOR'S CONSTRUCTION PRACTICES, SOME PORTIONS OF THE PROPOSED EROSION AND SEDIMENT CONTROL PLAN MAY BE VARIED ACCORDING TO THE JOB SITE CONDITION. ALL CHANGES TO THE PLAN MUST BE REVIEWED AND APPROVED BY THE ENGINEER PRIOR TO ADJUSTMENT.

EXCAVATION

16. THE CONTRACTOR SHALL START EXCAVATION ACTIVITIES AT THE LOCATIONS OF THE KNOWN MODEL TOXICS CONTROL ACT METHOD A CLEANUP LEVEL EXCEEDANCES AS OUTLINED IN THE ENGINEERING DESIGN REPORT.

17. EXCAVATION EXTENT SHALL BE DETERMINED BY THE ENGINEER BASED ON FLOOR AND SIDEWALL SAMPLES ANALYZED WITH A PORTABLE FIELD XRF AND CONFIRMED WITH LABORATORY ANALYSIS.

18. EXCAVATED MATERIAL SHALL BE PLACED IN STOCKPILES IN PREDETERMINED AREAS OVER PLASTIC SHEETING. STOCKPILES SHALL BE PROTECTED FROM EROSION IN ACCORDANCE WITH THE "STORMWATER MANAGEMENT MANUAL FOR WESTERN WASHINGTON." SEE DETAILS B AND C ON SHEET 3.2 OF THIS PLAN SET FOR STOCKPILING GUIDELINES.

19. PRIOR TO OFFSITE DISPOSAL, STOCKPILED MATERIAL SHALL BE SAMPLED BY ENGINEER AND ANALYZED FOR ARSENIC AND LEAD, USING THE TCLP ANALYSIS AS DESCRIBED IN THE ENGINEERING DESIGN REPORT.

SITE GRADING

20. FINAL GRADE FOR BACKFILLED EXCAVATION SHALL MATCH EXISTING CONDITIONS.

21. ALL SURFACES SHALL BE COMPACTED AND GRADED SMOOTH AND FREE OF IRREGULARITIES THAT MIGHT ACCUMULATE SURFACE WATER.

22. ALL GRADING OPERATIONS AND DISTURBED SURFACE STABILIZATION SHALL BE IN ACCORDANCE WITH THE PROJECT EROSION AND SEDIMENT CONTROL PLAN.

VEGETATION PRESERVATION

23. TREES WITHIN AND ADJACENT TO THE WORK AREA SHALL BE PROTECTED WHEN FEASIBLE AS DETERMINED BY FIELD ASSESSMENT BY AN ARBORIST, LANDSCAPE ARCHITECT OR OTHER QUALIFIED INDIVIDUAL. IF EXCAVATION REQUIRES ACTIVITY WITHIN THE CRITICAL ROOT ZONE, SPECIAL CONSTRUCTION TECHNIQUES MAY BE IMPLEMENTED DURING EXCAVATION TO LIMIT POTENTIAL DAMAGE TO THE ESTABLISHED ROOTS.

24. WHERE TREE PRESERVATION PREVENTS REMOVAL OF IMPACTED SOILS, TREES SHALL BE CLEARED AND GRUBBED.

25. THE CONTRACTOR SHALL MINIMIZE DISRUPTION OF EXISTING VEGETATION.

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NORTHERN STATE HOSPITAL
INTERIM ACTION
PORT OF SKAGIT
SEDRO-WOOLLEY, WASHINGTON

ISSUE	DATE	DESCRIPTION

PROJECT: 0624.04.16
DESIGNED: E. LUNDEEN
DRAWN: E. LUNDEEN
CHECKED: J. ELLIOTT
SCALE
DRAWING NOT TO SCALE

SHEET TITLE
CONSTRUCTION NOTES

SHEET
1.0

PLOTTED ON: 2020-01-29 12:29 PM PLOTTED BY: Evelyn.Lundeen FILENAME: G:\00_MFA Civil 3D\00_PROJECTS\0624.04 Port of Skagit\16_Interim Action\PLANS\C1.0 CONSTRUCTION NOTES.dwg

ABBREVIATIONS

AC	ACRE, ASPHALT CONCRETE PAVEMENT
ACOE	ARMY CORPS OF ENGINEERS
AD	AREA DRAIN
AGG	AGGREGATE
AIR	AIR RELIEF
AMSL	ABOVE MEAN SEA LEVEL
AP	ANGLE POINT
APN	APPARENT PARCEL NUMBER
APPD	APPROVED
APPROX, ±	APPROXIMAT(-E, -LY)
ASPH	ASPHALT
ASSY	ASSEMBLY
BCR	BEGIN CURB RETURN
BF	BUTTERFLY
BGS	BELOW GROUND SURFACE
BLDG	BUILDING
BLVD	BOULEVARD
BM	BENCHMARK
BMP	BEST MANAGEMENT PRACTICE
BO	BLOW-OFF
BOC	BACK OF CURB
BOT, BTM	BOTTOM
B.O.W.	BOTTOM OF WALL
BVC	BEGIN VERTICAL CURVE
CB	CATCH BASIN
CDF	CONTROLLED DENSITY FILL
CEM	CEMENT
CF	CUBIC FEET
CFS	CUBIC FEET PER SECOND
CIP	CAST IRON PIPE
CIR	CIRCLE
CK	CHECK
CL, ℄	CENTERLINE
CMP	CORRUGATED METAL PIPE
CO	CLEANOUT
COMP	COMPACTION
CONC	CONCRETE
CPE	CORRUGATED POLYETHYLENE
CPL	COUPLING
CT	COURT
CTR	CENTER
CULV	CULVERT
CY	CUBIC YARD
D	DEPTH
DEG	DEGREE(-S)
DI	DUCTILE IRON
DIA	DIAMETER
DIM.	DIMENSION(-S)
DIP, D.I.P.	DUCTILE IRON PIPE
DOT	DEPARTMENT OF TRANSPORTATION
DR	DIMENSION RATIO
DTL	DETAIL
DWG(S)	DRAWING(-S)
E	EAST
EA	EACH
ECR	END CURB RETURN
EG	EXISTING GROUND
EL, ELEV	ELEVATION
ELB, ELL	ELBOW
ELEC	ELECTRIC(-AL)
ENGR	ENGINEER
ENTR	ENTRANCE
EP, EOP	EDGE OF PAVEMENT
EQ	EQUAL(-LY)
ESC	EROSION CONTROL
ESMT	EASEMENT
EST	ESTIMATE(-D)
EVC	END VERTICAL CURVE
EX.,	EXTG. EXISTING
EXC	EXCAVATE
EW	EACH WAY
FF	FINISH FLOOR
FG	FINISH GRADE
FH	FIRE HYDRANT
FL	FLOW LINE
FLG	FLANGE
FM	FORCE MAIN
FT	FEET, FOOT
GAL	GALLON(-S)
GM	GAS METER
GND	GROUND
GP	GUARD POST
GPM	GALLONS PER MINUTE
GRD	GRADE
GV	GAS VALVE, GATE VALVE
HDPE	HIGH DENSITY POLYETHYLENE
HGT, HT	HEIGHT
HORZ	HORIZONTAL
HP	HORSEPOWER
HYD	HYDRANT
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IN	INCH(-ES)
INTX	INTERSECTION
INV	INVERT
IP	IRON PIPE
L	LENGTH
LAT	LATERAL
LB	POUND(-S)
LF	LINEAR FEET
LONG.	LONGITUDINAL
LT	LEFT
MAX	MAXIMUM
MFA	MAUL FOSTER & ALONGI, INC.
MFR	MANUFACTURER
MH	MANHOLE
MIC	MONUMENT (IN CASE)
MIN	MINIMUM; MINUTE
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
MON	MONUMENT (SURFACE)
MW	MONITORING WELL
N	NORTH
N/A	NOT APPLICABLE
NAT G, NG	NATURAL GAS
NE	NORTHEAST
NO.	NUMBER
NTS	NOT TO SCALE
NW	NORTHWEST
OC	ON CENTER
OD	OUTSIDE DIAMETER
OHP	OVERHEAD POWER
OT	OWNERSHIP TIE
P	PIPE
P TRAN	PAD MOUNTED TRANSFORMER
PC	POINT OF CURVATURE
PCC	PORTLAND CEMENT CONCRETE
PEN.	PENETRATION
PERF	PERFORAT(-E, -ED, -ES, -ION)
P.L., PL	PROPERTY LINE, PLACE
POW V	POWER VAULT
PP	POWER POLE
PROP.	PROPOSED
PS	PUMP STATION
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	POINT OF TANGENT
PV	PLUG VALVE
PVI	POINT OF VERTICAL INTERSECTION
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
R, RAD	RADIUS
RC	REINFORCED CONCRETE
RCP	REINFORCED CONCRETE PIPE
RD	ROOF DRAIN
RED	REDUCER
REQD	REQUIRED
REQT	REQUIREMENT
REV	REVISION
R/W, ROW	RIGHT-OF-WAY
RT	RIGHT
S	SOUTH, SLOPE
SB	SOIL BORING
SCH	SCHEDULE
SD	STORM DRAIN
SDR	STANDARD DIMENSION RATIO
SE	SOUTHEAST
SF	SQUARE FEET
SHT	SHEET
SL	SLOPE
SPEC	SPECIFICATIONS
SQ	SQUARE
SQ IN	SQUARE INCHES
SRF	SURFACE
SSWR	SANITARY SEWER
ST	STREET
STA	STATION
STD	STANDARD
STL	STEEL
STRM	STORM
STRUCT	STRUCTUR(-E, -AL)
SW,S/W	SIDEWALK, SOUTHWEST
TB	THRUST BLOCK
TBM	TEMPORARY BENCHMARK
TC	TOP OF CURB
TEL, TELE	TELEPHONE
TEMP	TEMPORARY
TP	TOP OF PAVEMENT, TEL POLE, TURNING POINT
TW	TOP OF WALL
TYP	TYPICAL
UG	UNDERGROUND
UGE	UNDERGROUND ELECTRIC
UTIL	UTILITY
VC	VERTICAL CURVE
VERT	VERTICAL
VOL	VOLUME
W	WIDTH; WIDE; WEST
W/	WITH
WATR	WATER
WM	WATER METER
W/O	WITHOUT
WSE	WATER SURFACE ELEVATION
WV	GATE/GENERAL WATER VALVE
YD	YARD
YR	YEAR

GENERAL LEGEND

GAS/POWER/TELEPHONE SYMBOLS

SYMBOL EXIST.	SYMBOL PROP.	DESCRIPTION
		GAS METER
		GAS VALVE
		PAD MOUNTED TRANSFORMER
P		POWER VAULT
		TRANSMISSION TOWER
		UTILITY POLE
		UTILITY POLE ANCHOR
		TELEPHONE RISER
T		TELEPHONE VAULT
		LIGHT POLE

SURVEY SYMBOLS

SYMBOL THEOR./ EXIST.	SYMBOL FOUND/ PROP.	DESCRIPTION
		ANGLE POINT
		BENCH MARK
		BLOCK CORNER
		IRON PIPE
		MONUMENT
		OWNERSHIP TIE
		SECTION DATA:
		SECTION CENTER
		SECTION CORNER
		QUARTER CORNER
		SIXTEENTH CORNER
		CLOSING CORNER
MC WC	MC WC	MEANDER CORNER
		WITNESS CORNER
		SOIL BORING
		SPOT ELEVATION

27	EXISTING GRADE MAJOR CONTOUR
27	EXISTING GRADE MINOR CONTOUR
SD_X	EXISTING STORM DRAIN PIPE
W_X	EXISTING WATER PIPE
SS_X	EXISTING SANITARY SEWER PIPE
	EXISTING AC PAVEMENT
	EXISTING CONCRETE SURFACING
	EXISTING GRAVEL SURFACING
	EXISTING BUILDING
	EXISTING FENCE LINE
	EXISTING ROAD CENTERLINE
	EXISTING RIGHT-OF-WAY
PL	EXISTING PROPERTY LINE

WATER SYMBOLS

SYMBOL EXIST.	SYMBOL PROP.	DESCRIPTION
		CAP/PLUG
		COUPLING
		GUARD POST / BOLLARD
		REDUCER
		THRUST BLOCK
		WATER METER
		DOUBLE CHECK VALVE ASSEMBLY
		FIRE HYDRANT
		AIR RELIEF
		BLOW-OFF VALVE
		CHECK VALVE
		GATE VALVE
		BENDS:
		90 DEGREE BEND
		45 DEGREE BEND
		22.5 DEGREE BEND
		11.25 DEGREE BEND
		VERTICAL BEND
		TEE
		CROSS

SANITARY/STORM SEWER SYMBOLS

SYMBOL EXIST.	SYMBOL PROP.	DESCRIPTION
		SAN. SEWER CLEANOUT
	S	SAN. SEWER MANHOLE
		STORM DRAIN CATCH BASIN
		STORM DRAIN CULVERT
	D	STORM DRAIN MANHOLE
		DRY WELL
		AREA DRAIN

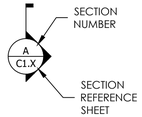
27	PROPOSED GRADE MAJOR CONTOUR (5.0' INTERVAL)
27	PROPOSED GRADE MINOR CONTOUR (1.0' INTERVAL)
	PROPOSED STORM DRAIN PIPE
	PROPOSED WATER PIPE
	PROPOSED SANITARY SEWER PIPE
	PROPOSED AC PAVEMENT
	PROPOSED EXCAVATION AREA
	PROPOSED GRASS SURFACING
	PROPOSED BUILDING
	PROPOSED FENCE LINE
	PROPOSED ROAD CENTERLINE
	PROPOSED RIGHT-OF-WAY
PL	PROPOSED PROPERTY LINE

CHANNELIZATION SYMBOLS

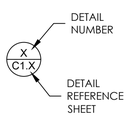
SYMBOL EXIST.	SYMBOL PROP.	DESCRIPTION
		BIKE PATH
		DISABLED ACCESS
STOP	STOP	STOP
		RAISED MARKERS:
		LANE MARKERS TYPE I
		LANE MARKERS TYPE II
		SIGN

MISCELLANEOUS SYMBOLS

SYMBOL EXIST.	SYMBOL PROP.	DESCRIPTION
		MONITORING WELL
		INLET PROTECTION PILLOW
		CONSTRUCTION ENTRANCE
	FG 83.88	PROPOSED SPOT SHOT
#	#	SOIL SAMPLE BELOW MTCA METHOD A CRITERIA
#	#	SOIL SAMPLE ABOVE MTCA METHOD A CRITERIA



TYPICAL SECTION CALLOUT



TYPICAL DETAIL CALLOUT

SF	PROPOSED SEDIMENT FENCE
OR OR	PROPOSED FLOW DIRECTION
	PROPOSED GRADE BREAK
	PROPOSED DITCH FLOW LINE
	PROPOSED COMPOST SOCK
	PROPOSED PAINT STRIPE
	PROPOSED STOCKPILE AREA
	EXISTING FLOW DIRECTION
P	EXISTING OVERHEAD POWER
E_X	EXISTING UNDERGROUND POWER
T	EXISTING UNDERGROUND TELEPHONE
G	EXISTING UNDERGROUND GAS

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DESIGNED: E. LUNDEEN
DRAWN: E. LUNDEEN
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SHEET TITLE
MASTER LEGEND

SHEET
1.1

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SCALE
0 100' 200'
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SHEET TITLE
PROPERTY OVERVIEW

SHEET
1.2

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NOTES:

1. LOCATIONS OF SURVEYED FEATURES ARE APPROXIMATE AND MAY NOT REPRESENT ALL HAZARDS PRESENT IN THE WORK AREA. ADDITIONAL SURVEY SHALL BE CONDUCTED PRIOR TO START OF WORK

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ISSUE	DATE	DESCRIPTION

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SHEET TITLE
EXISTING CONDITIONS PLAN - ATHLETIC FIELD

SHEET
C2.0

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SCALE

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SHEET TITLE

EXISTING CONDITIONS PLAN-FORMER WARD BUILDING

SHEET

C2.1

PLOTTED BY: Evelyn Lundeen FILENAME: G:\00_MFA Civil 3D\00_PROJECTS\0624.04 Port of Skagit\1.6_Interim Action\PLANS\C2.1 existing conditions Former ward building.dwg
PLOTTED ON: 2020-01-29 12:40 PM

NOTES:

1. LOCATIONS OF SURVEYED FEATURES ARE APPROXIMATE AND MAY NOT REPRESENT ALL HAZARDS PRESENT IN THE WORK AREA. ADDITIONAL SURVEY SHALL BE CONDUCTED PRIOR TO START OF WORK.
2. EXCAVATION DEPTH IS ASSUMED TO BE AN AVERAGE OF 1 FOOT.

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—	11/20/19	—

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CHECKED: J. ELLIOTT

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SHEET TITLE

EXCAVATION PLAN-ATHLETIC FIELD

SHEET

C3.0

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HA39
HA38
HUB DRIVE
HA44
HA45
HA12
DEMOLISH EXISTING WALKWAY WITHIN EXCAVATION LIMITS
EXISTING TREES TO BE PRESERVE IN A MANNER DESCRIBED IN DWG C1.0 AND ENGINEERING DESIGN REPORT
PROTECT ABOBVE GROUND POWER BOX
INSTALL TEMPORARY CONSTRUCTION FENCING (TYP)
HA41
HA40
PRESERVE LIGHTPOST
INSTALL CONSTRUCTION ENTRANCE/EXIT SEE DTL A SHT 3.2
HA47
HA46
HA14
GP36
HA43
HA42
ESTIMATED EXCAVATION EXTENT ~0.50 ACRES
PROPOSED STOCKPILE AREA ~0.23 ACRES
HA49
HA48
HA51
HA50
INSTALL 235 LF SILT FENCING SEE DTL C SHT 3.2
INSTALL 625 LF SILT FENCING SEE DTL C SHT 3.2
TREES AND LANDSCAPE ROCKS
HDPE
ULVERT
HUB DRIVE
T1-2

NOTES:

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ISSUE	DATE	DESCRIPTION
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0 20' 40'
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SHEET TITLE
EXCAVATION PLAN-FORMER WARD BUILDING

SHEET
C3.1

PLOTTED BY: Evelyn Lundeen FILENAME: G:\00_MFA Civil 3D\00_PROJECTS\0624.04 Port of Skagit\1\16_Interim Action\PLANS\C3.1ESCP FORMER WARD.dwg
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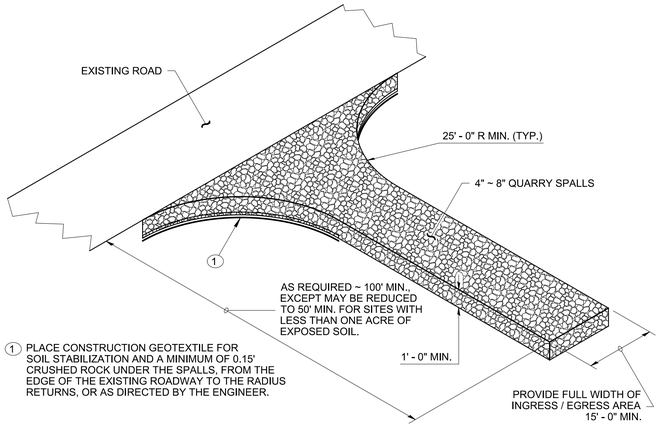
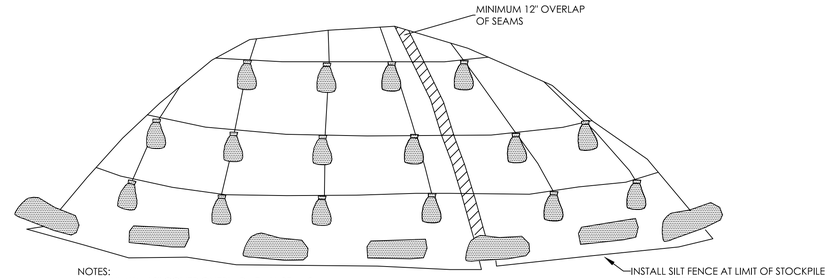


A STABILIZED CONSTRUCTION ENTRANCE DETAIL

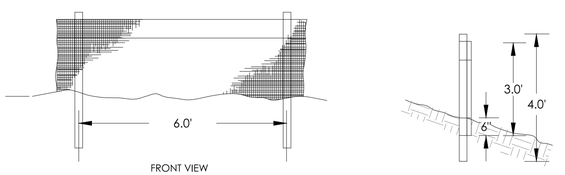
NTS

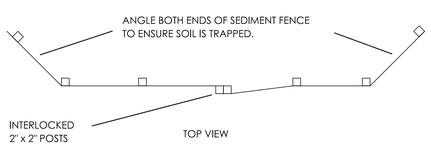


NOTES:
1. MINIMUM 12" COVER OVERLAP AT ALL SEAMS.
2. COMPOST SOCK OR SILT FENCE REQUIRED AT TOE OF STOCKPILE AREA AS SHOWN IN THE PERIMETER PLAN VIEW, DETAIL B, THIS SHEET.
   2.1. SILT FENCE IS TO BE INSTALLED AS SHOWN IN PERIMETER PLAN VIEW, DETAIL C, THIS SHEET.
3. STOCKPILE COVER SHALL BE MAINTAINED TIGHTLY IN PLACE BY USING SAND BAGS OR TIRES ON ROPES WITH A MAXIMUM OF 10' GRID SPACING IN ALL DIRECTIONS.
4. STOCKPILE COVERING SHALL BE BLACK PLASTIC WITH U.V. PROTECTION.

B STOCKPILE COVER DETAIL

NTS





NOTES:
1. BURY BOTTOM OF FILTER FABRIC 6" MIN. VERTICALLY BELOW GRADE.
2. 2" x 2" FIR, PINE, OR STEEL FENCE POSTS.
3. STITCHED LOOPS TO BE INSTALLED ON UPHILL SIDE OF SLOPE.
4. COMPACT NATIVE FILL IN ALL AREAS OF FILTER FABRIC TRENCH.
5. SILT FENCING SHALL BE INSTALLED ON CONTOUR.

C SILT FENCE DETAIL

NTS

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PORT OF SKAGIT
SEDRO-WOOLLEY, WASHINGTON

ISSUE	DATE	DESCRIPTION
1	11/20/19	---
1	---	---

PROJECT: 0624.04.16
DESIGNED: E. LUNDEEN
DRAWN: E. LUNDEEN
CHECKED: J. ELLIOTT
SCALE
DRAWING NOT TO SCALE

SHEET TITLE
EROSION AND SEDIMENT CONTROL DETAILS

SHEET
C3.2

PLOTTED ON: 2020-01-29 12:46 PM PLOTTED BY: Evelyn Lundeen FILENAME: G:\00_MFA Civil 3D\00_PROJECTS\0624.04 Port of Skagit\1.6_Interim Action\PLANS\C3.2 ESCP DETAILS.dwg

DEMOLISH CONSTRUCTION ENTRANCE AND RESTORE TO INITIAL GRADE

RESTORE TO INITIAL GRADE AND HYDROSEED ~0.52 ACRES

WORK AREA BOUNDARY

NOTES:

1. LOCATIONS OF SURVEYED FEATURES ARE APPROXIMATE AND MAY NOT REPRESENT ALL HAZARDS PRESENT IN THE WORK AREA. ADDITIONAL SURVEY SHALL BE CONDUCTED PRIOR TO START OF WORK.

PRELIMINARY NOT FOR CONSTRUCTION

MAUL FOSTER ALONGI
1329 NORTH STATE STREET, SUITE 301
BELLINGHAM, WA 98225
360.594.6262
www.maulfoster.com

NORTHERN STATE HOSPITAL INTERIM ACTION

PORT OF SKAGIT

SEDRO-WOOLLEY, WASHINGTON

ISSUE	DATE	DESCRIPTION
—	11/20/19	—

PROJECT: 0624.04.16
DESIGNED: E. LUNDEEN
DRAWN: E. LUNDEEN
CHECKED: J. ELLIOTT

SCALE

0 20' 40'

NOTE: BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY.

SHEET TITLE

RESTORATION PLAN-ATHLETIC FIELD

SHEET

C4.0

PLOTTED BY: Evelyn Lundeen FILENAME: G:\00_MFA Civil 3D\00_PROJECTS\0624.04 Port of Skagit\16_Interim Action\PLANS\C4.0 Excavation Extent ATHLETIC FIELD.dwg
PLOTTED ON: 2020-01-29 12:40 PM

NOTES:

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INTERIM ACTION
PORT OF SKAGIT
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ISSUE	DATE	DESCRIPTION
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PROJECT: 0624.04.16
DESIGNED: E. LUNDEEN
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CHECKED: J. ELLIOTT

SCALE
0 20' 40'
NOTE: BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY.

