Site Investigation Work Plan
Croman Mill Property
146 Mistletoe Road
Ashland, Oregon
Oregon DEQ ECSI No. 535

Dwain and Bud, LLC
801 Avenue C
White City, OR 97503-1082
541-826-4455

SCS ENGINEERS

04222021.00 | July 15, 2022

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1.0 INTRODUCTION AND PURPOSE

On behalf of Dwain and Bud LLC, SCS Engineers has prepared this Site Investigation (SI) work plan to investigate the nature and extent of potential environmental impacts from former mill operations at 146 Mistletoe Road in Ashland, Oregon (Site, Figure 1.1 and 1.2). The current property owners have applied for the Voluntary Cleanup Program (VCP) with the Oregon Department of Environmental Quality (DEQ) on March 31, 2022, for the purpose of determining if there are environmental impacts to the Site from former mill activities, and if necessary, remediate, so that they can obtain a no-further action (NFA) determination and redevelop the property. Future plans for the Site are redevelopment for mixed commercial and residential use.

A Phase I Environmental Site Assessment (ESA) for the Site was completed November 2021 by Rogue Environmental Consulting, LLC (Rogue Environmental) for Cinnabar Growth Capital[1] and is the foundation of this work plan.

1.1 BACKGROUND

This Site is listed on the Oregon DEQ ECSI data base (File # 535) as "contamination suspected" based on historical operations and a site inspection conducted by DEQ in 1987. During the inspection, DEQ collected one surface soil sample from an area where anti-sapstain chemicals were applied to finished lumber. The soil sample was analyzed and results indicated pentachlorophenol (PCP) and 2,3,4,6-trichlorophenol (TCP) detected in the soil at 210 milligrams per kilogram (mg/Kg) and 240 mg/Kg, respectively. The file had no documentation of the location for this soil sample. According to the DEQ file, the wood-treatment process was later closed and removed and then a building and pavement covered the area.

1.2 SITE LOCATION

The Site is located on the east side of Mistletoe Road, north of Siskiyou Boulevard (Oregon State Highway 99) and west of the Central Oregon and Pacific Railroad (Figure 1-1 and 1-2). The approximately 60-acre former mill property is presently inactive/unoccupied. The ongoing, preliminary, property reclamation activities include building demolition and removal and processing of fill and wood waste materials. Wood and rock are separated out and repurposed while metal is recycled and waste is disposed of off-property.

The property currently is composed of nine tax lots, of which, all but one is zoned for Office/Industrial/Mixed Use and open spaces by the City of Ashland (City). The most southern tax lot (391E14D 900) is zoned rural residential (RR-5) use by Jackson County but within Ashland's Urban Growth Boundary, although it hasn't been annexed into the city as of yet. This southernmost property is not included in this investigation since it has been rural residential for its entire history.

1.3 DATA QUALITY OBJECTIVES

The purpose of this investigation is to characterize the nature and extent of contamination, if present, associated with former mill operations, in soil, groundwater, surface water and sediments. The data collected during this investigation will be compared to applicable State and Federal cleanup

[1] Rogue Environmental Consulting, LLC, 2021. Phase I Environmental Site Assessment Report: 146 Mistletoe Road, Ashland, Oregon, 97520, for Cinnabar Growth Capital, Inc. November 10.

standards for risk evaluation purposes. The goal of this site investigation is to provide DEQ, the City and local community the data to evaluate potential environmental risks and exposure pathways to receptors at the Site, given the proposed office/industrial/mixed use redevelopment plans for the site.

During the risk evaluation process, concentrations of chemicals are compared to risk-based screening criteria. The analytical results that exceed an applicable screening value for a complete exposure pathway will be reviewed for possible remediation activities (e.g., excavation vs. in-situ treatment) or through management practices (e.g. buildings providing a cap over contaminated media).

2.0 HISTORICAL SITE USE AND ENVIRONMENTAL HISTORY

The Phase I ESA report is the source of the following site history and environmental information regarding the Site.

2.1 SITE HISTORY

According to various documents reviewed for the Phase I ESA report, Mistletoe Planing Mill acquired the property in 1934 and opened up the Henry Lumber Company of Lincoln, Oregon. The mill burned down in 1944, but was rebuilt and continued operations. In 1963 the McGrew Brothers purchased the mill facility and subsequently sold it to the Croman Corporation in 1983. Portions of the property were also owned by the City of Ashland prior to 1988. According to a newspaper article in the Statesman Journal, the mill ceased operation and closed in 1995. The southernmost property (tax lot 900) was rural residential throughout that time. Structures on tax lot 900 were removed in 2019 and has been vacant since that time.

In 1939, an aerial photo shows most of the Site as open land, with an access road oriented north-south through the middle of the property. An orchard is visible on the east central portion of the property while the southernmost lot appears to be residential with three small structures.

By 1951, aerial photography shows all but the southernmost lot as occupied by a lumber mill. Most of the buildings are located near the east central portion of the property with the remaining property used to store logs or finished milled products.

The 1953 aerial photograph shows the addition of two wood waste burners (also known as wigwam or wood waste burners) present near the eastern property boundary: one to the south near the railroad spur and one in the east central portion of the site. The 1994 aerial photograph shows these burners as no longer present.

By 2000, aerial photography indicates that mill activities have ceased. Most buildings are still present but wood piles have been removed. The 2016 aerial photograph indicates that most buildings have been removed, with just foundations visible.

Remedial activities have included building demolition and processing/recycling of other onsite materials since approximately 2011. Wood wastes and other wastes associated with the property are being excavated and screened into the following categories: wood waste, soil, rock, metals waste and trash. The trash and metal materials are stockpiled on paved areas of the site and eventually taken off-site for either disposal or to a recycling center. Reportedly, the wood waste is tested and then added to other materials to make an organic mulch. Rock is stockpiled and sold. Onsite equipment includes loaders, excavators, crushers, and sorters.

2.2 ENVIRONMENTAL HISTORY

The Site is listed on several state and federal databases:

- The Site, identified as Croman Corp. Lumber, reported a petroleum release in 1989 (Leaking Underground Storage Tank [LUST} 15-89-0053) during the decommissioning and removal of four underground storage tanks (USTs) including two 10,000-gallon diesel USTs installed in 1967; one 1,000-gallon waste oil UST installed in 1981; and one 10,000-gallon gasoline UST installed in 1959. Contaminated soil was excavated until confirmation soil samples achieved "Level 1" cleanup standards in place at the time. Groundwater was not encountered in the excavations. Excavated soils were aerated onsite. Oregon DEQ closed the file without issuing a formal NFA letter.
- An additional 1,010-gallon gasoline UST was decommissioned by removal in December 2000. Two soil samples collected at the bottom of the excavation were non-detect for petroleum hydrocarbons. Run-off water that entered the excavation reportedly had a sheen that was later traced back to contaminated soils around two diesel ASTs located immediately adjacent to the tank excavation. The run-off from the adjacent contaminated area discharged to a nearby catch basin which appeared to have fuel staining and absorbent booms. As a result, a release from this 1,010-gallon UST was not reported.
- As stated above, the Site was listed on the Oregon ECSI database as an active cleanup and Brownfields site with a status of "Contamination Suspected". This listing appears to apply to just tax lots 1000 and 1100 and is associated with wood preservative chemicals (PCP and TCP) found in one soil sample collected by DEQ during a hazardous waste audit in 1987. Although the DEQ files indicate that the concentrations were "lower than would require closure under RCRA", the file is still open.
- Other environmental listings were due to generating and processing hazardous waste associated with the operating mill. Those wastes have since been removed from the property.

2.3 SITE GEOLOGY

Site surficial geology is mapped as Quaternary alluvial fan debris and colluvium including gravel, sand, silt, clay and woody debris on top of shallow to moderately steep slopes (Wiley, et. al, 2011). Some bedrock has been encountered during reclamation activities and has consisted of decomposed granite.

Site soils are mapped by the United States Agricultural Service (USDA) Natural Resources Conservation Service (NRCS) is predominantly Kubli loam (99.7%). The Kubli series consists of deep, somewhat poorly drained soils that formed in alluvium from weathered granitic materials over older clayey alluvium. They are formed on stream terraces and have slopes of 3 to 7 percent.

2.4 SITE HYDROGEOLOGY

Based on a letter dated January 22, 1990 from the Croman Corporation to the DEQ regarding cleanup of contaminated soils following the 1989 UST decommissioning, it appears that shallow groundwater is at a depth of approximately 25 feet below ground surface (bgs). According to topographic map interpretation, shallow groundwater in the vicinity of the subject property is inferred to flow toward the north. However, nearby streams, lakes, wells, or wetlands may locally affect the

flow direction of groundwater. The specific groundwater depth and flow direction for the Site was not determined through direct measurement during the 2021 Phase I ESA.

Well logs for water supply wells at the subject and adjacent properties obtained from the Oregon Water Resources Department indicate the depth to first water of 71 to 395 feet bgs. According to the well log on file with the state, the onsite water well was installed in 1992 and drilled to a total depth of 310 feet. It was screened from 110 to 310 feet and the static water level at the time of installation was 58 feet bgs. The drillers log indicates gravel, clay and boulders down to approximately 35 feet, where a green sandstone was encountered. Groundwater was encountered at 141 feet bgs, initially, in a fractured shale/sandstone formation.

2.5 PHASE I ENVIRONMENTAL SITE ASSESSMENT (2021)

Rogue Environmental identified the following recognized environmental conditions (RECs) at the Site in their November 2021 Phase I ESA:

- Review of the regulatory records indicates there is an open ECSI file (ECSI File No. 535) for the Site (Tax lots 1000 and 1100) for wood treatment chemicals (PCP and TCP) found in a soil sample collected by the DEQ during a hazardous waste audit in 1987. Although the DEQ stated that the concentrations of PCP and TCP were "lower than would require closure under RCRA", the file is still open and an NFA has not been granted for this Site. Based on this open ECSI file with the DEQ, this represents a REC for the Site.
- One or more wood waste burners were formerly utilized by the mill to incinerate bark, wood waste, and potentially other materials. These burners were commonly used at various mills across the Pacific Northwest but were banned in the 1970s. Because these burners were often used to burn items other than wood waste, they are the primary source of dioxin contamination at lumber mills. Dioxin-related compounds can accumulate in the surface soils and the area immediately around the burner. These compounds are found as a result of burning of PCP or other chemicals either as treated wood or as a way to dispose of excess chemicals.

  Following completion of the Phase I ESA, an oblique site photo taken during the 1950s showed two wood waste burners visible. One near the railroad spur and another one further north. It also appears there may have been yet a third wood waste burner, but it is unclear based on examination of the oblique photograph if it is on the Site or the neighboring property to the north. The former wood waste burners at the site used to incinerate raw wood as well as other materials, including possible chemicals, represents a REC for the Site.
- Previous site inspections by DEQ in 2014 and a Phase I ESA in 2012 identified poor material handling practices and the following issues: leaking drums, leaking transformers, and above ground storage tank (AST) spillage near the maintenance shop, truck shop, and veneer mill. These spills were not visible during the 2021 Phase I ESA, likely due to the passage of time and disturbance of the site during building demolition and site cleanup. Because these spills and releases were previously documented and no evidence or documentation of their cleanup observed, they represent a REC for the Site.
- Based on the long history of lumber mill operations on the site, it is likely that there are areas in which soil or groundwater are potentially impacted. It is apparent that large portions of the property were used to landfill wood waste and other trash. During the 2021 site reconnaissance, several corroded 55-gallon drums, equipment parts, large vehicle parts, etc. were noted in the reclamation piles. This suggests similar material may

be present in the remaining waste piles in areas that have yet to be reclaimed and scraped down to native soil and therefore represent a REC for the Site.

Rogue also identified an historic REC (HREC) for the property:

- The subject property formerly used USTs for fuel storage. Petroleum impacts were observed and reported to the DEQ in 1989 during decommissioning of four USTs. Approximately 11,850 cubic yards of impacted soils were removed and remediated onsite through aeration. An undated staff memo to the file indicated that the LUST site was remediated to the satisfaction of the DEQ and cleanup standards at the time. These USTs were eventually replaced with ASTs which were located next to the fuel shed, the maintenance shop and truck shop. One of the USTs was replaced with another (gasoline) UST west of the fuel shed. This UST was decommissioned by removal in 2000 with no leaks or releases reported. Because the former USTs were removed and the area remediated to the satisfaction of the DEQ, these former USTs represent an HREC for the Site.

Based on the RECs and HRECs listed above, Rogue Environmental made the following recommendations for the Site:

- Sign up for the VCP program and work with DEQ to determine what assessment and cleanup would be necessary to receive an NFA for the issue that is listed in ECSI File No. 535.
- Conduct a comprehensive SI on other portions of the property not covered under the ECSI file to determine if there are impacts from historic milling activities to soil and groundwater. This should include testing soils for dioxins, petroleum hydrocarbons, PCBs and metals. Results should be compared to DEQ's risk-based concentrations (RBCs) for future potential land uses (residential, commercial or industrial) and land disturbance scenarios (excavation or construction working exposures). Due to ongoing Site reclamation activities, some areas may not be accessible (e.g., covered with piles of demolition materials) and may need to be explored once activities are completed, i.e., the investigation may need to be done in phases as areas become available.

2.6 CONTAMINANTS AND AREAS OF CONCERN

Based on the information presented in the Phase I ESA and limited data from a soil sample collected by DEQ, the following are defined as Areas of Concern (AOC) in terms of potential environmental impacts to the Site (Figure 1-2). Also included for each AOC is a list of Potential Contaminants of Concern (PCOC).

- **Wood treatment area** was located near the north end of the Green Chain, in the south-central part of the Site. This area was reportedly impacted with PCP and TCP according to DEQ documentation of soil sampling that occurred in 1987. There is no documentation of the location of the soil sample. According to people knowledgeable of past site operations, wood was treated with anti-sapstain chemicals by dipping them in a tank measuring 8 feet wide and 20 feet long. Shallow soils in this area could possibly be impacted with petroleum hydrocarbons, semi-volatile organic compounds (SVOCs including PCP and TCP), dioxins and furans, and metals.
- **Wood Waste Burners (two)** were located near the eastern property boundary, as identified through both oblique and aerial photographs. Although wood and wood waste were typically burned in such burners, other waste or treated wood products could also

be burned. Thus, shallow soils in the footprint of the two wood burners could contain petroleum hydrocarbons, polyaromatic hydrocarbons (PAHs), dioxins, furans and metals.

- **Veneer Mill,** located near the southwest corner of the Site, was reportedly where an AST, drums, and a former transformer were located on the east side of the building. Mercury vapor lamp ballasts were observed to be stored on the south side of the building. Shallow soils within 5 to 15 feet along the east side of the building may be impacted by the following PCOCs: petroleum hydrocarbons, volatile organic compounds (VOCs), PAHs, polychlorinated biphenyls (PCBs), and metals. The south side of the building may contain PCBs and/or mercury in shallow soils.

- **Pond**, located east of the north gate, received runoff from mostly paved areas on the north end of the Site during the most recent history. It is unknown when areas were paved or what drained to the pond historically. Since the pond appears (e.g., via aerial photos) to have been present throughout most of the mill history, it has potentially received runoff and/or items may have being dumped into it. PCOCs include petroleum hydrocarbons, PAHs, PCBs, metals and VOCs. If dioxins and furans are detected in other parts of the site, these may also be present in the pond sediments.

  Truck and Maintenance shop is located just west of the Green Chain, and was where vehicle, truck and equipment repair occurred. This was an area also noted for storage of drums, ASTs, as well as the typical oils, greases and solvents found associated with engine repair. Although the buildings have been demolished, concrete foundations still exist. Shallow soils on the north and east sides of the buildings and/or concrete pavement may be impacted from leaks from stored items. PCOCs include petroleum hydrocarbons, VOCs, metals, PAHs, and PCBs.

- **Fuel Shed,** located east of the main gate, was formerly used for fueling onsite vehicles. Both USTs and ASTs were placed, used, and removed from the Site. A review of the closed LUST file for the site indicates that all closure soil samples had either no detections or petroleum hydrocarbons detected at concentrations below the most stringent soil matrix screening values at the time. These concentrations are also below current UST regulatory screening values. The file for the 2000 UST removal documents soil samples showing no detections of petroleum hydrocarbons. USTs were replaced with ASTs located within a concrete structure on the north side of the fuel shed. Since there is no evidence of impacts to the subsurface and all sources of petroleum hydrocarbons have been removed from the site, no further sampling is recommended in and around the fuel shed or UST excavations at this time.

  The contaminated soils removed from the excavation and aerated onsite was poorly documented in the DEQ file. There is no analytical information for those soils following aeration nor any indication where exactly they were placed, other than “in an open area on the north side of the plant, some distance away from our log decks and air-dry lumber yard” as stated in a letter in the DEQ file. This will be addressed with the issue described in the next item.

