CREEKSIDE ENVIRONMENTAL CONSULTING, LLC

with

EVREN NORTHWEST INC.
environmental & natural resource consultants

FOCUSED PHASE II ENVIRONMENTAL SITE ASSESSMENT

Scouters Mountain Burright Development

Tax Lots 200, 201, 401, 491, 900, 1100, 1801, 1802
Happy Valley, Oregon 97086

Prepared for:

The Holt Group/Holt Homes
PO Box 61426
Vancouver, WA 98666

Issued on:

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This

Focused Phase II Environmental Site Assessment

Report for:

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Happy Valley, Oregon 97086

Has been prepared for the sole benefit and use of our Client:

The Holt Group/Holt Homes
PO Box 61426
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and its assignees

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List of Acronyms and Abbreviations

AOCs	areas of concern
AST	above-ground storage tank
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and xylenes
Client	Port of Tillamook Bay, Oregon
CFSLs	Clean Fill Screening Levels
CHs	chlorinated herbicides
CMMP	Contaminated Media Management Plan
COPCs	constituents of potential concern
Creekside	Creekside Environmental Consulting LLC
DRO	diesel-range organics
DU	decision unit
ECSI	Environmental Cleanup Site Information
ENW	EVREN Northwest, Inc.
EPA	US Environmental Protection Agency
ESA	Environmental Site Assessment
gpm	gallons per minute
GPR	ground penetrating radar
GRID	Groundwater Resource Information Database
GRO	gasoline-range organics
HCID	hydrocarbon identification
ISM	Incremental Sampling Methodology
ITRC	Interstate Technology & Regulatory Council
MAs	magnetic anomalies
mg/Kg	milligram per Kilogram
MRL	method reporting limit
OAR	Oregon Administrative Rules
OCPs	organochlorine pesticides
ODEQ	Oregon Department of Environmental Quality
OWRD	Oregon Water Resources Department
PAHs	polynuclear aromatic hydrocarbons
PCBs	polychlorinated biphenyls
PID	photoionization detector
ppmv	parts per million by volume
QA/QC	Quality Assurance / Quality Control
RBCs	risk-based concentrations
RBDM	ODEQ's September 2003 *Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites* guidance document
RCRA	Resource Conservation and Recovery Act
RECs	recognized environmental conditions
RRO	residual (oil)-range organics
SCMP	Soil Cap Management Plan
Sf	square-foot
SLRBCs	screening-level risk-based concentrations
SOW	scope of work
SVOCs	semi-volatile organic constituents
TPH	total petroleum hydrocarbons
USTs	underground storage tanks
VOCs	volatile organic constituents

1.0 Introduction

At the request of The Holt Group/Holt Homes (client), Creekside Environmental Consulting LLC (Creekside) conducted a Focused Phase II Environmental Site Assessment (ESA) at the Scouters Mountain Burright Development identified as 10010, 10150, 10170, 10400, and 10480 SE Vradenburg Road in Happy Valley, Oregon 97086 (subject site; see Figures 1 and 2). EVREN Northwest, Inc. (ENW) was asked to collaborate on this project.

The Scope of Work (SOW) described in this report was conducted under a signed proposal agreement between Creekside and The Holt Group in December 2021. **This report is for the exclusive use of the Client and its legal counsels.**

2.0 Background

2.1 Site and Vicinity Land Use History

The subject site is approximately 80.08 acres in size and is located in Section 25, 30 and 36 of Township 1 South, Range 2 and 3 East of the Willamette Meridian. The site includes nine tax lots and is at the east end of SE Scouters Mountain Road, south end of SE Vradenburg Road, which traverses north-south through the site, and east end of SE Airport Road, which traverses through northern areas of the site, in Happy Valley, Oregon. SE 162nd Avenue also traverses north south through western areas of the site. Surrounding properties are predominately residential in use, with some forested areas.

Historical research has indicated that as early as the late 1940s, the subject site was developed with an agricultural or residential structure on the western boundary of the site along with a small area of row crops. Additional agricultural use was present in western areas in the form of field crops. By the early 1960s, the previously observed structure was removed, and northern areas of the site were occupied with an air strip, identified as Troh's Nest airfield, as well as the current northern residential structure and aircraft hangar. Between 1966 and 1970, the northeast area of the site, near the current northern residence, was utilized as a landfill. By the early 1970s, the airstrip had expanded, multiple structures occupied the northernmost areas of the site, and several areas of the site were cleared of forestland. By 1975, the airstrip configuration had altered again and in 1978 the current eastern residence was constructed. By 1980, the northernmost structures had been removed. By the early 1990s, the majority of airfield operations ceased, and in 2003 the current southern residence was constructed. The subject site has been developed with three residences, several outbuilding, and forested and vegetated areas to present day.

2.2 Previous Environmental Investigations

Previous investigations on site were conducted to assess the former Troh Legacy Landfill (10010 SE Vradenburg Road) which operated on site between the years of 1966 and 1970 and accepted construction and demolition wastes such as building materials, auto parts, and appliances. Such debris were later delineated to depths of up to 14 feet below ground surface. The subject site was entered into the Legacy Landfill database and Environmental Cleanup Site Information (ECSI) database under ID 5257. Several evaluations of the soil, ground water, soil gas, and water seeps on site were performed between 2011 and

2020, as well as several assessments to delineate the landfill's depth and extent of solid waste. No constituents of concern were identified above screening levels in ground water, water seeps, or soil gas. Soil samples identified heavy oils, metals, pesticides, and polynuclear aromatic hydrocarbons (PAHs) in the landfill area above screening levels. Multiple revisions of remedial designs and actions were executed on site which included construction of a buttress fill to stabilize the slope, which fill functioned as a three-to-ten-foot soil cap (riprap in the steepest section), and the creation and implementation of a Soil Cap Management Plan (SCMP) and Contaminated Media Management Plan (CMMP). The soils comprising the buttress fill/cap were imported from the west adjacent Scouters Mountain development. Pre-characterization of these fill soils determined that they met Oregon Department of Environmental Quality's (ODEQ's) clean fill criteria. In August 2020, ODEQ issued a conditional No Further Action (NFA) determination for the site, the condition being ongoing maintenance of the buttress fill/soil cap over the former landfill on site.

In October 2021, Creekside completed a Phase I Environmental Site Assessment (ESA)[1] of the subject property and identified the following recognized environmental conditions (RECs) associated with these 2012 assessments and cleanup actions:

- Historically, the subject site has been used for agricultural purposes, including row crops in western areas of the site. Historically, row crops are known for heavy pesticide, i.e., herbicide, insecticide, and fungicide use. Many pesticide formulations are no longer in use due to their detrimental effects on humans. Pesticides and herbicides, especially those that are federally banned, are persistent in the environment. Therefore, residual concentrations of these substances may be found at properties formerly occupied by row crops. Creekside recommends further investigation into the former row crop area in the western portion of the site.
- Historical aerial photographs identified an area of several debris piles to the west of the northern shed/former hangar in the early 2000s. By 2013, the debris piles no longer appeared, and several circular burn patterns were then observed. Additionally, several soil piles were observed at the northern end of the former airstrip on site in the early 2000s. Due to the unknown origin of the debris piles and soil piles, potential releases to the subject site may have occurred. Therefore, Creekside recommends further investigation into the areas of the former soil and debris piles on site.

2.3 Purpose

The purpose of this Focused Phase II ESA was to quantitatively determine, through sampling and laboratory analysis, the presence or absence of regulated hazardous substances and/or petroleum hydrocarbons near each of the areas identified as RECs. The locations of areas of concern (AOCs) are illustrated on the Site Plan on Figure 2.

[1] Creekside, October 2021. *Phase I Environmental Site Assessment Report, Scouters Mt. Burright Development Tax Lot Nos. 200, 201, 401, 491, 900, 1100, 1801, 1802 Happy Valley, OR 97086*: Prepared for The Holt Group/Holt Homes, CEC Project No. THG-2021.2.

3.0 Scope of Work

ENW developed the following SOW for this project:

- Ordered a utility clearance (One Call) to provide clearance for this project's soil sampling program.
- Performed a geophysical survey of the accessible areas of the property to identify any USTs or other features of potential environmental concern such as septic tanks, hydraulic hoists, oil/water separators, and buried metal debris.
- Prepared a Sampling and Analysis Plan to collect representative samples for laboratory analysis from each of the areas of concern associated with the RECs identified in the Phase I ESA. These included:
    - Collect 0.5-foot-depth surface soil samples from four (4) decision units (DUs), DU01 through DU04, to characterize potential soil impacts associated with RECs in these areas, in accordance with Interstate Technology & Regulatory Council (ITRC) Incremental Sampling Methodology (ISM).[2] Use a decontaminated stainless-steel hand auger to collect 30 to 50 ISM subsamples from 0.5-foot depth from each DU.
        - **DU01**: rectangular outdoor approx. 1-acre area along western site boundary formerly cultivated as row crops – portions of tax lots 401, 900, and 1100.
        - **DU02**: irregular polygonal outdoor approx. 4-acre centrally located area formerly cultivated as row crops – portions of tax lots 201, 491, and 1100.
        - **DU03**: roughly rectangular outdoor approx. 0.1-acre northwesterly located area of apparent soil piles[3] – portion of tax lot 401.
        - **DU04**: roughly rectangular outdoor approx. 0.3-acre northerly located area of apparent burned and scattered debris[4] – portion of tax lot 401.
    - Collect two (2) surface soil composite samples using conventional grab sampling methodology from the following areas of concern:
        - **Comp01**: within the footprint of a 6-foot by 6-foot steel frame on the northern part of the site south of the former airplane hangar building – tax lot 401. This frame is believed to formerly support an above-ground storage tank (AST) no longer present.
        - **Comp02**: from several burn piles located northwest to northeast of the east residence (10150 Vradenburg Road) – tax lot 1800.
- Evaluated analytical data with respect to Oregon risk-based standards.
- Prepared this report documenting findings and analytical data.

The field activities described in this report were performed in January 2022.

[2] ITRC, February 2012. *Incremental Sampling Methodology, Technical and Regulatory Guidance*: Prepared by The Interstate Technology & Regulatory Council Incremental Sampling Methodology Team.

[3] As observed in a 2009 historical aerial photograph.

[4] As observed in 2009 and 2012 historical aerial photographs.

4.0 Site Description

The subject site is irregularly shaped parcel, composed of nine tax lots encompassing a total area of 80.08 acres in a predominantly residential land use area of Clackamas County. Three residential structures and associated outbuildings currently occupy the northern, southern, and eastern reaches of the site. Exterior access to this property is via SE Vradenburg Road to the northwest and SE Scouters Mountain Road to the west. These roads connect to north-south trending SE 162nd Avenue, which originally was an airstrip of the former Troh's Nest airfield that occupied the flat-lying north and western parts of the site. The north and south residences are accessed via SE 162nd Avenue, while the east residence is accessed via SE Airport Road.

Current site and surrounding features are illustrated on the Site Plan on Figure 2.

4.1 Topography

The subject site is located within the US Geological Survey Damascus, OR 7.5-minute quadrangle, at approximate elevations ranging from approximately 570 feet to over 800 feet above mean sea level (see Figure 1). The central portion of the subject site is situated on generally level terrain on the eastern slope of Scouters Mountain, while south and eastern parts of the site slope steeply downward to the Pleasant Valley and Rock Creek below.

4.2 Geologic Setting

The site is located within the Portland Basin. The Portland Basin is bounded to the west by the Tualatin Mountains and Portland Hills, and to the east by the Cascade Range and Columbia Gorge. The subject property is located in the central portion of the Portland Basin. The Portland Basin is largely underlain by Holocene sediments and glacial outburst flood deposits of the late Pleistocene Missoula Floods; the latter has been mapped at up to 400 feet elevation amsl with the Portland Basin area. However, the subject site is located east of Portland on a topographic prominence (Scouters Mountain) comprised of Basalt of Mt. Scott, which is up to 260 feet thick in the mapped area and is one of many small shield volcanoes that along with cinder cones comprise the Pleistocene Boring Lava Field.[5] Basalt of Mt. Scott consists of light gray to nearly black basalt which mainly occur in flows, the upper surfaces of which are scoriaceous. Near eruptive vents, the formation locally contains cinders, tuff, and tuff breccia.[6] Textures are mostly intergranular grading to intersertal. Boring Lavas are generally resistant to erosion and protect underlying rocks from erosion, thus accounting for broad uplands and some steep-walled canyons; however, in places, Boring Lavas may be greatly dissected and modified by fluvial processes.

[5] Madin, I.P. 1994. *Geologic map of the Damascus quadrangle, Clackamas and Multnomah Counties, Oregon.* Geologic Map Series 60

[6] Leonard, A.R. and Collins, C.A., 1983, *Ground Water in the Northern Part of Clackamas County, Oregon*: US Geological Survey Open-File Report 80-1049, prepared in cooperation with Oregon Water Resources Department in Ground Water Report No. 29, 36 pages, 2 plates, 9 figures, 4 tables.

Test pits excavated at the site during previous investigations at the site[7,8] encountered from the surface downward:

1. 2 feet of a brown, silt loam (topsoil),
2. 3 feet of brown silt with organic matter,
3. 2 feet of light brown silt with large silt or clay nodules (weathered clasts), and
4. gray clay to the total depth explored.

Up to 14 feet of solid waste was encountered in the Troh Landfill north cell. Basalt bedrock is expected to occur below a depth of 14 feet, the maximum depth explored.

4.3 Hydrogeologic Setting

4.3.1 Surface Water

Perennial and ephemeral (intermittent) streams originate on and leave the site through channeled ravines, predominantly on the east side eventually reaching Rock Creek, located approximately 1 mile south and east of the site.

4.3.2 Ground Water

Localized perched water bodies can occur within or above the Boring Lavas (i.e., within scoriaceous flow-top breccia), the saturated thickness of which depends on the structure and lithology of the rocks, topographic position, and extent of surficial weathering.[6] Logs of wells completed in the site vicinity indicated that ground water was first encountered at depths ranging from 193 to 630 feet below ground surface (static water levels ranging from 170 to 586 feet), in these 270 to 700-foot-deep wells.[9] The yield of these wells of 2 to 28 gallons per minute confirm that perched water bodies of the type encountered in Boring Lavas are not that productive because they are small and discontinuous in character. The Springwater Formation or Troutdale Formation underlie the Boring Lavas.

Ground water movement will follow topography and is expected to migrate to the east and south towards Rock Creek and the Clackamas Basin.

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[7] Creekside, June 2014. *Initial Subsurface Landfill Investigation Report*, Former Troh Landfill, 10010 SE Vradenburg Road, Happy Valley, Oregon 97086: Prepared for The Holt Group/Holt Homes, 2601 NE 163rd Court, Vancouver, WA 98684.

[8] Creekside, November 7, 2016. *Additional Data Collection and Evaluation Report*, Troh Legacy Landfill Property, 10010 SE Vradenburg Road, Happy Valley, Oregon 97086: Prepared for The Holt Group/Holt Homes, P.O. Box 61426, Vancouver, WA 98666.

[9] Oregon Water Resource Department, Water Well Reports 322, 324, 327, 326, and 51598 (http://apps.wrd.state.or.us/apps/gw/well_log/default.aspx)

5.0 Methods

5.1 Approach

This Phase II ESA investigated the areas of potential environmental concern identified during Creekside's Phase I ESA[1]. Creekside collected representative soil samples for laboratory analysis and used field instruments to directly measure volatile organic constituents (VOCs) for the presence of contaminants. Laboratory results of soil samples were evaluated against human health risk-based concentrations (RBCs – i.e., generic soil and ground water cleanup levels) and clean fill screening levels (CFSLs) established by ODEQ.

Additionally, this investigation considered the following general objectives:

- To perform the geophysical survey and soil assessment efficiently and cost-effectively, without interfering with or otherwise affecting the condition of the property.
- To perform the Phase II ESA in a safe manner for technical personnel.
- To document information and data generated under this statement of work that is valid for the intended use.

The rest of this section describes the chronology and method of field activities. Photographs taken during site work are presented in Appendix A. Findings are presented in Section 7.

5.2 Preparation Activities

Field Work Preparation. An in-house Sampling and Analysis Plan was developed based on the work objectives listed above.

One Call Notification. Prior to any subsurface site work, a call was placed with One Call Utility Notification Service to identify and locate all public utilities in the area of the proposed sampling.

5.3 Geophysical Survey

The geophysical survey was conducted prior to implementing the sampling program. Geophysical services were subcontracted to GeoPotential of Clackamas, Oregon to 1) confirm the location of private utilities not covered by One Call; 2) clear surface sampling locations; and 3) scan the perimeter of all site buildings for underground storage tanks (USTs) and accessible portions of the property for buried metal debris and other environmental features of concern. Features identified as a potential concern were added to the sampling program, as necessary.

Various geophysical equipment were utilized, including an Aqua-Tronics Electronic Tracer (used to sense metallic objects in the subsurface), a magnetometer (used to complement the Aqua-Tronics instrument), and Ground Penetrating Radar (GPR) equipment (to accurately locate both metallic and non-metallic objects).

The geophysical survey was completed an all areas accessible by the geophysical equipment. The presence of large metallic objects and equipment, and other physical obstructions prevented investigation of some areas. When feasible, magnetic anomalies were exhumed with a shovel, evaluated, and assessed for

possible further investigation. All magnetic anomalies were mapped and are presented on Figures 3A and 3B.

5.4 Soil Sampling Methodology

Creekside employed the following industry-standard methods during this assessment:

- Incremental Sampling Method (ISM) (surface soil), and
- Conventional grab sampling and compositing methodology.

These sampling methods are described further below. A log of photographs taken during field activities is included as Appendix A.

5.4.1 Incremental Sampling Method

On January 6 and 7, 2022, Creekside used ISM to assess surface soils in outdoor areas at the subject property. ISM is a sampling approach whereby multiple "increments" (samples of equal mass) are collected across a targeted area, identified as a "decision unit" or DU. The increments from each DU are composited and processed to derive a statistically valid average concentration within the decision unit. A comprehensive description of the ISM process is provided in ITRC's *Incremental Sampling Methodology, Technical and Regulatory* Guidance.[10]

For the purpose of this investigation, four (4) decision units (DU01 through DU04) were assessed to gather general broad soil quality data within areas of concern at the site. The locations of DU01 through DU04 are presented on Figures 3A and 3B, and these DUs are described further as follows:

- **DU01 -** an approximately 1-acre rectangular-shaped parcel on the western part of the site. This DU comprises the upper 0.5-foot of soils in agricultural land formerly used to cultivate row crops. Data objectives were intended to assess for potential impacts resulting from former agricultural use.
- **DU02** – an approximately 4-acre irregular-shaped parcel on the central part of the site. This DU comprises the upper 0.5-foot of soils in agricultural land formerly used to cultivate row crops. Data objectives were to assess for potential impacts resulting from former agricultural use.
- **DU03** – an approximately 0.1-acre roughly rectangular-shaped parcel on the northwestern part of the site. This DU comprises the upper 0.5-foot or greater, of soils at the north end of the former airstrip (SE 162nd Avenue) where soil piles were observed in a 2009 historical aerial photograph. Data objectives were to assess for potential impacts resulting from these soil piles of unknown source(s).
- **DU04** – an approximately 0.3-acre roughly rectangular-shaped parcel on the northern part of the site. This DU comprises the upper 0.5-foot of soils in land west of the former airplane hangar where debris piles and evidence of burned refuse were observed in 2009 and 2012 historical aerial photographs. Data objectives were to assess for potential impacts resulting from debris and burned refuse.