SHEET TITLE
RESTORATION PLAN-FORMER WARD BUILDING

SHEET
C4.1

PLOTTED BY: Evelyn.Lundeen FILENAME: G:\00_MFA Civil 3D\00_PROJECTS\0624.04 Port of Skagit\16_Interim Action\PLANS\C4.1 Excavation Extent FORMER WARD.dwg
PLOTTED ON: 2020.01.29 12:41 PM

APPENDIX A

HEALTH AND SAFETY PLAN

HEALTH AND SAFETY PLAN

FORMER NORTHERN STATE HOSPITAL
2070 NORTHERN STATE ROAD
SEDRO-WOOLLEY, WASHINGTON

Prepared for
PORT OF SKAGIT COUNTY
January 12, 2021
Project No. 0624.04.16

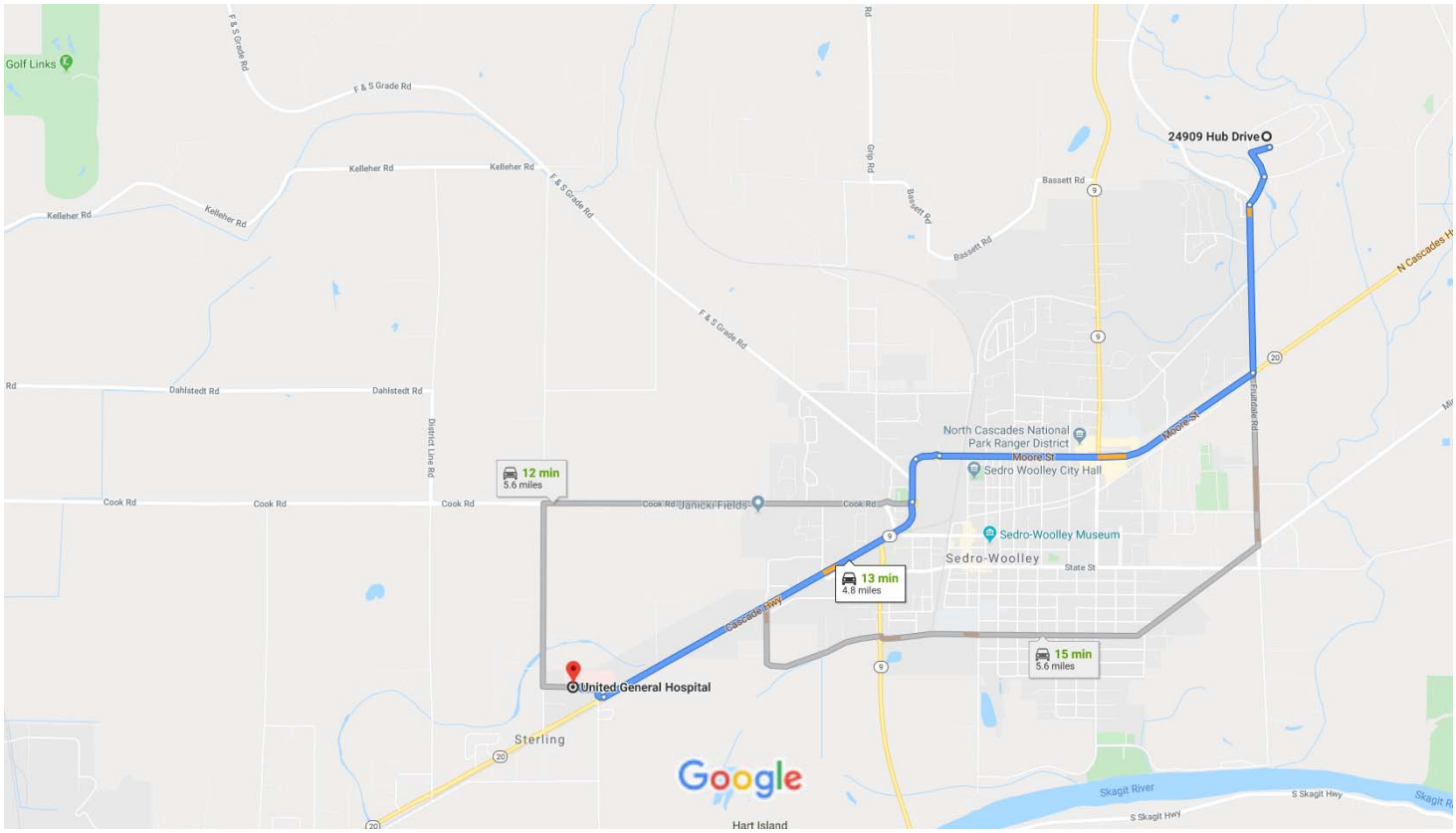
MAUL FOSTER ALONGI

Prepared by
Maul Foster & Alongi, Inc.
1329 N State Street, Suite 301, Bellingham WA 98225

Google Maps

24909 Hub Dr, Sedro-Woolley, WA 98284 to United General Hospital, Sedro-Woolley, WA

Drive 4.8 miles, 13 min



Map data ©2019 Google 2000 ft

24909 Hub Dr

Sedro-Woolley, WA 98284

Take Fruitdale Rd to WA-20 W/Moore St

3 min (1.1 mi)

1. Head west on Hub Dr toward Thompson Dr

0.2 mi

2. Continue onto Thompson Dr

0.1 mi

3. Turn left onto Fruitdale Rd

0.8 mi

Follow Moore St and WA-20 W to Hospital Dr

8 min (3.5 mi)

4. Turn right onto WA-20 W/Moore St

1.5 mi

5. At the traffic circle, continue straight onto W Moore St

0.1 mi

6. Continue onto Bingham St/Borseth St
Continue to follow Borseth St

0.2 mi

7. At the traffic circle, continue straight onto WA-20 W/Borseth St
Continue to follow WA-20 W

1.7 mi

Drive to Hospital Dr in Sedro-Woolley

1 min (0.2 mi)

8. Turn right onto Hospital Dr

312 ft

9. Turn left toward Hospital Dr

367 ft

10. Turn right toward Hospital Dr

43 ft

11. Turn left onto Hospital Dr

213 ft

United General Hospital

Sedro Woolley, WA 98284

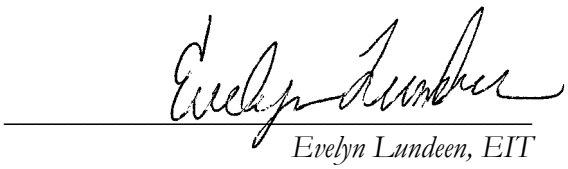
These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

HEALTH AND SAFETY PLAN

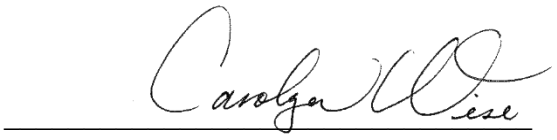
FORMER NORTHERN STATE HOSPITAL
2070 NORTHERN STATE ROAD
SEDRO-WOOLLEY, WASHINGTON

The material and data in this plan were prepared under the supervision and direction of the undersigned.

MAUL FOSTER & ALONGI, INC.



Evelyn Lundeen, EIT
Staff Engineer



Carolyn R. Wise, LG
Project Geologist

CONTENTS

CONTENTS (CONTINUED)

1 NEAREST HOSPITAL/EMERGENCY MEDICAL CENTER

1.1 Nearest Hospital

United General Hospital
2000 Hospital Drive
Sedro-Woolley, WA 98284

Phone: (360) 856-6021

Distance: 4.7 miles

Travel Time: 11 minutes

1.2 Route to Hospital from Site

See map on first page of this document.

1.2.1 Driving Directions to Hospital from Site

1. Head west on Hub Drive toward Thompson Drive.
2. Continue straight onto Thompson Drive.
3. Turn left onto Fruitdale Road.
4. Turn right onto WA-20 West/East Moore Street.
5. At the traffic circle, continue straight onto West Moore Street.
6. Continue onto WA-20 West/Bingham Street/Borseth Street.
7. At the traffic circle, continue straight onto WA-20.
8. Turn right onto Hospital Drive.

1.3 Emergency Phone Numbers

Ambulance, Police, Fire	**Dial 911**
Jim Maul Program Director	Phone: (360) 433-0224 Cell: (360) 694-2691
Carolyn Wise Project Manager	Phone: (360) 594-6255 Cell: (360) 690-5982
Emily Curtis Health and Safety Coordinator	Phone: (503) 501-5233 Cell: (503) 410-1524

2 PLAN SUMMARY

This health and safety plan (HASP) was developed to describe the procedures and practices necessary for protecting the health and safety of Maul Foster & Alongi, Inc. (MFA) employees conducting activities at the former Northern State Hospital (a.k.a., the Sedro-Woolley Innovation for Tomorrow Center) property at 2070 Northern State Road in Sedro-Woolley, Washington (the Site). Other employers, including contractors and subcontractors, are expected to develop and implement their own HASPs to manage the health and safety of their personnel.

MFA personnel conducting activities at the Site are responsible for understanding and adhering to this HASP. Before fieldwork begins, a site safety officer (SSO) who is familiar with health and safety procedures and with the Site will be designated by the on-site personnel. Safety deficiencies should be immediately communicated to the SSO and, if necessary, to MFA's health and safety coordinator (HSC).

All contractors and subcontractors have the primary responsibility for the safety of their own personnel on the Site. All personnel on the Site have "stop work" authority if they observe conditions that they believe create an imminent danger.

If MFA employees work on the Site for more than a year, this HASP will be reviewed at least annually. The plan will be updated as necessary to ensure that it reflects the known hazards, conditions, and requirements associated with the Site.

MFA personnel who will be working on the Site are required to read and understand this HASP. MFA personnel entering the work area must sign the Personnel Acknowledgment Sheet (Section 16), certifying that they have read and that they understand this HASP and agree to abide by it.

3 KEY PROJECT PERSONNEL

Name	Responsibility
Jim Maul	Project Director
Carolyn Wise	Project Manager
Evelyn Lundeen	Field Personnel
Amanda Bixby	Field Personnel
Emily Curtis	Health and Safety Coordinator

4 SITE DESCRIPTION AND BACKGROUND

4.1 Type of Site

The Site is located in section 8 of township 35 north and range 5, east of the Willamette Meridian. The approximately 225-acre property includes four tax parcels identified by the Skagit County Assessor: two rectangular-shaped parcels to the north with the same parcel number and a combined area of 143.23 acres (parcel number P38607); a square-shaped, 39.37-acre parcel (parcel number 39356) to the south; and two irregularly-shaped parcels to the east (33.57-acre parcel number P100632 to the north and 9.81-acre parcel number P100646 to the south).

4.2 Building/Structures

The Site is currently zoned urban reserve public open space and is located within the Sedro-Woolley, Washington, city limits.

The Site currently comprises over 80 buildings and structures. Several buildings have been demolished on the Site, and the debris from a few of the buildings has been buried and/or disposed of on site, as determined through interviews of maintenance staff at the Site.

4.3 Topography

The Site is located on a small plateau with a slight downward topographic slope toward the east, south, and southwest toward Hanson Creek (east) and Brickyard Creek (south/southwest).

4.4 General Geologic/Hydrologic Setting

According to the geologic map of the Sedro-Woolley North and Lyman 7.5-minute quadrangles, the Site and vicinity are underlain by Quaternary glaciomarine drift. The glaciomarine deposits typically consist of, "…poorly sorted, poorly compacted diamicton consisting of silty, sandy, gravelly clay to

clayey gravel; moderately well- to well-sorted sandy silt, sandy clay, clayey silt, and clay…" (Dragovich et al., 1999).

Groundwater was encountered during previous investigations at depths between 6 and 18 feet below ground surface (MFA, 2018). Groundwater across the northern portion of the Site was determined to flow towards the east (MFA, 2018). Due to the large size of the Site and the limited area represented by the monitoring wells, it is possible that the groundwater flow direction varies throughout the Site. It is inferred that groundwater in other areas of the Site flows either southeast, due to the gradual topographic slope of the area, toward the Skagit River Valley; west towards Brickyard Creek; or east towards Hansen Creek, depending on the location at the Site.

4.5 Site Status

The Site is currently owned by the Port of Skagit (the Port), with buildings leased to multiple tenants, including Cascade Job Corps for on-site housing and educational services; the Pioneer Center North for a drug and alcohol treatment facility; and the U.S National Guard for a vehicle storage, maintenance, and fueling facility.

4.6 General Site History

The Site was developed in 1909 and operated as a treatment and residence facility and hospital for the mentally ill until its closure in 1973. The approximately 225-acre campus, which includes the former treatment and residence facility, hospital, and grounds, was designed to be self-sustaining and included on-site patient and staff housing, dedicated water supply reservoirs and an associated potable water treatment facility, a fueling station for on-site vehicles, maintenance and paint shops, and a laundry facility. After the facility's closure, ownership of the Site was transferred from the Department of Social and Health Services to the General Services Administration (known today as the Department of Enterprise Services). On July 1, 2018, the Site was transferred from the Department of Enterprise Services to the Port.

4.7 Areas of Concern

Given the analytical results of prior investigations conducted on the Site, environmental impacts associated with the following areas of concern (AOCs) were identified (MFA, 2018):

- AOC 1: Former Laundry Building—tetrachloroethene and associated daughter products in shallow soil, groundwater, and soil vapor near the former laundry building.
- AOC 2: Powerhouse Building—heavy oil-range organics and carcinogenic polycyclic aromatic hydrocarbons in surface soil and heavy oils in groundwater in the area to the north and northeast of the powerhouse.
- AOC 3: Lead—lead in shallow soil adjacent to historic buildings and in the athletic field.
- AOC 4: Arsenic—arsenic in soil in the athletic field and near the former Ward building.

- AOC 5: Property-Wide Metals in Soil—slightly elevated and relatively consistent metals concentrations were detected in soil throughout the Site.
- AOC 6: Maintenance Building—benzene, toluene, ethylbenzene, and total xylenes and gasoline in subsurface soil and groundwater adjacent to the maintenance building.
- AOC 7: Lead and Arsenic in Groundwater—lead and arsenic in groundwater in the northeastern portion of the Site.

These AOCs are considered preliminary and may be refined through the development of and screening to cleanup levels and additional background assessment and/or site characterization.

4.7.1 Arsenic in Soil Area of Concern

This HASP specifically relates to activities conducted at the arsenic in soil AOC consisting of the excavation and sampling of soil impacted with lead and/or arsenic concentrations at the athletic field and former ward building (i.e., work zone). This includes activities associated with the interim remedial action described in the attached interim cleanup action plan and engineering design report, to which this HASP is an appendix.

5 HAZARD EVALUATION

5.1 Site Tasks and Operations

MFA has completed job hazard analyses (JHAs) for specific tasks that likely could be completed on the Site, depending on the scope of work. These tasks are provided in Appendix A. The following list generally summarizes planned tasks and operations:

- General work near heavy equipment
- Working around excavations
- Working near traffic
- Collecting soil samples

The control measures that field personnel must use to eliminate or minimize hazards such as air monitoring, personal protective equipment (PPE), and decontamination procedures are detailed in the JHAs and in subsequent sections of this plan.

5.2 Chemical Hazard Evaluation

Chemicals of potential concern and detected concentrations on the Site are summarized in Appendix B. Action levels and associated controls are specified in Appendix C.

5.3 Dust

Dust generated at Property may contain metals. The generation of dust should be minimized to prevent exposure. Dust is commonly generated by driving on unpaved roads, test pitting or other sampling activities, and construction/earthwork activities. A JHA describing site-specific dust control measures is provided in Appendix A.

Visible dust generation is considered a potential pathway for exposure of workers to metals and sustained visible dust generation (more than ten seconds) is actionable and may trigger modifications to work practices, air monitoring, and/or dust mitigation. Appropriate dust mitigation includes wetting/misting using water.

5.4 Radiological Hazard Evaluation

Field activities may include the use of portable x-ray fluorescence (XRF) device for on-site analysis of metals. The analyst should undergo proper training in the safe operation of the XRF instrument and radiation training before use of the instrument in the field. The analyst should follow the protocols for radiation safety provided in the XRF instrument operator's manual. All operators of XRF units are responsible for understanding safety requirements and implementing controls to ensure safe and responsible use. Best practices include the following:

1. Keep human radiation exposure as low as reasonably achievable, taking into consideration amount of time the XRF device is in use, distance from XRF device use, and shielding during XRF device use.

2. Never test longer than is required to obtain data. Note that a light will flash on the analyzer when x-rays are being emitted.

3. Ensure x-rays are not emitted when a test is not actively being conducted.

4. X-rays travel in a nearly straight line from an XRF device out the front of the analyzer, so never place any part of your body in front of the analyzer, never point the analyzer at yourself or others, and keep the analyzer in direct contact with the sample during testing.

5. X-rays can be scattered from the sample during analysis, so keep your hands or other body parts away from the front of the analyzer during testing.

6. X-rays penetrate low-density materials, so do not test in a way that your lower extremities could be exposed.

7. Watch for radiation exposure warning signs during analyzer use.

5.5 Physical Hazards

The specific physical hazards and associated controls for work on the Site are described in Appendix A: JHAs.

5.5.1 Noise

In addition to interference with oral communication, job performance, and safety, the effects of noise on humans include physiological effects, particularly temporary and permanent hearing loss. The factors that affect the degree and extent of hearing loss are intensity or loudness of the noise, type of noise, period of exposure, and distance from the noise source. When working in close proximity to operating equipment or other loud noise sources, personnel should use hearing protection.

5.5.2 Heavy Equipment and Falling Loads

Working around heavy equipment potentially presents physical hazards. Always be aware that a large turning radius and the height of certain equipment create blind spots for the operator. Use of excavating equipment also poses overhead hazards when materials are lifted. Do not stand near heavy equipment. Other than the authorized equipment operator, personnel are prohibited from riding on equipment for any reason. Be alert for inattentive equipment operators at the job site, and make eye contact with equipment operators before approaching the work area. Be aware of the potential for falling objects or loads associated with heavy equipment. To reduce the risk associated with excavating, all personnel working around the excavator should wear a hard hat; steel-toed boots; eye protection; and, if needed, hearing protection.

5.6 Utility Clearance

5.6.1 Underground Utilities

Whenever intrusive activities are conducted, the threat of encountering underground utilities exists. These include electrical, gas, and sewage utilities. Before the execution of any intrusive activities, a utility clearance must be completed and an assessment of the presence of underground utilities must be made. The utility clearance agency should be notified, and the utility companies should mark existing utilities. The clearance reference number should be recorded and kept current.

5.6.2 Overhead Utilities

Adequate clearance should be established and maintained for all overhead utilities. These include utilities crossing waterways in and around the Site. Before work starts in the areas where overhead utilities exist, a field inspection should be conducted to verify that adequate distances will be maintained for all equipment intended for use in that location. A minimum clearance distance between equipment and overhead utilities should be identified in the site-specific HASP or as determined by the equipment operator.

5.6.3 Inclement Weather

Field personnel should be equipped for the normal range of weather conditions. The designated contractor SSO should be aware of current weather conditions and of the potential for those conditions to pose a hazard to the field crew. The contractor SSO should observe the current weather conditions, both in the morning and again in the afternoon, and document them in the field notebook.

Heat, rain, cold, wind, snow, ice, flooding, and lightning are natural phenomena that complicate work activities and increase risk. The potential for physical hazards must be considered for tasks that expose personnel to inclement weather. Seasonal conditions must be considered during project planning. The following subsections present specific hazards and potential control measures for these hazards.

5.6.3.1 Lightning

Thunderstorms are more likely to develop during spring and summer but can occur year-round. Pay attention to the weather forecasts for the day and to early signs of thunderstorms: high winds, dark clouds, and darkening skies. Lightning can strike as far as 10 miles from the area where it is raining. If you can hear thunder, you could potentially be within striking distance. Seek safe shelter immediately.

Lightning tends to strike higher ground and prominent objects, especially materials that are good conductors of electricity, such as metal. The safest place to be in a thunderstorm is in a safe building. A safe building is one that is fully serviced and enclosed. The next best source of shelter is an enclosed metal car, truck, or van. When inside the vehicle during a lightning storm, it is recommended that you roll up the windows and sit with hands in lap, waiting out the storm. Don't touch any part of the metal frame or any wired device in the vehicle (including the steering wheel or plugged-in cellular phone). Be aware of any downed power lines that may be touching your vehicle.

If a shelter is not available, you can take shelter in low-lying areas, such as valleys or ditches, but watch for flooding. In a forest, seek shelter in a low-lying area under a thick growth of small trees or bushes. If you are caught in an area far from shelter and you feel your hair stand on end, lightning may be about to strike you. Crouch down on the balls of your feet immediately, with feet together; place your arms around your knees; and bend forward. Be the smallest target possible and minimize your contact with the ground. Do not lie flat on the ground.

Lightning-strike victims do not carry an electrical charge, are safe to touch, and need urgent medical attention.

5.6.3.2 Heat Stress Conditions

Heat stress is a significant potential hazard during summer months. An individual exhibiting signs of heat stress should be provided appropriate treatment immediately. Use of impermeable clothing reduces the cooling ability of the body because of evaporation reduction. This may lead to heat stress. To minimize the effects of heat stress, appropriate work-rest cycles should be maintained, and water or electrolyte-rich liquids should be available.

Never leave employees who are experiencing heat-related problems by themselves; if they do not respond quickly to cooling attempts, immediately call emergency medical services. If a coworker is having difficulty, do not hesitate to bring this to the attention of the supervisor or lead worker.

The following is a brief description of common heat-related conditions and their treatment.

5.6.3.2.1 Heat Exhaustion

Signs and symptoms of heat exhaustion include headache, nausea, vertigo, and weakness. This condition responds readily to prompt treatment, such as cooling and rehydration. Workers suffering from heat exhaustion should be removed from the environment and provided fluids and adequate rest.

5.6.3.2.2 Heat Stroke

The primary signs and symptoms of heat stroke are confusion and irrational behavior; loss of consciousness; hot, dry skin; and abnormally high body temperature. For any worker exhibiting heat stroke symptoms, professional medical treatment should be obtained immediately, as the body has lost its ability to cool itself. The worker should be placed in a cool area, and the outer clothing should be removed. The worker's skin should be cooled to the extent possible until emergency services arrive.

5.6.3.3 Cold Stress Conditions

Adverse climate conditions such as cold weather are important considerations in planning and conducting site activities. Potential hazards in cold environments include immersion (trench) foot, frostbite, and hypothermia, as well as slippery surfaces. The effects of low temperatures are further exacerbated by the proximity of the river.

When working in cold environments, the following specific steps should be taken to lessen the chances of cold-related injuries:

- Protect exposed skin surfaces with appropriate clothing (such as face masks, hand wear, and footwear).
- Shield the work area with windbreaks to reduce the cooling effects of the wind.
- Have extra insulated clothing on site.

5.6.3.3.1 Hypothermia

Hypothermia is an abnormal lowering of the core body temperature caused by exposure to a cold environment. When exposed to cold temperatures, the body begins to lose heat faster than it can be produced. The result is hypothermia. A body temperature that is too low affects the brain, making the victim unable to think clearly or move well. Wind chill, as well as wetness or water immersion, can play a significant role.

Typical early signs of hypothermia include shivering, fatigue, loss of coordination, confusion, and disorientation. Late symptoms of hypothermia include blue skin, no shivering, dilated pupils, slowed pulse and breathing, and loss of consciousness.

Body temperatures below 90 degrees Fahrenheit (°F) require immediate treatment to restore the temperature to normal. The following steps can be taken to treat personnel with hypothermia:

- Alert the SSO and request medical assistance.
- Move the victim into a warm room or shelter. If shelter is not available, a sleeping bag, blankets, and body heat from an individual can be used to help raise body temperature.
- Remove any wet clothing.
- Warm the center of the body first – chest, neck, head, and groin, using skin-to-skin contact under loose, dry layers of blankets, clothing, towels, or sheets.
- If the victim does not respond, begin cardiopulmonary resuscitation.

5.6.3.3.2 Frostbite

Frostbite is an injury to the body that is caused by freezing. Frostbite causes a loss of feeling and color in the affected areas. It most often affects the nose, ears, cheeks, chin, fingers, or toes. Symptoms of frostbite include numbness; tingling or stinging; and bluish or pale, waxy skin.

The following steps can be taken to treat personnel with frostbite:

- Move into a warm area as soon as possible.
- Unless absolutely necessary, do not allow the person to walk on frostbitten feet.
- Do not rub or massage the frostbitten area; doing so may cause more damage.
- Do not use a heating pad or other heat source for warming. Affected areas are numb and can easily be burned.

5.6.3.3.3 Immersion (Trench) Foot

Trench foot is an injury of the feet resulting from prolonged exposure to wet and cold conditions. Trench foot can occur at temperatures as high as 60°F if the feet are constantly wet. Injury occurs because wet feet lose heat 25 times faster than dry feet. Personnel suffering from trench foot should remove boots and wet socks and then dry the feet. Avoid walking, as this may cause tissue damage.

6 HEALTH AND SAFETY TRAINING

MFA personnel working on site and who could be exposed to chemicals of potential concern will have completed training consistent with the Hazardous Waste Operations and Response requirements in 29 Code of Federal Regulations (CFR) 1910.120(e). The training will include:

- Identity of site safety and health personnel

- Safety and health hazards identified on the Site
- Proper use of required PPE
- Safe-work practices required on the Site, e.g., fall protection, confined space entry procedures, hot work permits, general safety rules
- Safe use of engineering controls and equipment on the Site
- Medical surveillance requirements, including the recognition of signs and symptoms that might indicate overexposure to hazards
- The site emergency response plan/spill containment plan

Copies of required training certificates, current medical surveillance certificates, and respirator fit test records must be compiled by the MFA HSC or administrative designee (e.g., human resources manager) before individual entry to the Property. For contractors' on-site personnel, this information will be made available to the Port of Skagit on request.

7 SAFETY EQUIPMENT

7.1 Personal Protective Equipment

PPE must be worn by individuals on the Site to protect against physical hazards. PPE required on the Site is modified Level D, which consists of:

- Type 1 hard hat
- High-visibility vest
- Work boots
- Safety glasses with side shields
- Nitrile gloves or equivalent when handling known or potentially impacted media
- Hearing protection (during high-noise tasks)
- Work gloves (if handling materials that that might have sharp edges, protrusions, or splinters)

Additional PPE may be necessary for specific tasks with additional hazards. The SSO will be responsible for designating additional PPE for specific tasks. Depending on the activity, additional PPE may include:

- Chemical-resistant clothing, e.g., Tyvek® coveralls
- Chemical-resistant boots

- Chemical-resistant goggles
- Chemical-resistant gloves
- Faceshield
- Respiratory protection

Additional PPE may be required if workers discover unexpected contamination. Characteristics of unexpected contamination could include unusual odors, discolored media, a visible sheen, etc. The SSO—and, if necessary, the HSC—will be contacted as soon as possible after the discovery of unexpected contamination, and the SSO and/or the HSC will determine the need for additional controls and/or training.

PPE used at the Site must meet the requirements of recognized consensus standards (e.g., American National Standards Institute, National Institute for Occupational Safety and Health [NIOSH]), and respiratory protection shall comply with the requirements set forth in 29 CFR 1910.134.

Project personnel are not permitted to reduce the level of specified PPE without approval from the SSO or the HSC.

7.2 Safety Equipment

The SSO will be responsible for ensuring that the following safety equipment is available on site and is properly inspected and maintained:

- Soap and water for decontamination
- Caution tape, traffic cones, and/or barriers
- First-aid kit
- Fire extinguisher
- Fluids for hydration, e.g., drinking water or sports drink

7.3 Communications Equipment

MFA personnel should have a mobile phone or a radio available in case of emergency.

8 DECONTAMINATION PROCEDURES

8.1 Partial Decontamination Procedure

MFA employees will implement the following partial decontamination procedures when exiting the work zone but remaining on the Site.

