Oregon
Kate Brown, Governor

Department of Environmental Quality
Northwest Region
700 NE Multnomah Street, Suite 600
Portland, OR 97232
(503) 229-5263
FAX (503) 229-6945
TTY 711

July 26, 2022 *via electronic delivery*

Dave Johnson
Peninsula Iron Works
PO Box 83067
Portland, OR 97283-0067

Re: PCB Areawide – N Bradford St. ROW, Portland, Oregon
ECSI ID# 6480

Dear Dave Johnson:

The Oregon Department of Environmental Quality (DEQ) reviewed the May 10, 2022 *Work Plan Focused Surface Soil Investigation* (Work Plan) prepared by Evren Northwest on behalf of Peninsula Iron Works (PIW). The work plan describes sampling around the PIW Facility, Building 2, at 6618 N. Alta Avenue near North Bradford Street in Portland, Oregon (ECSI #6480) to delineate the extent of polychlorinated biphenyls (PCBs) previously detected in this area.

DEQ's comments on the work plan are presented below. Please submit a final Work Plan, incorporating these comments within 30 days.

General Comments

1. Please refer to DEQ's Decision Unit (DU) Characterization document, as part of the updated Conducting Ecological Risk Assessment internal management directive (https://www.oregon.gov/deq/Hazards-and-Cleanup/env-cleanup/Pages/ERA.aspx). In particular, please note the following:
    a. DEQ IMD recommends collecting increments using a systematic random sampling scheme. Systematic random sampling begins with a random start location in the first grid cell for the increment, and this location is then repeated across all cells.
    b. DEQ recommends collecting 50 increments instead of 30, and notes that for the 0 to 2 inch interval, 50 samples also facilitates collecting an adequate sample mass of a minimum of 1000 g. If fewer than 50 increments are collected per DU, replicates should be taken in triplicate and at a higher frequency equating to most if not all DUs. The total mass should be at least 1000 grams from each DU.
    c. Please clarify what tool will be used to collect the increments. DEQ recommends the use of cylindrical corers, augers, ISM tools, or drills and discourages trowels or shovels to ensure no sample bias in particle size.
    d. Soil should be sieved to < 2mm.
    e. Please attach the laboratory SOP specific to processing ISM samples.
    f. For reduction in mass, DEQ recommends using a sectoral splitter to collect the smaller representative sample (e.g. 100-200 grams) of the sieved sample (<2mm), then grinding this smaller sample to powder (approx. 60-70 µm), and taking aliquots from this sample. If grinding is not possible, DEQ recommends using a

sectoral splitter used to get a smaller sample of the entire sieved sample (<2mm) and using a slab cake approach to get aliquot samples. The last recommended approach is using the 30 increments from a slab cake of entire sieved sample (<2mm) to get aliquot samples, but doing it this way will introduce more variability.

Specific Comments

2. Section 1.0 Introduction.
    a. City Catch Basin Sediment Sampling. While there is currently no discharge from the PIW property to the catch basin ANE911, this was not necessarily the case during the 2008 and 2011 sampling conducted by the City. According to May 2020 Source Control Evaluation, PIW installed source control measures in late 2019 early 2020 capturing all roof runoff from building roof and conveying it directly to the city stormwater sewer. Historical discharge prior to 2019 may have occurred.
    b. The last sentence states that "*ODEQ requested a work plan for additional surface soil characterization for areas immediately adjacent to the subject property*." DEQ requested in an October 11, 2021 letter that PIW conduct an investigation to delineate the existing contamination. Given the high concentrations of PCBs identified immediately to the west and southwest of the PIW property, delineation includes collecting samples on the PIW property itself, adjacent to the identified contamination. Furthermore, given PIW's history of activities that may have used PCB-containing materials historically, soil borings should include locations beneath the PIW building. In particular, samples should be collected on the west side of PIW and near historical operations including the machine shop (wood floor), machine pit, oil and waste oil storage, air compressors, foundry (earth floor, elec. power), clay storage, and casting sands storage. To keep the number of analytical samples similar, soil borings could be spaced on a 50 ft grid instead of a 25ft grid and including the PIW property.
3. Section 2.0 Proposed Scope of Work
    a. ISM sampling should follow DEQ's documents listed in General Comment #1 above.
    b. Given the complexity of the site and coordination with multiple adjacent sampling activities, please submit figures of the increment locations for each DU and clarify the methodology for how increment locations were selected for DEQ review. Since the ISM DUs represent long rectangles, please refer to Section 4.2.5.1 in Hawaii's DU guidance for locating increments in long, narrow DUs (https://health.hawaii.gov/heer/tgm/section-04/#4.2.5).
    c. ISM surface samples should be collected from the 0 to 2 inch interval to be most directly comparable to the ISM sampling conducted in Cathedral Park by DEQ in May 2022. Please make sure this is updated in Section 2.0 and Section 3.1.2 for consistency.
4. Section 3.0 Methods and Procedures
    a. Due to the presence of larger rocks and fill materials, the workplan should describe how samples will be field screened prior to placement in sample containers. Regardless of the field screening approach, all samples should be sieved in the lab consistent with ISM methodology (<2 mm). Please attach the field sampling and laboratory processing and subsampling procedures.