[10] ITRC, 2012. Incremental Sampling Methodology, Technical and Regulatory Guidance: Prepared by the Interstate Technology & Regulatory Council Incremental Sampling Methodology Team. February 2012.

DU01 through DU04 are shown on Figures 3A and 3B.

Using a decontaminated stainless-steel hand auger, 30 to 50 discrete subsample increments were collected evenly across DU01 through DU04 during the January 6-7, 2022 sampling event. Increments were collected from a depth of approximately 0.5 feet bgs from DU01 through DU04 in a manner that ensured the entirety of each DU was represented by the ISM sample. The stainless-steel hand auger was decontaminated between sampling DUs.

A mini-tracked excavator was used to clear brush and facilitate access to thickly vegetated portions of DUs for ISM sampling.

At DU01 and DU02, 50 subsample increments were collected from each DU at a depth of 0.5 feet bgs. At DU03 and DU04, 30 subsample increments were collected from each DU at a depth of 0.5 feet bgs.

Individual increments weighing approximately 40 grams each were transferred with fresh Nitrile gloves into dedicated laboratory-provided one-gallon glass sample jar. The combined sample was uniquely labelled, recorded onto a formal chain-of-custody document, and temporarily stored in a cooler with artificial ice pending delivery to the laboratory. Incremental samples were labeled as follows:

- DU0X-YYMMDD-IS-D or DU0X-YYMMDD-D-IS, where:

  DU = decision unit,
  0X = 01 to 04,
  YYMMDD = year, month, and day, e.g., 220106,
  IS = incremental sample, and
  D – depth in feet, e.g., 0.5 feet below ground surface (bgs)

  e.g., DU01-220107-IS-D, incremental sample collected from DU01 on January 7, 2022, at a discrete depth of 0.5 feet.

5.4.2 Composite Soil Sampling Methodology

On January 6, 2022, Creekside grab sampling methodology to two (2) composite soil samples from two areas identified as AOCs based on previous assessments and geophysical survey results. The purpose of this sampling was to determine whether surface soils were impacted by hazardous substances. Creekside used a decontaminated stainless-steel hand auger to collect subsamples from two areas:

- Comp01 - a 36-square foot (sf) area beneath the footprint of a steel frame believed to formerly support an AST on the northern part of the site. Data objectives were intended to assess for potential impacts beneath this AST stand.
- Comp02 – from several burn piles northwest to northeast of the east residence.

Comp01 and Comp02 are shown on Figure 3B.

Using a decontaminated stainless-steel hand auger, a 6-point composite was collected within the 36-sf footprint underlying the AST. A 10-point composite was collected beneath burned debris at several locations northwest to northeast of the east residence. Each subsample was collected at a depth of 0.5 feet.

At each composite sample location, the composite sample was thoroughly mixed in a Ziplock bag and were transferred with fresh Nitrile gloves to a laboratory-supplied sample jar. The composite sample jars

were uniquely labelled, recorded onto a formal chain-of-custody document, and temporarily stored in a cooler with artificial ice pending delivery to the laboratory. Composite samples were labeled as follows:

- Comp0X-YYMMDD, where:

  Comp = composite,
  0X – 01 and 02, and
  YYMMDD = year, month, and day, e.g., 220106.

  e.g., Comp01-220106, composite sample 01 collected on January 6, 2022.

Soil Screening. Composite samples were field screened for the presence of contaminants using visual and other means. Semi-quantitative headspace screening was performed on each ISM and composite sample by placing a portion of the sample in a plastic sealed bag, breaking up the soil to expose surface area inside the bag, and inserting a photoionization detector (PID) tip into the top of the bag. Screening results were recorded in field notes and summarized in section 6.3 below.

5.5 Laboratory Analytical Methods

Samples were submitted to Friedman & Bruya, Inc. of Seattle, Washington for laboratory analysis. ISM samples were processed prior to sampling (dried, sieved, subsampled, etc.) in accordance with US Environmental Protection Agency's (EPA's) *Guidance for Obtaining Representative Laboratory Analytical Subsamples from Particulate Laboratory Samples* (EPA, 2003).

All ISM and composite samples were initially screened for the presence of contamination by total petroleum hydrocarbons (TPH) and Resource Conservation and Recovery Act (RCRA) total metals. All ISM samples were analyzed for organochlorine pesticides (OCPs) and chlorinated herbicides (CHs). Select ISM samples were also analyzed for VOCs. ISM and composite soil samples containing TPH were further quantified as appropriate for gasoline-, diesel-, and residual (oil)-range organics (GRO, DRO, and RRO). Additional analyses were requested as appropriate to further characterize impacts, as appropriate. All chemical analyses performed on the samples is presented in the analytical program on Table 5-1. Copies of the laboratory analytical reports with Quality Assurance / Quality Control (QA/QC) documentation are provided in Appendix B.

Table 5-1. Analytical Methods Used

Analytical Method	Constituents	ISM Soil	Composite Soil
NWTPH-HCID	Total Petroleum Hydrocarbon Identification (HCID) Analysis	All samples	All samples
NWTPH-Gx	Total Petroleum Hydrocarbons (TPH)–Gasoline-range quantification (GRO)	Samples detected with GRO by NWTPH-HCID	Samples detected with GRO by NWTPH-HCID
NWTPH-Dx	TPH diesel- and residual-range (DRO and RRO) quantification	Samples detected with DRO and/or RRO by NWTPH-HCID	Samples detected with DRO and/or RRO by NWTPH-HCID
EPA 8260D	Volatile organic constituents (VOCs; full list)	Samples detected with GRO, DRO and/or RRO by NWTPH-HCID	Samples detected with GRO, DRO and/or RRO by NWTPH-HCID
EPA 6020B	Total Resource Conservation and Recovery Act (RCRA) 8 Metals	All samples	All samples
EPA 8270E SIM	Polynuclear aromatic hydrocarbons (PAHs)	Samples detected with DRO and/or RRO by NWTPH-HCID	Samples detected with DRO and/or RRO by NWTPH-HCID

Analytical Method	Constituents	ISM Soil	Composite Soil
EPA 8081B	Organochlorine Pesticides (OCPs)	All ISM samples collected on former row crop land	---
EPA 8151A	Chlorinated Herbicides (CHs)	All ISM samples collected on former row crop land	---
EPA 8081	Polychlorinated biphenyls (PCBs)	Samples detected with DRO and/or RRO by NWTPH-HCID	Samples detected with DRO and/or RRO by NWTPH-HCID

EPA = US Environmental Protection Agency

5.6 Cleanup Levels

The assessment and remediation of hazardous substances in Oregon are conducted according to OAR 340, Division 122, Hazardous Substance Remedial Action Rules. The following cleanup standards and numeric criteria may be applied in evaluating site assessment results.

Soil Matrix. Under the Soil Matrix Cleanup Option [Oregon Administrative Rules (OARs) 340-122-0320 through 0360] cleanup standards are determined by assigning site-specific values to environmental parameters (e.g., soil type, depth to ground water, etc.). The Soil Matrix Cleanup Score Sheet and Checklist for the site are presented in Appendix C. The score calculated for the site is 28, indicating that Soil Matrix Level 2 cleanup standards would apply to the site if closed under Soil Matrix Rules. For purposes of risk-based evaluations of soil, Soil Matrix Cleanup Levels are often used for screening purposes, where potentially significant levels of petroleum contamination may be present if concentrations of total petroleum hydrocarbons in soil exceed their respective soil matrix cleanup level and may require remedial action. Concentrations of total petroleum hydrocarbons lower than their corresponding Soil Matrix Cleanup Level usually do not require any additional cleanup or risk management.

Risk-Based Cleanup. Risk-based cleanup standards are derived in accordance with ODEQ's Risk-Based Decision Making for the Remediation of Contaminated Sites (RBDM) guidance document for:

- Underground storage tanks regulated under the Cleanup Rules for Leaking Petroleum Underground Storage Tank Systems (Oregon Administrative Rules [OAR] 340-122-0205 through 340-122-0360).
- Other sources of contamination regulated under the Hazardous Substance Remedial Action Rules (OAR 340-122-0010 through 340-122-0115).

Risk-based concentrations (RBCs) are based on Oregon unacceptable additional risk criteria for cancer occurrence and for non-carcinogenic health impacts. The State of Oregon considers acceptable additional risk of cancer from contact with carcinogenic constituents at less than one in one million incidences, or, for non-carcinogenic constituents, below the constituent threshold concentration at which health impacts would occur. RBCs are generally used to evaluate sampling analytical results as follows:

- ODEQ's lowest RBC for all pathways for residential receptors is used as an initial 'conservative' screening of a constituent. If a constituent's concentration exceeds its screening-level RBC (SLRBC), it requires further evaluation. Otherwise, the constituent is considered unlikely to pose unacceptable risk to any human receptor.
- Those constituents identified by initial screening as exceeding their SLRBC should be further evaluated through a risk-based assessment, which evaluates site-specific exposure pathways and receptors against generic ODEQ-provided RBCs.

Should constituents be identified that also exceed their generic, but exposure pathway- and receptor-specific RBCs, then the appropriateness of additional site-specific methods allowed under the RBDM guidance document will be evaluated (e.g., the development of site-specific RBCs, sampling of soil gas and/or vapor, etc.).

5.6.1 Other Numeric Criteria

Analytical results for this Scope of Work were also compared to:

- Background metal concentrations in soil established by the ODEQ[11]. ODEQ does not require cleanup for metals concentrations below default background concentrations.
- Clean fill screening levels (CFSLs) for upland sites established by the ODEQ[12]. ODEQ does not require materials in which contaminant concentrations are less than or equal to CFSLs to be regulated as a solid waste. *CFSLs are used to determine if impacts to soil may require future management and are not used for risk screening.*

6.0 Findings

This section describes the findings of site activities, which included:

- Conducting a geophysical survey to identify USTs or any buried environmental features of potential concern.
- Collecting four ISM samples (DU01 through DU04) of surface soils.
- Collecting two (2) composite samples (Comp01 and Comp02) of surface soils.

All the above SOW was completed.

Table 1 summarizes analytical results for soil. Figures 3A and 3B show ISM and composite sample locations relative to site features.

6.1 Geophysical Survey

The geophysical survey was completed at the subject site on October 18, 2019, as described in Section 6.3. Results of the geophysical survey identified three magnetic anomalies (MA), MA01 through MA05, which are identified on Figures 3A and 3B and briefly interpreted below.

- **MA01 (possible septic).** 2’ x 2’ anomaly northeast of the north residence. Hand- excavated a broken 4-inch cast iron pipe, which based on its proximity to the north residence, is possibly associated with an old septic system. Reinforced concrete found nearby may be where the septic tank is located. Septic tanks and drain fields used under normal domestic use generally do not pose an environmental concern.

11 ODEQ, January 5, 2018. Fact Sheet: Background Levels of Metals in Soils for Cleanups.

12 ODEQ, 2019. Clean Fill Determinations: Internal Management Directive, last updated February 21, 2019, by Audrey O’Brien. Clean Fill Table for Uplands last updated by Heather Kuoppamaki, ODEQ, June 17, 2019.

- **MA02 (chicken wire).** A metallic object between the shed and former airplane hangar, which when excavated revealed a piece of chicken wire.
- **MA03 (buried vent line).** A metal pipe believed to be a former vent line located southwest of the former airplane hangar. The vent pipe may be associated with a nearby metal rack (Comp01), which is believed to have been a support for a former AST, no longer present. No UST-like anomalies were found in the vicinity of the former hangar and shed.
- **MA04 (buried metallic debris).** Buried metallic debris found in a ditch west of the north residence.
- **MA05 (buried propane tank).** 6' x 6' anomaly determined to be a large, buried propane tank located northeast of the guest house associated with the south residence. The propane tank appeared to be in current use.

6.2 Sampling Locations and General Site Conditions

For the purpose of this investigation, ISM and composite surface soil samples were collected as follows:

- Sample DU01, comprised of 50 increments of soil collected at 0.5-foot depth across an approximately 1-acre rectangular-shaped parcel on the western part of the site where row crops were formerly cultivated.
- Sample DU02 comprised of 50 increments of soil collected at 0.5-foot depth across an approximately 4-acre irregular-shaped parcel on the central part of the site where row crops were formerly cultivated.
- Sample DU03 was comprised of 30 increments of soil collected at 0.5-foot depth across an approximately 0.1-acre roughly rectangular-shaped parcel on the northwestern part of the site at the north end of the former airstrip (SE 162nd Avenue) where soil piles were observed in a 2009 historical aerial photograph.
- Sample DU04, comprised of 30 increments of soil collected at 0.5-foot depth across and approximately 0.3-acre roughly rectangular-shaped parcel on the northern part of the site where evidence of debris piles and refuse in 2009 and 2012 historical aerial photographs.
- Comp01 comprised of 6 subsamples collected at 0.5-foot depth within a 6' x 6' area beneath the footprint of a steel frame believed to formerly support an AST on the northern part of the site southwest of the former airplane hangar.
- Comp02 comprised of ten subsamples collected at approximately 0.5-foot depth from soils beneath several burn piles located northwest to northeast of the east residence.

Table 6-1 presents a comprehensive list of soil and ground water samples collected during this Phase II ESA.

Table 6-1. Summary of Sample Locations

Borehole / Location ID	Date Sampled	Depth Sampled (feet)	Sampled By	Location
Soil				
Comp01	1/6/2022	0.5	Creekside/ENW	Within the footprint of a 6' x 6' steel frame believed to formerly support an AST located SW of former hangar
Comp02	1/6/2022	0.5	Creekside/ENW	Soils beneath several burn piles located NW to NE of the east residence
DU01	1/7/2022	0.5	Creekside/ENW	Former row crop area on the western part of the site
DU02	1/7/2022	0.5	Creekside/ENW	Former row crop area on the central part of the site
DU03	1/6/2022	0.5	Creekside/ENW	Soil Piles (2009 aerial) at N end of former runway (SE 162nd Avenue) on NW part of the site
DU04	1/7/2022	0.5	Creekside/ENW	Debris piles and burned refuse area (2009 and 2012 aerials) on N part of the site

6.3 Field Screening (ISM and Composites)

In composite sample Comp01, field screening results identified a field headspace reading of 0.3 parts per million by volume (ppmv), though no evidence of sheen or odor. No field headspace volatiles were detected in Comp02. No evidence of sheen or odor was identified in any of the ISM samples.

6.4 Laboratory Results - Soil

Laboratory results of soil samples collected from the subject site are summarized in Table 1. Results are compared to ODEQ's SLRBCs. CFSLs and regional default background concentrations for the Portland Basin region are also provided for reference in Table 1.

6.4.1 Total Petroleum Hydrocarbons

Hydrocarbon identification (HCID) analysis suggested GRO may be present in one soil sample, DRO in eight samples, and RRO in five samples, excluding replicates, which were later quantified.

GRO. Gro was not detected above laboratory MRL in any of the samples.

DRO. DRO was detected in DU03 at a concentration of 23 milligrams per kilogram (mg/Kg), which is less than ODEQ's SLRBC and CFSL for DRO. Sample DU03 had a qualifier noting that the sample chromatographic pattern does not resemble the fuel standard used for quantitation, suggesting that the DRO detection may be overlap from RRO (heavy oil). DRO was not detected above the laboratory method reporting limit (MRL) in the remaining samples.

RRO. RRO was detected in DU03 at 340 mg/Kg, which is less than ODEQ's SLRBC and CFSL. DRO plus RRO in DU03 does not exceed ODEQ's Level 2 Soil Matrix Cleanup Level. RRO was not detected above the laboratory MRL in the remaining samples.

6.4.2 Total RCRA 8 Metals

All 0.5-foot soil samples from DU01 through DU04 and Comp01 and Comp02 were analyzed for RCRA 8 Total Metals. Laboratory analysis by EPA 6020B detected the presence of the following total metals:

- Though arsenic in all soil samples exceeded ODEQ's SLRBC, only its concentration in DU03 exceeded its regional default background concentration of 8.8 mg/Kg. These data suggest arsenic may be enriched in DU03.
- Barium was detected in all samples at concentrations less than its regional default background concentration, suggesting barium may not be enriched in surface soils at the site.
- Cadmium was detected at a maximum concentration of 1.93 mg/Kg, which is less than ODEQ's SLRBC of 78 mg/Kg. However, cadmium detections in Comp01 and DU03 exceeded ODEQ's default background and CFSL of 0.63 mg/Kg, suggesting cadmium may be slightly enriched in surface soils in those two areas at the site. Cadmium was not detected above the laboratory MRL in Comp02, DU01, or DU02.
- Chromium (total) was detected at a maximum concentration of 29.1 mg/Kg, which is less than ODEQ's SLRBC and regional default background concentration. These data suggest that chromium (total) may not be enriched in surface soils at the site.
- Lead exceeded ODEQ's SLRBC of 30 mg/Kg only in DU03 and regional default background concentration of 28 mg/Kg only in DU03 and Comp01. Lead in the remaining samples was less than background, suggesting that possible lead enrichment may be limited to DU03 and Comp01.
- Mercury and silver were not detected above laboratory MRLs in any of the samples.

6.4.3 Volatile Organic Constituents (VOCs)

Given its detection of RRO, the IS from DU03 was analyzed for constituents of used oil, starting with VOCs. All VOCs in the sample were less than laboratory MRLs.

6.4.4 Semi-volatile Organic Constituents (PAHs, PCBs, OCPs and CHs)

The IS from DU03 was also analyzed for PAHs and PCBs. DU01 through DU04 were additionally analyzed for organochlorine pesticides (OCPs) and chlorinated herbicides (CHs).

PAHs. All PAHs in DU03 were less than laboratory MRLs.

PCBs. Total PCBs as Aroclors were not detected above laboratory MRLs in DU03.

OCPs and CHs. None of the OCPs or CHs were detected above laboratory MRLs in any of the 0.5-foot ISM samples from DU01 through DU04.

6.5 Quality Control

A review of the laboratory report indicates samples were generally analyzed within appropriate QA/QC procedures and specified holding times except as noted below (see Appendix D for laboratory data validation form completed for this project).

- The 8260D aliquot DU03-220106-IS-0.5 was taken from a two-ounce jar removed from the sample container prior to ISM treatment. The data were flagged accordingly.

Several results were flagged by the laboratory as falling outside normal ranges of acceptable QA/QC limits, or for the internal standard associated with the analyte falling outside of control limits. It is ENW's opinion that flagged results do not significantly alter the findings of this investigation.