- **General landfilling of wood and other wastes**. According to a DEQ Solid Waste inspection report (May 1, 2015), there was an approximate 7-acre area of the Site in the “northeast” corner where there was landfilling of wood waste and other items, including tires, metals, trash and machinery. This area was excavated starting in 2012 and excavations reached native soils by 2015. All encountered waste was sorted and either disposed or recycled. The wood waste destined for re-use was tested for PCBs, chromium VI, petroleum hydrocarbons, pH, carbon to Nitrogen ratio, total nitrogen-potassium-

phosphorous and micro/macro elements, since it was being incorporated into a mulch product. No testing was done once reaching native soils to confirm possible contamination from the landfill did not migrate deeper into the native soils.

Based on aerial photos reviewed over several years, the landfill area appears to be the northern portion of the site. Since the northern portion of the site was 1) formerly used to landfill waste and 2) used to aerate petroleum contaminated soils, this is an area of concern. The trash, wood waste and cover soils have been removed from the northern portion of the Site, therefore the area to be investigated will be the native soil surface, to check for possible migration of contaminants to the subsurface. PCOCs include petroleum hydrocarbons, PAHs, metals, and PCBs.

3.0 LEVEL I ECOLOGICAL SCOPING ASSESSMENT

A scoping evaluation will be conducted for the Site to determine if ecological features and species are present, and to evaluate the potential for complete exposure pathways between receptors and site-related contaminants (DEQ, 2020a). The results of this evaluation will be included in the SI Report, along with supporting documentation. If an ecological risk assessment (ERA) is warranted, a Tier I assessment may be completed as part of the initial SI.

4.0 SITE INVESTIGATION ACTIVITIES

Based on the history of Site operations, most PCOCs are assumed to be at shallow soil depths, typically within 12 inches of surface. Shallow soils have been disturbed as part of ongoing reclamation activities (demolition and recycling materials). Due to the time since this was an active mill site (1995) and the substantial reclamation activities since that time, there is no evidence of surface impacts (i.e. staining) or buildings remaining to indicate area of impacts (some building foundations are present, indicating former building location). General areas of mill processes or former building locations will be determined through review of aerial photographs, location of foundations, and former employee's recollection.

Decision Units (DUs) are defined as a particular volume of sample media where a contaminant can be sampled and represented by a mean (ITRC, 2020). In most cases, these will be shallow soils (1 foot or less) where a list of PCOCs will be tested. Results of sampling and analytical testing will determine if the DU has elevated concentrations of PCOCs and, therefore, if the DU is a possible source of environmental impacts at the Site.

Most DUs will be sampled using Incremental Sampling Methodology (ISM). ISM entails collecting subsamples of equal volumes across the area of concern and aggregating them into a single laboratory-supplied container. The laboratory will process the soil sample to create a representative sample per ISM specifications, which will then be analyzed. Should any subsample collected exhibit an odor, staining, or other indication of being impacted, it will not be included in the ISM sample; instead, a discrete soil sample will be collected in a laboratory supplied 4-ounce jar, labeled, and the location noted with GPS coordinates and the location flagged. Discrete samples will be analyzed for the same list of analytes as the ISM sample.

The northern area of the site, formerly used for landfilling, will be sampled using ISM. The area will be divided into 30 equal area grids and a direct push rig will advance a boring in each of the grids at least 1 foot into the native soils beneath current fill materials placed in that area. A portion of the first-encountered native soils will be collected from the soil core and placed into the sample container from all 30 borings. As above, should any subsample collected exhibit an odor, staining, or other indication of being impacted, it will not be included in the ISM sample; instead, a discrete soil sample will be collected in a laboratory supplied 4-ounce jar, labeled, and the location noted with GPS coordinates and the location flagged. Discrete samples will be analyzed for the same list of analytes as the ISM sample

The pond water will be sampled as a single grab sample and the pond sediments will be sampled by compositing five to seven grab samples.

Results of initial sampling will determine if additional soil sampling is needed for lateral or vertical delineation, which would be done during a second phase of field work, as applicable. Currently, there does not appear to be any reason to sample groundwater at the Site. Results from sampling may change that condition during future phases of work.

DUs will be designated in each of the AOCs, which were defined in Section 2.6, shown in Figure 4-1, and include the following:

- Wood treatment area
- Two wood waste burner footprints
- Veneer mill
- Pond[2]
- Maintenance and truck shops.
- Northern Landfill area

The configuration of the DUs, PCOCs, and recommended ISM sampling for each AOC is described in the following sections and summarized in Table 4-1.

4.1 WOOD TREATMENT AREA

The wood treatment area has not been identified on the aerial photographs, but a former employee pointed out the area onsite as the north end of the green chain (DU01). The employee described the wood treatment tank as approximately 8-feet wide by 20-feet-long, where finished lumber was treated by using a fork lift to dip an entire stickered bunk[3] in liquid anti-sapstain. The wood was allowed to "drip dry" over the tank before being moved to the kiln-drying area.

Currently, this area appears to be disturbed and all surrounding buildings have been demolished. Since spill and splash of treatment liquid onto the surface is the most likely impact pathway, shallow soil samples will be collected using ISM. The total sampling area, measuring approximately 40 feet by 80 feet (including 10 feet under the green chain area, is shown on Figure 2-1. Approximately 30 samples from 6 inches to 1-foot bgs will be collected from a grid within this area. Each sample will be approximately 35 grams (equal volume) and placed into a single container. Since this is a critical area, two additional samples will be collected in this same manner from the area and the triplicate sample will be used to conduct data quality assurance/quality control (QA/QC).

The ISM soil samples from this area will be analyzed for diesel and heavy oil range hydrocarbons, SVOCs, dioxins, furans, and metals.

4.2 WOOD WASTE BURNERS

Two areas have been identified as having wood waste burners at some time during mill operations. The north wood waste area is designated DU02 and the southern wood waste, near the railroad spur, is designated DU03. Both burners were visible in a 1950s oblique photograph and have been verified by former mill personnel. Shallow soils will be sampled at each location using ISM from an approximately 60-foot diameter area. Thirty (30) subsamples will be collected, each approximately 35 grams in size. The subsamples will be collected into a single container and processed as described above. Samples will be collected from below the vegetated root line, approximately 6 inches bgs.

[2] Pond surface water and sediments will be sampled.

[3] A bunk is a full unit of finished (sawed), stacked lumber, the number of pieces varying by the size of the lumber, such that the unit is a uniform size to facilitate shipping and handling. A "stickered" bunk is one in which small lengths of wood are used to separate each layer of lumber to facilitate exposure to treatment chemicals, draining, and drying.

The wood waste burner ISM samples will be analyzed for diesel and heavy oil range petroleum hydrocarbons, PAHs, dioxins, furans, and metals.

4.3 VENEER MILL

The area associated with the Veneer Mill (DU04) reportedly contained storage drums, an AST, and a transformer stored along the east side of the building, and mercury vapor lamp ballasts on the south side of the building. DU04 will be comprised of two sample areas, each designated as a sample unit (SU).

SU01 (Figure 3) is comprised of an area measuring 25-foot-wide by 175-foot-long on the east side of the building pad. Shallow soils will be collected using ISM, collecting 30 samples, approximately 35 grams each, starting at approximately 6 inches bgs. The soil sample from the east side of the building will be analyzed for diesel and heavy oil range petroleum hydrocarbons, PCBs, lead, and PAHs.

Another ISM sample will be collected from the south side of the building (SU02) in an area measuring 30 by 50 feet along the edge of the building (Figure 3). Thirty samples of soil, approximately 35 grams each, will be collected from approximately 6 inches bgs. The soil sample from the south side of the building will be analyzed for PCBs and mercury.

4.4 POND

The small pond (DU05) just east of the north gate entrance has and continues to receive surface run-off that could possibly contain contaminants which could be reflected in sediments. Samples will be collected from both the surface water (SU03) and bottom sediments (SU04).

The surface water sample will be collected from the shore using a container at the end of a rod and will be collected prior to any disturbance of sediments. The water sample will be analyzed for gasoline- and diesel-range hydrocarbons, VOCs, PAHs, and metals.

Sediments from the bottom of the pond will be sampled using a long-armed excavator. Sediment samples will be collected, being careful to subsample material that has not touched the sides of the excavation bucket. Due to the size of the pond (75 feet by 25 feet) and the impracticality of doing ISM, this sample will be composited by collecting 5 to 7 samples from different locations off the pond bottom, collecting the same volume of sediment from the bucket each time. All samples will be placed in a single container. The container will be submitted to the laboratory for drying and obtaining a representative sample from the composite. Pond sediments will be analyzed for petroleum hydrocarbons, PAHs, dioxins and furans, PCBs, and metals.

4.5 MAINTENANCE AND TRUCK SHOP

Drums, ASTs, and unused transformers were observed on the north and east side of the maintenance and truck shop (DU06); thus, shallow soils in these two areas may be impacted. Therefore, areas to be sampled will include soils from just off the pavement or concrete foundation to the north and east sides of the buildings.

The north side of the buildings, just off the concrete pads, is approximately 170 feet long and the area to be investigated will extend out (north) of the pads approximately 25 feet (SU05). The east side of these buildings measures approximately 125 feet and the area to be investigated will extend out from the building approximately 25 feet (SU06). Each area will include 30 subsamples, approximately 35 grams each, collected from approximately 6 inches bgs, and placed into a single

container. Samples collected from SU05 and SU06 will be analyzed for petroleum hydrocarbons, PAHs, PCBs and metals.

4.6 NORTH LANDFILL AREA

The northern portion of the Site was used to landfill wood waste, tires, metals and general trash, as well as petroleum contaminated soils (DU07). Although the trash and other materials have been removed, the native soils were never tested to confirm that contaminants from the landfill or petroleum contaminated soils had not migrated down to the native soils. Therefore, areas to be sampled will include the top of the native soils, underneath the current fill material.

According to onsite operators, as wood waste, rock and soil are excavated from the Site, all material reused is tested prior to resale. Analytical results of this testing have not been provided or reviewed. Once that data has been reviewed, the sampling method and analytical testing program may be changed.

This area will be divided into 30 grids and a subsample collected at the top of the native soils. This sample will be reached using direct push drilling. Each subsample will be approximately 35 grams each, collected from approximately the top 6 to 10 inches of native soils in the soil core, and placed into a single container.

Samples collected in this area will be analyzed for petroleum hydrocarbons, PAHs, PCBs and metals

4.7 BENEFICIAL LAND AND WATER USE DETERMINATION

A Beneficial Land and Water Use Determination (BLWUD) will be developed for the Site in consideration of the impacted or potentially impacted media. BLWUD determination will be completed in accordance with DEQ's Guidance for conducting Beneficial Water Use Determinations at Environmental Cleanup Sites (DEQ, 1998a) and Guidance for Consideration of Land Use (DEQ, 1998b).

Current and potential use of land and water in and around the Site will be determined through research of the City and County water supplies, a review of OWRD databases, and zoning maps for the area. If contamination is found in soil above leaching to groundwater risk-based concentrations (RBCs), the BLWUD will also include a door-to-door survey of the residences and businesses in the immediate area to evaluate potential presence of water supply wells. The results of the research will be presented as part of the SI report.

4.8 CONCEPTUAL SITE MODEL (CSM)

A Site-specific CSM will be developed and include defining the Locality of Facility (LOF) and the results of the BLWUD. The LOF is defined as any point where a human or an ecological receptor can come into contact, or is reasonably likely to come into contact, with Site-related hazardous substances.

The CSM will incorporate observed conditions during field activities. The CSM will identify sources of contamination, potentially complete exposure pathways, and potential receptors. Exposure scenarios will be evaluated and include likely receptors and pathways for contaminated media. Both current and reasonably likely future complete exposure pathways and receptors will be identified and used to evaluate potential risk. Likely receptors include residential receptors, excavation and construction receptors, and possibly terrestrial or aquatic ecological receptors. The CSM will be included as part of the SI report.

4.9 MANAGEMENT OF INVESTIGATIVE DERIVED WASTE

Investigative Derived Waste (IDW) anticipated to be generated during this investigation includes potentially contaminated soils, decontamination water and solid waste (i.e., used disposable equipment or supplies). Extra soil from cores collected in the northern landfill area will be placed in a 55- gallon drum pending analytical results. Excavated sediments not sampled will be placed back into the pond. Decontamination water generated will be stored in a 55-gallon drum pending review of the laboratory analytical results and determination of management options (i.e. offsite disposal). SCS will facilitate disposal of IDW after characterization results are received.

5.0 ANALYTICAL PROGRAM

The proposed laboratory analytical plan has been designed to fulfill the following data collection needs for soil and surface water:

- Evaluate the presence and concentration of PCOCs.
- Assess the nature and extent of contamination.
- Determine the LOF.
- Support risk-based decision making.
- Management of IDW.

SCS has selected Eurofins of Denver, Colorado as the project laboratory. Copies of the laboratory's licenses and certifications can be provided upon request.

Method reporting limits will be based on the most conservative DEQ RBCs for residential exposure scenarios or the most conservative ecological screening levels. Table 5-1 presents the proposed analytical plan and Table 5-2 provides a list of the laboratory methods, sample container requirements, reporting limits and holding times. Additional details of analytical program are provided in the Sampling and Analysis Plan (Appendix A).

5.1 DATA MANAGEMENT

Upon receipt of the final analytical laboratory data, a data quality review will be completed, and the data (with qualifiers) will be entered into a database in Microsoft Excel. The data set will be organized in a manner that will provide for risk screening and allow it to be exported to other data platforms, as requested by DEQ. A preliminary draft data table will be provided to DEQ upon receipt of preliminary analytical results.

6.0 REPORTING

SCS will prepare a SI report following completion of the field activities and receipt of the final laboratory reports. The SI report will include the following:

- Summary of field activities.
- Summary of analytical results.
- Summary of the ecological screening.
- CSM and BLWUD.
- Summary of risk screening results.
- Conclusions.

Figures will include a site map showing the locations of all samples collected. Appendices will include laboratory analytical reports, QA/QC validation reports, field data sheets, BLWUD documentation, biological screening forms and site photos showing conditions during field activities.

A final report will be supplied to DEQ and the property owner in electronic and/or hard copy format.

7.0 REFERENCES

Interstate Technology & Regulatory Council (ITRC), 2020. Incremental Sampling Methodology (ISM) Update, October. https://ism-2.itrcweb.org/

Oregon Department of Environmental Quality. (1998a). Guidance for conducting beneficial water use determinations at environmental cleanup sites. Environmental Cleanup Program, July 1 (updated November 2017). https://www.oregon.gov/deq/FilterDocs/GuidanceBeneficialWaterUse.pdf

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Oregon Department of Environmental Quality, 2017. Quality Assurance Project Plan, EPA PA/SI Investigations, DEQ05-LQ-0069-QAPP. https://www.deq.state.or.us/Webdocs/Controls/Output/PdfHandler.ashx?p=2e2bbf14-6749-49cc-9e13-47d2a4b5e465pdf&s=6220-WURBI-QAPP-1-15-2021FINALSIGNED.pdf

