Interim Remedial Action Measures Work Plan

Permapost Products, Inc., Hillsboro, Oregon, ECSI #148

Final

Prepared for:

Permapost Products, Inc.

Hillsboro, Oregon

August 30, 2024

Project No. M8012.01.001

Prepared by:

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MAUL FOSTER ALONGI

Interim Remedial Action Measures Work Plan

Permapost Products, Inc., Hillsboro, Oregon, ECSI #148

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

Maul Foster & Alongi, Inc.

EXPIRES: 12/31/2025
This digital seal certifies the signatory and document content.

Josh Elliott, PE
Principal Engineer

Krysta Krippaehne-Stein, EIT
Project Engineer

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Abbreviations

AOI	area of interest
BMP	best management practices
The City	City of Hillsboro
COC	chemical of concern
CRZ	critical root zone
CSM	conceptual site model
DEQ	Oregon Department of Environmental Quality
EPA	U.S. Environmental Protection Agency
IRAM	Interim Remedial Action Measures
LA	landscape architect
MFA	Maul Foster & Alongi, Inc.
ng/kg	nanograms per kilogram
OAR	Oregon Administrative Rule
Permapost	Permapost Products, Inc.
PRG	preliminary remediation goals
RAO	remedial action objective
RBC	risk-based concentration
RCRA	Resource Conservation and Recovery Act
SMP	Site Management Plan
TEQ	toxicity equivalent

1 Introduction

At the request of the Oregon Department of Environmental Quality (DEQ), Maul Foster & Alongi, Inc. (MFA) has prepared this Interim Remedial Action Measures (IRAM) Work Plan for Permapost Products, Inc. (Permapost) This work plan outlines the steps that will be taken by Permapost to remediate shallow soil contamination at a residential property (Property 1) adjacent to the Permapost property. Property 1 is located at 3975 SE Witch Hazel Road in Hillsboro, Oregon (see Figure 1-1). Property 1 is one of four residential parcels adjacent to Permapost's southern property line. Shallow soil on Property 1 has documented arsenic and dioxin/furan contamination that exceed preliminary remediation goals (PRGs).

Property 1 is part of area of interest 5 (AOI-5). AOI-5 is one of five AOIs that comprise the Permapost Site. In addition to AOI-5, the Permapost Site is comprised four other AOIs: the terrace (AOI-1), one of two parcels on the adjoining Aloha property (AOI-2), the Property (AOI-3), and the railroad ditch (AOI-4) (see Figure 1-2).

AOI-5 consists of four residential properties adjacent and to the south of the Permapost property (see Figure 1-2). Permapost has initiated discussions regarding remediation of AOI-5 with 3 of the 4 property owners, including possible purchase of properties 2 and 3. The owner of property 4 has not responded to Permapost and Permapost has not been provided access to property 4. The owner of Property 1 is the only property owner that has currently indicated they are prepared to proceed with an IRAM.

The proposed IRAM would remove soil with concentrations of arsenic and dioxin/furans above PRGs established for Property 1, to the extent accessible. The proposed IRAM will include removal of contaminated soil, consolidation and temporary stockpiling of contaminated soil on the adjacent Permapost property, importing clean soil, and landscaping restoration.

2 Background

2.1 Previous Investigations

In October 2022 and May 2023, at the request of DEQ, Permapost conducted soil sampling on properties 1, 2, and 3 in AOI-5 (see Figure 2-1). Soil was sampled in the front, mid, and backyards of the residences and analyzed for chemicals of concern (COC) (dioxin/furans and arsenic) to assess contamination from potential historical stormwater runoff onto AOI-5. Analytical data were screened relative to the site-specific preliminary remediation goal for dioxins/furans and the natural background concentration for arsenic (MFA 2022, 2023b). Based on analytical data collected to date, soil contamination is limited to three feet or less below ground surface.

On May 31, 2024, additional soil sampling was conducted within the front and middle yard of Property 1 for pre-design sampling, as discussed in Section 3.

2.2 Preliminary Remediation Goals

As described in OAR 340-122-0115, cleanup levels are the residual concentrations of hazardous substances in a medium that are determined to be protective under specified exposure conditions of public health, safety, and welfare, and of the environment. PRGs for shallow soil were developed for human receptors under a residential exposure scenario and are considered cleanup levels for shallow soil at AOI-5 (which includes Property 1) (MFA 2024):

- Arsenic, 0-3 feet bgs, PRG of 8.8 milligrams per kilogram.
- Dioxin toxicity equivalent (TEQ), 0-3 feet bgs, PRG of 11.8 nanograms per kilogram (ng/kg).

The PRGs identified will be protective of residential, occupational, construction, and excavation workers as applicable for Property 1. The PRGs account for cancer and noncancer effects and rely on DEQ background soil concentration for arsenic and a site-specific background concentration developed for dioxins based on a background study using topsoil data collected from regional topsoil providers (MFA 2023b). The site-specific dioxin PRG was approved by DEQ (DEQ, 2023).

3 Supplemental Soil Sampling

In May 2024, additional soil sampling was conducted in the front and mid-yard areas of Property 1 as described in Attachment A. Results from this supplemental soil sampling, as well as previous sampling data, informed the final remediation depths for Property 1 (see Figure 3-1).

4 Description of Interim Remedy

4.1 Interim Remedial Action Areas

Excavation areas for Property 1 are shown on Figure 3-1. The cleanup areas and depths are based on the results of soil characterization described in Section 3 and in previously submitted reports (MFA 2022). The back and mid yard portions of Property 1 will be excavated to a depth of 3 feet bgs. The front yard portion that does include the gravel driveway area will be excavated to a depth of 2 feet bgs. The front yard portion that does not include the gravel driveway area will be excavated to a depth of 1 feet bgs.

4.2 Interim Remedial Action Components

The primary interim remedial action components are:

- Soil exceeding PRGs will be excavated, transported, and temporarily stockpiled on the Permapost property (temporary stockpiling in DU-G will take place pending DEQ's selection of a final remedial action).
- Excavation areas will extend up to 3 feet bgs as shown on Figure 3-1.
- Excavation areas will be backfilled using clean imported soil to grade. Permapost has tested soil from a variety of available sources, as described in Section 4.2.5.1.
- Yard landscaping will be restored.

All accessible soil that exceeds the PRGs will be excavated on Property 1. Accessible soils are those not covered by permanent structures (such as homes and garages) or asphalt or concrete paving (such as sidewalks, driveways, patios, and parking areas).

Permapost will work with the owner of property to coordinate the cleanup, including:

- Verify and survey cleanup areas.
- Establish the restoration design.
- Provide information on pre-cleanup activities and owner responsibilities.
- Provide information about the cleanup and restoration timeline.
- Provide information regarding landscape care following yard restoration.

Permapost and the property owner will sign a cleanup contract before cleanup is implemented. The cleanup will be designed to constitute a final cleanup action. The cleanup and restoration process are further described in the following subsections.

4.2.1 Site Preparation

Prior to remedial action, topographic, public and private utility, and vegetation surveys will be conducted. The property owner will be responsible for removing nonpermanent structures from the yard (e.g., piles of wood, debris, toys, piles of soil, lawn furniture, fire pits, vehicles). Existing fences in areas identified for cleanup will remain in place; excavation adjacent to fences will proceed in accordance with the details provided in the Drawings. These details are intended to avoid destabilizing soil outside the fence line and inadvertent damage to fences by excavation equipment.

Structures constructed on permanent foundations (e.g., cement or concrete pads) will remain in place, including the garage located on the northwestern portion of the property. The garage foundation consists of a reinforced concrete slab that was constructed at a similar timeframe as the residence, therefore it is unlikely contamination above PRGs exists below the foundation. A structural engineer will be retained by Permapost to evaluate existing foundation conditions immediately prior to construction. This evaluation will document visible cracks or other indications of pre-existing damage and will provide recommendations on how to safely excavate around foundations if they differ from the plan in Sheet C2.1 of the Design Drawings in Appendix B.

Structures not constructed on permanent foundations (e.g., sheds without foundations/footings) and moveable site features (e.g., vehicles, boats, trailers, etc.) will be temporarily removed from the

property prior to the start of interim remedial actions to facilitate excavation of contaminated soil beneath the structures and features. Assessment of existing above grade structures (e.g., sheds) would be required to determine whether a structure can be temporarily moved for soil removal access without impacting the structures usability/structural integrity. If a structure cannot be moved without damaging the usability/structural integrity, Permapost will coordinate with the homeowner to determine agreement for 1) removing it without replacement, or 2) removing it with replacement.

4.2.2 Vegetation Management

Existing small shrubs, groundcovers, and lawns that are in areas identified for cleanup will be removed or transplanted to facilitate soil excavation. Existing large woody vegetation (e.g., trees and large shrubs, herein referred to as trees) will be handled on a case-by-case basis. If preservation of the tree is desired, trees will be surveyed by a certified arborist; this survey effort will include delineation of the critical root zone (CRZ) and an evaluation of the health/viability of individual trees.

Where practicable and if desired by the homeowner, existing, viable trees will be preserved during construction by the following practices (see Sheet C1.0 of Design Drawings in Appendix B):

- Delineation of the CRZ by construction fencing.
- Prohibition of construction equipment entry into and transit within the CRZ.
- Small CRZs (e.g., Japanese Maples) will be balled/burlapped to facilitate soil removal and replanted.
- Large CRZs will be hand and/or vactor trucked to facilitate excavation of soil in the CRZ.
- Immediate restoration of soil in large CRZs will be conducted to support the health of the tree (which may occur prior to final excavation and survey of post-excavation grade).
- Informing the homeowner of any soil within the cleanup horizon that may have to remain to preserve the tree.
- Covering clean fill soil around the tree with mulch.
- Additional precautions as recommended by the project arborist.

Trees that are identified as unhealthy/inviable will be removed before soil excavation and may be replaced with a nursery-stock tree as part of the landscape restoration.

4.2.3 Soil Management

4.2.3.1 Erosion and Sediment Control Best Management Practices

It is Permapost's responsibility to ensure that best management practices (BMPs) are being followed. BMPs for soil and stormwater will be used to during excavation and removal to minimize any releases of contaminants. BMPs may include:

- Dampening soil to limit dust.
- Avoiding overwatering to prevent erosion or migration of contaminated soil.
- Covering disturbed soil, open excavations, and soil piles with plastic sheeting to reduce stormwater contact with potentially contaminated soil and soil runoff.

- Loading trucks in a careful, controlled manner to minimize spillage, and placing plastic sheeting beneath the swing path of the excavator to contain any soil that is spilled.
- Using rubber rumble strips immediately adjacent to loading areas to dislodge loose soil from truck tires before trucks leave the site.
- Covering soil loads before trucks leave the work site.
- Monitoring roadways to ensure that soil is not being tracked off site.
- Street sweeping (if required) to removed tracked soil from roadways.

4.2.3.2 Utility Management

As noted in section 4.1, public and private utility locates will be conducted prior to remedial action. Utility companies will be notified on the planned excavation as applicable. When excavation occurs close to utilities, hand-digging or other non-invasive techniques will be used. If a utility is accidentally damaged, the area will be isolated, the utility company contacted, and the area secured to prevent further damage. All excavation activities will comply with local, state, and federal regulations regarding utility safety and excavation practices.

4.2.3.3 Property 1 Soil Management

Contamination exceeding the PRGs will be excavated. As mentioned in Section 4.2, up to three feet of soil will be excavated and will be replaced with clean soil (see Figure 3-1). Excavations adjacent to existing hardscaping (e.g., roads, driveways) and structures will be constructed with side slopes to avoid undermining. Excavations on steeper slopes may be benched to allow compaction of clean fill during restoration. Very steep slopes and areas that are inaccessible to equipment (e.g., small areas confined by structures or hardscapes) will be further evaluated during predesign activities. The exact maximum slope allowed for various scenarios will be determined in consultation with a structural engineer. Means such as hand excavation may be used to remove soils to the maximum extent practicable.

4.2.3.4 Permapost Property Soil Management

Contaminated soil excavated from Property 1 will be transported to the southwestern portion of the Permapost property and placed in a temporary stockpile. The contaminated soil stockpile will be underlain with up to one foot of imported gravel and a 10 mil plastic (polyethylene) liner to serve as a demarcation layer. Straw bales will surround the perimeter of the contaminated soil stockpile, and 10 mil plastic sheeting will cover the stockpile and extend two feet beyond the straw bales. The top plastic sheeting will be weighed down with sandbags. Contaminated soil stockpile details are including on Sheet C1.2 of the Design Drawings (see Appendix B).

4.2.4 Post-Excavation Evaluation

Following excavation, the yard will be surveyed by the contractor. The topographic survey will be submitted to the engineer for approval. Alternative means, such as grade stakes, may also be used to verify excavation completion. The engineer will compare the elevations of the excavation to the preconstruction elevations to ensure that the full excavation extent has been achieved prior to placement of clean soil and restoration.

Following construction, the structural engineer will re-evaluate each foundation to ensure that there has been no foundation damage as a result of the construction activities. Permapost will keep these pre- and post-construction foundation inspection records on file; these records will be made available to the property owner upon request.

4.2.5 Site Restoration

The property owner will be provided with two options for yard restoration:

1. Restore with lawn and mulched bed(s).
2. Restore with the same or in-kind landscaping that was removed.

The property owner will have the opportunity to meet with a landscape architect (LA) to develop the property landscape restoration design during the pre-cleanup planning visit(s). During this consultation, the LA will present the restoration options to the property owner and the preferred option and configuration will be selected.

Permapost will provide information to the property owner regarding appropriate lawn and vegetation care to support successful establishment of landscaping.

Yard restoration will also include the return or replacement of site features removed or damaged during excavation, including the gazebo, deck, and sheds.

4.2.5.1 Backfill

Topsoil source sampling was conducted consistent with the Revised Yard Pre-Design Investigation Work Plan between May and July 2023 (MFA, 2023b). To identify providers for this sampling, Permapost considered their location (i.e., are they reasonably proximate to the Site) and whether the provider typically can provide adequate soil volume to support Site yard remediation. Topsoil blends (often described as “3-ways”) were sampled from regional providers. The blends typically consisted of sandy loam, sand, and compost that could provide adequate drainage and support vegetative growth. Topsoil will be sourced from one or more topsoil providers previously tested unless otherwise approved by DEQ.

4.3 Health and Safety Procedures

Interim remedial actions will be conducted in accordance with a site-specific health and safety plan. The site-specific health and safety plan will be prepared consistent with Oregon Occupational Safety and Health Administration regulations and Title 29 of the Code of Federal Regulations 1910.120 and 1926.65.

Permapost will retain an excavation contractor that will complete the work in compliance with Oregon Occupational Safety and Health Administration regulations. The contractor will be required to use a crew that has received Hazardous Waste Operations and Emergency Response training.

4.4 Construction Quality Assurance Measures

The interim remedial action will be conducted with oversight by an environmental professional operating under the direction of a Professional Engineer licensed in Oregon. Expected construction quality assurance measures relevant to the remediation include:

- Daily erosion and sediment control BMP inspection
- Dust control observation; implement dust suppression techniques, such as water spraying, to prevent airborne dust as needed based on observations conducted as part of oversight activities
- Verification of appropriate restricted access construction methods (including maximum soil side slopes) adjacent to existing structures, fences, and pavement
- Visual/manual verification of excavation depth within restricted access areas
- Verification of complete excavation depth outside of restricted access areas (1 ft, 2 ft, or 3 ft). Excavation depth will be confirmed by comparison of post-excavation elevations to the pre-construction topographic survey.
- Documentation of arborist oversight during excavation within critical root zones of trees to remain
- Verification of the demarcation layer under the excavated soil stockpile on DU-G (polyethylene liner and 1 foot of gravel) prior to soil placement
- Verification of the soil stockpile cover on DU-G following soil placement and/or prior to a precipitation event during soil hauling
- Ongoing monthly inspection and maintenance of the DU-G soil stockpile cover and erosion controls; any required repairs to the cover will be implemented promptly
- Verification of soil backfill over excavation area. Backfill will be placed in approximately 12-inch-thick lifts and will be lightly compacted by track walking of equipment in a minimum of two passes over each lift. Verification will include visual inspection and photo documentation of soil placement and compactive effort for each lift. The finish grade surface will be inspected to verify surface uniformity, absence of depressions or other abnormalities that may impede drainage, and that grading promotes drainage away from structures.
- Maintain daily logs of all activities, inspections, and any deviations

4.5 Schedule

Depending on review timelines, property owner negotiations, and contractor availability, execution of the interim remedial action is planned to begin in late summer/fall 2024.

If interim remedial actions proceed, design drawings incorporating the property-specific cleanup plan will be submitted for DEQ review at least one week before the plan is submitted to the homeowner.

Permapost will coordinate with the owner to identify a start date for the work.