6.5.1 Risk Screening of COPCs in Soil

In Table 2, constituents of potential concern (COPCs) in soil are compared to generic default RBCs developed for several receptor populations and exposure pathway scenarios given in *Appendix A - Table of Risk-Based Concentrations* in ODEQ's RBDM guidance document. As indicated in Table 2, two COPCs, arsenic and lead, exceeded the generic default RBCs for the following exposure scenarios:

- *Soil Ingestion, Dermal Contact, and Inhalation:*
  - **Residential, urban residential, occupational, and construction worker receptors.** Arsenic could pose an unacceptable human health risk to future residents, urban residents, occupational workers, and construction workers who ingest, contact, or inhale dust from impacted stockpiled surface soil in DU03.
- *Soil Leaching to Ground Water:*
  - **Residential, urban residential, and occupational worker receptors.** Lead could pose an unacceptable human health risk to future residents, urban residents, and occupational workers who ingest ground water contaminated with lead leached from impacted stockpiled surface soil in DU03.

    Creekside/ENW believe it's unlikely for any leached lead to impact ground water aquifers beneath the site, particularly in the deeper Springwater Formation or Troutdale Formation aquifers. Static water levels in these deeper aquifers range from 170 to 586 feet bgs in the site vicinity (see section 4.3.2).

    Note: Total lead was not detected in a reconnaissance ground water sample previously collected at a screen depth of 10 feet bgs in the south part of the Troh Landfill north cell at the site, although total lead was detected in overlying surface soil at a concentration of 197 mg/Kg.[8]

6.6 Soil Disposal Considerations

In addition to human health risk, Table 1 indicates cadmium and lead in Comp01 and DU03 exceed ODEQ's CFSL. Soil containing cadmium and lead impacts above its CFSL may not qualify as unrestricted clean fill and may require special management and disposal during future construction activities. Additionally, soil containing solid waste may not qualify as unrestricted clean fill.

7.0 Conclusions and Recommendations

The findings of the Phase II ESA have led to the following conclusions:

- Stockpiled surface soils (≤ 0.5 feet) within DU03, an approximately 0.1-acre rectangular parcel at the north end of SE 162nd Avenue (former air strip), are impacted with:
    - arsenic at a concentration that could pose an unacceptable human health risk to future residents, urban residents, occupational workers, and construction workers who ingest, contact, or inhale dust.
    - lead at a concentration that could pose an unacceptable human health risk to future residents, urban residents, and occupational workers who ingest ground water contaminated with leached lead.

  If a removal action is selected to mitigate arsenic and lead impacts in DU03, such removed soils will require an approved profile to dispose of these materials at an offsite RCRA Subtitle D Landfill. Alternatively, a Solid Waste Letter Authorization (SWLA) may be requested from ODEQ to manage the soils on site.
- In addition to surface soils DU03, surface soils (≤ 0.5 feet) within the former AST rack (Comp01) impacted with cadmium and lead at concentrations that exceed their CFSLs may not qualify as unrestricted clean fill. Any soils removed from this area during construction can be disposed of under an approved profile at an off-site RCRA Subtitle D Landfill or reused on site in conformance with ODEQ rules.
- No evidence of impacts was detected in DU01, DU02, DU04, or Comp02.

Based on these results, Creekside and ENW recommend that the previously prepared Contaminated Media Management Plan (CMMP[13]) be updated it include this information prior to any onsite development activities.

We recommend this report is kept as part of the permanent property records.

8.0 Limitations

The scope of this report is limited to observations made during on-site work; interviews with knowledgeable sources; and review of readily available published and unpublished reports and literature. As a result, these conclusions are based on information supplied by others as well as interpretations by qualified parties.

[13] Creekside/ENW, May 29, 2020. *Contaminated Media Management Plan*, Former Troh Legacy Landfill, 10010 SE Vradenburg Road, Happy Valley, Clackamas County, Oregon: Prepared for The Holt Group/Holt Homes, Atten: Rian Tuttle, Construction Manager, PO Box 61426, Vancouver, WA.

The focus of the site closure does not extend to the presence of the following conditions unless they were the express concerns of contacted personnel, report and literature authors or the work scope.

1. Naturally occurring toxic or hazardous substances in the subsurface soils, geology, and water,
2. Toxicity of substances common in current habitable environments, such as stored chemicals, products, building materials and consumables,
3. Contaminants or contaminant concentrations that are not a concern now but may be under future regulatory standards,
4. Unpredictable events that may occur after Creekside/ENW's site work, such as illegal dumping or accidental spillage.

There is no practice that is thorough enough to absolutely identify the presence of all hazardous substances that may be present at a given site. Creekside/ENW's investigation has been focused only on the potential for contamination that was specifically identified in the Scope of Work. Therefore, if contamination other than that specifically mentioned is present and not identified as part of a limited Scope of Work, Creekside/ENW's environmental investigation shall not be construed as a guaranteed absence of such materials. Creekside/ENW have endeavored to collect representative analytical samples for the locations and depths indicated in this report. However, no sampling program can thoroughly identify all variations in contaminant distribution.

We have performed our services for this project in accordance with our agreement and understanding with the client. This document and the information contained herein have been prepared solely for the use of the client.

Creekside/ENW performed this study under a limited scope of services per our agreement. It is possible, Creekside/ENW may have failed to identify regulation violations related to the presence of hazardous substances other than those specifically mentioned at the closure site. Creekside/ENW assumes no responsibility for conditions that we did not specifically evaluate or conditions that were not generally recognized as environmentally unacceptable at the time this report was prepared.

Tables

Table 1 - Summary of Analytical Data, Soil

Location ID		Comp01	Comp02	DU01	DU02	DU03	DU04	Maximum Soil Concentration (remaining soil)	Soil Matrix Cleanup Level	ODEQs Screening-Level Risk-Based Concentrations SLRBCs[1] (Soil)	Background Concentrations (Regional Default)	Clean Fill Screening Levels or Background Concentrations (as applicable)	Exceeds ODEQs Screening-Level SLRBCs (Soil) and/or Soil Matrix Cleanup Level	Exceeds Background Concentrations (metals) or Clean Fill Screening
Sample ID		Comp01-220106	Comp02-220106	DU01-220107-0.5-IS	DU02-220107-0.5-IS	DU03-220106-IS-0.5	DU04-220107-0.5-IS							
Date Sampled		1/6/2022	1/6/2022	1/7/2022	1/7/2022	1/6/2022	1/7/2022							
Depth Sampled (feet)		0.5	0.5	0.5	0.5	0.5	0.5							
Sampled By		Creekside/ENW	Creekside/ENW	Creekside/ENW	Creekside/ENW	Creekside/ENW	Creekside/ENW							
Location		Within the footprint of a 6' x 6' steel frame believed to formerly support an AST located SW of former hangar	Soils beneath several burn piles located NW to NE of the east residence	Former row crop area on the western part of the site	Former row crop area on the central part of the site	Soil Piles (2009 aerial) at N end of former runway (SE 162nd Avenue) on NW part of the site	Debris piles and burned refuse area (2009 and 2012 aerials) on N part of the site				Portland Basin		TRUE OR Y FALSE OR N	TRUE OR Y FALSE OR N
Constituent of Interest	Note	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)						
Volatile Organic Constituents														
Benzene	c, v	---	---	---	---	<0.03 (ND)	---	<0.03 (ND)	NE	0.023	---	0.023	(Y)	(TRUE)
Chloroethane (ethyl chloride)	nc, v	---	---	---	---	<0.5 (ND)	---	<0.5 (ND)	NE	310	---	310	N	FALSE
1,1-Dichloroethane	c, v	---	---	---	---	<0.05 (ND)	---	<0.05 (ND)	NE	0.044	---	0.044	(Y)	(TRUE)
1,1-Dichloroethene	nc, v	---	---	---	---	<0.05 (ND)	---	<0.05 (ND)	NE	6.7	---	6.7	N	FALSE
cis-1,2-Dichloroethene	nc, v	---	---	---	---	<0.05 (ND)	---	<0.05 (ND)	NE	0.63	---	0.63	N	FALSE
trans-1,2-Dichloroethene	nc, v	---	---	---	---	<0.05 (ND)	---	<0.05 (ND)	NE	7.0	---	7	N	FALSE
Dichloromethane	c, v	---	---	---	---	<0.5 (ND)	---	<0.5 (ND)	NE	0.14	---	0.14	(Y)	(TRUE)
EDC (1,2-dichloroethane)	c, v	---	---	---	---	<0.05 (ND)	---	<0.05 (ND)	NE	0.0028	---	0.0028	(Y)	(TRUE)
Ethylbenzene	c, v	---	---	---	---	<0.05 (ND)	---	<0.05 (ND)	NE	0.22	---	0.22	N	FALSE
Naphthalene	c, v	---	---	---	---	<0.01 (ND)	---	<0.01 (ND)	NE	0.077	---	0.077	N	FALSE
Tetrachloroethene (PCE)	c, v	---	---	---	---	<0.025 (ND)	---	<0.025 (ND)	NE	0.46	---	0.18	N	FALSE
Toluene	nc, v	---	---	---	---	<0.05 (ND)	---	<0.05 (ND)	NE	83	---	23	N	FALSE
1,1,1-Trichloroethane	nc, v	---	---	---	---	<0.05 (ND)	---	<0.05 (ND)	NE	190	---	190	N	FALSE
Trichloroethene	NA, v	---	---	---	---	<0.02 (ND)	---	<0.02 (ND)	NE	0.013	---	0.013	(Y)	(TRUE)
Vinyl chloride	c, v	---	---	---	---	<0.05 (ND)	---	<0.05 (ND)	NE	0.00057	---	0.00057	(Y)	(TRUE)
Xylenes	nc, v	---	---	---	---	<0.15 (ND)	---	<0.15 (ND)	NE	23	---	1.4	N	FALSE
Pesticides														
Aldrin	c, v	---	---	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	NE	0.023	---	0.023	N	FALSE
Chlordane	c, v	---	---	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	NE	0.91	---	0.91	N	FALSE
DDD (4,4'-Dichlorodiphenyldichloroethane)	c, nv	---	---	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	NE	1.1	---	0.0063	N	(TRUE)
DDE (4,4'-Dichlorodiphenyldichloroethene)	c, v	---	---	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	NE	1.6	---	0.01	N	FALSE
DDT (4,4'-Dichlorodiphenyltrichloroethane)	c, nv	---	---	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	NE	1.9	---	0.01	N	FALSE
2,4-Dichlorophenoxyacetic acid (2,4-D)	nc, nv	---	---	<0.0433 (ND)	<0.0443 (ND)	<0.0366 (ND)	<0.0402 (ND)	<0.0443 (ND)	NE	2.3	---	2.3	N	FALSE
Dieldrin	c, nv	---	---	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	NE	0.01	---	0.0045	N	(TRUE)
Endosulfan (alpha-beta)	nc, v	---	---	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	NE	200	---	0.64	N	FALSE
Endrin	nc, nv	---	---	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	NE	11	---	0.0014	N	(TRUE)
Heptachlor	c, v	---	---	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	NE	0.017	---	0.017	N	FALSE
Heptachlor Epoxide	c, v	---	---	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	NE	0.0042	---	0.0042	(Y)	(TRUE)
alpha-Hexachlorocyclohexane (alpha-HCH)	c, nv	---	---	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	NE	0.0063	---	0.0063	(Y)	(TRUE)
gamma-Hexachlorocyclohexane (Lindane)	c, nv	---	---	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	NE	0.036	---	0.0095	N	(TRUE)
MCPA ((4-chloro-2-methylphenoxy)acetic acid)	nc, nv	---	---	<0.124 (ND)	<0.127 (ND)	<0.105 (ND)	<0.115 (ND)	<0.127 (ND)	NE	0.097	---	0.097	(Y)	(TRUE)
Toxaphene	c, nv	---	---	<1 (ND)	<1 (ND)	<1 (ND)	<1 (ND)	<1 (ND)	NE	0.36	---	0.36	(Y)	(TRUE)
Metals														
Arsenic	c, nv	3.47	3.68	1.89	1.98	**15.4**	2.14	15.4	NE	0.43	8.8	8.8	Y	TRUE
Barium	nc, nv	132	109	174	155	740	126	740	NE	15000	790	790	N	FALSE
Cadmium	nc, nv	1.93	<0.5 (ND)	<0.5 (ND)	<0.5 (ND)	1.46	0.5	1.93	NE	78	0.63	0.63	N	TRUE
Chromium (III)	nc, nv	23.4	22.1	26.0	26.6	29.1	22.5	29.1	NE	120000	76	76	N	FALSE
Lead	NA, nv	29.5	25	18.5	12.3	**92.8**	13.6	92.8	NE	30	28	28	Y	TRUE
Mercury	nc, nv	<0.18 (ND)	<0.18 (ND)	<0.2 (ND)	<0.2 (ND)	<1 (ND)	<0.2 (ND)	<1 (ND)	NE	23	0.23	0.23	N	(TRUE)
Silver	nc, nv	<0.16 (ND)	<0.16 (ND)	<0.16 (ND) j	<0.16 (ND) j	<1 (ND)	<0.16 (ND) j	<1 (ND)	NE	390	0.82	0.82	N	(TRUE)

Table 1 - Summary of Analytical Data, Soil

Location ID		Comp01	Comp02	DU01	DU02	DU03	DU04	Maximum Soil Concentration (remaining soil)	Soil Matrix Cleanup Level	ODEQs Screening-Level Risk-Based Concentrations SLRBCs[1] (Soil)	Background Concentrations (Regional Default)	Clean Fill Screening Levels or Background Concentrations (as applicable)	Exceeds ODEQs Screening-Level SLRBCs (Soil) and/or Soil Matrix Cleanup Level	Exceeds Background Concentrations (metals) or Clean Fill Screening
Sample ID		Comp01-220106	Comp02-220106	DU01-220107-0.5-IS	DU02-220107-0.5-IS	DU03-220106-IS-0.5	DU04-220107-0.5-IS							
Date Sampled		1/6/2022	1/6/2022	1/7/2022	1/7/2022	1/6/2022	1/7/2022							
Depth Sampled (feet)		0.5	0.5	0.5	0.5	0.5	0.5							
Sampled By		Creekside/ENW	Creekside/ENW	Creekside/ENW	Creekside/ENW	Creekside/ENW	Creekside/ENW							
Location		Within the footprint of a 6' x 6' steel frame believed to formerly support an AST located SW of former hangar	Soils beneath several burn piles located NW to NE of the east residence	Former row crop area on the western part of the site	Former row crop area on the central part of the site	Soil Piles (2009 aerial) at N end of former runway (SE 162nd Avenue) on NW part of the site	Debris piles and burned refuse area (2009 and 2012 aerials) on N part of the site				Portland Basin		TRUE OR Y FALSE OR N	TRUE OR Y FALSE OR N
Constituent of Interest	Note	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)						
Semivolatile Organic Constituents														
Polychlorinated biphenyls (Total PCBs)	c, v	---	---	---	---	<0.02 (ND)	---	<0.02 (ND)	NE	0.23	---	0.23	N	FALSE
Polycyclic Aromatic Hydrocarbons														
Acenaphthene	nc, v		---	---	---	<0.01 (ND)	---	<0.01 (ND)	NE	770	---	0.25	N	FALSE
Anthracene	nc, v	---	---	---	---	<0.01 (ND)	---	<0.01 (ND)	NE	8200	---	6.8	N	FALSE
Benz[a]anthracene	c, v	---	---	---	---	<0.01 (ND)	---	<0.01 (ND)	NE	1.1	---	0.73	N	FALSE
Benzo[a]pyrene (BaP equivalents)	c, nv	---	---	---	---	<0.01 (ND)	---	<0.01 (ND)	NE	0.11	---	0.11	N	FALSE
Benzo[b]fluoranthene	c, nv	---	---	---	---	<0.01 (ND)	---	<0.01 (ND)	NE	1.1	---	1.1	N	FALSE
Benzo[k]fluoranthene	c, nv	---	---	---	---	<0.01 (ND)	---	<0.01 (ND)	NE	11	---	11	N	FALSE
Chrysene	c, nv	---	---	---	---	<0.01 (ND)	---	<0.01 (ND)	NE	110	---	3.1	N	FALSE
Dibenz[a,h]anthracene	c, nv	---	---	---	---	<0.01 (ND)	---	<0.01 (ND)	NE	0.11	---	0.11	N	FALSE
Fluoranthene	nc, nv	---	---	---	---	<0.01 (ND)	---	<0.01 (ND)	NE	2400	---	10	N	FALSE
Fluorene	nc, v	---	---	---	---	<0.01 (ND)	---	<0.01 (ND)	NE	770	---	3.7	N	FALSE
Indeno[1,2,3-cd]pyrene	c, nv	---	---	---	---	<0.01 (ND)	---	<0.01 (ND)	NE	1.1	---	1.1	N	FALSE
Pyrene	nc, v	---	---	---	---	<0.01 (ND)	---	<0.01 (ND)	NE	1800	---	10	N	FALSE
Total Petroleum Hydrocarbons														
Generic Gasoline (GRO)	nc, v	<20 (NP)	<20 (NP)	<20 (NP)	<20 (NP)	<20 (NP)	<20 (NP)	<20 (NP)	80	31	---	520	N	FALSE
Generic Diesel / Heating Oil (DRO)	nc, v	<50 (NP)	<50 (NP)	<50 (NP)	<50 (NP)	23 x	<50 (NP)	23 x	500	1100	---	90	N	FALSE
Generic Mineral Insulating Oil (RRO)	nc, nv	<250 (NP)	<250 (NP)	<250 (NP)	<250 (NP)	340	<250 (NP)	340		2800	---	140,000	N	FALSE

Notes:
mg/Kg = milligram per kilogram or parts per million (ppm).
<# (ND) = not detected at or above the laboratory method reporting limit shown.
NE = not established.
NP = not present at or above the laboratory method reporting limit shown (HCID analysis).
— = not analyzed or not applicable.
c = carcinogenic
nc = noncarcinogenic
v = volatile
nv = nonvolatile
GRO = gasoline-range organics.
DRO = diesel-range organics.
RRO = residual-range organics.

Shaded concentrations exceed screening level risk-based concentrations and background concentrations, as applicable.

[1] Lowest Risk-Based Concentration for soil (screening level assumes residential use, from ODEQ RBCs dated May 2018).
(Y) indicates analyte not detected, but detection limit is above screening concentration.
j = The result is below method reporting limits. The value reported is an estimate.
x = the pattern of peaks is not indicative of the fuel standard used for quantitation.
BKG = constituent exceeded its SLRBC; however, was not detected above default backgound concentrations in soil

Table 2. Further Evaluation for Risk Drivers in Soil

Contaminated Medium		SOIL mg/Kg (ppm)																										Maximum Detected Concentration
Exposure Pathway		Soil Ingestion, Dermal Contact, and Inhalation RBC_{ss}										Volatilization to Outdoor Air RBC_{so}						Vapor Intrusion into Buildings RBC_{si}						Leaching to Groundwater RBC_{sw}						
Receptor Scenario		Residential		Urban Residential		Occupational		Construction Worker		Excavation Worker		Residential		Urban Residential		Occupational		Residential		Urban Residential		Occupational		Residential		Urban Residential		Occupational		
Direct or Indirect Pathway (see notes)		DC		DC		DC		DC		DC		IVS		IVS		IVS		IVS		IVS		IVS		IS		IS		IS		
Contaminant of Concern	Note		Note		Note		Note		Note		Note		Note		Note		Note		Note		Note		Note		Note		Note		Note	mg/Kg (ppm)
Metals																														
Arsenic	c, nv	0.43		1		1.9		15		420		-	NV	-	NV	-	NV	-	NV	-	NV	-	NV	*		*		*		15.4
Lead	NA, nv	400	L	400	L	800	L	800	L	800	L	-	NV	-	NV	-	NV	-	NV	-	NV	-	NV	30	L	30	L	30	L	92.8

Notes:

— = not analyzed or not applicable.