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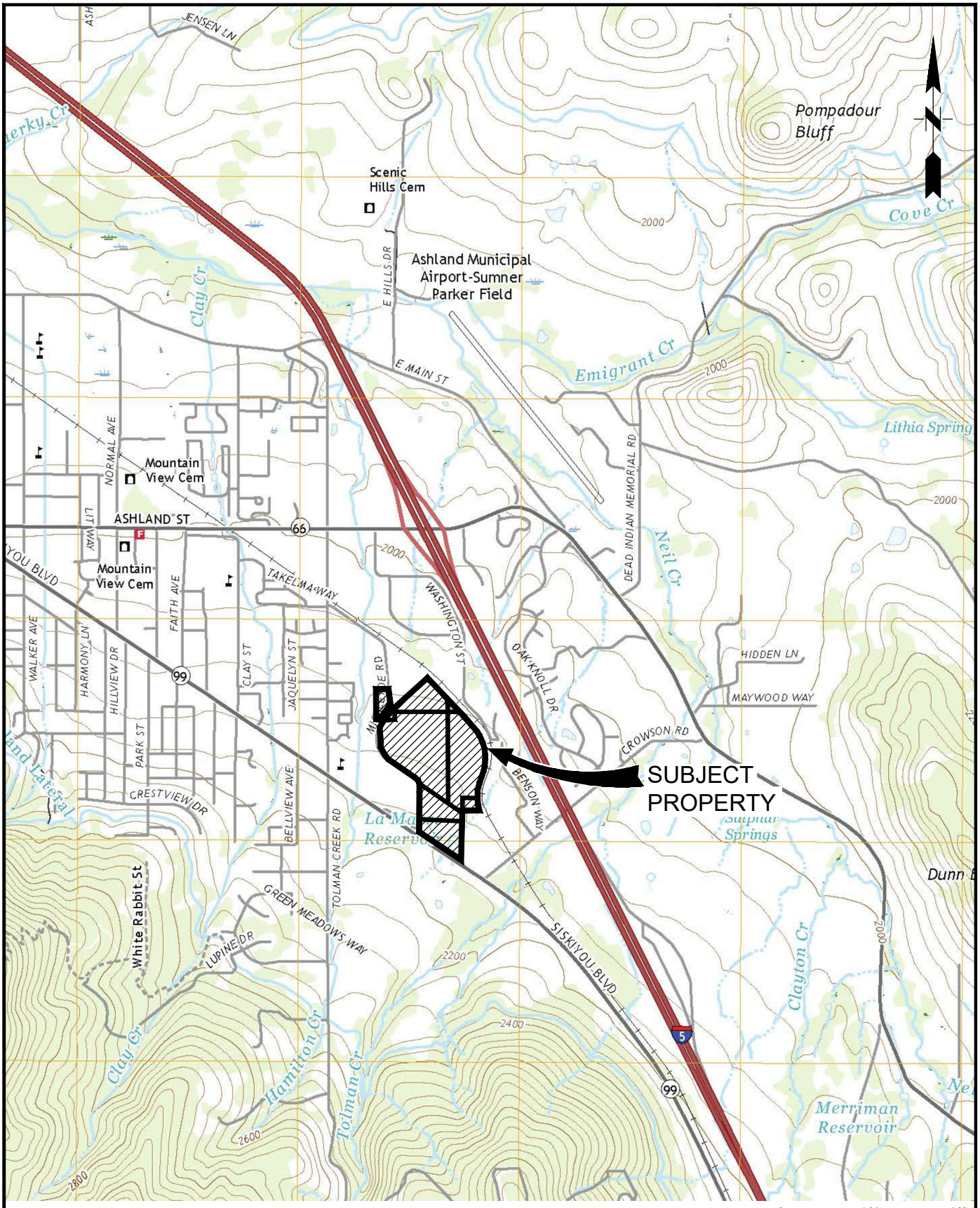
Oregon Department of Environmental Quality, 2020b. Decision Unit Characterization, Land Quality Division Cleanup Program, Internal Management Directive. September 14. https://www.oregon.gov/deq/FilterDocs/DUIMD.pdf

Rogue Environmental Consulting, LLC, 2021. Phase I Environmental Site Assessment Report: 146 Mistletoe Road, Ashland, Oregon 97520. November 10.

Figures



SOURCE: U.S. Geological Survey, Ashland
7.5-minute topographic quadrangle, 2021

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Portland, Oregon 97224
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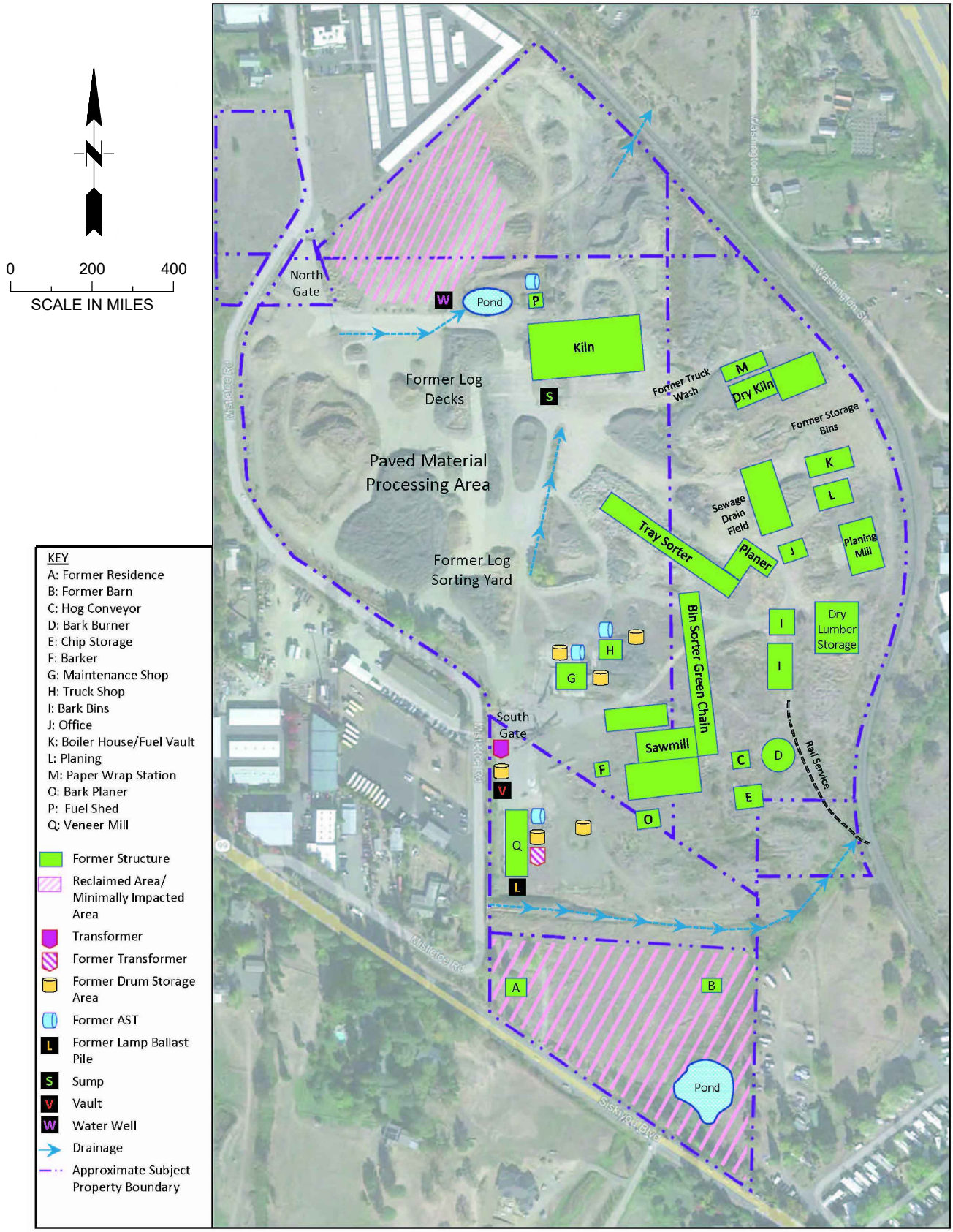
PROJECT NO.	DES BY
04222021.00	L.E.L.
SCALE	CHK BY
AS SHOWN	B.L.
CAD FILE	APP BY
FIGURE 1	S.L.

PROPERTY LOCATION MAP

CROMAN PROPERTY
146 MISTLETOE ROAD
ASHLAND, OREGON 97520

DATE
JUNE 2022

FIGURE
1-1



SOURCE: Figure 1, Detailed Site Plan, by Rogue Environmental Consulting, November 2021

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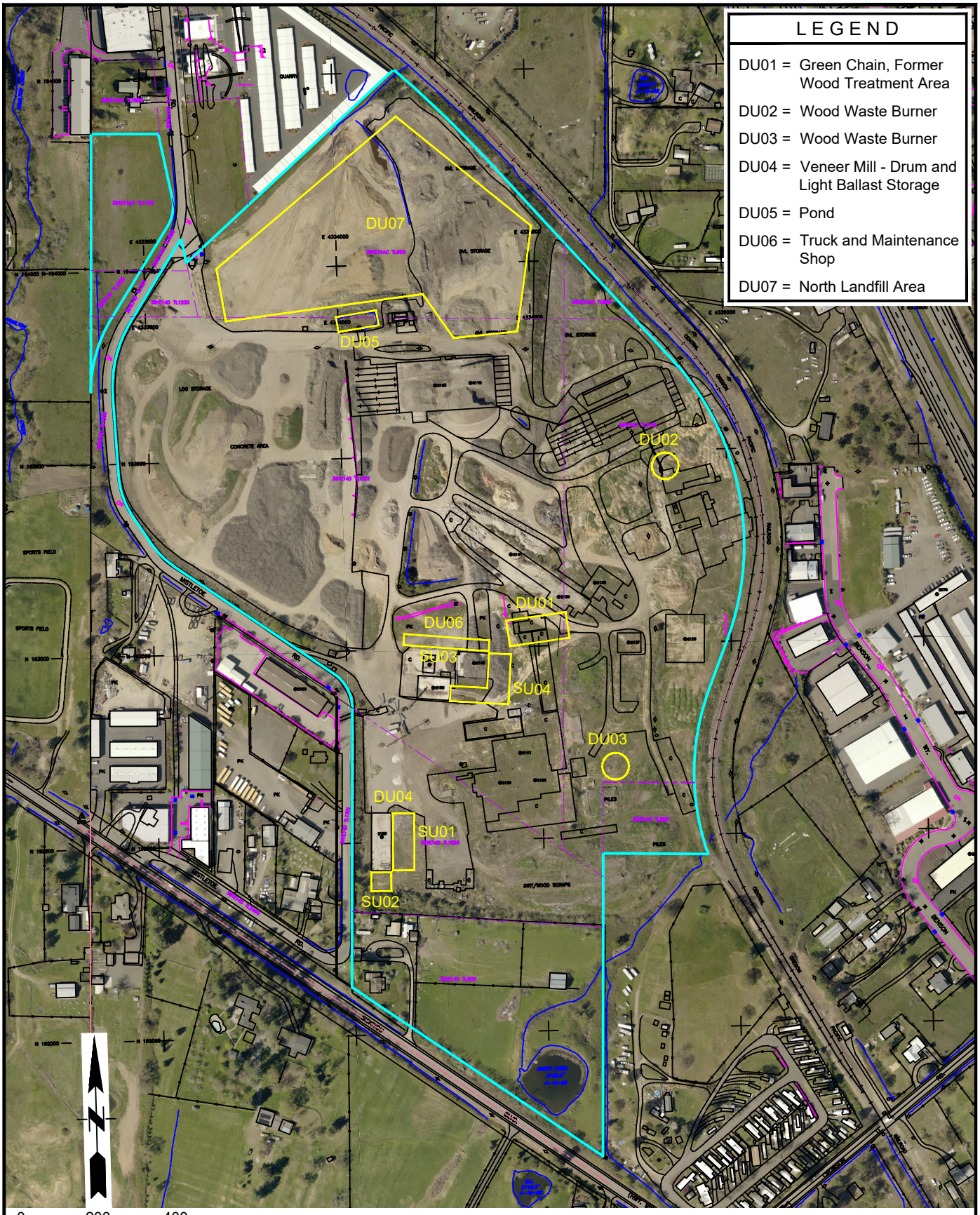
PROJECT NO.	DES BY
04222021.00	L.E.L.
SCALE	CHK BY
AS SHOWN	B.L.
CAD FILE	APP BY
FIGURE 2	S.L.

PROPERTY PLAN

CROMAN PROPERTY
146 MISTLETOE ROAD
ASHLAND, OREGON 97520

DATE
JUNE 2022

FIGURE
1-2



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PROJECT NO. 04222021.00	DES BY L.E.L.
SCALE AS SHOWN	CHK BY B.L.
CAD FILE FIGURE 4-1	APP BY S.L.

SITE PLAN

CROMAN PROPERTY
146 MISTLETOE ROAD
ASHLAND, OREGON 97520

DATE JULY 2022

FIGURE 4-1

Tables

Table 5-1
Analytical Testing Program
Croman Mill Site
Ashland, Oregon

AOC ID	Areas of Concern	Sampling Method	Media	No. of samples	Potential Contaminants of Concern	Laboratory Methods
DU01	Wood treatment area	ISM	Shallow soil	1 sample + 2 duplicates	Diesel and heavy range hydrocarbons SVOCs Dioxins and Furans RCRA 8 Metals	NWTPH-Dx EPA 8270 EPA 8290 EPA 6000/7000 series for RCRA 8 metals
DU02	North wood burner footprint	ISM	Shallow soil	1 sample	Petroleum hydrocarbons, PAHs Dioxins, Furans RCRA 8 Metals	NWTPH-Dx EPA 8270SIM EPA 8290 EPA 6000/7000 series for RCRA 8 metals
DU03	South wood burner footprint	ISM	Shallow soil	1 sample + 2 duplicates	Petroleum hydrocarbons, PAHs Dioxins, Furans RCRA 8 Metals	NWTPH-Dx EPA 8270SIM EPA 8290 EPA 6000/7000 series for RCRA 8 metals
DU04	Veneer Mill	ISM	Shallow soils	2 - east side (SU01) and South side (SU02)	**East Side** - TPH, PCBs, lead and PAHs **South Side** - PCBs and mercury	**East Side**: NWTPH-Dx EPA 8082 EPA 8270 SIM EPA 6000/7000 series (lead only) **South Side**: EPA 8082 EPA 6000/7000 series (mercury only)
DU05	Pond	Grab samples and Composite sample	Surface Water Sediments	1- surface water sample (SU05) and duplicate 1 - sediment sample (SU06) and duplicate	**Pond -** NWTPH-Gx, Dx, VOCs, PAHs and total RCRA 8 metals **Sediment** - NWTPH-Gx, Dx PAHs, dioxins and furans, PCBs, RCRA 8 metals	**Pond:** NWTPH-Gx and Dx EPA 8260 EPA 8270SIM EPA 6000/7000 series (dissolved) **Sediment**: NWTPH-Gx and Dx EPA 8270SIM EPA 8290 EPA 8082 EPA 6000/7000 series
DU06	Maintenance and Truck shops.	ISM	shallow soils	2 - north side (DU03) and east side (DU04)	NWTPH-Dx, PAHs, PCBs, RCRA 8 metals	NWTPH-Dx EPA 8270 EPA 8082 EPA 6000/7000 series
DU07	North Landfill Area	ISM	shallow native soils	1 sample	NWTPH-Dx, PAHs, PCBs, RCRA 8 metals	NWTPH-Dx EPA 8270 EPA 8082 EPA 6000/7000 series

Notes:

AOC = area of concern
DU = decision unit
ISM = incremental sampling methodology
EPA = Environmental Protection Agency
SVOCs = semi-volatile organic compounds
VOCs = volatile organic compounds
NWTPH-Gx = gasoline range quanitification
NWTPH-Dx = diesel and heavy oil range quanitification
PAHs = polynuclear aromatic hydrocarbons
PCBs = polychlorinated biphenyls
Resource Conservation and Recovery Act (RCRA) 8 metals: arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver

Table 5-2
Analytical Methods, Bottle Requirements, Reporting Limits and Hold Times
Croman Mill Site
Ashland, Oregon

Analytical Test	Method	Matrix	RLs	Preservative	Containers	Hold Time
Gasoline range hydrocarbons	NWTPH-Gx	Solid	GRO: 5 mg/Kg	None	4 oz clear	14 days
Diesel and heavy oil range hydrocarbons	NWTPH-Dx	Solid	DRO:10 mg/Kg RRO: 30 gm/Kg	None	4 oz clear	14 days
VOCs	EPA 8260 D	Solid	0.0025 to 0.020 mg/K	DI water	40 ml tared + DI H2O	14 days
SVOCs	EPA 8270D	Solid	0.33 to 1.6 mg/Kg	None	4 oz clear	14 days
PAHs	EPA 8270D SIM	Solid	0.010 mg/Kg	None	4 oz clear	14 days
PCBs	EPA 8082A	Solid	0.066 to 0.094 mg/Kg	None	4 oz clear	1 year
Dioxins and Furans	EPA 8290 A	Solid	1 - 10 pg/g	None	4 oz amber	30 days
RCRA 8 Metals	EPA 6010D	Solid	0.5 to 2.0 mg/Kg	None	8 oz clear	180 days
Total Mercury	EPA 7471B	Solid	0.017 mg/Kg	None	8 oz clear	28 days
ISM Processing		Solid	---	None	1000 grams (1 Kg)	14 days
percent moisture	D 2216	Solid	0.10%	None	4 oz clear	1 year
Gasoline range hydrocarbons	NWTPH-Gx	water	GRO: 250 ug/L	HCl	3 - 40 mL VOA	14 days
Diesel and heavy oil range hydrocarbons	NWTPH-Dx	water	DRO: 100 ug/L RRO: 250 ug/L	HCl	2 - 250 mL amber	14 days
VOCs	EPA 8260	water	1 - 15 ug/L	HCL	3 - 40 mL VOA	14 days
SVOCs	EPA 8270	water	4-30 ug/L	none	2 - 1L amber	7 days
PAHs	EPA 8270 SIM	water	0.100 ug/L	none	1L amber	7 days
PCBs	EPA 8082	water	1.00 ug/L	none	2 - 250 ml amber	1 year
Dioxins and Furans	EPA 8290 A	water	10-100 pg/L	none	1L amber	30 days
RCRA 8 Metals	EPA 6010D	water	5 - 20 ug/L	Nitric Acid	500 ml poly	180 days
Total Mercury	EPA 7470A	water	0.2 ug/L	Nitric Acid	500 ml poly	28 days

Notes:

oz - ounce

ml = milliliter; L = liter Kg = kilogram g = gram mg = milligram pg = picogram (1 x 10-6 microgram)

VOCs = volatile organic compound

SVOC = semivolatile organic compound

PAHs = polynuclear aromatic hydrocarbons

PCBs = polychlorinated biphenyls

Resource Conservation and Recovery Act (RCRA) 8 metals: arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver

Appendix A

Sample and Analysis and

Quality Assurance Project Plan

Sampling and Analysis And Quality Assurance Project Plan Croman Mill Property 146 Mistletoe Road Ashland, Oregon

Dwain and Bud, LLC
801 Avenue C
White City, OR 97503-1082
541-826-4455

SCS ENGINEERS

04222021.00 | July 15, 2022

15940 SW 72nd Avenue
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This Sampling and Analysis and Quality Assurance Project Plan for the Croman Mill Site located in Ashland, Oregon, was prepared by Barbara E. Lary, RG and was reviewed by Greg Helland, RG, of SCS Engineers.

