UPPER COLUMBIA RIVER

FINAL
Residential Soil Study Data Summary Report

Prepared for

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ACRONYMS AND ABBREVIATIONS

AES	atomic emission spectroscopy
ALS	ALS Environmental
bgs	below ground surface
COC	chain-of-custody
CCT	Confederated Tribes of the Colville Indian Reservation
DL	detection limit
DQO	data quality objective
DU	decision unit
EPA	U.S. Environmental Protection Agency
ESI	Environmental Standards, Inc.
FRP	Field Reconnaissance Plan
FSP	field sampling plan
FSR	field sampling report
GPS	global positioning system
HCl	hydrochloric acid
HDOH	Hawaii Department of Health
HHRA	human health risk assessment
IC	incremental composite
ICP	inductively coupled plasma
ID	identification
IEUBK	Integrated Exposure Uptake Biokinetic
IQR	interquartile range
ITRC	Interstate Technology & Regulatory Council
IVBA	in vitro bioaccessibility assay
LCS	laboratory control sample
MDL	method detection limit
MIST™	Multi-Incremental Sampling Tool
MRL	method reporting limit
MS	mass spectrometry
MS/MSD	matrix spike/matrix spike duplicate

QA	quality assurance
QC	quality control
QA/QC	quality assurance and quality control
QAPP	quality assurance project plan
RBA	relative bioavailability
RBC	risk-based concentration
RI/FS	remedial investigation and feasibility study
RL	reporting limit
RPD	relative percent difference
RSD	relative standard deviation
SDG	sample delivery group
SERAS	Scientific, Engineering, Response & Analytical Services
SOP	standard operating procedure
SRC	Syracuse Research Corporation
TAI	Teck American Incorporated
TAL	target analyte list
UCR	Upper Columbia River

UNITS OF MEASURE

dw	dry weight
in.	inch(es)
mg/kg	milligram(s) per kilogram
mm	millimeter(s)
ppm	parts per million
μm	micrometer(s)
oz	ounce(s)

1 INTRODUCTION

This report presents the results of the 2016 Residential Soil Study (herein referred to as "the 2016 study") conducted for the Upper Columbia River (UCR) Site, herein referred to as the Site.[1] Analyses were conducted on behalf of Teck American Incorporated (TAI) under the U.S. Environmental Protection Agency (EPA)-approved quality assurance project plan (QAPP) for the study (Ramboll Environ 2016a), which represents an addendum to the EPA-approved UCR QAPP (SRC Inc. 2014), which was prepared under Scientific, Engineering, Response & Analytical Services (SERAS) work assignment SERAS 0-079 to the EPA Environmental Response Team. The 2016 study was conducted to collect data that may be used to refine estimates of exposure to metals in soils by existing residents within the study area. The 2016 Residential Soil Study represents one of the tasks that will be completed as part of the UCR remedial investigation and feasibility study (RI/FS). The RI/FS is being conducted under a Settlement Agreement between TAI and EPA. Data needs addressed by this study are intended to support the conduct of the baseline human health risk assessment (HHRA) (to be completed by EPA).

1.1 BACKGROUND

In 2015, based on the results of EPA's 2014 study of residential soils (hereafter, "the 2014 study"), EPA directed TAI to conduct further study of UCR residential soils within and beyond the prior residential soils study boundary. Consistent with the prior study, the objective of the 2016 study was to collect data to support refinement of exposure estimates for residents in the UCR Study Area (Map 1-1) to support the HHRA. Surface soils were collected from rural residential properties (hereafter, "residences") not previously sampled within the UCR Study Area. Surface soil concentrations for target analyte list (TAL) metals[2] (except mercury) were determined in incremental composite (IC) samples collected from residential decision units (DUs). In a subset of DUs where non-dripline IC

[1] The Site, as defined in the June 2, 2006, Settlement Agreement (USEPA 2006b), is "the areal extent of hazardous substances contamination within the United States in or adjacent to the Upper Columbia River, including the Franklin D. Roosevelt Lake ("Lake Roosevelt"), from the border between the United States and Canada downstream to the Grand Coulee Dam, and all suitable areas in proximity to such contamination necessary for implementation of the response actions.…"

[2] TAL metals include aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, nickel, potassium, selenium, silver, sodium, thallium, vanadium, and zinc.

samples had a lead or arsenic concentration greater than or equal to 100 or 20 mg/kg, respectively, the IC samples were also submitted for in vitro bioaccessibility assay (IVBA) analysis. Concentrations for TAL metals (except mercury) were also determined in discrete soil samples collected from 0 to 1 in. and 1 to 6 in. below ground surface (bgs) at a subset of DUs. All residences sampled in the 2016 study were identified through voluntary participation.

1.2 REPORT ORGANIZATION

This report is organized into the following sections:

- **Section 1—Introduction.** This section provides background information for the 2016 study and outlines the report organization.
- **Section 2—2016 Soil Study Design.** This section describes the purpose and objectives of the 2016 study and provides an overview of the study design.
- **Section 3—Methods.** This section provides a summary of the methods used for the 2016 study, including field reconnaissance, target sampling locations, collection methods, field analyses, laboratory analyses, and the approach used to summarize the data for the data report. This section also discusses any changes or deviations from the QAPP Addendum and field sampling plan (FSP).
- **Section 4—Validation Assessment.** This section provides an overview of the validation assessment conducted for the analytical results of the 2016 study samples.
- **Section 5—Results.** This section presents a summary of the field and analytical results and provides a comparison of the IC soil sample results with soil screening levels.
- **Section 6—Summary and Recommendations.** This section presents a summary of the results and provides recommendations.
- **Section 7—References.** This section presents bibliographic information for the documents cited in this report.

Figures, maps, and data tables are provided following Section 7. Appendices and the raw data are provided in electronic format (see enclosed disk). Data may also be obtained directly from the project database, accessible at: http://teck-ucr.exponent.com.

2 2016 SOIL STUDY DESIGN

2.1 PURPOSE OF STUDY

The purpose of the 2016 study was to collect data to support refinement of exposure estimates for residents in the UCR Study Area to support the HHRA. This information will be used to determine whether lead and arsenic concentrations (and other metals) in the fine-grained fraction (less than 149 μm for surface soils and less than 250 μm for beach sand) from sampled residences pose an unacceptable risk to human health, particularly for children who live in the study area. Therefore, sampling focused on locations where there is a high potential for exposure by residents, especially children.

2.2 DATA QUALITY OBJECTIVES

The QAPP Addendum (Ramboll Environ 2016a) addressed updates to the 2014 study QAPP (SRC Inc. 2014) based on EPA's directive to TAI (USEPA 2015a, 2015b). Data quality objectives (DQOs) for the 2016 study were based on EPA's DQOs for the 2014 study (SRC Inc. 2014). As with the 2014 study, EPA's seven-step DQO process (USEPA 2006a) was used to guide the study design for the collection of residential soil in the 2016 study. The DQO process is used to determine the type, quantity, and quality of data needed to achieve study goals and establishes performance and acceptance criteria for the data. The seven steps of the DQO process are listed below:

1. State the problem
2. Identify the goals of the study
3. Identify information inputs
4. Define the boundaries of the study
5. Develop the analytical approach
6. Specify performance or acceptance criteria
7. Develop the plan for obtaining the data.

DQOs provided as Attachment A to the QAPP Addendum (Ramboll Environ 2016a) are detailed in the subsections that follow.

2.2.1 Step 1 – State the Problem

Historic emissions from the Trail smelting facility in Trail, British Columbia have included metal-enriched particulates and aerosols. These airborne particles were deposited at

varying distances from the smelter and became incorporated into the soil horizon. Various studies and soil sampling activities have been conducted in the Columbia River valley corridor south of the U.S.-Canada border (see Worksheet #10 of SRC Inc. 2014). In 2014, the EPA conducted an investigation of residential soil in the northern portion of the UCR Study Area (CH2M HILL 2015), and TAI conducted an investigation of upland soils in and around the same area studied by EPA (Windward et al. 2015). Both studies were conducted as part of the RI/FS for the Site, for which the areal extent of contamination has not been fully delineated. Based on the results of these investigations, EPA determined that additional information was needed regarding the concentrations of lead and arsenic in residential soils from properties not previously sampled within the 2014 study area, including an expanded area extending south from the southern boundary of that study area to approximately the intersection of Williams Lake Road and Highway 25 on the east side of the river (i.e., the UCR Study Area for the 2016 Residential Soil Study; see Map 1-1).

TAI conducted a focused rural residential investigation of the 2016 study area to refine exposure point concentrations for Washington residents living within the 2016 study area, including gardeners and tribal members. The data will be used by EPA to assess potential risks to existing residents from exposure to metals in soils.

2.2.2 Step 2 – Identify the Goals of the Study

The goal of the 2016 study was to sample surface soil in locations where there is a high potential for exposure by residents, especially young children. Young children and gardeners are likely to be exposed to possible metal exposure via direct soil ingestion.

The principal human health risk study question to be addressed was:

> Do lead and arsenic concentrations (and possibly other TAL metals, except mercury) in the fine-grained fraction of sediment and soils from rural residential parcels pose an unacceptable risk to human health, particularly to children who live within the UCR Study Area?

2.2.3 Step 3 – Identify Information Inputs

The following information inputs were identified for the study:

- SRC Inc. 2014. Quality Assurance Project Plan, Upper Columbia River Residential Soil Study, Washington State. Prepared for EPA Region 10 and ERT. Prepared by SRC Inc. for Lockheed Martin SERAS Program. August 13, 2014.
- Windward et al. 2015. Upper Columbia River, Final Soil Study Data Summary Report. October.

- CH2M HILL. 2015. Final UCR Residential Soil Study Field Sampling and Data Summary Report. October.
- Land use data from Stevens County Assessor's Office and the Confederated Tribes of the Colville Indian Reservation (CCT).
- Assistance from CCT, local government, community groups, school district, property owners, and residents to identify residential land use and obtain access to target residences.
- EPA. 2015a. August 11, 2015 Letter from Laura C. Buelow, EPA Project Manager, to Kris McCaig, TAI Project Coordinator, detailing EPA's revised directive to TAI to conduct additional residential sampling as set forth in this letter.
- EPA. 2015b. November 5, 2015 Letter from Laura C. Buelow, EPA Project Manager, to Kris McCaig, TAI Project Coordinator, detailing EPA's proposed changes to the residential soil sampling QAPP for 2016 based on EPA's 2014 residential soil sampling results.

Project action limits for lead and arsenic were:

- 400 mg/kg lead
- 20 mg/kg arsenic.

Data collected incorporated the following objectives and considerations:

- Inferred exposure areas based on communications with residents, accessibility of soil, gardens, play areas, agricultural land, or other visual information at each residence.
- The target particle size for soil was < 149 μm, representative of dermal adherence as a proxy for inadvertent soil ingestion (Ruby and Lowney 2012); the target particle size for beach sediment was < 250 μm, representative of dermal adherence of wet sediment (Kissel et al. 1996).
- Estimates of bioavailability based on IVBA results for lead and arsenic (USEPA 2007).

2.2.4 Step 4 – Define the Boundaries of the Study

As directed by EPA, the focus of the 2016 study was on residences located within the UCR Study Area (Map 1-1). TAI sampled all residences within the 2014 sampling area that were not previously sampled, if landowner consent was provided. TAI also sampled residences within the expanded sampling area subject to landowner consent, except for the area depicted in the map as "Northport Exclusion Area."

The DQOs specified that if EPA determined that additional residential sampling is needed for the 2016 study beyond the geographic boundary of the identified UCR Study Area

(Map 1-1), EPA would conduct an additional study or analysis, such as an isotopic analysis, with the goal of analyzing potential sources of contamination at the Site. EPA would consider soil sampling data and other information, including the additional study or analysis and any other data it might gather, in determining whether to expand the residential soil sampling within the proposed expansion area. Any such additional study or analysis would be developed within the context of the RI/FS.

The design of DUs to be sampled within each residence considered the potential to segregate portions of the residence for evaluation and potential remediation, and depended upon size, access, known presence of imported fill, historical activities such as tilling, topography, and other features.

The target particle size, < 149 μm, was selected as representative of dermal adherence as a proxy for inadvertent soil ingestion (Ruby and Lowney 2012). The < 250-μm particle size fraction was used for beach sediments.