- Remove outer gloves. Inspect and discard in a container labeled for disposable items if ripped or damaged.
- Remove respirator, if worn, and clean with premoistened alcohol wipes. Discard used cartridges at the frequency dictated by the SSO.
- Remove inner gloves and deposit in a container labeled for disposable items.
- Wash hands and face with soap and water.

8.2 Full Decontamination Procedures

MFA employees will follow the full decontamination procedures listed below when exiting the work zone and leaving the Site, e.g., at the end of the work shift:

- Remove outer gloves and deposit in a container labeled for disposable items.
- Remove work boots and put on street shoes. Place work boots in a plastic bag or container for later reuse.
- Remove inner gloves and deposit in a container labeled for disposable items.
- Wash hands and face with soap and water.
- Shower as soon after the work shift as practicable.

8.3 Equipment Decontamination Procedures

Sample equipment decontamination procedures should be followed after equipment use at each sample location and could include the following:

- Wash with brush and Alconox® or similar soap.
- Rinse with distilled water.

Heavy-equipment decontamination procedures should be followed prior to transport to off-site locations and could include the following:

- Use of disposable bed liners to prevent contamination of truck bed.
- Removal of excess soil from equipment with a brush.

9 MEDICAL SURVEILLANCE

MFA will ensure that its employees who meet the following criteria are enrolled in a medical surveillance program consistent with 29 CFR 1910.120(f):

- The employees are, or may be, exposed to hazardous substances or health hazards at or above established permissible exposure limits for 30 or more days per year.
- The employees are required to wear a respirator for 30 or more days per year.

MFA employees who exhibit signs or symptoms consistent with overexposure to site contaminants will be offered medical surveillance consistent with Washington Administrative Code 296-843-21005.

MFA will ensure that its employees who are authorized to wear respirators are medically evaluated consistent with the respiratory protection standard (29 CFR 1910.134). The HSC or administrative designee (e.g., human resources manager) will maintain medical evaluation records.

10 AIR MONITORING

Based on site conditions, air monitoring is not anticipated. In the case that workers encounter conditions that indicate the presence of unexpected contamination, such as unusual odors, discolored media, or a visible sheen, workers will exit the area and contact the SSO and, as needed, the HSC. If necessary, MFA will use air monitoring equipment to evaluate the conditions and determine if additional controls and/or training are required.

Air monitoring, if conducted, must be performed by individuals familiar with the calibration, use, and care of the required instruments. Measurements shall be documented, and the records should include the following information:

- The name of the person conducting the measurements
- The identity of workers, if any, who have exposure indicated by measurement result
- Information about the instrument, e.g., type, make, model, serial number

- The location of the measurement
- The measurement date and start/stop time
- Conditions represented by the measurement, including applicable activities, work practices, weather conditions, site conditions, and controls in place
- Measurement results
- Other relevant observations or notes

10.1 Air Monitoring Action Levels

If air monitoring is conducted, the results will be compared to the action levels provided in Appendix C. The air monitoring action levels are established to comply with Occupational Safety and Health Administration Permissible Exposure Levels, American Conference of Governmental Industrial Hygienists threshold limit values, and NIOSH recommendations for the chemicals that may be encountered on the Site. The action levels are also adjusted for the relative response of common photoionization detector instruments to motor-fuel vapors.

As needed, a water truck or similar controls for minimizing dust generation may be used on the Property. If controls do not prevent significant visible dust generation, MFA will take measurements with a real-time dust monitor. A JHA describing site-specific dust control measures is provided in Appendix A.

10.2 Explosion Hazard Action Levels

MFA employees working on site will take measurements when working near known or suspected sources of explosive gases or vapors. The instrument alarm should be set to sound at 10 percent of the lower explosive limit. When measurements exceed this level, MFA employees on site will:

1. Extinguish ignition sources and shut down powered equipment in the work area.
2. Move personnel at least 100 feet away from the work area.
3. Contact the SSO and the HSC.
4. At the instruction of the HSC and after waiting 15 minutes for explosive gases to dissipate, the SSO may use the combustible gas meter to approach the worksite to measure combustible gases in the work area. The SSO shall not enter (or allow any personnel to enter) any area where the combustible gas meter readings exceed the explosivity action level, nor shall the SSO approach if there is a potential for fire or explosion.
5. The SSO may authorize personnel to reenter the work area after the source of the combustible gases has been identified and controlled.

10.3 Instrument Calibrations

Instruments shall be calibrated consistent with manufacturers' recommendations. Calibrations shall be coordinated by the SSO. Calibration and monitoring records shall be maintained by the SSO and/or the project manager.

11 SITE CONTROL MEASURES

Access to the Site will be controlled as part of the site preparation. Control measures may include fencing, gates, and signs limiting access to everyone except authorized personnel. Work zones and contaminant reduction zones will be designated by the SSO at the start of on-site work.

MFA requires the "buddy system" when personnel conduct operations that may involve exposure to site hazards. The buddy system may involve working with non-MFA personnel.

12 EMERGENCY RESPONSE/SPILL CONTAINMENT/CONFINED SPACE

MFA employees on site will follow the emergency response, spill response, and confined space procedures described in the MFA Health and Safety Manual. Incidents will be documented on the incident report form included with Appendix D.

13 PRE-ENTRY BRIEFING

MFA employees on site will conduct pre-entry briefings, e.g., tailgate meetings, before starting work on the Site and/or as the scope of work changes throughout the project to ensure that employees are familiar with the HASP and that the plan is being followed. Attendance and discussion topics will be documented on sign-in sheets, which will be maintained by the SSO.

14 PERIODIC EVALUATION

The project manager or designee will evaluate the effectiveness of this HASP. As part of the evaluation, the project manager or designee will track ongoing health and safety feedback from field

personnel working on the project. This feedback will be reviewed and incorporated into either immediate or annual updates of the HASP. HASPs will be reviewed and updated at least annually. Updating the plan as necessary ensures that it reflects the known hazards, conditions, and requirements associated with the Site. MFA will maintain periodic evaluation records and will track all HASP revisions.

15 SAFE-WORK PRACTICES

The following safe-work practices are provided to supplement the other information included with this HASP:

1. Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases the probability of hand-to-mouth transfer and ingestion of materials is prohibited in areas with potentially contaminated materials.
2. Field personnel will, whenever practicable, remain upwind of drilling rigs, open excavations, and other site-disturbing activities.
3. Subsurface work shall not be performed at any location until a utility-locator firm has confirmed the area is free of underground utilities or other obstructions.

16 ACKNOWLEDGMENT

MFA cannot guarantee the health or safety of any person entering the Site. Because of the potentially hazardous nature of visits to active sites, it is not possible to discover, evaluate, and provide protection against all possible hazards that may be encountered. Strict adherence to the health and safety guidelines set forth herein will reduce, but not eliminate, the potential for injury and illness at the Site. The health and safety guidelines in this plan were prepared specifically for the Site and should not be used on any other site without prior evaluation by trained health and safety personnel.

MFA personnel who will work at the Site are to read, understand, and agree to comply with the specific practices and guidelines described in this HASP regarding field safety and health hazards.

This HASP has been developed for the exclusive use of MFA personnel. MFA may make this plan available for review by contracted or subcontracted personnel for information only. This plan does not cover the activities performed by employees of any other employer on the Site. All contracted or subcontracted personnel are responsible for implementing their own health and safety program, including generating and using their own plan.

I have read and I understand this HASP and all attachments and agree to comply with the requirements described herein:

Name	Title	Date

REFERENCES

Dragovich et al. 1999. Geologic map of the Sedro-Woolley North and Lyman 7.5-minute quadrangles, Western Skagit County, Washington. Geology and Earth Resources, Washington Division.

MFA. 2018. Phase II environmental site assessment work plan, former Northern State Hospital, Sedro-Woolley, Washington. Maul Foster & Alongi, Inc., Bellingham, Washington. October 29.

APPENDIX A

JOB HAZARD ANALYSES

Job Hazard Analysis (JHA)

Task/Operation: Soil Sampling	
Project Number: 0624.04.16	**Location/Site where Task/Operation Performed:** Former Northern State Hospital Arsenic in Soil Area of Concern
Date Prepared: 11/13/2019 **Date Reviewed:** 11/22/2019	**Employee Preparing this JHA:** Evelyn Lundeen **Employee Reviewing and Certifying this JHA:** Carolyn Wise

Job/Task Description

Employees will conduct work such as overseeing excavation activities and collecting confirmation soil samples. This will require occasional work in close proximity to open excavations and heavy equipment.

Physical Hazards

Physical Hazard/Risk	Source of Hazard/Risk	Hazard/Risk Mitigation
Eye injury	Construction debris and splashes (e.g., soil, water) contacting eyes.	Wear eye protection with side shields.
Injuries caused by improper lifting	Equipment, core sampler, sample coolers.	Use proper bending/lifting techniques by bending and lifting with legs and not with back. Do not twist at the waist when turning the core sampler. Use buddy system for heavy objects.
Accidents with equipment/tools	Sample-collection equipment/tools.	Verify you have the appropriate equipment/tools for tasks. Use equipment/tools only as intended by the manufacturer. Stow all tools in vehicle properly; use appropriate cases and bags. Secure equipment in vehicle with netting or straps—do not leave loose.
Falls/cave-ins	Open excavation.	Stay a safe distance from excavation area. Signs, cones, barrier tape, or other equivalent methods will be used to mark open excavations.

Biological/Chemical Hazards

Biological/Chemical Risk	Source of Hazard/Risk	Hazard/Risk Mitigation
Biological—Animals	Stinging insects, spiders, and snakes.	Use bug repellent and sunscreen as necessary. Use snake chaps or shin guards when grass is above the ankle. Use a bar to clear out objects and/or vegetation, as well as spiders and/or snakes (do not use your hands or feet).
Chemical	Personnel performing tasks may come into direct contact with contaminated materials in the soil.	See Chemical Hazards Summary Table for applicable chemical hazards. Wear the appropriate personal protective equipment (PPE), including nitrile gloves, during sampling to prevent direct contact with contaminants in soil. If appropriate, use a half-face respirator.

Task/Operation: Soil Sampling
Additional Control Measures and Guidance
Engineering Controls: No engineering controls specified.
General Safe-Work Practices and Guidance: • Triple-rinse sampling equipment using distilled or deionized water and alconox for first rinse, and distilled water for second and third rinses. • Always clean materials between locations at the site to avoid cross-contamination. • Do not bring equipment back to the office without proper decontamination.
PPE: Hard hat; work boots; high-visibility vest; safety glasses with side shields; nitrile gloves; hearing protection if sampling using a drill rig; and respiratory protection if necessary.

Job Hazard Analysis (JHA)

Task/Operation: Working Around Metals-Impacted Dust	
Project Number: 0624.04.16	**Location/Site Where Task/Operation Performed:** Former Northern State Hospital Area of Concern 4
Date Prepared: 7/15/20	**Employee Preparing this JHA:** Carolyn Wise
Date Reviewed: 7/20/20	**Employee Reviewing and Certifying this JHA:** Evelyn Lundeen

Job/Task Description

Employees will conduct work around remedial excavations which might generate dust that includes metals such as lead and/or arsenic. Work includes use of heavy equipment like excavators and solids sampling using hand equipment.

Physical Hazards

Hazard/Risk	Source of Hazard/Risk	Hazard/Risk Mitigation
None	None specific to this JHA. Refer to working around heavy equipment for general physical hazards.	

Biological and Chemical Hazards

Hazard/Risk	Source of Hazard/Risk	Hazard/Risk Mitigation
Metals-containing dust	Dust generated may contain metals. Chemical hazards related to the site are described in the Chemical Hazards Summary Table.	Working up-wind and misting work zones with potable water, if possible. Wearing respirator protection and conducting air monitoring if work must be completed in visible dust.

Additional Control Measures and Guidance

Engineering Controls: Dust generation may be unavoidable. Workers should encourage and use work methods and procedures that generate as little visible dust as possible, including misting area with potable water. If dust is generated, workers should work up-wind of dust and stay out of dust clouds. If workers must work in areas where visible dust is generated, respiratory protection should be considered. If fugitive dust could exit a job site the use of misting/wetting should be employed to keep dust generated within the project area. Assume all dust contains metals. Wetting plans may be implemented that include regular water applications to roadways and/or work zones.

General Safe-Work Practices and Guidance: Personnel should stay upwind and out of the area impacted by dust, if feasible. If the site is unsecure then cones, barrier tape, or other equivalent methods will be used to establish the impact area, if feasible. Work conducted in the impact area must be coordinated with the equipment operator using pre-established methods of communication, such as direct eye contact, hand signals, and/or verbal communication. If work in dust is unavoidable, a dust meter should be employed to monitor air quality and personal monitoring should be considered.

Personal Protective Equipment (PPE): Hard hat, steel-toe work boots with steel shank, high-visibility safety vest or outer garment, safety glasses with side shields, nitrile gloves, and hearing protection, i.e., ear plugs or ear muffs. Respiratory protection should be considered if work in visible dust is unavoidable or when work in air containing the action level of 0.05 milligrams per cubic meter of air is present in the work zone.

Job Hazard Analysis (JHA)

Task/Operation: Working Near Heavy Equipment	
Project Number: 0624.04.16	**Location/Site Where Task/Operation Performed:** Former Northern State Hospital Arsenic in Soil Area of Concern
Date Prepared: 11/13/2019	**Employee Preparing this JHA:** Evelyn Lundeen
Date Reviewed: 11/22/2019	**Employee Reviewing and Certifying this JHA:** Carolyn Wise

Job/Task Description

Employees will conduct work such as overseeing excavation operations and collecting confirmation soil samples. This will require occasionally working in close proximity to excavators, loaders, dump trucks, water trucks, and grading equipment.

Physical Hazards

Hazard/Risk	Source of Hazard/Risk	Hazard/Risk Mitigation
Bodily harm or death	Heavy equipment operating on site creates a potential for site workers to be struck, crushed, or impacted by moving parts.	Stay a safe distance from equipment and maintain eye contact with equipment operators. Wear a safety vest for enhanced visibility.
Eye injury	Construction debris (e.g., soil) coming into contact with eyes.	Wear eye protection with side shields.
Head injury	Heavy equipment and/or tools impacting the head.	Wear a hard hat.
Penetration of feet	Sharp objects that could be stepped on; large objects falling on feet.	Wear steel-toe boots with steel shank.
Hearing loss	Noise generated by heavy equipment/machinery.	Wear hearing protection such as earplugs or earmuffs.
Injury to bystanders	Pedestrians in the locality of work.	Use cones and caution tape to cordon off the immediate work area. Watch for and escort pedestrians away from the work area. Pause work if necessary.
Hand injury	Pinch points.	Wear protective gloves whenever possible. Avoid placing hands near operating equipment.

Biological and Chemical Hazards

Hazard/Risk	Source of Hazard/Risk	Hazard/Risk Mitigation
None	None specific to this JHA. Chemical hazards related to the site are described in the Chemical Hazards Summary Table.	None.

Additional Control Measures and Guidance

Engineering Controls: No engineering controls specified.

General Safe-Work Practices and Guidance: Personnel should stay upwind and out of the impact area of the heavy equipment, if feasible. Cones, barrier tape, or other equivalent methods will be used to establish the impact area, if feasible. Work conducted in the impact area must be coordinated with the equipment operator using pre-established methods of communication, such as direct eye contact, hand signals, and/or verbal communication.

Personal Protective Equipment: Hard hat; steel-toe work boots with steel shank; high-visibility safety vest or outer garment; safety glasses with side shields; nitrile gloves; and hearing protection, i.e., earplugs or earmuffs.

Job Hazard Analysis (JHA)

Task/Operation: Work Near Traffic	
Project Number: 0624.04.16	**Location/Site where Task/Operation Performed:** Former Northern State Hospital Arsenic in Soil Area of Concern
Date Prepared: 11/13/2019	**Employee Preparing this JHA:** Evelyn Lundeen
Date Reviewed: 11/22/2019	**Employee Reviewing and Certifying this JHA:** Carolyn Wise

Job/Task Description

Employees will conduct work such as overseeing excavation operations and collecting confirmation soil samples. This will require occasional work in close proximity to internal circulation roads and vehicle traffic on the site.

Physical Hazards

Hazard/Risk	Source of Hazard/Risk	Hazard/Risk Mitigation
Bodily injury	Vehicles moving on or around site.	Wear a reflective safety vest for enhanced visibility. Use cones and/or barriers to designate traffic patterns.
Eye injury	Debris (e.g., soil) contacting eyes due to vehicle movement.	Wear eye protection with side shields.
Head injury	Vehicles moving on or around site.	Wear a hard hat.
Foot injury	Vehicles moving on or around site.	Wear steel-toe boots with steel shank.
Hearing loss	Noise generated by vehicles moving on or around site.	Wear hearing protection such as earplugs or earmuffs.

Biological and Chemical Hazards

Hazard/Risk	Source of Hazard/Risk	Hazard/Risk Mitigation
None	None specific to this JHA. Chemical hazards related to the site are described in the Chemical Hazards Summary Table.	None.

Additional Control Measures and Guidance

Engineering Controls: No engineering controls specified.

General Safe-Work Practices and Guidance: Personnel will stay upwind and out of heavy traffic areas, if feasible. Cones, signage, barrier tape, or other equivalent methods will be used to establish traffic-control patterns, if feasible. Personnel should monitor traffic hazards before entering locations with potential vehicle movement.

Personal Protective Equipment: Hard hat; steel-toe work boots with steel shank; high-visibility safety vest or outer garment; safety glasses with side shields; nitrile gloves; and hearing protection, i.e., earplugs or earmuffs.

Job Hazard Analysis (JHA)

Task/Operation: Working around Excavations		
Project Number: 0624.04.16		**Location/Site where Task/Operation Performed:** Former Northern State Hospital Arsenic in Soil Area of Concern
Date Prepared: 11/13/2019	**Employee Preparing this JHA:** Evelyn Lundeen	
Date Reviewed: 11/22/2019	**Employee Reviewing and Certifying this JHA:** Carolyn Wise	

Job/Task Description

Employees will conduct work such as overseeing excavation operations and collecting confirmation samples from excavation. This will require occasional work in close proximity to open excavations, material stockpiles, and heavy equipment.

Physical Hazards

Hazard/Risk	Source of Hazard/Risk	Hazard/Risk Mitigation
Bodily harm or death	Possible to fall into open excavation from heights.	Stay a safe distance from excavation area. Signs, cones, barrier tape, or other equivalent methods will be used to mark open excavations.
Eye injury	Construction debris (e.g., soil) coming into contact with eyes.	Wear eye protection with side shields.
Head injury	Possible to fall into open excavation from heights.	Stay a safe distance from excavation area. Signs, cones, barrier tape, or other equivalent methods will be used to mark open excavations.

Biological and Chemical Hazards

Hazard/Risk	Source of Hazard/Risk	Hazard/Risk Mitigation
Chemical	Soil samples from previous investigations have shown concentrations of lead and arsenic above Model Toxics Control Act Method A cleanup levels. Contact with soils from excavation area pose a human health risk.	See Chemical Hazards Summary Table for applicable chemical hazards.
Biological	No unique source of biological hazards warranting specific controls.	None.

Additional Control Measures and Guidance

Engineering Controls: No engineering controls specified.

General Safe-Work Practices and Guidance: Personnel will stay out of excavations at all times. If heavy equipment is being operated, the JHA for working around heavy equipment will be referenced. Signs, cones, barrier tape, or other equivalent methods will be used to mark open excavations, if feasible. Any work that must be conducted near excavations will be conducted using a buddy system.

Personal Protective Equipment: Hard hat; work boots; high-visibility vest; safety glasses with side shields; hearing protection, i.e., ear plugs or earmuffs; and nitrile gloves if handling potentially impacted media.

APPENDIX B

CHEMICAL HAZARDS SUMMARY

Chemical Hazards Summary
Former Northern State Hospital
Sedro-Woolley, Washington

Analyte	Soil Range (mg/kg)		OSHA PEL (TWA)	ACGIH TLV (TWA)	NIOSH IDLH[a]	LEL (%)	IP (eV)	Other Hazard
	Low	High						
Metals								
Arsenic	6.7	71	0.01 mg/m^3	0.01 mg/m^3	5 mg/m^3	NA	NA	C, P
Lead	9.7	900	0.05 mg/m^3	0.05 mg/m^3	100 mg/m^3	NA	NA	C, P

NOTES:

IDLH values taken from http://www.cdc.gov/niosh/idlh/intridl4.html.

ACGIH = American Conference of Governmental Industrial Hygienists®.

C = carcinogen.

IDLH = immediately dangerous to life and health.

IP (eV) = ionization potential.

LEL = lower explosive limit.

mg/kg = milligrams per kilogram.

mg/m^3 = milligrams per cubic meter.

NA = not available.

NIOSH = National Institute for Occupational Safety and Health.

OSHA = Occupational Safety and Health Administration.

P = poison.

PEL = permissible exposure level.

TLV = threshold limit value.

TWA = time-weighted average.

[a]IDLH values taken from http://www.cdc.gov/niosh/idlh/intridl4.html.

APPENDIX C

AIR MONITORING ACTION LEVELS

Air Monitoring Procedures and Toxicity Action Levels

Instrument	Action Level	Initial Action	Follow Up Action
FID or PID[a]	Detection of **1 part per million (ppm)** (above ambient) or greater in breathing zone **sustained for two minutes.**	Dräger tube test for **benzene**. If **1 ppm benzene** detected with Dräger tube, upgrade to Level C.	Ventilate area, always work upwind.
Dräger tube test (benzene)	Over **1 ppm benzene sustained** in breathing zone.	After upgrade to Level C, continue to monitor breathing zone with Dräger tube. If **10 ppm or greater benzene**, leave exclusion zone. Return only if levels decrease to below 10 ppm.	Ventilate area, always work upwind.
FID or PID[a]	Detection of 10 ppm (above ambient) in breathing zone **and determined not to be benzene.**	Upgrade to Level C and continue to monitor breathing zone with Dräger tube. **If 50 ppm, leave exclusion zone**. Return only if levels decrease to below 50 ppm.	Ventilate area, always work upwind.
CGI[b]	At or above 10 percent of the lower explosive limit.	Cease activities, turn off all potential sources of ignition. Evacuate.	Determine source of flammable vapors.
Dust meter	0.05 milligrams per cubic meter of air.	Dust suppression, e.g., misting.	Adjust operations.

NOTES:
CGI = combustible gas indicator.
FID = flame ionization detector.
PID = photoionization detector.
ppm = parts per million.
[a]Some PIDs do not work in high (i.e., greater than 90 percent) humidity or rainy weather. Under these atmospheric conditions, only PIDs certified for use in high humidity should be used.
[b]See Section 10.2 of the Health and Safety Plan for complete explosion hazard action levels.

APPENDIX D

INCIDENT REPORT FORM

MAUL FOSTER & ALONGI, INC. HEALTH & SAFETY INCIDENT REPORT

THIS REPORT MUST BE COMPLETED IN FULL AND SUBMITTED WITHIN 24 HOURS TO THE MFA HEALTH AND SAFETY COORDINATOR

Project Name: Former Northern State Hospital Interim Actions

Project Number: 0624.04.16

Date of Incident: _____

Time of Incident: _____

Location: _____

Type of Incident (Check all applicable items)

- ☐ Illness
- ☐ Injury
- ☐ Property Damage
- ☐ Spill
- ☐ Health & Safety Infraction
- ☐ Fire, Explosion, Flash
- ☐ Unexpected Exposure
- ☐ Other (describe): _____
- ☐ Vehicular Accident
- ☐ Electric Shock
- ☐ Near Miss

DESCRIPTION OF INCIDENT

Describe what happened and the possible cause of the incident. If reporting a spill, include the quantity or estimated quantity. Identify individual(s) involved, witnesses, and their affiliations. Describe emergency or corrective action taken. Attach additional sheets, drawings, or photographs as needed.

INCIDENT REPORTER

PRINT NAME	SIGNATURE	DATE

Site Safety Officer must deliver this report to the Health & Safety Coordinator within 24 hours. Reviewed by:

MFA Health & Safety Coordinator PRINT NAME	MFA Health & Safety Coordinator SIGNATURE	DATE

APPENDIX E

TAILGATE SAFETY MEETING CHECKLIST

HASP/SAFE WORK PLAN SUPPLEMENT:
COVID-19 EXPOSURE CONTROL, MITIGATION, AND RECOVERY PLAN

BACKGROUND

The novel coronavirus disease 2019 (COVID-19) is a respiratory illness that can spread from person to person. The SARS-CoV-2 virus, which causes COVID-19, is thought to spread primarily between and among people who are in close contact with one another (within approximately 6 feet) through respiratory droplets produced when an infected person coughs or sneezes. There is evidence that smaller respiratory droplets that can remain suspended may increase the risk of transmission. It also may be possible to contract COVID-19 by touching a virus-impacted surface or object and then touching one's own mouth, nose, and/or eyes. People with COVID-19 have reported a wide range of symptoms—from mild symptoms to severe illness. Symptoms may appear **two to 14 days after exposure to the virus.** People with the following symptoms or combinations of these symptoms may have COVID-19:

- Fever or chills
- Cough
- Shortness of breath
- Fatigue
- Muscle or body aches
- Headache
- New loss of taste or smell
- Sore throat
- Congestion or runny nose
- Nausea or vomiting
- Diarrhea

The virus may also lead to pneumonia, multiorgan failure, and/or death.

COVID-19 POLICIES AND PROCEDURES

To help prevent the spread of COVID-19 and comply with measures issued by public health agencies and government officials, Maul Foster & Alongi, Inc. (MFA) is implementing the following policies and procedures.

General

- Postpone nonessential work until further notice.
- All fieldwork deemed to be essential must be coordinated with and approved by MFA's social distancing point of contact.
- Employees are prohibited from conducting fieldwork if they:
  - Have returned from international travel in the last 14 days;
  - Are experiencing symptoms consistent with COVID-19 based on current Centers for Disease Control and Prevention (CDC) guidance;

- Have had close contact with someone diagnosed with COVID-19 within the past 14 days of planned fieldwork. "Close contact" means having been within 6 feet of someone for an extended time and/or being exposed to their cough or sneeze;
- Have been advised by a health care provider to self-quarantine and the self-quarantine has not yet been completed; or
- In the past 14 days have cared for an individual who is subject to a quarantine/isolation order related to COVID-19.