b. Please archive all samples to allow for follow-up analysis for a minimum of one year, to be re-evaluated with DEQ after one year.
c. Please update the ITRC citations to: ITRC, October, 2020. *Incremental Soil Sampling Methodology (ISM) Update*, Prepared by The Interstate Technology & Regulatory Council (ITRC).
d. 3.1.3 Ensure the increments used for replicate samples are placed far enough away from the primary sample (and each other) to be independent measures of the mean. Only a spacing of greater than a few feet is proposed here, but the replicate increments should be at approximately 1/4th of the calculated increment spacing for the DU from the midpoint of the cell in order to ensure adequate separation.
e. 3.1.4 Laboratory Sub-Sampling and Compositing
    i. Please attach the ISM processing SOP to the work plan and ensure that it meets DEQ's expectations as described in General Comment #1.
f. 3.2 Laboratory Analysis
    i. Please confirm whether EPA method 8282-SIM (proposed in Table 3-1) is a typo as EPA 8082 is referenced in Table 3-2. Please ensure Aroclors 1262 and 1268 are added to the standard Aroclors included in the EPA 8082A. Please refer to this document for more information: https://www.epa.gov/risk/regional-issues-paper-pcb-characterization
    ii. In order to determine if chemical weathering has impacted the accuracy of EPA method 8082, DEQ requests that laboratory chromatograms be provided for all samples and associated laboratory standards and QA samples, and that a portion of the samples be analyzed by both EPA method 8082 and EPA method 1668 (PCB congeners). This should include at least two samples at the high, medium, and low range of detected PCBs.
    iii. Given the historical activities, DEQ recommends expanding the analyte list to include total petroleum hydrocarbons (TPH), metals, and polycyclic aromatic hydrocarbons (PAHs), in addition to PCB Aroclors (EPA method 8082). Please be aware that DEQ may not be able to issue an NFA based solely on the proposed analytical list of PCB Aroclors.
    iv. Please include replicates of the laboratory processed sample for analytical subsampling to assess precision.
g. 3.8 Data Quality Assurance and Control.
    i. Please clarify which EPA protocol will be followed for quality assurance review.

5. Section 4.0 Risk-Based Assessment
    a. 4.1 Data Evaluation and Identification of COPCs
        i. Contaminants of Interest, or COIs, should be developed at the Work Plan stage based on historical operations at PIW to determine the chemical analyte list.
        ii. The reference to DEQ's "Guidance for Conduct of Deterministic Human Health Risk Assessments" is outdated. Current guidance (2010) is "Human Health Risk Assessment Guidance."

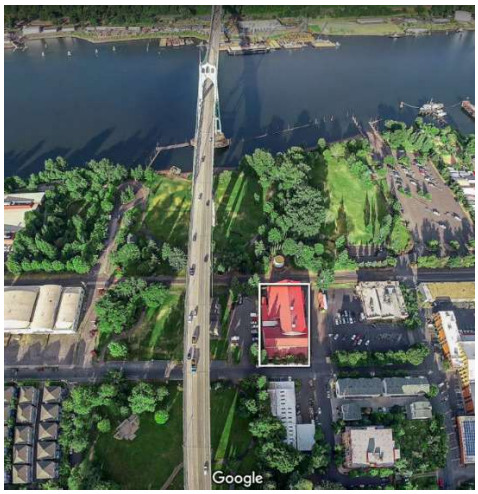
Please contact me at (503) 229-5538 or franziska.landes@deq.oregon.gov if you have any questions.

Sincerely,

Franziska Landes

Franziska Landes
Project Manager and Data Analyst
Northwest Region Cleanup Section

Ec: Lynn Green, EVREN NW Inc
Thomas Benke, ECO LLC
Katie Daugherty, DEQ
Kevin Parrett, DEQ
Todd Hudson, Oregon Health Authority



May 2022 Work Plan

Focused Surface Soil Investigation

Peninsula Iron Works Facility
BUILDING 2

6618 N. Alta Avenue
Portland, Oregon

ODEQ ECSI#: 6480

May 10, 2022

Prepared for:

Peninsula Iron Works
Attn: Dave Johnson
PO BOX 83067
Portland, Oregon 97283-0067

Prepared by:

Offices in Portland and Bend, Oregon / San Rafael, California
P.O. Box 14488, Portland, Oregon 97293
T. 503-452-5561 / E. ENW@EVREN-NW.COM

Project No. 1355-21001-08

Contents

Tables (in text)

Tables (after text)

Figures (after text)

May 2022 Work Plan

Focused Surface Soil Investigation

Peninsula Iron Works, Building 2
6618 N. Alta Avenue
Portland, Oregon
ODEQ ECSI#: 6480

1.0 INTRODUCTION

EVREN Northwest, Inc. (ENW) has prepared this Work Plan for environmental investigation of near surface soil in areas adjacent to the above-referenced subject property (Figures 1 and 2; subject site). Since the site is askew from cardinal directions, with respect to the subject property this work plan will use north as generally towards the adjacent N Alta Avenue Right-of-Way (ROW), south as generally towards the adjacent City parking lot, and west as generally towards the N. Bradford Street ROW and adjacent railroad corridor. Previous investigation of soil was conducted by City of Portland (City) and identified impacts of total polychlorinated biphenyls (PCBs) as Aroclors in catch basin sediment and in shallow soil in areas adjacent to the subject property (refer to Figure 3 for previous sample locations). Specifically:

- **City Catch Basin Sediment Sampling**. The City conducted source investigations in storm water Outfall Basin 52 between June 2008 and January 2011.[1] Catch basin ANE911 is located at the western end of N. Alta Avenue, adjacent to the PIW facility, and has no piped connections from adjacent properties (see Figure 3). The estimated drainage area to this inlet includes a parking area associated with Moonstruck Chocolate, improved N. Alta Avenue and N. Crawford Street (as well as improved portions of N. Crawford Street adjacent to Independent Marine Propeller), and the railroad right-of-way (ROW) along unimproved N. Bradford Street. There is currently no discharge from the subject property that discharges to catch basin ANE911. Samples from catch basin ANE911 had total PCB concentrations at up to 8.16 mg/Kg (as Aroclor 1260). These concentrations exceed both the JSCS screening level as well as the EPA's cleanup objective listed in the 2017 Record of Decision (ROD) for the Portland Harbor.
- **BES Surface Soil Sampling**. Based on the source investigation results for catch basin ANE911, the City conducted additional investigation of surface soils in the vicinity of this catch basin to evaluate whether possible erodible surface soil that could be carried by overland flow into catch basin ANE911.[1] Nine surface soil composite samples (and one duplicate composite sample) were collected on January 6, 2011. The samples were collected within the N. Alta Avenue ROW, near the intersection with N. Bradford Street and in the N. Bradford Street ROW along the railroad corridor and adjacent to the subject property. The locations of the area represented by each composite surface soil sample are shown on Figure 3. The samples were

[1] City of Portland, May 2012. Outfall 52, Source Investigation Report.

analyzed for PCB Aroclors, and selected metals. Results suggested the presence of total PCBs at concentrations up to 11.9 mg/Kg (as Aroclor 1260) in composite surface soil samples collected from areas that drain to this catch basin, and at concentrations up to 21.7 mg/Kg (as Aroclor 1260) in composite surface soil samples collected in the N. Bradford Street ROW.

On September 20, 2011, the City collected additional surface soil samples from accessible (unpaved) areas adjacent to the parking surface south of the subject property and within the N Bradford Street ROW, on either side of the existing railroad tracks (NBRAD1 through NBRAD8), and advanced five shallow borings in areas just south of the subject property (B1 through B5). Refer to Figure 3 for these sample locations and Table 1 for analytical results. Total PCBs were detected in the NBRAD surface soil samples at up to 2.5 mg/Kg, with the highest concentrations found in surface soil sampled in the N Bradford Street ROW on either side of the existing railroad tracks. With the exception of the sample NBRAD2, all the NBRAD surface soil samples exceed ODEQ's generic screening-level risk-based concentrations (SLRBC) of 0.23 mg/kg, which assumes residential exposure to surface soil. Total PCBs were detected in soil samples retrieved from borings B1 through B5 at up to 1.05 mg/Kg, with the highest concentration in a soil sample retrieved from boring B1 between 0.5- and 1-foot depth below ground surface (bgs), which was sited adjacent to the southeast corner of the subject property. PCBs were detected in soil samples collected between 0.5- and 5-feet bgs in borings B1, and B3, and up to 3-feet depth bgs in boring B2. No PCBs were detected in borings B4 and B5, or in the sample collected from boring B2 between 3- and 5-feet bgs. Total PCBs concentrations exceeded its SLRBC in boring B1 (samples 0.5-1' and 1'-5'), B2 (samples 0.5'-1' and 1'-3') and boring B3 (samples 0.5'-1' and 1'-5').

Soil data is summarized in Table 1, attached.

Based on the results of previous soil investigation by the City, the Oregon Department of Environmental Quality (ODEQ) requested that Peninsula Iron Works (PIWs) join in into the State's Voluntary Cleanup Program for PCB contamination documented in areas adjacent to the subject property.[2] During subsequent discussions, ODEQ requested a work plan for additional surface soil characterization for areas immediately adjacent to the subject property.

2.0 PROPOSED SCOPE OF WORK

ENW proposes the following specific scope of work:

- To obtain comprehensive surface soil data, four (4) decision units (DUs) have been defined in exposed soil areas adjacent to the subject property (Figure 4), e.g.:
    - Landscape strip immediately adjacent to the southern margin of the subject property (DU01),
    - Landscape island in the eastern portion of the City parking area (DU02),

[2] ODEQ. January 18, 2022. Letter: PCB Areawide - N Bradford St. ROW, Portland, Oregon, ECSI ID# 6480

- Landscape area along the western margin of the City parking area (DU03), and
- Gravel area immediately west of the subject property (DU04).

Thirty (30) subsample increments collected in accordance with Interstate Technology & Regulatory Council (ITRC) Incremental Sampling Methodology (ISM) [3] from approximately 0.0 to 0.5-foot bgs will comprise each incremental sample. Additionally, two (2) replicates will be collected from one of the DUs for quality assurance / quality control (QA/QC) purposes. Following sample collection, each incremental sample will be further processed at the analytical laboratory (dried, sieved, subsampled, etc.) and analyzed for total PCBS.

- Soil samples will be collected from 15 borings sited within the N Alta Avenue ROW north of the subject property and from 18 borings sited within paved portions of the City parking area south of the subject property. Boring locations are based on 25-foot grid cells, with each boring placed in the approximate center of each grid unless obstructed. A depth-discrete sample will be collected from each boring between approximately 0.5-feet below the paved surface and associated subgrade aggregate, where present, otherwise, a depth-discrete sample will be collected at approximately 0.5-feet depth. Following sample collection, each depth-discrete sample will be analyzed for total PCBS by the analytical laboratory.