The sampling depth was based on the surface soil depth interval that people are most likely to come into contact with and varied by DU. The 0 to 1 in. depth interval for soil was the primary focus of this study because the top 1 in. of soil best represents current exposure (USEPA 1989, 1996), and will provide data that are recommended for use with the Integrated Exposure Uptake Biokinetic (IEUBK) model (USEPA 2003). The sampling depth for gardens was the tilled depth (generally between 0 and 12 in.); the sampling depth for beaches was 0 to 6 in. Soil located within the driplines of structures was not sampled unless there was concern of lead-based paint.

In a subset of DUs with an IC sample depth of 0 to 1 in. bgs, discrete soil samples were collected from depths of 0 to 1 in. and 1 to 6 in. bgs to allow for comparison to data collected in the 2014 study, and to reduce uncertainty regarding interpretation of the 2014 study discrete sample results for evaluation of the vertical nature and extent of contamination. Selection of the subset of DUs was determined by the EPA Project Manager, in consultation with the TAI Project Coordinator, following evaluation of received access agreements, and is documented in Attachment D1 to the QAPP Addendum (Ramboll Environ 2016a).

Samples were collected during August and September when climatic conditions would likely exclude the presence of snow on the ground or frozen ground.

2.2.5 Step 5 – Develop the Analytical Approach

The rationale for choosing the sampling approach for the 2016 study was the same as the rationale provided for the 2014 study conducted by EPA, with the exception of specific changes to the timing, roles, boundaries, and a limited number of study design elements

specified in EPA's directive to TAI (USEPA 2015a, 2015b) and based on discussion between EPA and TAI.

With the exception of discrete soil samples, soil samples were collected from DUs following an IC sampling design. Potential exposure areas that were observed at each residence informed the identification and design of specific DUs. One or more DUs were identified for a given residence depending on the size, features, and usage patterns associated with the residence.

Each IC sample consisted of 30 increments. The increments were collected using a systematic grid to provide uniform spatial coverage over the DU (ITRC 2012). Soil located within the driplines of structures was not sampled unless there was concern of lead-based paint. At locations where there was concern of lead-based paint, dripline soil was sampled where it may have represented a combination of aerial deposition and lead-based paint.

DQOs for the 2014 study specified collection of discrete soil samples from the 1 to 6 in. depth interval at each property to provide additional information on the vertical nature and extent of contamination at selected DUs. Evaluation of the 2014 study discrete soil sample results collected from 1 to 6 in. bgs suggested a high degree of variability among discrete soil samples within the same DU and weak correspondence with IC sample results at the same DU. Because the IC sample depth at most of the DUs designated for discrete sample collection was 0 to 1 in., the lack of discrete data for the 0 to 1 in. depth interval contributed to uncertainty regarding correspondence of the IC and discrete sample results, further limiting the interpretive value of the 1 to 6 in. discrete sample data regarding the vertical nature and extent of contamination. Given these factors, the 2016 study included collection of discrete samples from the 0 to 1 in. and 1 to 6 in. depth intervals in a representative subset of DUs where the IC sampling depth was 0 to 1 in. Selection of the representative subset of DUs was determined by the EPA Project Manager, in consultation with the TAI Project Coordinator, and is documented in Attachment D1 to the QAPP Addendum (Ramboll Environ 2016a). Collection of these discrete soil samples in the 2016 study was expected to reduce uncertainty regarding interpretation of the 2014 study discrete sample results for evaluating the vertical nature and extent of contamination.

Areas near paved and compacted gravel roadways and railways were avoided to prevent sampling soil that may be contaminated by non-air sources; a 50-foot buffer in either direction from the center line of these features was established. Sample placement on unpaved roads and driveways was also avoided. TAL metals (except mercury) and lead

and arsenic bioaccessibility[3] were measured. TAL metals (except mercury) include aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, nickel, potassium, selenium, silver, sodium, thallium, vanadium, and zinc.

2.2.6 Step 6 – Specify Performance or Acceptance Criteria

The goal of this step is to define performance or acceptance criteria to minimize the possibility of either making erroneous conclusions or failing to keep uncertainty in estimates to within acceptable levels. For the 2016 study, performance and acceptance criteria were applied to generating appropriate and acceptable data for use during risk assessment activities, and providing sufficient data to reduce uncertainty and the probability for false positive or false negative decision errors. The same performance and acceptance criteria applied by EPA during the 2014 study were applied to this study.

2.2.7 Step 7 – Develop the Plan for Obtaining the Data

This final step is the development of a resource-effective design for collecting the proposed samples in a manner that will achieve the specified performance criteria. The plan for obtaining data was summarized in the Final FSP (Attachment D to the QAPP Addendum). Additionally, because field sampling methods associated with this study involved soil collection, penetration, and disturbance, TAI and its technical team worked with potentially affected parties to assess the effects of the planned work and seek ways to avoid, minimize, or mitigate any adverse effects on historic properties. A cultural resources coordination plan (Attachment H to the QAPP Addendum) was prepared to provide relevant background information about site-related cultural resources, define measures for protecting resources, and define procedures for consulting with the appropriate state, federal, and tribal parties with interests in the cultural resources of the Site.

2.3 STUDY DESIGN

This section summarizes the study design for the collection of soil samples and the rationale for the design, as presented in detail in the QAPP Addendum (Ramboll Environ 2016a). The sampling approach was developed based on the primary objective of the

[3] Bioaccessibility testing was only run for increment composite samples with a lead or arsenic concentration greater than or equal to 100 or 20 mg/kg, respectively.

study, which was to collect data to support refinement of exposure estimates for residents in the UCR Study Area to support the HHRA.

2.3.1 Overall Design

Soil samples were collected from predetermined DUs from rural residences using an IC sampling design (see QAPP Addendum Figure 2). IC sampling entails the collection of multiple individual volumes of soil (termed "increments") from a target area (i.e., DU) that are composited and subsampled according to a detailed standard operating procedure (SOP) prior to laboratory analysis. The IC sampling method is described in detail by the Interstate Technology & Regulatory Council (ITRC 2012). This method was selected as the sampling strategy because it provided a more cost-effective alternative to discrete sampling when the objective is to estimate the mean concentration for a DU (Hathaway et al. 2008). Composite sample data have lower variability than discrete sample data and a higher reproducibility (HDOH 2009).

Increments were located by using systematic grid sampling with a random starting point. Increments were collected from the predetermined surface soil depth interval at 30 increment locations within each DU (or 90 increment locations if the DU was sampled in triplicate). Increments for each IC sample (or replicate) were composited in the field to create one sample representing the entire DU. At the analytical laboratory, composite samples were dried, homogenized and sieved into a < 149-µm soil fraction or a < 250-µm beach sediment/soil fraction. Data for TAL metals (except mercury) concentrations in these soil/sediment fractions will be used in the HHRA. Analysis of samples for conventional soil parameters was limited to percent solids. IVBA analysis was conducted on a subset (20 percent) of the < 149-µm fraction samples with a lead or arsenic concentration greater than or equal to 100 or 20 mg/kg, respectively. IVBA data for lead (or arsenic) provide an estimate of the site-specific oral relative bioavailability (RBA) for lead (or arsenic) in soil. The rationale for selecting samples for IVBA analysis is documented in Appendix A to this report. [4]

2.3.2 Selection of Sampling Areas

Soil sampling was conducted at residences located within the UCR Study Area (Map 1-1). Landowner participation in the study was voluntary and only residences for which

[4] As described in Appendix A, the IVBA sample selection process resulted in identification of 40 IC samples for IVBA analysis. Based on a subsequent request from EPA on May 2, 2017, triplicate IC soil samples from DU 166-O1 were also submitted for IVBA analysis. IVBA results for all 43 IC soil samples (representing 41 DUs) are summarized in this report.

landowner consent was received were sampled. Residences sampled included properties or DUs within the 2014 study sampling area that were not previously sampled and properties within the expanded sampling boundary as shown on Map 1-1. Within the expanded boundary, the area around Northport that includes soils previously addressed by EPA as part of the Le Roi/Northport smelter investigation and removal action was excluded according to the agreement with EPA. The QAPP Addendum (Ramboll Environ 2016a) provides a summary of how the sampling areas were defined and selected. Additional details are discussed below.

2.3.3 Identification of Target DUs and Sampling Locations

A total of 452 DUs at 144 residences were sampled. Maps 2-1a through 2-1f show the locations of sampled DUs across the study area. IC samples were collected from all DUs. Discrete soil samples were collected from 29 DUs and an IC sample was submitted for IVBA analysis from 41 DUs. Maps 2-1a through 2-1f indicate which DUs included discrete samples and/or a sample submitted for IVBA analysis. This information is also summarized in Table 2-1.

Selection of DUs was conducted in accordance with the Final Field Reconnaissance Plan (FRP; Ramboll Environ 2016b). A DU is defined as the smallest area about which a risk-based decision will be made. For this study, each of the residences under investigation was divided into DUs based on residence size and the presence of features that may influence exposure, such as children's play areas, beach areas, gardens, and discrete animal pens and riding areas. The number of DUs per residence was determined following field reconnaissance of residential parcels for which an access agreement had been received by TAI in spring 2016. Boundaries for each DU were delineated based on land use and global positioning system (GPS) data collected during field reconnaissance. Most of the residences had one "house" DU that encompassed up to 1 acre immediately surrounding a house or cabin present on the residence. Driplines around a house or structure were designated as a separate DU if there was a concern of lead-based paint. Distinct play areas, gardens, agricultural areas, animal/livestock areas, and beach areas were delineated as separate DUs. Beach DU boundaries were delineated in the field based on water elevation at the time of sampling and interviews with residents and landowners regarding use of the beach. Residences that included other frequently used areas were delineated and assigned to an "other" DU category. Eight residences sampled in the 2016 study were tribal allotments, which are properties that have not undergone development for residential use. DUs in the "other" category include these tribal allotments.

With the exception of designated dripline DUs, care was taken to locate samples outside the dripline of building structures, and away from influences of any other painted

surfaces, treated lumber, burn areas, oil stains, and similar recognized on-site environmental conditions. Areas located close to unpaved or compacted gravel roadways and railways were avoided to prevent sampling soil that was potentially contaminated by non-air sources (e.g., tire weights, fill soil from ballast). A 50-foot buffer in both directions from the center line of these features was implemented. Placement of sample locations within unpaved roads and driveways was also avoided unless the resident or landowner identified the area as having high potential use. In such cases, the unpaved road or driveway area was established as a separate DU for sampling.

Before sampling was initiated on well-maintained landscaped areas, residence owners were informed about the size, depth, and number of surface holes that would be punched. At residences where the owner chose not to have a well-maintained lawn sampled, the location of that DU was shifted outside of the well-maintained area.

3 METHODS

3.1 FIELD METHODS

The field reconnaissance and sampling program for the 2016 study was outlined in the QAPP Addendum (Ramboll Environ 2016a) and in the Final Field Reconnaissance Plan (FRP; Ramboll Environ 2016b). The FSP (Attachment D to the QAPP Addendum) detailed the procedures and methods for sample collection and processing, field quality control, sample documentation, packaging and transport, field documentation, laboratory analyses, and data management and reporting.

Field reconnaissance and sampling was conducted by Tetra Tech. Field reconnaissance activities were completed from April 25 through May 19, 2016. Soil samples were collected from 144 residences in the UCR Study Area (Maps 2-1a through 2-1f) between August 1 and September 26, 2016. Reconnaissance and sampling activities were conducted under the direct oversight of EPA or their authorized representatives. Cultural resource monitors from the CCT and archaeologists[5] from AECOM were also present during sampling activities to provide oversight for the protection of cultural artifacts in accordance with the protocols outlined in the cultural resources coordination plan (Attachment H to the QAPP Addendum).[6] A field sampling report (FSR; Tetra Tech 2017) for the 2016 study is included as Appendix B to this report. The FSR details the field reconnaissance methods, sampling locations, sample collection methods, and field documentation pertaining to field reconnaissance and field sampling activities for the 2016 study. Field changes and deviations from the QAPP Addendum are also detailed in the FSR and summarized in Section 3.1.4 below.

3.1.1 Field Reconnaissance

Participation in the 2016 Residential Soil Study was voluntary. In preparation for field reconnaissance, TAI coordinated with EPA to develop a list of eligible parcels and tribal allotments within the study area. TAI provided access agreements to owners/representatives of the eligible parcels/tribal allotments requesting permission to conduct field reconnaissance and sampling activities. Parcel owners were contacted at

[5] Archaeological monitoring was conducted by professional archaeologists meeting the Secretary of Interior's Professional Qualification Standards, as outlined in 36 Code of Federal Regulations Part 61.