< = not detected above method reporting limit shown.

NE = not established.

mg/Kg = milligrams per Kilogram or parts per million (ppm)

c = carcinogenic

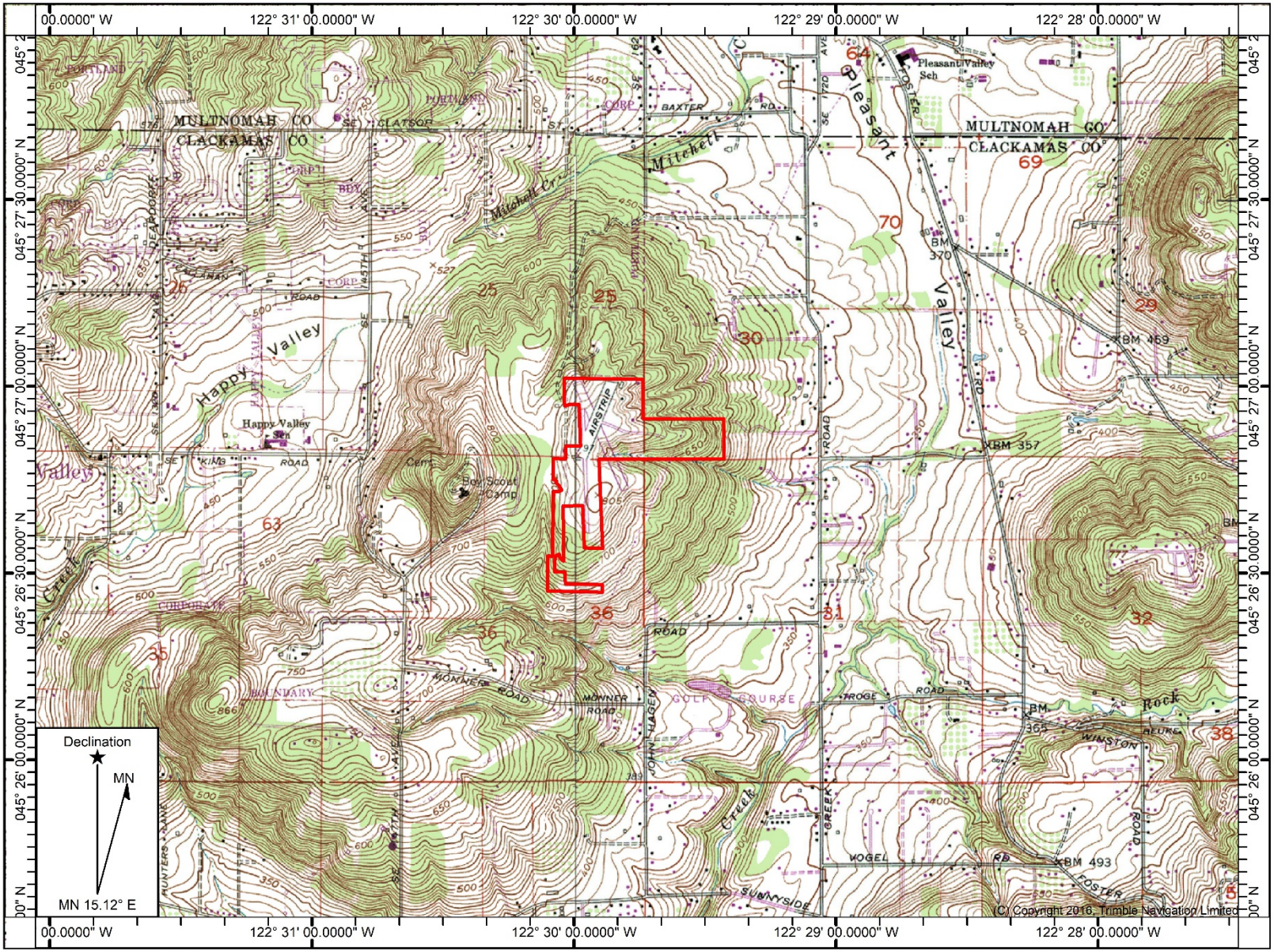
nc = noncarcinogenic

v = volatile

nv = nonvolatile

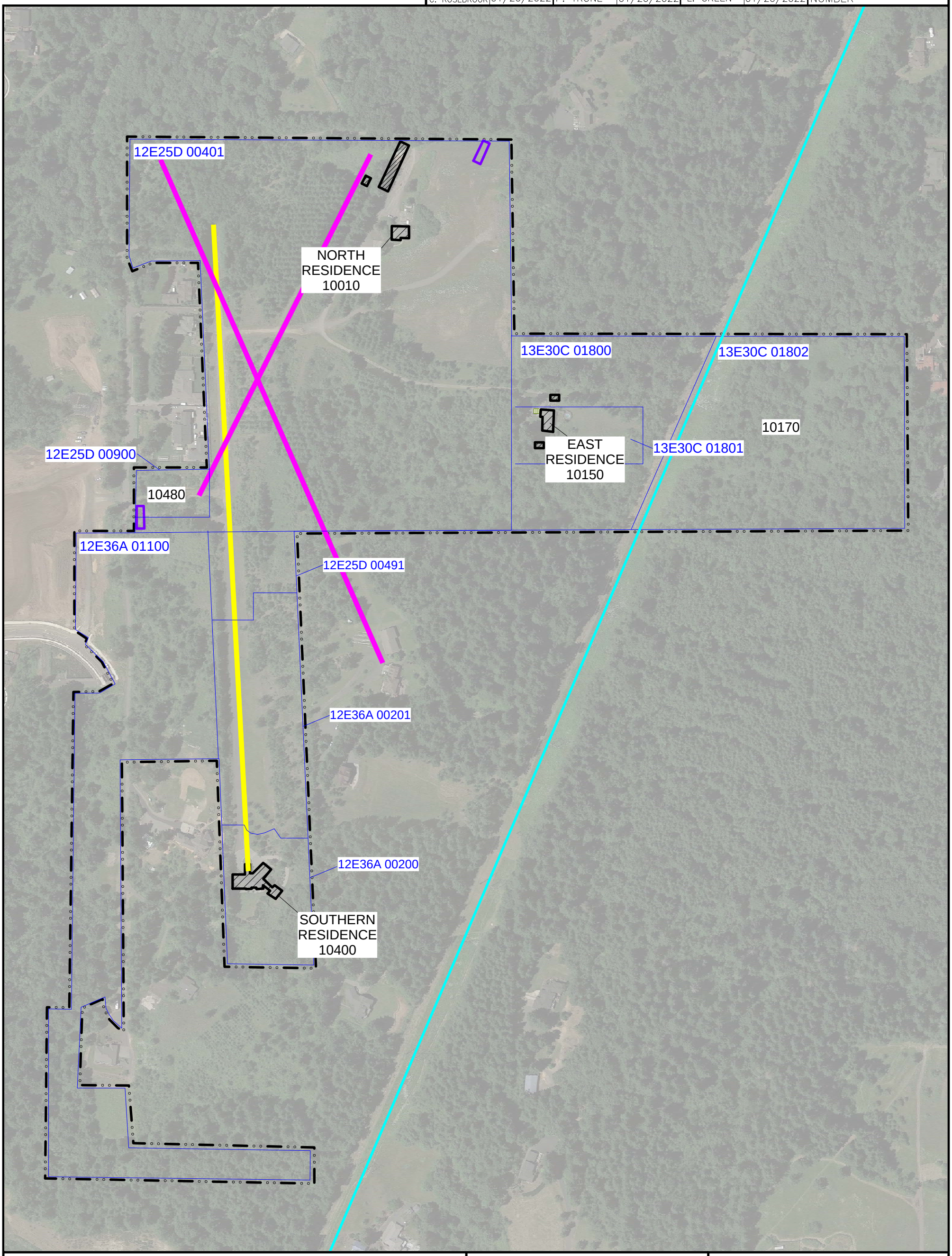
L = the values for lead reported in this table are not calculated. See Section b.3.4 for the source of the lead numbers and information on applying them.

Figures



CREEKSIDE ENVIRONMENTAL CONSULTING, LLC 40 SE 24TH AVENUE, SUITE A PORTLAND, OREGON 97214 (503) 692-8118	Date Drawn: 10/7/2021 CAD File Name: 351-21016-01_fig1sv_map Drawn By: CLR Approved By: LDG	Burright Parcels SE Vradenburg Road Happy Valley, Oregon	**Site Vicinity Map**	Project No. 351-21016 Figure No. **1**

DRAWN BY		CHECKED BY		APPROVED BY		DRAWING NUMBER
C. ROSEBROOK	01/20/2022	P. TRONE	01/20/2022	L. GREEN	01/20/2022	351-21016(v01)



LEGEND:

- SUBJECT BUILDINGS
- FORMER BUILDINGS PER HISTORICAL AERIAL PHOTOGRAPHS
- SUBJECT PROPERTY BOUNDARIES
- TAXLOT BOUNDARIES
- FORMER AIRPLANE RUNWAY PER 1970 AERIALS
- CURRENT AIRPLANE RUNWAY
- TRANSMISSION LINES

NOTES:

1. BASE MAP DEVELOPED FROM AN AERIAL PHOTOGRAPH MAP DATED 2021 AND ENW FIELD NOTES.
2. ALL BUILDING, STREET, AND FEATURE LOCATIONS ARE APPROXIMATE.
3. SYMBOLS REPRESENT LOCATION AND DO NOT ALWAYS REPRESENT EXACT SHAPE, SIZE, OR ORIENTATION.

APPROXIMATE SCALE

0 300 600 FEET

N

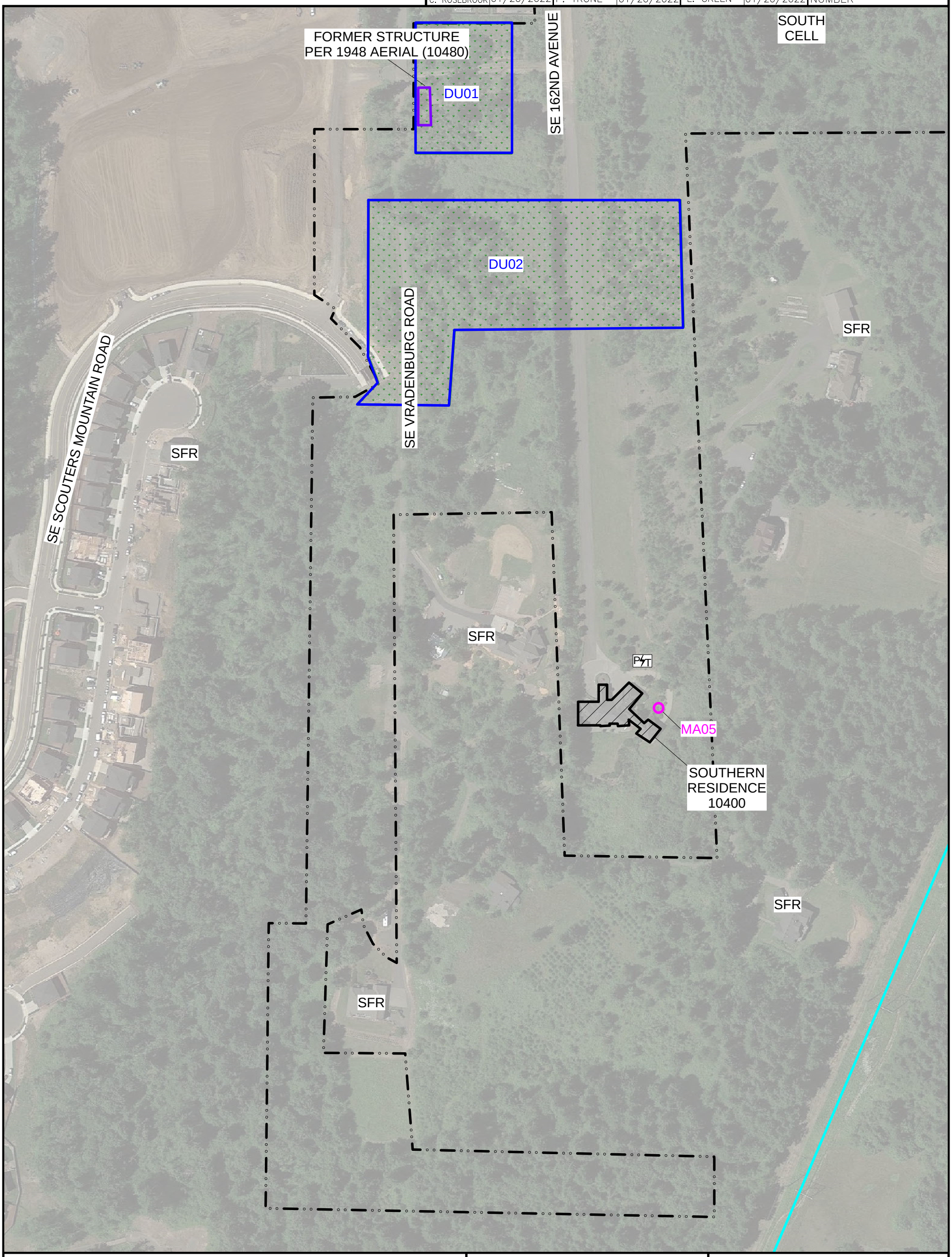
CREEKSIDE ENVIRONMENTAL CONSULTING, LLC
40 SE 24TH AVENUE, SUITE A
PORTLAND, OREGON 97214
(503) 692-8118

FIGURE 2

SITE PLAN

BURRIGHT PARCELS
SE VRADENBURG ROAD
HAPPY VALLEY, OREGON

DRAWN BY		CHECKED BY		APPROVED BY		DRAWING NUMBER
C. ROSEBROOK	01/20/2022	P. TRONE	01/20/2022	L. GREEN	01/20/2022	351-21016(v01)



LEGEND:

- SUBJECT BUILDINGS
- SUBJECT PROPERTY BOUNDARIES
- PAD TRANSFORMER
- FORMER ROW CROPS PER 1948 HISTORICAL AERIAL PHOTOGRAPH
- SFR — SINGLE FAMILY RESIDENCE
- TRANSMISSION LINES
- MA01 — MAGNETIC ANOMALY
- DECISION UNIT BOUNDARY

NOTES:

1. BASE MAP DEVELOPED FROM AN AERIAL PHOTOGRAPH MAP DATED 2021 AND ENW FIELD NOTES.
2. ALL BUILDING, STREET, AND FEATURE LOCATIONS ARE APPROXIMATE.
3. SYMBOLS REPRESENT LOCATION AND DO NOT ALWAYS REPRESENT EXACT SHAPE, SIZE, OR ORIENTATION.

APPROXIMATE SCALE

0 180 360 FEET

N

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PORTLAND, OREGON 97214
(503) 692-8118

FIGURE 3A

SAMPLE LOCATION DIAGRAM -SOUTH

BURRIGHT PARCELS
SE VRADENBURG ROAD
HAPPY VALLEY, OREGON

DRAWING NUMBER 351-21016(v01)

APPROVED BY L. GREEN 01/20/2022

CHECKED BY P. TRONE 01/20/2022

DRAWN BY C. ROSEBROOK 01/20/2022

DEBRIS PILES AND BURNED AREA PER 2009 AND 2012 AERIAL

SHED (FORMER AIRPLANE HANGAR)

SE AIRPORT ROAD

FORMER STRUCTURES PER 1970 AERIAL

DU04

SHED

MA02

MA03

COMP01 (METAL STRUCTURE)

LANDFILL AREA "NORTH CELL"

DU03

SOIL PILES PER 2009 AERIAL

MA04

MA01

NORTH RESIDENCE 10010

SE AIRPORT ROAD

COMP02 (FROM MULTIPLE BURN PILES)

SHED

RUNWAY STILL PRESENT

FORMER RUNWAY PER 1970 AERIAL

HEAVY VEGETATION

EAST RESIDENCE 10150

SHED

10170

SOUTH CELL

HEAVY VEGETATION

FORMER STRUCTURE PER 1948 AERIAL (10480)

DU01

SE 162ND AVENUE

LEGEND:

- SUBJECT BUILDINGS
- SUBJECT PROPERTY BOUNDARIES
- NATURAL GAS PIPELINE MARKER
- POLE TRANSFORMER
- PAD TRANSFORMER
- CATCH BASIN
- POSSIBLE WELL LOCATION
- BURN PILES
- FORMER ROW CROPS PER 1948 HISTORICAL AERIAL PHOTOGRAPH
- TRANSMISSION LINES
- SEEP
- MA01 MAGNETIC ANOMALY
- COMP01 COMPOSITE SAMPLE LOCATION

NOTES:

1. BASE MAP DEVELOPED FROM AN AERIAL PHOTOGRAPH MAP DATED 2021 AND ENW FIELD NOTES.
2. ALL BUILDING, STREET, AND FEATURE LOCATIONS ARE APPROXIMATE.
3. SYMBOLS REPRESENT LOCATION AND DO NOT ALWAYS REPRESENT EXACT. SHAPE, SIZE, OR ORIENTATION

APPROXIMATE SCALE

0 180 360 FEET

N

CREEKSIDE ENVIRONMENTAL CONSULTING, LLC
40 SE 24TH AVENUE, SUITE A
PORTLAND, OREGON 97214
(503) 692-8118

FIGURE 3B
SAMPLE LOCATION DIAGRAM - NORTH

BURRIGHT PARCELS
SE VRADENBURG ROAD
HAPPY VALLEY, OREGON

Appendix A

Site Photographs

Geophysical survey of south residence (10400 SE Vradenburg) located a possible old septic tank (MA01).

Hand excavation of MA01 revealed a broken 4-inch cast iron pipe possibly associated with a septic tank.

Vent line with other misc. conduits (MA03).

A rectangular metal structure believed to be a support for a former above-ground storage tank, where Comp01 was collected.

CREEKSIDE ENVIRONMENTAL CONSULTING, LLC	Burright Parcels SE Vradenburg Road Happy Valley, Oregon	**Site Photographs**	Project No. THG-2021.2 / 351-21016-03 Appendix **A**

Using a magnetic locator west of the former airplane hangar where DU04 is located.

Large, buried propane tank (MA05) was located north of the guest house associated with the south residence.

The east residence was scanned, also including the area of the burn pile east of the shed (Comp02).

A decontaminated stainless-steel hand auger was used to collect ISM sample increments in the part of DU02 east of SE 162nd Avenue.

CREEKSIDE ENVIRONMENTAL CONSULTING, LLC	Burright Parcels SE Vradenburg Road Happy Valley, Oregon	**Site Photographs**	Project No. THG-2021.2 / 351-21016-03 Appendix **A**

A mini excavator assisted with the collection of ISM subsamples by clearing a pathway into heavily vegetated areas of DU01.

Clearing brambles to facilitate ISM sampling in DU04.

Former row crop fields are currently covered with blackberry brambles, e.g., DU01.