- Coordinate with MFA's social distancing point of contact to request access to warehouses for field equipment and supplies and/or to request access to enter an MFA office.
- Call analytical labs before collecting field samples to be sure that the labs are open and able to process your samples.
- Be mindful that deliveries, including sample bottles and lab pickups, will have to be rerouted and that extra coordination with all subcontractors and vendors is appropriate.
- Some MFA personnel, e.g., those conducting essential fieldwork in Washington, may need to carry an MFA-issued letter explaining that they are essential employees. Discuss the need for a letter with MFA's social distancing point of contact.

Social Distancing

- Maintain social distancing protocols (i.e., at least 6 feet of distance from other persons) during approved work and related travel, preparation, and demobilization.
- To ensure social distancing, MFA personnel cannot drive or ride in a vehicle with another person.
- Work-related air travel is not allowed until further notice.
- Only single-occupancy rooms are allowed for work-related hotels / lodging. While at hotels, disinfect your own room with disposable bleach wipes, and use the NO HOUSEKEEPING sign. Keep the number of people coming in and out of your room to a minimum.

Hygiene and Sanitation

- **Wash your hands frequently.** Use soap and water for at least 20 seconds, getting the whole hand—including the back of the hand, between your fingers, and under your nails. Alcohol-based hand sanitizers with more than 60 percent ethanol or 70 percent isopropanol can also be used but they do not replace the water requirement.
  - If handwashing facilities are not readily available on or near the site, then project managers will arrange for a portable handwashing station.
  - Portable handwashing stations may be used only for washing hands, i.e., no equipment decontamination or disposal of materials. Buckets with tight-fitting lids will be provided [for use] during transport. Spent handwashing water may be discharged into a sanitary drain, e.g., the MFA warehouse sink, with approval from the project manager.

- **Cover your nose and mouth with a tissue when you cough or sneeze** and then place the used tissue into a wastebasket. If you don't have a tissue, cough or sneeze into your upper sleeve or elbow, not your hands. Remember to wash your hands after coughing or sneezing. Avoid touching your eyes, nose, and mouth with unwashed hands, and avoid touching other surfaces with unwashed hands after touching these areas of your face.
- **Routinely clean frequently touched surfaces.** Use disposable disinfectant wipes, e.g., Clorox® bleach wipes, to wipe down touched surfaces in field vehicles and the equipment warehouse before and after entry.

Personal Protective Equipment

- Wear eye protection and gloves when conducting activities on site. The type of glove worn should be appropriate to the task. If gloves are not typically required for the task, then any type of glove is acceptable, including nitrile gloves.
- Cloth face coverings or respiratory protection is required during work on construction sites in Washington State. See "Frequently Asked Question" No. 2 for more information about cloth face coverings.

Symptom Monitoring

- Stay home if you have COVID-19 symptoms or other illnesses. If you start experiencing COVID-19 symptoms in the field, leave the site as soon as practicable, avoid contact with others, and notify MFA's social distancing point of contact and/or HR.
- MFA personnel should take their temperature before their work begins each day. An employee whose temperature is 100.4°F or higher should immediately notify the site safety officer (SSO) or designee and should stay home. An employee whose temperature reaches 100.4°F or higher during the workday should cease work, notify the SSO or designee, and return home.
- The SSO should ask each person before the start of each workday if they have reviewed and are complying with this Safe Work Plan and are fit for work (e.g., no fever or symptoms/combination of symptoms consistent with COVID as described at the beginning of this document).
- If in the field, MFA personnel should report to the SSO or designee if they develop a fever or symptoms/combination of symptoms consistent with COVID-19 as described at the beginning of this document. If symptoms develop during work, the person should be immediately sent home. If symptoms develop while the person is not working, the person should not return to work until they have been evaluated by a healthcare provider.
- Consistent with CDC guidance, MFA may not treat every employee with a single, nonspecific symptom (e.g., a headache) as a suspected case of COVID-19.[1] MFA, in consultation with the employee, will exercise discretion based on the perceived likelihood that the symptom or symptoms are due to other reasons, such as allergies.[2]

[1] https://www.cdc.gov/coronavirus/2019-ncov/community/general-business-faq.html
[2] https://www.aaaai.org/Aaaai/media/MediaLibrary/Images/Promos/Coronavirus-Symptoms.pdf

Incident Reporting, Exposure Response Procedures, Decontamination Procedures, and Recovery Plan

- A person who reports feeling sick should be sent home. See "Frequently Asked Questions" No. 4.
- HR will coordinate with management to ensure that the area where the person worked is promptly cordoned off and disinfected.
- Promptly notify HR or a coach if you experience symptoms consistent with COVID-19. HR will inform you of protections available to you and ask what worksites you have frequented and any individuals you may have had close contact with at those worksites.
- HR will coordinate communications with people who may have had close contact with a confirmed or probable case of COVID-19.
- The decision to conduct COVID-19 testing should be guided by advice from state and local health departments and healthcare providers.

COVID-19 Safety Training and Information

- Conduct or participate in a tailgate meeting (maintaining social distance) at the start of the workday and at least weekly to explain the exposure-control measures.
- The SSO or designee should record the attendance so attendees do not need to pass along a sign-in sheet.
- These procedures must be posted in a visible location on construction sites in Washington. Posting these procedures is encouraged for project sites beyond Washington.

FREQUENTLY ASKED QUESTIONS

1. Should I wear a respirator?

The short answer is "no." N95 respirators are in short supply, so public health experts and government agencies suggest that we reserve them for healthcare providers. Respirators with exhalation valves, such as half-face respirators typically used by MFA personnel, allow respiratory droplets to escape, so they would not protect people around you if you were infected.

2. Should I wear a cloth face covering?

Face coverings prevent the person wearing the mask from spreading respiratory droplets when talking, sneezing, or coughing. If everyone wears a face covering outside their homes, the risk of exposure to SARS-CoV-2 can be reduced for the community. If you wear a face covering, you are potentially protecting others from your own secretions, and another person's face covering is potentially protecting you from their secretions.

Face coverings are required by most public health authorities, although specific requirements may differ by area.

Staying apart from others is the best protection against COVID-19. **The most important ways of preventing COVID-19 continue to be frequent handwashing, avoiding touching your face, staying away from ill people, staying home, and avoiding all nonessential activities and**

contact with others. A face covering does not replace the need to follow these important precautions to prevent illness!

When selecting a cloth face covering, consider designs that:

- Fit snugly but comfortably against the side of the face.
- Are secured with ties or ear loops.
- Include multiple layers of fabric.
- Avoid materials such as vacuum bags or furnace filters, as the manufacturing process may have resulted in loose fibers that could be inhaled.
- Allow for breathing without restriction.
- Use materials that are disposable or that can be laundered and machine dried without damage or change to shape.

Avoid touching your face as much as possible. Keep the covering clean. Clean hands with soap and water or alcohol-based hand sanitizer immediately before putting on, after touching or adjusting, and after removing the cloth face covering. Do not share it with anyone else unless it is washed and dried first. You should be the only person handling your covering. Laundry instructions will depend on the cloth used to make the face covering. In general, cloth face coverings should be washed regularly (e.g., daily and whenever soiled) using water and a mild detergent, dried completely in a hot dryer, and stored in a clean container or bag.

3. What should I do if I think I've come into contact with a person who has COVID-19?

It is frightening to think that you've been exposed, so it's important to make decisions based on your actual risk. The CDC has issued guidance to help public health authorities assess and manage the risk of potential exposure to COVID-19.

For example, if your exposure was to a person in the same building but not within 6 feet for a prolonged time, and you had no direct contact, such as being coughed on, the CDC recommends that you watch for fever, cough, or difficulty breathing and follow CDC guidance if symptoms develop.

4. What should I do if I am sick with COVID-19 or suspect that I am infected with the virus that causes COVID-19?

You should stay home except to get medical care. Call ahead before visiting your doctor to say that you have been or are being evaluated for COVID-19.

Try to separate yourself from other people and animals in your home. You should wear a facemask when you are around other people or pets (such as sharing a room or vehicle) and before you enter a healthcare provider's office. If you are not able to wear a facemask (for example, because it causes trouble breathing), then people who live with you should not stay in the same room with you, or they should wear a facemask if they enter your room.

Cover your nose and mouth during coughs and sneezes, wash your hands often, clean surfaces frequently, and monitor your symptoms.

Seek prompt medical attention if your illness is worsening, e.g., breathing is becoming increasingly difficult. Put on a facemask before you enter the medical facility to help the healthcare provider's office protect other people in the office or waiting room from infection or exposure. Most medical offices have masks available at their entrances for this reason.

If you have a medical emergency and need to call 911, notify the dispatch personnel that you have been or are being evaluated for COVID-19. If possible, put on a facemask before emergency medical services arrive.

Patients with confirmed COVID-19 should remain under home isolation precautions until their doctor and the state and local health departments determine that the risk of secondary transmission to others is low. For reference, the Clark County Health Department suggests that people who develop COVID-19 symptoms after close contact with COVID-19 patients discontinue home isolation under the following conditions:

- At least three days (72 hours) have passed since recovery, which is defined as resolution of fever (without the use of fever-reducing medications) and improvement in respiratory symptoms (e.g., cough, shortness of breath); AND,
- At least ten days have passed since symptoms first appeared.

5. Where can I get more information?

The following list provides some helpful links to reliable information:

1. CDC: https://www.cdc.gov/coronavirus/2019-ncov/index.html
2. World Health Organization: https://www.who.int/emergencies/diseases/novel-coronavirus-2019
3. Washington Department of Health: https://www.doh.wa.gov/Coronavirus/Workplace
4. Oregon Health Authority: https://www.oregon.gov/oha/PH/DISEASESCONDITIONS/DISEASESAZ/Pages/emerging-respiratory-infections.aspx
5. University of Minnesota Center for Infectious Disease Research and Policy: http://www.cidrap.umn.edu/covid-19/information-employers/business

REVISION HISTORY

This document was originally issued as Revision 0. It has been revised as follows:

Date	Revision Details	Revised By:	Revision
4/9/2020	Updated addendum to include frequently asked questions section and information about cloth face coverings.	WHB	1

5/7/2020	Updated to address Washington's construction safety requirements, new COVID-19 symptoms, and information about cloth face coverings. This included the addition of information about handwashing, temperature/symptom screening, tailgate meetings, and the requirement to wear cloth face coverings.	WHB	2
5/21/2020	Removed reference to K. Lombardi and A. Clary. Updated to reference the social distancing point of contact, the health and safety coordinator (E. Curtis).	EMC	3
7/22/2020	Updated symptoms to be consistent with CDC guidance. Updated response to question #2 regarding face coverings (removed references to outdated rules). Updated symptom monitoring guidance to make it consistent with MFA's COVID plan. Clarified that out-of-office meetings should be approved by HSC. Added revision history.	WHB	4

Tailgate Safety Meeting Checklist

MAUL FOSTER ALONGI

Client Name:	Port of Skagit
Project No.:	0624.04.16
Communicated By:	
Date:	

Yes	NA	Information Reviewed
☐	☐	Emergency Procedures and Site Evacuation Routes
☐	☐	Route to Hospital
☐	☐	HASP Review and Location
☐	☐	Key Project Personnel
☐	☐	Emergency Phone Numbers
☐	☐	Stop-Work Authority
☐	☐	General Site Description/History and Chemical Hazards
☐	☐	For Active Sites - Site Activities and Vehicular/Equipment Traffic
☐	☐	Site-Specific Physical Hazards
☐	☐	Required Personal Protective Equipment
☐	☐	Available Safety Equipment and Location
☐	☐	Daily Scope of Work (reference JHAs as applicable)
☐	☐	Decontamination Procedures
☐	☐	Identify Work Zones, Exclusion Zones, and Decontamination Zones
☐	☐	Hazardous Atmospheres
☐	☐	Air Monitoring Equipment and Procedures
☐	☐	Identify Potential Site-Specific Slip, Trip, and Fall Hazards
☐	☐	Dust and Vapor Control
☐	☐	Confined Space(s)
☐	☐	Open Pits and Excavation
☐	☐	Extreme Temperatures
☐	☐	Incident Reporting
☐	☐	Other: _____

Suggestions to Improve Health & Safety Practices

Attendees		
Name	Signature	Company
1)		
2)		
3)		
4)		
5)		
6)		
7)		
8)		

APPENDIX B

SAMPLING AND ANALYSIS PLAN

SAMPLING AND ANALYSIS PLAN/ QUALITY ASSURANCE PROJECT PLAN

AOC 4
FORMER NORTHERN STATE HOSPITAL
SEDRO-WOOLLEY, WASHINGTON

AGREED ORDER NO. DE 16309
CLEANUP SITE ID: 10048

Prepared for
PORT OF SKAGIT
January 12, 2021
Project No. 0624.04.16

Prepared by
Maul Foster & Alongi, Inc.
1329 N State Street, Suite 301, Bellingham, WA 98225

MAUL FOSTER ALONGI

SAMPLING AND ANALYSIS PLAN/QUALITY ASSURANCE PLAN

AOC 4
NORTHERN STATE HOSPITAL PROPERTY
SEDRO-WOOLLEY, WASHINGTON

MAUL FOSTER & ALONGI, INC.
The material and data in this plan were prepared under the supervision and direction of the undersigned.

Carolyn Wise Date: 01/12/2021
Carolyn Wise, LG
MFA Project Manager

Mary Beninger Date: 01/12/2021
Mary Beninger
MFA Quality Assurance Manager

WASHINGTON STATE DEPARTMENT OF ECOLOGY
The information in this plan was reviewed and accepted by the undersigned.

Tena Seeds Feb 5, 2021
Tena Seeds (Feb 5, 2021 09:09 PST) Date:
Tena Seeds, PE
Ecology Site Manager

U.S. ENVIRONMENTAL PROTECTION AGENCY
The information in this plan was reviewed and accepted by the undersigned.

Blair C Kinser Feb 5, 2021
Blair C Kinser (Feb 5, 2021 09:16 PST) Date:
Blair Kinser, PE
USEPA Remedial Project Manager

Karin Feddersen-Lethe Feb 5, 2021
Karin Feddersen-Lethe (Feb 5, 2021 09:47 PST) Date:
Donald M. Brown
USEPA Quality Assurance Manager

CONTENTS

TABLES AND ILLUSTRATIONS

FOLLOWING PLAN:

TABLES

FIGURE

ACRONYMS AND ABBREVIATIONS

AOC 4	arsenic in soil area of concern
bgs	below ground surface
COC	chain of custody
DQO	data quality objective
Ecology	Washington State Department of Ecology
FSDS	field sampling data sheet
HASP	health and safety plan
IDW	investigation-derived waste
Interim CAP & EDR	Interim Cleanup Action Plan and Engineering Design Report
LCS	laboratory control sample
LDS	laboratory duplicate sample
MFA	Maul Foster & Alongi, Inc.
MS	matrix spike
MSD	matrix spike duplicate
Port	Port of Skagit
Property	Former Northern State Hospital property
QA	quality assurance
QAM	quality assurance manual
QC	quality control
RPD	relative percent difference
SAP/QAPP	sampling and analysis plan and quality assurance plan
SSAP	site-specific sampling and analysis plan
S2AVM	Stage 2A
USEPA	U.S. Environmental Protection Agency
XRF	handheld X-ray fluorescence

1 INTRODUCTION

Maul Foster & Alongi, Inc. (MFA) has prepared this sampling and analysis plan/quality assurance project plan (SAP/QAPP) for the Port of Skagit (the Port), consistent with the requirements of the Washington Administrative Code 173-340-820, to guide the collection of samples supporting the completion of the interim remedial action of arsenic and lead in shallow soil at the former ward building and athletic field area of concern 4 (AOC 4) at the former Northern State Hospital (also known as the Sedro-Woolley Innovation for Tomorrow Center property [the Property]), located at 2070 Northern State Road in Sedro-Woolley, Washington (see Figure 1-1 of the Interim Cleanup Action Plan and Engineering Design Report [Interim CAP & EDR], to which this SAP/QAPP is an appendix). Historically, the Property operated as a self-sustaining mental hospital that included on-site patient and staff housing, laundry facilities, maintenance shops, a powerhouse, and a fueling station. The Property is now leased to multiple tenants, including the Cascade Job Corps, the Pioneer Center, and the U.S. National Guard, by the Washington State Department of Enterprise Services.

The work described in this SAP/QAPP is being conducted through Agreed Order DE 16309 between the Port and the Washington State Department of Ecology (Ecology). The Port is the recipient of a U.S. Environmental Protection Agency (USEPA) cleanup grant for interim remedial action activities to be undertaken at the Property. MFA prepared this SAP/QAPP on behalf of the Port, which will work in cooperation with the USEPA and Ecology.

This SAP/QAPP has been prepared consistent with the following guidance:

- Ecology:
  - Ecology's Guidance on Sampling and Data Analysis Methods (Ecology, 1995)
  - Guidance for Preparing Quality Assurance Project Plans for Environmental Studies (Ecology, 2004)
  - 1993 Model Toxics Control Act (Washington Administrative Code Chapter 173-340-820).
- USEPA:
  - Guidance for Quality Assurance Project Plans (USEPA, 2002)
  - Requirements for Quality Assurance Project Plans (USEPA, 2001)
  - Brownfield Grant Recipients' Road Map to Understanding Quality Assurance Project Plans (USEPA, 2012)
  - Quality Assurance Guidance for Conducting Brownfields Assessments, EPA 540-R-98-038 (USEPA, 1998)

1.1 SAP/QAPP Objectives

The purpose of this SAP/QAPP is to outline requirements for field sampling and laboratory analytical activities associated with the interim action at AOC 4. This SAP/QAPP is provided as an appendix to and supplements the Interim CAP & EDR for AOC 4, which provides Property-specific background information, discusses proposed cleanup standards, and defines the scope of the interim action to be completed under the USEPA cleanup grant.

This SAP/QAPP is designed to ensure that:

- The investigation meets goals and produces complete and accurate environmental data sets that have high precision and low bias.
- Environmental data can be shown to be representative of Property conditions.
- The quality assurance (QA) and quality control (QC) process allows for comparability of environmental data sets so that the Property can be characterized and assessed.

This SAP/QAPP describes methods that will be used for sampling environmental media, decontaminating equipment, and managing investigation-derived waste (IDW). It also includes procedures for collecting, analyzing, evaluating, and reporting useful data. This SAP/QAPP includes QA procedures for field activities, QC procedures, and data validation.

2 PROJECT AND TASK ORGANIZATION

2.1 Project Team Organization

This section provides the organizational structure, lines of authority, and responsibilities of key project individuals. Project activities will be performed within the framework of the organization and functions presented in this section. The organizational structure described in this SAP/QAPP provides lines of responsibility and authority based on the following objectives:

- Identify appropriate lines of communication and coordination.
- Monitor project schedules and performance of contractors.
- Coordinate support functions, such as laboratory analysis and data management.
- Provide progress QA reports.
- Provide corrective actions to rectify deficiencies.

This SAP/QAPP provides the general structure for environmental field sampling and laboratory analytical activities for the interim action at AOC 4. Table 2-1 provides the contact information for the personnel listed in the following sections. Table 2-1 will also act as a distribution list for this SAP/QAPP. An organizational chart is provided as Figure 2-1.

2.1.1 Port of Skagit Project Manager Responsibilities

Heather Rogerson is the project manager for the Port, which is the grant recipient. She is responsible for budget and schedule control, contracting, and coordination between the Port; the USEPA; and the environmental consultant, MFA. She is responsible for preparing progress reports and final reporting as required by the grant agreement and the AO. Ms. Rogerson is responsible for distributing the final approved SAP/QAPP to the project team.

2.1.2 USEPA Project Manager Responsibilities

Blair Kinser is the USEPA project manager and is responsible for supporting the Port in its implementation of this interim remedial action. He is also responsible for reviewing and approving this SAP/QAPP and the Interim CAP & EDR. He is the primary USEPA point of contact for the Port.

2.1.3 USEPA Regional Quality Assurance Manager Responsibilities

Donald Brown is the USEPA Region 10 quality assurance manager and is responsible for providing oversight and assuring the implementation of the quality control system.

2.1.4 Ecology Project Manager Responsibilities

Tena Seeds is the Ecology site manager. Because the Property is currently enrolled in an agreed order, Ecology will provide formal review of environmental documents. Ecology staff will provide recommendations and guidance to the Port and its consultant on conducting interim remedial action activities in accordance with Washington State cleanup regulations and Ecology requirements. This Ecology guidance constitutes a formal agency opinion on the Property.

2.1.5 MFA Program Manager Responsibilities

Jim Maul is the MFA program manager. He will be responsible for planning technical and administrative components of work completed by the Port. Mr. Maul will oversee the following functions for the Port:

- Development of scope, schedule, and budget
- Administration of these assignments via contracts with service providers
- Management of data and products developed throughout the course of the work
- Reporting to the Port, the USEPA, and Ecology

Mr. Maul will be supported by Carolyn Wise, the MFA project manager. Mr. Maul and Ms. Wise will regularly communicate with the Port on progress and significant issues.

2.1.6 MFA Project Manager Responsibilities

Ms. Wise will be the project manager for the interim remedial actions at the Property. She will be responsible for all aspects of implementation of assignments and will lead the interim action and

development of the Interim CAP & EDR, this SAP/QAPP, and the completion report. Ms. Wise will report to Mr. Stringer.

2.1.7 Field Team Leader/On-Site Safety Officer Responsibilities

Evelyn Lundeen will be the field team leader. Ms. Lundeen will be responsible for overseeing field activities and making sure that samples are collected properly; verifying that procedures for field activities related to characterization or remediation are properly executed; and ensuring that all activities are properly documented, the prescribed scope of work is completed, and communication protocols are met. Ms. Lundeen will also act as the on-site safety officer and will be responsible for ensuring that the site-specific health and safety plan (HASP) is followed by MFA personnel working on site. Ms. Lundeen will report directly to Ms. Wise.

2.1.8 Project Scientist/Geologist

MFA scientists or geologists will be assigned based on availability and relevant skills and experience. The scientists or geologists will work under the field team leader and will be responsible for conducting investigation activities in accordance with the draft Interim CAP & EDR and this SAP/QAPP.

2.1.9 Quality Assurance Manager Responsibilities

Mary Benzinger of MFA has been identified as the quality assurance manager (QAM). Ms. Benzinger will provide QA oversight for both the field sampling and laboratory programs, ensuring that samples are collected and documented appropriately, coordinating with the analytical laboratories, ensuring data quality, overseeing data validation, and supervising project QA coordination. Ms. Benzinger will report directly to the MFA project manager (i.e., Ms. Wise).

2.1.10 Database Manager/Project Chemist Responsibilities

Ms. Benzinger has also been identified as the database manager and project chemist. Ms. Benzinger will be responsible for uploading analytical results to the project EQuIS™ database and for ensuring that samples are documented appropriately. She will also coordinate with the analytical laboratories and oversee data validation. Ms. Benzinger will also oversee the management and transfer of analytical, well, and boring logs; spatial analyses; and any other data generated during the project. Ms. Benzinger will report directly to the MFA project manager (i.e., Ms. Wise).

2.1.11 Procurement and Administrative Personnel

Ms. Rogerson will be responsible for contract administration, including development and management of requests for proposals and bids and of contract documents for contractors providing services to the Port. The contract administrator will be in close contact with the MFA project manager (i.e., Ms. Wise).

2.1.12 Contractor Responsibilities

Contractors will perform work in strict compliance with this SAP/QAPP and the appropriate contract specifications. Contractors are responsible for implementation of work assignments under the direction of the project managers.

The following describes the laboratory contractor's responsibilities:

- Performing the test methods described in this SAP/QAPP or the draft Interim CAP & EDR, including methods referenced for each analytical procedure
- Holding and maintaining accreditation for applicable analyses under the Washington State Environmental Laboratory Accreditation Program
- Following documentation, custody, and sample logbook procedures
- Meeting all reporting and QA/QC requirements
- Providing electronic data files as specified
- Meeting turnaround times for deliverables as specified
- Allowing the QA/QC contractor to perform laboratory and data audits

2.2 Schedule

The project schedule is outlined in Section 4.2 of the Interim CAP & EDR.

2.3 Documents

2.3.1 Interim Cleanup Action Plan and Engineering Design Report

The Interim CAP & EDR and appendices (SAP/QAPP and HASP) prepared by MFA describe the project and conceptual site model used to inform the interim action design, goals of the remedial action, and data quality objectives (DQOs); provide health and safety information; and discuss the sampling and analysis approach, including analytical methods and matrices. The Port will submit a draft Interim CAP & EDR for USEPA and Ecology approval. The draft Interim CAP & EDR will be revised in response to USEPA and Ecology comments to produce the final Interim CAP & EDR, which will be submitted for USEPA and Ecology review and approval before work activities begin.

2.3.2 Data Validation Memoranda

Data validation memoranda will be prepared by the MFA project chemist (i.e., Ms. Benzinger). The contents of the data validation memoranda are discussed in Section 5. Data validation memoranda will be submitted by the Port to the USEPA and Ecology with the final reports.

2.3.3 Final Reports

MFA will prepare final reports describing field measurement data collected; investigative and QC samples collected; investigation results, including the location and extent of any contamination identified; a summary of any QA issues and corrective actions taken; and an interpretation of the analytical results. The Port will submit the final reports to the USEPA and Ecology.

3 SPECIAL TRAINING AND CERTIFICATIONS

All personnel performing work at the Property will be health- and safety-trained as specified in the HASP. The HASP describes the specialized training and certification required for personnel and the requisite documentation of this training. As described in Section 6 of the HASP, personnel working on the Property and who could be exposed to chemical hazards will have completed training consistent with the HAZWOPER requirements in 29 Code of Federal Regulations (CFR) 1910.120(e).

The training will include:

- Identity of site safety and health personnel
- Safety and health hazards identified on the Site
- Proper use of required PPE
- Safe work practices required on the Site, e.g., fall protection, confined space entry procedures, hot work permits, general safety rules
- Safe use of engineering controls and equipment on the Site
- Medical surveillance requirements, including the recognition of signs and symptoms that might indicate overexposure to hazards
- The site emergency response plan/spill containment plan

Copies of required training certificates, current medical surveillance certificates, and respirator fit test records must be compiled by the MFA HSC or administrative designee (e.g., human resources manager) before individual entry to the Property. For contractors' on-site personnel, this information will be made available to the Port of Skagit on request.