4.6 Reporting

Upon completion of the interim remedial action, technical memoranda incorporating the following items will be submitted to DEQ:

- Descriptions of field activities and observations.
- Survey showing the following:
  - Pre-excavation elevations.
  - Post-excavation elevations including final lateral and vertical extents of the excavations.
  - Finished grade and landscape components.
- Photographs showing the following:
  - Pre-excavation site conditions.
  - Active excavation site conditions.
  - Post-excavation site conditions.
  - Permapost property contaminated soil stockpile location and conditions.
- Documentation of the volume of soil removed from Property 1 and placed on the Permapost property.

References

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Permapost. 2019. *RCRA permit-focused remedial investigation report, Permapost Products, Inc. (ORD 009 041 187)(ECSI #148).* Prepared by Permapost Products, Inc., Hillsboro, Oregon. June 25.

SEA. 1987. *Post-Closure Corrective Action and Groundwater Monitoring Plan, Permapost Products, Inc*. Sweet Edwards and Associates. June 23.

Limitations

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

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

Figures

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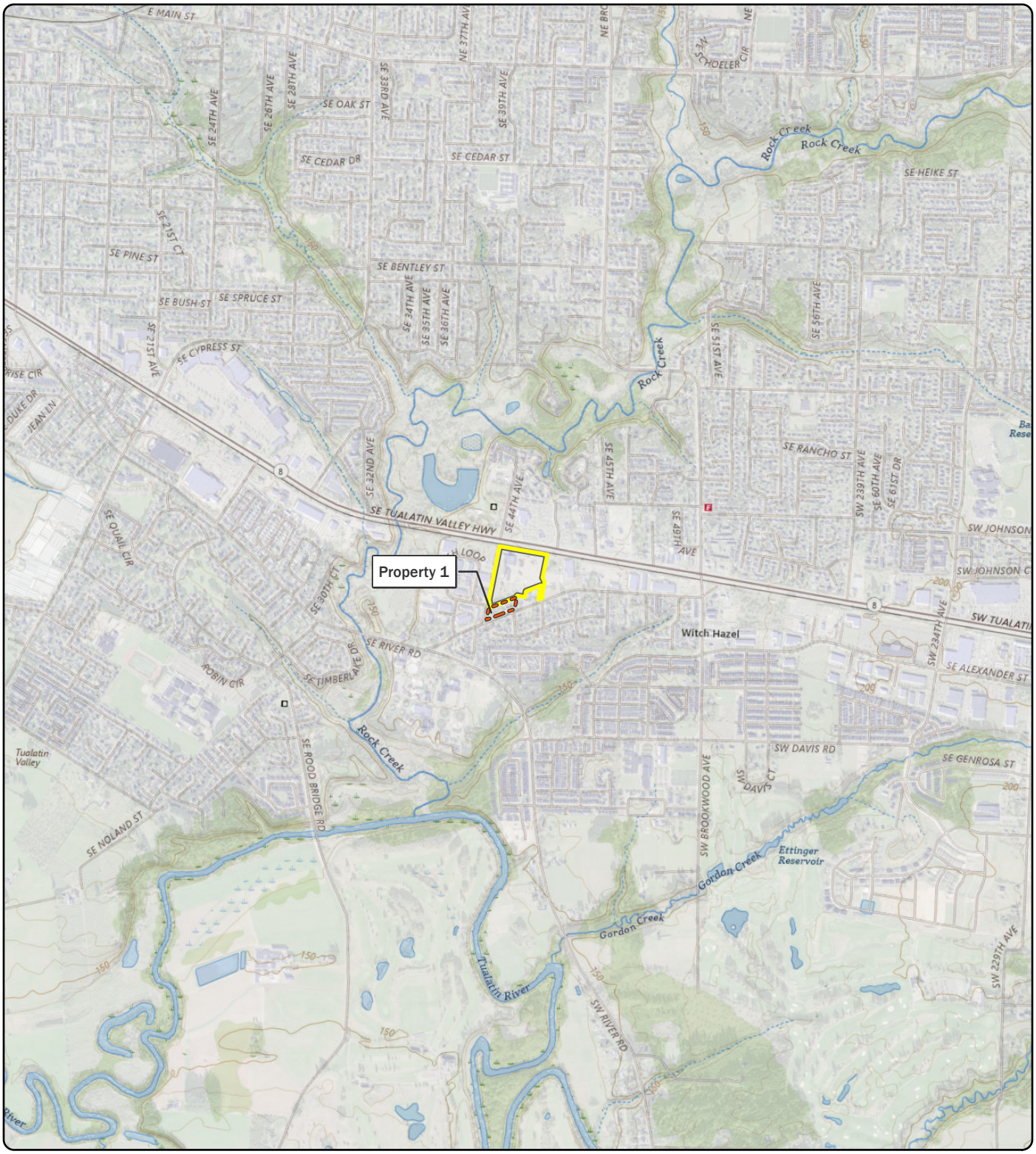

Notes
U.S. Geological Survey 7.5-minute topographic quadrangle (2020): Hillsboro and Scholls.
Township 1 south, range 2 west, section 9.
AOI = area of interest.

Data Source
Property boundary obtained from Oregon Metro.

Legend

- AOI-5 Boundary
- Permapost Property Boundary

Figure 1-1
Vicinity Map

Permapost Products, Inc.
Hillsboro, OR

0 1,000 2,000
Feet

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Print Date: 6/25/2024
Reviewed By: kkrippaehne-stein
Produced By: jroberts
Project: M8012.01.001

Figure 1-2
Areas of Interest

Permapost Products, Inc.
Hillsboro, OR

Legend

- AOI-1 Terrace
- AOI-2 Aloha Property
- AOI-3 Permapost Property
- AOI-4 Railroad Ditch
- AOI-5 Residential Properties
- RCRA Cap
- Permapost Property Boundary
- Stream
- Tax Lot

Notes
AOI = area of interest.
Permapost = Permapost Products, Inc.
RCRA = Resource Conservation and Recovery Act.

0 200
Feet

Data Sources
Aerial photograph obtained from City of Portland (2022); tax lot data obtained from Oregon Metro (2023).

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Figure 2-1
AOI-5 Sample Locations

Permapost Products, Inc.
Hillsboro, OR

Legend

- 3-Point Composite Sample
- Hand Auger
- Decision Unit A
- Decision Unit B
- Discrete Composite Sampling Area
- Previous Decision Unit
- Historical Encroachment Until 1990
- Existing Berm
- Former Retail Yard Driving Lane
- Study Area
- Permapost Property
- Tax Lot

Notes
AOI = area of interest.
Permapost = Permapost Products, Inc.

0 40
Feet

Data Sources
Aerial photograph obtained from the City of Portland (2022); tax lot data obtained from Oregon Metro (2024).

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Produced By: jroberts
Project: M8012.01.001

Figure 3-1
Property 1
Remediation Areas

Permapost Products, Inc.
Hillsboro, OR

3 feet bgs area =
9,456 square feet

Property 1
1S209BD00800

2 feet bgs
area =
419 square feet

1 feet bgs area =
5,830 square feet

SE 39th Rd

SE Witch Hazel Rd

Legend

Remediation Area

- Remediate to 1 feet bgs
- Remediate to 2 foot bgs
- Remediate to 3 feet bgs
- Existing Berm
- Building
- Hardscape/Pavement
- Property 1 Tax Lot
- Permapost Property
- Tax Lot

Notes
bgs = below ground surface.
Permapost = Permapost Products, Inc.

0 20
Feet

Data Sources
Aerial photograph obtained from the City of Portland (2022); tax lot data obtained from Oregon Metro (2024).

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Produced By: jroberts
Project: M8012.01.001

Appendix A

May 2024 Supplemental Soil Sampling

MAUL FOSTER ALONGI

Technical Memorandum

To: Katie Daugherty, RG
Date: August 9, 2024

From: Phil Wiescher, PhD
Tim Browning, RG
Project No.: M8012.01.001

Re: Residential Yard May 2024 Supplemental Sampling
Permapost Products, Inc.
Hillsboro, Oregon ECSI #148

Maul Foster & Alongi, Inc. (MFA) and Permapost Products, Inc. (Permapost) have prepared this memorandum to summarize the results of the May 2024 supplemental soil sampling at Property 1 within the residential properties (Area of Interest [AOI]-5) associated with the Permapost site in Hillsboro, Oregon (the Site). This sampling was conducted to refine the excavation depths for the front and mid yards of Property 1.

Background

In October 2022 and May 2023, Permapost conducted soil sampling on Properties 1, 2, and 3 in AOI-5 (see Figure 1). Soil was sampled in the front and backyards of the residences and analyzed for chemicals of concern (COC) (dioxin/furans and arsenic) to assess contamination from potential historical stormwater runoff onto AOI-5. Analytical data were screened relative to a site-specific preliminary remediation goal for dioxins/furans and the natural background concentration for arsenic (MFA 2022, 2023 and Table).

Sampling Approach

At Property 1, additional data collection was proposed in the front and mid-yard area to refine the planned remediation depths.

- Front Yard—A decision unit (DU1-A) extended across the entire front yard of Property 1 contained a dioxin/furan toxicity equivalency (TEQ) concentration of 16 picograms per gram (pg/g) in shallow soil (0-0.5 feet below ground surface [bgs]). A discrete soil sample (HA-19) collected at 1-2 feet below ground surface (bgs) within DU1-A contained a dioxin/furan TEQ concentration of 5.11 pg/g. This lower concentration at depth is consistent with anticipated attenuation of concentrations. A three-point composite sample (HA-24-COMP), also collected within DU1-A, included a sample within the gravel driveway area along the eastern portion of the property and contained a dioxin/furan TEQ concentration of 23.6 pg/g at 1-2 feet bgs. This is inconsistent with the analytical results of the surface soil (DU1-A) and subsurface soil (HA-19) of 16 pg/g and 5.11 pg/g, respectively. To determine if the gravel driveway area was biasing the composite depth concentrations, an additional 3-point composite sample (HA-31-COMP) was proposed within the front yard at 1-2 feet (without the gravel driveway area, decision subunit A [DSU-A]) (see Figure 2).

- Mid Yard—A decision unit (DU1-B) extended across the entire mid yard of Property 1, including a portion of the driveway area. A three-point composite sample (HA-23-COMP) collected within the mid yard analyzed soil from 1-2 feet and 2-3 feet bgs. Analytical results identified concentrations increasing dioxin/furan TEQ concentrations with depth (15.7 pg/g at 1-2 feet bgs and 17.0 pg/g at 2-3 feet bgs). This is inconsistent with other site data identifying attenuation of dioxin/furan concentrations with depth. To determine if the gravel driveway area was biasing these deeper composite concentrations, an additional 3-point composite sample (HA-30-COMP) was proposed within the mid yard at 1-2 feet (without the gravel driveway area, decision subunit B [DSU-B]) (see Figure).

This additional sampling approach was approved by DEQ (DEQ, 2024).

Results

The supplemental sampling at Property 1 was completed on May 31, 2024 (see Figure 2), consistent with previously conducted sampling procedures.

- Front Yard— One three-point composite soil sample (HA-31-COMP [sample HA-31-1.5-COMP]) was collected from soil at 1-2 feet bgs and analyzed for dioxin/furans.
- Mid Yard—Two three-point composite soil samples (HA-30-COMP [samples HA-30-1.5-COMP and HA-30-2.5-COMP]) were collected from soil at 1-2 feet bgs and 2-3 fee bgs and analyzed for dioxin/furans.

The analytical laboratory report is provided in Attachment A. Based on the data quality assurance/quality control review provided in Attachment B, the data, with the appropriate final data qualifiers assigned, are considered acceptable for their intended use. Analytical data were screened relative to a site-specific preliminary remediation goal (PRG) for dioxins/furans of 11.8 pg/g (see Table).

- Front Yard— The dioxin/furan TEQ concentration was 2.58 pg/g (HA-31-1.5-COMP) from soil collected at 1-2 feet bgs, well below the site-specific PRG of 11.8 pg/g.
- Mid Yard— The dioxin/furan TEQ concentration was 13.9 pg/g and 179 pg/g (HA-30-1.5-COMP and HA-30-2.5-COMP, respectively) from soil collected at 1-2 feet bgs and 2-3 feet bgs, respectively, above the site-specific PRG of 11.8 pg/g.

Recommendations

Based on the analytical results, it appears that the gravel driveway area is biasing the concentrations of dioxin/furans in the front yard of Property 1. Therefore, the remediation depth for the front yard without the gravel driveway area is proposed to 1-foot bgs. A separate remediation depth for the front yard with the gravel driveway area is proposed to 2-feet bgs.

No revisions to the remediation depth for the mid yard of 3-feet bgs are proposed.

Attachments

References

Limitations

Figures

Table

A—Analytical Laboratory Report

B—Data Validation Memorandum

References

DEQ. 2024. Katie Daughtery, RG, Oregon Department of Environmental Quality. *RE: Proposed Additional Sampling, Residential Property DU-1.* Email to Tim Browning, Permapost Products, Inc. May 17.

MFA. 2022. *Supplemental Investigation Report, Permapost Products, Inc. Hillsboro, Oregon, ECSI #148*. Prepared for Permapost Products, Inc. Maul Foster & Alongi, Inc., Portland, Oregon. March 22.

MFA. 2023. Phil Wiescher, PhD, Maul Foster & Alongi, Inc., Tim Browning, RG, Permapost Products, Inc. *Topsoil Source Evaluation and Proposed Residential Preliminary Remediation Goal for Dioxins/Furans*. Memorandum to Katie Daugherty, RG, Oregon Department of Environmental Quality. October 6.

Limitations

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

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

Figures

MAUL
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ALONGI

Figure 1
AOI-5 Sample Locations

Permapost Products, Inc.
Hillsboro, OR

Legend

- 3-Point Composite Sample
- Hand Auger
- Decision Unit A
- Decision Unit B
- Discrete Composite Sampling Area
- Previous Decision Unit
- Historical Encroachment Until 1990
- Existing Berm
- Former Retail Yard Driving Lane
- Study Area
- Permapost Property
- Tax Lot

Notes
AOI = area of interest.
Permapost = Permapost Products, Inc.

0 40
Feet

Data Sources
Aerial photograph obtained from the City of Portland (2022); tax lot data obtained from Oregon Metro (2024).

MAUL FOSTER ALONGI
p. 971 544 2139 | www.maulfoster.com

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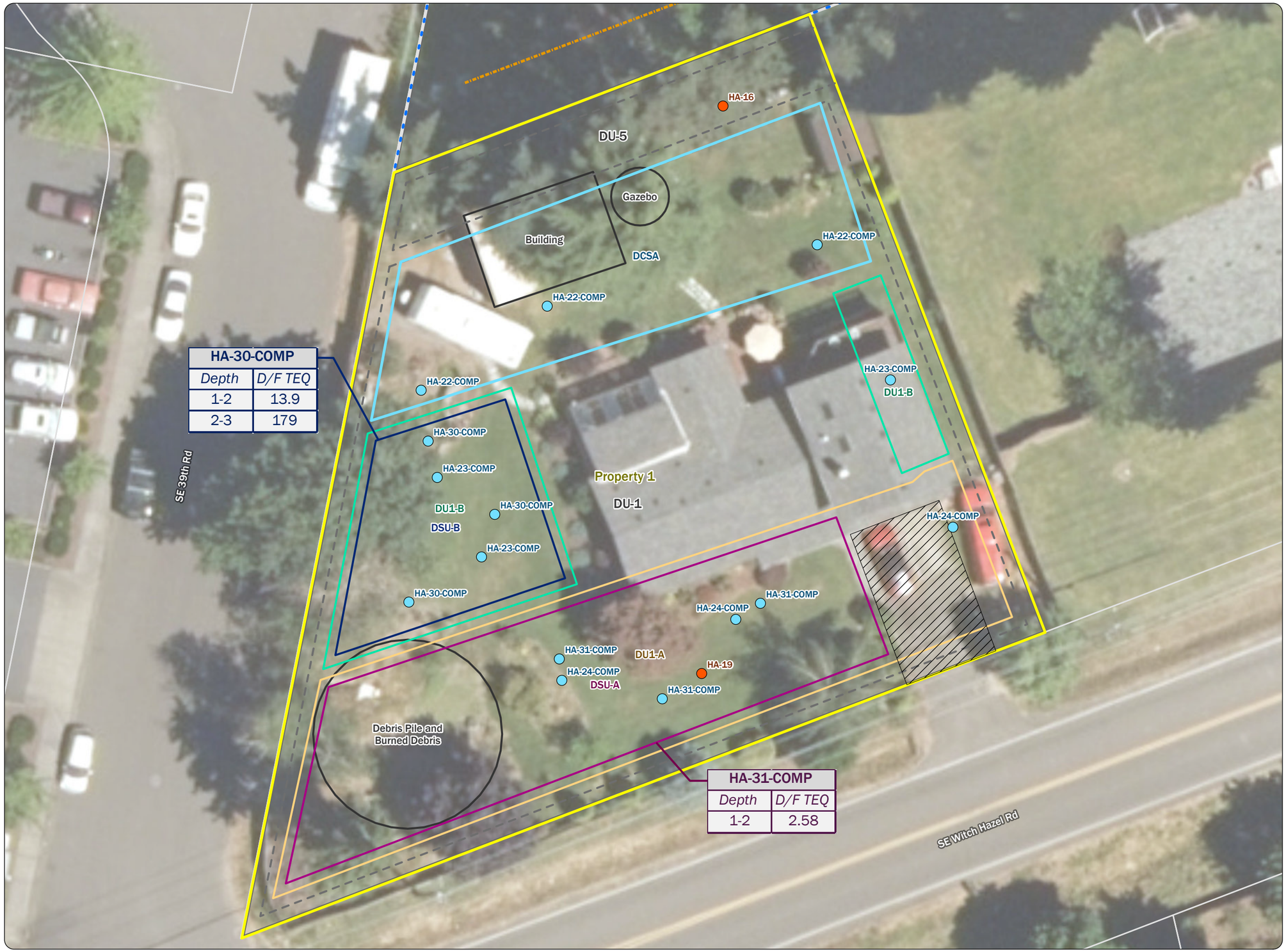
Print Date: 8/15/2024
Reviewed By: cwise
Produced By: jroberts
Project: M8012.01.001

Figure 2
Property 1 Supplemental Soil Sampling Results

Permapost Products, Inc.
Hillsboro, OR



Legend

- 3-Point Composite Sample
- Hand Auger
- Decision Subunit A
- Decision Subunit B
- Decision Unit A
- Decision Unit B
- Discrete Composite Sampling Area
- Previous Decision Unit
- Hardscape/Pavement
- Site Feature/Building
- Existing Berm
- Property 1 Tax Lot
- Permapost Property
- Tax Lot

Notes
All depths are in feet below ground surface.
All D/F TEQ results are in picograms per gram.
D/F TEQ = dioxin/furan toxic equivalency.
DCSA = discrete composite sampling area.
DU = decision unit.
DSU = decision subunit.
Permapost = Permapost Products, Inc.