_____

Barbara E. Lary, RG
Project Manager
SCS ENGINEERS

_____

Greg Helland, RG
Business Unit Director
SCS ENGINEERS

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Appendices

1.0 INTRODUCTION

On behalf of Dwain and Bud LLC, SCS Engineers has prepared this Sampling and Analysis and Quality Assurance Project Plan (SAQAP) in support of the Site Investigation (SI) work plan to delineate the nature and extent of potential environmental impacts from former mill operations at 146 Mistletoe Road in Ashland, Oregon (Site, Figures 1-1 and 1-2).

1.1 LOCATION

The Site is located on the east side of Mistletoe Road, north of Siskiyou Boulevard (Oregon Route 99), and west of the Central Oregon and Pacific Railroad. The Site is within the Croman Mill Zoning District of the City of Ashland and a residential-zoned area of Jackson County. The Property is approximately 60 acres and is presently inactive/unoccupied with long-term reclamation activities ongoing. Reclamation activities include building demolition, removal of industrial equipment and stored materials, and removal and processing of fill and wood waste materials. Wood and rock is separated, tested, and sold for reuse. Metals are recycled and waste is disposed of at permitted solid waste facility.

1.2 PURPOSE

This Site is listed on the Oregon Department of Environmental Quality (DEQ) Environmental Cleanup Site Information (ECSI) data base (File # 535) as "contamination suspected" based on historical site operations and a site inspection conducted by DEQ in 1987. During the DEQ inspection, one surface soil sample was collected in an area where anti-sapstain treatment chemicals were applied to logs. The soil sample was analyzed and results indicated pentachlorophenol (PCP) and 2,3,4,6-trichlorophenol (TCP) detected in the soil at 210 milligrams per kilogram (mg/Kg) and 240 mg/Kg, respectively. The file had no documentation of the location for this soil sample. According to the DEQ file, the wood-treatment process was later closed and removed; a building and pavement were subsequently constructed that covered the area.

The property owners applied on March 31, 2022 to participate in the Voluntary Cleanup Program (VCP) with the Oregon Department of Environmental Quality (DEQ). Under the VCP, the property owners intend to conduct a site investigation to determine if there are environmental impacts to the site due to mill operations, if necessary remediate the environmental impacts, and obtain a no-further action (NFA) determination. Future redevelopment will consist of mixed commercial and residential uses.

Details of site history and background are presented in the Work Plan.

1.3 PROJECT ORGANIZATION AND CONTACTS

The following is a list of entities and contact information for those involved with this project.

Organization/Role	Contact	Email Address	Phone Number
Oregon DEQ/regulatory agency	Project Manager: TBD	TBD	TBD
SCS Engineers/ environmental consultant	Project Director: Shane Latimer Project Manager: Barbara Lary	SLatimer@scsengineers.com BLary@scsengineers.com	503-867-1780 971-284-1297
Montero & Assoc. LLC/ development consultant	Company contact: Mike Montrose	montero-associates@charter.net	Off:541-779-0771 Cell:541-944-4376
Bud and Dwain LLC/ Property owners	Company contact: Kory Kaufman	kory.kaufman@croman.net	Off: 541-826-4455
Eurofins/TestAmerica Denver, Colorado /Project Laboratory	Lab Project Manager: Janice Collins	Janice.Collins@et.eurofinsus.com	Off: 303-736-0124

2.0 GEOLOGIC SETTING

2.1 SITE GEOLOGY

Site surficial geology is mapped as Quaternary alluvial fan debris and colluvium including gravel, sand, silt, clay and woody debris on top of shallow to moderately steep slopes (Wiley, et. al, 2011). Some bedrock has been encountered during reclamation activities and has consisted of decomposed granite.

Site soil mapped by the United States Agricultural Service (USDA) Natural Resources Conservation Service (NRCS) is predominantly Kubli loam (99.7%). The Kubli series consists of deep, somewhat poorly drained soils that formed in alluvium from weathered granitic materials over older clayey alluvium. They are formed on stream terraces and have slopes of 3 to 7 percent.

2.2 SITE HYDROGEOLOGY

Based on a letter dated January 22, 1990 from the Croman Corporation to the DEQ regarding cleanup of contaminated soils following the 1989 UST decommissioning, it appears that shallow groundwater is at a depth of approximately 25 feet below ground surface (bgs). According to topographic map interpretation, shallow groundwater in the vicinity of the subject property is inferred to flow toward the north. However, nearby streams, lakes, wells, or wetlands may locally affect the flow direction of groundwater. The specific groundwater depth and flow direction for the Site was not determined through direct measurement during the 2021 Phase I ESA.

Well logs for water supply wells at the subject and adjacent properties obtained from the Oregon Water Resources Department indicate the depth to first water of 71 to 395 feet bgs. According to the well log on file with the state, the onsite water well was installed in 1992 and drilled to a total depth of 310 feet. It was screened from 110 to 310 feet and the static water level at the time of installation was 58 feet bgs. The drillers log indicates gravel, clay and boulders down to approximately 35 feet, where a green sandstone was encountered. Groundwater was encountered at 141 feet bgs, initially, in a fractured shale/sandstone formation.

3.0 SAMPLING PROGRAM

Several areas of concern (AOCs) were identified based on the information reviewed in the DEQ files and a Phase I ESA completed in 2021. See the Work Plan (SCS, 2022) for a complete discussion and summary of the Phase I ESA results. The following is a list of the resulting AOCs:

- DU01 - Wood treatment area
- DU02 – North wood burner footprints
- DU03 – South wood burner footprint
- DU04 - Veneer Mill
- DU05 - Pond
- DU06- Maintenance and truck shops.
- DU07 – Northern Landfill area

Each of the above are designated a decision unit (DU), which is defined as an area or volume of media to be sampled to determine if contamination is present, and if so, can be represented as a mean concentration (IRTC, 2020; DEQ, 2020b). Since there are no source points or particular locations to be sampled, sampling will occur over a defined area, based on historical information such as aerials and personal recollection of site operations from a former employee. Further delineation will be done in later phases of the project if contamination is identified.

In DU01 – DU04, DU06, and DU07 the impacts are assumed to be in the surface soils. However, building demolition and material removal from former log decks and landfilling areas has occurred since 2010 and surface soils have been severely disturbed. Nevertheless, the surface soils present will be sampled, generally at 6 inches bgs, and assumed to represent surface soils appropriate to evaluate for possible impacts from former onsite mill activities. If there are obvious fill materials present within a DU, the area may be cleared so that the underlying soils can be sampled. All soils will be sampled using Incremental Sampling Methodology (ISM, ITRC, 2020).

Within both DU04 and DU06, two sampling units (SU) are defined based on-site history and what was stored on different sides of the buildings (Figure 3-1 and Exhibit 1).

DU05 represents the pond, located east of the north entrance gate. DU05 includes two sampling units, represented as two different media: surface water (SU05) and sediments (SU06). Neither SU will be sampled using ISM.

3.1 SAMPLING LOCATIONS

As stated above, the AOCs have all been designated as a DU and the areas are further defined below. In each case, the ISM sampling will be conducted using the procedures described in Section 3.2. These DUs are shown on Figure 3-1.

Exhibit 1. Site-Specific Decision Units

Decision Unit	Location	Size of Area	No. and size of Subsamples	Reasoning
DU01	Wood Treatment at north end of Green Chain	155 feet (east/west) x 60 feet (north/south) area centered at the north end of Green chain	30 with 2 duplicates (triplicate sampling) Approx. 35 grams each	This area is assumed where DEQ found detections of PCP and TCP.
DU02	North Wood Burner	75-foot diameter centered at location	30 - Approx. 35 grams each	Small area defined through historical photos; been disturbed and rebuilt on at least once.
DU03	South wood burner near railroad spur	75-foot diameter centered at location	30 with 2 duplicates (triplicate sampling) Approx. 35 grams each	Small area defined through historical photos; less disturbance than DU02.
DU04	Veneer Mill – east and south sides of building	SU01: East: 60 feet by 150 feet next to building foundation SU02: South: 50 feet x 50 feet next to building foundation	30 in each of the two areas. Approx. 35 grams each	Two separate areas due to different histories and possible contaminants on the two sides.
DU06	Maintenance and Truck shop	SU03 North side of 200 feet x 25 feet SU04 East side – 125 feet by 25 feet	30 on each side Approx. 35 grams each	Separate areas due to different sides of the building but looking for same contaminants in both areas.
DU07	Northern Landfill Area	Area outlined on Figure 3-1	30 – approx. 35 grams collected from the top of the native soils	Landfill of trash and wood waste and petroleum contaminated soils

3.2 SOIL SAMPLING FIELD PROCEDURES

Soil sample collection using ISM will follow the procedures described in Section 3.2.1 and the number of subsamples as listed in Exhibit 1. Each ISM sample is collected into a single container and sent to the laboratory for processing and analysis. Generally, the DUs are defined as one area and will be represented with one ISM sample. Two DUs (DU04 and DU06) have been divided into two areas and each will be labeled as a sampling unit (SU) within each DU. The pond (DU05) is addressed separately (Section 3.3).

3.2.1 ISM Sample Collection

The DU and/or SU to be sampled will be divided into a grid of equal areas. For instance, DU01 will be divided into 30 grids within the rectangular area, such as 3 rows with 10 grids in each row. Within each grid, a random location within the grid will be selected for sampling. That same relative location in each of the 29 remaining grids will be also sampled. These grids can be laid out in the field with a measuring tape or wheel and pin flags or stakes. Alternatively, these locations can be preprogramed into a handheld GIS device used in the field to navigate to each sample location.

Each of the subsamples will be collected just below the surface, starting at approximately 6 inches bgs, to get below the root line of any surface vegetation, and to get below the disturbed subsurface of unvegetated areas. Approximately 35 grams of material will be collected using a push probe or hand auger. For the first several subsamples collected, a field scale will be used to gauge the volume of soil that represents the target weight. Once that volume can be recognized, collection of the subsamples will proceed without the scale.

The amount of soil needed will be retrieved from the hand auger or push probe advanced to the target depth, approximately 6 to 8 inches bgs, and brought to the surface. Using a nitrile gloved hand, vegetation or large gravel will be picked out of the core prior to depositing the subsample into the container. The subsample needs to be soil material without excess organic matter or granular material greater than 1 inch diameter. Once the total number of subsamples are collected and placed into the single container, the container will be sealed, labeled and placed in a cooler on ice.

3.2.1.1 ISM Sampling with Direct Push

The North Landfill area will be sampled as above except the target material will be the top of the native soils. Since the original landfilled materials have been removed and fill material brought in, a direct push drill rig will be used to probe down to and approximately 6 to 12 inches into the native soils. The depth to native soils is unknown, but it is assumed that the underlying native soil can be identified in the field by the change in soil density. An approximately 35-gram sample will be collected from each core in these native soils, in 30 locations spread out across the area. As above, the samples will be placed in one container, sealed, labeled and put on ice in a cooler.

3.2.1.2 ISM Duplicate Sampling

ISM QA/QC requires collecting two duplicates in one DU so that the three results can be compared and a 90% UCL concentration can be calculated. The two duplicates (triplicate samples) are collected using the same number and size of subsamples and each will be collected in the same general area, but approximately 3 to 5 feet apart. These samples are collected and placed in three different containers and submitted as 3 different samples to the laboratory.

This project will have triplicates collected at two locations, both as QA/QC and to determine the variability in the materials being sampled. A triplicate will be collected at DU01 (former wood treatment area) and DU03 (wood burner with a longer history of use).

3.3 Pond Sampling

The pond is designated as DU05 and divided into two sampling units: the pond water (SU05) and the pond sediments (SU06). The pond water will be sampled prior to disturbing any of the sediments. Sampling of each media is described below.

3.3.1 Surface Water Sampling

Sampling of the pond water (SU05) within DU05 is done from the shoreline, filling the necessary bottles provided by the laboratory. Equipment used will be an extension rod with a clean transfer container, such as a 1-liter polyethylene bottle, attached to the end of the rod. The pond grab sample will be obtained from approximately the center (east/west) of the pond, from a location on the shoreline that can be accessed and safe to stand and work. Clean nitrile gloved hands will be used to handle the bottles and transfer container. Field-measured parameters (temperature, specific conductivity, pH, dissolved oxygen, and turbidity) will be recorded immediately prior to sample collection.

The following sampling protocol will be used.

1. Record field information, including water quality measurements, on the field sampling sheet.

2. Samples will be collected with a new, clean transfer container attached to an extension rod and then poured directly into pre-labeled laboratory containers suitable for chemical parameters being analyzed. Containers will be filled carefully so any preservative in the bottle is not spilled and the container is not overfilled.

3. All laboratory containers for volatile parameter analysis will be filled first, followed by the remaining sample containers. Each container will be sealed before proceeding to fill subsequent sample bottles.

4. Decontaminate field meters and sampling equipment as needed

A duplicate of the pond sample will be collected by using the same setup as described above, but alternating bottle sets. Once the VOC bottles have been filled for the original sample, then the same bottles will be filled for the duplicate sample.

One duplicate will be collected at this location and a trip blank will accompany the samples and be analyzed for VOCs.

3.3.2 Pond Sediment Sampling

Pond sediments (SU06) within DU05 will be collected from the shoreline using either hand tools or a long-armed excavator. Sediment samples will be obtained from the bottom of the pond from five to seven locations, collecting the same volume from each location, combining and mixing them to create a composite sample. A portion of the composited sediments will be placed in two 8-ounce jars for the composite sample and a duplicate.

3.4 FIELD DOCUMENTATION

Field documentation includes field notes in a bound field book using unerasable pen, labeling of all samples, completed chain of custody, and field sampling forms (as necessary). Each field document is discussed below.

3.4.1 Field Notebook

All field activities are documented in a bound field notebook in unerasable pen. Each page is dated and labeled with the project location and job number, and includes the field person's initials at the bottom of each page. The daily entry includes a timeline of the day's activities, indicating who is doing what activities and how. Any deviations from the work plan are explained, along with the reason and date and time of approval from the project manager, if needed. Any onsite or telephone discussions related to the project with fellow employees, regulators or others will be summarized in the field notebook. Any mistakes in the notebook will be crossed out with a single line and initialed.

The field notebook includes details of the soil, surface water and sediment samples collected during field activities, including the sample identification, sample time and number of containers collected. Any details noted during collection are included in the notebook, including number of subsamples and general soil description, color and moisture. If there were issues or problems encountered during field activities, a description and resolution is included in the field notes. When triplicate samples are collected, sample names, date and time for each sample are recorded in the field notebook.

Details of pond water samples, such as water quality measurements, will be noted on a field sample sheet. The water sample identification is included in the field notebook, along with sample collection date and time. Reference is made in the field notebook to the field sample sheet for additional details.

Each sample is labeled in the following manner:

> **Soil samples** will be labeled: DU0X-yymmdd-0.5 or DU04-SU0Y-yymmdd-0.5 where X is the number of the DU, Y is the number of the SU if appropriate, and yymmdd is the year month and day of the sample. The last number indicates the depth at which the sampling occurred, in this case 6 inches or 0.5 foot below the ground surface.
>
> **Duplicate soil samples** will be designated as above but with a "-Rep1" or "-Rep2" added to the end of the sample name.
>
> **Pond samples** will be labeled: DU05-SU05-yymmdd-pond01 where the last number indicates the number of the sample from this feature so multiple water samples from the pond can be tracked. A duplicate pond sample will be assigned a "blind" ID such as "-pond02" as a suffix.