Laboratories shall be certified to provide analytical laboratory services for the specific methods and matrices, when applicable, under the Washington State Environmental Laboratory Accreditation Program. Laboratories shall also be certified by an accrediting body under The National Environmental Laboratory Accreditation Conference Institute or another USEPA-recognized accreditation organization (i.e., Department of Defense Environmental Laboratory Accreditation Program, International Organization for Standardization) to provide analytical services for the project-specific methods and matrices described in Section 4 of this SAP/QAPP. Where commercial laboratories with multiple locations are contracted, the specific laboratory facility receiving samples

shall be accredited as appropriate for the matrix and methods or instrumentation identified in this SAP/QAPP.

4 DATA GENERATION AND ACQUISITION

4.1 Data Quality Objectives and Decision Criteria

The DQO process is used to establish performance and acceptance criteria, which serve as the basis for designing a plan for collecting data of sufficient quality and quantity to support the goals of the study (USEPA, 2006). The seven steps of the DQO process outlined by the USEPA are:

1. **State the problem**—Define the problem; identify members of the planning team; define the budget and schedule.
2. **Identify the goal of the study**—State how environmental data will be used to meet study objectives and solve the problem; identify study questions; define alternative outcomes.
3. **Identify information inputs**—Identify data and information needed to answer study questions.
4. **Define the boundaries of the study**—Specify target population and characteristics of interest; define spatial and temporal limits; define scale of inference.
5. **Develop the analytic approach**—Define parameters of interest; specify type of inference; develop logic for drawing conclusions from findings.
6. **Specify performance or acceptance criteria**—Specify criteria for new data collection (performance metrics) and decision making (probability limits).
7. **Develop the plan for obtaining data**—Develop the SAP/QAPP.

This SAP/QAPP for environmental data collection was developed using the DQO process and presents performance metrics for collection and analysis of soil, the environmental medium that will be sampled.

Screening and action levels include Ecology's Model Toxics Control Act cleanup levels. Applicable cleanup levels are presented in Section 3.2 of the draft Interim CAP & EDR, as required.

4.1.1 Data Precision

Precision is the measure of agreement among repeated measurements of the same property under identical or substantially similar conditions, calculated as either the range or the standard deviation (USEPA, 2002). Precision is measured by making repeated analyses on the same analytical instrument (laboratory duplicates) or replicate collections of samples in the field (field duplicates). Precision criteria are expressed as the relative percent difference (RPD) between the primary and duplicate samples. The acceptance limits for the RPD are based on the sample matrix and the analytical method used.

The RPD is calculated using the equation:

$$RPD = \frac{2(x_s - x_d)}{x_s + x_d} \times 100\%$$

Where:

x_s = result for primary sample.
x_d = result for duplicate sample.

4.1.2 Data Bias

Bias is defined as the systematic or persistent distortion of a measurement process that causes error in one direction (USEPA, 2002). Data bias is addressed in the field and the laboratory by calibrating equipment, collecting and analyzing QC blank samples, and analyzing QC standard samples.

4.1.3 Data Accuracy

Accuracy is defined as the measure of the overall agreement of a measurement to a known value and includes a combination of random error (precision) and systematic error (bias) components of both sampling and analytical operations (USEPA, 2002). Inasmuch as the "true" concentration of sampled media is not known, the degree of accuracy in the measurement is inferred from recovery data determined by sample spiking and/or the analyses of reference standards. The criterion for accuracy is expressed as the percent recovery of the sample spiking. The acceptance limits for percent recovery are based on the analytical method used.

Percent recovery is calculated using the equation:

$$Percent\ Recovery = \frac{x_{ss} - x_s}{T} \times 100\%$$

Where:

x_{ss} = result for spiked sample.
x_s = result for sample.
T = true value of added spike.

4.1.4 Data Completeness

Data completeness is defined as a measure of the amount of valid data needed from a measurement system (USEPA, 2002). It is measured as the total number of samples collected, for which the valid analytical data are obtained, divided by the total number of samples collected, and multiplied by 100. Criteria for data completeness are provided in Table 4-1.

4.1.5 Data Comparability

Data comparability is a qualitative term that expresses the measure of confidence with which one data set can be compared to another and can be combined for decision-making purposes (USEPA, 2002).

Data comparability will be achieved by using standard sampling and operating procedures and analytical methods. Data comparability will be assessed through documentation of QA/QC procedures.

4.1.6 Data Representativeness

Data representativeness is a qualitative term that expresses, "the degree to which data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition" (USEPA, 2002). Data representativeness is evaluated by assessing the accuracy and precision of the sampling program. The criterion for evaluating representativeness will be satisfied by confirming that the sample collection procedures are consistently followed. Sampling procedures are referenced in Section 5.2.1 of the draft Interim CAP & EDR.

4.1.7 Data Sensitivity

Data sensitivity is defined as the capability of a method or instrument to discriminate between measurement responses representing different levels of the variable of interest (USEPA, 2002). The method reporting limits specified through the DQO process are provided in Table 4-1. Results measured between the reporting limits and the method detection limits will be reported for all analytes and assigned the appropriate qualifier.

4.2 Sampling Process Design

The Port will submit the draft and final Interim CAP & EDR for USEPA and Ecology review and approval before work activities begin.

The interim action described in the Interim CAP & EDR will include the collection and analysis of samples from soil. Sample locations proposed in this SAP/QAPP may be adjusted as site conditions necessitate. Field conditions may prevent collection of some proposed samples and/or may necessitate the collection of additional samples. Proposed soil sample locations, field parameters, associated analyses, and sample collection timing are discussed in the SSAP 2020-01 (Appendix A). The anticipated excavation extents of the athletic field and former ward building are shown on Figures 3-1 through 3-3 of the Interim CAP & EDR. Field screening will be performed during excavation activities using a handheld X-ray fluorescence (XRF) instrument. Confirmation sampling will be conducted upon reaching apparent contaminant boundaries using a handheld XRF and verified with results by an analytical laboratory. Confirmation soil samples will be collected at a frequency of one confirmation sample collected every 20 feet horizontally along the sidewalls, and one confirmation sample collected for every 400 square feet of exposed bottom of the excavation area. Locations of confirmation samples will be determined in the field.

Section 5.2.1 of the Interim CAP&EDR describes procedures if additional excavation and collection of sample locations is infeasible or inaccessible due to established vegetation (i.e., trees).

Analytical methods for soil are shown in Table 4-1; specifics regarding sample handling in Table 4-2; a quality control sample summary is provided in Table 4-3. Soil samples will be collected using procedures as described in the sections below.

The following subsections present the activities proposed to address the data needs for the project.

4.3 Sampling Methods

All samples will be collected consistent with the requirements for the medium being sampled and the analytes of interest. Samples will be collected in containers supplied by the analyzing laboratory to ensure that the container has been properly cleaned and that sufficient sample material is collected. Specific sample container and preservation requirements for contaminants are listed in Table 4-2. Sampling methods for the medium of interest (i.e., soil) are described below in general detail. Specific sampling methods are provided in Section 5.2.1 of the draft Interim CAP & EDR. Below is a description of sampling and analysis activities. Figures 5-1 and 5-2, Tables 5-1 through 5-7, and SSAP 2020-08a (Appendix B) provide a summary of locations, analytical requirements, and sampling requirements for each environmental, agronomic, and leaching sample location.

4.3.1 Soil Sampling

Performance and confirmation soil samples will be collected from the base and sidewalls of the excavations to evaluate compliance with the proposed cleanup levels, as described in Section 5.2.1 of the draft Interim CAP. Soil samples will also be collected from excavation stockpiles for waste characterization purposes. Field parameters for solids sampling can be found in the SSAP in Appendix A of this QAPP. Sample plan alteration forms are included in Appendix B. Field screening results using a handheld XRF and confirmation samples analyzed by an analytical laboratory will be screened to MTCA Method A CULs to direct excavation activities and ensure removal of soil with elevated lead and arsenic concentrations.

4.3.1.1 Surface Soil Discrete Sampling

Surface soils will be collected by hand, using decontaminated stainless-steel tools using USEPA standard operating procedures for soil sample collection (USEPA, 2020). To guide surface soil collection for lead and arsenic analysis, a handheld XRF meter may be used in the field. XRF instruments produce real-time results and, therefore, can guide the collection and analysis of soil in the field. Prior to collecting XRF readings on soil samples, a calibration check will be performed to ensure that the XRF is reading within the correct limits of the test specimen provided by the manufacturer. If the XRF passes the calibration check, it will be used to guide soil sample collection. The soil sample will be placed in a sealed plastic bag and homogenized to ensure the sample is evenly distributed for the XRF to collect a representative reading. Samples screened using the XRF will have results recorded on field notes. If a soil sample is selected for laboratory analysis based on the results of the XRF, the same volume of sample used for the XRF reading will be placed in a laboratory-provided jar and submitted to the laboratory.

The soil sample results from a handheld XRF will be used to guide the extents of the excavation and determine locations of confirmation samples (i.e., samples with concentrations below MTCA Method A CULs) and are considered secondary samples. Excavation activities laterally and vertically will proceed in the manner presented above until laboratory analytical results of confirmation samples indicate that the extent of impacted soil exceeding MTCA Method A CULs has been reached or the maximum setback extent of the excavation has been reached. Confirmation soil samples will be submitted for laboratory analyses of arsenic or lead and are considered critical samples. Field XRF

results may over- or underestimate actual chemical concentrations in soil. Therefore, to ensure the handheld XRF is accurately identifying exceedances, at least one field screened soil sample with an exceedance of lead or arsenic, will be split and submitted to an analytical laboratory to confirm the exceeding concentration.

Confirmation sidewall soil samples will be collected between the ground surface and one-foot below ground surface throughout the excavation activities to characterize the integrity of the soils. Confirmation base soil samples will be collected from one-foot below ground surface, to evaluate the extent of contamination and the depth of excavation. Deeper soil samples may be collected if confirmation samples indicate continued elevated concentrations of lead or arsenic above MTCA Method A CULs. Confirmation samples will be screened using the handheld XRF in addition to being submitted to the analytical laboratory, and the results will be recorded.

The frequency of confirmation sample collection will involve one confirmation sample collected every 20 feet horizontally along the sidewalls, and one confirmation sample collected for every 400 square feet of exposed bottom.

Samples will be submitted to the analytical laboratory each day confirmation samples are collected. Confirmation soil samples will be submitted for rushed, 24- hour turnaround time to expedite characterization of the extent of excavation. Soil samples and associated QC samples will be analyzed for arsenic or lead, consistent with Section 3.2 of the CAP & EDR and Tables 4-1 through 4-3.

4.3.1.2 Stockpile Sampling

Stockpiled material of potentially lead-characteristic soil in the athletic field will be stockpiled and sampled before transportation to the landfill to determine if it is RCRA-regulated waste (i.e., to determine whether it passes the TCLP lead criterion). Stockpile sampling will be conducted via compositing as outlined:

- One ten-point composite sample will be obtained for every 100 cubic yards of the soil stockpile following the USEPA standard operating procedure guidance (USEPA, 2020). Ten subsamples of approximately equal volume will be collected and composited. The uppermost layer of soil will be removed before each subsample is obtained.
- A standard stainless-steel spoon or newly gloved hand will be used to obtain the samples from various depths of the stockpile. The stockpile will be divided into ten quadrants, with one subsample obtained from a random location in each quadrant from random depth intervals.
- The subsamples will be composited in a stainless-steel bowl with a stainless-steel spoon or a dedicated Ziploc® bag and thoroughly mixed; a portion of the sample will be placed into the sample container. The stainless-steel bowl and spoon will be decontaminated, and gloves will be changed between composite samples. Rocks and debris will not be placed in the sample container.
- Samples will be labeled, stored in iced shipping containers with COC documentation, and transported to the contract laboratory.

Stockpile soil samples will be submitted for rushed, 24- hour turnaround time to expedite characterization and disposal of stockpiled soil. Stockpile samples will be analyzed for TCLP-lead as outlined in Tables 4-1 and 4-2.

4.3.1.3 General Soil Sampling Procedures

Samples for laboratory analysis will be prepared, handled, and documented as follows and in accordance with standard operating procedures (USEPA, 2020):

- Soil-sampling equipment will be decontaminated before it is used at each sampling location (see Section 4.11).
- Samples will be obtained by hand, using a new, uncontaminated glove; or with a decontaminated stainless-steel spoon, trowel, or knife.
- Soil samples to be analyzed for arsenic and lead will be collected in an unpreserved glass jar.
- Large particles (i.e., larger than 0.25 inch) may be removed using a new, uncontaminated glove before the sample is placed in a laboratory-supplied container.
- Soil samples will be transferred directly from the sampling device into laboratory-supplied glass jars by hand, using a new, uncontaminated glove; or with a decontaminated stainless-steel spoon, trowel, or knife.
- Sample containers will be labeled, packed in ice in the shipping containers with chain of custody (COC) documentation (see Section 4.5.2), and delivered or shipped to the laboratory.
- Sampling information will be recorded in a field notebook, on an FSDS, and on the COC form.
- Generally, duplicate soil samples should be collected at the frequency of one duplicate sample for every 20 samples collected.

4.4 Management of Investigation-Derived Waste

IDW will include decontamination fluids and soils collected for field XRF analysis. IDW will be disposed of as part of the waste material being transported off site. Excavated soil from the athletic field will be characterized during excavation activities and by sampling stockpiled soil for lead by TCLP, as outlined above in Section 4.3.1.2. If the soil concentration in the stockpile fails TCLP limits, stockpiled soil will be treated on-site to stabilize any leachable lead and reduce concentrations below TCLP criteria.[1] Stabilization will consist of the addition of Portland cement to the stockpile material to reduce the leachability of lead in the waste material. After amendment, a 10-point composite sample will be collected and analyzed for lead by TCLP consistent with the procedures in Section 4.3.1.2. If

[1]If TCLP results indicated that the excavated soil is hazardous waste, all steps will be taken to comply with Dangerous Waste Regulations in WAC 173-303.

detections of lead by TCLP are below 5 mg/L the material will be sent to a Subtitle D landfill for disposal.

Excavated soil from the former ward building area will be profiled using existing data from the excavation area and will be transported off site to a Subtitle D landfill for disposal.

4.5 Sample Handling and Custody

Field sampling personnel will be responsible for the collection, labeling, description, documentation, handling, packaging, storage, and shipping of investigative samples obtained in the field. Proper sample handling and custody procedures are required to retain sample integrity from collection in the field through laboratory analysis and data reporting.

4.5.1 Sample Identification

The field personnel will be responsible for labeling samples and establishing identification. All data will be keyed to the sample's unique sample designation, which will be used on sample containers and associated field data forms, as well as to key the sample identification in the project database.

The field personnel will clearly label each sample container, using permanent ink on a waterproof sample label, as soon as possible following collection. At a minimum, the following information will be written on the sample label:

- Unique sample identification code
- Time and date of collection
- Project number
- Preservative, if appropriate

In order to maintain sample identification consistency in the project database, the unique sample identification code will be assigned according to the following convention: unique sample number—matrix type—depth (if applicable). The following code and information will be included in the sample identification code:

- Matrix type code is "S" for soil.
- Depth below ground surface (bgs): the sample collection midpoint will be used.
- Field duplicate samples will include "DUP" at the end of the identification.

For example, a soil sample collected from an eastern sidewall location 05 at 1 foot bgs would be ESW05-S-1.0, and a field duplicate of the soil sample would be ESW05-S-1.0-DUP. A soil sample collected from a base location 03 at 3 feet bgs would be BASE03-S-3.0. For sample locations representative of an area that was over excavated, the sample locations will use the next available identifying number (e.g., if ESW02-S-1.0 is over excavated and the last collected ESW (east sidewall) sample is 5, the over excavated sample location will be called ESW06-S-1.0).

If stockpile samples are collected, it is anticipated that one composite soil sample consisting of 10 discrete samples will be used to characterize the soil for waste disposal. Stockpile samples will be identified as STOCKPILE-1, STOCKPILE-2, etc.

4.5.2 Sample Handling and Custody

The field investigation personnel and the analytical laboratory contractor will be responsible for following sample custody procedures during sampling and analysis, as well as for providing sample tracking. Sample custody procedures will be used to document the history of samples from the time of sample collection through shipment, analysis, and disposal. Samples and sample documentation will be maintained in the physical possession of authorized field personnel or under control in a secure location.

4.5.2.1 Sample Custody in the Field

The field investigation contractor personnel will be responsible for completing the COC forms upon sample collection. Each COC form will contain, at a minimum, the following information:

- Project number
- Project name
- Project manager
- Unique sample identification code
- Time and date of collection
- Field personnel sampler's name
- Separate shipping papers
- Signature, printed name, organization name, date and time of transfer of all persons having custody of samples
- Sample matrix
- Quantity of sample containers
- Requested analyses for each sample
- Requested analytical turnaround time
- Any additional information on requested analysis such as holding time, specific matrix spike and matrix spike duplicate (MS/MSD) samples, etc.

4.5.2.2 Sample Packaging and Shipment

Persons in possession of the samples will be required to sign and date the COC form whenever samples are transferred between individuals or organizations (with the exception of freight carriers).

Samples will be delivered to the laboratory by ground transportation (laboratory courier or field personnel), and the following custody procedures will be followed:

- Samples will be packed in the appropriate shipping containers.

- If transportation is by courier, the laboratory courier will retain a second copy of the COC and shipping forms to allow sample tracking. The top copy of the COC form will accompany the samples.
- If transported to the laboratory by field personnel, COCs will be signed and copies distributed at the time of sample delivery to the laboratory. The COC form will accompany the samples from point of release from the Property to the laboratory.

The laboratory will implement its in-house custody procedures, which begin when sample custody is transferred to laboratory personnel.

4.5.2.3 Sample Custody in the Laboratory

The analytical laboratory contractor's sample custodian will be responsible for the handling and documentation of samples received at the laboratory. The designated sample custodian will accept custody of the received samples and will verify that the COC form matches the samples received. The shipping container, or set of containers, will be given a laboratory identification number, and each sample will be assigned a unique sequential identification number.

4.5.3 Sample Documentation and Records

4.5.3.1 Field Logbooks and Forms

Field investigation personnel will be responsible for maintaining a daily record of significant events, observations, and measurements during field investigations. Field records may be recorded in a bound logbook or on paper or electronic field data sheets. A separate entry will be made for each sample collected. Field logbooks and forms will be included in the project files at the end of field activities to provide a record of sampling.

4.5.3.2 Equipment Calibration Log

Field investigation personnel will be responsible for maintaining an equipment calibration log to record the calibration measurements and frequencies of equipment calibration. This log may be incorporated into the field logbook notes for a specific date and activity.

4.5.3.3 Record Retention

All data collected will be stored on a server supported by MFA with minute-by-minute backups. Additionally, validated data will be uploaded to the Washington State Department of Ecology's Environmental Information Management database.

All project information will be stored for the duration of the project and 20 years, at minimum.

4.6 Field Measurements

4.6.1 XRF Measurement

XRF field screening methods will be conducted generally consistent with USEPA Method 6200 and the XRF manufacturer's instructions. The XRF model deployed in the field will be field portable and will meet the detection limit requirements specified in Table 4-1.

This section describes general XRF field procedures and methods that may be used during the interim action, and XRF and laboratory data comparisons.

4.6.2 General XRF Field Procedures

The metals concentrations measured using a handheld XRF will be recorded in field notes by the field team leader. General observations and material classification will also be recorded. The metals concentrations measured by the XRF may be used to aid visual determinations of lithologic changes to better define and characterize samples of interest.

While operating XRF equipment, field personnel will follow the manufacturer's instructions as well as the health and safety plan to safely operate the handheld XRF device. The XRF device will be inspected prior to use and an inventory of parts will be taken on field notes. Blank samples (described below) will be used to test the XRF equipment prior to use in the field to limit the likelihood of failure in the field.

Field procedures for improving data quality are as follows:

- Shot time—the shot (measurement) time is user selectable. The length of XRF shot will be dependent on the model being used and should be configured according to the manufacturer's recommendations for the project goals, metals, and media of interest. Shot times of 60 seconds have typically been used with the XRF models used during project work.
- Sample positioning—Inconsistent positioning of samples in front of the probe window is a potential source of error. For the best results, the window of the XRF should be in direct contact with the sample or direct contact with the sample through a clear, thin walled, plastic baggie, which means that the sample should be flat and smooth to provide a good contact surface.
- Blank samples—These are samples containing no metals and are used to evaluate XRF performance. Blank samples will be provided by the XRF vendor and analyzed at the beginning, middle, and end of each field day in which XRF is used. Blank measurements will be recorded in a field book. If blank detections occur the field staff will notify the MFA QAM.
- Replicates—Replicate samples measure XRF precision and will be evaluated once per field day in which XRF is used. These measurements will be analyzed 7 times in replicate from a sample with concentrations near the CUL. The relative standard deviation (RSD) of the

sample mean will be used to assess precision. If the RSD is greater than 20 percent, the MFA QAM will be notified.

- Reference material checks—These are samples containing known concentrations of metals and are used to evaluate XRF performance. Reference material check samples will be provided by the XRF vendor and analyzed at the beginning, middle, and end of each field day in which XRF is used. Reference material check measurements will be recorded in a field book. If measured concentrations are plus or minus 20 percent of the actual concentrations, the field staff will notify the MFA QAM.
- Laboratory confirmation samples—Laboratory confirmation samples evaluate the accuracy of XRF measurements made in the field. These samples are analyzed by XRF and then sent to the laboratory for confirmation analysis. These samples should be submitted at a minimum rate of 10 percent. Laboratory confirmation sample results will be compared to the XRF results as described in the Comparability of Data section below.
- Large or unrepresentative debris will be removed from the sample surface before analysis. This debris may include rocks, pebbles, leaves, vegetation, roots, and concrete.

4.6.3 XRF Field Methods

This method generally follows the intrusive (ex-situ) process described in USEPA Method 6200. Soil is removed from the ground or sampling apparatus and mixed in a thin plastic baggie or bowl. The material is homogenized, and large rocks and debris are removed during investigations or sieved if the sample is being collected as part of remedial action construction. The measurement is then taken from a baggie containing the homogenized material. According to USEPA Method 6200, a moisture content between 5 and 20 percent will produce very minimal error in XRF readings. If moisture content is above 20 percent (as visually determined by the field crew) or if the sample was collected below the water table, the sample will either be dried in the sun or in an on-site oven, or will be submitted for laboratory confirmation.

A minimum of ten percent of ex-situ XRF measurements are confirmed by laboratory analysis.

4.6.4 Comparability of Data

According to USEPA Method 6200, comparability refers to the confidence with which one data set can be compared to another. In this case, XRF data generated is typically compared to USEPA SW-846 Methods 3050 and 6010, which are the standard soil extraction for metals and analysis by inductively coupled plasma. An evaluation of comparability should be conducted using linear regression analysis including the y-intercept, the slope of the line, and the coefficient of determination (r2).

As per USEPA Method 6200:

> The confirmatory laboratory samples should be selected from the lower, middle, and upper range of concentrations measured by the FPXRF. They should also include samples with analyte concentrations at or near the site action levels. The results of the confirmatory analysis and FPXRF analyses should be evaluated with a least squares linear regression analysis. If the measured concentrations span more

than one order of magnitude, the data should be log-transformed to standardize variance which is proportional to the magnitude of measurement. The correlation coefficient (r) for the results should be 0.7 or greater for the FPXRF data to be considered screening level data. If the r is 0.9 or greater and inferential statistics indicate the FPXRF data and the confirmatory data are statistically equivalent at a 99 percent confidence level, the data could potentially meet definitive level data criteria.

XRF data with a good correlation to laboratory data could still be skewed and underestimating lead and arsenic concentrations depending on the slope of the linear regression. The slope should be considered when determining the comparability of the data. XRF data plotted on the x-axis, and lab data were plotted on the y-axis; therefore, the calculated slopes (>1) indicate that XRF data are underestimating the lab data. However, if the calculated slopes were less than one, they would indicate that XRF results are overestimating laboratory results and would therefore be a conservative field indicator.

4.7 Analytical Methods

All analytical methods used will comply with relevant requirements of applicable state or federal programs or other USEPA-approved methods. Ecology-preferred analytical methods specific to this SAP/QAPP are provided in Table 4-1. Confirmation soil samples will be submitted for rushed, 24-hour turnaround time to expedite characterization of the extent of excavation. Stockpile soil samples will be submitted for rushed, 24- hour turnaround time to expedite characterization and disposal of stockpiled soil.

4.8 Quality Control

The quality of data will be monitored and verified by maintaining logs, documenting field activities, and collecting and analyzing field and laboratory QC samples. Table 4-3 summarizes the field and laboratory QC samples, along with the required collection frequency, for each sample matrix. The required field QC samples will be matrix-specific.

4.8.1 Field Quality Control Samples

The field QC samples will be used to assess the accuracy and precision of the field sample collection and handling activities.

4.8.1.1 Equipment Rinsate Blanks

Analysis of equipment rinsate blanks is not anticipated, as field equipment used during sampling will be dedicated. However, if nondedicated equipment is used, equipment blanks will be used to assess the efficiency of field equipment decontamination procedures in preventing cross-contamination of samples. Rinsate blanks used to assess the efficiency of field equipment decontamination procedures will be collected at the end of each day of field sampling. Equipment rinsate blanks will be collected by pouring certified distilled or deionized water over or through decontaminated (clean) sampling equipment used in the collection of investigative samples and, subsequently, collected in prepared sampling containers. Additives or preservatives will be included in the equipment rinsate blanks as required for analysis. The rinsate blanks will be shipped with the associated field samples.

For each sample matrix, if a rinsate blank is collected, it will be analyzed at a minimum frequency of one equipment rinsate blank per 20 samples for each day of sample collection. Rinsate blanks will also be collected from precleaned, disposable equipment for each lot of disposable equipment used to demonstrate the cleanliness of the equipment lot. The rinsate blanks will be analyzed for the same parameters as the investigative samples.

The criterion for field rinsate blanks is that analyte concentrations must be below the method reporting limits. Consistent with USEPA data validation guidelines, analytical results for investigative samples will be qualified if the analyte is detected in the rinsate blank (USEPA, 2017a,b).