[6] The field reconnaissance did not involve penetration or disturbance of the ground surface, therefore, field teams were not accompanied by cultural resource monitors.

least one week prior to each planned field reconnaissance event to schedule the site visit. The owners were asked a series of questions (see Worksheet 1 of the FSP, Attachment D to the QAPP Addendum) to establish specific residential uses prior to the reconnaissance site walk. Owners were also asked to select a date for the reconnaissance team to visit the property and to participate in a site walk and on-site discussion.

The reconnaissance consisted of locating and visiting each property, interviewing the owner or resident (when available), and then walking the property to assess key features (such as property size, land use types, play areas, gardens, etc.). Land use features documented during the site walk and interviews included:

- Current or planned residential structure areas, recreational vehicle pads, camping areas and livestock areas
- Gardens, lawns, manicured landscaping, or any similar modified landscape
- Child play areas, sandboxes, horseshoe pits, or other similar areas
- Features to be excluded from sampling to avoid potential influence of multiple metals sources on the soil chemistry of a usage area, such as:
    - Trash or fire wood burning areas; debris piles; equipment storage areas
    - Decking, fencing, and other treated wood features
    - Areas that appear to have been excavated or filled (for example, berms, ditches, borrow areas)
- Features to be excluded from sampling to avoid potential damage, such as:
    - Drive-way areas, septic tanks, outhouses, water wells (or other water sources)
    - Planned outdoor space, set aside for the display, cultivation, and enjoyment of plants and other forms of nature

GPS data were collected to record the boundaries of usage areas. In conjunction with the GPS data collection and interviews, key features and usage areas were annotated on copies of aerial photographs, documented by digital photographs, and recorded in the field notebooks.

At the conclusion of the field reconnaissance program, the findings and data were compiled into a summary proposed usage areas. On June 2, 2016, TAI met with EPA to review the proposed usage areas. During this meeting and based on subsequent communications with EPA, usage areas identified during the reconnaissance were proposed as DUs for IC sampling based on the frequency and types of use. A final list of DUs proposed for sampling and maps showing the locations of each proposed DU were provided in the approved QAPP Addendum (see Worksheet #18 and Attachment C, respectively).

3.1.2 Sampling Locations

As specified in the QAPP Addendum, sampling was planned at 448 DUs from a total of 141 residences. These targets increased to 452 DUs from a total of 144 residences at the conclusion of the sampling phase. The final numbers included 138 of the original 141 residences and six additional residences for which owner consent had been received after approval of the QAPP Addendum. Owners of three residences, where sampling was planned and did not take place, withdrew their consent for sampling after the QAPP Addendum was approved. Table 2-1 summarizes all of the planned and sampled DUs.

Soil increments for each IC sample were collected from 30 predetermined locations within the DU. At DUs designated for collection of triplicate IC samples, 90 predetermined locations guided collection of the increments. At 29 randomly selected DUs where the planned IC sample depth was 0 to 1 in., discrete soil samples were also collected from two depths at five locations within the DU.[7] DU boundaries and sample locations were determined based on residence-specific information and in accordance with procedures described in the FRP (Ramboll Environ 2016b). Predetermined increment and discrete locations were identified using a hand-held GPS unit. The FSR (Appendix B, see Table 3) documents specific modifications made to planned DU boundaries, increment and discrete locations, or sample depths based on site-specific conditions encountered in the field sampling phase.

3.1.3 Methods for Sample Collection

This section summarizes the collection and field processing methods for IC, discrete soil samples, and field QC samples. Sample collection was carried out in accordance with the methods presented in the QAPP Addendum (Ramboll Environ 2016a) and FSP (Attachment D to the QAPP Addendum). Table 3-1 identifies the numbers of IC and discrete soil samples collected for each DU type. Table 3-2 summarizes field QC samples that were collected for each DU type. Field QC samples included IC triplicate, discrete duplicate, equipment rinsate blank samples, and EPA split samples.

3.1.3.1 IC Sampling

Within each DU, increments were collected at predetermined locations using IC sampling methods in accordance with the QAPP Addendum (Ramboll Environ 2016a). Once the locations had been cleared of any surface debris, surface soil increments were collected

[7] The selection of DUs for discrete sampling was developed in consultation with EPA and is documented in Attachment D1 to the QAPP Addendum.

from the surface to the depth specified for that DU. Increments were collected using a Multi-Incremental Sampling Tool (MIST™) or EZ-Probe™ sampling device. The same tool was used to collect all increment samples corresponding to a single IC sample within a DU. Each increment was placed in a dedicated plastic zippered storage bag and examined for cultural materials by a cultural resource monitor and/or archaeologist. Once the soil increment passed the cultural inspection, the soil was transferred from the plastic bag to a decontaminated plastic bucket designated for collection of all increments in that IC sample, and sampling continued. Sample buckets were labeled at the time of sampling. Labels included the alphanumeric sample identification (ID), the sampler's initials, and the sample date and time as specified in the FSP. Field observations and sampling activities were recorded in field notebooks and on tablet computers. Sample collection equipment was decontaminated between IC sample replicates at the same DU and between DUs in accordance with the procedures detailed in the FSP. Labeled and sealed IC sample buckets corresponding to each DU sampled were transferred to the field sample handling manager in the sample handling and storage facility in Northport, Washington. The sample ID was recorded on the appropriate field sampling form in the tablet and on the chain-of-custody (COC) form. Sample labeling details and completed COC forms are provided in Appendix B, the FSR. Sample custody was securely maintained at the sample handling and storage facility until transfer via courier to the analytical laboratory, ALS, in Kelso, Washington. At ALS, the contents of each bucket were homogenized and processed as described in Section 3.2 of this report. IC samples were analyzed for solids and TAL metals (except mercury). IVBA analysis of lead and arsenic in soil was also conducted on a subset of DUs where the lead or arsenic concentration in non-dripline IC samples was greater than or equal to 100 or 20 mg/kg, respectively, as described in Appendix B.

A total of 740 IC samples were collected from 452 DUs and submitted to ALS for analysis (see Section 3.2). This number includes triplicate samples collected at 144 of the DUs. IC samples from 41 of the DUs were also submitted for IVBA analysis. Further details regarding the collection of IC samples are provided in the FSR (Appendix B).

IC Sample Triplicates

Triplicate IC samples were collected at 144 of the 452 DUs (approximately 31 percent of DUs) to ensure reliable estimates of the mean concentration of target analytes within the DU. The locations for the triplicate IC subsample increments within a DU were pre-determined or were determined in the field using a systematic approach based on the spacing between primary subsample increments as described in the FSP.

3.1.3.2 Discrete Sample Collection

Discrete soil samples were collected from the 0 to 1 in. and 1 to 6 in. depth intervals at five locations within a DU at 29 DUs where the IC sampling depth was 0 to 1 in. Locations were designated A through E. Attachment D1 to the QAPP Addendum summarizes the approach used to randomly select the subset of DUs for discrete sampling. After clearing the sample location of any surface debris, the surface discrete soil sample was collected from the top 0 in. to 1 in. below the surface using a decontaminated stainless steel hand trowel. The sample was placed in a dedicated plastic zippered storage bag and examined for cultural materials by a cultural resource monitor and/or archaeologist. Once the surface soil sample passed the cultural inspection, the soil was transferred from the plastic bag to a laboratory-supplied 16-oz jar in the field. This process was repeated at the same location for collection of soil from the 1 to 6 in. depth interval before moving onto the next discrete soil sample location within the DU.

Sample jars were labeled at the time of sampling. Labels included the alphanumeric sample ID, the sampler's initials, and the sample date and time as specified in the FSP. Field observations and sampling activities were recorded in field notebooks and on tablet computers. Sample collection equipment was decontaminated between discrete sample locations in accordance with the procedures detailed in the FSP. Labeled and sealed discrete sample jars were transferred to the field sample handling manager in the sample handling and storage facility in Northport, Washington. The sample ID was recorded on the appropriate field sampling form in the tablet and on the COC form. Sample labeling details and completed COC forms are provided in the FSR (Appendix B). Sample custody was securely maintained at the sample handling and storage facility until transfer via courier to the analytical laboratory, ALS, in Kelso, Washington. At ALS, the contents of each jar were homogenized and processed as described in Section 3.2 of this report. Discrete soil samples were analyzed for solids and TAL metals (except mercury).

A total of 348 discrete samples were collected from 29 DUs and submitted to ALS for analysis (see Section 3.2). This number includes field duplicate samples. Further details regarding the collection of discrete samples are provided in the FSR (Appendix B).

Discrete Sample Field Duplicates

Field duplicate samples were collected to assess the precision of the discrete soil sampling process. One field duplicate sample per sample interval was collected from discrete location E in each DU where discrete samples were collected. As documented in Section 3.8 of the FSR (Appendix B), some of the discrete field duplicates were collected as co-located samples adjacent to the primary sample at discrete location E. Others were

collected by doubling the volume of soil collected from each depth interval at location E and then splitting the soil into separate jars after inspection by cultural resource monitors.

3.1.3.3 EPA Split Samples

EPA split samples were selected by EPA for chemical analysis as part of their quality assurance/quality control (QA/QC) program. EPA split samples were prepared by ALS from 113 of the collected IC samples and 53 of the collected discrete samples and sent to EPA for analysis, as described in Section 3.2 of this report.

3.1.3.4 Equipment Rinsate Blank

Equipment rinsate blanks were used to evaluate sampling device cleanliness and potential carryover of target contaminants in soil samples from equipment contribution. The equipment rinsate samples consisted of ASTM Type II water (purchased and certified from a commercial vendor) poured over or through the decontaminated sampling device and collected in a pre-preserved, laboratory-supplied sample container. One equipment rinsate blank was collected for each type of non-disposable sampling equipment used during the sampling event (at an interval of one per day). The samples were collected from one sample team each day on a randomly selected DU equipment set. Once collected, labeled sample containers were processed and stored at the sample handling and storage facility in Northport, Washington in accordance with the FSP until transfer via courier to the analytical laboratory, ALS, in Kelso, Washington where the samples were analyzed for TAL metals (except mercury).

A total of 29 equipment rinsate blanks (25 from IC sample equipment and 4 from discrete soil sample equipment) were collected during the field sampling effort. Table 3-2 provides the number of DU types that had equipment rinsate blanks collected. The analysis of equipment rinsate blanks is described in Section 3.2 of this report.

3.1.3 Field Changes and Deviations

Procedures presented in the QAPP Addendum (Ramboll Environ 2016a) were followed to the extent possible during implementation of the study. The FSR (Appendix B) summarizes field modifications and deviations that were identified based on site-specific conditions (see Section 3.8 and Table 3 of Appendix B). All modifications and deviations were communicated with EPA for approval. The FSR also includes copies of completed field modification forms (see Appendix D to the FSR).

The following types of modifications and deviations were approved by EPA and documented in the FSR (Appendix B):

- Adjusting the target sample depth for garden DUs based on probing soil across the DU prior to sampling to establish a minimum sample depth.
- Adjusting the DU boundary, increment locations, or sample depths based on conditions encountered in the field (e.g., new residence development, obstructions or boundary restrictions identified at the time of sampling, etc.).
- Using the EZ-Probe™ sampling tool instead of the MIST™ sampling tool to collect 0 to 1 in. sample increments at some DUs.
- Collecting the discrete field duplicate sample at some DUs as a field split rather than as a co-located field duplicate.
- Ensuring containerization and storage of all decontamination liquids in a secure tank located at the sample processing facility in Northport for subsequent characterization and disposal to a liquid waste disposal facility operated under Chapter 173-351 of the Washington Administrative Code, instead of discharging liquid wastes to the ground in the area where the samples were collected, as specified in the QAPP Addendum (Ramboll Environ 2016a).

As reported in the FSR, the majority of the sampling modifications and deviations did not affect the sampling procedure, but consisted primarily of minor adjustments to a DU boundary, identification of increment locations, or a sample depth amendment due to conditions encountered in the field.

3.2 LABORATORY METHODS

Following the procedures specified in the QAPP Addendum (Ramboll Environ 2016a), IC samples, discrete soil samples, and equipment rinsate samples were processed and analyzed by ALS. Table 3-3 summarizes the analyses conducted on the soil samples.