3.0 METHODS AND PROCEDURES

This section describes the methods proposed to complete the field work described above. All work will be performed by employees and subcontractors trained and licensed to work with hazardous materials. Safety procedures will be strictly enforced through the use of a Health and Safety Plan.

3.1 Incremental Sampling Method

ISM consists of collecting many small increments of soil (discrete soil increments) from a given DU and compositing them into one larger sample. The relatively large soil sample is thoroughly homogenized and subsampled in the laboratory. The resulting contaminant concentrations represent the average concentration for the entire DU. This sampling procedure will minimize effects of heterogeneity (micro scale and short scale) in the soil to provide a more accurate representation of contaminant concentrations within each DU. Sampling will follow the ISM developed by the ITRC.[3]

All laboratory subsampling and sample preparations will be conducted in accordance with ITRC protocols (air dried, sieved, subsampled, and composited).

3.1.1 Increment Sampling Locations

The locations targeted for sampling in DU01 through DU04 are illustrated in Figure 4. Each decision unit will be divided in a grid pattern consisting of approximately 30 grids each. Soil increments (soil

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

samples of equal mass) will be collected from the center node of each increment grid (grid-center systematic sampling) resulting in collection of 30 soil increment from each of the DUs. Grid locations will be distributed evenly within the decision units to ensure that the entire decision unit population was equally represented in the final multi-increment samples.

3.1.2 Incremental Sampling Depth

Soil increments from DU01 through DU04 will be collected at approximately 0.5 feet bgs, or below aggregate fill, where present.

3.1.3 Decision Unit Replication

Two replicates that are independent from the original incremental sampling locations (center node of each grid) will be collected within one of the four DUs. Each replicate will consist of 30 soil increments, and each increment will be collected within a few feet of the original sample in all 30 grids.

3.1.4 Laboratory Sub-Sampling and Compositing

The increments collected from DU01 through DU04, including the two replicates, will be dried, sieved, sub-sampled and composited at the laboratory, and one ISM sample per DU will be analyzed, plus the two replicates.

An ISM sub-sampling and compositing standard operating procedure (SOP) prepared by Friedman & Bruya, Inc. (F&BI) of Seattle, Washington, and is available upon request.

3.1.5 Discrete Soil Sampling (from Temporary Soil Borings)

Depth-discrete soil samples will be collected from 15 borings sited within the N Alta Avenue ROW north of the subject property and from 18 borings sited within paved portions of the City parking area south of the subject property. A depth-discrete sample will be collected from each boring between approximately 0.5-feet below the paved surface and associated subgrade aggregate, where present, otherwise, a depth-discrete sample will be collected at approximately 0.5-feet depth. The soil samples will be placed in a laboratory-supplied jar, immediately sealed with minimal head space, uniquely labeled with sample designation, date and time.

Samples will be immediately placed in cooled storage until they are delivered to F&BI of Seattle, Washington, following chain-of-custody protocol. The samples will be analyzed according to the Analysis Plan shown in Table 3-1, below. Sample containers, preservatives, and holding times for each analytical method are provided on Table 3-2.

3.1.6 Soil Description

The depth of native soils below pavement and fill will be recorded for shallow boring locations. Soil samples will be described using appropriate geologic nomenclature and Unified Soil Classification

System to the extent practical. Information such as percentage of gravel, sand, and fines; particle size range, shape, and angularity; will be recorded, as appropriate. In addition, the presence of odors, staining, or other apparent field evidence of impacts will be documented.

An example of the format to be utilized for soil descriptions shown below:

- Light brown silty SAND (SM) – 80% fine sand, sub-rounded, micaceous, 15 to 20% silty fines with low plasticity; firm; wet; some organic debris; petroleum-like odor; (FILL).

3.2 Laboratory Analyses

All DU and depth-discrete soil samples will be analyzed according to the Analysis Plan shown in Table 3-1, below. Sample containers, preservatives, and holding times for each analytical method are provided on Table 3-2.

Table 3-1. Proposed Analysis Plan

Analytical Method	Constituents	Soil
EPA 8282-SIM	Polychlorinated biphenyls (PCBs) (as Aroclors)	All

EPA = U.S. Environmental Protection Agency

Table 3-2. Analytical Protocol

Analyte(s)	Analytical Method	Container and preservative	Holding time	Preservation
Soil:				
PCBs	EPA 8082	2.5-oz (discrete) or 1-gallon (ISM) clear wide mouth glass	14-days	Ice

3.3 Decontamination Procedures

Before collecting any sample, collection tools will be decontaminated by using a sequential wash of Alconox® solution, rinsed in tap water from a known source (e.g., municipal water), and subjected to a final rinse with distilled water. Wash and rinse liquids will be changed frequently during sampling activities, as appropriate. Wash and rinsate fluids will be collected, if possible, and appropriately disposed. Fresh nitrile gloves will be worn during any sample collection and when handling tools which are to be inserted into sampling areas. Solid waste generated during sampling activities (gloves, paper towels, etc.) will be appropriately disposed.