Sediment samples will be labeled: DU05-SU06-yymmdd-COMP01 where the last number indicates the number of the composite sample from the pond sediments so multiple samples can be tracked. A duplicate sediment sample will be assigned a "blind" ID such as "-COMP02" as a suffix.

3.4.2 Field Sample Forms

Field sample forms will be filled out when collecting a surface water sample from the pond. The following information will be included in the surface water field sheet:

- Facility site name, sample location, and other pertinent identifiers.
- Date and time at the start and finish of sample collection.
- Sample label identification, and notation of any field duplicates collected.
- Field water quality measurements (and the instrument used to collect them).
- Field observations (e.g., weather conditions, field conditions impacting the sampling (windy, dusty, smoky).
- List of analytes and bottles collected.
- Appearance of the water sample (i.e., color, clear or cloudy, foamy).
- Any issues or changes in sampling procedures and reasons why.
- Sampler's signature and date at the bottom of the form.

A copy of this form is found in Appendix A.

3.4.3 Chain of Custody Forms

Laboratory chain of custody form(s) must be completed for each set of samples and placed in the shipping cooler for travel with the sample shipment. These forms are provided by the analytical laboratory as a record for tracking samples from the point of collection to the laboratory. Copies of typical chain of custody forms are provided in Appendix B. Upon transfer of sample possession to subsequent custodians, this form will be signed by the person taking custody of the sample container. As part of the chain of custody procedure, each sample container being delivered will be tracked by the site name, sample number, analytical testing to be performed, and other pertinent information.

Upon receipt of samples at the laboratory, the shipping container seal will be broken and the condition of the samples, including temperature, will be recorded by the receiver. The records will be reviewed in the preparation of the analytical report prepared by the laboratory, and will be considered an integral part of that report.

3.5 EQUIPMENT DECONTAMINATION

All non-disposable equipment that is exposed to the soil, surface water or sediments will need to be decontaminated between DUs, but not between each of the subsamples. Decontamination of equipment must be completed before leaving each DU, therefore eliminating cross contamination. The wash will consist of:

- Non-phosphate detergent (such as Alconox) and water wash;

- Tap water rinse; and,
- Deionized water rinse.

Disposable gloves (latex/nitrile) will be discarded after each use and prior to leaving each DU. Gloves can be discarded as regular trash. The same gloves can be used throughout collection of the subsamples for a single DU.

3.6 SAMPLE PRESERVATION AND SHIPMENT

Soil, sediment and surface water samples will be collected in the laboratory supplied containers with the appropriate preservatives, based on the analytical testing.

To maintain sample integrity, the properly-packed samples will be shipped by an overnight express service to the designated analytical laboratory. The following procedures will be followed:

1. Place sample containers in a plastic bag and seal.
2. Put samples in a field cooler with wet ice, with the goal of getting samples down to and keeping them at 4^{o}C.
3. The samples will be packed for shipping to minimize the potential for breakage and maintain 4^{o}C.
4. The chain of custody (COC) form must be filled out, signed, placed in a sealable plastic bag and taped to the inside lid of the cooler. A copy of the COC is included with the field notes.
5. Secure shipping cooler(s) for shipment with strap tape and custody seals, and coordinate shipment.

Upon receipt of the samples at the laboratory, the date and time of arrival will be noted on the chain of custody forms and/or the laboratory sample receipt form. The laboratory receiver will verify that the seal is intact and custody has not been broken, and make note of cooler temperature and sample bottle condition on the forms. The lab will communicate the conditions of the samples upon receipt to SCS and these forms will be retained by the laboratory and included with the results of the analysis.

3.7 LABORATORY PROCESSING OF ISM SAMPLES

Once the laboratory has received the ISM samples, they will go through further processing prior to analytical testing. Eurofins TestAmerica Denver's standard operating procedure for ISM processing is as follows:

- Disaggregate soil sample and spread out on a sheet to air dry, until it has a constant weight.
- Sieve through 2mm sieve.
- Spread on sheet into a 2-D slab cake
- Grid into approximately 30 units
- Using a flat-ended spoon, take approximately equal subsamples from each grid division and combine into one aliquot for analysis.

Grinding of the ISM sample may be required if the soil does not disaggregate easily. This step will be employed only if absolutely necessary.

3.8 MANAGEMENT OF INVESTIGATIVE DERIVED WASTE

Investigative Derived Waste (IDW) anticipated to be generated during this investigation includes potentially contaminated soils, decontamination water and solid waste (i.e., used disposable equipment or supplies). Extra soil from cores collected in the northern landfill area will be placed in a 55- gallon drum pending analytical results. Excavated sediments not sampled will be placed back into the pond. Decontamination water generated will be stored in a 55-gallon drum pending review of the laboratory analytical results and determination of management options (i.e. offsite disposal). SCS will facilitate disposal of IDW after characterization results are received.

4.0 ANALYTICAL TESTING PROGRAM

Potential contaminants of concern (PCOC) for each of the DUs identified above have been identified based on historical site use, review of the previous Phase I ESA information and the limited sampling conducted by DEQ during a site inspection. The details of this analysis are presented in the Work Plan (SCS, 2022). The resulting testing program is presented in Exhibit 2, including the analytical testing program for soils, sediment and surface water from the Croman Mill Property. The laboratory selected for this project will be Eurofins/TestAmerica in Denver, Colorado.

Exhibit 2. Site-Specific Analytical Testing per DU

ID	AOCs	Sampling Method	No. of samples	Laboratory Testing Methods
DU01	Wood treatment area	ISM	1 + 2 dups	NWTPH-Dx EPA 8270 EPA 8290
DU02	Northern Wood Burner footprint	ISM	1	NWTPH-Dx EPA 8290 EPA 6000/7000 series for RCRA 8 metals
DU03	Southern Wood Burner footprint	ISM	1 + 2 duplicates	NWTPH-Dx EPA 8290 EPA 6000/7000 series for RCRA 8 metals
DU04	Veneer Mill	ISM	2 - east side (SU01) and South side (SU02)	East Side: NWTPH-Dx EPA 8082 EPA 8270 SIM EPA 6000/7000 series South Side: EPA 8082 EPA 6000/7000 series (Mercury only)
DU05	Pond	Grab sample (pond water) and Composite sample (sediment)	1- pond water (SU05) 1 - sediment (SU06)	**Pond:** NWTPH-Gx, Dx EPA 8260 EPA 8270SIM EPA 6000/7000 series (dissolved)RCRA 8 **Sediment:** NWTPH-Gx and Dx EPA 8270SIM EPA 8290 EPA 8082 EPA 6000/7000 series for RCRA 8 metals
DU06	Maintenance and Truck shops.	ISM	2 - north side (DU03) and east side (DU04)	NWTPH-Dx EPA 8270 EPA 8082 EPA 6000/7000 series – lead
DU07	North Landfill Area	ISM-Direct Push	1	NWTPH-Dx EPA 8270 EPA 8082 EPA 6000/7000 series – RCRA 8 Metals

AOC = area of concern DU = decision unit ISM = incremental sampling methodology
NWTPH-Gx = gasoline range quantification NWTPH-Dx = diesel and heavy oil range quantification
Resource Conservation and Recovery Act (RCRA) 8 metals: arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver

4.1 PARAMETERS AND FIELD INSTRUMENTATION

The field parameters will be measured in the surface water sample using a YSI water quality multiprobe, properly calibrated prior to use. Field-measured parameters including temperature, specific conductivity, pH, dissolved oxygen, and oxidation reduction potential (ORP) will be recorded immediately prior to sample collection.

The instrument will be routinely inspected, maintained and calibrated in accordance with manufacturer's recommendations.

4.2 Laboratory Test Methods, Reporting Limits and Hold Times

All of the analytical procedures used in this program will be performed by the subcontracted laboratory in accordance with EPA and DEQ guidelines. The laboratory participating in this investigation will be accredited by the state of Oregon and have an internal QA/QC plan. Analyses will be required to conform to referenced test methods and the laboratory's written QA plan and standard operating procedures.

Target analytes and method reporting limits (MRLs) are presented in Exhibit 3. For all PCOCs in all media, the MDLs are lower than or equal to the DEQ risk-based concentrations (RBCs) (Exhibit 3).

All laboratory reports will include Level II QA/QC.

Exhibit 3. Analytical Methods, Bottle Requirements, Reporting Limits and Hold Times

Analytical Test	Method	Matrix	MRLs	Preservative	Containers	Hold Time
Gasoline range hydrocarbons	NWTPH-Gx	Solid	GRO: 5 mg/Kg	None	4 oz clear	14 days
Diesel and heavy oil range hydrocarbons	NWTPH-Dx	Solid	DRO:10 mg/Kg RRO: 30 gm/Kg	None	4 oz clear	14 days
VOCs	EPA 8260 D	Solid	0.0025 to 0.020 mg/Kg	DI water	40 ml tared + DI H2O	14 days
SVOCs	EPA 8270D	Solid	0.33 to 1.6 mg/Kg	None	4 oz clear	14 days
PAHs	EPA 8270D SIM	Solid	0.010 mg/Kg	None	4 oz clear	14 days
PCBs	EPA 8082A	Solid	0.066 to 0.094 mg/Kg	None	4 oz clear	1 year
Dioxins and Furans	EPA 8290 A	Solid	1 - 10 pg/g	None	4 oz amber	30 days
RCRA 8 Metals	EPA 6010D	Solid	0.5 to 2.0 mg/Kg	None	8 oz clear	180 days
Total Mercury	EPA 7471B	Solid	0.017 mg/Kg	None	8 oz clear	28 days
ISM Processing		Solid	---	None	1000 grams (1 Kg)	14 days
percent moisture	D 2216	Solid	0.10%	None	4 oz clear	1 year
Gasoline range hydrocarbons	NWTPH-Gx	water	GRO: 250 ug/L	HCl	3 - 40 mL VOA	14 days
Diesel and heavy oil range hydrocarbons	NWTPH-Dx	water	DRO: 100 ug/L RRO: 250 ug/L	HCl	2 - 250 mL amber	14 days
VOCs	EPA 8260	water	1 - 15 ug/L	HCL	3 - 40 mL VOA	14 days
SVOCs	EPA 8270	water	4-30 ug/L	none	2 - 1L amber	7 days
PAHs	EPA 8270 SIM	water	0.100 ug/L	none	1L amber	7 days
PCBs	EPA 8082	water	1.00 ug/L	none	2 - 250 ml amber	1 year
Dioxins and Furans	EPA 8290 A	water	10-100 pg/L	none	1L amber	30 days
RCRA 8 Metals	EPA 6010D	water	5 - 20 ug/L	Nitric Acid	500 ml poly	180 days
Total Mercury	EPA 7470A	water	0.2 ug/L	Nitric Acid	500 ml poly	28 days
Notes:						
oz - ounce						
ml = milliliter; L = liter	Kg = kilogram	g = gram	mg = milligram	pg = picogram (1 x 10-6 microgram)		
MRL = method reporting limit						
VOCs = volatile organic compound						
SVOC = semivolatile organic compound						
PAHs = polynuclear aromatic hydrocarbons						
PCBs = polychlorinated biphenyls						
Resource Conservation and Recovery Act (RCRA) 8 metals: arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver						

5.0 QUALITY ASSURANCE PROJECT PLAN

The purpose of this portion of the SAQAP is to provide confidence in the quality of the analytical results through a system of quality assurance/quality control (QA/QC) performance checks with respect to data collection methods, laboratory analysis, data reporting and appropriate corrective actions to achieve compliance with established performance and data quality criteria. This section presents the QA/QC protocols used to ensure that the data obtained during the investigation are legally defensible and usable for their intended purpose. The QA/QC program will use the DEQ QA Project Plan document (2017) to guide the processes being discussed below.

5.1 MEASUREMENTS OF DATA QUALITY

The quality of the project data reported by the laboratory will be evaluated using precision, accuracy, representativeness, completeness, and comparability, as described below.

5.1.1 Precision

Precision is a measure of the mutual agreement among individual measurements of the same property, under prescribed conditions. Precision will be assessed by the analysis of matrix spike/matrix spike duplicate (MS/MSD) samples, field duplicate samples and laboratory control sample/laboratory control sample duplicate (LCS/LCSD) samples. The calculated relative percent differences (RPDs) for field and MS/MSD pairs will provide information on the precision of sampling and analytical procedures, and the RPDs for LCS/LCSD pairs will provide information on the precision of the analytical procedures. The performance-based (or method defined) laboratory control limits for precision will be used for laboratory and field duplication evaluation for the project.

5.1.2 Accuracy

Accuracy is the degree to which an observed measurement agrees with the accepted reference or true value. Accuracy is a measure of the bias in a system and is expressed as the percent of recoveries of spiked analytes in MS/MSD and LCS/LCSD samples. Accuracy will also be evaluated through the surrogate spikes in each sample for the organic chemistry analyses. The performance-based (or method defined) laboratory control limits for accuracy will be used for the project.

5.1.3 Representativeness

Representativeness is the degree to which a set of data accurately represents the characteristics or condition of a particular sampling point. Representativeness is achieved by collecting samples representative of the matrix at the time of collection. Representativeness will be evaluated using replicate samples and blanks.

5.1.4 Completeness

Completeness refers to the amount of acceptable data points collected relative to the amount needed to achieve the project's technical objectives. Completeness is calculated as the number of valid data points achieved divided by the total number of data points expected for all requested analyses. For this project, the overall completeness objective is 98 percent; at least 98 percent of

proposed samples will be collected and successfully analyzed, excluding any sample location where lack of material precluded sample collection.

5.1.5 Comparability

Comparability is based on the use of established USEPA-approved methods for the analysis of selected parameters. The quantification of the analytical parameters is based on published methods, supplemented with well-documented procedures used in the laboratory to ensure reproducibility of the data.

5.2 QUALITY ASSURANCE AND QUALITY CONTROL

Field and laboratory QA/QC samples will be used to evaluate the data precision, accuracy, representativeness, and comparability of the analytical results. The field QA/QC samples to be collected are listed below. The laboratory samples are discussed in Section 5.2.2.

5.2.1 Field and Laboratory Control

The following samples will be prepared in the field and submitted to the laboratory:

Equipment Rinse Blanks

Equipment rinse blank samples provide a QC check on the potential for cross contamination by measuring the effectiveness of the decontamination procedures on the sampling equipment. The equipment rinse blank samples consists of reagent-grade water provided by the project laboratory, as applicable, rinsed across sample collection and processing equipment. If chemicals are detected in the equipment rinse blank sample, the detected concentration will be compared to the associated sample results to evaluate the potential for contamination. The blank results will be discussed in the data validation report, and data qualifiers may be applied to the associated sample results using DEQ guidelines (DEQ, 2015, 2017).

The one piece of equipment that will be in contact with the samples and subsequently decontaminated is the hand auger or push probe used to collect subsamples for each ISM sample. This equipment will be thoroughly decontaminated between DUs and then an equipment blank will be collected, at least one per week during field activities. It will be labeled EB-yymmdd-01 and documented in the field notebook. The list of analyses of the field blank will be the same as the ISM samples.

Duplicate Samples

Field duplicate sample results are used to assess the precision of the sample collection process and to determine the representativeness of the sample. Duplicate samples will be collected at the same time and analyzed for the same analytes as the original sample. If the results of the field duplicates samples exceed QA/QC criteria for precision, this information will be discussed in the data validation report, but data qualifiers will not be applied to the associated results. Field duplicate samples will be presented “blind” to the analytical laboratory (i.e. under a separate, unique sample number). The location where the duplicate samples were collected will be recorded in the field logs and documented in the report. The duplicate samples will be submitted to the same laboratory as the primary samples.

ISM soil samples will be checked by collecting two duplicates at locations designated for duplicate sampling. One primary sample and two duplicates will be collected at the same time and within 2 feet of one another. They will be collected in separate containers and submitted as three samples.

A single duplicate sample will be collected when sampling the pond water and another single duplicate will be collected when sampling the pond sediment.

Trip Blanks

The trip blank is designed to determine if cross contamination may have occurred during storage and transport of samples by measuring the VOCs accumulated in the water blank sample. The trip blanks will be prepared by the contracted laboratory and sent with the empty VOC sample vials. One trip blank will be included in each cooler containing samples for VOC analysis. Trip blanks will be identified: TB-yymmdd-01.

5.2.2 Laboratory QA/QC Samples

Instrument calibration and laboratory QA/QC sample requirements are defined in the test methods and laboratory's written standard operating procedures. As a certified and licensed environmental laboratory, Eurofins is abiding by all the national regulations and state specific qualifications for certification. All of the project specific QA/QC information related to the project samples will be included in the laboratory report and reviewed as part of the data validation process. This information will be included in the Level II QA/QC package in the laboratory report.