Upon receipt at ALS, all field samples were stored at room temperature. IC samples (including field replicates) were weighed, air dried, and passed through a No. 10 sieve (2 mm). The weight of the < 2 mm size fraction was then recorded and the < 2 mm fraction passed through either a No. 60 or No. 100 sieve to isolate the target particle size of < 250 μm for beach DUs or < 149 μm for non-beach DUs, respectively. The weight of < 250 and < 149 μm fractions were also recorded. The samples were then spread out into a rectangle (Japanese slab cake) for incremental sampling according to ITRC guidance (ITRC 2012) and the laboratory's SOP, provided as Attachment E to the QAPP Addendum (Ramboll Environ 2016a), prior to analysis. Discrete soil samples (including field duplicates) were homogenized, dried, and passed through a No. 10 sieve (2 mm) in the laboratory to

remove large debris (e.g., sticks, stones) present in the sample. The resulting material was weighed and sieved through a No. 100 sieve to isolate the target particle size of < 149 μm.

Samples collected for this study were analyzed according to standard EPA-approved analytical, preparation, and digestion methods, as detailed in the QAPP Addendum (Ramboll Environ 2016a). Laboratory deviations from the QAPP Addendum are discussed in Section 3.2.2.

The 29 equipment rinsate blank samples collected in the field were analyzed for TAL metals (except mercury). EPA split samples were prepared by ALS from the homogenized soil samples after processing as described above, and were provided to EPA for separate analysis by Manchester Environmental Laboratory (CH2M HILL 2016).

The laboratory generated 59 experimental blanks for equipment used in the sieving process to identify possible contamination from the laboratory. An experimental blank is similar to a rinsate blank and was generated according to laboratory protocols for equipment used in the laboratory's IC sieving process. Experimental blanks were generated per batch of samples (i.e., 1 per 20) and were analyzed for TAL metals (except mercury).

The following additional laboratory QC analyses were performed:

- Matrix spike/matrix spike duplicate (MS/MSD) samples were analyzed to assess the accuracy of the analyses at the frequency of once every 20 samples.
- Laboratory duplicates were performed to evaluate the reproducibility between individual measurements (i.e., analytical precision) at the rate of 1 per 20 samples, or one per sample delivery group (SDG), whichever was greater.

3.2.1 Methods for Chemical Analysis

ALS prepared and analyzed all soil samples in accordance with the protocols and procedures specified in the QAPP Addendum (Ramboll Environ 2016a), as presented in Table 3-3. Soil samples for metals analyses were prepared with acid digestion by EPA method 3050B. Samples were analyzed for metals according to EPA methods 6010C and 6020A (see Table 3-3). Samples for IVBA were prepared according to the Ruby extraction method and analyzed by EPA 6020A Ruby bioaccessibility method. Method detection limits and method reporting limits are detailed in the QAPP Addendum and in Table 3-4.

3.2.2 Laboratory Deviations

Two laboratory method deviations were noted in the data validation reports (available on the "Downloads" page in the project database [http://teck-ucr.exponent.com]). For SDG K1609839, the serial dilution was accidentally spiked with several target analytes and the

analyst did not prepare another serial dilution sample at the time of analysis. Serial dilution precision for this SDG could not be evaluated for ICP-MS analytes. The response for calcium in sample 16R-151-H1-D1B-01 exceeded the linear range of the instrument and the sample was not diluted and reanalyzed. The result for this sample was qualified as estimated ("J" flagged).

3.3 DATA EVALUATION APPROACH

The QAPP Addendum (Ramboll Environ 2016a) included procedures for the documentation of field, laboratory, and data validation. The draft data management plan (Exponent 2010) detailed information related to the storage and handling of all project data.

3.3.1 Methods

Sampling efforts were documented in field notebooks and forms, COCs, and GPS files. Deviations from the sampling plan were noted in the field and detailed in the FSR (Appendix B). All documents were scanned and converted to electronic pdf files. Laboratory data were stored at the analytical laboratory and uploaded to the project database. Data were validated by an independent reviewer, Environmental Standards, Inc. (ESI), and documented in data validation reports. Data validation reports were submitted to EPA.

Validated data are tabulated and summarized in this report. Section 5 includes summary statistics for soil data (i.e., number of detections, range, and mean) and a field quality control sample assessment. Discrete field duplicate sample relative percent differences (RPDs) and IC field triplicate relative standard deviations (RSDs) were evaluated based on control limits of ± 35 and ≤ 30 percent, respectively. Results for each of the DUs are discussed in Section 5; figures, maps, and tables displaying these results are provided after Section 7. Discrete field duplicate and IC field triplicate sample results are averaged with the corresponding field sample prior to statistical evaluation of analyte concentrations for applicable DUs.

The IVBA results for arsenic and lead in the < 149-µm fraction have been used to calculate site-specific oral RBA values for arsenic and lead in soil. RBA is an exposure factor used to estimate how much of the arsenic or lead in the soil sample will be absorbed into the body if a person ingests the soil compared to how much would be absorbed from food or water. For lead, EPA has validated use of IVBA measurements to estimate site-specific lead RBA values. For arsenic, EPA is expected to validate use of IVBA measurements to estimate site-specific arsenic RBA values in the near future. In the interim, the default arsenic RBA, 60 percent (USEPA 2012a), is presented in this report in addition to site-

specific arsenic RBA values. The human health screening level for lead includes a default RBA adjustment of 60 percent. To ensure appropriate comparison of residential soil lead concentrations to the screening level when the site-specific RBA value is used, soil concentrations are multiplied by the ratio of the site-specific soil lead RBA value to EPA's default RBA for lead in soil (60 percent). For clarity, this report, including figures, tables, and maps, distinguishes bioavailability (i.e., RBA) adjusted soil concentrations from the concentrations measured in the soil sample as reported by the analytical laboratory.

3.3.2 Deviations from Planned Data Evaluation Approach

There were no changes to the data evaluation approach addressed in the QAPP Addendum or in the data validation reports (available on the "Downloads" page in the project database [http://teck-ucr.exponent.com]).

4 VALIDATION ASSESSMENT

Data validation was performed by ESI of Valley Forge, Pennsylvania, in accordance with the QAPP Addendum (Ramboll Environ 2016a) and based on EPA guidance from the following documents:

- *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use* (EPA 540-R-08-005) (USEPA 2009)
- *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review* (EPA 540-R-10-011) (USEPA 2010)
- *USEPA Standard Operating Procedure for an In Vitro Bioaccessibility Assay for Lead in Soil* (EPA 9200.2-86) (USEPA 2012b).

Stage 2B validation was conducted for the majority of the data. In accordance with the QAPP Addendum (Ramboll Environ 2016a), data for approximately 11 percent of the samples underwent Stage 4 validation. Data were qualified, as needed, based on an evaluation of laboratory and field QC criteria, including the following:

- Holding times
- Laboratory sample receipt and sample preparation
- Initial and continuing calibration results
- Laboratory, equipment, and sieve blank concentrations
- MS/MSD results
- Laboratory control sample (LCS) results
- Laboratory and field replicate results
- Interference check samples
- Serial dilution results
- Internal standard performance
- Instrument sensitivity.

ESI data validation reports are available on the "Downloads" page of the project database (http://teck-ucr.exponent.com). The results of the data review for overall quality of results and validation of chemistry data are summarized in Sections 4.1 through 4.5.

4.1 OVERALL DATA QUALITY

ESI evaluated data based on the quality requirements for precision, accuracy or bias, representativeness, completeness, and comparability (PARCC) outlined in the QAPP

Addendum (Ramboll Environ 2016a). The data validator used the performance criteria presented in Worksheets #12-1, #12-2, and #28 of the QAPP Addendum to evaluate soil data for the quantitative components of PARCC (i.e., precision and accuracy or bias). In addition, a control limit of 35 percent was used to evaluate field duplicate RPDs and a control limit of 30 percent was used to evaluate field replicate RSDs.[8] The data validator also assessed sample handling, laboratory methods, and holding times to evaluate the representativeness and comparability of analytical data.

Data were qualified as necessary by ESI when measurement performance criteria were not met. Data qualifiers are summarized in Tables 4-1 and 4-2. All data were considered usable with the qualifiers presented. No data were rejected. Therefore, 100 percent completeness was achieved for all analytes.

The following qualifiers were applied by the validator:

- "J"—The concentration was considered estimated due to one or more of the following: LCS or MS/MSD recovery not within acceptable range, high percent difference, high RPD or RSD for field or laboratory replicates, inductively coupled plasma (ICP) interference, instrument bias, or because the concentration was between the detection limit (DL) and the reporting limit (RL).
- "U"—The analyte was not detected at or above the associated DL.
- "UJ"—The analyte was not detected, but the DL was considered approximate due to bias identified during data review.

ESI reviewed laboratory QC samples as part of the data validation process. Data review findings and the reasons for qualifiers applied by the data validator are summarized for equipment blanks and sieve blanks, IC soil data, discrete soil data, and IVBA data in Sections 4.2 through 4.5.

4.2 EQUIPMENT BLANK AND SIEVE BLANK DATA VALIDATION RESULTS

This section summarizes equipment blank and sieve blank results qualified by ESI (Table 4-1). Qualifiers were applied as needed based on an evaluation of various QC factors (e.g., laboratory blank concentrations and serial dilutions), as detailed in the following subsections. Numbers of qualified sample results (excluding laboratory QC samples) are shown, followed by numbers of qualified laboratory QC samples in parentheses.

[8] Evaluation of RPDs and RSDs is discussed in Section 5.2, the Field QC Summary.

There were no exceedances of sample holding times, and no soil results were qualified due to equipment or sieve blank concentrations. Sieve blanks were created in the laboratory and therefore did not have COC forms. Each sieve blank ID contained the sample delivery group number for the soil samples with which it was associated.

4.2.1 Calibration

All calibration standard concentrations for analyses of equipment blanks and sieve blanks were within control limits.

4.2.2 Blanks

Sieve blank concentrations were qualified as estimated ("J" flagged) due to negative instrument bias in an associated calibration blank for iron in 16 (0) out of 88 (0) samples. Non-detected sieve blank concentrations were qualified "UJ" due to negative instrument bias in an associated calibration blank for iron in 1 (0) out of 88 (0) samples.

4.2.3 Laboratory Control Samples

All LCS sample concentrations for analyses of equipment blanks and sieve blanks were within control limits.

4.2.4 Interference Check Samples

All interference check concentrations for analyses of equipment blanks and sieve blanks were within control limits.

4.2.5 Serial Dilutions

Sieve blank concentrations were qualified as estimated ("J" flagged) due to a high serial dilution percent difference for aluminum in 20 (0) out of 59 (0) samples, for copper in 20 (0) out of 59 (0) samples, and for lead in 20 (0) out of 59 (0) samples.

Equipment blank concentrations were qualified as estimated ("J" flagged) due to a high serial dilution percent difference for aluminum in 13 (0) out of 29 (0) samples, for manganese in 13 (0) out of 29 (0) samples, and for silver in 3 (0) out of 29 (0) samples. Non-detected equipment blank concentrations were qualified "UJ" due to high serial dilution percent difference for silver in 10 (0) out of 29 (0) samples.

4.2.6 Internal Standards

All internal standard concentrations for analyses of equipment blanks and sieve blanks were within control limits.

4.3 IC SOIL DATA VALIDATION RESULTS

This section summarizes the number of IC soil results qualified by ESI (Table 4-2). Qualifiers were applied as needed based on an evaluation of various QC factors (e.g., LCS and MS/MSD recoveries, laboratory blank concentrations, and replicate results), as detailed in the following subsections. Numbers of qualified sample results (excluding laboratory QC samples) are shown, followed by numbers of qualified laboratory QC samples in parentheses.

There were no sample transport issues or exceedances of sample holding times. The following documentation and analytical issues that did not require qualification were noted in the data validation reports:

- The analytical laboratory observed that the sample IDs on the container labels differed from those on the COC forms for samples 16R-097-H2-IC-02 and 16R-097-H2-IC-03. The sample collection times were used to determine that the sample IDs on the containers were correct. The container IDs were used to log the samples.
- The sample masses of the method blanks for some IC soil samples were originally reported incorrectly. The laboratory corrected the error and revised the results accordingly.
- The analytical laboratory provided revised Form 10s for SDG K1609036 with corrected aluminum and iron RLs that were initially reported incorrectly.
- For SDG K1609839, the serial dilution precision could not be evaluated for ICP-MS analytes, because the serial dilution was accidentally spiked with several target analytes.
- The dilution factor for zinc in samples 16R-168-O1-IC-01, 16R-168-O1-IC-02, and 16R-168-O1-IC-03 was initially reported incorrectly. The laboratory corrected the error and revised the results accordingly.
- The dilution factors for lead and zinc in samples 16R-146-H1-IC-01, 16R-146-H1-IC-02, and 16R-146-H1-IC-03, and for zinc in sample 16R-157-B1-IC-01 were initially reported incorrectly. The laboratory corrected the error and revised the results accordingly.
- The analytical laboratory provided revised Form 14s for SDG K1610934 to correct an error in the TAL.
- The analytical laboratory did not include Form 10s in the data package for SDG K1611482. Form 10s were provided to ESI and are included in the data validation report.