0 20
Feet

Data Sources
Aerial photograph obtained from the City of Portland (2022); tax lot data obtained from Oregon Metro (2024).

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Print Date: 8/9/2024
Reviewed By: cwise
Produced By: jroberts
Project: M8012.01.001

Table

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Table
Summary of Soil Analytical Results
Permapost Products, Inc., Hillsboro, Oregon

Decision Unit:	Screening Criteria	DU-01								
Sample Name:		DU01-S-0.5	HA19-S-2.0	DU1-A	DU1-B	HA-22-Comp-1-2	HA-22-COMP-2-3	HA-23-COMP-1-2	HA-23-COMP-2-3	HA-24-COMP-1-2
Sample Date:		10/05/2022	10/05/2022	05/09/2023	05/09/2023	05/11/2023	05/11/2023	05/11/2023	05/11/2023	05/11/2023
Sample Depth (ft bgs):		0-0.5	1.0-2.0	0-0.5	0-0.5	1.0-2.0	2.0-3.0	1.0-2.0	2.0-3.0	1.0-2.0
Total Metals (mg/kg)										
Arsenic	8.8[a][1]	10.0	5.58	6.21	7.75	9.25	12.2	--	--	--
Dioxins and Furans (pg/g)										
Dioxin and Furan TEQ[b][2]	11.8[c][3]	45.7 J	5.11 J	16.0 J	27.5 J	21.4 J	28.9 J	15.7 J	17.0 J	23.6 J

Table
Summary of Soil Analytical Results
Permapost Products, Inc., Hillsboro, Oregon

Decision Unit:	Screening Criteria	DU-01 (cont.)				DU-02				
Sample Name:		HA-24-COMP-2-3	HA-30-1.5-COMP	HA-30-2.5-COMP	HA-31-1.5-COMP	DU02-S-0.5	HA20-S-2.0	DU2-A	DU2-B	HA-25-Comp-1-2
Sample Date:		05/11/2023	05/31/2024	05/31/2024	05/31/2024	10/05/2022	10/05/2022	05/09/2023	05/09/2023	05/11/2023
Sample Depth (ft bgs):		2.0-3.0	1.0-2.0	2.0-3.0	1.0-2.0	0-0.5	1.0-2.0	0-0.5	0-0.5	1.0-2.0
Total Metals (mg/kg)										
Arsenic	8.8[a][1]	--	--	--	--	7.99	--	--	--	--
Dioxins and Furans (pg/g)										
Dioxin and Furan TEQ[b][2]	11.8[c][3]	2.90 J	13.9	179	2.58	28.6 J	9.8 J	71.7 J	80.2 J	7.60 J

Table
Summary of Soil Analytical Results
Permapost Products, Inc., Hillsboro, Oregon

Decision Unit:	Screening Criteria	DU-02 (cont.)					DU-03			
Sample Name:		HA-25-COMP 2-3	HA-26-COMP 1-2	HA-26-COMP 2-3	HA-27-COMP 1-2	HA-27-COMP 2-3	DU03A-S-0.5	DU03B-S-0.5	DU03C-S-0.5	HA21-S-2.0
Sample Date:		05/11/2023	05/11/2023	05/11/2023	05/11/2023	05/11/2023	10/05/2022	10/05/2022	10/05/2022	10/05/2022
Sample Depth (ft bgs):		2.0-3.0	1.0-2.0	2.0-3.0	1.0-2.0	2.0-3.0	0-0.5	0-0.5	0-0.5	1.0-2.0
Total Metals (mg/kg)										
Arsenic	8.8[a][1]	--	--	--	--	--	38.2	38.4	40.3	9.60
Dioxins and Furans (pg/g)										
Dioxin and Furan TEQ[b][2]	11.8[c][3]	3.96 J	6.30 J	18.4 J	26.7 J	7.90 J	395 J	359 J	370	26.1 J

Table
Summary of Soil Analytical Results
Permapost Products, Inc., Hillsboro, Oregon

Decision Unit:	Screening Criteria	DU-03 (cont.)			DU-05					
Sample Name:		HA21-S-3.0	HA-28-Comp-2-3	HA-29-Comp-2-3	DU05-S-0.5	HA16-S-2.0	HA16-S-3.0	HA17-S-2.0	HA18-S-2.0	HA18-S-3.0
Sample Date:		10/05/2022	05/11/2023	05/11/2023	10/05/2022	10/05/2022	10/05/2022	10/05/2022	10/05/2022	10/05/2022
Sample Depth (ft bgs):		2.0-3.0	2.0-3.0	2.0-3.0	0-0.5	1.0-2.0	2.0-3.0	1.0-2.0	1.0-2.0	2.0-3.0
Total Metals (mg/kg)										
Arsenic	8.8[a][1]	13.2	16.4	9.96	13.3	41.8	10.2	6.08	53.2	32.2
Dioxins and Furans (pg/g)										
Dioxin and Furan TEQ[b][2]	11.8[c][3]	73.3 J	53.1 J	29.2 J	68.2 J	74.1 J	18.3 J	6.60 J	506 J	91.3 J

Table
Summary of Soil Analytical Results
Permapost Products, Inc., Hillsboro, Oregon

Notes

Shading indicates values that exceed screening criteria; non-detect results (U, UJ, UJK) were not compared with screening criteria.

-- = not analyzed.

ft bgs = feet below ground surface.

J = result is estimated.

J- = result is estimated, but the result may be biased low.

JK = result is estimated and an estimated maximum potential concentration.

mg/kg = milligrams per kilogram.

NV = no value.

pg/g = picograms per gram.

TEQ = toxicity equivalency.

U = result is non-detect at the estimated detection limit, method detection limit, or method reporting limit.

UJ = result is non-detect with an estimated detection limit.

UJK = result is non-detect, an estimated value, and an estimated maximum potential concentration.

UK = result is non-detect at the estimated maximum potential concentration.

[a]Oregon background concentration, Portland Basin.

[b]Dioxin and furan TEQs are calculated as the sum of each detected congener concentration multiplied by the corresponding TEF value. Non-detect congeners are also multiplied by one-half.

[c]Preliminary remediation goal.

References

[1]DEQ. 2013. *Development of Oregon Background Metals Concentrations in Soil* . Oregon Department of Environmental Quality, Land Quality Division Cleanup Program, Portland, Oregon. March.

[2]Van den Berg et al. 2006. "The 2005 World Health Organization Reevaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-Like Compounds." *Toxicological Sciences.* 93(2): 223–241.

[3]MFA. 2023. Phil Wiescher, PhD, Maul Foster & Alongi, Inc., Tim Browning, RG, Permapost Products, Inc. *Topsoil Source Evaluation and Proposed Residential Preliminary Remediation Goal for Dioxins/Furans* . Memorandum to Katie Daugherty, RG, Oregon Department of Environmental Quality. October 6.

Attachment A

Analytical Laboratory Report

MAUL FOSTER ALONGI

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: **OR100062**

ANALYTICAL REPORT

Thursday, July 25, 2024

Phil Wiescher
Maul Foster & Alongi, INC.
3140 NE Broadway Street
Portland, OR 97232

RE: A4E1783 - Permapost Supplemental RI - M8012.01.001

Thank you for using Apex Laboratories. We greatly appreciate your business and strive to provide the highest quality services to the environmental industry.

Enclosed are the results of analyses for work order A4E1783, which was received by the laboratory on 5/31/2024 at 3:24:00PM.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Please note: All samples will be disposed of within 30 days of sample receipt, unless prior arrangements have been made.

Cooler Receipt Information
Acceptable Receipt Temperature is less than, or equal to, 6 degC (not frozen), or received on ice the same day as sampling.
(See Cooler Receipt Form for details)
Default Cooler 5.4 degC

This Final Report is the official version of the data results for this sample submission, unless superseded by a subsequent, labeled amended report.
All other deliverables derived from this data, including Electronic Data Deliverables (EDDs), CLP-like forms, client requested summary sheets, and all other products are considered secondary to this report.

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: **OR100062**

ANALYTICAL REPORT

Maul Foster & Alongi, INC.	Project: **Permapost Supplemental RI**	
3140 NE Broadway Street	Project Number: **M8012.01.001**	**Report ID:**
Portland, OR 97232	Project Manager: **Phil Wiescher**	**A4E1783 - 07 25 24 1524**

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Client Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
HA-30-1.5-Comp	A4E1783-01	Soil	05/31/24 11:15	05/31/24 15:24
HA-30-2.5-Comp	A4E1783-02	Soil	05/31/24 11:45	05/31/24 15:24
HA-31-1.5-Comp	A4E1783-03	Soil	05/31/24 12:30	05/31/24 15:24

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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ANALYTICAL REPORT

Maul Foster & Alongi, INC.	Project: Permapost Supplemental RI	
3140 NE Broadway Street	Project Number: M8012.01.001	Report ID:
Portland, OR 97232	Project Manager: Phil Wiescher	A4E1783 - 07 25 24 1524

QUALIFIER DEFINITIONS

Client Sample and Quality Control (QC) Sample Qualifier Definitions:

There are No Qualifiers on Sample or QC Data for this report

Apex Laboratories

Philip Nerenberg, Lab Director

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ANALYTICAL REPORT

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3140 NE Broadway Street	Project Number: **M8012.01.001**	**Report ID:**
Portland, OR 97232	Project Manager: **Phil Wiescher**	**A4E1783 - 07 25 24 1524**

REPORTING NOTES AND CONVENTIONS:

Abbreviations:

DET Analyte DETECTED at or above the detection or reporting limit.

ND Analyte NOT DETECTED at or above the detection or reporting limit.

NR Result Not Reported

RPD Relative Percent Difference. RPDs for Matrix Spikes and Matrix Spike Duplicates are based on concentration, not recovery.

Detection Limits: Limit of Detection (LOD)

Limits of Detection (LODs) are normally set at a level of one half the validated Limit of Quantitation (LOQ).
If no value is listed ('-----'), then the data has not been evaluated below the Reporting Limit.

Reporting Limits: Limit of Quantitation (LOQ)

Validated Limits of Quantitation (LOQs) are reported as the Reporting Limits for all analyses where the LOQ, MRL, PQL or CRL are requested. The LOQ represents a level at or above the low point of the calibration curve, that has been validated according to Apex Laboratories' comprehensive LOQ policies and procedures.

Reporting Conventions:

Basis: Results for soil samples are generally reported on a 100% dry weight basis.
The Result Basis is listed following the units as " dry", " wet", or " " (blank) designation.

" dry" Sample results and Reporting Limits are reported on a dry weight basis. (i.e. "ug/kg dry")
See Percent Solids section for details of dry weight analysis.

" wet" Sample results and Reporting Limits for this analysis are normally dry weight corrected, but have not been modified in this case.

" " Results without 'wet' or 'dry' designation are not normally dry weight corrected. These results are considered 'As Received'.

Results for Volatiles analyses on soils and sediments that are reported on a “dry weight” basis include the water miscible solvent (WMS) correction referenced in the EPA 8000 Method guidance documents. Solid and Liquid samples reported on an “As Received” basis do not have the WMS correction applied, as dry weight was not performed.

QC Source:

In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) may be analyzed to demonstrate accuracy and precision of the extraction batch.

Non-Client Batch QC Samples (Duplicates and Matrix Spike/Duplicates) may not be included in this report. Please request a Full QC report if this data is required.

Miscellaneous Notes:

" --- " QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.

" *** " Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Apex Laboratories

Philip Nerenberg, Lab Director

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Maul Foster & Alongi, INC.	Project:	**Permapost Supplemental RI**	
3140 NE Broadway Street	Project Number:	**M8012.01.001**	**Report ID:**
Portland, OR 97232	Project Manager:	**Phil Wiescher**	**A4E1783 - 07 25 24 1524**

REPORTING NOTES AND CONVENTIONS (Cont.):

Blanks:

Standard practice is to evaluate the results from Blank QC Samples down to a level equal to one half of the Reporting Limit (RL).
Blank results for gravimetric analyses are evaluated to the Reporting Level, not to half of the Reporting Level.
-For Blank hits falling between ½ the RL and the RL (J flagged hits), the associated sample and QC data will receive a 'B-02' qualifier.
-For Blank hits above the RL, the associated sample and QC data will receive a 'B' qualifier, per Apex Laboratories' Blank Policy.
For further details, please request a copy of this document.
-Sample results flagged with a 'B' or 'B-02' qualifier are potentially biased high if the sample results are less than ten times the level found in the blank for inorganic analyses, or less than five times the level found in the blank for organic analyses.
'B' and 'B-02' qualifications are only applied to sample results detected above the Reporting Level, if results are not reported to the MDL.

Preparation Notes:

Mixed Matrix Samples:

Water Samples:

Water samples containing significant amounts of sediment are decanted or separated prior to extraction, and only the water portion analyzed, unless otherwise directed by the client.

Soil and Sediment Samples:

Soil and Sediment samples containing significant amounts of water are decanted prior to extraction, and only the solid portion analyzed, unless otherwise directed by the client.

Sampling and Preservation Notes:

Certain regulatory programs, such as National Pollutant Discharge Elimination System (NPDES), require that activities such as sample filtration (for dissolved metals, orthophosphate, hexavalent chromium, etc.) and testing of short hold analytes (pH, Dissolved Oxygen, etc.) be performed in the field (on-site) within a short time window. In addition, sample matrix spikes are required for some analyses, and sufficient volume must be provided, and billable site specific QC requested, if this is required. All regulatory permits should be reviewed to ensure that these requirements are being met.

Data users should be aware of which regulations pertain to the samples they submit for testing. If related sample collection activities are not approved for a particular regulatory program, results should be considered estimates. Apex Laboratories will qualify these analytes according to the most stringent requirements, however results for samples that are for non-regulatory purposes may be acceptable.

Samples that have been filtered and preserved at Apex Laboratories per client request are listed in the preparation section of the report with the date and time of filtration listed.

Apex Laboratories maintains detailed records on sample receipt, including client label verification, cooler temperature, sample preservation, hold time compliance and field filtration. Data is qualified as necessary, and the lack of qualification indicates compliance with required parameters.

Benzofluoranthene Isomer Reporting:

Due to coelutions present on the analytical column, the results reported for Benzo(b+j)fluoranthene(s) represent the concentraton of both the Benzo(b)fluoranthene and Benzo(j)fluoranthene isomers. Calibration, validation and accreditation are based on the Benzo(b)fluoranthene isomer.

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

ANALYTICAL REPORT

Maul Foster & Alongi, INC.	Project: Permapost Supplemental RI	
3140 NE Broadway Street	Project Number: M8012.01.001	Report ID:
Portland, OR 97232	Project Manager: Phil Wiescher	A4E1783 - 07 25 24 1524

LABORATORY ACCREDITATION INFORMATION

ORELAP Certification ID: OR100062 (Primary Accreditation) - EPA ID: OR01039

All methods and analytes reported from work performed at Apex Laboratories are included on Apex Laboratories' ORELAP Scope of Certification, with the exception of any analyte(s) listed below:

Matrix	Analysis	TNI_ID	Analyte	TNI_ID	Accreditation

All reported analytes are included in Apex Laboratories' current ORELAP scope.