3.4 Equipment Calibration

Monitoring equipment used during sampling (e.g., photoionization detector [PID]) will be calibrated according to manufacturer's specifications at the beginning of each sample day. Meter calibration will be checked at least twice during a sample day (middle and end of day) or when meter drift is suspected. The meters will be calibrated with gases or buffered solutions closest to known field parameters (VOC concentration = 100 $\mu g/m^3$ methane or heptane for PID calibration).

3.5 Investigation-Derived Waste Storage and Disposal

Potentially impacted investigation-derived waste (IDW) may be generated during this investigation. It is assumed that this waste may be impacted with PCBs; however, characterization of all waste will be necessary to properly treat or dispose of generated waste.

3.5.1 Soil Cuttings, and Cores

Soil cuttings (if any) derived from sample collection will be placed in drums, sealed, and labeled as to the a) nature of the contents, b) date contents sealed, and c) responsible party. A composite soil sample will be collected from each soil cuttings drum to determine proper method of disposition.

3.5.2 Decontamination Water

Water associated with decontamination of sampling equipment will be drummed, sealed, and labeled.

Upon receipt of analytical data, the disposal requirements of the drummed fluid investigation-derived waste will be evaluated. It is anticipated that all waste generated will be handled as a hazardous material and will not be characteristic of hazardous waste. However, water waste determined to be impacted with contaminants at levels regulated under RCRA[4] rules as characteristic (hazardous waste) must be disposed or treated in a manner consistent with RCRA regulation.

3.6 FIELD DOCUMENTATION

Comprehensive field documentation will be made to aid in the interpretation of analytical results. For soil sampling, field documentation, at a minimum, will include the date, time, location, and a description of the weather. Sample collection information, such as how the sample was collected and any problems that occurred during collection, visual sample observations, and any other unusual circumstances that may affect the analytical results will be noted. All field measurements, including color, odor, texture, etc., will also be recorded. All field work will be photographically documented in a photographic log.

3.7 Sample Transport and COC Procedures

After surface soil samples have been collected, they will be placed in a cooler with chilling material (ice or equivalent) and transported to the analytical laboratory. Chain-of-custody (COC) procedures will begin in the field and will track delivery of the samples to the laboratory. Specific procedures are as follows:

- Individual sample containers will be packed to prevent breakage and leakage.
- COC forms will be placed in a sealed plastic bag and inside the cooler
- Signed and dated COC seals will be used to secure all coolers before shipping.

[4] Resource Conservation and Recovery Act.

Upon transfer of samples to the laboratory, the COC form will be signed by the persons transferring custody of the coolers. Upon receipt of samples by the laboratory, the shipping-container seal will be broken, and the condition of the samples will be recorded by the receiver.

3.8 Data Quality Assurance and Control

Data will undergo a quality assurance review consistent with EPA protocol. Replicate samples results along with the original DU sample results will be evaluated to determine the amount of variation and relative percent difference (RPD) between the original sample and the replicates collected from the same DU as a measure of homogeneity of the DU samples.

3.8.1 Rinsate Blank

An equipment rinsate blank will be collected for every 20 samples to demonstrate there is no cross-contamination during sample collection. Following decontamination of the sampling equipment, an equipment rinsate blank will be collected using a deionized water rinse, with collection of the rinsate in sample containers provided by the laboratory for laboratory analysis.

4.0 Risk-Based Assessment

The investigation will be developed based on ODEQ's Risk-Based Decision Making (RBDM) cleanup guidance, which provides RBCs that are protective of human health under a number of exposure conditions. Data collected during this investigation will be used to develop a conceptual site exposure model.

The equations and exposure factors used in the RBDM document are generally consistent with those discussed in "Guidance for Conduct of Deterministic Human Health Risk Assessments". The equations included in the RBDM guidance document are rearranged to calculate RBCs that are protective of human health. RBCs will be those developed in 2018 for media and constituents.

The evaluation of risk will be composed of four distinct elements:

- Data evaluation and identification of constituents of potential concern (COPCs; if any)
- Exposure assessment (if necessary)
- Toxicity assessment (if necessary)
- Risk characterization (if necessary)

4.1 Data Evaluation and Identification of COPCs

A risk-based screening procedure will be conducted to identify COPCs for the site. Maximum concentrations of constituents detected in each medium will be compared to screening RBCs.

Screening criteria are loosely based on Oregon Administrative Rule (OAR) 340-122-080(5), which allows for pre-baseline screening of contaminants. In this screening, contaminants detected at the site that have not been screened should be designated as "constituents of interest" (COIs), while those

that have been included after screening should be designated as COPCs. Following a baseline risk evaluation using RBDM RBCs, contaminants that did not meet acceptable risk levels should be designated as "constituents of concern."

COIs will be selected based on the RBDM guidance document and screened against conservative (lowest) RBCs for each specific COI for each media to determine whether they qualify as COPCs that should be carried forward in the risk assessment.

Constituents with maximum detected concentrations below screening-level RBCs will be eliminated from further consideration. Identified COPCs, if any, will be further evaluated for potential risk.

4.2 Toxicity and Exposure Assessment

In the event that COPCs exceed the lowest RBCs, exposure pathways applicable to the site will be selected based on potential receptors identified both onsite and offsite. Existing and potential reasonable future land use, beneficial water use, and the physical setting of the site, including climate, soil characteristics, hydrogeology, and general ground water quality (e.g., brackish) will be considered in developing the conceptual site exposure model. Future land-use plans, and zoning constraints of the site and surrounding area will be reviewed to identify reasonably likely future uses. Wells on file with the Oregon Water Resources Department and local water supplies will be used to evaluate the ground-water use in the area. Fate and transport of site-related chemicals also will be considered in the evaluation of potential exposure pathways.