5.3 DATA VALIDATION, USABILITY, AND DATA UPLOADS

5.3.1 Data Review, Validation and Verification Requirements

The data collection process will be reviewed to verify that the data have been collected consistent with the program design and the quality assurance plan. Quality assurance personnel will review the progress of the data collection, starting with the monitoring and sampling and the documentation of field activities. Any deviations from the sampling protocol, the rationale for the deviations, and the expected impact on the program and the collected data will receive particular attention.

The review will follow the sample handling process from collection to delivery at the analytical laboratory. Proper chain-of-custody documentation will be evaluated and confirmed. Sample handling within the laboratory, analytical procedures used, QC activities, and the subsequent data reporting by the laboratory will be reviewed and evaluated.

5.3.1.1 Field Data Validation

The integrity of the field reportable data must be validated before it can be reported. This involves reviewing all field logs, reviewing and checking raw data entries and calculations, and verifying the custody integrity of all samples collected. Corrective actions will be performed when the precision and accuracy results fall outside of the control limits.

5.3.1.2 Laboratory Data Validation

Laboratory analytical reports shall also be subjected to a data validation review, including confirming the laboratory QA/QC procedures, comparing original and duplicate sample results, and ensuring spike recoveries are within acceptable ranges. Validation will include determining if:

- Sample holding times were met.
- Duplicate sample concentrations were within acceptable limits.
- Trip blanks were analyte-free.
- Detection limits were acceptable.
- Laboratory blanks were analyte free.
- Laboratory matrix spike recoveries were within acceptable limits.
- Any analytical interferences were identified.
- Laboratory precision and accuracy were within acceptable limits.
- Obvious anomalous values were identified and addressed.

Based on these reviews, the data will be classified as valid, useable, or unusable. Data classified as valid will have met all the data quality objectives, the sample custody and field logs will be in order, the results of the analyses of the field and laboratory QC blanks will be acceptable and other laboratory performance criteria will be acceptable. Valid data can be used for all purposes.

Data classified as useable will not have met all the QA/QC criteria described above. Sample custody may have been broken, holding times may have been slightly missed, a QC blank may have been contaminated, or the detection limit may have been elevated. These are a few examples of situations that cause the analytical data to be questionable but still useable, providing that data is used with caution.

Data that has been classified as unusable is invalid and will not be used for any purpose. Unusable data may be the result of gross laboratory error, strong analytical interferences, or other major problems associated with the data.

5.3.2 Reconciliation with Data Quality Objectives

The results of the data verification and validation process will be used to determine the value, application and usefulness of the data for this monitoring project. It is possible that some or all of the data may be qualified. The qualifications, if any, and the impacts on the usefulness of the data, will be discussed in the project report.

The data, and any qualifications, will be evaluated with respect to the data quality objectives. Depending on the results, corrective action may be necessary. The corrective action could range from flagging data due to minor issues during analysis to discarding the data and repeating the sampling of a particular media at a particular location.

Data qualifiers, as defined by the USEPA, are used to classify sample data according to their conformance to QC requirements. Common qualifiers are listed below:

- J – estimate, qualitatively correct but quantitatively suspect
- R – reject, data not suitable for any purpose
- U – not detected at specified reporting limit
- H – not analyzed within the holding time for that analytical test
- B – analyte also detected in the laboratory blank

Other qualifiers may be used by the laboratory and indicated in their report, along with an explanation in the narrative of the report. When sample data are qualified, the reasons for the qualification will be stated in the data validation report.

6.0 REPORTING

After the field and laboratory data have been validated, a report will be written, which will include a compilation of all the data, an evaluation and a preliminary risk assessment. This report will be submitted to DEQ for review. The report will include the following:

- A description of the site history and operations,
- Results of the Ecological scoping evaluation and Tier I assessment, if necessary,
- Conceptual Site Model which includes:
  - Potential sources of contamination and impacted media,
  - Potential contaminants of concern
  - Complete or potentially completed exposure pathways
  - Locality of facility
  - Results of beneficial land and water use survey.
- Summary of data collected during this SI,
- Any variance from the work plan and reason for this change
- Screening of data collected against applicate risk-based concentrations (RBCs) and
- Conclusions regarding the need for additional investigation, remedial actions or risk management.

Tables will be prepared summarizing the analytical data and figures will be included showing the sample locations. The media and locations which exceeded the DEQ RBCs will be presented as part of the data analysis. All data sheets, field notes and analytical reports along with QA/QV verification reports will be included in the appendices.

An electronic copy and two hard copies of the final report will be delivered to DEQ.

7.0 REFERENCES

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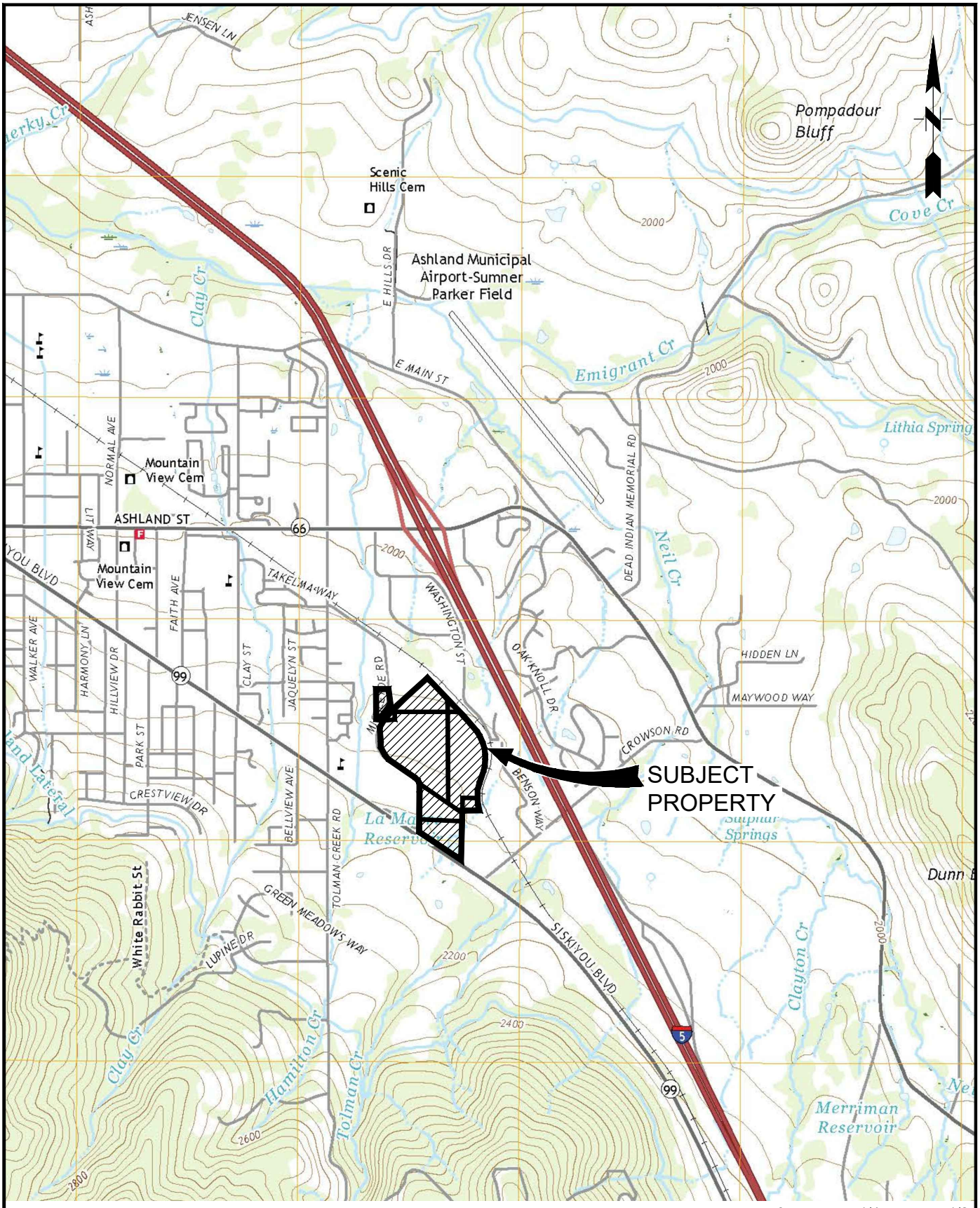
Figures



SOURCE: U.S. Geological Survey, Ashland
7.5-minute topographic quadrangle, 2021

SCS ENGINEERS
Environmental Consultants and Contractors
15940 SW 72nd Avenue
Portland, Oregon 97224
(503) 639-9201 FAX: (503) 684-6948

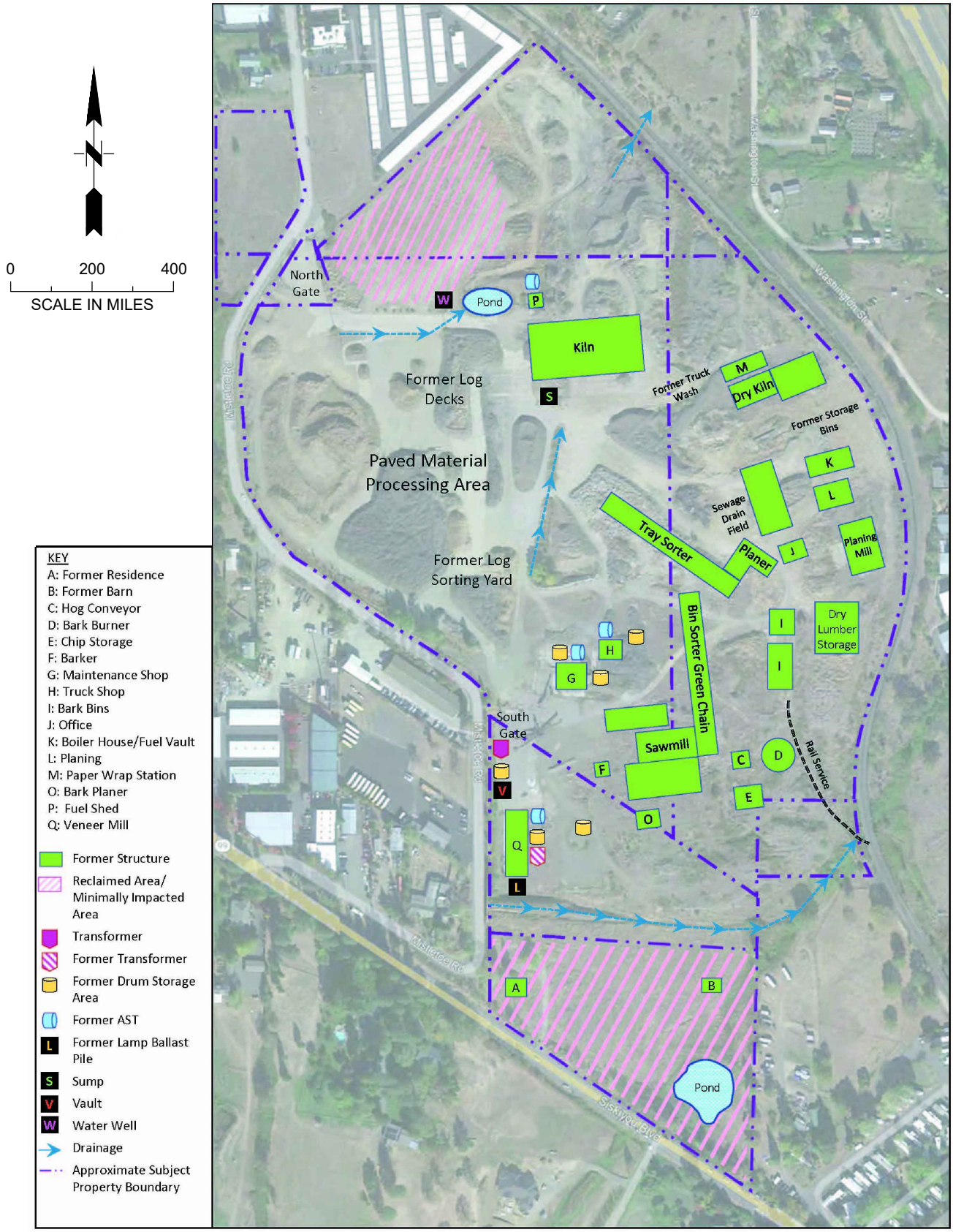
PROJECT NO.	DES BY
04222021.00	L.E.L.
SCALE	CHK BY
AS SHOWN	B.L.
CAD FILE	APP BY
FIGURE 1	S.L.

PROPERTY LOCATION MAP

CROMAN PROPERTY
146 MISTLETOE ROAD
ASHLAND, OREGON 97520

DATE
JUNE 2022

FIGURE
1-1



SOURCE: Figure 1, Detailed Site Plan, by Rogue Environmental Consulting, November 2021

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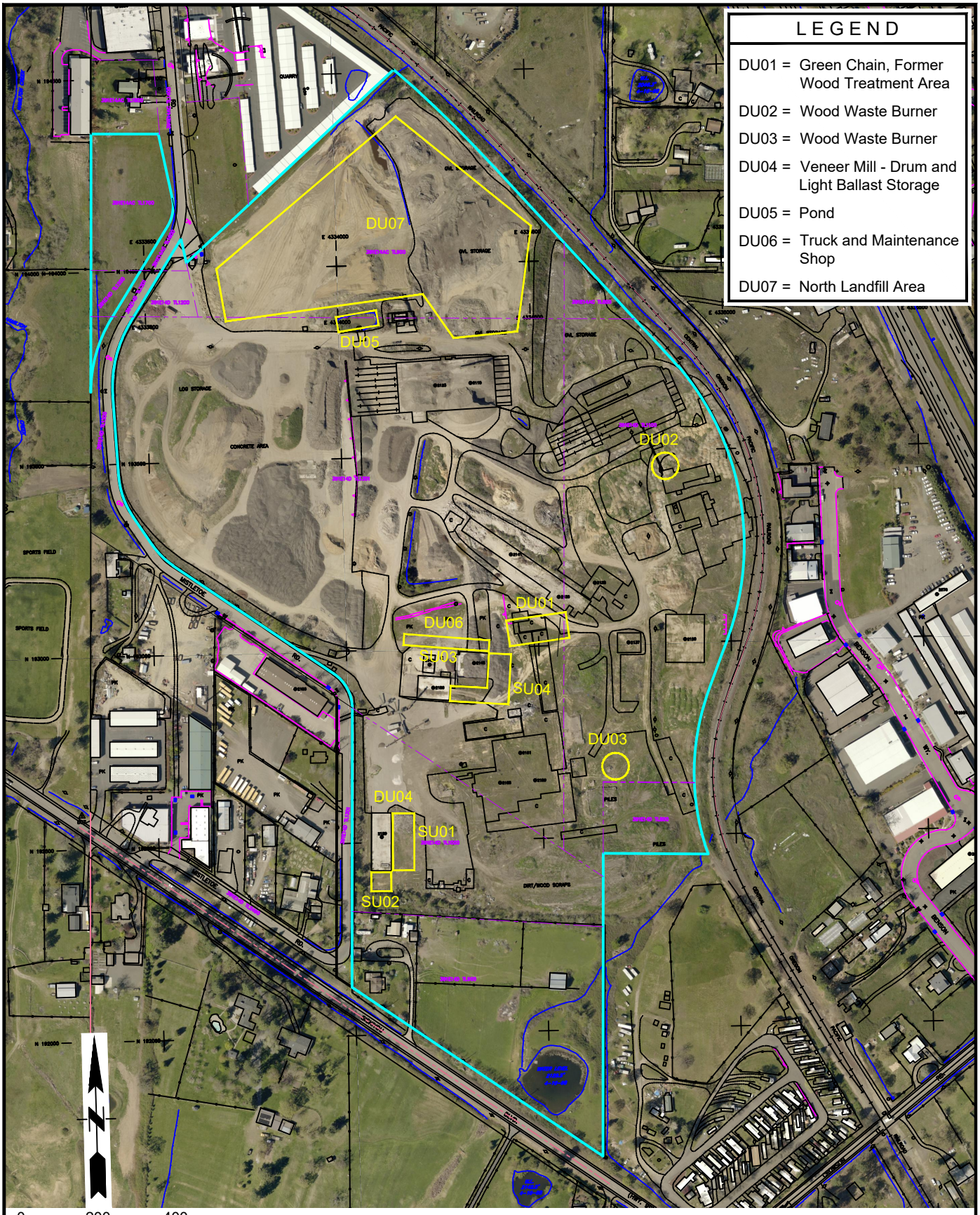
PROJECT NO.	DES BY
04222021.00	L.E.L.
SCALE	CHK BY
AS SHOWN	B.L.
CAD FILE	APP BY
FIGURE 2	S.L.