4.8.1.2 Field Duplicate Samples

Field duplicate samples are collected to assess reproducibility of field procedures. For nonaqueous matrices (i.e., soil), sample heterogeneity may affect the measured precision for the duplicate sample; field duplicate sample collection will consist of the following:

- One field duplicate for every 20 confirmation samples submitted to the analytical laboratory.
- One field duplicate for every 20 composite stockpile samples submitted to the analytical laboratory.

4.8.1.1 Temperature Blank

Temperature blanks are prepared by the laboratory, using analyte-free (reagent) water. Temperature blanks are used by the laboratory to record the temperature of each cooler used to transport samples from the field to the laboratory. Each cooler containing samples that require temperature preservation will contain a temperature blank. The laboratory will verify that the temperature blank measurement is within the acceptable range specific to the analytical method.

4.8.2 Laboratory Quality Control Samples

The laboratory QC samples will be used to assess the accuracy and precision of the field sample collection and handling activities. Laboratory QC samples will be analyzed at the required frequency described in Table 4-3, as applicable, based on analytical method and sample matrix.

4.8.2.1 Calibration Verification

Instruments will initially be calibrated at the start of the project or sample run, as required, and when any ongoing calibration does not meet control criteria. The number of points used in the initial calibration is defined in the analytical method. Calibration will be continued as specified in the analytical method to track instrument performance. If a continuing calibration does not meet control limits, analysis of project samples will be suspended until the source of the control failure is either eliminated or reduced to within control specifications. Any project samples analyzed while the instrument was outside control limits will be reanalyzed.

4.8.2.2 Matrix Spike/Matrix Spike Duplicate

MS samples are analyzed to assess the matrix effects on the accuracy of analytical measurements. MS/MSD samples will be prepared by spiking investigative samples with known amounts of analytes before extraction and preparation and analysis. The recoveries for the MS/MSD samples will be used to assess the accuracy and precision in the analytical method by measuring how well the analytical method recovers the target compounds in the investigative matrices. For each matrix type, at least one set of MS/MSD samples will be analyzed for each analyzed batch of samples with 20 (or fewer) samples received. The MS/MSD samples will be designated on the COC form.

The criteria for acceptable percent recovery and RPD for MS/MSD samples are presented in Table 4-1.

4.8.2.3 Surrogate Spikes

Surrogate spiking consists of adding reference compounds to samples before preparation of the samples for organic analysis. Surrogate compound spiking is used to assess method accuracy on a sample-specific basis. Surrogate compounds will be added to samples in accordance with the analytical method requirements. Surrogate spike percent recovery acceptance limits are determined by the analytical method. The surrogate spike percent recovery results will be reported by the laboratory.

4.8.2.4 Method Blanks

Method blanks are prepared using analyte-free (reagent) water and are processed with the same methodology (e.g., extraction, digestion) as the associated investigative samples. Method blanks are used to document contamination resulting from the laboratory's analytical process. A method blank will be prepared and analyzed for every analytical batch.

The method blank results are used to verify that reagents and preparation do not impart unacceptable bias to the investigative sample results. The presence of analytes in the method blank sample will be evaluated against method-specific thresholds. If analytes are present in the method blank above the method-specific threshold, corrective action will be taken to eliminate the source of contamination before proceeding with analysis. Investigative samples from an analytical batch associated with method blank results outside acceptance limits will be qualified as appropriate by the QAM.

4.8.2.5 Laboratory Control Samples

Laboratory control samples (LCSs) are prepared by spiking laboratory-certified, reagent-grade water with the analytes of interest or a certified reference material that has been prepared and analyzed. The result for percent recovery of the LCS is a data quality indicator of the accuracy of the analytical method and laboratory performance. The criteria for acceptable percent recovery of LCSs are presented in Table 4-1.

4.8.2.6 Laboratory Duplicate Samples

Laboratory duplicate samples (LDSs) are prepared by the laboratory by splitting an investigative sample into two separate aliquots and performing separate sample preparation and analysis on each

aliquot. The results for RPD of the primary investigative sample and the respective LDS are used to measure precision in the analytical method and laboratory performance. For nonaqueous matrices, sample heterogeneity may affect the measured precision for the LDS. The criteria for acceptable RPD of LDSs are presented in Table 4-1.

4.9 Instrument and Equipment Testing, Inspection, and Maintenance

Instruments for field parameter measurements will follow this SAP/QAPP protocol and manufacturers' recommendations for testing, inspection, and maintenance. Field equipment used for obtaining samples will be decontaminated as required and stored in a clean and secure location.

Laboratory instruments and equipment will comply with the contracted laboratories' QA/QC procedures for testing, inspection, and maintenance. Laboratory instrument and equipment testing, inspection, and maintenance documentation will be provided to the QAM if requested.

4.10 Instrument and Equipment Calibration and Frequency

Instruments for field parameter measurements will follow manufacturers' recommendations for calibration. Calibration will be conducted at the beginning of each sampling event. Calibration checks will be conducted at the beginning of each sampling day. Calibration may be conducted again during a sampling event, as necessary, based on the results of the calibration check. Calibration records will be recorded in the field logbooks.

4.11 Inspection and Acceptance of Supplies and Consumables

The supplies and consumables that will be used during field operations include, although are not limited to, the following: decontamination fluids, preservatives, reagent water for equipment blanks, equipment tubing, and filters. No materials will be used after the manufacturers' expiration dates. Only water certified by the manufacturers will be used to prepare equipment blanks. If contamination is visible in materials, the item will be discarded. In accordance with Section 4.12, nondedicated field equipment will be decontaminated prior to use.

The analytical laboratory will inspect supplies and consumables before their use in analysis. The materials description in the analytical methods will be used as a guideline for establishing acceptance criteria. Purity of reagents will be evaluated through analysis of LCSs and method blank samples. The laboratory shall maintain an inventory of supplies and consumables.

4.12 Sample Equipment Decontamination

Sampling equipment and reusable materials that contact sample media will be decontaminated between uses. Decontamination will generally involve the following:

- Tap-water rinse (may consist of an equivalent high-pressure, hot-water rinse)
- Nonphosphate detergent wash, consisting of a dilute measure of Liquinox® or Simple Green® and tap water

- Distilled water rinse
- Methanol solution rinse (1:1 solution with distilled water)
- Final distilled water rinse

4.13 Nondirect Measurements

Nondirect measurements are defined as existing data obtained from nonmeasurement sources, such as literature files or existing databases. To assess data usability, historical data will be reviewed for accordance with project-specific DQOs and QA/QC criteria. Historical data that may be relied upon for this interim action is provided in Table 3-3 of the Interim Cleanup Action Plan and Engineering Design Report, to which this plan is an appendix.

4.14 Data Management

4.14.1 Field Data

Field data may be recorded in a bound logbook or on paper or electronic field data sheets. Hard copies of all field data will be scanned and saved electronically. Field data collected on paper or electronic field data sheets may be imported into an EQuIS™ database. In the event that field data are entered by hand into an electronic format before they are imported into EQuIS™, the data will be reentered and reviewed for data entry errors by separate, qualified individuals.

4.14.2 Laboratory Data

The laboratory shall record the results of each analysis in a laboratory information management system in accordance with the contracted laboratory's QA plan. Data will be provided to MFA as electronic data deliverables, which will be imported directly into an EQuIS™ database used for data storage. Validated laboratory results will be exported and provided as part of the final report for each project.

5 DATA VALIDATION AND USABILITY

5.1 Data Review, Verification, and Validation

Data verification is confirmation by examination and provision of objective evidence that specified requirements have been fulfilled (USEPA, 2001). Data verification is the process of evaluating the completeness, correctness, and compliance of a specific data set against the method, procedural, or contractual specifications (USEPA, 2002). Data validation is confirmation by examination and provision of objective evidence that the particular requirements for specific, intended use have been fulfilled (USEPA, 2001). Data validation is an analyte- and sample-specific process that extends the evaluation of data beyond method, procedural, or contractual compliance (i.e., data verification) to the analytical quality of a specific data set (USEPA, 2002).

5.2 Data Review, Verification, and Validation Methods

The specific data reduction, verification, and reporting procedures and assigned personnel will vary for each laboratory; however, all procedures will be completed in accordance with the laboratory's QA plan and standard operating procedures.

The laboratories will provide a level 2 laboratory report for Stage 2A (S2AVM) data validation. Refer to USEPA (2009) guidance for S2AVM data validation and verification requirements.

5.2.1 Data Verification Methods

5.2.1.1 Laboratory Data Verification Methods

The laboratory will be responsible for the reduction of raw data generated at the laboratory bench and verification that data reduction performed by the laboratory instrument or the laboratory information management system is correct.

QC checks for data verification that will be performed for all generated data are as follows:

- Verify that batch QC and field samples were analyzed at the specified frequency.
- Verify calibrations and calibration checks for compliance with laboratory criteria.
- Verify that holding times for extraction and analyses and sample preservation were met.
- Verify that the quantitation limits and method detection limits were met.
- Verify that all project and QC sample results were properly reported and flagged.
- Review COC documentation to verify completeness of the sample set for each data package submitted.
- Assess the impact of laboratory and field QC results.

These QC checks will be performed by laboratory analysts, the assigned laboratory project manager or supervisor, laboratory QC specialists, or a combination of these personnel. After the data reports have been reviewed and verified, the laboratory reports will be signed and released for distribution.

5.2.1.2 Field Data Verification Methods

Data collected during field activities will be evaluated for usability by conducting a QA review that consists of checking procedures used and comparing the data to previous measurements. Field QC samples will be evaluated to ensure that field measurements and sampling protocols have been observed and followed.

The field data verification process will be performed at two levels. The first level will be conducted at the time of collection and consists of following standard procedures and QC checks. The second level will be performed during compilation of field data and will include checks for data anomalies. Inconsistent data or anomalies will be resolved by seeking clarification from field personnel

responsible for collecting the data, and the resolution will be documented during the data verification process.

5.2.2 Data Validation Methods

Validation of the analytical data produced under this SAP/QAPP will be performed by an MFA chemist (i.e., Ms. Benzinger), independent of the analytical laboratory contractor(s) generating the data reports. The data validator will review laboratory performance criteria and sample-specific criteria.

The data validation review of sample-specific criteria will be performed on all data report packages for each analysis type generated by each analytical laboratory contractor. The independent data validation review will include review of the following items from the S2AVM laboratory data reports: consistency with the COC, holding times, surrogate recoveries, MS recoveries, field duplicate agreement, MSD and laboratory duplicate precision, and method blank analyses. Refer to USEPA (2009) for S2AVM level data validation and verification requirements.

The purpose of this independent review will be to verify that the laboratory QC program is adequate and that the laboratory met the performance criteria. The data validator will review data and assign data qualifiers to sample results, following parts of the USEPA procedures for inorganic data (USEPA, 2017a), organic data (USEPA, 2017b), and method-specific guidelines.

Data qualifiers are used to classify sample data in terms of their conformance to QC requirements. The most common qualifiers are listed below:

- J—Estimate, qualitatively correct but quantitatively suspect.
- R—Reject, data not suitable for any purpose.
- U—Not detected at a specified detection limit.

Poor surrogate, blank contamination, or calibration problems, among other things, can require qualification of the sample data. The reasons for the qualifications will be stated in the data validation report. QC criteria not defined in the guidelines for evaluating analytical data are adopted, where appropriate, from the analytical method.

6 ASSESSMENT AND OVERSIGHT

6.1 Quality Assurance Assessment and Response Actions

The MFA project manager (Carolyn Wise) and QAM (Mary Benzinger) are responsible for developing and initiating corrective action if the data verification and validation identify unacceptable data or conditions. The project manager will notify the QAM if the project issues are significant.

Corrective action may include:

- Reanalyzing samples, if holding time criteria permit

- Resampling and analyzing
- Amending sampling procedures

Documentation of significant changes to this SAP/QAPP will be documented using a sample plan alteration form (Appendix B) and approved by the original signatories.

6.2 Quality Assurance Reports to Management

If significant QA issues arise, the MFA QAM will be responsible for completion of QA progress reports to provide a summary of the project performance and data quality. The QA progress reports will be submitted to the program and project managers on a situation-specific basis. These reports will focus on a summary of specific QA problems encountered and corrective actions implemented. The QA progress reports may include the following:

- QA issues requiring corrective actions; status of corrective actions
- Assessment of completeness of measurement data, including a summary of data qualified as rejected during data verification and validation
- Assessment of representativeness of measurement data and compliance with the project DQOs
- Results of performance audits

Submittal of QA progress reports will be conducted if QA problems occur during implementation of the interim remedial action. If needed, submittal of QA progress reports is not anticipated to exceed once a week. A summary of QA issues and implemented corrective actions will also be provided in the final report. A field sampling report will be generated, summarizing the investigative samples and QC samples collected. A data report that will summarize sampling and field measurement data, and results of the data verification and validation will also be generated.

LIMITATIONS

The services undertaken in completing this plan were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This plan is solely for the use and information of our client unless otherwise noted. Any reliance on this plan by a third party is at such party's sole risk.

Opinions and recommendations contained in this plan apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this plan.

REFERENCES

Ecology. 1995. Guidance on sampling and data analysis methods. Publication No. 94-49. Washington State Department of Ecology Toxics Cleanup Program, Lacey, Washington. January.

Ecology. 2004. Guidance for preparing quality assurance project plans for environmental studies. Publication No. 04-03-030. Washington State Department of Ecology, Lacey, Washington. July.

USEPA. 1998. Quality assurance guidance for conducting brownfields site assessments. Publication No. 540-R-98-038. U.S. Environmental Protection Agency, Washington, D.C. September.

USEPA. 2001. EPA requirements for quality assurance project plans. EPA QA/R-5. EPA/240-B-01/003. U.S. Environmental Protection Agency, Washington, D.C. March.

USEPA. 2002. Guidance for quality assurance project plans. EPA QA/G-5. EPA/240/R-02/009. U.S. Environmental Protection Agency, Washington, D.C. December.

USEPA. 2006. Guidance on systematic planning using the data quality objectives process. EPA QA/G-4. U.S. Environmental Protection Agency, Washington, D.C. February.

USEPA. 2009. Guidance for labeling externally validated laboratory analytical data for Superfund use. EPA 540/R-08/005. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, Washington, D.C. January.

USEPA. 2012. Brownfield grant recipients' road map to understanding quality assurance project plans. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, Washington, D.C. November.

USEPA. 2017a. USEPA contract laboratory program, national functional guidelines for inorganic Superfund methods data review. EPA 540-R-2017-001. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation, Washington, D.C. January.

USEPA. 2017b. USEPA contract laboratory program, national functional guidelines for Superfund organic methods data review. EPA 540-R-2017-002. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation, Washington, D.C. January.

USEPA. 2020. Standard operating procedure, soil sampling. EPA LSASDPROC-300-R4. U.S. Environmental Protection Agency, Science and Ecosystem Support Division, Athens, Georgia. June 11.

TABLES

Table 2-1
Contact List
Former Northern State Hospital
Port of Skagit
Sedro-Woolley, Washington

Contact Name	Title	Organization	E-mail	Telephone
Ms. Heather Rogerson	Grant Recipient	Port of Skagit	heatherr@portofskagit.com	360-757-9828
Mr. Blair Kinser	USEPA Project Manager	USEPA, Region 10	Blair.C.Kinser@usace.army.mil	206-764-6875 206-867-8889
Mr. Donald Brown	USEPA Quality Assurance Manager	USEPA, Region 10	brown.donaldm@epa.gov	206-553-0717
Ms. Tena Seeds	Ecology Site Manager	Ecology	tsee461@ecy.wa.gov	425-649-7008
Mr. Jim Maul	Program and Contract Administration Manager	MFA	jmaul@maulfoster.com	206-858-7617
Ms. Carolyn Wise	Project Manager	MFA	cwise@maulfoster.com	360-594-6255
Ms. Evelyn Lundeen	Field Team Leader/On-Site Safety Officer	MFA	elundeen@maulfoster.com	206-556-2025
Ms. Mary Benzinger	Quality Assurance Manager/Database Management/Project Chemist	MFA	mbenzinger@maulfoster.com	503-501-5247

NOTES:

Port of Skagit = Grant Recipients.

Ecology = Washington State Department of Ecology.

MFA = Maul Foster & Alongi, Inc.

USEPA = U.S. Environmental Protection Agency.

Table 4-1
Soil: Preferred Analytical Methods and Performance Criteria
Former Northern State Hospital
Port of Skagit
Sedro-Woolley, Washington

Analyte	Screening Criteria	MRL	Screening Criteria/ MRL Units	Preferred Analytical Method	MS Accuracy (Percent)	Precision (RPD)	LCS Accuracy (Percent)	Completeness (Percent)
Ex Situ Handheld XRF Metals								
Arsenic	20[(a)]	7	mg/kg	Modified USEPA Method 6200	NA			
Lead	250[(a)]	40	mg/kg					
Total Metals								
Arsenic	20[(a)]	1.0	mg/kg dry wt	USEPA 6020A	75-125	20	80-120	90
Lead	250[(a)]	0.20	mg/kg dry wt	USEPA 6020A	75-125	20	80-120	90
Toxicity Characteristic Leaching Procedure								
Lead	5.0[(b)]	0.05	mg/L	USEPA 1311/ 6020A	50-150	20	80-120	90

NOTES:

The analytical laboratory has not yet been selected; therefore, quality control criteria may change based on laboratory-specific limits.

dry wt = dry weight.

LCS = laboratory control sample.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

MRL = method reporting limit.

MS = matrix spike.

NA = not applicable.

RPD = relative percent difference.

USEPA = U.S. Environmental Protection Agency.

XRF = x-ray fluorescence.

[(a)]Model Toxics Control Act Method A cleanup level.

[(b)]Toxicity characteristic leaching procedure limit.

Table 4-2
Containers, Preservation, and Holding Times
Former Northern State Hospital
Port of Skagit
Sedro-Woolley, Washington

Matrix	Method	Analysis	Holding Temperature/ Preservative	Holding Time (Days)		Sample Container
				From: Field Collection To: Extraction	From: Preparation Extraction To: Determinative Analysis	
Soil	USEPA 6020A	Total Metals	4 deg C/None	180		8 oz glass jar
Soil	USEPA 1311/6020A	TCLP Metals	0 to 6 deg C/None	180	180	8 oz glass jar

NOTES:
deg C = degrees Celsius.
oz = ounce.
TCLP = toxicity characteristic leaching procedure.
USEPA = U.S. Environmental Protection Agency.

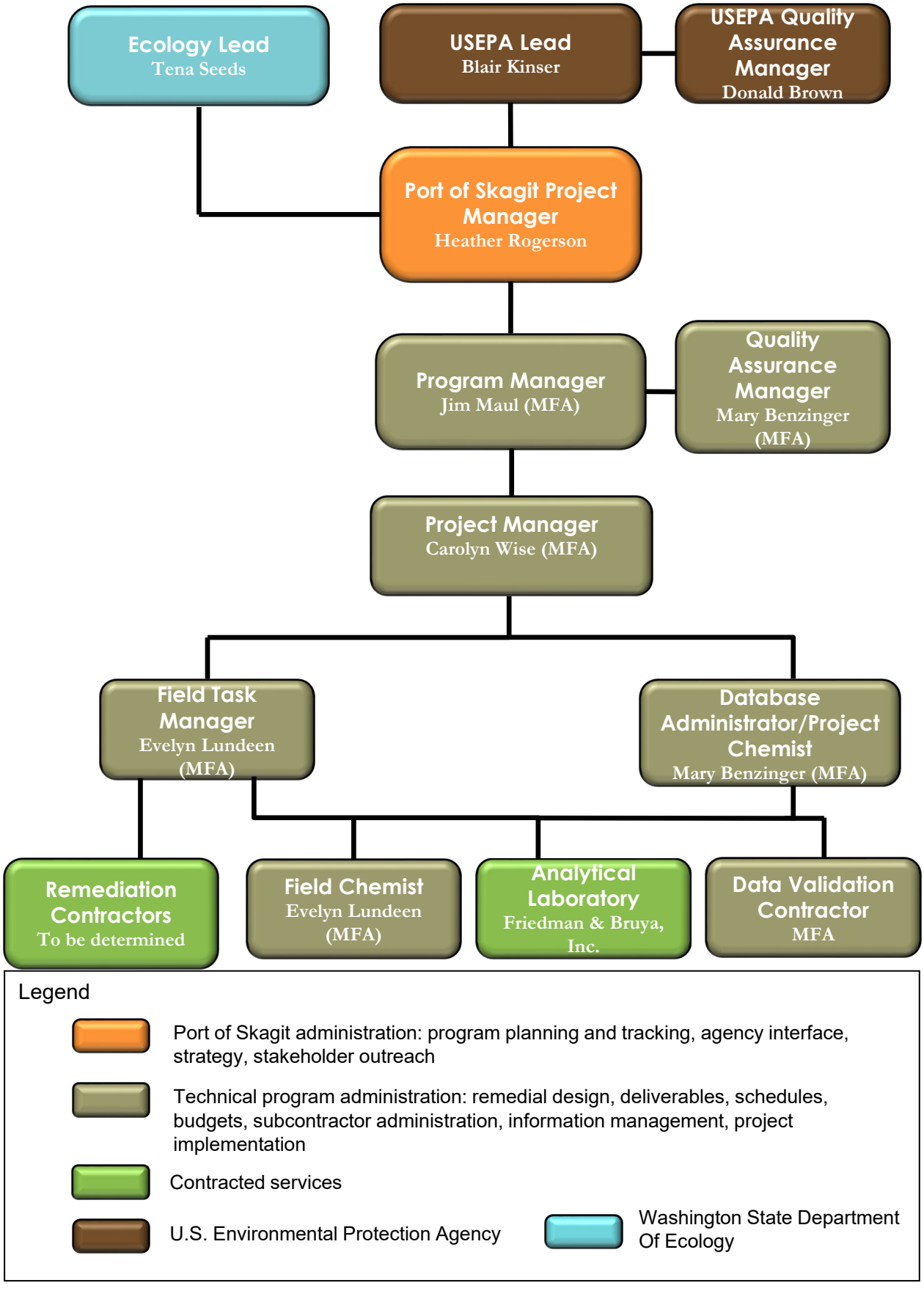
Table 4-3
Quality Control Sample Requirement Summary
Former Northern State Hospital
Port of Skagit
Sedro-Woolley, Washington

Quality Control Check Sample	Frequency	Acceptance Criteria
XRF: Blank Samples	Analyzed at the beginning, middle, and end of each field day in which XRF is used	No detections above method reporting limit
XRF: Replicates	One per field day in which XRF is used	< 20% RSD
XRF: Reference Material Checks	Analyzed at the beginning, middle, and end of each field day in which XRF is used	Field measured concentrations +/- 20% from manufacturer standard
Field Duplicate Samples	One per every 20 (or fewer) confirmation samples	20% RPD
TCLP Field Duplicate Samples	One per every 20 (or fewer) stockpile samples	20% RPD
Temperature Blank	One per sample cooler	4°C (±2°C)
Matrix Spike/Matrix Spike Duplicate	Each analytical batch of samples for every 20 (or fewer) samples received	Method-specific criteria will be followed
Surrogate Spiking	Added to all project and QC samples (for organic analyses only)	Method-specific criteria will be followed
Method Blanks	Each analytical batch of samples for every 20 (or fewer) samples received	Method-specific criteria will be followed
Laboratory Control Sample	Each analytical batch of samples for every 20 (or fewer) samples received	Method-specific criteria will be followed
Laboratory Duplicate Sample	Each analytical batch of samples for every 20 (or fewer) samples received	Method-specific criteria will be followed

NOTE:
C = Celsius.
MRL = method reporting limit.
QC = quality control.
RPD = relative percent difference.
RSD = relative standard deviation.
TCLP = toxicity characterisitc leaching procedure.
XRF = x-ray flourescence.

FIGURE

Figure 2-1
Organization Chart
Interim Cleanup Action Plan & Engineering Design - AOC 4
Organization Chart



APPENDIX A

SITE-SPECIFIC SAMPLING AND ANALYSIS PLAN

SITE-SPECIFIC SAMPLING AND ANALYSIS PLAN
Interim Cleanup Action Plan & Engineering Design Report – AOC 4
PORT OF SKAGIT
SEDRO-WOOLLEY, WASHINGTON

SSAP Number: 2020-01

Project Schedule: Event Based

Site Background: Concentrations of arsenic and lead in shallow soil at the former ward building and athletic field area (referred to as Area of Concern [AOC] 4) at the former Northern State Hospital (also known as the Sedro-Woolley Innovation for Tomorrow Center property [the Property]) were identified above Model Toxics Control Act Method A cleanup levels. These areas of the Property are frequently used by student occupants and visitors resulting in potential direct-contact exposure to human receptors to these elevated metals concentrations in shallow soil.

Problem Statement: This interim action is intended to mitigate direct-contact exposure risk for occupants and visitors of the Property associated with concentrations of lead and arsenic above Model Toxics Control Act Method A cleanup levels. The athletic field and former ward building area are open fields with a high risk of surface soil contact. Remedial actions (i.e., excavation and confirmation sampling) are intended to eliminate the risk of direct-contact exposure in these areas of the Property.

SSAP Objectives: This Plan defines the approach to implement the interim cleanup action, involving soil excavation and off-site disposal.

Plan Attachments: Figures 3-2 and 3-3 and Drawings of the Interim Cleanup Action Plan and Engineering Design Report.

Field Task Manager: Carolyn Wise **Email:**cwise@maulfoster.com **Phone:** 360-690-5982

Field Investigation Contractor: Maul Foster & Alongi, Inc.

Field Team Leader: Evelyn Lundeen **Email:** elundeen@maulfoster.com **Phone:** 206-665-5747

Site	Primary Site Type	Sample Type	Field Measurements	Analysis	Schedule	Predetermined Location	Notes
Excavation Limits of the Athletic Field (sample nomenclature outlined in Section 4.5.1)	Surface Soil	Task Specific Data Collection	• Handheld X-Ray Fluorescence Meter	Lead by 6020A	Event Timing: June – July 2021 (pending contractor availability).	Yes ☐ No ☒ Specify: Confirmation sampling locations will be dependent on the final limits of the excavation. Sidewall samples will be collected along every 20 linear feet and base samples will be collected every 400 square feet.	Number of locations are subject to change dependent on field conditions and the final limit of the excavation.