Secondary Accreditations

Apex Laboratories also maintains reciprocal accreditation with non-TNI states (Washington DOE), as well as other state specific accreditations not listed here.

Subcontract Laboratory Accreditations

Subcontracted data falls outside of Apex Laboratories' Scope of Accreditation.
Please see the Subcontract Laboratory report for full details, or contact your Project Manager for more information.

Field Testing Parameters

Results for Field Tested data are provded by the client or sampler, and fall outside of Apex Laboratories' Scope of Accreditation.

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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ANALYTICAL REPORT

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3140 NE Broadway Street	Project Number: **M8012.01.001**	**Report ID:**
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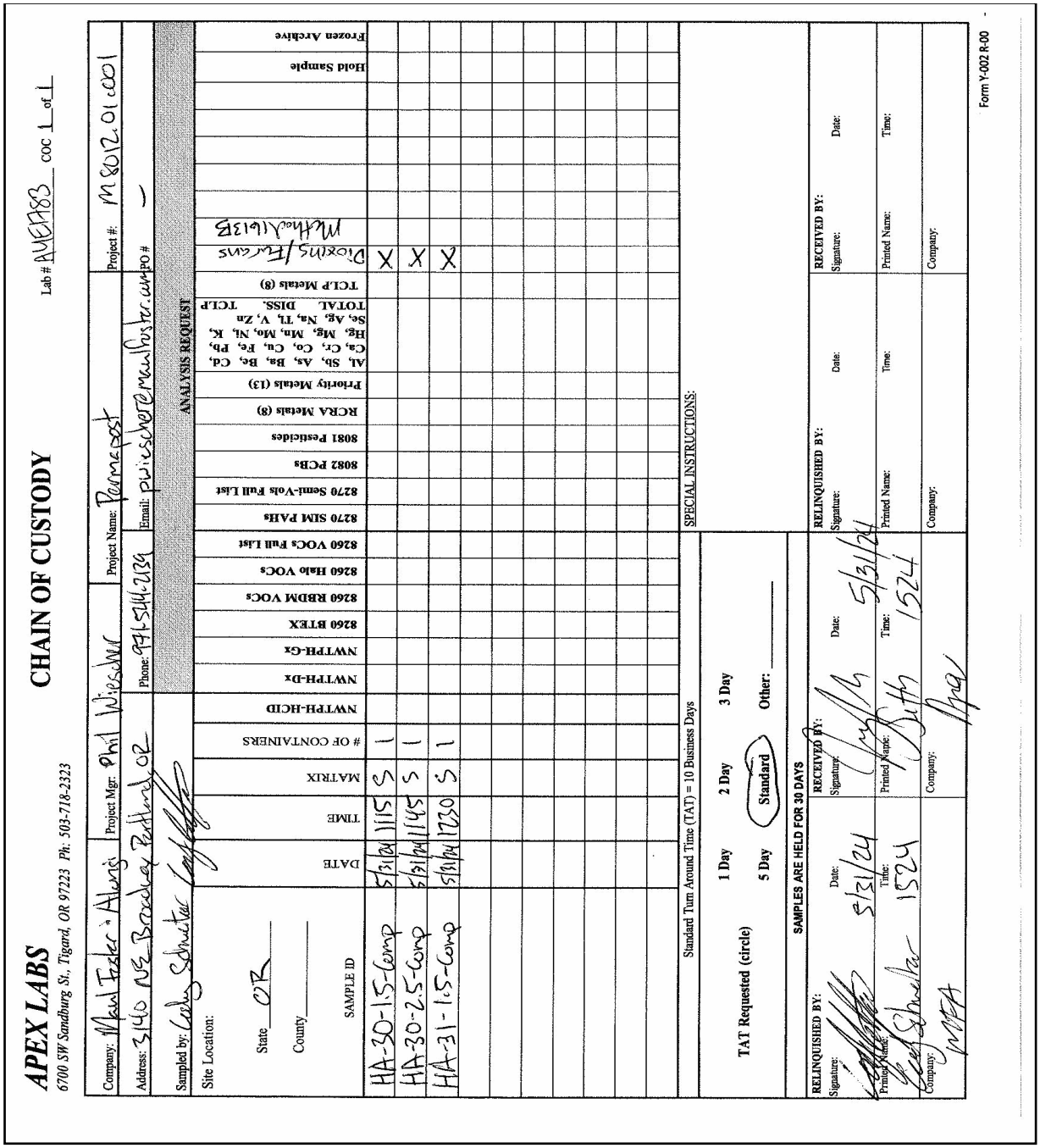

APEX LABS
6700 SW Sandburg St., Tigard, OR 97223 Ph: 503-718-2323

CHAIN OF CUSTODY

Lab # A4E1783 COC 1 of 1

Company: Maul Foster & Alongi | Project Mgr: Phil Wiescher | Project Name: Permapost | Project #: M8012.01.001
Address: 3140 NE Broadway Portland, OR | Phone: 971-544-2139 | Email: pwiescher@maulfoster.com | PO #: —
Sampled by: Cory Schreiber

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	# OF CONTAINERS	NWTPH-HCID	NWTPH-Dx	NWTPH-Gx	8260 BTEX	8260 RBDM VOCs	8260 Halo VOCs	8260 VOCs Full List	8270 SIM PAHs	8270 Semi-Vols Full List	8082 PCBs	8081 Pesticides	RCRA Metals (8)	Priority Metals (13)	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Hg, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Tl, V, Zn TOTAL DISS.	TCLP	TCLP Metals (8)	Dioxins/Furans	Hold Sample	Frozen Archive
HA-30-15-Comp	5/31/24	1115	S	1																X		
HA-30-25-Comp	5/31/24	1145	S	1																X		
HA-31-15-Comp	5/31/24	1230	S	1																X		

Site Location: State OR County
Standard Turn Around Time (TAT) = 10 Business Days
TAT Requested (circle): 1 Day 2 Day 3 Day 5 Day Standard Other: ____
SPECIAL INSTRUCTIONS:

SAMPLES ARE HELD FOR 30 DAYS

RELINQUISHED BY: Signature: Date: 5/31/24 Time: 1524 Printed Name: Cory Schreiber Company: MFA
RECEIVED BY: Signature: Date: 5/31/24 Time: 1524 Printed Name: Cory Schreiber Company: MFA
RELINQUISHED BY: Signature: Date: 5/31/24 Time: 1524 Printed Name: Company:
RECEIVED BY: Signature: Date: Time: Printed Name: Company:
RELINQUISHED BY: Signature: Date: Time: Printed Name: Company:
RECEIVED BY: Signature: Date: Time: Printed Name: Company:

Form Y-002 R-00

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
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ORELAP ID: **OR100062**

ANALYTICAL REPORT

Maul Foster & Alongi, INC.	Project: **Permapost Supplemental RI**	
3140 NE Broadway Street	Project Number: **M8012.01.001**	**Report ID:**
Portland, OR 97232	Project Manager: **Phil Wiescher**	**A4E1783 - 07 25 24 1524**

APEX LABS COOLER RECEIPT FORM

Client: Maul Foster & Alongi Element WO#: A4E1783

Project/Project #: Permapost M8012.01.001

Delivery Info:

Date/time received: 5/31/24 @ 1524 By: JS

Delivered by: Apex__Client_X_ESS__FedEx__UPS__Radio__Morgan__SDS__Evergreen__Other__

From USDA Regulated Origin? Yes____ No_X_

Cooler Inspection Date/time inspected: 5/31/24 @ 1524 By: JS

Chain of Custody included? Yes_X_ No____

Signed/dated by client? Yes_X_ No____

Contains USDA Reg. Soils? Yes____ No_X_ Unsure (email RegSoils) ____

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (°C)	5.4						
Custody seals? (Y/N)	N						
Received on ice? (Y/N)	Y						
Temp. blanks? (Y/N)	Y						
Ice type: (Gel/Real/Other)	Real						
Condition (In/Out):	In						

Cooler out of temp? (Y/(N)) Possible reason why: ____

Green dots applied to out of temperature samples? Yes/(No)

Out of temperature samples form initiated? Yes/(No)

Sample Inspection: Date/time inspected: 5/31/24 @ 1539 By: ADW

All samples intact? Yes_X_ No___ Comments: ____

Bottle labels/COCs agree? Yes_X_ No___ Comments: ____

COC/container discrepancies form initiated? Yes___ No_X_

Containers/volumes received appropriate for analysis? Yes_X_ No___ Comments: ____

Do VOA vials have visible headspace? Yes___ No___ NA_X_

Comments ____

Water samples: pH checked: Yes___No___NA_X_ pH appropriate? Yes___No___NA_X_ pH ID:____

Comments: ____

Labeled by: ADW Witness: WAB Cooler Inspected by: ADW

Form Y-003 R-02

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

July 17, 2024

Enthalpy Analytical - El Dorado Hills
Work Order No. 2406043

Mr. Philip Nerenberg
Apex Laboratories
6700 S.W. Sandburg Street
Tigard, OR 97223

Dear Mr. Nerenberg,

Enclosed are the results for the sample set received at Enthalpy Analytical - EDH on June 06, 2024 under your Project Name 'A4E1783'.

Enthalpy Analytical - EDH is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at kathy.zipp@enthalpy.com.

Thank you for choosing Enthalpy Analytical - EDH as part of your analytical support team.

Sincerely,

Kathy Zipp
Project Manager

Enthalpy Analytical - EDH Work Order No. 2406043
Case Narrative

Sample Condition on Receipt:

Three soil samples were received and stored securely in accordance with Enthalpy Analytical - EDH standard operating procedures and EPA methodology. The samples were received in good condition and within the method temperature requirements.

Analytical Notes:

EPA Method 1613B

The samples were extracted and analyzed for tetra-through-octa chlorinated dioxins and furans by EPA Method 1613B using a ZB-DIOXIN GC column.

Holding Times

The samples were extracted and analyzed within the method hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected above the sample quantitation limit in the Method Blank. The OPR recoveries were within the method acceptance criteria.

Labeled standard recoveries for all QC and field samples were within method acceptance criteria.

TABLE OF CONTENTS

Sample Inventory Report

Sample ID	Client Sample ID	Sampled	Received	Components/Containers
2406043-01	HA-30-1.5-Comp	31-May-24 11:15	06-Jun-24 09:10	Clear Glass Jar, 120mL
2406043-02	HA-30-2.5-Comp	31-May-24 11:45	06-Jun-24 09:10	Clear Glass Jar, 120mL
2406043-03	HA-31-1.5-Comp	31-May-24 12:30	06-Jun-24 09:10	Clear Glass Jar, 120mL

ANALYTICAL RESULTS

Sample ID: Method Blank **EPA Method 1613B**

Client Data
Name: Apex Laboratories
Project: A4E1783
Matrix: Solid

Laboratory Data
Lab Sample: B24G066-BLK1
QC Batch: B24G066 Date Extracted: 10-Jul-24
Sample Size: 10.0 g Column: ZB-DIOXIN

Analyte	Conc. (pg/g)	EDL	MDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	0.130	0.190			15-Jul-24 13:23	1
1,2,3,7,8-PeCDD	ND	0.192	0.784			15-Jul-24 13:23	1
1,2,3,4,7,8-HxCDD	ND	0.234	0.633			15-Jul-24 13:23	1
1,2,3,6,7,8-HxCDD	ND	0.224	0.640			15-Jul-24 13:23	1
1,2,3,7,8,9-HxCDD	ND	0.257	0.717			15-Jul-24 13:23	1
1,2,3,4,6,7,8-HpCDD	ND	0.334	0.706			15-Jul-24 13:23	1
OCDD	ND	0.539	1.62			15-Jul-24 13:23	1
2,3,7,8-TCDF	ND	0.112	0.183			15-Jul-24 13:23	1
1,2,3,7,8-PeCDF	ND	0.0908	0.576			15-Jul-24 13:23	1
2,3,4,7,8-PeCDF	ND	0.0825	0.686			15-Jul-24 13:23	1
1,2,3,4,7,8-HxCDF	ND	0.121	0.659			15-Jul-24 13:23	1
1,2,3,6,7,8-HxCDF	ND	0.128	0.621			15-Jul-24 13:23	1
2,3,4,6,7,8-HxCDF	ND	0.147	0.661			15-Jul-24 13:23	1
1,2,3,7,8,9-HxCDF	ND	0.237	0.716			15-Jul-24 13:23	1
1,2,3,4,6,7,8-HpCDF	ND	0.186	0.649			15-Jul-24 13:23	1
1,2,3,4,7,8,9-HpCDF	ND	0.308	0.818			15-Jul-24 13:23	1
OCDF	ND	0.452	3.84			15-Jul-24 13:23	1
Toxic Equivalent							
TEQMinWHO2005Dioxin	0.00						
Totals							
Total TCDD	ND	0.130					
Total PeCDD	ND	0.192					
Total HxCDD	ND	0.257					
Total HpCDD	ND	0.334					
Total TCDF	ND	0.112					
Total PeCDF	ND	0.0908					
Total HxCDF	ND	0.237					
Total HpCDF	ND	0.308					

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	66.8	25 - 164		15-Jul-24 13:23	1
13C-1,2,3,7,8-PeCDD	IS	66.9	25 - 181		15-Jul-24 13:23	1
13C-1,2,3,4,7,8-HxCDD	IS	66.3	32 - 141		15-Jul-24 13:23	1
13C-1,2,3,6,7,8-HxCDD	IS	74.7	28 - 130		15-Jul-24 13:23	1
13C-1,2,3,7,8,9-HxCDD	IS	66.6	32 - 141		15-Jul-24 13:23	1
13C-1,2,3,4,6,7,8-HpCDD	IS	60.9	23 - 140		15-Jul-24 13:23	1
13C-OCDD	IS	53.0	17 - 157		15-Jul-24 13:23	1
13C-2,3,7,8-TCDF	IS	68.5	24 - 169		15-Jul-24 13:23	1
13C-1,2,3,7,8-PeCDF	IS	62.7	24 - 185		15-Jul-24 13:23	1
13C-2,3,4,7,8-PeCDF	IS	62.8	21 - 178		15-Jul-24 13:23	1
13C-1,2,3,4,7,8-HxCDF	IS	68.1	26 - 152		15-Jul-24 13:23	1
13C-1,2,3,6,7,8-HxCDF	IS	70.2	26 - 123		15-Jul-24 13:23	1
13C-2,3,4,6,7,8-HxCDF	IS	68.5	28 - 136		15-Jul-24 13:23	1
13C-1,2,3,7,8,9-HxCDF	IS	62.4	29 - 147		15-Jul-24 13:23	1
13C-1,2,3,4,6,7,8-HpCDF	IS	63.4	28 - 143		15-Jul-24 13:23	1
13C-1,2,3,4,7,8,9-HpCDF	IS	55.6	26 - 138		15-Jul-24 13:23	1
13C-OCDF	IS	52.6	17 - 157		15-Jul-24 13:23	1
37Cl-2,3,7,8-TCDD	CRS	70.1	35 - 197		15-Jul-24 13:23	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration
MDL - Method Detection Limit

The results are reported in dry weight.
The sample size is reported in wet weight.