CREEKSIDE ENVIRONMENTAL CONSULTING, LLC	Burright Parcels SE Vradenburg Road Happy Valley, Oregon	**Site Photographs**	Project No. THG-2021.2 / 351-21016-03 Appendix **A**

Appendix B

Laboratory Analytical Reports

Summary: DATA VALID? ☒YES

Analytical Laboratory Data Validation Check Sheet

Project Name: Creekside Environmental Project Number: 351-21016-03

Date of Review: 01/20/2022 Lab. Name: **F&BI and Fremont** Lab Batch ID #: 201073

Chain of Custody

1.) Are all requested analyses reported?	☒yes	☐no	
2.) Were the requested methods used?	☒yes	☐no	
3.) Trip blank submitted?	☐yes	☒no	
4.) Field blank submitted?	☐yes	☒no	
Timing			
5.) Samples extracted within holding times?	☒yes	☐no	
If not, are all discrepancies footnoted?	☐yes	☐no	☒NA
6.) Analysis performed within holding times?	☒yes	☐no	
If not, are all discrepancies footnoted?	☐yes	☐no	☒NA
Quality Assurance/Quality Control			
7.) Are the required reporting limits reported? (MRLs vs MDLs/PQLs)	☒yes	☐no	
8.) Are all reported values above either MRL or MDL?	☒yes	☐no	
9.) Are all values between the MDL & PQL tagged as trace?	☐yes	☐no	☒NA
10a.) Are reporting limits raised for other reason besides high analyte conc.?	☐yes	☒no	
10b.) If so, are they footnoted?	☐yes	☐no	☒NA
11.) Lab method blank completed?	☒yes	☐no	
12.) Lab, Field, or Trip Blank(s) report detections?	☐yes	☒no	

If yes, indicate blank type, chemical(s) and concentration(s): _____

13.) For inorganics and metals, is there one method blank for each analyte?	☒yes	☐no	☐NA
If not, are all discrepancies footnoted?	☐yes	☐no	
14.) For VOCs, is there one method blank for each day of analysis?	☒yes	☐no	☐NA
If not, are all discrepancies footnoted?	☐yes	☐no	
15.) For SVOC's, is there one method blank for each extraction batch?	☒yes	☐no	☐NA
If not, are all discrepancies footnoted?	☐yes	☐no	
Accuracy			
16.) Is there a surrogate spike recovery for all VOC & SVOC samples?	☒yes	☐no	☐NA
Do all surrogate spike recoveries meet accepted criteria?	☒yes	☐no	
If not, are all discrepancies footnoted?	☐yes	☐no	☒NA
17.) Is there a spike recovery for all Laboratory Control Samples?	☒yes	☐no	☐NA
Do all LCS/LCSD spike recoveries meet accepted criteria?	☒yes	☐no	
If not, are all discrepancies footnoted?	☐yes	☐no	☒NA
18.) Are all LCS/LCSD RPDs within acceptable limits?	☒yes	☐no	☐NA
If not, are all discrepancies footnoted?	☐yes	☐no	☒NA
Precision			
19.) Are all matrix spike/matrix spike duplicate recoveries within acceptable limits?	☐yes	☒no	☐NA
If not, are all discrepancies footnoted? **See comment vo and S**	☒yes	☐no	☐NA
20.) Are all matrix spike/matrix spike duplicate RPDs within acceptable limits?	☐yes	☒no	☐NA
If not, are all discrepancies footnoted? **See comment R**	☒yes	☐no	☐NA
21.) Do all RPD calculations for Field Duplicates meet accepted criteria?	☐yes	☐no	☒NA

Comments:
The 8260D aliquot DU03-220106-IS-0.5 was taken from a two-ounce jar removed from the sample container prior to ISM treatment. The data were flagged accordingly.
Several 8260D compounds exceeded the acceptance criteria in the matrix spike samples. The laboratory control samples met the acceptanc4e criteria, therefore the data were likely due to sample matrix effect.
vo - The value reported fell outside the control limits established for these analytes: trans-1,2-dichloroethene, 1,1-dichloroethane, cis-1,2-dichloroethene, benzene, trichloroethene, toluene, and tetrachloroethene.
S - Spike recovery outside accepted recovery limits for MCPP and MCPA.

R - High relative percent difference observed for MCPP and MCPA

Initial Review By: CR **Final** Review By: PT

Summary: DATA VALID? ☒YES

Analytical Laboratory Data Validation Check Sheet

Project Name: Creekside Environmental Project Number: 351-21016-03

Date of Review: 01/25/2022 Lab. Name: **F&BI and Fremont** Lab Batch ID #: 201116

Chain of Custody

1.) Are all requested analyses reported?	☒yes	☐no	
2.) Were the requested methods used?	☒yes	☐no	
3.) Trip blank submitted?	☐yes	☒no	
4.) Field blank submitted?	☐yes	☒no	
Timing			
5.) Samples extracted within holding times?	☒yes	☐no	
If not, are all discrepancies footnoted?	☐yes	☐no	☒NA
6.) Analysis performed within holding times?	☒yes	☐no	
If not, are all discrepancies footnoted?	☐yes	☐no	☒NA
Quality Assurance/Quality Control			
7.) Are the required reporting limits reported? (MRLs vs MDLs/PQLs)	☒yes	☐no	
8.) Are all reported values above either MRL or MDL?	☒yes	☐no	
9.) Are all values between the MDL & PQL tagged as trace?	☐yes	☐no	☒NA
10a.) Are reporting limits raised for other reason besides high analyte conc.?	☐yes	☒no	
10b.) If so, are they footnoted?	☐yes	☐no	☒NA
11.) Lab method blank completed?	☒yes	☐no	
12.) Lab, Field, or Trip Blank(s) report detections?	☐yes	☒no	

If yes, indicate blank type, chemical(s) and concentration(s): _____

13.) For inorganics and metals, is there one method blank for each analyte?	☒yes	☐no	☐NA
If not, are all discrepancies footnoted?	☐yes	☐no	
14.) For VOCs, is there one method blank for each day of analysis?	☒yes	☐no	☐NA
If not, are all discrepancies footnoted?	☐yes	☐no	
15.) For SVOC's, is there one method blank for each extraction batch?	☒yes	☐no	☐NA
If not, are all discrepancies footnoted?	☐yes	☐no	
Accuracy			
16.) Is there a surrogate spike recovery for all VOC & SVOC samples?	☒yes	☐no	☐NA
Do all surrogate spike recoveries meet accepted criteria?	☒yes	☐no	
If not, are all discrepancies footnoted?	☐yes	☐no	☒NA
17.) Is there a spike recovery for all Laboratory Control Samples?	☒yes	☐no	☐NA
Do all LCS/LCSD spike recoveries meet accepted criteria?	☒yes	☐no	
If not, are all discrepancies footnoted?	☐yes	☐no	☒NA
18.) Are all LCS/LCSD RPDs within acceptable limits?	☒yes	☐no	☐NA
If not, are all discrepancies footnoted?	☐yes	☐no	☒NA
Precision			
19.) Are all matrix spike/matrix spike duplicate recoveries within acceptable limits?	☐yes	☒no	☐NA
If not, are all discrepancies footnoted? **See comment b and S**	☒yes	☐no	☐NA
20.) Are all matrix spike/matrix spike duplicate RPDs within acceptable limits?	☐yes	☒no	☐NA
If not, are all discrepancies footnoted? **See comment R**	☒yes	☐no	☐NA
21.) Do all RPD calculations for Field Duplicates meet accepted criteria?	☐yes	☐no	☒NA

Comments:
j – The analyte (silver) concentration is reported below the lowest calibration standard. The value reported is an estimate.
b – The analyte (barium) was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.
S - Spike recovery outside accepted recovery limits for MCPP and MCPA.
R - High relative percent difference observed for MCPP and MCPA.

Initial Review By: PT **Final** Review By: CR

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Vineta Mills, M.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

January 20, 2022

Lynn Green, Project Manager
Evren Northwest, Inc.
PO Box 14488
Portland, OR 97293

Dear Mr Green:

Included are the results from the testing of material submitted on January 7, 2022 from the 351-21016-03, F&BI 201073 project. There are 28 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Neil Woller, Paul Trone, Evan Bruggeman
ENW0120R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on January 7, 2022 by Friedman & Bruya, Inc. from the Evren Northwest 351-21016-03, F&BI 201073 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Evren Northwest
201073 -01	COMP01-220106
201073 -02	COMP02-220106
201073 -03	DU03-220106-IS-0.5

Sample DU03-220106-IS-0.5 was sent to Fremont Analytical for chlorinated herbicide analysis. The report is enclosed.

The 8260D aliquot DU03-220106-IS-0.5 was taken from a two ounce jar removed from the sample container prior to ISM treatment. The data were flagged accordingly.

Several 8260D compounds exceeded the acceptance criteria in the matrix spike samples. The laboratory control samples met the acceptance criteria, therefore the data were likely due to sample matrix effect.

All other quality control requirements were acceptable.

Date of Report: 01/20/22
Date Received: 01/07/22
Project: 351-21016-03, F&BI 201073
Date Extracted: 01/10/22 and 01/11/22
Date Analyzed: 01/10/22 and 01/11/22

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR GASOLINE, DIESEL AND HEAVY OIL BY NWTPH-HCID

Results Reported on a Dry Weight Basis
Results Reported as Not Detected (ND) or Detected (D)

THE DATA PROVIDED BELOW WAS PERFORMED PER THE GUIDELINES ESTABLISHED BY THE WASHINGTON DEPARTMENT OF ECOLOGY AND WERE NOT DESIGNED TO PROVIDE INFORMATION WITH REGARDS TO THE ACTUAL IDENTIFICATION OF ANY MATERIAL PRESENT

Sample ID Laboratory ID	Gasoline	Diesel	Heavy Oil	Surrogate (% Recovery) (Limit 48-168)
COMP01-220106 201073-01	ND	ND	ND	104
COMP02-220106 201073-02	ND	ND	ND	104
DU03-220106-IS-0.5 201073-03	ND	ND	D	99
Method Blank 02-085 MB	ND	ND	ND	115
Method Blank 02-0085 MB2	ND	ND	ND	107

ND - Material not detected at or above 20 mg/kg gas, 50 mg/kg diesel and 250 mg/kg heavy oil.

Date of Report: 01/20/22
Date Received: 01/07/22
Project: 351-21016-03, F&BI 201073
Date Extracted: 01/13/22
Date Analyzed: 01/13/22

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND RESIDUAL RANGE USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Residual Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 56-165)
DU03-220106-IS-0.5 201073-03	23 x	340	103
Method Blank 02-0110 MB	<5	<25	116

Analysis For Total Metals By EPA Method 6020B

Client ID:	COMP01-220106	Client:	Evren Northwest
Date Received:	01/07/22	Project:	351-21016-03, F&BI 201073
Date Extracted:	01/10/22	Lab ID:	201073-01
Date Analyzed:	01/10/22	Data File:	201073-01.098
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.47
Barium	132
Cadmium	1.93
Lead	29.5
Mercury	<0.18
Selenium	<1
Silver	<0.16

Analysis For Total Metals By EPA Method 6020B

Client ID:	COMP01-220106	Client:	Evren Northwest
Date Received:	01/07/22	Project:	351-21016-03, F&BI 201073
Date Extracted:	01/10/22	Lab ID:	201073-01 x5
Date Analyzed:	01/11/22	Data File:	201073-01 x5.170
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Chromium	23.4

Analysis For Total Metals By EPA Method 6020B

Client ID:	COMP02-220106	Client:	Evren Northwest
Date Received:	01/07/22	Project:	351-21016-03, F&BI 201073
Date Extracted:	01/10/22	Lab ID:	201073-02
Date Analyzed:	01/10/22	Data File:	201073-02.099
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.68
Barium	109
Cadmium	<0.5
Lead	25.0
Mercury	<0.18
Selenium	<1
Silver	<0.16

Analysis For Total Metals By EPA Method 6020B

Client ID:	COMP02-220106	Client:	Evren Northwest
Date Received:	01/07/22	Project:	351-21016-03, F&BI 201073
Date Extracted:	01/10/22	Lab ID:	201073-02 x5
Date Analyzed:	01/11/22	Data File:	201073-02 x5.171
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Chromium	22.1

Analysis For Total Metals By EPA Method 6020B

Client ID:	DU03-220106-IS-0.5	Client:	Evren Northwest
Date Received:	01/07/22	Project:	351-21016-03, F&BI 201073
Date Extracted:	01/11/22	Lab ID:	201073-03
Date Analyzed:	01/11/22	Data File:	201073-03.136
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	15.4
Barium	740
Cadmium	1.46
Lead	92.8
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 200.8

Client ID:	DU03-220106-IS-0.5	Client:	Evren Northwest
Date Received:	01/07/22	Project:	351-21016-03, F&BI 201073
Date Extracted:	01/11/22	Lab ID:	201073-03 x5
Date Analyzed:	01/13/22	Data File:	201073-03 x5.072
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Chromium	29.1

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Evren Northwest
Date Received:	NA	Project:	351-21016-03, F&BI 201073
Date Extracted:	01/10/22	Lab ID:	I2-15 mb
Date Analyzed:	01/10/22	Data File:	I2-15 mb.067
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Barium	<1
Cadmium	<0.5
Chromium	<1
Lead	<1
Mercury	<0.18
Selenium	<1
Silver	<0.16

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Evren Northwest
Date Received:	NA	Project:	351-21016-03, F&BI 201073
Date Extracted:	01/11/22	Lab ID:	I2-15 mb2
Date Analyzed:	01/11/22	Data File:	I2-15 mb2.056
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Barium	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	DU03-220106-IS-0.5 pc	Client:	Evren Northwest
Date Received:	01/07/22	Project:	351-21016-03, F&BI 201073
Date Extracted:	01/12/22	Lab ID:	201073-03
Date Analyzed:	01/12/22	Data File:	011210.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	90	109
Toluene-d8	106	89	112
4-Bromofluorobenzene	96	84	115

Compounds:	Concentration mg/kg (ppm)
Vinyl chloride	<0.05
Chloroethane	<0.5
1,1-Dichloroethene	<0.05
Methylene chloride	<0.5
trans-1,2-Dichloroethene	<0.05
1,1-Dichloroethane	<0.05
cis-1,2-Dichloroethene	<0.05
1,2-Dichloroethane (EDC)	<0.05
1,1,1-Trichloroethane	<0.05
Benzene	<0.03
Trichloroethene	<0.02
Toluene	<0.05
Tetrachloroethene	<0.025
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	Evren Northwest
Date Received:	Not Applicable	Project:	351-21016-03, F&BI 201073
Date Extracted:	01/13/22	Lab ID:	02-068 mb
Date Analyzed:	01/12/22	Data File:	011205.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	90	109
Toluene-d8	107	89	112
4-Bromofluorobenzene	97	84	115

Compounds:	Concentration mg/kg (ppm)
Vinyl chloride	<0.05
Chloroethane	<0.5
1,1-Dichloroethene	<0.05
Methylene chloride	<0.5
trans-1,2-Dichloroethene	<0.05
1,1-Dichloroethane	<0.05
cis-1,2-Dichloroethene	<0.05
1,2-Dichloroethane (EDC)	<0.05
1,1,1-Trichloroethane	<0.05
Benzene	<0.03
Trichloroethene	<0.02
Toluene	<0.05
Tetrachloroethene	<0.025
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	DU03-220106-IS-0.5	Client:	Evren Northwest
Date Received:	01/07/22	Project:	351-21016-03, F&BI 201073
Date Extracted:	01/13/22	Lab ID:	201073-03 1/5
Date Analyzed:	01/14/22	Data File:	011423.D
Matrix:	Soil	Instrument:	GCMS12
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	51	39	103
Phenol-d6	59	48	109
Nitrobenzene-d5	73	23	138
2-Fluorobiphenyl	80	50	150
2,4,6-Tribromophenol	73	40	127
Terphenyl-d14	85	50	150

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
2-Methylnaphthalene	<0.01
1-Methylnaphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Method Blank	Client:	Evren Northwest
Date Received:	Not Applicable	Project:	351-21016-03, F&BI 201073
Date Extracted:	01/13/22	Lab ID:	02-134 mb 1/5
Date Analyzed:	01/13/22	Data File:	011245.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	84	24	111
Phenol-d6	89	37	116
Nitrobenzene-d5	81	38	117
2-Fluorobiphenyl	88	45	117
2,4,6-Tribromophenol	89	11	158
Terphenyl-d14	94	50	124

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
2-Methylnaphthalene	<0.01
1-Methylnaphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	DU03-220106-IS-0.5	Client:	Evren Northwest
Date Received:	01/07/22	Project:	351-21016-03, F&BI 201073
Date Extracted:	01/14/22	Lab ID:	201073-03 1/6
Date Analyzed:	01/14/22	Data File:	011417.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	107	23	120

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	Method Blank	Client:	Evren Northwest
Date Received:	Not Applicable	Project:	351-21016-03, F&BI 201073
Date Extracted:	01/14/22	Lab ID:	02-092 mb 1/6
Date Analyzed:	01/14/22	Data File:	011407.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	112	23	120

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	DU03-220106-IS-0.5	Client:	Evren Northwest
Date Received:	01/07/22	Project:	351-21016-03, F&BI 201073
Date Extracted:	01/14/22	Lab ID:	201073-03 1/6
Date Analyzed:	01/14/22	Data File:	011417.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	94	44	97
DBC	89	43	119

Compounds:	Concentration mg/kg (ppm)
alpha-BHC	<0.01
gamma-BHC (Lindane)	<0.01
beta-BHC	<0.01
delta-BHC	<0.01
Heptachlor	<0.01
Aldrin	<0.01
Heptachlor Epoxide	<0.01
trans-Chlordane	<0.01
cis-Chlordane	<0.01
4,4'-DDE	<0.01
Endosulfan I	<0.01
Dieldrin	<0.01
Endrin	<0.01
4,4'-DDD	<0.01
Endosulfan II	<0.01
4,4'-DDT	<0.01
Endrin Aldehyde	<0.01
Methoxychlor	<0.01
Endosulfan Sulfate	<0.01
Endrin Ketone	<0.05
Toxaphene	<1

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	Method Blank	Client:	Evren Northwest
Date Received:	Not Applicable	Project:	351-21016-03, F&BI 201073
Date Extracted:	01/14/22	Lab ID:	02-092 mb 1/6
Date Analyzed:	01/14/22	Data File:	011407.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	96	44	97
DBC	100	43	119

Compounds:	Concentration mg/kg (ppm)
alpha-BHC	<0.01
gamma-BHC (Lindane)	<0.01
beta-BHC	<0.01
delta-BHC	<0.01
Heptachlor	<0.01
Aldrin	<0.01
Heptachlor Epoxide	<0.01
trans-Chlordane	<0.01
cis-Chlordane	<0.01
4,4'-DDE	<0.01
Endosulfan I	<0.01
Dieldrin	<0.01
Endrin	<0.01
4,4'-DDD	<0.01
Endosulfan II	<0.01
4,4'-DDT	<0.01
Endrin Aldehyde	<0.01
Methoxychlor	<0.01
Endosulfan Sulfate	<0.01
Endrin Ketone	<0.05
Toxaphene	<1

Date of Report: 01/20/22
Date Received: 01/07/22
Project: 351-21016-03, F&BI 201073