PROPERTY PLAN

CROMAN PROPERTY
146 MISTLETOE ROAD
ASHLAND, OREGON 97520

DATE
JUNE 2022

FIGURE
1-2



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PROJECT NO. 04222021.00	DES BY L.E.L.
SCALE AS SHOWN	CHK BY B.L.
CAD FILE FIGURE 4-1	APP BY S.L.

SITE PLAN

CROMAN PROPERTY
146 MISTLETOE ROAD
ASHLAND, OREGON 97520

DATE JULY 2022

FIGURE 3-1

Appendix A

Surface Water
Field Data Collection Forms

SCS ENGINEERS

SURFACE WATER SAMPLING FIELD FORM

PROJECT NAME: Croman Property, Ashland, OR **Project No:** 04222021.00 (Task 02)

Event: Site investigation - pond sampling **DATE:**

Field Personnel: _____ **Sample ID:** _____

Weather Conditions: _____ **Start Time:**

Depth of water body

Water Quality INFORMATION

Time (00:00 - 23:59)	DTW During Purging (feet)	Pumping Rate (L/min)	Temperature (degree C)	Specific Conductivity (mS/cm)	Dissolved Oxygen mg/L	Water pH (S.U.)	ORP (mV)	Turbidity (NTUs)	Total Quantity Purged (gallons/liters)

Total Purged:

Tubing: _____

Sample Equipment ☐ Bailer ☐ Peristaltic Pump ☐ Dip stick with container ☐ Other_____

Decontamination Method:

SAMPLING INFORMATION

QA/QC Sample: ☐ Duplicate ☐ Lab QA/QC ☐ Equipment Blank ☐ None

Analytical Parameters	Destination Laboratory	Preservative	Bottle Size	Number of bottles	Sample ID	Time Sampled
NWTPH-Gx	Eurofins - Denver	HCl	40 ml VOAs	3		
NWTPH-Dx	Eurofins - Denver	HCl	250ml amber	2		
EPA 8260 VOCs	Eurofins - Denver	HCl	40 ml VOAs	3		
EPA 8270 SIM - PAHs	Eurofins - Denver	none	1L amber	1		
EPA 6000/70000 series - RCRA 8 metals	Eurofins - Denver	Nitric Acid	500ml poly	1		

Method of Transportation of samples: _____

All samples were immediately placed into a cooler and packed with ice or "Blue Ice" ☐ Yes ☐ No

Field Observations/Notes of Sampling Event:

Signature of Field Personnel: **Date:**

Appendix B

Chain of Custody Forms

Eurofins Denver
4955 Yarrow Street

Arvada, CO 80002-4517
phone 303.736.0100 fax 303.431.7171

Chain of Custody Record

eurofins | Environment Testing America

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other: **DEQ Voluntary Cleanup Program**

Eurofins Environment Testing America

Client Contact	**Project Manager: Barb Lary**	**Site Contact:**	**Date:**	COC No:
SCS Engineers	**Email: Blary@scsengineers.com**	**Lab Contact:**	**Carrier:**	_____ of _____ COCs
15940 SW 72nd Avenue	**Tel/Fax: 971-284-1297**			TALS Project #:
Portland, OR 97224	**Analysis Turnaround Time**			Sampler:
503-639-9201	☑ CALENDAR DAYS ☐ WORKING DAYS			**For Lab Use Only:**
(xxx) xxx-xxxx FAX	TAT if different from Below _____			Walk-in Client:
Project Name: Croman Property, Ashland, OR	☑ 2 weeks			Lab Sampling:
Site: Croman Site Investigation	☐ 1 week			
P O #	☐ 2 days			Job / SDG No.:
	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	NWTPH-Gx	NWTPH-Dx	EPA 8290 Dioxins/Furans	EPA 8270 SVOCs	EPA 8082 PCBs	RCRA 8 Metals	Mercury	EPA 8270 SIM (PAHs)	EPA 8260 VOCs									Sample Specific Notes:

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____1, 2, 4, _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☑ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments: Level II QA/QC package included with the report.

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Appendix B

Health and Safety Plan

SITE-SPECIFIC SAFETY AND HEALTH PLAN

Complete and file for all jobs. Required by 1910.120(b)(4) and WAC 296-843-12005 for hazardous-waste and emergency-response operations and work at contaminated sites. If the items below are addressed in the SCS Engineers *Injury and Illness Prevention Plan*, it is not necessary to duplicate them here.

General Information

Job # 04222021.00 Project Name *Croman Property Site Investigation – Ashland, OR*
Site Address Entrance gate is 640 feet south of 700 Mistletoe Road, Ashland, OR
Will this project involve field work (excluding Phase I site walk)? No ☐ Yes ☒ If YES, complete the rest of this form.

Approved __Barbara E. Lary_____ Date ___5/5/2022_____
Project Manager

- Based on the scope of work and project hazards (below), is a more detailed safety and health plan required? No ☒ Yes ☐
  If yes, prepare a more detailed site-specific safety and health plan, provide the title and location of the plan, and file this sheet in the OSM's contract file. Plan title _____ Plan location _____

Emergency Information

All employees must evacuate the danger area when an emergency occurs and are not permitted to assist in handling the emergency.
Means of alerting in case of emergency (call on radio, sound horn, site alarm system, etc.) sound horn
Nearest Hospital (attach route map) **Asante Ashland Community Hospital, 280 Maple Street**
Police, Fire Department, Ambulance 911
Client (contact name) Mike Montero Other Contact Name *Barb Lary, SCS Engineers*
Client Telephone # 541-944-4376 Other Contact Telephone # 971-284-1297

- The evacuation assembly point is: *North Gate entrance to site*.
- Attach emergency-action plan (per 29 CFR 1910.38 or WAC 296-843-160).
- Will you be handling drums or containers of hazardous waste? No ☐ Yes ☒ If YES, take measures to handle the containers safely (see 1910.120(j) or WAC 296-843-180) and take measures to contain and isolate the entire volume of the substance being transferred.

Scope of Work

- This plan must address the safety and health hazards of each phase of the site operation and include the requirements and procedures for employee protection.
- Attach site map showing work zones (see 1910.120(d) or WAC 296-843-140 as applicable).

General: *Soil sampling across site as detailed in a sampling and analysis plan*

Phase One: Onsite Project meeting, familiarize with site features and discuss future work.

Phase Two: *Implement the Work Plan/Sampling and Analysis Plan through collecting surface samples and using hand tools and/or hand auger. May use onsite excavator and/or geoprobe.*

Phase Three: *Transport or send samples to laboratory for analytical testing.*

Standard Operating Procedures for safe work practices (see SOP 1 in Appendix A of the SCS *Injury and Illness Prevention Plan* and write addl. here as necessary):

Organizational Structure Including the Chain of Command: *SCS field personnel with report to local onsite contact*

on days of field work. Subcontractors will report to SCS and call SCS PM if issues or questions during work. SCS PM will contact Croman management if there are onsite issues.

Responsibilities of Supervisors and Employees (see pp. 3-8 of the SCS *Injury and Illness Prevention Plan* and write addl. here as necessary): *All SCS employees have the right and responsibility to stop work if there is a potentially*

unsafe working condition. Supervisors are responsible for ensuring this plan is executed. Employees are responsible for following safe practices and abiding by this plan.

Name of the Person with Responsibility and Authority to Direct All Haz-Waste Operations: *Barb Lary, SCS PM*

Any Site-Specific Lines of Authority, Responsibility, and Communication: *Communicate with onsite personnel conducting reclamation activities just to coordinate locking gate, site usage, etc.*

Hazard and Risk Analysis

Describe below the principal known or suspected hazards associated with the site and the work being performed. Perform a job-task safety analysis (JTSA) for each job task and attach the completed JTSAs. For JTSA guidance and forms, see SOP 4 in Appendix A of the SCS Engineers *Injury and Illness Prevention Plan* (IIPP). A JTSA must be performed before executing any new task that comes up during the project. The JTSA process includes a PPE assessment.

Will this project involve confined-space access? No ☒ Yes ☐ If YES, attach entry procedures and permit form (see the SCS *Injury and Illness Prevention Plan*, Appendix K, Confined Space Entry).

Chemical Hazards	Action Level (1/2 PEL)	PEL	IDLH (If known)	On-Site Conc.	Primary Hazard (e.g., acutely toxic on inhalation)
TPH				unknown	
PCBs				Unknown	
Metals				unknown	
SVOCs (PCP)				unknown	
Dioxins and Furans				unknown	

Physical Hazards:

Onsite Truck Traffic – trucks loading and unloading onsite. Beware of truck routes on and off-site. Also, other operating equipment onsite, such as excavators, crushers and sorters. Do not drive or walk too close to any of this equipment. Test pits – be aware of open test pits or other excavations active on the site and stay away from the edge.

Uneven ground and piles of debris. Watch footing and placement of equipment.

Biological Hazards: None

Radiological Hazards: None

Excavation Safety

Will the project involve excavations (including trenching)? No ☒ Yes ☐ If YES, ensure that the JTSAs for this project address excavation safety. For considerations, procedures, and more information, see IIPP Appendix J, Excavation and Construction Earthwork.

For any excavation that is entered, a competent individual must monitor any trench or excavation and any shoring at the beginning of the work shift, periodically during the day, and as conditions change, such as after a rain storm. The individual must be competent by means of experience and training and must have the authority to order changes or to stop work based on the findings of the excavation monitoring. The purpose of the monitoring is to evaluate the potential for collapse of any excavation.

Personal Protective Equipment

SCS Engineers maintains a written personal-protective-equipment (PPE) program as part of its written Health and Safety Program and *Injury and Illness Prevention Plan*. The PPE program addresses PPE selection, training, inspection, proper fitting, use, and limitations. A copy of the written PPE Program is maintained in the health and safety file at the SCS Engineers office. An electronic copy is maintained on the SCS Engineers intranet web site.

For air-purifying respirators, provide a cartridge change-out schedule that accounts for expected contaminant concentrations, temperature, humidity, breathing rate, etc.

Specific Personal Protective Equipment Required

General (all tasks): *Hi-vis vest/top, hardhat, steel-toed boots, hearing protection, eye glasses, gloves*

Additional PPE may be required for specific job tasks. See attached JTSAs for PPE requirements.

Heat Stress

The risk of heat stress is typically greater for workers wearing PPE. Heat stress includes several heat-induced illnesses, including heat exhaustion and the more severe heat stroke, and can result in death. Heat stress happens when the body is unable to cool itself by sweating. Factors leading to heat stress include high temperature and humidity, direct sun or heat, limited air movement, physical exertion, poor physical condition, some medicines, and inadequate tolerance for hot workplaces. See SCS *IIPP*, SOP 25, Avoidance of Heat and Cold Stress.

Will the project involve work in conditions that might induce a heat-related illness? No ☒ Yes ☐ If YES, ensure that the JTSAs for this project address heat stress.

Take your break in the shade (shade must be provided above 80 degrees Fahrenheit) or in an air-conditioned vehicle. To reduce the potential for heat stress, it is important to maintain your body's level of liquid.

- Ensure each employee at the site has at least 2 gallons of water available each day if heat stress is a potential hazard. For guidance, be particularly aware of signs of heat stress when the air temperature is at or above 89 degrees Fahrenheit.

Immediately report signs or symptoms of heat stress and act to cool the victim. It is important to remove heat-retaining personal protective equipment such as non-breathable, chemical-resistant clothing during all breaks.

- Symptoms of Heat Exhaustion: Headaches, dizziness, lightheadedness or fainting; weakness and moist skin; mood changes such as irritability or confusion; upset stomach or vomiting.
- Symptoms of Heat Stroke: Dry, hot skin with no sweating; mental confusion or losing consciousness; seizures or convulsions. Heat stroke is a medical emergency—call 911.
- Preventing Heat Stress: Know the symptoms of heat-related illnesses; monitor yourself and coworkers; block out direct sun or other heat sources if possible; use cooling fans/air-conditioning; rest regularly; drink lots of water; about 1 cup every 15 minutes; wear lightweight, light colored, loose-fitting clothes; avoid alcohol, caffeinated drinks, or heavy meals.

Cold Stress

When the body is unable to warm itself, serious cold- related illnesses and injuries may occur, and permanent tissue damage and death may result. Hypothermia can occur when land temperatures are above freezing or water temperatures are below 98.6°F/37°C. Cold-related illnesses can slowly overcome a person who has been chilled by low temperatures, brisk winds, or wet clothing.

Will the project involve work in conditions that might induce a cold-related illness? No ☒ Yes ☐ If YES, ensure that the JTSAs for this project address cold stress.

Protect workers from cold stress by providing training, controlling temperature and wind when possible by using heaters and windbreaks, rotating workers in cold jobs so that no one is exposed too long, scheduling work at warmest times, encouraging self-pacing and extra breaks if necessary, establishing a buddy system, and keeping first aid supplies and equipment available.

Employees can help prevent cold stress. Proper insulation and good ventilation is critical for clothing worn during cold stress exposures. Better insulation is achieved by layering clothes rather than by wearing just one warm garment. Layering allows a person to add or remove layers to adjust for different insulation needs during the work period.

Air Monitoring Plan

Equipment Type (e.g., vacuum pump, PID)	Monitoring Frequency	Calibration Method & Frequency	Maintenance Method or Schedule
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Specific Areas or Tasks that Require Air Monitoring: None

Required Frequency of Air Monitoring: None

Required Actions if Action Limits are Exceeded: N/A

Decontamination (pursuant to 1910.120(k) or WAC 296-843-150 as applicable)

- All personnel leaving a contaminated area shall be appropriately decontaminated.
- All clothing and equipment leaving a contaminated area shall be disposed of or appropriately decontaminated.

Standard Operating Procedures for Decontamination: - *Wash hand auger or hand tools between DUs, change gloves between ISM samples.*

The Site Safety and Health Supervisor shall monitor the effectiveness of the decontamination procedures.

SAFE Observations

Each SCS worker should submit at least one SAFE observation checklist for each field project. For long-duration projects, complete at least one SAFE observation each month. Applicable SAFE observation checklists for the project or site include (circle all appropriate): for (A) Solid Waste or ES Professionals, (B) OM&M, Field Construction Services, (C) SCS Energy, (D) for Offices and Clerical. Attach copies of appropriate SAFE observation checklists.

Accident Reporting

Every employee should report immediately any injury, no matter how small, to their supervisor and the safety and health coordinator at SCS Engineers' Bellevue, Washington, office. If the incident is life-threatening or requires emergency response personnel, call 911. If it does not, then call WorkCare at 1-800-449-7787. The supervisor or designee will then inform the OD, Office Services Manager (OSM), Human Resources Manager (HRM), and Corporate Health & Safety Director (CHSD) of the incident. The OSM will ensure that all required paperwork is issued, completed, and submitted in a timely manner.

If the injury or illness is serious in nature (e.g., a death, in-patient hospitalization, amputation, or loss of an eye), the CHSD and HRM must be informed immediately. The CHSD will report, either orally or in writing, to the nearest OSHA area director, and the state regulatory agency for safety. The proper documents must be delivered or faxed to the HRM and CHSD within 24 hours of the incident.

For serious accidents do not move equipment involved in the accident until the state regulatory agency for safety can inspect the accident scene. Equipment involved in the accident may be moved if it is necessary to remove any victims or prevent further incidents and injuries. A written report of the incident will be completed when all of the facts have been gathered.