Sample ID: OPR **EPA Method 1613B**

Client Data
Name: Apex Laboratories
Project: A4E1783
Matrix: Solid

Laboratory Data
Lab Sample: B24G066-BS1
QC Batch: B24G066 Date Extracted: 10-Jul-24 08:09
Sample Size: 10.0 g Column: ZB-DIOXIN

Analyte	Amt Found (pg/g)	Spike Amt	% Recovery	Limits	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	20.2	20.0	101	67-158		15-Jul-24 11:51	1
1,2,3,7,8-PeCDD	100	100	100	70-142		15-Jul-24 11:51	1
1,2,3,4,7,8-HxCDD	98.5	100	98.5	70-164		15-Jul-24 11:51	1
1,2,3,6,7,8-HxCDD	94.8	100	94.8	76-134		15-Jul-24 11:51	1
1,2,3,7,8,9-HxCDD	98.6	100	98.6	64-162		15-Jul-24 11:51	1
1,2,3,4,6,7,8-HpCDD	96.3	100	96.3	70-140		15-Jul-24 11:51	1
OCDD	189	200	94.5	78-144		15-Jul-24 11:51	1
2,3,7,8-TCDF	18.2	20.0	91.2	75-158		15-Jul-24 11:51	1
1,2,3,7,8-PeCDF	96.1	100	96.1	80-134		15-Jul-24 11:51	1
2,3,4,7,8-PeCDF	95.8	100	95.8	68-160		15-Jul-24 11:51	1
1,2,3,4,7,8-HxCDF	98.3	100	98.3	72-134		15-Jul-24 11:51	1
1,2,3,6,7,8-HxCDF	105	100	105	84-130		15-Jul-24 11:51	1
2,3,4,6,7,8-HxCDF	99.9	100	99.9	70-156		15-Jul-24 11:51	1
1,2,3,7,8,9-HxCDF	101	100	101	78-130		15-Jul-24 11:51	1
1,2,3,4,6,7,8-HpCDF	95.1	100	95.1	82-122		15-Jul-24 11:51	1
1,2,3,4,7,8,9-HpCDF	96.1	100	96.1	78-138		15-Jul-24 11:51	1
OCDF	199	200	99.6	63-170		15-Jul-24 11:51	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	74.4	20-175		15-Jul-24 11:51	1
13C-1,2,3,7,8-PeCDD	IS	77.2	21-227		15-Jul-24 11:51	1
13C-1,2,3,4,7,8-HxCDD	IS	75.5	21-193		15-Jul-24 11:51	1
13C-1,2,3,6,7,8-HxCDD	IS	85.8	25-163		15-Jul-24 11:51	1
13C-1,2,3,7,8,9-HxCDD	IS	77.3	21-193		15-Jul-24 11:51	1
13C-1,2,3,4,6,7,8-HpCDD	IS	74.0	26-166		15-Jul-24 11:51	1
13C-OCDD	IS	67.2	13-199		15-Jul-24 11:51	1
13C-2,3,7,8-TCDF	IS	79.0	22-152		15-Jul-24 11:51	1
13C-1,2,3,7,8-PeCDF	IS	72.2	21-192		15-Jul-24 11:51	1
13C-2,3,4,7,8-PeCDF	IS	73.7	13-328		15-Jul-24 11:51	1
13C-1,2,3,4,7,8-HxCDF	IS	77.8	19-202		15-Jul-24 11:51	1
13C-1,2,3,6,7,8-HxCDF	IS	77.0	21-159		15-Jul-24 11:51	1
13C-2,3,4,6,7,8-HxCDF	IS	77.9	22-176		15-Jul-24 11:51	1
13C-1,2,3,7,8,9-HxCDF	IS	72.4	17-205		15-Jul-24 11:51	1
13C-1,2,3,4,6,7,8-HpCDF	IS	74.6	21-158		15-Jul-24 11:51	1
13C-1,2,3,4,7,8,9-HpCDF	IS	66.2	20-186		15-Jul-24 11:51	1
13C-OCDF	IS	63.5	13-199		15-Jul-24 11:51	1
37Cl-2,3,7,8-TCDD	CRS	81.2	31-191		15-Jul-24 11:51	1

Sample ID: HA-30-1.5-Comp **EPA Method 1613B**

Client Data
Name: Apex Laboratories
Project: A4E1783
Matrix: Soil
Date Collected: 31-May-24 11:15

Laboratory Data
Lab Sample: 2406043-01
QC Batch: B24G066
Sample Size: 12.0 g
% Solids: 83.5
Date Received: 06-Jun-24 09:10
Date Extracted: 10-Jul-24
Column: ZB-DIOXIN

Analyte	Conc. (pg/g)	EDL	MDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND		0.190	0.119		14-Jul-24 16:07	1
1,2,3,7,8-PeCDD	1.70		0.782		J	14-Jul-24 16:07	1
1,2,3,4,7,8-HxCDD	4.49		0.632			14-Jul-24 16:07	1
1,2,3,6,7,8-HxCDD	22.5		0.639			14-Jul-24 16:07	1
1,2,3,7,8,9-HxCDD	9.16		0.715			14-Jul-24 16:07	1
1,2,3,4,6,7,8-HpCDD	468		0.704			14-Jul-24 16:07	1
OCDD	2880		1.62			14-Jul-24 16:07	1
2,3,7,8-TCDF	ND		0.183	0.230		14-Jul-24 16:07	1
1,2,3,7,8-PeCDF	1.04		0.575		J	14-Jul-24 16:07	1
2,3,4,7,8-PeCDF	1.99		0.684		J	14-Jul-24 16:07	1
1,2,3,4,7,8-HxCDF	4.81		0.658			14-Jul-24 16:07	1
1,2,3,6,7,8-HxCDF	5.34		0.620			14-Jul-24 16:07	1
2,3,4,6,7,8-HxCDF	3.93		0.660			14-Jul-24 16:07	1
1,2,3,7,8,9-HxCDF	ND		0.714	0.473		14-Jul-24 16:07	1
1,2,3,4,6,7,8-HpCDF	77.8		0.648			14-Jul-24 16:07	1
1,2,3,4,7,8,9-HpCDF	6.05		0.816			14-Jul-24 16:07	1
OCDF	176		3.83			14-Jul-24 16:07	1
Toxic Equivalent							
TEQMinWHO2005Dioxin	13.8						
Totals							
Total TCDD	0.0867			0.205	J		
Total PeCDD	3.86			4.88			
Total HxCDD	89.5						
Total HpCDD	762						
Total TCDF	0.826			1.98			
Total PeCDF	37.4			38.4			
Total HxCDF	154						
Total HpCDF	209			211			

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	78.3	25 - 164		14-Jul-24 16:07	1
13C-1,2,3,7,8-PeCDD	IS	71.6	25 - 181		14-Jul-24 16:07	1
13C-1,2,3,4,7,8-HxCDD	IS	78.2	32 - 141		14-Jul-24 16:07	1
13C-1,2,3,6,7,8-HxCDD	IS	84.3	28 - 130		14-Jul-24 16:07	1
13C-1,2,3,7,8,9-HxCDD	IS	82.5	32 - 141		14-Jul-24 16:07	1
13C-1,2,3,4,6,7,8-HpCDD	IS	64.9	23 - 140		14-Jul-24 16:07	1
13C-OCDD	IS	55.5	17 - 157		14-Jul-24 16:07	1
13C-2,3,7,8-TCDF	IS	83.0	24 - 169		14-Jul-24 16:07	1
13C-1,2,3,7,8-PeCDF	IS	70.3	24 - 185		14-Jul-24 16:07	1
13C-2,3,4,7,8-PeCDF	IS	65.0	21 - 178		14-Jul-24 16:07	1
13C-1,2,3,4,7,8-HxCDF	IS	78.4	26 - 152		14-Jul-24 16:07	1
13C-1,2,3,6,7,8-HxCDF	IS	80.4	26 - 123		14-Jul-24 16:07	1
13C-2,3,4,6,7,8-HxCDF	IS	66.6	28 - 136		14-Jul-24 16:07	1
13C-1,2,3,7,8,9-HxCDF	IS	67.1	29 - 147		14-Jul-24 16:07	1
13C-1,2,3,4,6,7,8-HpCDF	IS	68.4	28 - 143		14-Jul-24 16:07	1
13C-1,2,3,4,7,8,9-HpCDF	IS	46.0	26 - 138		14-Jul-24 16:07	1
13C-OCDF	IS	36.7	17 - 157		14-Jul-24 16:07	1
37Cl-2,3,7,8-TCDD	CRS	85.6	35 - 197		14-Jul-24 16:07	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration
MDL - Method Detection Limit

The results are reported in dry weight.
The sample size is reported in wet weight.

Sample ID: HA-30-2.5-Comp **EPA Method 1613B**

Client Data
Name: Apex Laboratories
Project: A4E1783
Matrix: Soil
Date Collected: 31-May-24 11:45

Laboratory Data
Lab Sample: 2406043-02
QC Batch: B24G066
Sample Size: 39.4 g
% Solids: 26.1
Date Received: 06-Jun-24 09:10
Date Extracted: 10-Jul-24
Column: ZB-DIOXIN

Analyte	Conc. (pg/g)	EDL	MDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND		0.185	0.609		14-Jul-24 16:54	1
1,2,3,7,8-PeCDD	21.0		0.763			14-Jul-24 16:54	1
1,2,3,4,7,8-HxCDD	52.1		0.616			14-Jul-24 16:54	1
1,2,3,6,7,8-HxCDD	276		0.623			14-Jul-24 16:54	1
1,2,3,7,8,9-HxCDD	112		0.698			14-Jul-24 16:54	1
1,2,3,4,6,7,8-HpCDD	6930		6.87		D	15-Jul-24 17:16	10
OCDD	39700		15.8		D	15-Jul-24 17:16	10
2,3,7,8-TCDF	2.53		0.178			14-Jul-24 16:54	1
1,2,3,7,8-PeCDF	10.8		0.560			14-Jul-24 16:54	1
2,3,4,7,8-PeCDF	22.2		0.668			14-Jul-24 16:54	1
1,2,3,4,7,8-HxCDF	51.4		0.641			14-Jul-24 16:54	1
1,2,3,6,7,8-HxCDF	54.7		0.604			14-Jul-24 16:54	1
2,3,4,6,7,8-HxCDF	23.3		0.643			14-Jul-24 16:54	1
1,2,3,7,8,9-HxCDF	6.90		0.697			14-Jul-24 16:54	1
1,2,3,4,6,7,8-HpCDF	1010		0.632			14-Jul-24 16:54	1
1,2,3,4,7,8,9-HpCDF	73.7		0.796			14-Jul-24 16:54	1
OCDF	2410		3.74			14-Jul-24 16:54	1
Toxic Equivalent							
TEQMinWHO2005Dioxin	179						
Totals							
Total TCDD	1.76			2.90			
Total PeCDD	58.5			61.0			
Total HxCDD	1070						
Total HpCDD	9610						
Total TCDF	19.7			24.7			
Total PeCDF	410						
Total HxCDF	1600						
Total HpCDF	3130						

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	80.1	25 - 164		14-Jul-24 16:54	1
13C-1,2,3,7,8-PeCDD	IS	72.7	25 - 181		14-Jul-24 16:54	1
13C-1,2,3,4,7,8-HxCDD	IS	85.6	32 - 141		14-Jul-24 16:54	1
13C-1,2,3,6,7,8-HxCDD	IS	94.7	28 - 130		14-Jul-24 16:54	1
13C-1,2,3,7,8,9-HxCDD	IS	89.0	32 - 141		14-Jul-24 16:54	1
13C-1,2,3,4,6,7,8-HpCDD	IS	74.4	23 - 140	D	15-Jul-24 17:16	10
13C-OCDD	IS	72.4	17 - 157	D	15-Jul-24 17:16	10
13C-2,3,7,8-TCDF	IS	85.2	24 - 169		14-Jul-24 16:54	1
13C-1,2,3,7,8-PeCDF	IS	72.5	24 - 185		14-Jul-24 16:54	1
13C-2,3,4,7,8-PeCDF	IS	71.1	21 - 178		14-Jul-24 16:54	1
13C-1,2,3,4,7,8-HxCDF	IS	82.7	26 - 152		14-Jul-24 16:54	1
13C-1,2,3,6,7,8-HxCDF	IS	82.1	26 - 123		14-Jul-24 16:54	1
13C-2,3,4,6,7,8-HxCDF	IS	80.9	28 - 136		14-Jul-24 16:54	1
13C-1,2,3,7,8,9-HxCDF	IS	79.9	29 - 147		14-Jul-24 16:54	1
13C-1,2,3,4,6,7,8-HpCDF	IS	73.5	28 - 143		14-Jul-24 16:54	1
13C-1,2,3,4,7,8,9-HpCDF	IS	69.7	26 - 138		14-Jul-24 16:54	1
13C-OCDF	IS	76.8	17 - 157		14-Jul-24 16:54	1
37Cl-2,3,7,8-TCDD	CRS	85.2	35 - 197		14-Jul-24 16:54	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration
MDL - Method Detection Limit

The results are reported in dry weight.
The sample size is reported in wet weight.

ENTHALPY ANALYTICAL

Sample ID: HA-31-1.5-Comp

EPA Method 1613B

Client Data

Name: Apex Laboratories
Project: A4E1783
Matrix: Soil
Date Collected: 31-May-24 12:30

Laboratory Data

Lab Sample: 2406043-03
QC Batch: B24G066
Sample Size: 14.1 g
% Solids: 74.3
Date Received: 06-Jun-24 09:10
Date Extracted: 10-Jul-24
Column: ZB-DIOXIN

Analyte	Conc. (pg/g)	EDL	MDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND		0.181	0.0689		14-Jul-24 17:41	1
1,2,3,7,8-PeCDD	ND		0.748	0.228		14-Jul-24 17:41	1
1,2,3,4,7,8-HxCDD	ND		0.604	0.895		14-Jul-24 17:41	1
1,2,3,6,7,8-HxCDD	4.68		0.610			14-Jul-24 17:41	1
1,2,3,7,8,9-HxCDD	1.91		0.684		J	14-Jul-24 17:41	1
1,2,3,4,6,7,8-HpCDD	101		0.673			14-Jul-24 17:41	1
OCDD	627		1.54			14-Jul-24 17:41	1
2,3,7,8-TCDF	ND	0.0612	0.174			14-Jul-24 17:41	1
1,2,3,7,8-PeCDF	0.218		0.549		J	14-Jul-24 17:41	1
2,3,4,7,8-PeCDF	0.317		0.654		J	14-Jul-24 17:41	1
1,2,3,4,7,8-HxCDF	0.849		0.628		J	14-Jul-24 17:41	1
1,2,3,6,7,8-HxCDF	0.895		0.592		J	14-Jul-24 17:41	1
2,3,4,6,7,8-HxCDF	0.558		0.630		J	14-Jul-24 17:41	1
1,2,3,7,8,9-HxCDF	0.252		0.683		J	14-Jul-24 17:41	1
1,2,3,4,6,7,8-HpCDF	14.5		0.619			14-Jul-24 17:41	1
1,2,3,4,7,8,9-HpCDF	1.17		0.780		J	14-Jul-24 17:41	1
OCDF	31.1		3.66			14-Jul-24 17:41	1
Toxic Equivalent							
TEQMinWHO2005Dioxin	2.38						
Totals							
Total TCDD	ND			0.0689			
Total PeCDD	ND			0.412			
Total HxCDD	16.4			17.3			
Total HpCDD	161						
Total TCDF	0.131				J		
Total PeCDF	5.22			5.36			
Total HxCDF	23.3						
Total HpCDF	44.0						

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	89.4	25 - 164		14-Jul-24 17:41	1
13C-1,2,3,7,8-PeCDD	IS	85.4	25 - 181		14-Jul-24 17:41	1
13C-1,2,3,4,7,8-HxCDD	IS	100	32 - 141		14-Jul-24 17:41	1
13C-1,2,3,6,7,8-HxCDD	IS	111	28 - 130		14-Jul-24 17:41	1
13C-1,2,3,7,8,9-HxCDD	IS	102	32 - 141		14-Jul-24 17:41	1
13C-1,2,3,4,6,7,8-HpCDD	IS	90.8	23 - 140		14-Jul-24 17:41	1
13C-OCDD	IS	85.0	17 - 157		14-Jul-24 17:41	1
13C-2,3,7,8-TCDF	IS	97.3	24 - 169		14-Jul-24 17:41	1
13C-1,2,3,7,8-PeCDF	IS	83.2	24 - 185		14-Jul-24 17:41	1
13C-2,3,4,7,8-PeCDF	IS	83.0	21 - 178		14-Jul-24 17:41	1
13C-1,2,3,4,7,8-HxCDF	IS	97.4	26 - 152		14-Jul-24 17:41	1
13C-1,2,3,6,7,8-HxCDF	IS	98.5	26 - 123		14-Jul-24 17:41	1
13C-2,3,4,6,7,8-HxCDF	IS	96.2	28 - 136		14-Jul-24 17:41	1
13C-1,2,3,7,8,9-HxCDF	IS	93.3	29 - 147		14-Jul-24 17:41	1
13C-1,2,3,4,6,7,8-HpCDF	IS	83.3	28 - 143		14-Jul-24 17:41	1
13C-1,2,3,4,7,8,9-HpCDF	IS	78.5	26 - 138		14-Jul-24 17:41	1
13C-OCDF	IS	77.5	17 - 157		14-Jul-24 17:41	1
37Cl-2,3,7,8-TCDD	CRS	94.8	35 - 197		14-Jul-24 17:41	1

EDL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration
MDL - Method Detection Limit

The results are reported in dry weight.
The sample size is reported in wet weight.

DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank
Conc.	Concentration
CRS	Cleanup Recovery Standard
D	Dilution
DL	Detection Limit
E	The associated compound concentration exceeded the calibration range of the instrument
H	Recovery and/or RPD was outside laboratory acceptance limits
I	Chemical Interference
IS	Internal Standard
J	The amount detected is below the Reporting Limit/LOQ
LOD	Limit of Detection
LOQ	Limit of Quantitation
M	Estimated Maximum Possible Concentration (CA Region 2 projects only)
MDL	Method Detection Limit
NA	Not applicable
ND	Not Detected
OPR	Ongoing Precision and Recovery sample
P	The reported concentration may include contribution from chlorinated diphenyl ether(s).
Q	The ion transition ratio is outside of the acceptance criteria.
RL	Reporting Limit
RL	For 537.1, the reported RLs are the MRLs.
TEQ	Toxic Equivalency, sum of the toxic equivalency factors (TEF) multiplied by the sample concentrations.
TEQMax	TEQ calculation that uses the detection limit as the concentration for non-detects
TEQMin	TEQ calculation that uses zero as the concentration for non-detects
TEQRisk	TEQ calculation that uses ½ the detection limit as the concentration for non-detects
U	Not Detected (specific projects only)
*	See Cover Letter

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

Enthalpy Analytical - EDH Certifications

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	21-023-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025	3091.01
Florida Department of Health	E87777
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2020018
Michigan Department of Environmental Quality	9932
Minnesota Department of Health	2211390
Nevada Division of Environmental Protection	CA00413
New Hampshire Environmental Accreditation Program	207721
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Ohio Environmental Protection Agency	87778
Oregon Laboratory Accreditation Program	4042-021
Texas Commission on Environmental Quality	T104704189-22-13
Vermont Department of Health	VT-4042
Virginia Department of General Services	11276
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters can be found at Enthalpy.com/Resources/Accreditations.