Exposure parameters used in the RBDM equations will be evaluated for applicability at the site. Proposed changes will be reviewed with ODEQ, if applicable.

4.3 Risk Characterization

The analytical results from the investigations will be compared to risk-based concentrations for site-specific pathways. The results of the analysis will be used to provide recommendations on closure, additional investigation, or limited remediation, as applicable.

5.0 Report Preparation

A report will be prepared documenting the work conducted as described in Section 4.7. During the course of this investigation, should results indicate a need for additional work, ODEQ will be consulted regarding proposed actions.

6.0 Proposed Schedule

Surface soil sampling will be conducted as soon as practical following ODEQ approval of this Work Plan, and subsequent approval of an access agreement for ROW work with the City.

7.0 Certification

This Work Plan has been prepared under the supervision of the following Oregon-registered Certified Engineering Geologist and Geologist.

EVREN Northwest, Inc.

Lynn D. Green, C.E.G.
Principal Engineering Geologist

CERTIFIED OREGON LYNN DELAVAN GREEN E2332 ENGINEERING GEOLOGIST

EXP. 2/1/2023

Evan Bruggeman, R.G.
Principal Field Geologist

REGISTERED PROFESSIONAL OREGON EVAN J. BRUGGEMAN G2578 GEOLOGIST

Exp 1/1/23

TABLE

Table 1 - Summary of Analytical Data, Soil (2011 and 2012)

Location ID		52_15	52_16	52_17	52_18	52_19	52_20	52_21	52_22	52_23	NBRAD1	NBRAD2
Date Sampled		1/6/2011	1/6/2011	1/6/2011	1/6/2011	1/6/2011	1/6/2011	1/6/2011	1/6/2011	1/6/2011	9/20/2011	9/20/2011
Depth Sampled (feet)		Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Sample By		City of Portland	City of Portland	City of Portland	City of Portland	City of Portland	City of Portland	City of Portland	City of Portland	City of Portland	City of Portland	City of Portland
Location		Five-point composite between RR track and cathedral park parking lot	Five-point composite between RR track and PIW	Five-point composite between RR track and PIW	Five-point composite between RR track and 6600 N Baltimore Ave	Five-point composite between RR track and 6600 N Baltimore Ave	Five-point composite between RR track and N Alta Ave	Two-point composite from potholes Northeast of CB ANE911	Discrete sample from pothole north-northwest of CB ANE911	Five-point composite between RR track and Cathedral Park	West of railroad tracks in N. Bradford ROW and City parking lot, north of NBRAD2	West of railroad tracks in N. Bradford ROW and City parking lot, south of NBRAD1
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)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)
Semi-Volatile Organic Constituents (SVOCs)												
Polychlorinated Biphenyls (PCBs)												
Total PCBs (total as Aroclors)	c, nv	**21.7**	**11.9**	**10.7**	**0.606**	**1.17**	**0.846**	**1.94**	**1.24**	**7.12**	**1.22**	0.147

Notes:

ND = not detected at or above laboratory method reporting limits

— = not analyzed or not applicable.
NE = not established.
mk/Kg = milligrams per kilogram

Bolded/Shaded concentrations exceed ODEQ SLRBC (based on residential exposure and soil ingestion, dermal contact and inhalation pathway)

Table 1 - Summary of Analytical Data, Soil (2011 and 2012)

Lo	NBRAD3	NBRAD4	NBRAD5	NBRAD6	NBRAD7	NBRAD8	B1		B2		
Date	9/20/2011	9/20/2011	9/20/2011	9/20/2011	9/20/2011	9/20/2011	9/20/2011	9/20/2011	9/20/2011	9/20/2011	9/20/2011
Depth Samp	Surface	Surface	Surface	Surface	Surface	Surface	0.5-1	1-5	0.5-1	1-3	3-5
S	City of Portland	City of Portland	City of Portland	City of Portland	City of Portland	City of Portland	City of Portland	City of Portland	City of Portland	City of Portland	City of Portland
	East of railroad tracks in N. Bradford ROW and west of City parking lot and NBRAD1	East of railroad tracks in N. Bradford ROW and west of City parking lot and NBRAD2	West end of landscape strip boring southern margin of City parking lot, east of NBRAD4	Landscape strip boring west margin of City parking lot, north of NBRAD5	West end of landscape strip boring southern margin of City parking lot, east of NBRAD5	West end of landscape strip boring southern margin of City parking lot, east of NBRAD6	In northeast corner of City parking lot		In northeast corner of City parking lot, west of boring B1		
Constituent of Interest	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)
Semi-Volatile Organic Constituents (SVOCs)											
Polychlorinated Biphenyls (PCBs)											
Total PCBs (total as Aroclors)	**2.5**	**0.504**	**0.265**	**1.08**	**0.476**	**0.423**	**1.05**	**0.591**	**0.465**	**0.699**	<0.010 (ND)

Notes:

ND = not detected at or above laboratory method reporting li

— = not analyzed or not applicable.
NE = not established.
mk/Kg = milligrams per kilogram

Bolded/Shaded concentrations exceed ODEQ SLRBC (bas residential exposure and soil ingestion, dermal contact and i pathway)