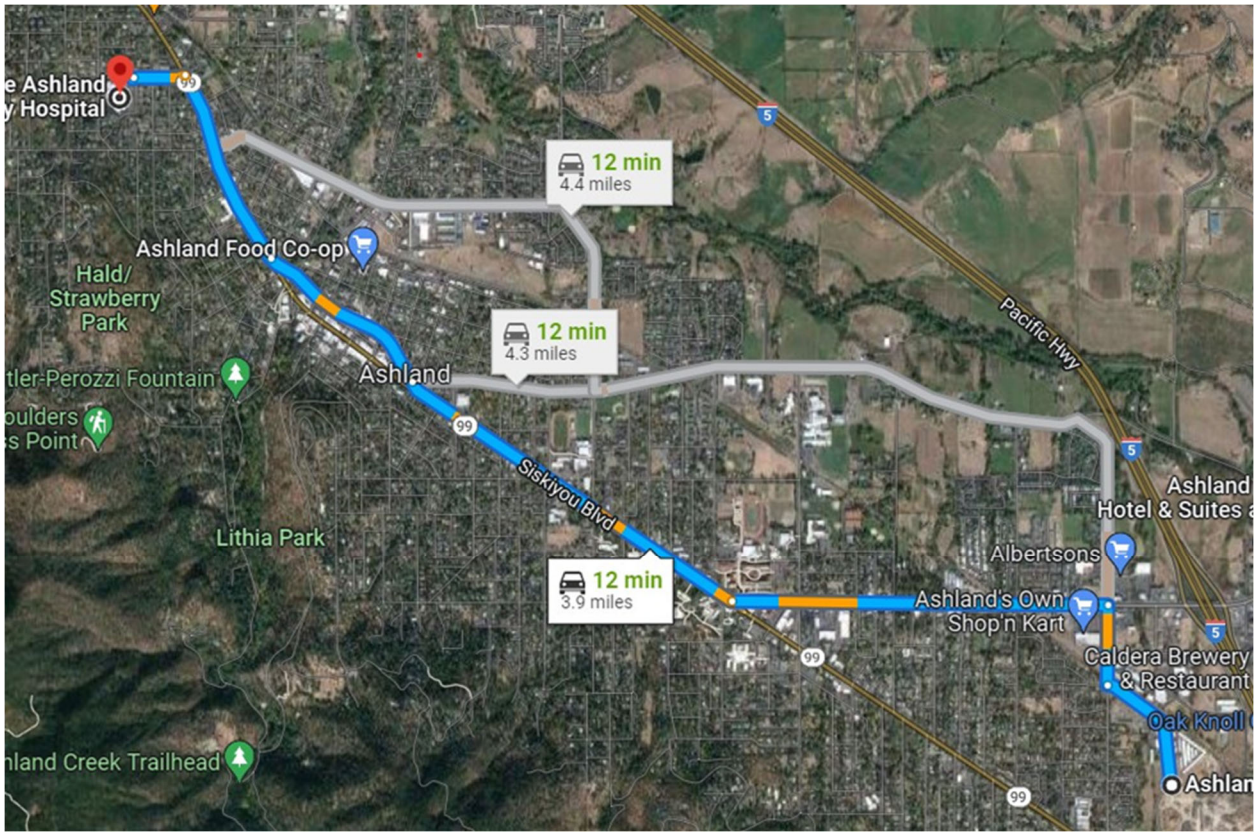
Attachments

- ☒ JTSAs and PPE Assessments for each job task
- ☐ SAFE Observation Checklists (Use app)
- ☐ Emergency-action plan (per 29 CFR 1910.38 or WAC 296-843-160 as applicable)
- ☐ Air Monitoring Log (if applicable)
- ☐ Confined-Space Evaluation Form (if applicable)
- ☐ Fall-Protection Plan (for fall hazards >6', e.g., LFG extraction-wells)
- ☐ Spill-Containment Program (if applicable)
- ☒ Route map to hospital (attached)
- ☐ Other:

Acknowledgment of Safety and Health Plan:

- Plan must include the names of the Site Safety and Health Supervisor and the Alternate.
- Personnel who may be exposed to hazardous substances or health hazards at or above the permissible exposure limits, or who wear a respirator for 30 days or more a year, or who are injured, become ill, or develop signs or symptoms due to possible overexposure involving hazardous substances or health hazards must be included in a medical-surveillance program pursuant to 1910.120(f) or WAC 296-843-210 as applicable.
- Employees must not be allowed to supervise or participate in field activities until they have been trained to a level required by their job function and responsibility (1910.120(e) and WAC 296-843-200).

Barbara E. Lary	Barbara E. Lary	5/5/2022
Site Safety and Health Supervisor (print)	Signature	Date
Alternate (print)	Signature	Date
Name (print)	Signature	Date



Asante Ashland Community Hospital 12 min (3.9 miles)
280 Maple St, Ashland, OR 97520
Phone: 541-201-4000

Fastest route from site (146 Mistletoe Road):

Take Ashland St to Siskiyou Blvd

5 min (1.6 mi)

Continue on Siskiyou Blvd to Maple St

6 min (2.2 mi)

Follow Maple St to your destination:

49 s (0.1 mi)

Asante Ashland Community Hospital
280 Maple St, Ashland, OR 97520

JTSA01: ISM Sampling - driller/excavator

Job Task Safety Analysis Form				
Task Type (Check all that Apply)	OM&M Construction Energy **Engineering Services**	**Task Description (include an estimate of task duration in hrs/day)** Collect ISM samples from native soils beneath fill material. SCS will have a one-person crew to oversee direct push driller or work with an excavator. Hours of operation typically 08:00 to 17:00.		**Location or Project:** Ashland, Oregon **Date Written or Revised:** 7/12/2022 **Project #:** 04222021.00 Task 02 **Revision #:** Rev 0.1
Analysis Team Member	**Position Title**		**Reviewed by**	**Position Title**
Barb Lary	PM		Shane Latimer	Project Director
Special Training Required		40 hr hazwoper w/ annual 8-hour refresher training. Site orientation. Review site-specific safety and health plan.		
Applicable SAFE Checklist(s): Specify type and category number		SAFE Observation Checklist for ES/Solid Waste Professionals		

This form is certification that the hazard assessment has been performed for the workplace as required under 29 CFR 1910.132. This document is to be used as guidance for the task described and should be modified on an as necessary basis to address site, operational and/or environmental changes.

Job Task Step	Potential Environmental and Personnel Hazards[1]	Critical Actions	PPE Required
1. Review & Sign SSHSP/JTSA	• None	• None	None
2. Travel to site	• Road traffic and other hazards. Possible wet conditions • Off-road access to each site	• Wear seat belts. • Inspect vehicle using SCS vehicle inspection log before driving. • Use off-road-driving techniques as necessary to reduce risk of vehicle getting stuck. Walk route first.	Head: SUNGLASSES AS NECESSARY WHEN DRIVING Body: SEAT BELT Foot: None Hand: HEAVY GLOVES WHEN LOADING Respiratory: None Hearing: None
3. Driller - borings	• Overhead and underground hazards associated with drilling • Slip and trip hazards • Noise hazard	• Verify that an underground utilities location request has been called in and that utilities have been identified (photograph paint marks or flags). • Encourage driller to maintain distance from overhead power consistent with OSHA Table A (attached). • Hold tailgate safety meeting before work starts to discuss hazards and mitigation measures. Ask drillers about hazards and safety practices around rig. • Keep safe distance from drill rig. Clear with driller before approaching. Know where kill switch is located. • Maintain organized work area to help reduce slip and trip hazards.	Head: SAFETY GLASSES, HARD HAT, HARD HAT Body: ANSI CLASS 3 HI-VIZ CLOTHING WITH X ON BACK, Rain gear as necessary Foot: SAFETY SHOES Hand: NITRILE GLOVES Respiratory: None Hearing: EAR PLUGS
4. Excavator – test pit	• Hazards per step 3. • Clear communication so you don't come into contact with large equipment.	• Critical actions per step 3. • Stand where you can be seen at all times and have agreed upon hand signals if noise prevents being heard. • Always make sure operator knows if you are approaching the bucket for a sample and communicate when you are finished and away from the swing radius.	Head: SAFETY GLASSES, HARD HAT, HARD HAT LINER IN COLD WEATHER Body: ANSI CLASS 3 HI-VIZ CLOTHING WITH X ON BACK, Rain gear as necessary Foot: SAFETY SHOES Hand: NITRILE GLOVES Respiratory: None Hearing: EAR PLUGS

[1] See Table 1 for examples of Environmental hazards and Table 2 for Personal Hazards.

Job Task Step	Potential Environmental and Personnel Hazards[1]	Critical Actions	PPE Required
5. Travel from site and unload vehicle	• Hazards per step 2.	• Critical actions per step 2.	Head: SUNGLASSES AS NECESSARY WHEN DRIVING, SAFETY GLASSES WHEN UNLOADING. Body: SEAT BELT Foot: SAFETY SHOES Hand: HEAVY GLOVES WHEN UNLOADING Respiratory: None Hearing: None

[1] See Table 1 for examples of Environmental hazards and Table 2 for Personal Hazards.

JTSA02: Test Pits				
Task Type (Check all that apply)	OM&M Construction Energy **Engineering Services**	**Task Description (include estimate of task duration in hours/day):** Conducting Test Pits for soil sampling and to log subsurface materials. Test pits will be temporary, completed using equipment and operator supplied by subcontractor. Hours: 08:00 to 17:00	**Location or Project:** Croman Prop., Ashland OR **Date Revised:** 5/4/22 **Project #** 04222021.00/**Revision #:v.**0.1	
Analysis Team Member		**Position Title**	**Reviewed by**	**Position Title**
Barb Lary		Project Manager	Shane Latimer	Project Director
Special Training Required		40 hr Hazwoper w/ annual 8-hour refresher training. Site orientation. Review site-specific safety and health plan.		
Applicable SAFE Checklist(s): Specify type and category number		SAFE Observation Checklist for ES/Solid Waste Professionals or use APP on phone.		

This form is certification that the hazard assessment has been performed for the workplace as required under 29 CFR 1910.132. This document is to be used as guidance for the task described and should be modified on an as necessary basis to address site, operational and/or environmental changes.

Job Task Step	Potential Environmental and Personal Hazards[1]	Critical Actions	PPE Required
1 Preparation for excavation	Underground utilities	Private and public utility locate. All markings clearly visible or documentation of none in the area.	Head Body: safety vest / hi-viz colors Eye/face Foot: steel toed boots Hand Respiratory Hearing
2 Review H & S Plan	Onsite hazards (traffic and other operators) .	Daily tailgate meeting to determine scope and hazards for the day. Make sure everyone knows standard communications protocol and review emergency exit procedures should something happen onsite.	Head Body Eye/face Foot Hand Respiratory Hearing
3a Complete test pits as per the work plan.	Working around the excavator.	Be clear with excavator on where to dig and what you need. Continue to communicate with operator during procedure. Stay within sight of the operator during excavation and pay attention. Stop work if there are any hazards noted during excavation. Keep others from walking too close during equipment operation. Cone off or barricade work zone.	Head: hardhat Body hi-viz vest/shirt Eye/face safety glasses Foot: steel toed boots or equivalent Hand: nitrile gloves for sampling Respiratory: none Hearing: ear plugs
3b Collect soil samples from test pit and create a log describing subsurface materials.	Working around open test pit. Soil stockpile near test pit. Slip, trips and falls	NEVER enter a test pit. Any soil sample needed should be collected from the bucket of the excavator or using a hand auger from the surface. Don't get too close to the edge of test pit. If walls are unstable, step back farther. Step carefully and watch out for uneven ground near the test pit. Be aware of where soils are stockpiled near the test pit. Don't walk on them but step around.	Head: hardhat Body hi-viz vest/shirt Eye/face safety glasses Foot: steel toed boots or equivalent Hand: nitrile gloves for sampling Respiratory: none Hearing: ear plugs

4 Backfill test pit	Uneven ground. Working around large excavator	Backfill and compact soils in test pit when finished. Never leave an open test pit overnight. If stopping for a short break with an open test pit, have excavator position over the test pit to block access. If others onsite, barricade off the work zone so they can't walk too close or interfere with equipment operation.	Head: hardhat Body hi-viz vest/shirt Eye/face safety glasses Foot: steel toed boots or equivalent Hand: nitrile gloves for sampling Respiratory: none Hearing: ear plugs

[1] See ***Table SOP 4-1*** (below) for examples of Environmental Hazards.
[2] See ***Table SOP 4-2*** (below) for examples of Personal Hazards.

JTSA03 – Hand Auger Soil Sampling

Job Task Safety Analysis Form			
Task Type: Engineering Services	**Task Description** ISM shallow soil samples with hand auger	**Location or Project:** Croman Property, Ashland, OR	
		Date Revised: July 2022	
		Project #/Revision #: 04222021.00	
Analysis Team Member	**Position Title**	**Reviewed by**	**Position Title**
Barbara Lary	Project Manager	Shane Latimer	Project Director
Special Training Required:	None		
Applicable SAFE Checklist(s):	ES SAFE Observation Report (Use app.)		

Job Task Step	Potential Environmental and Personal Hazards[1]	Critical Actions	PPE Required
1. Review & Sign SSHSP/JTSA	None	None	None
2. Gather field equipment, sample bottles, paperwork.	none	Ensure equipment is clean and probes, meters and instruments are calibrated per manufacturer's instructions. Make sure sample bottles preserved and take necessary precaution with chemicals.	Head: None Body: None Foot: none Hand: nitriles if necessary Respiratory: None Hearing: None Eye/face: none
3. Travel to job site.	Traffic	Take usual precautions when driving to a job site. Be sure to know where you are going before heading out. Program GPS before starting to drive.	None
4. Hand auger at soil sample locations	Overextension, repetitive motion; heat stress; onsite traffic	Keep arms close to body when hand auguring. Rest when needed. Take breaks and drink sufficient water to keep hydrated. Get out of the sun periodically if needed. Check in with onsite crew and keep track of truck traffic relative to work zone.	Head: Hard hat Body: Hi-vis shirt or vest Foot: Steel-toe boots Hand: Leather gloves/nitrile Respiratory: None, Hearing: ear plugs Eye/face: Safety glasses
5. Collect soil samples	Contact with possibly impacted soils.	Used nitrile-covered hands to handle soil. No need to change within a DU, between subsamples. Change gloves between DU/SU.	Head: Hard hat Body: Hi-vis shirt or vest Foot: Steel-toe boots Hand: Nitrile gloves Respiratory: None Hearing: None Eye/face: Safety glasses

		Any composite sediments need to be mixed and then a portion put into lab supplied containers. Extra soil to be disposed as instructed in plan.	
Job Task Step	**Potential Environmental and Personal Hazards[1]**	**Critical Actions**	**PPE Required**
6. Label containers		Seal sample containers immediately and store on ice. Fill out sample log/notes.	Head: Hard hat Body: Hi-vis shirt or vest Foot: Steel-toe boots Hand: Nitrile gloves Respiratory: None Hearing: None Eye/face: Safety glasses
7. Prepare samples to be shipped to lab.	Take care in handling samples.	Follow proper guidelines for shipping samples. Ensure sufficient ice to reach lab and extra if being shipped. Plan on samples being delayed in shipping.	Head: None Foot: Steel-toe boots Hand: Nitrile gloves Respiratory: None Hearing: None Eye/face: Safety glasses
End of JTSA Form ES-08			

1. See SCS Injury Illness and Prevention Plan Table SOP 4-1 for examples of Environmental Hazards.
2 See SCS Injury Illness and Prevention Plan Table SOP 4-2 for examples of Personal Hazards.

Potential Environmental/Safety Hazards

Environmental Conditions	1. Is there adequate lighting? Provide portable lighting, flashlights, and hardhats with light attachments. 2. Are there sources of heat or cold stress? Cold stress: use insulated coveralls or clothing; provide heaters or blankets. Heat stress: provide plenty of ice and fluids; monitor body temperature and pulse; provide cooling vests; provide cooling fans or mistifiers. 3. Are there any radiation sources? Provide radiation protection; monitor for radiation. 4. Is there adequate ventilation to remove air contaminants? Provide ventilation fans or blowers. 5. Is adequate air monitoring conducted? Conduct personal or real-time monitoring. 6. Are there any biological hazards, such as ticks, spiders, snakes, chiggers, etc., potentially present in the area? Use DEET or other tick or insect sprays; cover exposed skin areas with clothing; tuck in pant leggings into boots.
Injurious Contact	1. Can an employee or clothing come in contact with, be struck by, or become caught between moving parts of machinery? Install guards or warning signs/barriers. 2. Are there any pinch points between two moving parts or objects? Provide guards, barriers, warning signs. 3. Is there sufficient room to work and not be in the line of fire or in a traffic area? Personnel provide traffic support, and use traffic cones. 4. Is there an object or machinery that can strike people? Provide barriers or use proper PPE. 5. Are energy sources controlled and subject to lockout/tagout? Provide lockout/tagout and check controls. 6. Are machines properly guarded? Use proper guards.
Overextension	***Exhibit L-2*** evaluates ergonomic hazards such as awkward postures, lifting, high hand force, repetitive motion, and repeated contact.
Slips, Trips, Falls	1. Is there a chance that ice, oil, water, or other slick material will accumulate on the working surfaces? Use shoe overlays or slip-resistant boots, and absorbents. 2. Is the area clear of debris and litter? Provide proper housekeeping; inspect area before starting task. 3. Are there any walking obstructions such as hidden ditches or hoses on the ground? Identify obstructions with tape or other warning devices. 4. Does the job require stairs, ladders, or other elevated surfaces? Provide railings or fall protection. 5. Is there a chance of fall from an elevated level? Provide railing or fall protection.

(continued)

Other Safety Hazards	1. Are correct tools for the job available? Evaluate tools required. 2. Is proper equipment for lifting and moving objects available? Provide manlifts, hoists, or cranes for lifting. 3. Is critical equipment maintained? Check maintenance records. 4. Is communication between groups adequate to ensure safe performance? Provide radios or cell phones to employees.
Drilling, Excavation, Confined Space, Operation of Heavy Machinery, Operating Power Tools	See appropriate SAFE Checklist for safe behaviors for each category.