EST 2406043 1.3°C

SUBCONTRACT ORDER

Apex Laboratories

Accel 5/24

A4E1783

SENDING LABORATORY:

Apex Laboratories
6700 S.W. Sandburg Street
Tigard, OR 97223
Phone: (503) 718-2323
Fax: (503) 336-0745
Project Manager: Philip Nerenberg

RECEIVING LABORATORY:

Enthalpy Analytical- CA
1104 Windfield Way
El Dorado Hills, CA 95762
Phone :(916) 673-1520
Fax: -

Sample Name: HA-30-1.5-Comp **Soil** **Sampled: 05/31/24 11:15** (A4E1783-01)

Analysis	Due	Expires	Comments
1613B Dioxins and Furans (SUB)	06/13/24 17:00	05/31/25 11:15	
Containers Supplied: (A)4 oz Glass Jar			

Sample Name: HA-30-2.5-Comp **Soil** **Sampled: 05/31/24 11:45** (A4E1783-02)

Analysis	Due	Expires	Comments
1613B Dioxins and Furans (SUB)	06/13/24 17:00	05/31/25 11:45	
Containers Supplied: (A)4 oz Glass Jar			

Sample Name: HA-31-1.5-Comp **Soil** **Sampled: 05/31/24 12:30** (A4E1783-03)

Analysis	Due	Expires	Comments
1613B Dioxins and Furans (SUB)	06/13/24 17:00	05/31/25 12:30	
Containers Supplied: (A)4 oz Glass Jar			

Standard TAT

Released By	Date	Received By	Date
	6/5/24	Fed Ex (Shipper)	
Fed Ex (Shipper)			
Released By	Date	Received By	Date
			06/06/24 0910

Sample Log-In Checklist

ENTHALPY ANALYTICAL

Work Order #: 240 0443 **TAT** Std

Samples Arrival:	**Date/Time** 06/06/24 0910		**Initials:** WWS		**Location:** WR-1 **Shelf/Rack:** N/A		
Delivered By:	FedEx	UPS	On Trac	GLS	DHL	Hand Delivered	Other
Preservation:	Ice		Blue Ice		Techni Ice	Dry Ice	None
Temp °C: 1.3 (uncorrected)	**Probe used:** Y / N		**Thermometer ID:** IR-4				
Temp °C: 1.3 (corrected)							

	YES	NO	NA
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Airbill — Trk # 7767 2205 5688	✓		
Shipping Documentation Present?	✓		
Shipping Container: Enthalpy / Client / Retain / Return / Dispose			
Chain of Custody / Sample Documentation Present?	✓		
Chain of Custody / Sample Documentation Complete?	✓		
Holding Time Acceptable?	✓		

Logged In:	**Date/Time** 06/07/24 1335	**Initials:** JT	**Location:** WR-2 **Shelf/Rack:** D-4	
COC Anomaly/Sample Acceptance Form completed?				✓

Comments:

CoC/Label Reconciliation Report WO# 2406043

LabNumber	CoC Sample ID		SampleAlias	Sample Date/Time		Container	BaseMatrix	Sample Comments
2406043-01	A HA-30-1.5-Comp	☑	(A4E1783-01)	31-May-24 11:15	☑	Clear Glass Jar, 120mL	Solid	
2406043-02	A HA-30-2.5-Comp	☑	(A4E1783-02)	31-May-24 11:45	☑	Clear Glass Jar, 120mL	Solid	
2406043-03	A HA-31-1.5-Comp	☑	(A4E1783-03)	31-May-24 12:30	☑	Clear Glass Jar, 120mL	Solid	

Checkmarks indicate that information on the COC reconciled with the sample label.
Any discrepancies are noted in the following columns.

	Yes	No	NA
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Adequate Sample Volume?	✓		
Container Type Appropriate for Analysis(es)	✓(A)		

Comments: (A) Samples received in clear glass wrapped in foil.

Preservation Documented: Na2S2O3 Trizma NH4CH3CO2 None Other

Verifed by/Date: JT 06/07/24
MMS 06/07/24

Attachment B

Data Validation Memorandum

MAUL FOSTER ALONGI

Data Validation Memorandum

Project No. M8012.01.001| July 26, 2024 | Permapost Products, Inc.

Maul Foster & Alongi, Inc. (MFA), conducted an independent Stage 2A review of the quality of analytical results for soil samples collected on May 31, 2024 at the Permapost study area located south of 4205 SE Witch Hazel Road in Hillsboro, Oregon.

Apex Laboratories, LLC (Apex), and Enthalpy Analytical LLC (Enthalpy) located in El Dorado Hills, California, performed the analyses. Portions of samples submitted to Apex were subcontracted to Enthalpy for dioxin and furan analysis, and Enthalpy reports are appended to the Apex reports. MFA reviewed Apex report number A4E1783 and Enthalpy report 2406043. The analyses performed and the samples analyzed are listed in the following tables.

Analysis	Reference
Dioxins and furans	EPA 1613B[(a)]

Notes
EPA = U.S. Environmental Protection Agency.
[(a)]Percent moisture measurement for dry-weight calculation is included in EPA Method 1613B.

Samples Analyzed
Report A4E1783/2406043
HA-30-1.5-Comp
HA-30-2.5-Comp
HA-31-1.5-Comp

Data Validation Procedures

Analytical results were evaluated according to applicable sections of U.S. Environmental Protection Agency (EPA) guidelines for data review (EPA 2014, EPA 2020) and appropriate laboratory- and method-specific guidelines (Apex 2023, Enthalpy 2023, EPA 1986).

Based on the data quality assurance/quality control review described herein, the data, with the appropriate final data qualifiers assigned, are considered acceptable for their intended use. Final data qualifiers represent qualifiers originating from the laboratory and accepted by the reviewer, and data qualifiers assigned by the reviewer during validation.

Final data qualifiers:

- J = result is estimated.
- J+ = result is estimated, but the result may be biased high.
- J- = result is estimated, but the result may be biased low.
- U = result is non-detect at the estimated detection limit (EDL).
- UJ = result is non-detect with an estimated LDL/MDL/MRL.
- UJK = result is non-detect at the estimated maximum potential concentration (EMPC) and qualified as estimated.

- UK = result is non-detect at the EMPC.

Dioxins and Furans

Second Column Confirmation

Positive identification of 2,3,7,8-TCDF cannot be achieved using typical EPA Method 1613B analytical columns; therefore, analysis using a second column is required to confirm and qualify any detections above the method reporting limit (MRL). Enthalpy noted that EPA Method 1613B analysis of all samples was performed with a column that resolves 2,3,7,8-TCDD and 2,3,7,8-TCDF. Second column confirmation of 2,3,7,8-TCDF detected results was therefore not required.

Estimated Maximum Potential Concentration Results

In accordance with EPA Region 10 guidance for data validation of dioxins and furans (EPA 2014) and EPA national functional guidelines for high-resolution Superfund methods data review (EPA 2020), the reviewer qualified EPA Method 8290A results that were identified by Enthalpy as EMPC detections. The reviewer confirmed that, where Enthalpy provided a lower result concentration along with an EMPC result, the EMPC is considered the final result value.

Where Enthalpy flagged non-detect congener results or total homolog below MRLs as EMPCs, the reviewer qualified the results with UJK. The reviewer qualified congener or total homolog results above MRLs that were flagged as EMPCs with UK.

Where Enthalpy flagged detected total homolog results as EMPCs, and all associated congeners were either EMPCs or non-detect, the reviewer qualified the total homolog result as non-detect at the reported concentration. Final qualification for total homolog results above MRLs is UK. Final qualification for total homolog results below MRLs is UJK.

Where Enthalpy flagged total homolog results as EMPCs and one or more associated congeners were detected without an EMPC flag, the reviewer accepted the laboratory qualification. Final qualification for total homolog results above MRLs is K.

Final data qualifiers for EMPC results are shown in the following table. Some EMPC results were also qualified based on holding time or laboratory control sample (LCS) recovery. Final qualification is shown.

Report	Sample	Analyte	Original Result (pg/g)	Qualified Result (pg/g)
2406043	HA-30-1.5-Comp	2,3,7,8-TCDD	0.119 K	0.119 UJK
		2,3,7,8-TCDF	0.230 K	0.230 UJK
		1,2,3,7,8,9-HxCDF	0.473 K	0.473 UJK
		Total TCDD	0.205 JK	0.205 UJK
		Total PeCDD	4.88 K	4.88 K
		Total TCDF	1.98 K	1.98 UK
		Total PeCDF	38.4 K	38.4 K
		Total HpCDF	211 K	211 K
	HA-30-2.5-Comp	2,3,7,8-TCDD	0.609 K	0.609 UJK
		Total TCDD	2.90 K	2.90 UK
		Total PeCDD	61.0 K	61.0 K
		Total TCDF	24.7 K	24.7 K

Report	Sample	Analyte	Original Result (pg/g)	Qualified Result (pg/g)
	HA-31-1.5-Comp	2,3,7,8-TCDD	0.0689 K	0.0689 UJK
		1,2,3,7,8-PeCDD	0.228 K	0.228 UJK
		1,2,3,4,7,8-HxCDD	0.895 K	0.895 UJK
		Total TCDD	0.0689 K	0.0689 UJK
		Total PeCDD	0.412 K	0.412 UJK
		Total HxCDD	17.3 K	17.3 K
		Total PeCDF	5.36 K	5.36 K

Notes
J = result is estimated.
JK = result is qualified as estimated and an estimated maximum potential concentration.
K = result is an estimated maximum potential concentration.
pg/g = picograms per gram.
UJK = result is non-detect at the estimated maximum potential concentration and qualified as estimated.
UK = result is non-detect at the estimated maximum potential concentration.

Sample Conditions

Sample Custody

Sample custody was appropriately documented on the chain-of-custody (COC) form accompanying the reports with the following exceptions:

According to the chain-of-custody (COC) forms provided with report 2406043, sample relinquishment time was not recorded by Apex for shipments to Enthalpy. The reviewer notified the laboratory. No qualification was required. The reviewer also confirmed that the gap in custody on the COC form accompanying the Enthalpy reports was for shipment via a third-party service.

Holding Times

Extractions and analyses were performed within the recommended holding times.

Preservation and Sample Storage

The samples were preserved and stored appropriately. The reviewer confirmed that samples were protected from light; Enthalpy noted on the COC label reconciliation report provided with report 2406043, that the samples were received in clear glass wrapped in foil.

Reporting Limits

Enthalpy reported EPA Method 1613B non-detect results to EDLs. EDLs are sample-specific detection limits calculated for non-detect results. Method detection limits (MDLs) were also provided for all EPA Method 1613B dioxin and furan congener results. Samples that required dilutions because of high analyte concentrations were reported with raised MDLs.

Enthalpy qualified results detected between the MDL and MRL with J. Because MRLs were not included in the reports, the reviewer confirmed that results flagged by Enthalpy with J were detected below MRLs by reviewing the electronic data deliverable file that accompanied the report. These qualifiers were accepted by the reviewer.

Blank Results

Method Blanks

Laboratory method blanks are used to evaluate whether laboratory contamination was introduced during sample preparation and analysis. Laboratory method blank analyses were performed at the required frequencies, in accordance with laboratory- and method-specific requirements.

All laboratory method blank results were non-detect to EDLs.

Equipment Rinsate Blanks

Equipment rinsate blanks are used to evaluate the adequacy of the field equipment decontamination process when decontaminated sampling equipment is used to collect samples.

No equipment rinsate blanks were submitted for analysis. The reviewer was unable to evaluate field samples for possible contamination from sampling equipment.

Trip Blanks

Trip blanks are used to evaluate whether volatile organic compound contamination was introduced during sample storage and during shipment between the sampling location and the laboratory. Trip blank samples were not required because samples were not analyzed for volatile organic compounds.

Laboratory Control Sample and Laboratory Control Sample Duplicate Results

An LCS and a laboratory control sample duplicate (LCSD) are spiked with target analytes to provide information about laboratory precision and accuracy. No LCSD results were reported, in accordance with the method. The LCS samples were prepared and analyzed at the required frequency. Enthalpy reported LCS samples as “ongoing precision and recovery” samples.

All LCS results were within acceptance limits for percent recovery.

Laboratory Duplicate Results

Laboratory duplicate results are used to evaluate laboratory precision. Laboratory duplicate samples are not required for EPA Method 1613B and were not reported by Enthalpy.

Matrix Spike and Matrix Spike Duplicate Results

Matrix spike (MS) and matrix spike duplicate (MSD) results are used to evaluate laboratory precision, accuracy, and the effect of the sample matrix on sample preparation and analysis. MS and MSD results were not reported by Enthalpy.

Labeled Analog Results

All EPA Method 1613B project samples and associated batch quality control samples were spiked with carbon-13 (C13) labeled analogs as internal standards to quantify the relative response of analytes in each sample. Samples were also spiked with labeled cleanup standards to evaluate the efficiency of extract cleanup.

All labeled standard recoveries were within acceptance limits.

Field Duplicate Results

Field duplicate samples measure both field and laboratory precision. Feld duplicate samples were not submitted for analysis.

Data Package

The data package was reviewed for transcription errors, omissions, and anomalies.

None were found.

References

Apex. 2023. *Quality Systems Manual.* Rev. 11. Apex Laboratories, LLC: Tigard, OR. June 20.

Enthalpy. 2023. *Quality Manual*. Rev. 33. Enthalpy Analytical, LLC: El Dorado Hills, CA. February 20.

EPA. 1986. *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.* EPA publication SW-846. 3rd ed. U.S. Environmental Protection Agency. Final updates I (1993), II (1995), IIA (1994), IIB (1995), III (1997), IIIA (1999), IIIB (2005), IV (2008), V (2015), VI phase I (2017), VI phase II (2018), VI phase III (2019), VII phase I (2019), and VII phase II (2020).

EPA. 2014. *R10 Data Validation and Review Guidelines for Polychlorinated Dibenzo-p-dioxin and Polychlorinated Dibenzofuran Data (PCDD/PCDF) Using Method 1613B and SW846 Method 8290A.* EPA-910-R-14-003. U.S. Environmental Protection Agency, Office of Environmental Assessment. May.

EPA. 2020. *National Functional Guidelines for High Resolution Superfund Methods Data Review*. EPA 542-R-20-007. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation. November.