Table 1 - Summary of Analytical Data, Soil (2011 and 2012)

Lo	B3		B4		B5		GS03	Maximum Detected Soil Concentration	ODEQ SLRBC	COPC?
Date	9/20/2011	9/20/2011	9/20/2011	9/20/2011	9/20/2011	9/20/2011	9/12/2012			
Depth Samp	0.5-1	1-5	0.5-1	1-4	0.5-1	1-5	5.5			
S	City of Portland	City of Portland	City of Portland	City of Portland	City of Portland	City of Portland	ENW			
	In northeast corner of City parking lot, west of boring B2		In central portion of City parking lot		In central portion of City parking lot, west of boring B4		Assessment sample, north end of tank			
Constituent of Interest	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)		Y / N
Semi-Volatile Organic Constituents (SVOCs)										
Polychlorinated Biphenyls (PCBs)										
Total PCBs (total as Aroclors)	**0.286**	**0.704**	<0.010 (ND)	<0.010 (ND)	<0.010 (ND)	<0.010 (ND)	<0.0122 (ND)	21.7	0.23	Y

Notes:

ND = not detected at or above laboratory method reporting li

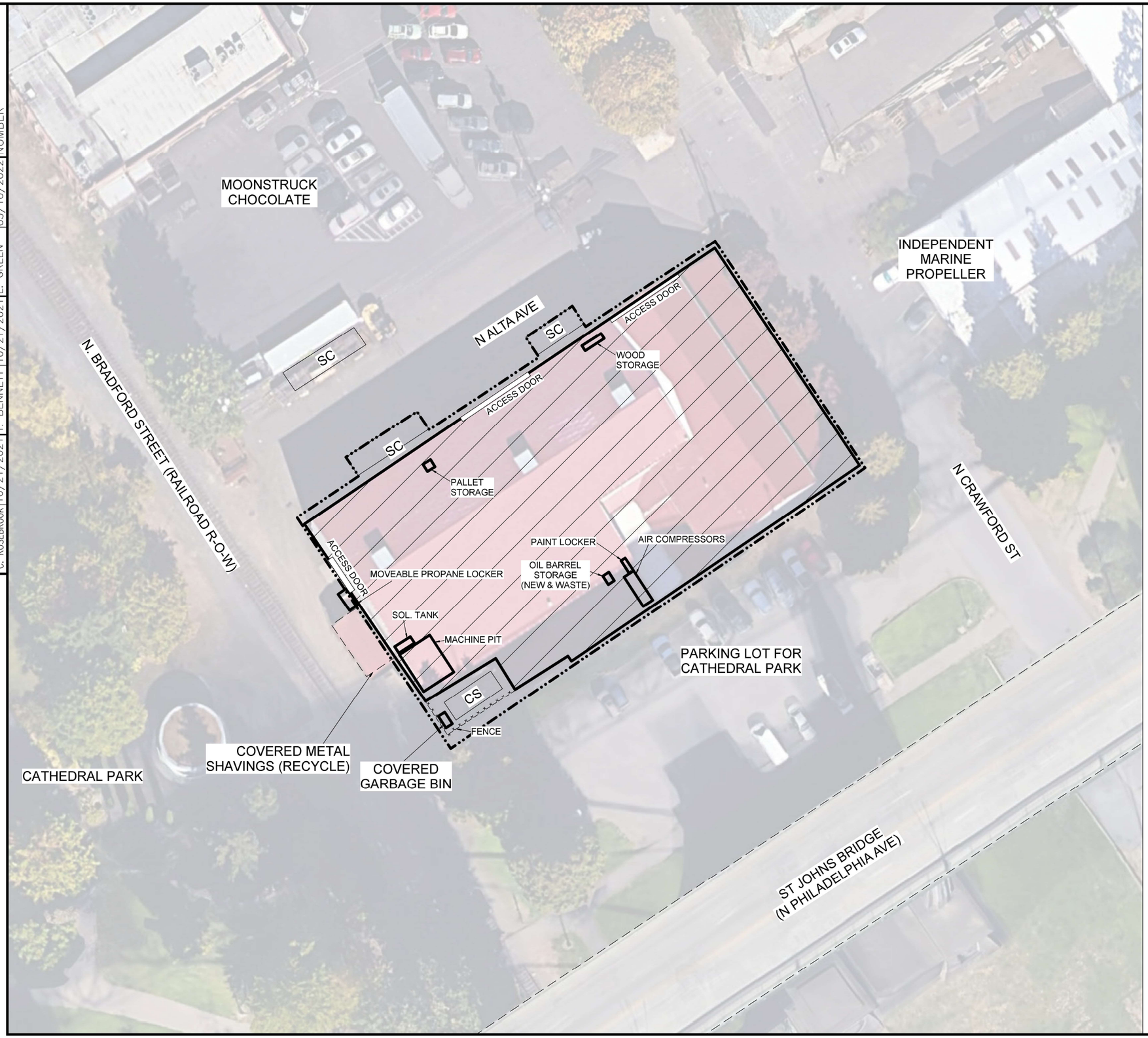
— = not analyzed or not applicable.
NE = not established.
mk/Kg = milligrams per kilogram

Bolded/Shaded concentrations exceed ODEQ SLRBC (bas
residential exposure and soil ingestion, dermal contact and i
pathway)