4.3.1 Calibration

All calibration standard concentrations for analyses of IC soil samples were within control limits.

4.3.2 Blanks

All calibration and preparation blanks for analyses of IC soil samples were within control limits.

4.3.3 Matrix Spikes

IC soil concentrations were qualified as estimated ("J" flagged) due to MS/MSD recoveries that were not within control limits for the following analytes and numbers of samples:

- Antimony[9] – 740 (78) out of 740 (78)
- Barium – 12 (2) out of 740 (78)
- Chromium – 20 (2) out of 740 (78)
- Nickel – 20 (2) out of 740 (78)
- Potassium – 40 (4) out of 740 (78)
- Zinc – 72 (8) out of 740 (78).

4.3.4 Laboratory Control Samples

IC soil concentrations were qualified as estimated ("J" flagged) due to LCS recoveries that were not within control limits for antimony in 19 (2) out of 740 (78) samples and for sodium in 39 (4) out of 740 (78) samples.

4.3.5 Laboratory and Field Replicate Samples

IC soil concentrations were qualified as estimated ("J" flagged) due to laboratory and/or field replicate RPDs and/or RSDs that were not within control limits for the following analytes and numbers of samples:

- Antimony – 20 (2) out of 740 (78)
- Beryllium – 6 (0) out of 740 (78)
- Lead – 3 (0) out of 740 (78)
- Nickel – 3 (0) out of 740 (78)

[9] General note: Antimony recoveries are generally low for soil and sediment samples when digested using EPA Method 3050B, even with the addition of hydrochloric acid, which was a component of the extraction used for the residential soil samples. While hydrochloric acid can increase the solubility of antimony, low recoveries may persist due to method deficiency that can be magnified by matrix components. Despite the potential for low recoveries, EPA Method 3050B is still commonly used because of its versatility for general metals analysis. Affected antimony results are considered estimated and have been J-flagged by the data validator.

- Calcium – 6 (0) out of 740 (78)
- Chromium – 3 (0) out of 740 (78)
- Copper – 3 (0) out of 740 (78)
- Silver – 75 (6) out of 740 (78)
- Thallium – 26 (4) out of 740 (78).

4.3.6 Interference Check Samples

IC soil concentrations were qualified as estimated ("J" flagged) due to ICP interference for magnesium in 5 (0) out of 740 (78) samples.

4.3.7 Serial Dilutions

IC soil concentrations were qualified as estimated ("J" flagged) due to a high serial dilution percent difference for the following analytes and numbers of samples:

- Antimony – 12 (2) out of 740 (78)
- Barium – 12 (2) out of 740 (78)
- Beryllium – 71 (8) out of 740 (78)
- Cadmium – 12 (2) out of 740 (78)
- Copper – 12 (2) out of 740 (78)
- Lead – 12 (2) out of 740 (78)
- Silver – 94 (10) out of 740 (78)
- Thallium – 60 (6) out of 740 (78).

4.3.8 Internal Standards

All internal standard concentrations for analyses of IC soil samples were within control limits.

4.4 DISCRETE SOIL DATA VALIDATION RESULTS

This section summarizes the number of discrete soil concentrations qualified by ESI (Table 4-2). Qualifiers were applied as needed based on an evaluation of various QC factors (e.g., LCS and MS recoveries, laboratory blank concentrations, and replicate results), as detailed in the following subsections. Numbers of qualified sample results (excluding laboratory QC samples) are shown, followed by numbers of qualified laboratory QC samples in parentheses.

There were no sample transport issues or exceedances of sample holding times. The following documentation and analytical issues were noted in the data validation reports:

- The sample IDs for several samples in SDG K1609040 were revised due to an owner-requested change in the decision unit. Sample IDs beginning with "16R-082-O1" on the COC form were changed to "16R-082-H1." The updated IDs were used for data validation.

- The result for calcium in sample 16R-151-H1-D1B-01 was qualified as estimated ("J" flagged), because the response exceeded the linear range of the instrument and the sample was not diluted and reanalyzed.

4.4.1 Calibration

All calibration standard concentrations for analyses of discrete soil samples were within control limits.

4.4.2 Blanks

All calibration and preparation blanks for analyses of discrete soil samples were within control limits.

4.4.3 Matrix Spikes

Discrete soil concentrations were qualified as estimated ("J" flagged) due to MS/MSD recoveries that were not within control limits for antimony in 348 (40) out of 348 (40) samples, for barium in 20 (2) out of 348 (40) samples, and for zinc in 56 (6) out of 348 (40) samples.

4.4.4 Laboratory Control Samples

Discrete soil concentrations were qualified as estimated ("J" flagged) due to LCS recoveries that were not within control limits for sodium in 40 (4) out of 348 (40) samples.

4.4.5 Laboratory and Field Replicate Samples

Discrete soil concentrations were qualified as estimated ("J" flagged) due to laboratory and/or field replicate sample RPDs and/or RSDs that were not within control limits for the following analytes and numbers of samples:

- Antimony – 10 (0) out of 348 (40)
- Arsenic – 2 (0) out of 348 (40)
- Cadmium – 10 (0) out of 348 (40)
- Calcium – 2 (0) out of 348 (40)
- Copper – 2 (0) out of 348 (40)
- Lead – 14 (0) out of 348 (40)
- Manganese – 4 (0) out of 348 (40)
- Silver – 30 (2) out of 348 (40)
- Thallium – 6 (0) out of 348 (40)
- Zinc – 4 (0) out of 348 (40).

4.4.6 Interference Check Samples

Discrete soil concentrations were qualified as estimated ("J" flagged) due to ICP interference for magnesium in 5 (1) out of 348 (40) samples.

4.4.7 Serial Dilutions

Discrete soil concentrations were qualified as estimated ("J" flagged) due to high serial dilution percent difference for the following analytes and numbers of samples:

- Arsenic – 4 (2) out of 348 (40)
- Beryllium – 12 (2) out of 348 (40)
- Sodium – 20 (2) out of 348 (40)
- Thallium – 20 (2) out of 348 (40)
- Vanadium – 20 (2) out of 348 (40)
- Zinc – 20 (2) out of 348 (40).

4.4.8 Internal Standards

All internal standard concentrations for analyses of discrete soil samples were within control limits.

4.5 IVBA DATA

ESI conducted a comprehensive review of the IC soil IVBA data for arsenic and lead, including an evaluation of various QC factors (e.g., instrument calibrations, blanks, LCS and MS recoveries, replicate results, interference checks, serial dilutions, and internal standards). There were no data quality issues. The only qualifiers applied to IVBA concentrations were "J" flags (Table 4-2). For one of these results, the arsenic concentration was between the DL and RL. Six other lead or arsenic results were qualified as estimated due to exceeded holding times.[10] The bioavailability percentages calculated from the estimated results were also qualified as estimated ("J" flagged).

[10] These six results correspond to additional IC soil samples submitted for IVBA analysis per EPA's request on May 2, 2017.

5 RESULTS

This section includes summary statistics for all usable data and an evaluation of field QC samples (i.e., discrete field duplicate samples and IC field triplicate samples). None of the analytes were reported as non-detected in any of these samples. None of the data were rejected. Summary statistics for soil samples are presented for IC and discrete soil sample data, and include the number of detected values and the minimum, maximum, and mean values for each analyte. Summary statistics are presented in Tables 5-1 and 5-2 for IC and discrete soil samples, respectively, and include conventional parameters (i.e., total solids), TAL metals (except mercury), and IVBA data, as applicable.

Table 5-3 summarizes the IVBA data for arsenic and lead for each of the 41 DUs where an IC soil sample was submitted for analysis. Site-specific bioavailability (i.e., RBA) adjusted soil concentrations for arsenic and lead are summarized in Table 5-4 for each of the 41 DUs where an IC soil sample was submitted for IVBA analysis.

Results for total solids and TAL metals (except mercury) in IC samples, by DU type, are presented Figures 5-1 and 5-2a through 5-2v, respectively. Results for TAL metals (except mercury) in discrete soil samples are presented in Figures 5-3a through 5-3v and discussed in Section 5.3. Figures 5-4a and 5-4b present site-specific RBA estimates, by DU type, for arsenic and lead, respectively. The lead and arsenic RBA estimates are incorporated into the discussion of IC soil sample results (Section 5.4). Figures 5-5a through 5-5e show the spatial distribution of residences with an IC soil sample result that exceeded one or more human health screening levels.

In accordance with the draft data management plan (Exponent 2010), detected field duplicate and field triplicate samples were averaged prior to the calculation of summary statistics. Data for EPA split samples, equipment rinsate blanks, and laboratory QA/QC samples, such as MS/MSDs, are not included in the data summaries.

5.1 SUMMARY STATISTICS

This section discusses summary statistics for IC and discrete soil samples.

5.1.1 IC Soil Samples

Samples were collected using IC soil sampling methods from 452 DUs. Summary statistics for IC soil samples are presented in Table 5-1. Data are organized by analyte group (i.e., conventional parameters, TAL metals, and IVBA). IVBA data are reported as percent bioaccessible.

5.1.2 Discrete Soil Samples

Discrete soil samples were collected at five locations within each of 29 DUs where an IC soil sample was collected from a depth of 0 to 1 in. Two depth intervals (i.e., 0 to 1 in. and 1 to 6 in.) were targeted at each location. Summary statistics for discrete soil samples are presented in Table 5-2. Data are organized by analyte group (i.e., conventional parameters and TAL metals). Table 5-5 summarizes the discrete soil data by depth for each of the 29 DUs sampled and includes the average of metals in each depth by DU.

5.2 FIELD QC SUMMARY

This section discusses discrete soil field duplicate sample RPDs and IC soil field triplicate sample RSDs. A control limit of ± 35 percent was used to evaluate RPDs. A control limit of 30 percent was used to evaluate RSDs (Ramboll Environ 2016a).

Field duplicate sample RPDs and field triplicate sample RSDs are summarized in Table 5-6. For discrete soil samples, 29 field duplicate samples were collected from each of two depth intervals. For IC soil samples, 144 field triplicate samples were collected.

For the 0 to 1 in. discrete soil depth, field duplicate sample RPDs greater than ± 35 percent are as follows:

- Total solids – 0 out of 29 data points
- Metals – 11 (i.e., antimony, cadmium, lead, manganese, selenium, and silver) out of 638 data points (1.7 percent).

For the 1 to 6 in. discrete soil depth, field duplicate sample RPDs greater than ± 35 percent are as follows:

- Total solids – 0 out of 29 data points
- Metals – 28 (i.e., antimony, arsenic, cadmium, copper, lead, manganese, selenium, silver, thallium, and zinc) out of 638 data points (4.4 percent).

For the IC soil samples, field triplicate sample RSDs greater than 30 percent are as follows:

- Total solids – 0 out of 144 data points
- Metals – 24 (i.e., beryllium, calcium, chromium, copper, lead, nickel, selenium, silver, and thallium) out of 3,168 data points (0.8 percent).

5.3 COMPARISON OF DISCRETE SOIL DATA BY DEPTH

As specified by the DQOs for the 2016 study, discrete soil sample data from two depths (0 to 1 in. and 1 to 6 in.) were collected to reduce uncertainty regarding interpretation of

the 2014 study discrete sample results for evaluation of the vertical nature and extent of contamination. DQOs for the 2014 study specified collection of discrete soil samples from the 1 to 6 in. depth interval only, limiting the interpretive value of these regarding the vertical nature and extent of metals in soil. Table 5-5 summarizes the discrete soil data by depth for each of the 29 DUs sampled. Figures 5-3a through 5-3v compare log-transformed means and standard deviations for each sample depth and metal across DUs. As shown in these figures, metal concentrations vary across DUs, but concentrations in the two depths appear quite similar across the DUs, with the exception of several metals in DU 203-O1 (aluminum, antimony, arsenic, cobalt, copper, lead, manganese, silver, and thallium). To confirm this observation, statistically significant differences between DU average metal concentrations in the 0 to 1 in. and 1 to 6 in. depth intervals were evaluated using two-sample hypothesis testing in ProUCL 5.1.002. Across the 29 DUs, none of the metal concentrations were significantly different between the two depth intervals at a 0.05 significance level. ProUCL test results are summarized in Appendix C.