Site	Primary Site Type	Sample Type	Field Measurements	Analysis	Schedule	Predetermined Location	Notes
Excavation Limits of the Former Ward Building area (sample nomenclature outlined in Section 4.5.1)	Surface Soil	Task Specific Data Collection	• Handheld X-Ray Fluorescence Meter	Arsenic by 6020A	Event Timing: June – July 2021 (pending contractor availability).	Yes ☐ No ☒ Specify: Confirmation sampling locations will be dependent on the final limits of the excavation. Sidewall samples will be collected along every 20 linear feet and base samples will be collected every 400 square feet.	Number of locations are subject to change dependent on field conditions and the final limit of the excavation.
Stockpile of the Athletic Field	Composite	Task Specific Data Collection	• None	TCLP Lead by 1311	Event Timing: June – July 2021 (pending contractor availability).	Yes ☐ No ☒ Specify: One ten-point composite sample per 100 cubic yards of excavated soil.	Sample results used for waste profiling.

Type	Frequency	Analysis	Number Anticipated
Field Duplicate Samples	One per every 20 samples (or fewer)	Arsenic or Lead by 6020A	4

Samples for all analyses will be shipped to:
Friedman & Bruya, Inc.
3012 16th Avenue W
Seattle, Washington 98119

Sample Custody Notes: Samples will be analyzed on a 24-hour turnaround to support ongoing excavation efforts.

Notes:
Analytical methods, performance criteria, and reporting limits as per Table 4-1.
Container, preservation, and holding time requirements as per Table 4-2.
Quality control samples to be collected as per Table 4-3.

Carolyn Wise
Maul Foster & Alongi, Inc., Project Manager
Date: 1/12/2021

Mary Benzinger
Maul Foster & Alongi, Inc., Quality Assurance Manager
Date: 1/12/2021

APPENDIX B

SAMPLE PLAN ALTERATION FORM

SAMPLE PLAN ALTERATION FORM

Project Name and Number:

Material to be Sampled:

Measurement Parameters:

Standard Procedure for Field Collection and Laboratory Analysis (cite references):

Reason for Change in Field Procedure or Analytical Variation:

Variation from Field or Analytical Procedure:

Special Equipment, Materials, or Personnel Required:

CONTACT, Title	APPROVED SIGNATURE	DATE
Initiator:		
Contractor PM:		
EPA PM:		
EPA QA Manager or designee:		

APPENDIX C
BORING LOGS

Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
0624.04.07	**GP16**	**1 of 1**

Project Name	**Northern State Hospital Property**	TOC Elevation (feet)	
Project Location	**24909 Hub Drive, Sedro-Woolley, Washington**	Surface Elevation (feet)	
Start/End Date	**4/20/15 to 4/20/15**	Northing	
Driller/Equipment	**Holt Drilling, Inc./Geoprobe 7822DT**	Easting	
Geologist/Engineer	**K. Roslund and C. Wise**	Hole Depth	**10.0-feet**
Sample Method	**Direct Push**	Outer Hole Diam	**2.25-inch**

Depth (feet, BGS)	Well Details	Sample Data: Interval	Percent Recovery	Collection Method	Number	Name (Type)	Blows/6"	Lithologic Column	Soil Description
1			**50**	**GP**		**GP16-S-0.5 PID = 0.0 ppm**			0.0 to 1.6 feet: SILT WITH SAND (ML); brown; 70% fines, low plasticity; 30% sand, fine; hard; trace organic debris; dry.
2									1.6 to 2.5 feet: SILT (ML); brown; 90% fines, nonplastic to low plasticity; 10% sand, very fine; hard; dry.
3									2.5 to 10.0 feet: SILT (ML); brown; 95% fines, nonplastic to low plasticity; 5% sand, very fine; dry.
4									
5			**100**	**GP**					
6						**GP16-S-6.0 PID = 0.0 ppm**			
7									
8									
9						**GP16-S-9.0 PID = 0.0 ppm**			
10									

Total Depth = 10.0 feet below ground surface.

Borehole Completion Details:
0.0 to 10.0 feet: 2.25-inch borehole.
0.0 to 10.0 feet: Bentonite chips hydrated with potable water.

NOTES: *(1) GP = Geoprobe. (2) GW = groundwater. (3) PID = Photoionization detector, soil headspace reading in parts per million (ppm).*

Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
0624.04.07	**GP36**	**1 of 1**

Project Name	**Northern State Hospital Property**	TOC Elevation (feet)	
Project Location	**24909 Hub Drive, Sedro-Woolley, Washington**	Surface Elevation (feet)	
Start/End Date	**4/23/15 to 4/23/15**	Northing	
Driller/Equipment	**Holt Services, Inc./Geoprobe 7822DT**	Easting	
Geologist/Engineer	**K. Roslund and C. Wise**	Hole Depth	**10.0-feet**
Sample Method	**Direct Push**	Outer Hole Diam	**2.25-inch**

Depth (feet, BGS)	Well Details	Sample Data: Interval	Percent Recovery	Collection Method	Number	Name (Type)	Blows/6"	Lithologic Column	Soil Description
1			**86**	**GP**		**GP36-S-0.5 PID = 0.0 ppm**			0.0 to 0.7 feet: SANDY SILT (ML); dark brown; 60% fines, nonplastic to medium plasticity; 40% sand, fine, well-sorted, subrounded to subangular; stiff; trace rootlets; moist.
2									0.7 to 4.3 feet: SILT WITH SAND (ML); yellowish brown with mottling; 80% fines, nonplastic; 20% sand, fine, subrounded to angular; hard; trace micas; dry.
3									
4						**GP36-S-3.5 PID = 0.0 ppm**			
5									4.3 to 5.0 feet: no recovery.
6			**100**	**GP**					5.0 to 7.3 feet: SILT WITH SAND (ML); yellowish brown with mottling; 80% fines, nonplastic; 20% sand, fine, subrounded to angular; hard; trace micas; moist.
7									
8						**GP36-S-8.0 PID = 0.0 ppm**			7.3 to 10.0 feet: SILT (ML); blue gray; 90% fines, nonplastic; 10% sand, fine, subrounded to subangular; hard; moist.
9									
10									

Total Depth = 10.0 feet below ground surface.

Borehole Completion Details:
0.0 to 10.0 feet: 2.25-inch borehole.
0.0 to 10.0 feet: Bentonite chips hydrated with potable water.

NOTES: (1) GP = Geoprobe. (2) GW = groundwater. (3) PID = Photoionization detector, soil headspace reading in parts per million (ppm).

GBLWC W:\GINT\GINTW\PROJECTS\0624.04.07\GP11 TO GP44.GPJ 6/30/15

Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
0624.04.07	**GP45**	**1 of 1**

Project Name	**Northern State Hospital Property**	TOC Elevation (feet)	
Project Location	**24909 Hub Drive, Sedro-Woolley, Washington**	Surface Elevation (feet)	
Start/End Date	**6/9/15 to 6/9/15**	Northing	
Driller/Equipment	**Holt Services, Inc./Geoprobe 7822DT**	Easting	
Geologist/Engineer	**C. Wise**	Hole Depth	**10.0-feet**
Sample Method	**Direct Push**	Outer Hole Diam	**2.25-inch**

Depth (feet, BGS)	Well Details	Sample Data: Interval	Percent Recovery	Collection Method	Number	Name (Type)	Blows/6"	Lithologic Column	Soil Description
1			**84**	**GP**		**GP45-S-0.5**			*0.0 to 1.5 feet: SANDY SILT (ML); brown; 50% fines, hard, nonplastic; 40% sand, fine to medium, angular to subangular; 10% gravel, fine, angular to subangular; trace rootlets; dry. (TOPSOIL)*
2						**GP45-S-2.0**			*1.5 to 4.2 feet: SILT (ML); yellowish brown; 85% fines, hard, nonplastic; 15% sand, very fine to fine; dry.*
3									
4									
5									*4.2 to 5.0 feet: no recovery.*
6			**100**	**GP**					*5.0 to 10.0 feet: SILT (ML); yellowish brown; 85% fines, hard to stiff, nonplastic; 15% sand, very fine to fine; dry.*
7									
8									
9						**GP45-S-9.0**			
10									

Total Depth = 10.0 feet below ground surface.

Borehole Completion Details:
0.0 to 10.0 feet: 2.25-inch borehole.
0.0 to 10.0 feet: Bentonite chips hydrated with potable water.

NOTES: *(1) GP = Geoprobe.*

Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
0624.04.07	**GP46**	**1 of 1**

Project Name	**Northern State Hospital Property**	TOC Elevation (feet)	
Project Location	**24909 Hub Drive, Sedro-Woolley, Washington**	Surface Elevation (feet)	
Start/End Date	**6/9/15 to 6/9/15**	Northing	
Driller/Equipment	**Holt Services, Inc./Geoprobe 7822DT**	Easting	
Geologist/Engineer	**C. Wise**	Hole Depth	**10.0-feet**
Sample Method	**Direct Push**	Outer Hole Diam	**2.25-inch**

Depth (feet, BGS)	Well Details	Sample Data: Interval	Percent Recovery	Collection Method	Number	Name (Type)	Blows/6"	Lithologic Column	Soil Description
1			**100**	**GP**		**GP46-S-0.5**			*0.0 to 1.0 feet: SILT WITH SAND (ML); brown; 85% fines, hard, nonplastic; 15% sand, very fine to fine; dry. (TOPSOIL)*
2						**GP46-S-2.0**			*1.0 to 5.0 feet: SILT (ML); yellowish brown; 95% fines, hard, nonplastic; 5% sand, very fine; orange mottling; dry.*
3									
4									
5									
6			**100**	**GP**					*5.0 to 10.0 feet: SILT (ML); yellowish brown; 95% fines, hard, nonplastic; 5% sand, very fine; orange mottling; dry.*
7									
8									
9						**GP46-S-9.0**			
10									

Total Depth = 10.0 feet below ground surface.

Borehole Completion Details:
0.0 to 10.0 feet: 2.25-inch borehole.
0.0 to 10.0 feet: Bentonite chips hydrated with potable water.

NOTES: *(1) GP = Geoprobe.*

Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
0624.04.07	**GP47**	**1 of 1**

Project Name	**Northern State Hospital Property**	TOC Elevation (feet)	
Project Location	**24909 Hub Drive, Sedro-Woolley, Washington**	Surface Elevation (feet)	
Start/End Date	**6/9/15 to 6/9/15**	Northing	
Driller/Equipment	**Holt Services, Inc./Geoprobe 7822DT**	Easting	
Geologist/Engineer	**C. Wise**	Hole Depth	**10.0-feet**
Sample Method	**Direct Push**	Outer Hole Diam	**2.25-inch**

Depth (feet, BGS)	Well Details	Sample Data: Interval	Percent Recovery	Collection Method	Number	Name (Type)	Blows/6"	Lithologic Column	Soil Description
1			**100**	**GP**		**GP47-S-0.5**			*0.0 to 1.2 feet: SILT WITH SAND (ML); brown; 80% fines, hard, nonplastic; 20% sand, very fine to fine, angular to subangular; dry. (TOPSOIL)*
2						**GP47-S-2.0**			*1.2 to 5.0 feet: SILT (ML); yellowish brown; 95% fines, hard, nonplastic; 5% sand, very fine; dry.*
3									
4									
5									
6			**100**	**GP**					*5.0 to 10.0 feet: SILT (ML); yellowish brown; 95% fines, hard, nonplastic; 5% sand, very fine; dry.*
7									
8									
9						**GP47-S-9.0**			
10									

Total Depth = 10.0 feet below ground surface.

Borehole Completion Details:
0.0 to 10.0 feet: 2.25-inch borehole.
0.0 to 10.0 feet: Bentonite chips hydrated with potable water.

NOTES: *(1) GP = Geoprobe.*

APPENDIX D

ANALYTICAL LABORATORY REPORTS

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

December 10, 2019

Carolyn Wise
Maul Foster & Alongi, Inc.
Bay Vista Tower
2815 2nd Avenue, Suite 540
Seattle, WA 98121

Re: Analytical Data for Project 0624.04.17
Laboratory Reference No. 1912-049

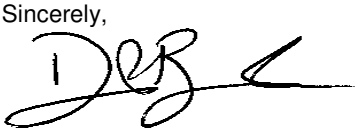
Dear Carolyn:

Enclosed are the analytical results and associated quality control data for samples submitted on December 6, 2019.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,



David Baumeister
Project Manager

Enclosures

Date of Report: December 10, 2019
Samples Submitted: December 6, 2019
Laboratory Reference: 1912-049
Project: 0624.04.17

Case Narrative

Samples were collected on December 5, 2019 and received by the laboratory on December 6, 2019. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Date of Report: December 10, 2019
Samples Submitted: December 6, 2019
Laboratory Reference: 1912-049
Project: 0624.04.17

TOTAL ARSENIC
EPA 6020B

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HA43-S-0.5**					
Laboratory ID:	12-049-03					
Arsenic	**31**	2.0	EPA 6020B	12-9-19	12-9-19	
Client ID:	**HA41-S-0.5**					
Laboratory ID:	12-049-05					
Arsenic	**13**	2.2	EPA 6020B	12-9-19	12-9-19	
Client ID:	**HA38-S-0.5**					
Laboratory ID:	12-049-09					
Arsenic	**13**	2.0	EPA 6020B	12-9-19	12-9-19	
Client ID:	**HA39-S-0.5**					
Laboratory ID:	12-049-15					
Arsenic	**12**	2.1	EPA 6020B	12-9-19	12-9-19	
Client ID:	**HA48-S-0.5**					
Laboratory ID:	12-049-17					
Arsenic	**66**	2.1	EPA 6020B	12-9-19	12-9-19	
Client ID:	**HA49-S-0.5**					
Laboratory ID:	12-049-19					
Arsenic	**37**	2.0	EPA 6020B	12-9-19	12-9-19	
Client ID:	**HA44-S-0.5**					
Laboratory ID:	12-049-25					
Arsenic	**13**	2.0	EPA 6020B	12-9-19	12-9-19	
Client ID:	**HA46-S-0.5**					
Laboratory ID:	12-049-31					
Arsenic	**12**	1.7	EPA 6020B	12-9-19	12-9-19	

Date of Report: December 10, 2019
Samples Submitted: December 6, 2019
Laboratory Reference: 1912-049
Project: 0624.04.17

TOTAL ARSENIC
EPA 6020B
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1209SM1					
Arsenic	**ND**	1.3	EPA 6020B	12-9-19	12-9-19	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	12-057-10										
	ORIG	DUP									
Arsenic	**1.71**	**1.61**	NA	NA		NA		NA	6	20	
MATRIX SPIKES											
Laboratory ID:	12-057-10										
	MS	MSD	MS	MSD		MS	MSD				
Arsenic	**93.3**	**93.3**	100	100	1.71	**92**	**92**	75-125	0	20	
SPIKE BLANK											
Laboratory ID:	SB1209SM1										
Arsenic	**94.5**		100		N/A	**95**		80-120			

Date of Report: December 10, 2019
Samples Submitted: December 6, 2019
Laboratory Reference: 1912-049
Project: 0624.04.17

TOTAL ARSENIC
EPA 6020B
CONTINUING CALIBRATION SUMMARY

Analyte	Lab ID	True Value (ppb)	Calc. Value	Percent Difference	Control Limits
Arsenic	ICV120919X	50.0	51.7	-3.4	+/- 10%
Arsenic	LLV120919X	0.500	0.404	19.2	+/- 20%
Arsenic	CCV1120919X	40.0	39.1	2.3	+/- 10%
Arsenic	CCV2120919X	40.0	38.6	3.5	+/- 10%
Arsenic	CCV3120919X	40.0	38.6	3.5	+/- 10%
Arsenic	CCV4120919X	40.0	38.7	3.2	+/- 10%

Date of Report: December 10, 2019
Samples Submitted: December 6, 2019
Laboratory Reference: 1912-049
Project: 0624.04.17

% MOISTURE

Client ID	Lab ID	% Moisture	Date Analyzed
HA43-S-0.5	12-049-03	**37**	12-6-19
HA41-S-0.5	12-049-05	**42**	12-6-19
HA38-S-0.5	12-049-09	**38**	12-6-19
HA39-S-0.5	12-049-15	**42**	12-6-19
HA48-S-0.5	12-049-17	**39**	12-6-19
HA49-S-0.5	12-049-19	**37**	12-6-19
HA44-S-0.5	12-049-25	**37**	12-6-19
HA46-S-0.5	12-049-31	**25**	12-6-19

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

X1- Sample extract treated with a sulfuric acid/silica gel cleanup procedure.

Y - The calibration verification for this analyte exceeded the 20% drift specified in methods 8260 & 8270, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Chain of Custody

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: Maul Foster Alongi
Project Number: 0624.04.17
Project Name: Northern State Hospital
Project Manager: Carolyn Wise
Sampled by: Ananda Bixby & Sean Maloney

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☒ 3 Days
~~☒ Standard (7 Days)~~
☐ _____ (other)

Laboratory Number: 12-049

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A	*Arsenic by USEPA 6020				% Moisture
1	HA42-S-0.5	12/5/19	0825	S	1																		O				
2	HA42-S-1.0		0820																				O				
3	HA43-S-0.5		0840																				X				X
4	HA43-S-1.0		0835																				O				
5	HA41-S-0.5		0845																				X				X
6	HA41-S-1.0		0850																				O				
7	HA40-S-0.5		0855																				O				
8	HA40-S-1.0		0900																				O				
9	HA38-S-0.5		0915																				X				X
10	HA38-S-1.0	↓	0920	↓	↓																		O				

	Signature	Company	Date	Time
Relinquished	Ananda Bixby	MFA	12/5/19	1400
Received		OSE	12/6/19	1150
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions
*Arsenic RL must be below 7 ppm.
X = analyze.
O = on hold.

Data Package: Standard ☒ Level III ☐ Level IV ☐
Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☒

Chain of Custody

OnSite Environmental Inc.
Analytical Laboratory Testing Services
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Company: Maul Foster Alongi
Project Number: 0624.04.17
Project Name: Northern State Hospital
Project Manager: Carolyn Wise
Sampled by: Amanda Bixby & Sean Maloney

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☒ 3 Days
~~☒ Standard (7 Days)~~
☐ _____ (other)

Laboratory Number: 12-049

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A	*Arsenic by USEPA 6020				% Moisture
11	HA36-S-0.5	12/5/19	0917	S	1																		O				
12	HA36-S-1.0		0930																				O				
13	HA37-S-0.5		0940																				O				
14	HA37-S-1.0		0945																				O				
15	HA39-S-0.5		0942																				X				X
16	HA39-S-1.0		0950																				O				
17	HA48-S-0.5		1000																				X				X
18	HA48-S-1.0		1015																				O				
19	HA49-S-0.5		1005																				X				X
20	HA49-S-1.0		1010																				O				

	Signature	Company	Date	Time
Relinquished	Amanda Bixby	MFA	12/5/19	1400
Received		OSE	12/6/19	1150
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions
*Arsenic RL must be below 7 ppm
X = analyze.
O = on hold.

Data Package: Standard ☒ Level III ☐ Level IV ☐
Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☒

Chain of Custody

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Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☒ 3 Days
~~☒ Standard (7 Days)~~
☐ _____ (other)

Laboratory Number: 12-049

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A	*Arsenic by USEPA 6020				% Moisture
21	HA50-S-0.5	12/5/19	1012	S	1																		O				
22	HA50-S-1.0	↓	1020	↓	↓																		O				
23	HA51-S-0.5		1033																				O				
24	HA51-S-1.0		1035																				O				
25	HA44-S-0.5		1025																				X				X
26	HA44-S-1.0		1047																				O				
27	HA47-S-0.5		1100																				O				
28	HA47-S-1.0		1105																				O				
29	HA45-S-0.5		1126																				O				
30	HA45-S-1.0	↓	1124	↓	↓																		O				

	Signature	Company	Date	Time
Relinquished	[signature]	MFA	12/5/19	1400
Received	[signature]	OSE	12/6/19	1150
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions
*Arsenic RL must be below 7ppm.
X = analyze
O = on hold

Data Package: Standard ☒ Level III ☐ Level IV ☐
Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☒

Chain of Custody

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Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☒ 3 Days
☒ ~~Standard (7 Days)~~
☐ _____ (other)

Laboratory Number: 12-049

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A	* Arsenic by USEPA 6020				% Moisture
31	HA46-S-0.5	12/5/19	1130	S	1																		X				X
32	HA46-S-1.0	↓	1135	↓	↓																		O				

	Signature	Company	Date	Time
Relinquished		MFA	12/5/19	1400
Received		OSE	12/6/19	1150
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions
* Arsenic RL must be below 7 ppm.
X = analyze.
O = on hold.

Data Package: Standard ☒ Level III ☐ Level IV ☐
Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☒

Sample/Cooler Receipt and Acceptance Checklist

Client: MFA

Client Project Name/Number: 0624.04.17

OnSite Project Number: 12-049

Initiated by: MW

Date Initiated: 12/6/19

1.0 Cooler Verification

1.1 Were there custody seals on the outside of the cooler?	(Yes)	No	N/A	1 2 3 4
1.2 Were the custody seals intact?	(Yes)	No	N/A	1 2 3 4
1.3 Were the custody seals signed and dated by last custodian?	(Yes)	No	N/A	1 2 3 4
1.4 Were the samples delivered on ice or blue ice?	(Yes)	No		1 2 3 4
1.5 Were samples received between 0-6 degrees Celsius?	(Yes)	No	Temperature: 2	
1.6 Have shipping bills (if any) been attached to the back of this form?	(Yes)	N/A		
1.7 How were the samples delivered?	Client	Courier	(UPS/FedEx)	OSE Pickup Other

2.0 Chain of Custody Verification

2.1 Was a Chain of Custody submitted with the samples?	(Yes)	No	1 2 3 4
2.2 Was the COC legible and written in permanent ink?	(Yes)	No	1 2 3 4
2.3 Have samples been relinquished and accepted by each custodian?	(Yes)	No	1 2 3 4
2.4 Did the sample labels (ID, date, time, preservative) agree with COC?	(Yes)	No	1 2 3 4
2.5 Were all of the samples listed on the COC submitted?	(Yes)	No	1 2 3 4
2.6 Were any of the samples submitted omitted from the COC?	Yes	(No)	1 2 3 4

3.0 Sample Verification

3.1 Were any sample containers broken or compromised?	Yes	(No)		1 2 3 4
3.2 Were any sample labels missing or illegible?	Yes	(No)		1 2 3 4
3.3 Have the correct containers been used for each analysis requested?	(Yes)	No		1 2 3 4
3.4 Have the samples been correctly preserved?	Yes	No	(N/A)	1 2 3 4
3.5 Are volatiles samples free from headspace and bubbles greater than 6mm?	Yes	No	(N/A)	1 2 3 4
3.6 Is there sufficient sample submitted to perform requested analyses?	(Yes)	No		1 2 3 4
3.7 Have any holding times already expired or will expire in 24 hours?	Yes	(No)		1 2 3 4
3.8 Was method 5035A used?	Yes	No	(N/A)	1 2 3 4
3.9 If 5035A was used, which sampling option was used (#1, 2, or 3).	#		(N/A)	1 2 3 4

Explain any discrepancies:

1 - Discuss issue in Case Narrative

2 - Process Sample As-is

3 - Client contacted to discuss problem

4 - Sample cannot be analyzed or client does not wish to proceed

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

December 13, 2019

Carolyn Wise
Maul Foster & Alongi, Inc.
Bay Vista Tower
2815 2nd Avenue, Suite 540
Seattle, WA 98121

Re: Analytical Data for Project 0624.04.17
Laboratory Reference No. 1912-049B

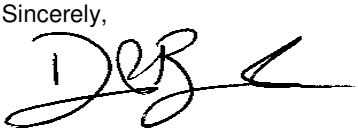
Dear Carolyn:

Enclosed are the analytical results and associated quality control data for samples submitted on December 6, 2019.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,



David Baumeister
Project Manager

Enclosures

Date of Report: December 13, 2019
Samples Submitted: December 6, 2019
Laboratory Reference: 1912-049B
Project: 0624.04.17

Case Narrative

Samples were collected on December 5, 2019 and received by the laboratory on December 6, 2019. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Date of Report: December 13, 2019
Samples Submitted: December 6, 2019
Laboratory Reference: 1912-049B
Project: 0624.04.17

TOTAL ARSENIC
EPA 6020B

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HA42-S-0.5**					
Laboratory ID:	12-049-01					
Arsenic	**17**	0.96	EPA 6020B	12-12-19	12-12-19	
Client ID:	**HA43-S-1.0**					
Laboratory ID:	12-049-04					
Arsenic	**37**	0.82	EPA 6020B	12-12-19	12-12-19	
Client ID:	**HA48-S-1.0**					
Laboratory ID:	12-049-18					
Arsenic	**60**	0.81	EPA 6020B	12-12-19	12-12-19	
Client ID:	**HA49-S-1.0**					
Laboratory ID:	12-049-20					
Arsenic	**29**	0.87	EPA 6020B	12-12-19	12-12-19	
Client ID:	**HA50-S-0.5**					
Laboratory ID:	12-049-21					
Arsenic	**33**	0.93	EPA 6020B	12-12-19	12-12-19	
Client ID:	**HA51-S-0.5**					
Laboratory ID:	12-049-23					
Arsenic	**19**	1.0	EPA 6020B	12-12-19	12-12-19	

Date of Report: December 13, 2019
Samples Submitted: December 6, 2019
Laboratory Reference: 1912-049B
Project: 0624.04.17

TOTAL ARSENIC
EPA 6020B
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1212SM1					
Arsenic	**ND**	0.63	EPA 6020B	12-12-19	12-12-19	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	12-086-06										
	ORIG	DUP									
Arsenic	**6.16**	**5.54**	NA	NA		NA		NA	11	20	
MATRIX SPIKES											
Laboratory ID:	12-082-06										
	MS	MSD	MS	MSD		MS	MSD				
Arsenic	**94.8**	**98.0**	100	100	6.16	**89**	**92**	75-125	3	20	
SPIKE BLANK											
Laboratory ID:	SB1212SM1										
Arsenic	**95.5**		100		N/A	**96**		80-120			

Date of Report: December 13, 2019
Samples Submitted: December 6, 2019
Laboratory Reference: 1912-049B
Project: 0624.04.17

TOTAL ARSENIC
EPA 6020B
CONTINUING CALIBRATION SUMMARY

Analyte	Lab ID	True Value (ppb)	Calc. Value	Percent Difference	Control Limits
Arsenic	ICV121219X	50.0	49.1	1.8	+/- 10%
Arsenic	LLV121219X	0.500	0.541	-8.2	+/- 20%
Arsenic	CCV1121219X	40.0	39.1	2.3	+/- 10%
Arsenic	CCV2121219X	40.0	40.3	-0.75	+/- 10%
Arsenic	CCV3121219X	40.0	39.2	2.0	+/- 10%
Arsenic	CCV4121219X	40.0	38.9	2.8	+/- 10%

Date of Report: December 13, 2019
Samples Submitted: December 6, 2019
Laboratory Reference: 1912-049B
Project: 0624.04.17

% MOISTURE

Client ID	Lab ID	% Moisture	Date Analyzed
HA42-S-0.5	12-049-01	**35**	12-12-19
HA43-S-1.0	12-049-04	**24**	12-12-19
HA48-S-1.0	12-049-18	**23**	12-12-19
HA49-S-1.0	12-049-20	**28**	12-12-19
HA50-S-0.5	12-049-21	**33**	12-12-19
HA51-S-0.5	12-049-23	**40**	12-12-19

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

X1- Sample extract treated with a sulfuric acid/silica gel cleanup procedure.