Appendix B

Design Drawings

MAUL FOSTER ALONGI

ABBREVIATIONS

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

GENERAL LEGEND

GAS/POWER/TELEPHONE SYMBOLS

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

SURVEY SYMBOLS

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

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

WATER SYMBOLS

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

SANITARY/STORM SEWER SYMBOLS

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

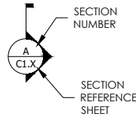
27	PROPOSED GRADE MAJOR CONTOUR (5.0' INTERVAL)
27	PROPOSED GRADE MINOR CONTOUR (1.0' INTERVAL)
	PROPOSED STORM DRAIN PIPE
	PROPOSED WATER PIPE
	PROPOSED SANITARY SEWER PIPE
	PROPOSED AC PAVEMENT
	PROPOSED CONCRETE SURFACING
	PROPOSED GRAVEL SURFACING
	PROPOSED BUILDING
	PROPOSED FENCE LINE
	PROPOSED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

CHANNELIZATION & TREE SYMBOLS

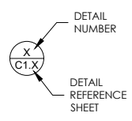
SYMBOL EXIST.	SYMBOL PROP.	DESCRIPTION
		BIKE PATH
		DECIDUOUS TREE
		CONIFEROUS TREE
		RAISED MARKERS:
		LANE MARKERS TYPE I
		LANE MARKERS TYPE II
		SIGN

MISCELLANEOUS SYMBOLS

SYMBOL EXIST.	SYMBOL PROP.	DESCRIPTION
		MONITORING WELL
		INLET PROTECTION PILLOW
		CONSTRUCTION ENTRANCE
	FG 83.88	PROPOSED SPOT SHOT



TYPICAL SECTION CALLOUT



TYPICAL DETAIL CALLOUT

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

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PROPERTY 001 INTERIM ACTION
PERMAPOST
HILLSBORO, OREGON

ISSUE	DATE	DESCRIPTION

PROJECT: M8012.01.001
DESIGNED:----
DRAWN: ----
CHECKED: ----
SCALE

SHEET TITLE
MASTER LEGEND

SHEET
C0.1

PLOTTED ON: 2024.08.28 9:55 AM PLOTTED BY: Josh Elliott FILENAME: G:\PROJECTS\M8012.01 Permapost\PLANS\Property 1 Cleanup\MASTER LEGEND.dwg

EXTG HYD
EXTG PROP CORNER MARKER
EXTG GATE
EXTG FENCE
SE 39TH AVENUE
EXTG 3 DECIDUOUS TREES TO TO REMAIN
DEMO EXTG SPRINKLER SYSTEM (REPLACE IN KIND)
STRM MH
CATCH BASIN
EXTG FENCE
EXTG PINE TO REMAIN
EXTG RED MAPLE TO BE BALLED AND REPLANTED FOLLOWING EXCAVATION
EXTG JAPANESE MAPLE TO BE BALLED AND REPLANTED FOLLOWING EXCAVATION
EXTG MAPLE TO REMAIN
CONTRACTOR TO POTHOLE EXTG WATER LINE AND PIP DURING CONSTRUCTION
CONTRACTOR TO POTHOLE EXTG STRM AND PIP DURING CONSTRUCTION
EXTG FENCE
UTIL POLE
WATER METER
AREA DRAIN
12" CULV ENTRANCE
SHED W/ CONC FLOOR
DEMO EXTG FENCE
MOVE EXTG SHEDS TO FACILITATE SOIL EXCAVATION
EXTG JAPANESE MAPLE TO BE BALLED AND REPLANTED FOLLOWING EXCAVATION
MOVE EXTG GAZEBO TO FACILITATE SOIL EXCAVATION
EXTG UG ELEC
DEMO EXTG DECK TO FACILITATE SOIL EXCAVATION
EXTG FENCE
DEMO EXTG SPRINKLER SYSTEM (REPLACE IN KIND)
HOUSE
EXTG ELEC METER
EXTG FENCE GATE
EXTG CONC DRIVEWAY
OVRH ELEC
EXTG FENCE
EXTG ASPH DRIVEWAY
CONTRACTOR TO POTHOLE EXTG GAS AND PIP DURING CONSTRUCTION
12" CULV OUTLET
UTIL POLE (PIP)
SE WITCH HAZEL ROAD
PRELIMINARY

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PROPERTY 001 INTERIM ACTION
PERMAPOST
HILLSBORO, OREGON

DESCRIPTION	DATE	ISSUE

PROJECT: M8012.01.001
DESIGNED: J. ELLIOTT
DRAWN: J. ELLIOTT
CHECKED: ----
SCALE
0 10' 20'
NOTE: BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY.

SHEET TITLE
EXISTING CONDITIONS & DEMOLITION PLAN

SHEET
C1.0

PLOTTED BY: John Elliott FILENAME: G:\PROJECTS\M8012.01 Permapost\PLANS\Property 1 Cleanup\EXTG CONDITIONS.dwg
PLOTTED ON: 2024/08/28 9:55 AM

CLEAN WATER SERVICES STANDARD PLAN NOTES:

1. WHEN RAINFALL AND RUNOFF OCCURS, A KNOWLEDGEABLE AND EXPERIENCED PERSON IN THE PRINCIPLES, PRACTICES, INSTALLATION, AND MAINTENANCE OF EROSION AND SEDIMENT CONTROLS WHO WORKS FOR THE PERMITTEE MUST PROVIDE DAILY INSPECTIONS OF THE EROSION AND SEDIMENT CONTROLS AND DISCHARGE OUTFALLS.
2. CONSTRUCTION ACTIVITIES MUST AVOID OR MINIMIZE EXCAVATION AND CREATION OF BARE GROUND FROM OCTOBER 1 THROUGHMAY 31ST EACH YEAR.
3. DURING WET WEATHER PERIOD, TEMPORARY STABILIZATION OF THE SITE MUST OCCUR AT THE END OF EACH WORK DAY.
4. SEDIMENT CONTROLS MUST BE INSTALLED AND MAINTAINED ON ALL DOWN GRADIENT SIDES OF THE CONSTRUCTION SITE AT ALL TIMES DURING CONSTRUCTION. THEY MUST REMAIN IN PLACE UNTIL PERMANENT VEGETATION OR OTHER PERMANENT COVERING OF EXPOSED SOIL IS ESTABLISHED.
5. ALL ACTIVE INLETS MUST HAVE SEDIMENT CONTROLS INSTALLED AND MAINTAINED AT ALL TIMES DURING CONSTRUCTION.
6. SIGNIFICANT AMOUNTS OF SEDIMENT THAT LEAVES THE SITE MUST BE CLEANED UP WITHIN 24 HOURS AND PLACED BACK ON THE SITE AND STABILIZED OR PROPERLY DISPOSED. THE CAUSE OF THE SEDIMENT RELEASE MUST BE FOUND AND PREVENTED FROM CAUSING A RECURRENCE OF THE DISCHARGE WITHIN THE SAME 24 HOURS. ANY IN-STREAM CLEAN UP OF SEDIMENT SHALL BE PERFORMED ACCORDING TO THE OREGON DEPARTMENT OF STATE LANDS REQUIRED TIME FRAME.
7. SEDIMENT MUST NOT BE INTENTIONALLY WASHED INTO STORM SEWERS, DRAINAGE WAYS, OR WATER BODIES.
8. SEDIMENT MUST BE REMOVED FROM BEHIND ALL SEDIMENT CONTROL MEASURES WHEN IT HAS REACHED A HEIGHT OF ONE THIRD OF THE BARRIER HEIGHT AND PRIOR TO THE CONTROL MEASURES REMOVAL.
9. CLEANING OF ALL STRUCTURES WITH SUMPS MUST OCCUR WHEN THE SEDIMENT RETENTION CAPACITY HAS BEEN REDUCED BY 50% AND AT COMPLETION OF PROJECT.
10. ANY USE OF TOXIC OR OTHER HAZARDOUS MATERIALS MUST INCLUDE PROPER STORAGE, APPLICATION, AND DISPOSAL.
11. THE PERMITTEE MUST PROPERLY MANAGE HAZARDOUS WASTES, USED OILS, CONTAMINATED SOILS, CONCRETE WASTE, SANITARY WASTE, LIQUID WASTE, OR OTHER TOXIC SUBSTANCES DISCOVERED OR GENERATED DURING CONSTRUCTION.
12. THE APPLICATION RATE OF FERTILIZERS USED TO REESTABLISH VEGETATION MUST FOLLOW MANUFACTURER'S RECOMMENDATIONS.NUTRIENT RELEASES FROM FERTILIZERS TO SURFACE WATERS MUST BE MINIMIZED. TIME RELEASE FERTILIZERS SHOULD BE USED AND CARE SHOULD BE MADE IN APPLICATION OF FERTILIZERS WITHIN ANY WATER WAY RIPARIAN ZONE.
13. OWNER OR DESIGNATED PERSON SHALL BE RESPONSIBLE FOR PROPER INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL MEASURES, IN ACCORDANCE WITH CURRENT CLEAN WATER SERVICES STANDARDS AND STATE, AND FEDERAL REGULATIONS.
14. PRIOR TO ANY LAND DISTURBING ACTIVITIES, THE BOUNDARIES OF THE CLEARING LIMITS, VEGETATED BUFFERS, AND ANY SENSITIVE AREAS SHOWN ON THIS PLAN SHALL BE CLEARLY DELINEATED IN THE FIELD. UNLESS OTHERWISE APPROVED, NO DISTURBANCE IS PERMITTED BEYOND THE CLEARING LIMITS. THE OWNER/PERMITTEE MUST MAINTAIN THE DELINEATION FOR THE DURATION OF THE PROJECT. NOTE: VEGETATED CORRIDORS TO BE DELINEATED WITH ORANGE CONSTRUCTION FENCE OR APPROVED EQUAL.
15. PRIOR TO ANY LAND DISTURBING ACTIVITIES, THE BMPs THAT MUST BE INSTALLED ARE GRAVEL CONSTRUCTION ENTRANCE, PERIMETER SEDIMENT CONTROL, AND INLET PROTECTION. THESE BMPs MUST BE MAINTAINED FOR THE DURATION OF THE PROJECT.
16. IF VEGETATIVE SEED MIXES ARE SPECIFIED, SEEDING MUST TAKE PLACE NO LATER THAN SEPTEMBER 1ST; THE TYPE AND PERCENTAGES OF SEED IN THE MIX ARE AS IDENTIFIED ON THE PLANS OR AS SPECIFIED BY THE DESIGN ENGINEER.
17. WATERTIGHT TRUCKS MUST BE USED TO TRANSPORT SATURATED SOILS FROM THE CONSTRUCTION SITE. AN APPROVED EQUIVALENT IS TO DRAIN THE SOIL ON SITE AT A DESIGNATED LOCATION USING APPROPRIATE BMPS; SOIL MUST BE DRAINED SUFFICIENTLY FOR MINIMAL SPILLAGE.
18. ALL PUMPING OF SEDIMENT LADEN WATER MUST BE DISCHARGED OVER AN UNDISTURBED, PREFERABLY VEGETATED AREA, AND THROUGH A SEDIMENT CONTROL BMP (i.e. FILTER BAG).
19. THE ESC PLAN MUST BE KEPT ONSITE. ALL MEASURES SHOWN ON THE PLAN MUST BE INSTALLED PROPERLY TO ENSURE THAT SEDIMENT LADEN WATER DOES NOT ENTER A SURFACE WATER SYSTEM, ROADWAY, OR OTHER PROPERTIES.
20. THE ESC MEASURES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE MEASURES SHALL BE UPGRADED AS NEEDED TO MAINTAIN COMPLIANCE WITH ALL REGULATIONS.
21. WRITTEN ESC LOGS ARE SUGGESTED TO BE MAINTAINED ONSITE AND AVAILABLE TO DISTRICT INSPECTORS UPON REQUEST.
22. IN AREAS SUBJECT TO WIND EROSION, APPROPRIATE BMPs MUST BE USED, WHICH MAY INCLUDE THE APPLICATION OF FINE WATER SPRAYING, PLASTIC SHEETING, MULCHING, OR OTHER APPROVED MEASURES.
23. ALL EXPOSED SOILS MUST BE COVERED, AT END OF BUSINESS DAY, DURING WET WEATHER PERIOD, FROM OCTOBER 1 - MAY 31.

COMPOST FILTER BERM
SEE DTL SHT C1.2

EXCAVATED SOIL STOCKPILE (APPROX 12.5 FT HIGH). CONTOUR LABELS INDICATE ELEV ABOVE EXTG GRADE.

B C1.3

CONSTRUCTION ENTRANCE
SEE DTL SHT C1.2

CONSTRUCTION ENTRANCE
SEE DTL SHT C1.2.
TRUCKS TO ENTER/EXIT THE
PROPERTY THROUGH EXTG GATE

PROP 001 SOIL EXC AREA. DURING PRECIPITATION EVENTS, COVER EXPOSED SOIL W/ PLASTIC SHEETING

A C1.3

INLET PROTECTION TYPE 5
SEE DTL SHT C1.2

INLET PROTECTION TYPE 4
SEE DTL SHT C1.2

SE 39TH AVENUE

SE WITCH HAZEL ROAD

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PERMAPOST
PRESSURE-TREATING AND FABRICATED WOOD PRODUCTS

PROPERTY 001 INTERIM ACTION
PERMAPOST
HILLSBORO, OREGON

ISSUE	DATE	DESCRIPTION

PROJECT: M8012.01.001
DESIGNED: J. ELLIOTT
DRAWN: J. ELLIOTT
CHECKED: ---

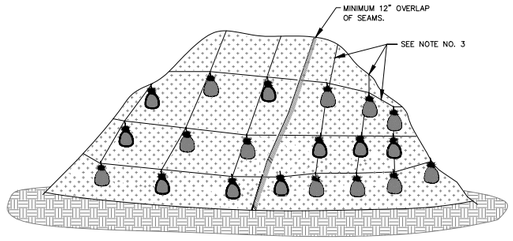
SCALE
0 20' 40'
NOTE: BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY.

SHEET TITLE
EROSION & SEDIMENT CONTROL PLAN

SHEET
C1.1

PLOTTED BY: Josh Elliott FILENAME: G:\PROJECTS\M8012.01 Permapost\PLANS\Property 1 Cleanup\ESC PLAN.dwg
PLOTTED ON: 2024/08/28 9:56 AM

FOR FURTHER INFORMATION ON DESIGN CRITERIA SEE CHAPTER 4 OF CLEAN WATER SERVICES EROSION PREVENTION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL.



PLASTIC SHEETING

NOTES:

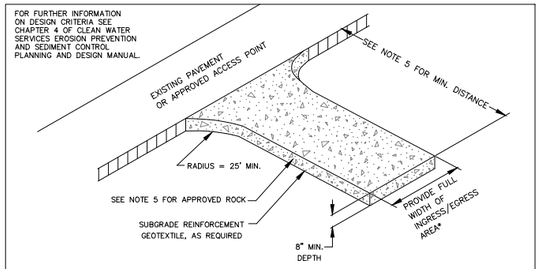
1. MINIMUM 12" OVERLAP OF ALL SEAMS REQUIRED.
2. PERIMETER SEDIMENT CONTROL BMP TO BE INSTALLED A MIINIMUM OF 3' FROM TOE OF STOCKPILE.
3. COVERING MAINTAINED TIGHTLY IN PLACE BY USING SANDBAGS OR APPROVED EQUAL ON ROPES WITH A MAXIMUM 10' GRID SPACING IN ALL DIRECTIONS.
4. PLASTIC TO EXTEND MINIMUM 1' BEYOND TOE OF SLOPE.
5. AS APPROPRIATE, BMP'S SHALL BE INSTALLED TO CONVEY WATER DISCHARGE FROM STOCKPILE AREAS.

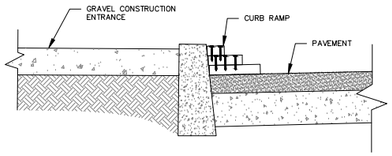
PLASTIC SHEETING

DRAWING NO. 810 REVISED 10-31-19

Clean Water Services

FOR FURTHER INFORMATION ON DESIGN CRITERIA SEE CHAPTER 4 OF CLEAN WATER SERVICES EROSION PREVENTION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL.





NOTES:

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF- WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.
4. WHERE RUNOFF CONTAINING SEDIMENT LADEN WATER IS LEAVING THE SITE VIA THE CONSTRUCTION ENTRANCE, OTHER MEASURES SHALL BE IMPLEMENTED TO DIVERT RUNOFF THROUGH AN APPROVED FILTERING SYSTEM.
5. DIMENSIONS
   SINGLE FAMILY
   20' LONG BY 20' WIDE 8" DEEP OF ¾" MINUS CLEAN ROCK.
   COMMERCIAL/SITE DEVELOPMENT
   50' LONG BY 20' WIDE 3-6" CLEAN ROCK, GOVERNING AUTHORITY MAY REQUIRE GEOTEXTILE FABRIC TO PREVENT SUB-SOIL PUMPING.

CONSTRUCTION ENTRANCE

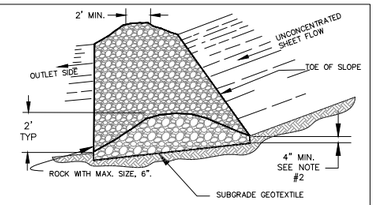
DRAWING NO. 855 REVISED 10-31-19

Clean Water Services

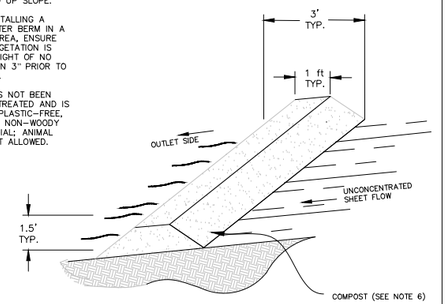
FOR FURTHER INFORMATION ON DESIGN CRITERIA SEE CHAPTER 4 OF CLEAN WATER SERVICES EROSION PREVENTION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL.

NOTES:

1. DIRECT THE OUTLET SIDE OF THE ROCK/COMPOST FILTER BERMS ONTO A STABILIZED AREA, SUCH AS VEGETATION AND/OR ROCK.
2. EMBED ROCK FILTER BERM A MIN. OF 4" INTO THE EXISTING GROUND/EMBANKMENT.
3. USE ROCK FILTER BERM ON 3H:1V OR FLATTER SIDE SLOPES. WITHIN THE SAFETY CLEAR ZONE, USE 6H:1V OR FLATTER ON SIDE SLOPES.
4. PLACE COMPOST FILTER BERMS ALONG OR ON THE GROUND CONTOUR WITH THE ENDS TURNED UP SLOPE.
5. PRIOR TO INSTALLING A COMPOST FILTER BERM IN A VEGETATED AREA, ENSURE THAT THE VEGETATION IS CUT TO A HEIGHT OF NO GREATER THAN 3" PRIOR TO INSTALLATION.
6. COMPOST HAS NOT BEEN CHEMICALLY TREATED AND IS WEED-FREE, PLASTIC-FREE, DECOMPOSED, NON-WOODY PLANT MATERIAL; ANIMAL WASTE IS NOT ALLOWED.