FIGURES

EVREN NORTHWEST	Date Drawn: 4/11/2022 CAD File Name: 1355-21001-fig1sv_map(v01).docx Drawn By: JOB Approved By: LDG	Peninsula Iron Works – Building 2 6618 N Alta Avenue Portland, Oregon	**Site Vicinity Map**	Project No. 351-12023 Figure No. **1**

DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
C. ROSEBROOK 10/21/2021	T. BENNETT 10/21/2021	L. GREEN 05/10/2022	1355-21001(v01)



LEGEND:

- SUBJECT PROPERTY BOUNDARY
- SUBJECT BUILDING
- SC — SHIPPING CONTAINER USED FOR STORAGE OF STEEL PARTS
- CS — COVERED STORAGE AREA FOR MACHINING FIXTURES, RAW STEEL, AND TRASH BINS

NOTES:

1. BASE MAP DEVELOPED FROM AN AERIAL PHOTOGRAPH MAP DATED 2018 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 40 80 FEET

N

EVREN NORTHWEST INC.
environmental natural resource consultants
PO BOX 14488, PORTLAND, OREGON 97293
P: (503)452-5561, E: ENW@EVREN-NW.COM

FIGURE 2

SITE PLAN

INDUSTRIAL PROPERTY
6618 N ALTA AVENUE
PORTLAND, OREGON

DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
C. ROSEBROOK 03/25/2020	E. BRUGGEMAN 04/18/2022	L. GREEN 05/10/2022	1355-21001(v01)

SAMPLE 52_19
SAMPLE 52_18
SAMPLE 52_20
SAMPLE 52_22 (POTHOLE)
SAMPLE 52_21 (POTHOLES)
CB ANE911
SAMPLE 52_17
SAMPLE 52_23
SAMPLE 52_16
GS03
CB ANE921
SAMPLE 52_15
NBRAD1
NBRAD2
NBRAD3
NBRAD4
NBRAD5
NBRAD6
NBRAD7
NBRAD8
A
B
C
D
E
F
B1
B2
B3
B4
B5
MH

LEGEND:

- SUBJECT PROPERTY BOUNDARY
- SUBJECT BUILDING
- DRAINAGE BASIN FOR CITY OUTFALL 52
- STORM SEWER
- STORM SEWER (PERFORATED)
- ROOF DOWNSPOUT
- TRENCH DRAIN
- SANITARY SEWER
- PRESSURIZED SANITARY SEWER
- CITY COMBINED STORM/SANITARY SYSTEM
- STORM SYSTEM FLOW DIRECTION
- SANITARY SEWER CLEANOUT/ FLOOR DRAIN
- STORM SEWER PLUG (PER CITY OF PORTLAN PERMITS)
- CATCH BASIN
- PUMP STATION
- 2010 CITY OF PORTLAND SEDIMENT SAMPLES (FROM CATCH BASINS ANE911 AND ANE921)
- 2011 CITY OF PORTLAND GRAB SAMPLE LOCATION
- 2011 CITY OF PORTLAND TEMPORARY SOIL BORING LOCATION
- 2011 CITY OF PORTLAND SURFACE SOIL COMPOSITE AREA
- 2012 PIW FLOOR WIPE SAMPLE LOCATION
- 2012 ENW SOIL GRAB SAMPLE LOCATION

NOTES:

1. BASE MAP DEVELOPED FROM AN AERIAL PHOTOGRAPH MAP DATED 2018 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 50 100 FEET

N

EVREN NORTHWEST INC.
environmental natural resource consultants
PO BOX 14488, PORTLAND, OREGON 97293
P: (503)452-5561, E: ENW@EVREN-NW.COM

FIGURE 3

HISTORICAL SAMPLE LOCATION DIAGRAM

PENISULA IRON WORKS - BUILDING 2
6618 N ALTA AVENUE
PORTLAND, OREGON

DRAWING NUMBER	APPROVED BY		CHECKED BY		DRAWN BY	
1355-21001(v01)		05/10/2022		04/18/2022		03/25/2020
	L. GREEN		E. BRUGGEMAN		C. ROSEBROOK	

LEGEND:

- SUBJECT PROPERTY BOUNDARY
- SUBJECT BUILDING
- DRAINAGE BASIN FOR CITY OUTFALL 52
- STORM SEWER
- STORM SEWER (PERFORATED)
- ROOF DOWNSPOUT
- TRENCH DRAIN
- CITY COMBINED STORM/SANITARY SYSTEM
- STORM SYSTEM FLOW DIRECTION
- SANITARY SEWER CLEANOUT/ FLOOR DRAIN
- STORM SEWER PLUG (PER CITY OF PORTLAN PERMITS)
- CATCH BASIN
- 2022 ENW SHALLOW SOIL BORING LOCATION
- 2022 ENW DECISION UNIT FOR SHALLOW SOIL INCREMENTAL SAMPLING

NOTES:

1. BASE MAP DEVELOPED FROM AN AERIAL PHOTOGRAPH MAP DATED 2018 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 30 60 FEET

N

EVREN NORTHWEST INC.
environmental natural resource consultants
PO BOX 14488, PORTLAND, OREGON 97293
P: (503)452-5561, E: ENW@EVREN-NW.COM

FIGURE 4

PROPOSED SAMPLE LOCATION DIAGRAM

PENISULA IRON WORKS - BUILDING 2
6618 N ALTA AVENUE
PORTLAND, OREGON