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 201073-03 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	500	250	80	81	63-146	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	500	100	79-144

Date of Report: 01/20/22
Date Received: 01/07/22
Project: 351-21016-03, F&BI 201073

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS USING EPA METHOD 6020B

Laboratory Code: 201076-01 x5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	<5	91	104	75-125	13
Barium	mg/kg (ppm)	50	27.4	94	111	75-125	17
Cadmium	mg/kg (ppm)	10	<5	94	101	75-125	7
Chromium	mg/kg (ppm)	50	15.8	92	101	75-125	9
Lead	mg/kg (ppm)	50	<5	90	96	75-125	6
Mercury	mg/kg (ppm	5	<5	93	100	75-125	7
Selenium	mg/kg (ppm)	5	<5	93	100	75-125	7
Silver	mg/kg (ppm)	10	<5	93	101	75-125	8

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	97	80-120
Barium	mg/kg (ppm)	50	100	80-120
Cadmium	mg/kg (ppm)	10	101	80-120
Chromium	mg/kg (ppm)	50	106	80-120
Lead	mg/kg (ppm)	50	102	80-120
Mercury	mg/kg (ppm)	5	104	80-120
Selenium	mg/kg (ppm)	5	101	80-120
Silver	mg/kg (ppm)	10	105	80-120

Date of Report: 01/20/22
Date Received: 01/07/22
Project: 351-21016-03, F&BI 201073

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: 201073-03 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Vinyl chloride	mg/kg (ppm)	1	<0.05	99	87	10-138	13
Chloroethane	mg/kg (ppm)	1	<0.5	116	114	10-176	2
1,1-Dichloroethene	mg/kg (ppm)	1	<0.05	145	128	10-160	12
Methylene chloride	mg/kg (ppm)	1	<0.5	133	119	10-156	11
trans-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	147 vo	133	14-137	10
1,1-Dichloroethane	mg/kg (ppm)	1	<0.05	146 vo	139	19-140	5
cis-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	146 vo	141 vo	25-135	3
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1	<0.05	141	134	12-160	5
1,1,1-Trichloroethane	mg/kg (ppm)	1	<0.05	146	137	10-156	6
Benzene	mg/kg (ppm)	1	<0.03	148 vo	140 vo	29-129	6
Trichloroethene	mg/kg (ppm)	1	<0.02	141 vo	134	21-139	5
Toluene	mg/kg (ppm)	1	<0.05	131 vo	124	35-130	5
Tetrachloroethene	mg/kg (ppm)	1	<0.025	135 vo	126	20-133	7
Ethylbenzene	mg/kg (ppm)	1	<0.05	131	127	32-137	3
m,p-Xylene	mg/kg (ppm)	2	<0.1	133	130	34-136	2
o-Xylene	mg/kg (ppm)	1	<0.05	128	124	33-134	3

Date of Report: 01/20/22
Date Received: 01/07/22
Project: 351-21016-03, F&BI 201073

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Vinyl chloride	mg/kg (ppm)	1	84	22-139
Chloroethane	mg/kg (ppm)	1	92	9-163
1,1-Dichloroethene	mg/kg (ppm)	1	114	47-128
Methylene chloride	mg/kg (ppm)	1	95	10-184
trans-1,2-Dichloroethene	mg/kg (ppm)	1	113	67-129
1,1-Dichloroethane	mg/kg (ppm)	1	112	68-115
cis-1,2-Dichloroethene	mg/kg (ppm)	1	117	72-127
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1	116	56-135
1,1,1-Trichloroethane	mg/kg (ppm)	1	111	62-131
Benzene	mg/kg (ppm)	1	117	71-118
Trichloroethene	mg/kg (ppm)	1	112	63-121
Toluene	mg/kg (ppm)	1	102	66-126
Tetrachloroethene	mg/kg (ppm)	1	104	72-114
Ethylbenzene	mg/kg (ppm)	1	102	64-123
m,p-Xylene	mg/kg (ppm)	2	104	78-122
o-Xylene	mg/kg (ppm)	1	101	77-124

Date of Report: 01/20/22
Date Received: 01/07/22
Project: 351-21016-03, F&BI 201073

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270E

Laboratory Code: Laboratory Control Sample 1/5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	mg/kg (ppm)	0.83	82	85	61-102	4
2-Methylnaphthalene	mg/kg (ppm)	0.83	82	82	62-108	0
1-Methylnaphthalene	mg/kg (ppm)	0.83	83	85	62-108	2
Acenaphthylene	mg/kg (ppm)	0.83	85	88	61-111	3
Acenaphthene	mg/kg (ppm)	0.83	87	91	61-110	4
Fluorene	mg/kg (ppm)	0.83	90	91	62-114	1
Phenanthrene	mg/kg (ppm)	0.83	89	92	64-112	3
Anthracene	mg/kg (ppm)	0.83	88	91	63-111	3
Fluoranthene	mg/kg (ppm)	0.83	89	94	66-115	5
Pyrene	mg/kg (ppm)	0.83	93	94	65-112	1
Benz(a)anthracene	mg/kg (ppm)	0.83	92	93	64-116	1
Chrysene	mg/kg (ppm)	0.83	91	93	66-119	2
Benzo(a)pyrene	mg/kg (ppm)	0.83	83	85	62-116	2
Benzo(b)fluoranthene	mg/kg (ppm)	0.83	90	96	61-118	6
Benzo(k)fluoranthene	mg/kg (ppm)	0.83	91	94	65-119	3
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.83	98	96	64-130	2
Dibenz(a,h)anthracene	mg/kg (ppm)	0.83	98	96	67-131	2
Benzo(g,h,i)perylene	mg/kg (ppm)	0.83	99	96	67-126	3

Date of Report: 01/20/22
Date Received: 01/07/22
Project: 351-21016-03, F&BI 201073

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR POLYCHLORINATED BIPHENYLS AS AROCLOR 1016/1260 BY EPA METHOD 8082A

Laboratory Code: Laboratory Control Sample 1/6

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Aroclor 1016	mg/kg (ppm)	0.25	98	101	47-158	3
Aroclor 1260	mg/kg (ppm)	0.25	104	107	69-147	3

Date of Report: 01/20/22
Date Received: 01/07/22
Project: 351-21016-03, F&BI 201073

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR ORGANOCHLORINE PESTICIDES BY EPA METHOD 8081B

Laboratory Code: 201085-01 1/6 (Matrix Spike) 1/6

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
alpha-BHC	mg/kg (ppm)	0.1	<0.01	84	17-122
gamma-BHC (Lindane)	mg/kg (ppm)	0.1	<0.01	89	18-128
beta-BHC	mg/kg (ppm)	0.1	<0.01	82	17-130
delta-BHC	mg/kg (ppm)	0.1	<0.01	83	20-124
Heptachlor	mg/kg (ppm)	0.1	<0.01	85	15-133
Aldrin	mg/kg (ppm)	0.1	<0.01	87	50-150
Heptachlor Epoxide	mg/kg (ppm)	0.1	<0.01	86	19-132
trans-Chlordane	mg/kg (ppm)	0.1	<0.01	83	15-157
cis-Chlordane	mg/kg (ppm)	0.1	<0.01	83	17-133
4,4'-DDE	mg/kg (ppm)	0.1	<0.01	85	17-139
Endosulfan I	mg/kg (ppm)	0.1	<0.01	85	19-130
Dieldrin	mg/kg (ppm)	0.1	<0.01	89	17-140
Endrin	mg/kg (ppm)	0.1	<0.01	91	20-143
4,4'-DDD	mg/kg (ppm)	0.1	<0.01	93	20-143
Endosulfan II	mg/kg (ppm)	0.1	<0.01	89	21-133
4,4'-DDT	mg/kg (ppm)	0.1	<0.01	81	10-385
Endrin Aldehyde	mg/kg (ppm)	0.1	<0.01	79	12-123
Methoxychlor	mg/kg (ppm)	0.1	<0.01	89	10-226
Endosulfan Sulfate	mg/kg (ppm)	0.1	<0.01	85	17-134
Endrin Ketone	mg/kg (ppm)	0.1	<0.05	86	10-153
Toxaphene	mg/kg (ppm)	4	<1	78	12-123

Date of Report: 01/20/22
Date Received: 01/07/22
Project: 351-21016-03, F&BI 201073

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR ORGANOCHLORINE PESTICIDES BY EPA METHOD 8081B

Laboratory Code: Laboratory Control Sample 1/6

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
alpha-BHC	mg/kg (ppm)	0.1	84	86	70-130	2
gamma-BHC (Lindane)	mg/kg (ppm)	0.1	89	92	70-130	3
beta-BHC	mg/kg (ppm)	0.1	87	91	66-112	4
delta-BHC	mg/kg (ppm)	0.1	90	97	70-130	7
Heptachlor	mg/kg (ppm)	0.1	85	88	70-130	3
Aldrin	mg/kg (ppm)	0.1	88	91	70-130	3
Heptachlor Epoxide	mg/kg (ppm)	0.1	88	94	70-130	7
trans-Chlordane	mg/kg (ppm)	0.1	88	92	70-130	4
cis-Chlordane	mg/kg (ppm)	0.1	88	94	70-130	7
4,4'-DDE	mg/kg (ppm)	0.1	92	96	70-130	4
Endosulfan I	mg/kg (ppm)	0.1	89	93	70-130	4
Dieldrin	mg/kg (ppm)	0.1	92	97	70-130	5
Endrin	mg/kg (ppm)	0.1	94	99	65-140	5
4,4'-DDD	mg/kg (ppm)	0.1	93	98	70-130	5
Endosulfan II	mg/kg (ppm)	0.1	94	100	70-130	6
4,4'-DDT	mg/kg (ppm)	0.1	90	94	57-135	4
Endrin Aldehyde	mg/kg (ppm)	0.1	67	73	25-133	9
Methoxychlor	mg/kg (ppm)	0.1	89	95	57-147	7
Endosulfan Sulfate	mg/kg (ppm)	0.1	88	93	70-130	6
Endrin Ketone	mg/kg (ppm)	0.1	86	91	70-130	6
Toxaphene	mg/kg (ppm)	4	84	85	68-131	1

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

201073

SAMPLE CHAIN OF CUSTODY 01-07-22

BI3/1SM

Page # 1 of 1

Report To Lynn Green
Company Evren Northwest
Address Po Box 14488
City, State, ZIP Portland OR 97293
Phone 503 452-5561 Email lynng@evrennw.com

SAMPLERS (signature)	[signature]
PROJECT NAME: 351-21016-03	PO #
REMARKS: * Persistent Pesticide screen EPA 8081 + 8151 Project specific RLs? - Yes / No	INVOICE TO

TURNAROUND TIME
☒ Standard turnaround
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Archive samples
☐ Other
Default: Dispose after 30 days

ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	RCRA 8 Total metals	Persistent Pesticide screen	1SM PREP	CVOCs + BTEX	Notes
COMP01-220106	01	01/06/22	9:27	Soil	1				X				X				(X) per LG
COMP02-220106	02	|	9:55	|	1				X				X				1/11/22 ME
DU03-220106-1.5-0.5	03	|	10:42	|	1	(X)			X		(X)	(X)	X	X	X	(X)	

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

NP

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:					
Received by:	[signature]	Ann W Bruya	FBI	1/7/22	1130
Relinquished by:					
Received by:			Samples received at 6 °C		

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Friedman & Bruya
Michael Erdahl
3012 16th Ave. W.
Seattle, WA 98119

RE: 201073
Work Order Number: 2201100

January 19, 2022

Attention Michael Erdahl:

Fremont Analytical, Inc. received 1 sample(s) on 1/10/2022 for the analyses presented in the following report.

Herbicides by EPA Method 8151A (GC/MS)
Sample Moisture (Percent Moisture)

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes
Project Manager

Date: *01/19/2022*

CLIENT: Friedman & Bruya
Project: 201073
Work Order: 2201100

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2201100-001	DU03-220106-IS-0.5	01/06/2022 10:42 AM	01/10/2022 2:26 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Original

Case Narrative

WO#: **2201100**
Date: **1/19/2022**

CLIENT: Friedman & Bruya
Project: 201073

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
DUP - Sample Duplicate
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MCL - Maximum Contaminant Level
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
REP - Sample Replicate
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **2201100**
Date Reported: **1/19/2022**

Client: Friedman & Bruya
Collection Date: 1/6/2022 10:42:00 AM
Project: 201073
Lab ID: 2201100-001
Matrix: Soil
Client Sample ID: **DU03-220106-IS-0.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Herbicides by EPA Method 8151A (GC/MS)				Batch ID: 35013		Analyst: SB
Dicamba	ND	31.4		µg/Kg-dry	1	1/17/2022 6:21:49 PM
2,4-D	ND	36.6		µg/Kg-dry	1	1/17/2022 6:21:49 PM
2,4-DP	ND	31.4		µg/Kg-dry	1	1/17/2022 6:21:49 PM
2,4,5-TP (Silvex)	ND	31.4		µg/Kg-dry	1	1/17/2022 6:21:49 PM
2,4,5-T	ND	31.4		µg/Kg-dry	1	1/17/2022 6:21:49 PM
Dinoseb	ND	78.5		µg/Kg-dry	1	1/17/2022 6:21:49 PM
Dalapon	ND	209		µg/Kg-dry	1	1/17/2022 6:21:49 PM
2,4-DB	ND	78.5		µg/Kg-dry	1	1/17/2022 6:21:49 PM
MCPP	ND	105		µg/Kg-dry	1	1/17/2022 6:21:49 PM
MCPA	ND	105		µg/Kg-dry	1	1/17/2022 6:21:49 PM
Picloram	ND	105		µg/Kg-dry	1	1/17/2022 6:21:49 PM
Bentazon	ND	36.6		µg/Kg-dry	1	1/17/2022 6:21:49 PM
Chloramben	ND	31.4		µg/Kg-dry	1	1/17/2022 6:21:49 PM
Acifluorfen	ND	131		µg/Kg-dry	1	1/17/2022 6:21:49 PM
3,5-Dichlorobenzoic acid	ND	31.4		µg/Kg-dry	1	1/17/2022 6:21:49 PM
4-Nitrophenol	ND	31.4		µg/Kg-dry	1	1/17/2022 6:21:49 PM
Dacthal (DCPA)	ND	52.3		µg/Kg-dry	1	1/17/2022 6:21:49 PM
Surr: 2,4-Dichlorophenylacetic acid	83.8	5.13 - 167		%Rec	1	1/17/2022 6:21:49 PM
Sample Moisture (Percent Moisture)				Batch ID: R72487		Analyst: cb
Percent Moisture	9.52	0.500		wt%	1	1/11/2022 5:31:40 PM

Work Order: 2201100
CLIENT: Friedman & Bruya
Project: 201073

QC SUMMARY REPORT

Herbicides by EPA Method 8151A (GC/MS)

Sample ID: **MB-35013** SampType: **MBLK** Units: **µg/Kg** Prep Date: **1/13/2022** RunNo: **72600**
Client ID: **MBLKS** Batch ID: **35013** Analysis Date: **1/17/2022** SeqNo: **1481699**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dicamba	ND	30.0									
2,4-D	ND	35.0									
2,4-DP	ND	30.0									
2,4,5-TP (Silvex)	ND	30.0									
2,4,5-T	ND	30.0									
Dinoseb	ND	75.0									
Dalapon	ND	200									
2,4-DB	ND	75.0									
MCPP	ND	100									
MCPA	ND	100									
Picloram	ND	100									
Bentazon	ND	35.0									
Chloramben	ND	30.0									
Acifluorfen	ND	125									
3,5-Dichlorobenzoic acid	ND	30.0									
4-Nitrophenol	ND	30.0									
Dacthal (DCPA)	ND	50.0									
Surr: 2,4-Dichlorophenylacetic acid	1,130		1,000		113	5.13	167				

Sample ID: **LCS-35013** SampType: **LCS** Units: **µg/Kg** Prep Date: **1/13/2022** RunNo: **72600**
Client ID: **LCSS** Batch ID: **35013** Analysis Date: **1/17/2022** SeqNo: **1481700**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dicamba	180	30.0	200.0	0	89.9	59.3	133				
2,4-D	225	35.0	200.0	0	112	74.2	146				
2,4-DP	194	30.0	200.0	0	96.9	70.3	143				
2,4,5-TP (Silvex)	262	30.0	200.0	0	131	69.5	143				
2,4,5-T	275	30.0	200.0	0	138	66.8	147				
Dinoseb	20.2	75.0	200.0	0	10.1	5	125				
Dalapon	962	200	1,000	0	96.2	29.6	154				

Work Order: 2201100
CLIENT: Friedman & Bruya
Project: 201073

QC SUMMARY REPORT

Herbicides by EPA Method 8151A (GC/MS)

Sample ID: **LCS-35013** SampType: **LCS** Units: **µg/Kg** Prep Date: **1/13/2022** RunNo: **72600**
Client ID: **LCSS** Batch ID: **35013** Analysis Date: **1/17/2022** SeqNo: **1481700**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2,4-DB	293	75.0	200.0	0	146	66.2	154				
MCPP	665	100	1,000	0	66.5	39.5	157				
MCPA	673	100	1,000	0	67.3	38.6	159				
Picloram	318	100	200.0	0	159	59.7	174				
Bentazon	217	35.0	200.0	0	108	59.1	146				
Chloramben	73.9	30.0	200.0	0	37.0	17.5	104				
Acifluorfen	33.3	125	200.0	0	16.7	5	143				
3,5-Dichlorobenzoic acid	151	30.0	200.0	0	75.6	60.8	118				
4-Nitrophenol	195	30.0	200.0	0	97.6	1.24	149				
Dacthal (DCPA)	214	50.0	200.0	0	107	68.2	138				
Surr: 2,4-Dichlorophenylacetic acid	1,130		1,000		113	5.13	167				

Sample ID: **2201099-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **1/13/2022** RunNo: **72600**
Client ID: **BATCH** Batch ID: **35013** Analysis Date: **1/17/2022** SeqNo: **1481704**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dicamba	181	38.4	256.0	0	70.7	5	130				
2,4-D	218	44.8	256.0	0	85.2	5	162				
2,4-DP	188	38.4	256.0	0	73.3	5	140				
2,4,5-TP (Silvex)	250	38.4	256.0	0	97.5	8.14	140				
2,4,5-T	275	38.4	256.0	0	107	5	145				
Dinoseb	102	96.0	256.0	0	39.9	5	129				
Dalapon	1,070	256	1,280	0	83.2	5	145				
2,4-DB	300	96.0	256.0	0	117	11.4	156				
MCPP	0.514	128	1,280	0	0.0402	14.8	128				S
MCPA	0.877	128	1,280	0	0.0685	14.3	126				S
Picloram	357	128	256.0	0	139	5	151				
Bentazon	211	44.8	256.0	0	82.4	22.6	123				
Chloramben	61.9	38.4	256.0	0	24.2	5	112				
Acifluorfen	102	160	256.0	0	39.9	5	133				

Work Order: 2201100
CLIENT: Friedman & Bruya
Project: 201073

QC SUMMARY REPORT

Herbicides by EPA Method 8151A (GC/MS)

Sample ID: **2201099-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **1/13/2022** RunNo: **72600**
Client ID: **BATCH** Batch ID: **35013** Analysis Date: **1/17/2022** SeqNo: **1481704**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
3,5-Dichlorobenzoic acid	162	38.4	256.0	0	63.3	5.66	115				
4-Nitrophenol	230	38.4	256.0	0	89.7	21.2	121				
Dacthal (DCPA)	240	64.0	256.0	0	93.6	5	145				
Surr: 2,4-Dichlorophenylacetic acid	1,120		1,280		87.4	5.13	167				

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed and recovered within range.