5.4 COMPARISON OF IC SOIL DATA WITH SCREENING LEVELS

This section summarizes the comparisons of IC soil results with human health screening levels. The 2016 study screening levels are the same as those used in the 2014 study. These comparisons are for screening purposes only. Exceedance of a screening level does not imply unacceptable risk.

Human health screening levels were available for 17 of the 22 TAL metals analyzed and are listed in Tables 5-7 and 5-8. Four of the TAL metals (calcium, magnesium, potassium, and sodium) are essential nutrients and do not have human health screening levels. A screening level for total chromium is not available. Of the 17 available screening levels, 16 are conservative risk-based concentrations calculated using EPA's Regional Screening Level Calculator (http://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search) and default values for residential exposure factors.

The value used for screening arsenic in this report is based on the Washington cleanup level (20 mg/kg) and was established as the project action limit for screening arsenic in the 2014 study. This screening level was derived assuming arsenic in soil has an RBA of 100 percent. Both unadjusted arsenic data and bioavailability-adjusted arsenic data may be compared to this screening level. The bioavailability-adjusted soil arsenic concentrations reported in Tables 5-7 and 5-8 are based on DU-specific soil arsenic concentrations multiplied by the site-specific RBA for arsenic in soil calculated from arsenic IVBA data collected in this study for that DU. In this study, the average beach and

non-beach RBAs for arsenic are 16.2 and 16.8 percent, respectively, lower than EPA's default RBA.

The lead screening value incorporates EPA's default RBA value for lead in soil, 60 percent. Therefore, comparisons of bioavailability-adjusted soil lead concentrations in these tables are based on DU-specific soil lead concentrations multiplied by the ratio of the site-specific RBA for lead in soil at that DU to EPA's default RBA for lead in soil. Where the site-specific lead RBA estimate for a specific DU is less than 60 percent, this adjustment approach decreases the concentration of lead in soil below that reported by the analytical laboratory. Conversely, where the RBA exceeds 60 percent, this adjustment approach increases the concentration of lead in soil above that reported by the analytical laboratory. Unadjusted lead data are not compared to this screening level. In this study, the average beach and non-beach RBAs for lead are 43.3 and 50.9 percent, respectively, lower than EPA's default RBA.

As shown in Table 5-7, none of the 41 DUs where IVBA measurements were obtained had arsenic above the screening level when adjusted for site-specific arsenic RBA values. Of the 452 DUs sampled, a total of 33 DUs had unadjusted arsenic above the screening level. Two out of 41 DUs had bioavailability-adjusted lead results above the screening level (400 mg/kg). The State of Washington has adopted a screening level for lead of 250 mg/kg, which is the value that was reported to landowners in letters summarizing their residence-specific study results. Nine out of 41 DUs had bioavailability-adjusted lead results above 250 mg/kg. Cadmium, cobalt, and manganese were each above respective screening levels (70.3 mg/kg, 23.4 mg/kg, and 1,830 mg/kg) in one of 452 DUs. Two of the 452 DUs had thallium above the screening level (0.782 mg/kg).

Table 5-8 identifies specific DUs where screening levels were exceeded. Figures 5-5a through 5-5e show the spatial distribution of residences with one or more screening level exceedances. Figures 5-2a through 5-2v present the metals data compared with available human health screening levels. The data presented in both sets of figures correspond to the unadjusted soil concentration data presented in Table 5-8. Thus, data represented for arsenic (Figure 5-2c) and lead (Figure 5-2l) have not been adjusted for RBA. As shown in Figures 5-2a through 5-2v, screening values are exceeded for six metals: arsenic, cadmium, cobalt, lead, manganese, and thallium. The upper tails shown on these figures represent the interquartile range (IQR) plus 1.5 times the IQR. Data points above the upper tail may represent statistical outliers. For cadmium, cobalt, manganese, and thallium, all of the results that were above the screening level exceed the upper tails. For arsenic, unadjusted soil concentrations exceed the screening level in four types of DUs: "Garden," "House," "Other," and "Play Area." For the "Garden" DUs, both exceedances are above the upper tail of the distribution. Several of the elevated arsenic DUs for the "House" and "Other"

categories also exceed the upper tails. For lead, the EPA and State screening levels incorporate a default RBA assumption and are not directly comparable to the unadjusted soil lead results in Figure 5-2l. However, as shown in this figure, soil lead concentrations were highest for the following DU types: "house," "other," and "play area." Lead results for five "House" DUs are greater than 400 mg/kg; these are above the upper tail. Lead in 10 "Other" DUs are greater than 400 mg/kg and three of these are also above the upper tail. The highest soil lead concentration for a "play area" DU has a concentration of 486 mg/kg.

Unadjusted soil arsenic and lead concentrations for sampled DUs at each of the 144 residences are shown spatially in Maps 5-1 through 5-144. DUs with soil concentrations in IC samples that are greater than 20 mg/kg arsenic and/or greater than 250 mg/kg lead are highlighted. Discrete soil sample results are also presented in these maps, but are not used for screening purposes, consistent with the 2014 study. The information presented in Maps 5-1 through 5-144 has been provided to each residence owner along with a brochure describing recommended Soil Safety Guidelines prepared by the Northeast Tri County Health District. The brochure is provided as Appendix D to this report.

6 SUMMARY AND RECOMMENDATIONS

The purpose of the 2016 study was to collect data to support refinement of exposure estimates for residents in the UCR Study Area to support the HHRA. This information will be used to determine whether lead and arsenic concentrations (and other metals) in the fine-grained fraction of surface soils from sampled residences pose an unacceptable risk to human health, particularly for children who live in the study area. Sampling was focused on locations where there is a high potential for exposure by residents, especially children.

The sampling design, as described in the QAPP Addendum (Ramboll Environ 2016a), used a compositing approach whereby increments of surface soil were collected at 30 increment locations within each DU. At DUs sampled as triplicates, soil was collected from 90 increment locations within the DU. A total of 740 composite samples were collected between August 1 and September 26, 2016, at 452 DUs from a total of 144 residences. The total number of field IC soil samples included 432 triplicate samples collected in 144 of the DUs. Each of the residences under investigation was divided into DUs based on residence size and the presence of features that may influence exposure. The following types of DUs were sampled: house, play areas, gardens, agricultural areas, animal/livestock areas, and beach areas. Residences that included other frequently used areas were delineated and assigned to an "other" DU category. The 144 residences included eight tribal allotments. All DUs sampled at tribal allotments were assigned to the other DU category. Driplines around a house or structure were designated as a separate DU if there was a concern of lead-based paint. Boundaries for each DU were delineated based on land use and GPS data collected during field reconnaissance. Beach DU boundaries were delineated in the field based on water elevation at the time of sampling and interviews with residents and landowners regarding use of the beach.

At 29 DUs where the planned IC sample depth was 0 to 1 in., discrete soil samples were also collected from two depths at five locations within the DU. The detailed process for selection of the 29 DUs is provided in Attachment D1 to the QAPP Addendum (Ramboll Environ 2016). DU boundaries and sample locations were determined based on residence-specific information and in accordance with procedures described in the FRP (Ramboll Environ 2016b). Predetermined increment and discrete locations were identified using a hand-held GPS unit. The FSR (Appendix B, see Table 3) documents specific modifications made to planned DU boundaries, increment and discrete locations, or sample depths based on site-specific conditions encountered in the field sampling phase. Sampling activities were conducted under the direct oversight of EPA or their authorized representatives.

Soil samples were processed and analyzed in accordance with the QAPP Addendum (Ramboll Environ 2016a). Soil samples were sieved to < 149 μm prior to analysis. Beach samples were sieved to < 250 μm prior to analysis. Soil samples were analyzed for solids and TAL metals (except mercury). Approximately 20 percent of the samples with lead concentrations greater than or equal to 100 mg/kg and/or arsenic concentrations greater than or equal to 20 mg/kg were selected for IVBA analysis to support estimates of site-specific RBA values for lead and arsenic in soil, respectively. Two laboratory method deviations were noted in the data validation reports, as discussed in Section 3.2.2. All chemical analyses specified in the QAPP were performed.

Quality assurance and validation of soil chemistry data were performed in accordance with the QAPP Addendum (Ramboll Environ 2016a). Qualifiers were assigned to the metals and conventional parameter data, as appropriate. None of the soil sample results were reported as non-detected. None of the data were flagged as rejected.

Based on IC soil samples, DU-specific sampling results representing an estimate of the mean analyte concentration for each sampling area were compared with conservative screening levels that can be used to identify analytes and areas of potential concern for further evaluation in the HHRA. At DUs where IVBA measurements were obtained, lead and arsenic concentrations were adjusted for site-specific RBA values prior to comparing to screening levels. Unadjusted arsenic concentrations for all DUs were also compared to the arsenic screening level. Screening levels were exceeded by six metals: arsenic, cadmium, cobalt, lead, manganese, and thallium. Screening levels were exceeded most often by unadjusted arsenic (33 of 452 DUs; 22 residences). None of the 41 DUs had arsenic above the screening level when soil concentrations were adjusted based on site-specific RBA estimates. Two of the 41 DUs had lead above the 400 mg/kg screening level when soil concentrations were adjusted based on site-specific RBA estimates. The bioavailability-adjusted soil lead exceedances increased to nine of 41 DUs when compared to the State screening level (250 mg/kg). Cadmium and manganese exceeded respective screening levels at one DU. Cobalt exceeded the screening level at one DU. Thallium exceeded the screening level at two of the DUs where arsenic and lead screening levels were also exceeded.

Discrete samples were collected to reduce uncertainty regarding interpretation of the 2014 study discrete sample results for evaluation of the vertical nature and extent of contamination. DU-average metals concentrations across the 29 DUs were not statistically significantly different between the two depth intervals sampled.