Y - The calibration verification for this analyte exceeded the 20% drift specified in methods 8260 & 8270, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Chain of Custody

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Analytical Laboratory Testing Services
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Phone: (425) 883-3881 • www.onsite-env.com

Company: Maul Foster Alongi
Project Number: 0624.04.17
Project Name: Northern State Hospital
Project Manager: Carolyn Wise
Sampled by: Amanda Bixby & Sean Maloney

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☒ 3 Days
~~☒ Standard (7 Days)~~
☐ _____ (other)

Laboratory Number: 12-049

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A	*Arsenic by USEPA 6020				% Moisture
1	HA42-S-0.5	12/5/19	0825	S	1																		⊗				⊗
2	HA42-S-1.0	↓	0820	↓	↓																		O				
3	HA43-S-0.5		0840																				X				X
4	HA43-S-1.0		0835																				⊗				⊗
5	HA41-S-0.5		0845																				X				X
6	HA41-S-1.0		0850																				O				
7	HA40-S-0.5		0855																				O				
8	HA40-S-1.0		0900																				O				
9	HA38-S-0.5		0915																				X				X
10	HA38-S-1.0	↓	0920	↓	↓																		O				

	Signature	Company	Date	Time
Relinquished	Amanda Bixby	MFA	12/5/19	1400
Received		OSE	12/6/19	1150
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions
*Arsenic RL must be below 7 ppm.
X = analyze.
O = on hold.
⊗ Added 12/10/19 ~~BG~~ 3 day TA

Data Package: Standard ☒ Level III ☐ Level IV ☐
Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☒

Chain of Custody

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: Maul Foster Alongi
Project Number: 0624.04.17
Project Name: Northern State Hospital
Project Manager: Carolyn Wise
Sampled by: Amanda Bixby & Sean Maloney

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☒ 3 Days
~~☒ Standard (7 Days)~~
☐ _____ (other)

Laboratory Number: 12-049

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A	Arsenic by USEPA 6020				% Moisture
11	HA36-S-0.5	12/5/19	0917	S	1																		O*				
12	HA36-S-1.0		0930																				O				
13	HA37-S-0.5		0940																				O				
14	HA37-S-1.0		0945																				O				
15	HA39-S-0.5		0942																				X				X
16	HA39-S-1.0		0950																				O				
17	HA48-S-0.5		1000																				X				X
18	HA48-S-1.0		1015																				⊗				⊗
19	HA49-S-0.5		1005																				X				X
20	HA49-S-1.0		1010																				⊗				⊗

	Signature	Company	Date	Time
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Relinquished				
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21	HA50-S-0.5	12/5/19	1012	S	1																		⊗				(X)
22	HA50-S-1.0		1020																				O				
23	HA51-S-0.5		1033																				⊗				(X)
24	HA51-S-1.0		1035																				O				
25	HA44-S-0.5		1025																				X				X
26	HA44-S-1.0		1047																				O				
27	HA47-S-0.5		1100																				O				
28	HA47-S-1.0		1105																				O				
29	HA45-S-0.5		1126																				O				
30	HA45-S-1.0	↓	1124	↓	↓																		O				

	Signature	Company	Date	Time
Relinquished	[signature]	MFA	12/5/19	1400
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Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☒ 3 Days
☒ ~~Standard (7 Days)~~
☐ _____ (other)

Laboratory Number: 12-049

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31	HA46-S-0.5	12/5/19	1130	S	1																		X				X
32	HA46-S-1.0	↓	1135	↓	↓																		O				

	Signature	Company	Date	Time
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Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☒

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

December 19, 2019

Carolyn Wise
Maul Foster & Alongi, Inc.
Bay Vista Tower
2815 2nd Avenue, Suite 540
Seattle, WA 98121

Re: Analytical Data for Project 0624.04.17
Laboratory Reference No. 1912-049C

Dear Carolyn:

Enclosed are the analytical results and associated quality control data for samples submitted on December 6, 2019.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: December 19, 2019
Samples Submitted: December 6, 2019
Laboratory Reference: 1912-049C
Project: 0624.04.17

Case Narrative

Samples were collected on December 5, 2019 and received by the laboratory on December 6, 2019. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Date of Report: December 19, 2019
Samples Submitted: December 6, 2019
Laboratory Reference: 1912-049C
Project: 0624.04.17

TOTAL ARSENIC
EPA 6020B

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**HA50-S-1.0**					
Laboratory ID:	12-049-22					
Arsenic	**13**	0.81	EPA 6020B	12-16-19	12-17-19	

Date of Report: December 19, 2019
Samples Submitted: December 6, 2019
Laboratory Reference: 1912-049C
Project: 0624.04.17

TOTAL ARSENIC
EPA 6020B
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1216SM2					
Arsenic	**ND**	0.63	EPA 6020B	12-16-19	12-17-19	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	12-102-12										
	ORIG	DUP									
Arsenic	**4.13**	**4.90**	NA	NA		NA		NA	17	20	
MATRIX SPIKES											
Laboratory ID:	12-102-12										
	MS	MSD	MS	MSD		MS	MSD				
Arsenic	**87.8**	**94.5**	100	100	4.13	**84**	**90**	75-125	7	20	
SPIKE BLANK											
Laboratory ID:	SB1216SM2										
Arsenic	**91.5**		100		N/A	**92**		80-120			

Date of Report: December 19, 2019
Samples Submitted: December 6, 2019
Laboratory Reference: 1912-049C
Project: 0624.04.17

TOTAL ARSENIC
EPA 6020B
CONTINUING CALIBRATION SUMMARY

Analyte	Lab ID	True Value (ppb)	Calc. Value	Percent Difference	Control Limits
Arsenic	ICV121719X	50.0	49.0	2.0	+/- 10%
Arsenic	LLV121719X	0.500	0.518	-3.6	+/- 20%
Arsenic	CCV1121719X	40.0	39.3	1.8	+/- 10%
Arsenic	CCV2121719X	40.0	42.4	-6.0	+/- 10%
Arsenic	CCV3121719X	40.0	40.0	0	+/- 10%
Arsenic	CCV4121719X	40.0	40.5	-1.3	+/- 10%
Arsenic	CCV5121719X	40.0	41.7	-4.3	+/- 10%

Date of Report: December 19, 2019
Samples Submitted: December 6, 2019
Laboratory Reference: 1912-049C
Project: 0624.04.17

% MOISTURE

Client ID	Lab ID	% Moisture	Date Analyzed
HA50-S-1.0	12-049-22	**23**	12-16-19

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

X1- Sample extract treated with a sulfuric acid/silica gel cleanup procedure.

Y - The calibration verification for this analyte exceeded the 20% drift specified in methods 8260 & 8270, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Chain of Custody

Page 1 of 4

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Company: Maul Foster Alongi
Project Number: 0624.04.17
Project Name: Northern State Hospital
Project Manager: Carolyn Wise
Sampled by: Amanda Bixby & Sean Maloney

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☒ 3 Days
☒ ~~Standard (7 Days)~~
☐ _____ (other)

Laboratory Number: 12-049

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A	*Arsenic by USEPA 6020				% Moisture
1	HA42-S-0.5	12/5/19	0825	S	1																		⊗				(X)
2	HA42-S-1.0		0820																				O				
3	HA43-S-0.5		0840																				X				X
4	HA43-S-1.0		0835																				⊗				(X)
5	HA41-S-0.5		0845																				X				X
6	HA41-S-1.0		0850																				O				
7	HA40-S-0.5		0855																				O				
8	HA40-S-1.0		0900																				O				
9	HA38-S-0.5		0915																				X				X
10	HA38-S-1.0	↓	0920	↓	↓																		O				

	Signature	Company	Date	Time
Relinquished	Amanda Bixby	MFA	12/5/19	1400
Received		OSE	12/6/19	1150
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions

*Arsenic RL must be below 7 ppm.
X = analyze.
O = on hold.
(X) Added 12/10/19 ~~BG~~ 3 day TA
● Added 12/16/19. DB (3 day TAT)

Data Package: Standard ☒ Level III ☐ Level IV ☐

Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☒

Chain of Custody

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13	HA37-S-0.5		0940																				O				
14	HA37-S-1.0		0945																				O				
15	HA39-S-0.5		0942																				X				X
16	HA39-S-1.0		0950																				O				
17	HA48-S-0.5		1000																				X				X
18	HA48-S-1.0		1015																				⊗				⊗
19	HA49-S-0.5		1005																				X				X
20	HA49-S-1.0		1010																				⊗				⊗

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22	HA50-S-1.0	↓	1020	↓	↓																		●				●
23	HA51-S-0.5		1033																				⊗				(X)
24	HA51-S-1.0		1035																				0				
25	HA44-S-0.5		1025																				X				X
26	HA44-S-1.0		1047																				0				
27	HA47-S-0.5		1100																				0				
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30	HA45-S-1.0	↓	1124	↓	↓																		0				

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32	HA46-S-1.0	↓	1135	↓	↓																		O				

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Sample/Cooler Receipt and Acceptance Checklist

Client: MFA

Client Project Name/Number: 0624.04.17

OnSite Project Number: 12-049

Initiated by: MV

Date Initiated: 12/6/19

1.0 Cooler Verification

1.1 Were there custody seals on the outside of the cooler?	(Yes)	No	N/A	1 2 3 4
1.2 Were the custody seals intact?	(Yes)	No	N/A	1 2 3 4
1.3 Were the custody seals signed and dated by last custodian?	(Yes)	No	N/A	1 2 3 4
1.4 Were the samples delivered on ice or blue ice?	(Yes)	No		1 2 3 4
1.5 Were samples received between 0-6 degrees Celsius?	(Yes)	No	Temperature: 2	
1.6 Have shipping bills (if any) been attached to the back of this form?	(Yes)	N/A		
1.7 How were the samples delivered?	Client	Courier	(UPS/FedEx)	OSE Pickup Other

2.0 Chain of Custody Verification

2.1 Was a Chain of Custody submitted with the samples?	(Yes)	No	1 2 3 4
2.2 Was the COC legible and written in permanent ink?	(Yes)	No	1 2 3 4
2.3 Have samples been relinquished and accepted by each custodian?	(Yes)	No	1 2 3 4
2.4 Did the sample labels (ID, date, time, preservative) agree with COC?	(Yes)	No	1 2 3 4
2.5 Were all of the samples listed on the COC submitted?	(Yes)	No	1 2 3 4
2.6 Were any of the samples submitted omitted from the COC?	Yes	(No)	1 2 3 4

3.0 Sample Verification

3.1 Were any sample containers broken or compromised?	Yes	(No)		1 2 3 4
3.2 Were any sample labels missing or illegible?	Yes	(No)		1 2 3 4
3.3 Have the correct containers been used for each analysis requested?	(Yes)	No		1 2 3 4
3.4 Have the samples been correctly preserved?	Yes	No	(N/A)	1 2 3 4
3.5 Are volatiles samples free from headspace and bubbles greater than 6mm?	Yes	No	(N/A)	1 2 3 4
3.6 Is there sufficient sample submitted to perform requested analyses?	(Yes)	No		1 2 3 4
3.7 Have any holding times already expired or will expire in 24 hours?	Yes	(No)		1 2 3 4
3.8 Was method 5035A used?	Yes	No	(N/A)	1 2 3 4
3.9 If 5035A was used, which sampling option was used (#1, 2, or 3).	#		(N/A)	1 2 3 4

Explain any discrepancies:

1 - Discuss issue in Case Narrative

2 - Process Sample As-is

3 - Client contacted to discuss problem

4 - Sample cannot be analyzed or client does not wish to proceed

APPENDIX E

INADVERTENT DISCOVERY PLAN

INADVERTENT DISCOVERY PLAN

April 2020

PLAN AND PROCEDURES FOR THE UNANTICIPATED DISCOVERY OF CULTURAL RESOURCES AND HUMAN SKELETAL REMAINS

Project Title: **Investigation and Cleanup, Northern State Multi Service Center**
Project Proponent: **Maul Foster & Alongi, Inc. on behalf of the Port of Skagit**
Remedial Action Grant Agreement No.: **TCPRA-1921-SkagiCp-00077**
County: **Skagit**
Address: **2070 Northern State Road, Sedro-Woolley, WA**
Section **08**, Township **35N**, Range **5E**

1. INTRODUCTION

This Inadvertent Discovery Plan (IDP) outlines procedures to perform in the event of discovering cultural resources or human remains, in accordance with Washington State preservation laws. These laws concern historic preservation, archaeology, human remains and cemeteries.

2. RECOGNIZING CULTURAL RESOURCES

A cultural resource discovery could be prehistoric or historic. Examples include:

a. An accumulation of shell, burned rocks, or other food related materials.
b. Bones or small pieces of bone.
c. An area of charcoal or very dark stained soil with artifacts.
d. Stone tools or waste flakes (i.e. an arrowhead. or stone chips).
e. Clusters of tin cans or bottles, logging or agricultural equipment that appears to be older than 50 years.
f. Buried railroad tracks, decking, or other industrial materials.

When in doubt, assume the material is a cultural resource. See cultural resource images in Appendix A.

3. ON-SITE RESPONSIBILITIES

STEP 1: *Stop Work.* If any employee, contractor or subcontractor believes that he or she has discovered a cultural resource, leave it in place and stop work in the area (about a 100 foot radius). Notify the appropriate party(s). Do not allow vehicles, equipment, and unauthorized personnel to traverse the discovery area. Delineate and secure the area to protect the integrity of the discovery.

Upon encountering cultural resources within a boring, discontinue all further work within that boring.

STEP 2: *Notify Archaeological Monitor or Licensed Archaeologist.* If there is an Archaeological Monitor for the project, notify that person. If there is a monitoring plan in place, the monitor will follow the outlined procedure.

Licensed Archaeologist for Project: Garth L. Baldwin, M.A., RPA 16248 (360) 739-3921 garth@draytonarchaeology.com	

STEP 3: *Notify the Project Manager* of this project and contact the Ecology Staff Project Manager, or other applicable contacts:

Project Manager: Carolyn Wise (360) 594-6255 cwise@maulfoster.com	Assigned Project Manager Alternate: Phil Wiescher (503) 594-6267 pwiescher@maulfoster.com

The Project Manager or alternate will make all calls and necessary notifications.

If human skeletal remains are encountered, treat them with dignity and respect at all times. Cover the remains with a tarp or other materials (not soil or rocks) for temporary protection and to shield them from being photographed. **Do not call 911 or speak with the media. Do not take pictures. Follow the procedure described in Section 5.**

4. PROJECT MANAGER RESPONSIBILITIES UPON DISCOVERY OF POTENTIAL CULTURAL RESOURCES

a. *Protect Potential Find*: Ensure no work occurs within the discovery area (about a 100-foot radius around potential find) delineate and secure the discovery area to protect the integrity of the discovery. 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 archaeological/cultural material as set forth in this document.

b. *Direct Sampling/Construction Activities Elsewhere*: Direct sampling/construction activities away from the discovery area prior to contacting the concerned parties.

c. *Contact the Department of Ecology*: Maintain regular communications until treatment of the discovery is completed as set forth in this IDP:

Department of Ecology (Ecology) Contacts:

Project Manager Tena Seeds, P.E. (425) 649-7008 tena.seeds@ecy.wa.gov	Cultural Resource Specialist Donna Podger (360) 407-7016 donna.podger@ecy.wa.gov

d. *Provide Archaeological Examination*: Ensure that a qualified professional archaeologist examines the find. If the archaeologist determines that the find:
   - Is not archaeological or historical material, or human remains/funerary objects; work may proceed with no further delay.
   - Is archaeological or historical material; contact the Washington Department of Archaeology and Historic Preservation (DAHP), affected Tribes, and involved federal agencies (if any). See contacts below. Document discoveries as described in Section 6.
   - May be human remains or funerary objects, ensure that a qualified physical anthropologist examines the find. **If it is determined to be human remains, follow the procedure described in Section 5.**

e. *Protect Confirmed Find*: The archaeologist may refine the boundaries of the cultural resource discovery area. Do not work in this designated area until treatment of the discovery is completed, following the procedures set forth in this IDP.

DAHP Contacts:

Allyson Brooks, Ph.D. State Historic Preservation Officer 360-586-3066 allyson.brooks@dahp.wa.gov	Rob Whitlam, Ph.D. State Archaeologist Office: 360-586-3080 Cell: 360-890-2615 rob.whitlam@dahp.wa.gov
Alternate: Rob Whitlam, Ph.D. State Archaeologist Office: 360-586-3080 Cell: 360-890-2615 rob.whitlam@dahp.wa.gov	Alternate: Lance Wollwage, Ph.D. Assistant State Archaeologist Office: 360-586-3536 Cell: 360-890-2616 lance.wollwage@dahp.wa.gov

Tribal Contacts:

Lummi Nation Lena Tso, THPO Cultural Resources (360) 312-2257 lenat@lummi-nsn.gov	Samish Indian Nation Jackie Ferry, Cultural Resources (360) 293-6404 x215 jferry@samishtribe.nsn.us
Sauk-Suiattle Indian Tribe Alex Frey, Cultural Resources (360) 436-0333 afrey@sauk-suittle.com	Snoqualmie Indian Tribe Steve Mullen-Moses, Director (425) 292-0249 x2010 steve@snoqualmietribe.us Adam Osbekoff, Assistant Director adam@snoqualmietribe.us

Stillaguamish Tribe of Indians Kerry Lyste, THPO Cultural Resources (360) 652-7362 x226 klyste@stillaguamish.com	Swinomish Indian Tribal Community Larry Campbell, THPO (360) 466-7352 lcampbell@swinomish.nsn.us
Tulalip Tribes Richard Young, Cultural Resources (360) 716-2652 ryoung@tulaliptribes-nsn.gov	Upper Skagit Tribe Scott Schuyler, Cultural Resources (360) 854-7009 sschuyler@upperskagit.com
Confederated Tribes and Bands of the Yakama Nation Kate Valdez, THPO (509) 985-7596 kate@yakama.com	

5. SPECIAL PROCEDURES FOR THE DISCOVERY OF HUMAN SKELETAL REMAINS

If human skeletal remains are encountered, cease all work that may cause further disturbance to the remains, and secure and protect the discovery area. Any human skeletal remains, regardless of antiquity or ethnic origin, will at all times be treated with dignity and respect. Do not touch, move, or further disturb the remains and do not take photographs by any means, unless you are pre-approved to do so.

If the project occurs on federal lands or receives federal funding (e.g., national forest or park, military reservation) the provisions of the Native American Graves Protection and Repatriation Act of 1990 apply, and the responsible federal agency will follow its provisions. Note that state highways that cross federal lands are on an easement and are not owned by the state.

If the project occurs on non-federal lands, the Project Manager will comply with applicable state and federal laws, and the following procedure.

Project Manager: immediately call the Skagit County Medical Examiner's Office and the Sedro-Woolley Police Department:

Skagit County Medical Examiner 124 West Gates Street Mount Vernon, WA 98273 (360) 336-9431	Sedro-Woolley Police Department 325 Metcalf Street Sedro-Woolley, WA 98284 (360) 855-0111 or (360) 428-3211 (after business hours)

The medical examiner and law enforcement personnel will determine if the remains are human and whether the discovery site constitutes a crime scene. If the remains constitute a crime scene (forensic), the medical examiner will retain jurisdiction. If they do not constitute a crime scene (non-forensic), the medical examiner will notify DAHP.

DAHP will have jurisdiction over non-forensic remains until provenance of the remains is established.

Sampling/construction in the discovery area may resume only as directed by the medical examiner/law enforcement personnel for forensic remains and by DAHP for non-forensic remains.

6. DOCUMENTATION OF CULTURAL RESOURCES

The Project Manager will ensure the proper documentation and field assessment of any discovered cultural resources in cooperation with all parties: DAHP, Ecology, affected tribes, and a contracted consultant (if any).

All prehistoric and historic cultural material discovered during sampling will be recorded by a professional archaeologist on a cultural resource site or isolate form using standard and approved techniques. Site overviews, features, and artifacts will be photographed; stratigraphic profiles and soil/sediment descriptions will be prepared for minimal subsurface exposures. Discovery locations will be documented on scaled site plans and site location maps.

Cultural features, horizons and artifacts detected in buried sediments may require further evaluation using hand-dug test units. Units may be dug in controlled fashion to expose features, collect samples from undisturbed contexts, or to interpret complex stratigraphy. A test excavation unit or small trench might also be used to determine if an intact occupation surface is present. Test units will be used only when necessary to gather information on the nature, extent, and integrity of subsurface cultural deposits to evaluate the site's significance. Excavations will be conducted using state-of-the-art techniques for controlling provenience, and the chronology of ownership, custody and location recorded with precision.

Spatial information, depth of excavation levels, natural and cultural stratigraphy, presence or absence of cultural material, and depth to sterile soil, regolith, or bedrock will be recorded for each probe on a standard form. Test excavation units will be recorded on unit-level forms, which include plan maps for each excavated level, and material type, number, and vertical provenience (depth below surface and stratum association where applicable) for all artifacts recovered from the level. A stratigraphic profile will be drawn for at least one wall of each test excavation unit.

Sediments excavated for purposes of cultural resources investigation will be screened through 1/8-inch mesh, unless soil conditions warrant ¼-inch mesh.

All prehistoric and historic artifacts collected from the surface and from probes and excavation units will be analyzed, catalogued, and temporarily curated. Ultimate disposition of cultural materials will be determined in consultation with the federal agencies (if any), DAHP, Ecology and the affected tribes.

If field assessment work exposes human skeletal remains, the process described in Section 5 will be followed.

Within 30 days of concluding fieldwork, the Project Manager will provide a technical report summarizing the work and findings of the professional archaeologist to Ecology, the federal agencies (if any), DAHP, and the affected tribes.

7. PROCEEDING WITH WORK

Work outside the designated discovery area may continue while documentation and assessment of the discovery proceeds. A professional archaeologist must determine the boundaries of the discovery location.

Work inside the discovery area may resume only after treatment of the discovery is completed in accordance with this IDP, and with the concurrence of the Project Manager, DAHP, affected tribes, federal agencies (if any), and Ecology. For forensic human remains, the county examiner and law enforcement personnel must concur with resumption of work.

8. IDP AVAILABILITY AND USE

The IDP must be immediately available on-site, be implemented to address any discovery, and be available by request by any party. The IDP must be discussed and reviewed with all personnel performing fieldwork in advance of commencing fieldwork.

APPENDIX A
Cultural Resource Images

Print images in color for accuracy.

Implement the IDP if…

You see chipped stone artifacts.

- Glass-like material
- Angular
- “Unusual” material for area
- “Unusual” shape
- Regularity of flaking
- Variability of size

Implement the IDP if…

You see ground or pecked stone artifacts.

- Striations or scratching
- Unusual or unnatural shapes
- Unusual stone
- Etching
- Perforations
- Pecking
- Regularity in modifications
- Variability of size, function, and complexity

Implement the IDP if…

You see bone or shell artifacts.

- Often pointed if used as a tool
- Often wedge shaped like a “shoe horn”
- Often smooth
- Unusual shape
- Carved

Bone Awls from Oregon and Bone Wedge from California

Implement the IDP if…

You see bone or shell artifacts.

- Often smooth
- Unusual shape
- Perforated
- Variability of size

Tooth Pendant and Bone Pendants from Oregon and Washington

Implement the IDP if…

You see fiber or wood artifacts.

- Wet environments needed for preservation
- Variability of size, function, and complexity
- Rare

Artifacts from Mud Bay, Olympia, Washington

Implement the IDP if…

You see historic period artifacts.

Artifacts from Downtown Seattle, Alaskan Way Viaduct (Upper Left and Lower) and Unknown Site (Upper Right)

Implement the IDP if…

You see strange, different or interesting looking dirt, rocks, or

- Human activities leave traces in the ground that may or may not have artifacts associated with them
- “Unusual” accumulations of rock (especially fire-cracked rock)
- “Unusual” shaped accumulations of rock (e.g., similar to a fire ring)
- Charcoal or charcoal-stained soils
- Oxidized or burnt-looking soils
- Accumulations of shell
- Accumulations of bones or artifacts
- Look for the “unusual” or out of place (e.g., rock piles or accumulations in areas with few rock)

Unknown Sites

Implement the IDP if…

You see strange, different or interesting looking dirt, rocks, or

- "Unusual" accumulations of rock (especially fire-cracked rock)
- "Unusual" shaped accumulations of rock (e.g., similar to a fire ring)
- Look for the "unusual" or out of place (e.g., rock piles or accumulations in areas with few rock)

Site on Muckleshoot Indian Reservation, near WSDOT ROW along SR 164

Implement the IDP if…

You see strange, different or interesting looking dirt, rocks, or

- Often have a layered or “layer cake” appearance
- Often associated with black or blackish soil
- Often have very crushed and compacted shells

Site located within WSDOT ROW near Anacortes Ferry Terminal

Implement the IDP if…

You see historic foundations or buried structures.

45KI924, In WSDOT ROW for SR 99 Tunnel