Sample ID: **2201099-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **1/13/2022** RunNo: **72600**
Client ID: **BATCH** Batch ID: **35013** Analysis Date: **1/17/2022** SeqNo: **1481705**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dicamba	170	38.0	253.5	0	66.9	5	130	181.0	6.53	30	
2,4-D	199	44.4	253.5	0	78.5	5	162	218.0	9.15	30	
2,4-DP	172	38.0	253.5	0	67.9	5	140	187.6	8.66	30	
2,4,5-TP (Silvex)	229	38.0	253.5	0	90.2	8.14	140	249.6	8.74	30	
2,4,5-T	253	38.0	253.5	0	99.8	5	145	274.9	8.30	30	
Dinoseb	98.0	95.1	253.5	0	38.6	5	129	102.2	4.25	30	
Dalapon	1,010	254	1,268	0	79.6	5	145	1,065	5.43	30	
2,4-DB	255	95.1	253.5	0	101	11.4	156	299.6	16.0	30	
MCPP	1,100	127	1,268	0	87.1	14.8	128	0.5144	200	30	R
MCPA	1,130	127	1,268	0	89.2	14.3	126	0.8769	200	30	R
Picloram	310	127	253.5	0	122	5	151	357.0	13.9	30	
Bentazon	192	44.4	253.5	0	75.9	22.6	123	211.1	9.30	30	
Chloramben	45.6	38.0	253.5	0	18.0	5	112	61.91	30.3	30	
Acifluorfen	95.4	158	253.5	0	37.6	5	133	102.1	6.82	30	
3,5-Dichlorobenzoic acid	147	38.0	253.5	0	57.8	5.66	115	162.0	9.97	30	
4-Nitrophenol	201	38.0	253.5	0	79.1	21.2	121	229.7	13.5	30	
Dacthal (DCPA)	217	63.4	253.5	0	85.6	5	145	239.5	9.86	30	
Surr: 2,4-Dichlorophenylacetic acid	1,010		1,268		80.0	5.13	167		0		

NOTES:
R - High RPD observed, spike recovery is within range.

Work Order: 2201100
CLIENT: Friedman & Bruya
Project: 201073

QC SUMMARY REPORT

Herbicides by EPA Method 8151A (GC/MS)

Sample Log-In Check List

Client Name:	**FB**	Work Order Number:	**2201100**
Logged by:	**Gabrielle Coeuille**	Date Received:	**1/10/2022 2:26:00 PM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Client		

Log In

3.	Coolers are present?	Yes ☑	No ☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Present ☑
6.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
7.	Were all items received at a temperature of >2°C to 6°C *	Yes ☑	No ☐	NA ☐
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Sample 1	2.2

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

SUBCONTRACT SAMPLE CHAIN OF CUSTODY 220110D

Send Report To Michael Erdahl
Company Friedman and Bruya, Inc.
Address 3012 16th Ave W
City, State, ZIP Seattle, WA 98119
Phone # (206) 285-8282 merdahl@friedmanandbruya.com

SUBCONTRACTER Fremont

PROJECT NAME/NO.	PO #
201073	B-542

REMARKS: 10g in each VOA

TURNAROUND TIME
☒ Standard TAT
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	ANALYSES REQUESTED: Dioxins/Furans	EPH	VPH	8151 Herbicides							Notes
DU03-220106-TS-0.5		1/6/22	1042	Soil	3				X							

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Michael Erdahl	Friedman & Bruya	1/10/22	1337
Received by:	Alex Trejo	Alex Trejo	FAI	1/10/22	14:26
Relinquished by:					
Received by:					

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Vineta Mills, M.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

January 25, 2022

Lynn Green, Project Manager
Evren Northwest, Inc.
PO Box 14488
Portland, OR 97293

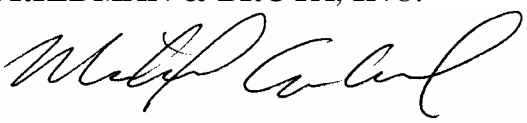
Dear Mr Green:

Included are the results from the testing of material submitted on January 11, 2022 from the 351-21016-03, F&BI 201116 project. There are 17 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
c: Neil Woller, Paul Trone, Evan Bruggeman
ENW0125R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on January 11, 2022 by Friedman & Bruya, Inc. from the Evren Northwest 351-21016-03, F&BI 201116 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Evren Northwest
201116 -01	DU01-220107-0.5-IS
201116 -02	DU02-220107-0.5-IS
201116 -03	DU04-220107-0.5-IS

The samples were subcontracted to Fremont Analytical for herbicides analysis. The report is enclosed.

All quality control requirements were acceptable.

Date of Report: 01/25/22
Date Received: 01/11/22
Project: 351-21016-03, F&BI 201116
Date Extracted: 01/13/22
Date Analyzed: 01/13/22

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR GASOLINE, DIESEL AND HEAVY OIL BY NWTPH-HCID

Results Reported on a Dry Weight Basis
Results Reported as Not Detected (ND) or Detected (D)

THE DATA PROVIDED BELOW WAS PERFORMED PER THE GUIDELINES ESTABLISHED BY THE WASHINGTON DEPARTMENT OF ECOLOGY AND WERE NOT DESIGNED TO PROVIDE INFORMATION WITH REGARDS TO THE ACTUAL IDENTIFICATION OF ANY MATERIAL PRESENT

Sample ID Laboratory ID	Gasoline	Diesel	Heavy Oil	Surrogate (% Recovery) (Limit 56-165)
DU01-220107-0.5-IS 201116-01	ND	ND	ND	112
DU02-220107-0.5-IS 201116-02	ND	ND	ND	114
DU04-220107-0.5-IS 201116-03	ND	ND	ND	111
Method Blank 02-0133 MB	ND	ND	ND	102

ND - Material not detected at or above 20 mg/kg gas, 50 mg/kg diesel and 250 mg/kg heavy oil.

Analysis For Total Metals By EPA Method 6020B

Client ID:	DU01-220107-0.5-IS	Client:	Evren Northwest
Date Received:	01/11/22	Project:	351-21016-03, F&BI 201116
Date Extracted:	01/13/22	Lab ID:	201116-01
Date Analyzed:	01/13/22	Data File:	201116-01.068
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.89
Barium	174
Cadmium	<0.5
Lead	18.5
Mercury	<0.2
Selenium	<1
Silver	<0.16 j

Analysis For Total Metals By EPA Method 6020B

Client ID:	DU01-220107-0.5-IS	Client:	Evren Northwest
Date Received:	01/11/22	Project:	351-21016-03, F&BI 201116
Date Extracted:	01/13/22	Lab ID:	201116-01 x5
Date Analyzed:	01/19/22	Data File:	201116-01 x5.059
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Chromium	26.0

Analysis For Total Metals By EPA Method 6020B

Client ID:	DU02-220107-0.5-IS	Client:	Evren Northwest
Date Received:	01/11/22	Project:	351-21016-03, F&BI 201116
Date Extracted:	01/13/22	Lab ID:	201116-02
Date Analyzed:	01/13/22	Data File:	201116-02.069
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.98
Barium	155
Cadmium	<0.5
Lead	12.3
Mercury	<0.2
Selenium	<1
Silver	<0.16 j

Analysis For Total Metals By EPA Method 6020B

Client ID:	DU02-220107-0.5-IS	Client:	Evren Northwest
Date Received:	01/11/22	Project:	351-21016-03, F&BI 201116
Date Extracted:	01/13/22	Lab ID:	201116-02 x5
Date Analyzed:	01/19/22	Data File:	201116-02 x5.060
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Chromium	26.6

Analysis For Total Metals By EPA Method 6020B

Client ID:	DU04-220107-0.5-IS	Client:	Evren Northwest
Date Received:	01/11/22	Project:	351-21016-03, F&BI 201116
Date Extracted:	01/13/22	Lab ID:	201116-03
Date Analyzed:	01/13/22	Data File:	201116-03.070
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.14
Barium	126
Cadmium	<0.5
Lead	13.6
Mercury	<0.2
Selenium	<1
Silver	<0.16 j

Analysis For Total Metals By EPA Method 6020B

Client ID:	DU04-220107-0.5-IS	Client:	Evren Northwest
Date Received:	01/11/22	Project:	351-21016-03, F&BI 201116
Date Extracted:	01/13/22	Lab ID:	201116-03 x5
Date Analyzed:	01/19/22	Data File:	201116-03 x5.061
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Chromium	22.5

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Evren Northwest
Date Received:	NA	Project:	351-21016-03, F&BI 201116
Date Extracted:	01/13/22	Lab ID:	I2-28 mb
Date Analyzed:	01/13/22	Data File:	I2-28 mb.041
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Barium	<1
Cadmium	<0.5
Chromium	<1
Lead	<1
Mercury	<0.2
Selenium	<1
Silver	<0.16 j

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	DU01-220107-0.5-IS	Client:	Evren Northwest
Date Received:	01/11/22	Project:	351-21016-03, F&BI 201116
Date Extracted:	01/14/22	Lab ID:	201116-01 1/6
Date Analyzed:	01/14/22	Data File:	011425.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	78	44	97
DBC	82	43	119

Compounds:	Concentration mg/kg (ppm)
alpha-BHC	<0.01
gamma-BHC (Lindane)	<0.01
beta-BHC	<0.01
delta-BHC	<0.01
Heptachlor	<0.01
Aldrin	<0.01
Heptachlor Epoxide	<0.01
trans-Chlordane	<0.01
cis-Chlordane	<0.01
4,4'-DDE	<0.01
Endosulfan I	<0.01
Dieldrin	<0.01
Endrin	<0.01
4,4'-DDD	<0.01
Endosulfan II	<0.01
4,4'-DDT	<0.01
Endrin Aldehyde	<0.01
Methoxychlor	<0.01
Endosulfan Sulfate	<0.01
Endrin Ketone	<0.05
Toxaphene	<1

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	DU02-220107-0.5-IS	Client:	Evren Northwest
Date Received:	01/11/22	Project:	351-21016-03, F&BI 201116
Date Extracted:	01/14/22	Lab ID:	201116-02 1/6
Date Analyzed:	01/14/22	Data File:	011426.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	77	44	97
DBC	82	43	119

Compounds:	Concentration mg/kg (ppm)
alpha-BHC	<0.01
gamma-BHC (Lindane)	<0.01
beta-BHC	<0.01
delta-BHC	<0.01
Heptachlor	<0.01
Aldrin	<0.01
Heptachlor Epoxide	<0.01
trans-Chlordane	<0.01
cis-Chlordane	<0.01
4,4'-DDE	<0.01
Endosulfan I	<0.01
Dieldrin	<0.01
Endrin	<0.01
4,4'-DDD	<0.01
Endosulfan II	<0.01
4,4'-DDT	<0.01
Endrin Aldehyde	<0.01
Methoxychlor	<0.01
Endosulfan Sulfate	<0.01
Endrin Ketone	<0.05
Toxaphene	<1

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	DU04-220107-0.5-IS	Client:	Evren Northwest
Date Received:	01/11/22	Project:	351-21016-03, F&BI 201116
Date Extracted:	01/14/22	Lab ID:	201116-03 1/6
Date Analyzed:	01/14/22	Data File:	011427.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	77	44	97
DBC	82	43	119

Compounds:	Concentration mg/kg (ppm)
alpha-BHC	<0.01
gamma-BHC (Lindane)	<0.01
beta-BHC	<0.01
delta-BHC	<0.01
Heptachlor	<0.01
Aldrin	<0.01
Heptachlor Epoxide	<0.01
trans-Chlordane	<0.01
cis-Chlordane	<0.01
4,4'-DDE	<0.01
Endosulfan I	<0.01
Dieldrin	<0.01
Endrin	<0.01
4,4'-DDD	<0.01
Endosulfan II	<0.01
4,4'-DDT	<0.01
Endrin Aldehyde	<0.01
Methoxychlor	<0.01
Endosulfan Sulfate	<0.01
Endrin Ketone	<0.05
Toxaphene	<1

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	Method Blank	Client:	Evren Northwest
Date Received:	Not Applicable	Project:	351-21016-03, F&BI 201116
Date Extracted:	01/14/22	Lab ID:	02-092 mb 1/6
Date Analyzed:	01/14/22	Data File:	011407.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	96	44	97
DBC	100	43	119

Compounds:	Concentration mg/kg (ppm)
alpha-BHC	<0.01
gamma-BHC (Lindane)	<0.01
beta-BHC	<0.01
delta-BHC	<0.01
Heptachlor	<0.01
Aldrin	<0.01
Heptachlor Epoxide	<0.01
trans-Chlordane	<0.01
cis-Chlordane	<0.01
4,4'-DDE	<0.01
Endosulfan I	<0.01
Dieldrin	<0.01
Endrin	<0.01
4,4'-DDD	<0.01
Endosulfan II	<0.01
4,4'-DDT	<0.01
Endrin Aldehyde	<0.01
Methoxychlor	<0.01
Endosulfan Sulfate	<0.01
Endrin Ketone	<0.05
Toxaphene	<1

Date of Report: 01/25/22
Date Received: 01/11/22
Project: 351-21016-03, F&BI 201116

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS USING EPA METHOD 6020B

Laboratory Code: 201085-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	4.51	103	104	75-125	1
Barium	mg/kg (ppm)	50	117	119 b	128 b	75-125	7
Cadmium	mg/kg (ppm)	10	<1	97	96	75-125	1
Chromium	mg/kg (ppm)	50	5.89	86	88	75-125	2
Lead	mg/kg (ppm)	50	7.09	87	89	75-125	2
Mercury	mg/kg (ppm	5	<1	90	89	75-125	1
Selenium	mg/kg (ppm)	5	<1	94	92	75-125	2
Silver	mg/kg (ppm)	10	<1	93	95	75-125	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	98	80-120
Barium	mg/kg (ppm)	50	99	80-120
Cadmium	mg/kg (ppm)	10	101	80-120
Chromium	mg/kg (ppm)	50	104	80-120
Lead	mg/kg (ppm)	50	99	80-120
Mercury	mg/kg (ppm)	5	102	80-120
Selenium	mg/kg (ppm)	5	105	80-120
Silver	mg/kg (ppm)	10	99	80-120

Date of Report: 01/25/22
Date Received: 01/11/22
Project: 351-21016-03, F&BI 201116

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR ORGANOCHLORINE PESTICIDES BY EPA METHOD 8081B

Laboratory Code: 201085-01 1/6 (Matrix Spike) 1/6

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
alpha-BHC	mg/kg (ppm)	0.1	<0.01	84	17-122
gamma-BHC (Lindane)	mg/kg (ppm)	0.1	<0.01	89	18-128
beta-BHC	mg/kg (ppm)	0.1	<0.01	82	17-130
delta-BHC	mg/kg (ppm)	0.1	<0.01	83	20-124
Heptachlor	mg/kg (ppm)	0.1	<0.01	85	15-133
Aldrin	mg/kg (ppm)	0.1	<0.01	87	50-150
Heptachlor Epoxide	mg/kg (ppm)	0.1	<0.01	86	19-132
trans-Chlordane	mg/kg (ppm)	0.1	<0.01	83	15-157
cis-Chlordane	mg/kg (ppm)	0.1	<0.01	83	17-133
4,4'-DDE	mg/kg (ppm)	0.1	<0.01	85	17-139
Endosulfan I	mg/kg (ppm)	0.1	<0.01	85	19-130
Dieldrin	mg/kg (ppm)	0.1	<0.01	89	17-140
Endrin	mg/kg (ppm)	0.1	<0.01	91	20-143
4,4'-DDD	mg/kg (ppm)	0.1	<0.01	93	20-143
Endosulfan II	mg/kg (ppm)	0.1	<0.01	89	21-133
4,4'-DDT	mg/kg (ppm)	0.1	<0.01	81	10-385
Endrin Aldehyde	mg/kg (ppm)	0.1	<0.01	79	12-123
Methoxychlor	mg/kg (ppm)	0.1	<0.01	89	10-226
Endosulfan Sulfate	mg/kg (ppm)	0.1	<0.01	85	17-134
Endrin Ketone	mg/kg (ppm)	0.1	<0.05	86	10-153
Toxaphene	mg/kg (ppm)	4	<1	78	12-123

Date of Report: 01/25/22
Date Received: 01/11/22
Project: 351-21016-03, F&BI 201116

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR ORGANOCHLORINE PESTICIDES BY EPA METHOD 8081B

Laboratory Code: Laboratory Control Sample 1/6

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
alpha-BHC	mg/kg (ppm)	0.1	84	86	70-130	2
gamma-BHC (Lindane)	mg/kg (ppm)	0.1	89	92	70-130	3
beta-BHC	mg/kg (ppm)	0.1	87	91	66-112	4
delta-BHC	mg/kg (ppm)	0.1	90	97	70-130	7
Heptachlor	mg/kg (ppm)	0.1	85	88	70-130	3
Aldrin	mg/kg (ppm)	0.1	88	91	70-130	3
Heptachlor Epoxide	mg/kg (ppm)	0.1	88	94	70-130	7
trans-Chlordane	mg/kg (ppm)	0.1	88	92	70-130	4
cis-Chlordane	mg/kg (ppm)	0.1	88	94	70-130	7
4,4'-DDE	mg/kg (ppm)	0.1	92	96	70-130	4
Endosulfan I	mg/kg (ppm)	0.1	89	93	70-130	4
Dieldrin	mg/kg (ppm)	0.1	92	97	70-130	5
Endrin	mg/kg (ppm)	0.1	94	99	65-140	5
4,4'-DDD	mg/kg (ppm)	0.1	93	98	70-130	5
Endosulfan II	mg/kg (ppm)	0.1	94	100	70-130	6
4,4'-DDT	mg/kg (ppm)	0.1	90	94	57-135	4
Endrin Aldehyde	mg/kg (ppm)	0.1	67	73	25-133	9
Methoxychlor	mg/kg (ppm)	0.1	89	95	57-147	7
Endosulfan Sulfate	mg/kg (ppm)	0.1	88	93	70-130	6
Endrin Ketone	mg/kg (ppm)	0.1	86	91	70-130	6
Toxaphene	mg/kg (ppm)	4	84	85	68-131	1

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

SAMPLE CHAIN OF CUSTODY

201116

01-11-21

DSM

Page # 1 of 1

Report To Lynn Green
Company Evren Northwest
Address PO Box 14488
City, State, ZIP Portland OR 97293
Phone 503 452-5561 Email lyng@evrennw.com

SAMPLERS (*signature*)

PROJECT NAME: 351-21016-03

PO #

REMARKS: * Persistent Pesticide Screen EPA 8081 - 8151

INVOICE TO

Project specific RLs? - Yes / No

TURNAROUND TIME
☒ Standard turnaround
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Archive samples
☐ Other
Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	ISM PRDT	RCRA 6 Total metals	Persistent Pesticides * screen		Notes
DU01-220107-0.5-1.5	01	01/07/22	12:10	Soil	1				X				X	X	X		
DU02-220107-0.5-1.5	02	"	11:00	"	1				X				X	X	X		
DU04-220107-0.5-1.5	03	"	13:00	"	1				X				X	X	X		

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Dan Sayko	ENW	01/10/21	18:00
Received by:	James Bruya	F&B	01/11/22	1200
Relinquished by:				
Received by:		Samples received at 3°C		

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Friedman & Bruya
Michael Erdahl
3012 16th Ave. W.
Seattle, WA 98119

RE: 201116
Work Order Number: 2201196

January 24, 2022

Attention Michael Erdahl:

Fremont Analytical, Inc. received 3 sample(s) on 1/13/2022 for the analyses presented in the following report.