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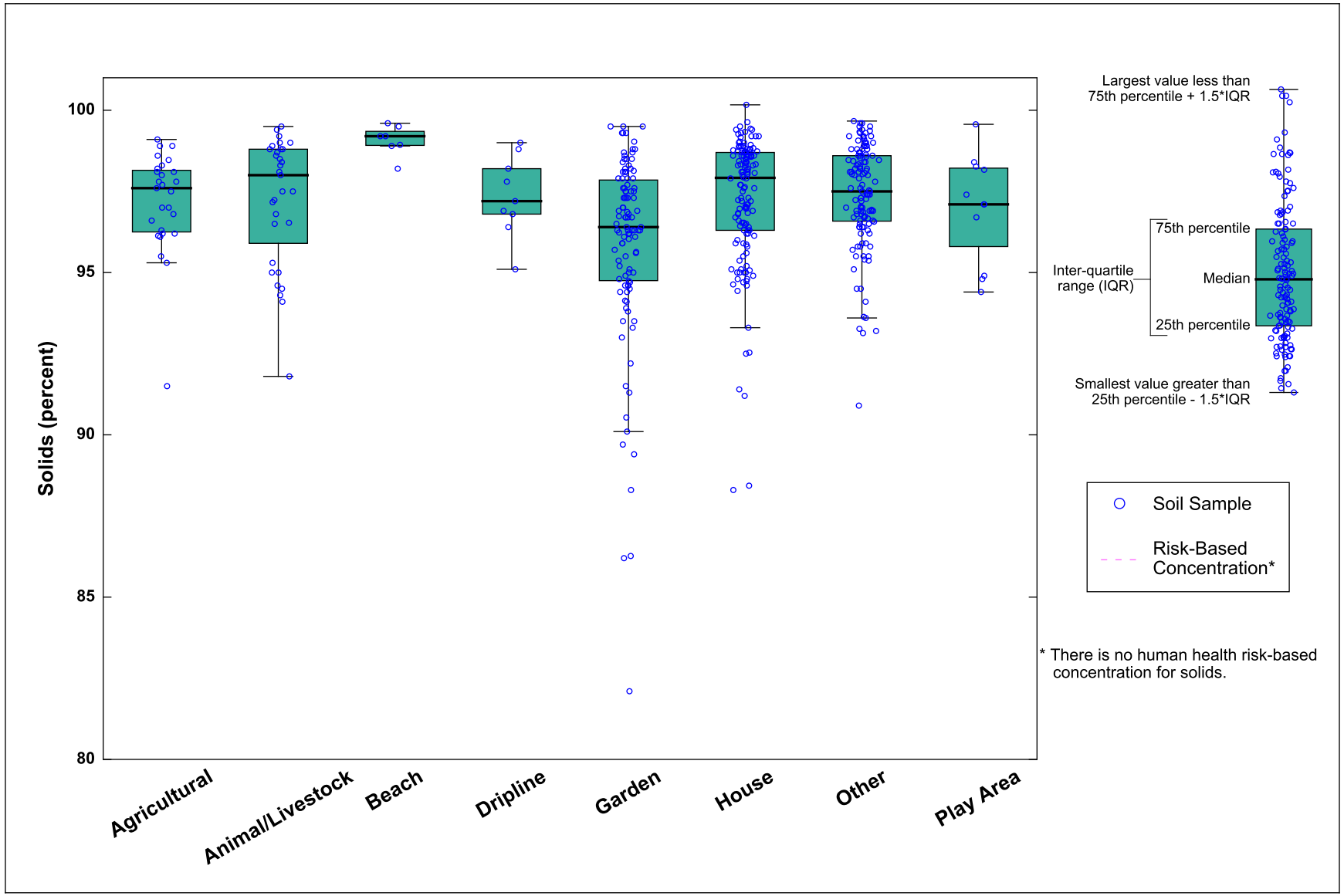
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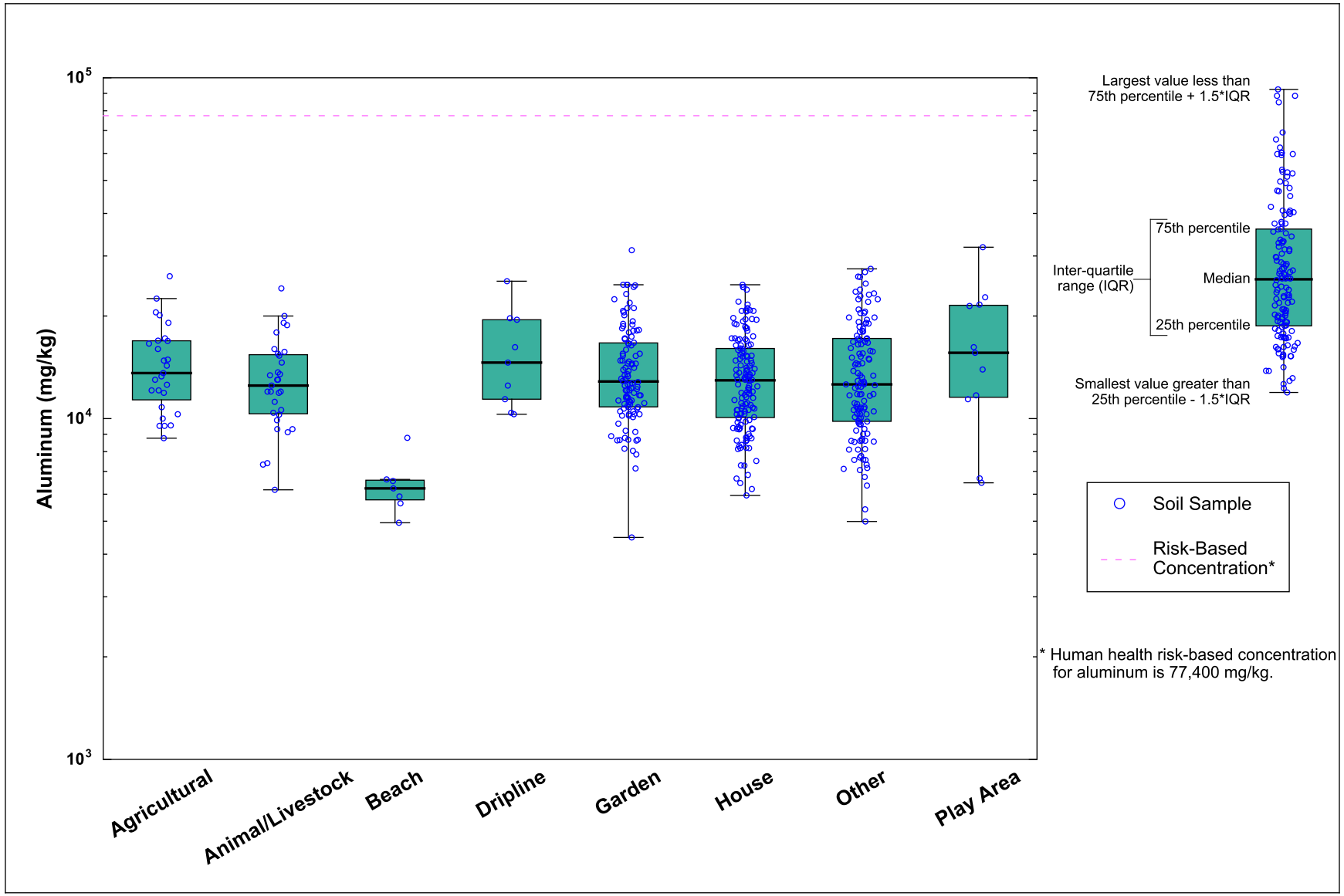
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FIGURES



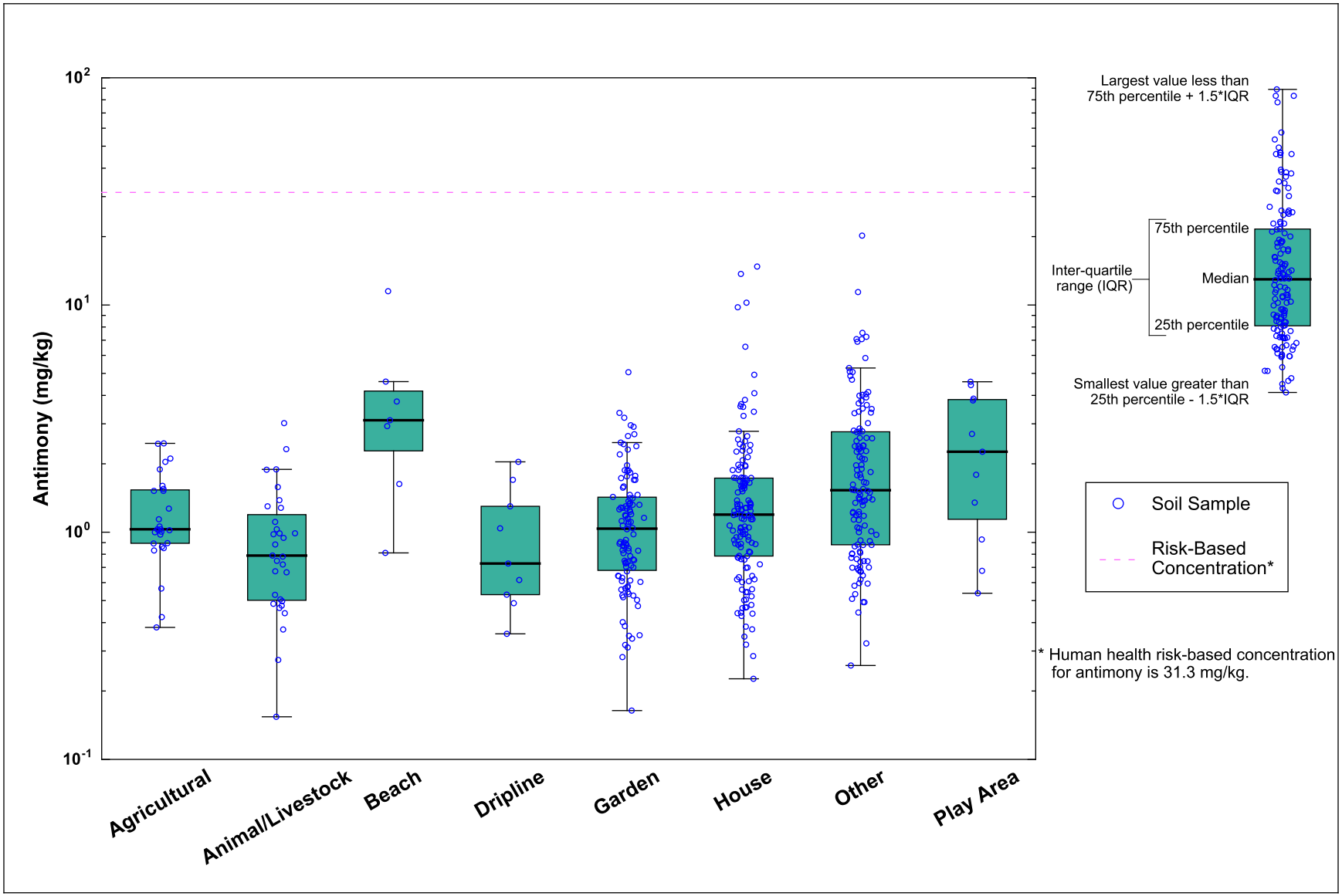
Notes: Results from triplicate samples have been averaged. Data plotted are not log-transformed.

Figure 5–1. Percent Solids in IC Soil Samples by DU Type



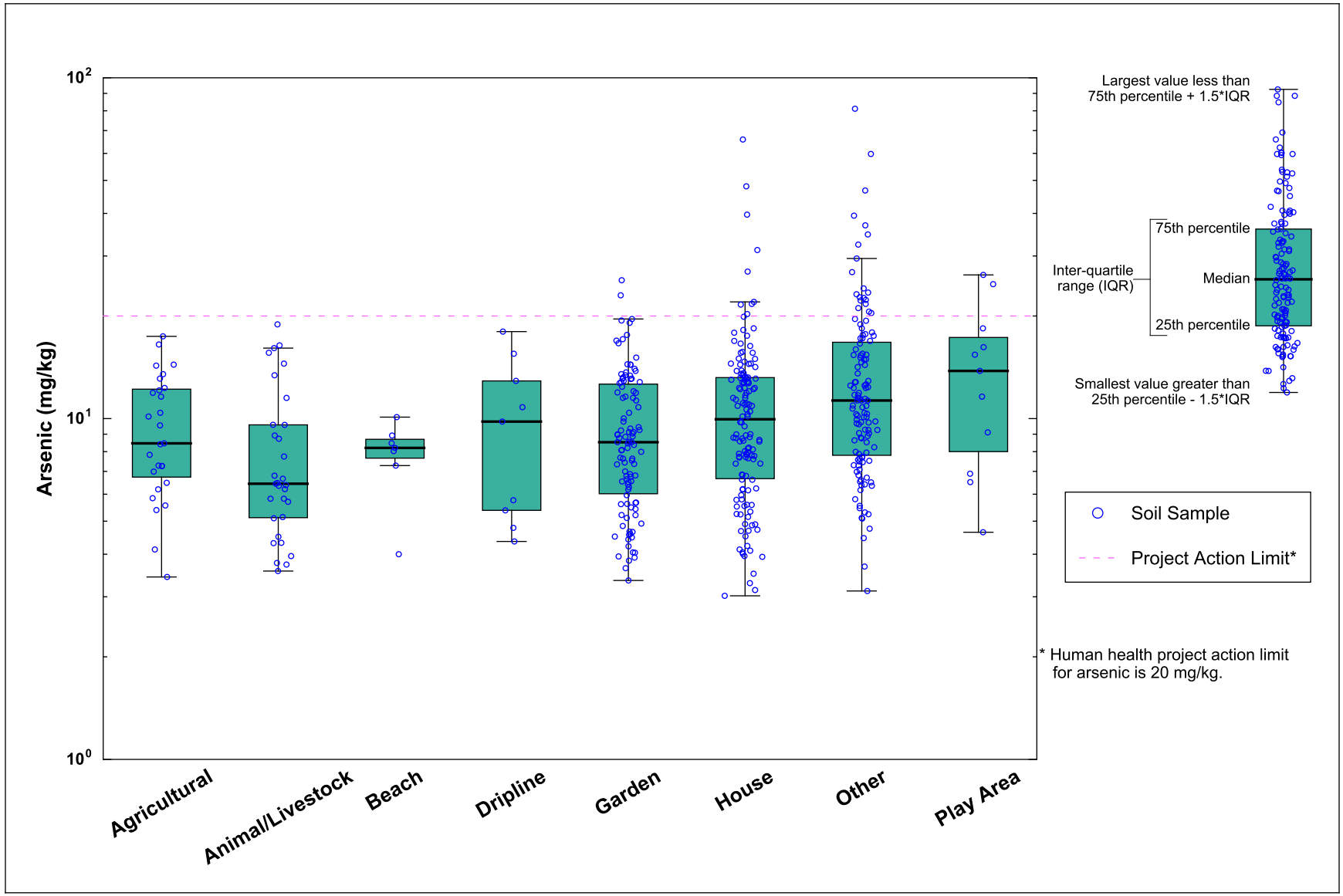
Notes: Results from triplicate samples have been averaged. Data plotted are not log-transformed.