ROCK FILTER BERM

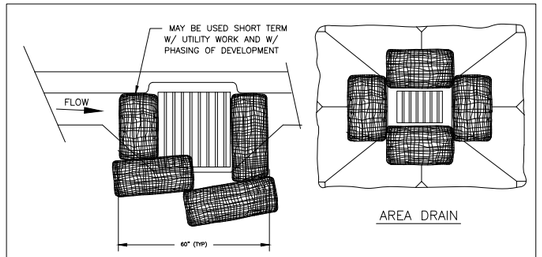


COMPOST FILTER BERM

FILTER BERMS ROCK/COMPOST

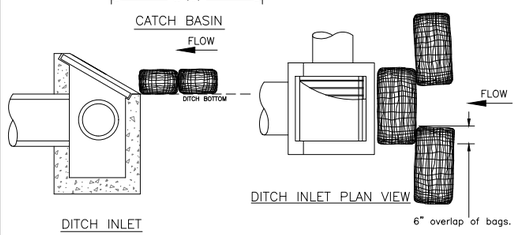
DRAWING NO. 890 REVISED 10-31-19

Clean Water Services



CATCH BASIN

AREA DRAIN



DITCH INLET

DITCH INLET PLAN VIEW

NOTES:

1. ADDITIONAL MEASURES MUST BE CONSIDERED DEPENDING ON SOIL TYPES.
2. BIO-FILTER BAGS SHOULD BE STAKED WHERE APPLICABLE USING (2) 1"x2" WOODEN STAKES OR APPROVED EQUAL PER BAG.
3. WHEN USING 30" BIO-BAGS TO PROTECT A CATCH BASIN YOU HAVE 4 BAGS AND THEY SHALL BE OVERLAPPED BY 6".

FOR FURTHER INFORMATION ON DESIGN CRITERIA SEE CHAPTER 4 OF CLEAN WATER SERVICES EROSION PREVENTION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL.

INLET PROTECTION TYPE 4

DRAWING NO. 915 REVISED 10-31-19

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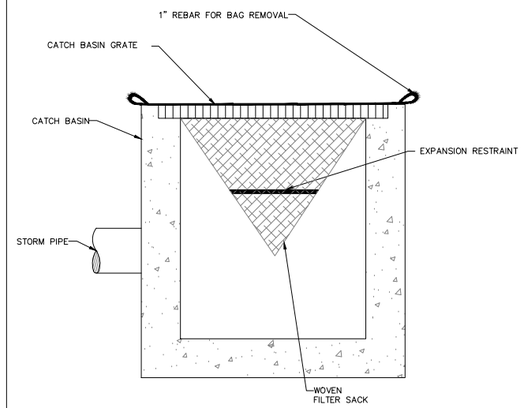

CATCH BASIN INSERT

NOTE:

1. RECESSED CURB INLET CATCH BASINS MUST BE BLOCKED WHEN USING FILTER FABRIC INLET SACKS. SIZE OF FILTER FABRIC INLET SACKS TO BE DETERMINED BY MANUFACTURER.

FOR FURTHER INFORMATION ON DESIGN CRITERIA SEE CHAPTER 4 OF CLEAN WATER SERVICES EROSION PREVENTION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL.

INLET PROTECTION TYPE 5

DRAWING NO. 920 REVISED 10-31-19

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PROPERTY 001 INTERIM ACTION
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HILLSBORO, OREGON

ISSUE	DATE	DESCRIPTION

PROJECT: M8012.01.001
DESIGNED: J. ELLIOTT
DRAWN: J. ELLIOTT
CHECKED: ----
SCALE

SCALE AS NOTED

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

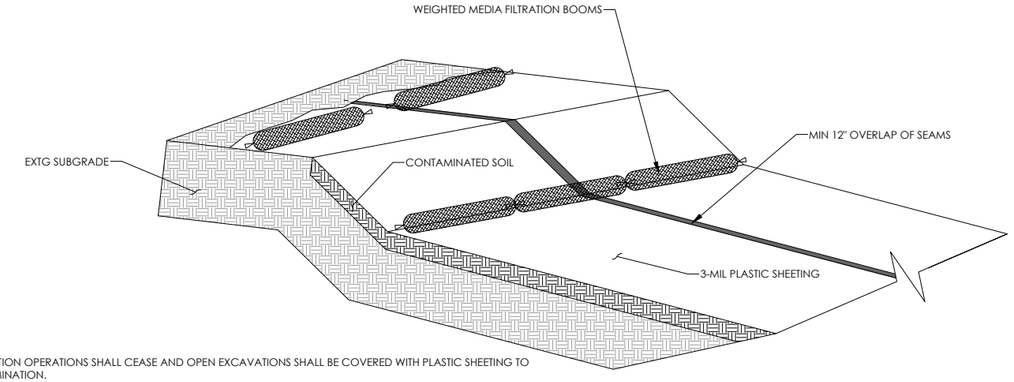
SHEET TITLE

EROSION & SEDIMENT CONTROL DETAILS 1

SHEET

C1.2

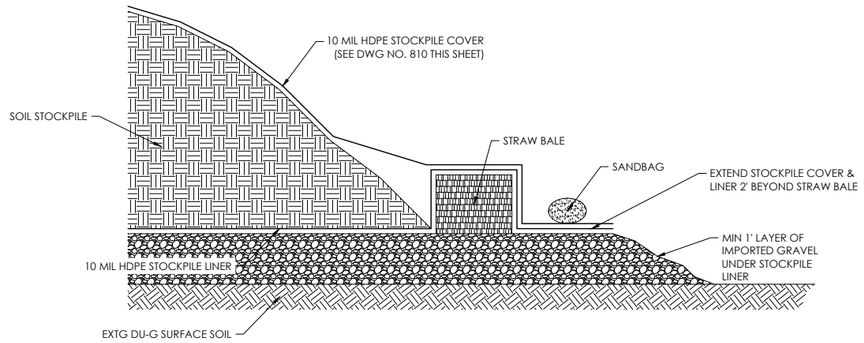
PLOTTED ON: 2024/8/28 9:56 AM PLOTTED BY: Josh Elliott FILENAME: G:\PROJECTS\M8012.01 Permapost\PLANS\Property 1 Cleanup\EROSION & SEDIMENT CONTROL DETAILS.dwg



NOTES:

1. DURING A RAIN EVENT, EXCAVATION OPERATIONS SHALL CEASE AND OPEN EXCAVATIONS SHALL BE COVERED WITH PLASTIC SHEETING TO PREVENT STORMWATER CONTAMINATION.
2. PLACE WEIGHTED MEDIA BOOMS END TO END ALONG BASE OF EXCAVATION. PLACE WEIGHTED MEDIA FILTRATION BOOMS OR SANDBAGS ALONG TOP OF EXCAVATION TO SECURE PLASTIC SHEETING.
3. REPLACE TORN SHEETS AND REPAIR OPEN SEAMS.

A -- EXCAVATION COVER DETAIL
NTS



B -- STOCKILE COVER & LINER DETAIL
NTS

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PROPERTY 001 INTERIM ACTION
PERMAPOST
HILLSBORO, OREGON

ISSUE	DATE	DESCRIPTION

PROJECT: M8012.01.001
DESIGNED:----
DRAWN: ----
CHECKED: ----
SCALE

SCALE AS NOTED

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

SHEET TITLE

EROSION & SEDIMENT CONTROL DETAILS 2

SHEET

C1.3

PLOTTED ON: 2024/08/28 9:56 AM PLOTTED BY: John Ellis FILENAME: G:\PROJECTS\M8012.01 Permapost\PLANS\Property 1 Cleanup\ER3SOIL & SEDIMENT CONTROL DETAILS.dwg

LEGEND:

- RESTRICTED ACCESS EXCAVATION AREA
- 1 FOOT EXCAVATION AREA
- 2 FOOT EXCAVATION AREA
- 3 FOOT EXCAVATION AREA

SE 39TH AVENUE

SE WITCH HAZEL ROAD

SHED W/ CONC FLOOR

HOUSE

EXCAVATION NEAR FENCE C/C2.1 D/C2.1

EXCAVATION NEAR BUILDING A/C2.1

EXCAVATION NEAR FENCE C/C2.1 D/C2.1

ARBORIST-GUIDED EXCAVATION AROUND 3 DECIDUOUS TREE CRZs

EXCAVATION NEAR FENCE C/C2.1 D/C2.1

ARBORIST-GUIDED EXCAVATION AROUND PINE CRZ

ARBORIST-GUIDED EXCAVATION AROUND MAPLE CRZ

EXCAVATION NEAR FENCE C/C2.1 D/C2.1

PIP EXTG WATER

PIP EXTG STRM

PIP EXTG GAS

EXCAVATION NEAR DRIVEWAY B/C2.1

PRELIMINARY

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PORTLAND, OR 97232
971.544.2139
www.maulfoster.com

PROPERTY 001 INTERIM ACTION
PERMAPOST
HILLSBORO, OREGON

DESCRIPTION	DATE	ISSUE

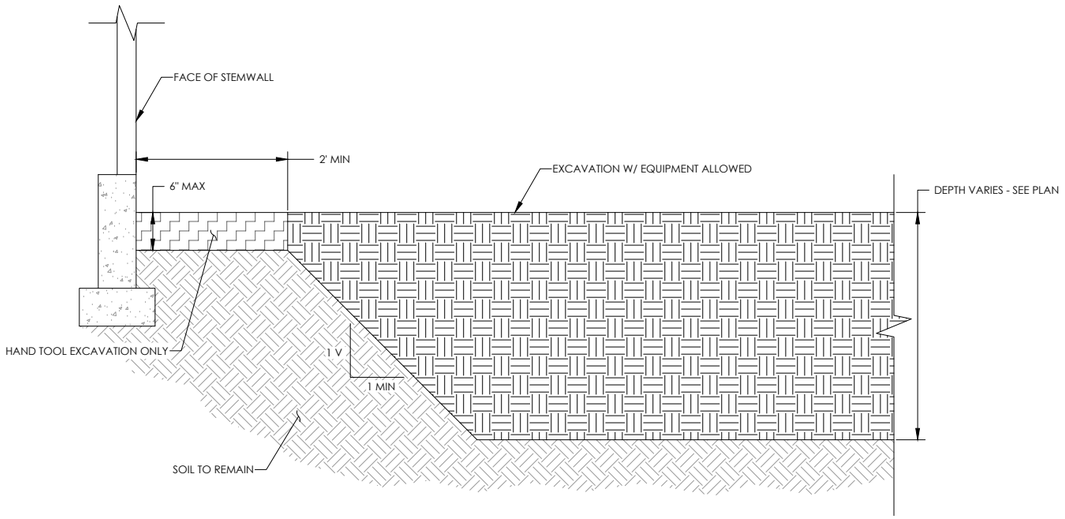
PROJECT: M8012.01.001
DESIGNED: J. ELLIOTT
DRAWN: J. ELLIOTT
CHECKED: ---

SCALE
0 10' 20'
NOTE: BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY.

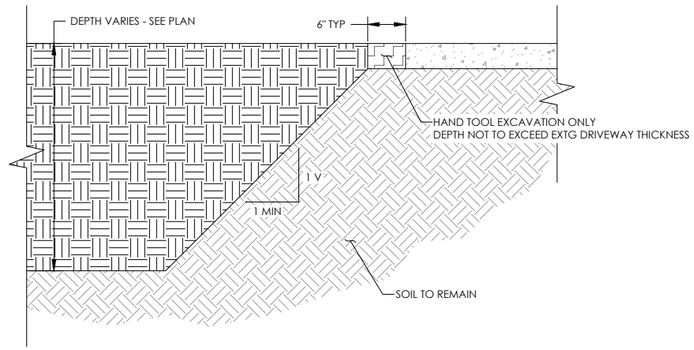
SHEET TITLE
REMEDIATION PLAN

SHEET
C2.0

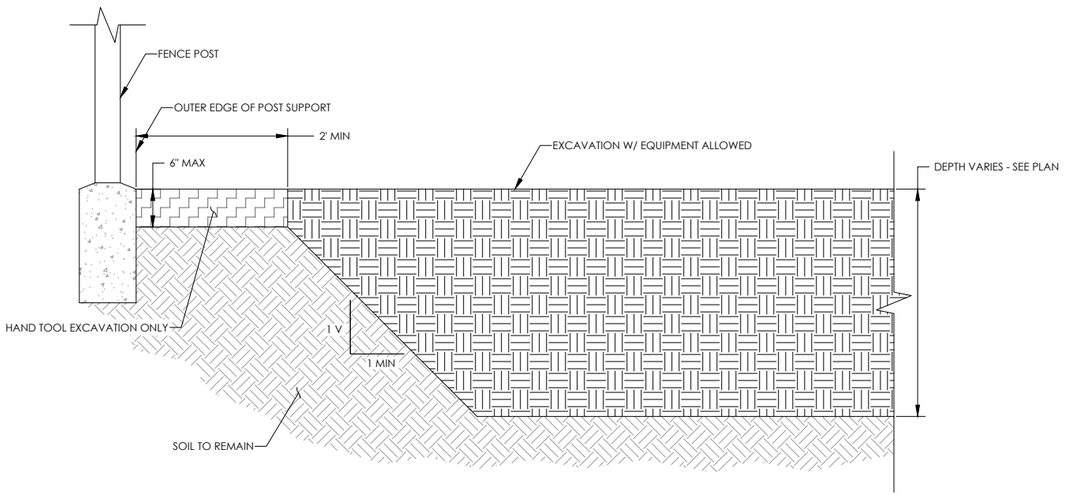
PLOTTED BY: Josh Elliott FILENAME: G:\PROJECTS\M8012.01 Permapost\PLANS\Property 1 Cleanup\REMEDIATION PLAN.dwg
PLOTTED ON: 2024/08/28 9:56 AM



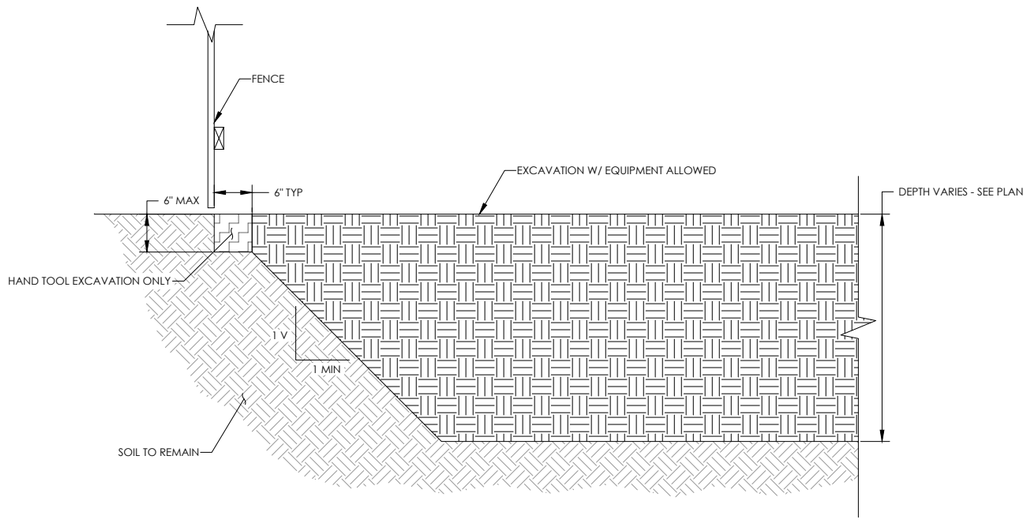
A -- **EXCAVATION NEAR STEMWALL DETAIL:**
NTS



B -- **EXCAVATION NEAR DRIVEWAY DETAIL:**
NTS



C -- **EXCAVATION NEAR FENCE POST DETAIL:**
NTS



D -- **EXCAVATION NEAR FENCE DETAIL:**
NTS

PRELIMINARY

MAUL FOSTER ALONGI
3140 NE BROADWAY
PORTLAND, OR 97232
971.544.2139
www.maulfoster.com

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ISSUE	DATE	DESCRIPTION

PROJECT: M8012.01.001
DESIGNED: J. ELLIOTT
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CHECKED: ----
SCALE

SCALE AS NOTED

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

SHEET TITLE

REMEDIATION DETAILS

SHEET

C2.1

PLOTTED BY: John Elliott FILENAME: G:\PROJECTS\M8012.01 Permapost\PLANS\Property 1 Cleanup\REMEDIATION DETAILS.dwg
PLOTTED ON: 2024-08-28 9:57 AM