Herbicides by EPA Method 8151A (GC/MS)
Sample Moisture (Percent Moisture)

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes
Project Manager

Date: *01/24/2022*

CLIENT: Friedman & Bruya
Project: 201116
Work Order: 2201196

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2201196-001	DU01-220107-0.5-IS	01/07/2022 12:10 PM	01/13/2022 11:15 AM
2201196-002	DU02-220107-0.5-IS	01/07/2022 11:00 AM	01/13/2022 11:15 AM
2201196-003	DU03-220107-0.5-IS	01/07/2022 1:00 PM	01/13/2022 11:15 AM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Original

Case Narrative

WO#: **2201196**
Date: **1/24/2022**

CLIENT: Friedman & Bruya
Project: 201116

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
DUP - Sample Duplicate
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MCL - Maximum Contaminant Level
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
REP - Sample Replicate
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **2201196**
Date Reported: **1/24/2022**

Client: Friedman & Bruya
Collection Date: 1/7/2022 12:10:00 PM
Project: 201116
Lab ID: 2201196-001
Matrix: Soil
Client Sample ID: **DU01-220107-0.5-IS**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Herbicides by EPA Method 8151A (GC/MS)				Batch ID: 35013		Analyst: SB
Dicamba	ND	37.1		µg/Kg-dry	1	1/17/2022 8:04:37 PM
2,4-D	ND	43.3		µg/Kg-dry	1	1/17/2022 8:04:37 PM
2,4-DP	ND	37.1		µg/Kg-dry	1	1/17/2022 8:04:37 PM
2,4,5-TP (Silvex)	ND	37.1		µg/Kg-dry	1	1/17/2022 8:04:37 PM
2,4,5-T	ND	37.1		µg/Kg-dry	1	1/17/2022 8:04:37 PM
Dinoseb	ND	92.9		µg/Kg-dry	1	1/17/2022 8:04:37 PM
Dalapon	ND	248		µg/Kg-dry	1	1/17/2022 8:04:37 PM
2,4-DB	ND	92.9		µg/Kg-dry	1	1/17/2022 8:04:37 PM
MCPP	ND	124		µg/Kg-dry	1	1/17/2022 8:04:37 PM
MCPA	ND	124		µg/Kg-dry	1	1/17/2022 8:04:37 PM
Picloram	ND	124		µg/Kg-dry	1	1/17/2022 8:04:37 PM
Bentazon	ND	43.3		µg/Kg-dry	1	1/17/2022 8:04:37 PM
Chloramben	ND	37.1		µg/Kg-dry	1	1/17/2022 8:04:37 PM
Acifluorfen	ND	155		µg/Kg-dry	1	1/17/2022 8:04:37 PM
3,5-Dichlorobenzoic acid	ND	37.1		µg/Kg-dry	1	1/17/2022 8:04:37 PM
4-Nitrophenol	ND	37.1		µg/Kg-dry	1	1/17/2022 8:04:37 PM
Dacthal (DCPA)	ND	61.9		µg/Kg-dry	1	1/17/2022 8:04:37 PM
Surr: 2,4-Dichlorophenylacetic acid	72.3	5.13 - 167		%Rec	1	1/17/2022 8:04:37 PM
Sample Moisture (Percent Moisture)				Batch ID: R72530		Analyst: cb
Percent Moisture	21.4	0.500		wt%	1	1/13/2022 12:32:43 PM

Analytical Report

Work Order: **2201196**
Date Reported: **1/24/2022**

Client: Friedman & Bruya
Collection Date: 1/7/2022 11:00:00 AM
Project: 201116
Lab ID: 2201196-002
Matrix: Soil
Client Sample ID: **DU02-220107-0.5-IS**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Herbicides by EPA Method 8151A (GC/MS)				Batch ID: 35013		Analyst: SB
Dicamba	ND	38.0		µg/Kg-dry	1	1/17/2022 8:25:10 PM
2,4-D	ND	44.3		µg/Kg-dry	1	1/17/2022 8:25:10 PM
2,4-DP	ND	38.0		µg/Kg-dry	1	1/17/2022 8:25:10 PM
2,4,5-TP (Silvex)	ND	38.0		µg/Kg-dry	1	1/17/2022 8:25:10 PM
2,4,5-T	ND	38.0		µg/Kg-dry	1	1/17/2022 8:25:10 PM
Dinoseb	ND	95.0		µg/Kg-dry	1	1/17/2022 8:25:10 PM
Dalapon	ND	253		µg/Kg-dry	1	1/17/2022 8:25:10 PM
2,4-DB	ND	95.0		µg/Kg-dry	1	1/17/2022 8:25:10 PM
MCPP	ND	127		µg/Kg-dry	1	1/17/2022 8:25:10 PM
MCPA	ND	127		µg/Kg-dry	1	1/17/2022 8:25:10 PM
Picloram	ND	127		µg/Kg-dry	1	1/17/2022 8:25:10 PM
Bentazon	ND	44.3		µg/Kg-dry	1	1/17/2022 8:25:10 PM
Chloramben	ND	38.0		µg/Kg-dry	1	1/17/2022 8:25:10 PM
Acifluorfen	ND	158		µg/Kg-dry	1	1/17/2022 8:25:10 PM
3,5-Dichlorobenzoic acid	ND	38.0		µg/Kg-dry	1	1/17/2022 8:25:10 PM
4-Nitrophenol	ND	38.0		µg/Kg-dry	1	1/17/2022 8:25:10 PM
Dacthal (DCPA)	ND	63.4		µg/Kg-dry	1	1/17/2022 8:25:10 PM
Surr: 2,4-Dichlorophenylacetic acid	75.0	5.13 - 167		%Rec	1	1/17/2022 8:25:10 PM
Sample Moisture (Percent Moisture)				Batch ID: R72530		Analyst: cb
Percent Moisture	22.4	0.500		wt%	1	1/13/2022 12:32:43 PM

Analytical Report

Work Order: **2201196**
Date Reported: **1/24/2022**

Client: Friedman & Bruya
Collection Date: 1/7/2022 1:00:00 PM
Project: 201116
Lab ID: 2201196-003
Matrix: Soil
Client Sample ID: **DU03-220107-0.5-IS**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Herbicides by EPA Method 8151A (GC/MS)				Batch ID: 35013		Analyst: SB
Dicamba	ND	34.4		µg/Kg-dry	1	1/17/2022 8:45:44 PM
2,4-D	ND	40.2		µg/Kg-dry	1	1/17/2022 8:45:44 PM
2,4-DP	ND	34.4		µg/Kg-dry	1	1/17/2022 8:45:44 PM
2,4,5-TP (Silvex)	ND	34.4		µg/Kg-dry	1	1/17/2022 8:45:44 PM
2,4,5-T	ND	34.4		µg/Kg-dry	1	1/17/2022 8:45:44 PM
Dinoseb	ND	86.1		µg/Kg-dry	1	1/17/2022 8:45:44 PM
Dalapon	ND	230		µg/Kg-dry	1	1/17/2022 8:45:44 PM
2,4-DB	ND	86.1		µg/Kg-dry	1	1/17/2022 8:45:44 PM
MCPP	ND	115		µg/Kg-dry	1	1/17/2022 8:45:44 PM
MCPA	ND	115		µg/Kg-dry	1	1/17/2022 8:45:44 PM
Picloram	ND	115		µg/Kg-dry	1	1/17/2022 8:45:44 PM
Bentazon	ND	40.2		µg/Kg-dry	1	1/17/2022 8:45:44 PM
Chloramben	ND	34.4		µg/Kg-dry	1	1/17/2022 8:45:44 PM
Acifluorfen	ND	143		µg/Kg-dry	1	1/17/2022 8:45:44 PM
3,5-Dichlorobenzoic acid	ND	34.4		µg/Kg-dry	1	1/17/2022 8:45:44 PM
4-Nitrophenol	ND	34.4		µg/Kg-dry	1	1/17/2022 8:45:44 PM
Dacthal (DCPA)	ND	57.4		µg/Kg-dry	1	1/17/2022 8:45:44 PM
Surr: 2,4-Dichlorophenylacetic acid	84.4	5.13 - 167		%Rec	1	1/17/2022 8:45:44 PM
Sample Moisture (Percent Moisture)				Batch ID: R72530		Analyst: cb
Percent Moisture	17.9	0.500		wt%	1	1/13/2022 12:32:43 PM

Work Order: 2201196
CLIENT: Friedman & Bruya
Project: 201116

QC SUMMARY REPORT

Herbicides by EPA Method 8151A (GC/MS)

Sample ID: **MB-35013** SampType: **MBLK** Units: **µg/Kg** Prep Date: **1/13/2022** RunNo: **72600**
Client ID: **MBLKS** Batch ID: **35013** Analysis Date: **1/17/2022** SeqNo: **1481699**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dicamba	ND	30.0									
2,4-D	ND	35.0									
2,4-DP	ND	30.0									
2,4,5-TP (Silvex)	ND	30.0									
2,4,5-T	ND	30.0									
Dinoseb	ND	75.0									
Dalapon	ND	200									
2,4-DB	ND	75.0									
MCPP	ND	100									
MCPA	ND	100									
Picloram	ND	100									
Bentazon	ND	35.0									
Chloramben	ND	30.0									
Acifluorfen	ND	125									
3,5-Dichlorobenzoic acid	ND	30.0									
4-Nitrophenol	ND	30.0									
Dacthal (DCPA)	ND	50.0									
Surr: 2,4-Dichlorophenylacetic acid	1,130		1,000		113	5.13	167				

Sample ID: **LCS-35013** SampType: **LCS** Units: **µg/Kg** Prep Date: **1/13/2022** RunNo: **72600**
Client ID: **LCSS** Batch ID: **35013** Analysis Date: **1/17/2022** SeqNo: **1481700**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dicamba	180	30.0	200.0	0	89.9	59.3	133				
2,4-D	225	35.0	200.0	0	112	74.2	146				
2,4-DP	194	30.0	200.0	0	96.9	70.3	143				
2,4,5-TP (Silvex)	262	30.0	200.0	0	131	69.5	143				
2,4,5-T	275	30.0	200.0	0	138	66.8	147				
Dinoseb	20.2	75.0	200.0	0	10.1	5	125				
Dalapon	962	200	1,000	0	96.2	29.6	154				

Work Order: 2201196
CLIENT: Friedman & Bruya
Project: 201116

QC SUMMARY REPORT

Herbicides by EPA Method 8151A (GC/MS)

Sample ID: **LCS-35013** SampType: **LCS** Units: **µg/Kg** Prep Date: **1/13/2022** RunNo: **72600**
Client ID: **LCSS** Batch ID: **35013** Analysis Date: **1/17/2022** SeqNo: **1481700**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2,4-DB	293	75.0	200.0	0	146	66.2	154				
MCPP	665	100	1,000	0	66.5	39.5	157				
MCPA	673	100	1,000	0	67.3	38.6	159				
Picloram	318	100	200.0	0	159	59.7	174				
Bentazon	217	35.0	200.0	0	108	59.1	146				
Chloramben	73.9	30.0	200.0	0	37.0	17.5	104				
Acifluorfen	33.3	125	200.0	0	16.7	5	143				
3,5-Dichlorobenzoic acid	151	30.0	200.0	0	75.6	60.8	118				
4-Nitrophenol	195	30.0	200.0	0	97.6	1.24	149				
Dacthal (DCPA)	214	50.0	200.0	0	107	68.2	138				
Surr: 2,4-Dichlorophenylacetic acid	1,130		1,000		113	5.13	167				

Sample ID: **2201099-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **1/13/2022** RunNo: **72600**
Client ID: **BATCH** Batch ID: **35013** Analysis Date: **1/17/2022** SeqNo: **1481704**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dicamba	181	38.4	256.0	0	70.7	5	130				
2,4-D	218	44.8	256.0	0	85.2	5	162				
2,4-DP	188	38.4	256.0	0	73.3	5	140				
2,4,5-TP (Silvex)	250	38.4	256.0	0	97.5	8.14	140				
2,4,5-T	275	38.4	256.0	0	107	5	145				
Dinoseb	102	96.0	256.0	0	39.9	5	129				
Dalapon	1,070	256	1,280	0	83.2	5	145				
2,4-DB	300	96.0	256.0	0	117	11.4	156				
MCPP	0.514	128	1,280	0	0.0402	14.8	128				S
MCPA	0.877	128	1,280	0	0.0685	14.3	126				S
Picloram	357	128	256.0	0	139	5	151				
Bentazon	211	44.8	256.0	0	82.4	22.6	123				
Chloramben	61.9	38.4	256.0	0	24.2	5	112				
Acifluorfen	102	160	256.0	0	39.9	5	133				

Work Order: 2201196
CLIENT: Friedman & Bruya
Project: 201116

QC SUMMARY REPORT

Herbicides by EPA Method 8151A (GC/MS)

Sample ID: **2201099-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **1/13/2022** RunNo: **72600**
Client ID: **BATCH** Batch ID: **35013** Analysis Date: **1/17/2022** SeqNo: **1481704**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
3,5-Dichlorobenzoic acid	162	38.4	256.0	0	63.3	5.66	115				
4-Nitrophenol	230	38.4	256.0	0	89.7	21.2	121				
Dacthal (DCPA)	240	64.0	256.0	0	93.6	5	145				
Surr: 2,4-Dichlorophenylacetic acid	1,120		1,280		87.4	5.13	167				

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed and recovered within range.

Sample ID: **2201099-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **1/13/2022** RunNo: **72600**
Client ID: **BATCH** Batch ID: **35013** Analysis Date: **1/17/2022** SeqNo: **1481705**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dicamba	170	38.0	253.5	0	66.9	5	130	181.0	6.53	30	
2,4-D	199	44.4	253.5	0	78.5	5	162	218.0	9.15	30	
2,4-DP	172	38.0	253.5	0	67.9	5	140	187.6	8.66	30	
2,4,5-TP (Silvex)	229	38.0	253.5	0	90.2	8.14	140	249.6	8.74	30	
2,4,5-T	253	38.0	253.5	0	99.8	5	145	274.9	8.30	30	
Dinoseb	98.0	95.1	253.5	0	38.6	5	129	102.2	4.25	30	
Dalapon	1,010	254	1,268	0	79.6	5	145	1,065	5.43	30	
2,4-DB	255	95.1	253.5	0	101	11.4	156	299.6	16.0	30	
MCPP	1,100	127	1,268	0	87.1	14.8	128	0.5144	200	30	R
MCPA	1,130	127	1,268	0	89.2	14.3	126	0.8769	200	30	R
Picloram	310	127	253.5	0	122	5	151	357.0	13.9	30	
Bentazon	192	44.4	253.5	0	75.9	22.6	123	211.1	9.30	30	
Chloramben	45.6	38.0	253.5	0	18.0	5	112	61.91	30.3	30	
Acifluorfen	95.4	158	253.5	0	37.6	5	133	102.1	6.82	30	
3,5-Dichlorobenzoic acid	147	38.0	253.5	0	57.8	5.66	115	162.0	9.97	30	
4-Nitrophenol	201	38.0	253.5	0	79.1	21.2	121	229.7	13.5	30	
Dacthal (DCPA)	217	63.4	253.5	0	85.6	5	145	239.5	9.86	30	
Surr: 2,4-Dichlorophenylacetic acid	1,010		1,268		80.0	5.13	167		0		

NOTES:
R - High RPD observed, spike recovery is within range.

Work Order: 2201196
CLIENT: Friedman & Bruya
Project: 201116

QC SUMMARY REPORT

Herbicides by EPA Method 8151A (GC/MS)

Sample Log-In Check List

Client Name:	**FB**	Work Order Number:	**2201196**
Logged by:	**Clare Griggs**	Date Received:	**1/13/2022 11:15:00 AM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Client		

Log In

3.	Coolers are present?	Yes ☑	No ☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Present ☑
6.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
7.	Were all items received at a temperature of >2°C to 6°C *	Yes ☑	No ☐	NA ☐
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Sample	0.6

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

SUBCONTRACT SAMPLE CHAIN OF CUSTODY

2201196

Page # 1 of 1

Send Report To Michael Erdahl

Company Friedman and Bruya, Inc.

Address 3012 16th Ave W

City, State, ZIP Seattle, WA 98119

Phone # (206) 285-8282 merdahl@friedmanandbruya.com

SUBCONTRACTER Fremont

PROJECT NAME/NO.	PO #
201116	C-21

REMARKS

TURNAROUND TIME
- [x] Standard TAT
- [ ] RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- [ ] Dispose after 30 days
- [ ] Return samples
- [ ] Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	ANALYSES REQUESTED: Dioxins/Furans	EPH	VPH	GIS Herbicides							Notes
DU01-220107-0.5-IS		1/7/22	1210	Soil	3				x							
DU02-220107-0.5-IS		"	1100	"	3				x							
DU03-220107-0.5-IS		"	1300	"	3				x							

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Michael Erdahl	Friedman & Bruya		
Received by:	Alex Trejo	Alex Trejo	FAI	1/13/22	11:15
Relinquished by:					
Received by:					

Appendix C

ODEQ Soil Matrix Scoresheet

Soil Matrix Scoresheet

Depth to Groundwater[14] < 25 feet (10) 25 – 50 feet (7) 51 – 100 feet (4) > 100 feet (1)	1
Mean Annual Precipitation[15] > 45 inches (10) 20 – 45 inches (5) < 20 inches (1)	5
Native Soil Types[16] Coarse sands, gravels (10) Silts, fine sands (5) Clays (1)	10
Sensitivity of uppermost Aquifer[17] Sole Source (10) Current Potable (7) Future Potable (4) Non-potable (1)	7
Potential Receptors[8] Many, near (10) Medium (5) Few, far (1)	5
TOTAL SCORE =	**28**

Matrix Score	Cleanup level in ppm TPH	
	Gasoline	Diesel
Level 1: > 25 to 40 pts.	40	100
Level 2: 25 - 40 pts.	**80**	**500**
Level 3: < 25 pts.	130	1000

[14] Oregon Water Resources GRID Database

[15] U.S. Climate Data, http://www.usclimatedata.com/climate.php?location=USOR0076

[16] See Section 2.1 and Appendix B

[17] Based on ENW's current knowledge, the uppermost aquifer is potable, and not currently being used for drinking water, but the aquifer is suitable for drinking and could be used in the future.

[8] The number of people who regularly use the area within two miles is estimated at less than 3000.