Figure 5–2a. Aluminum Concentrations in IC Soil Samples by DU Type



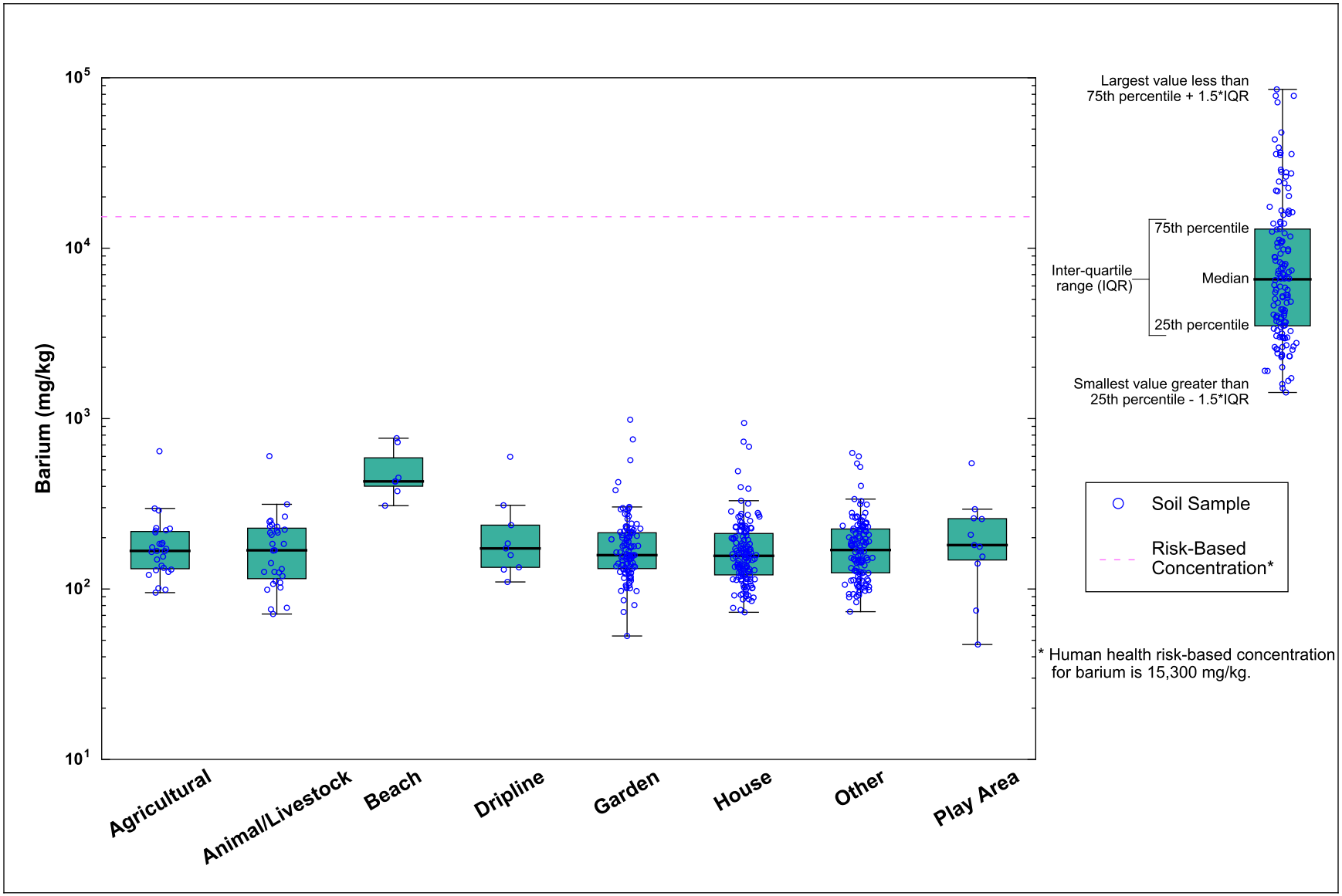
Notes: Results from triplicate samples have been averaged. Data plotted are not log-transformed.

Figure 5–2b. Antimony Concentrations in IC Soil Samples by DU Type



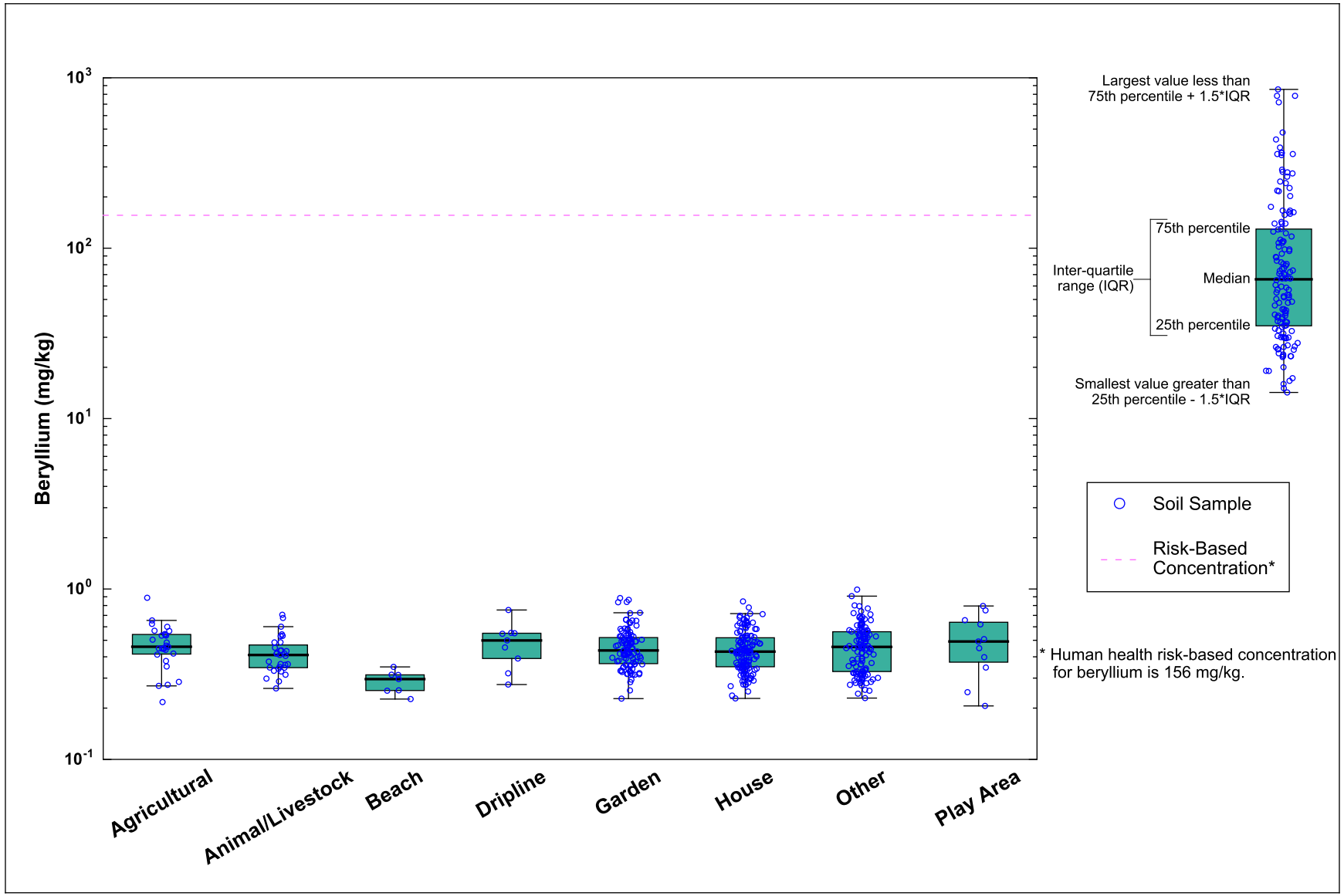
Notes: Results from triplicate samples have been averaged. Data plotted are not log-transformed.

Figure 5–2c. Arsenic Concentrations in IC Soil Samples by DU Type



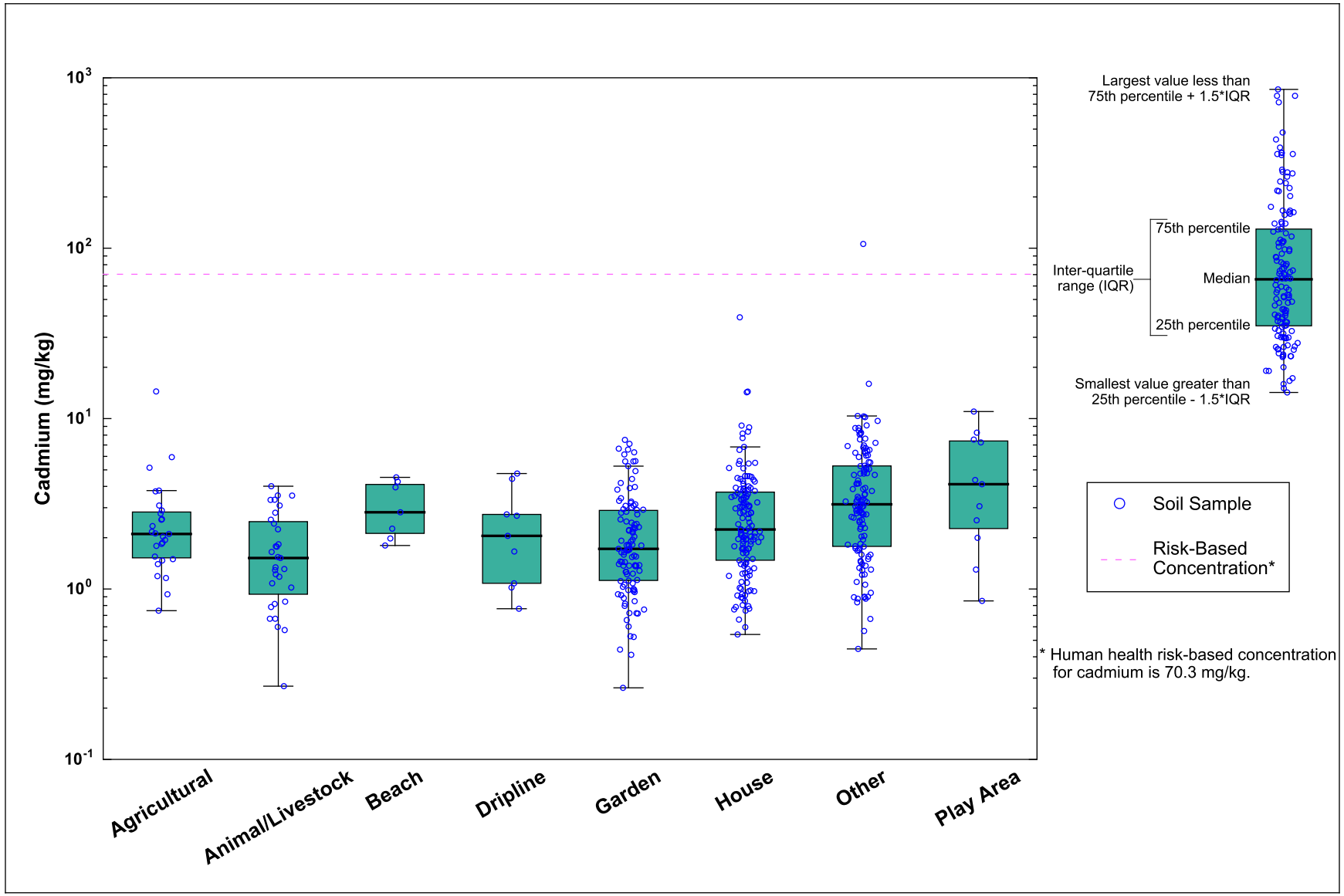
Notes: Results from triplicate samples have been averaged. Data plotted are not log-transformed.

Figure 5–2d. Barium Concentrations in IC Soil Samples by DU Type



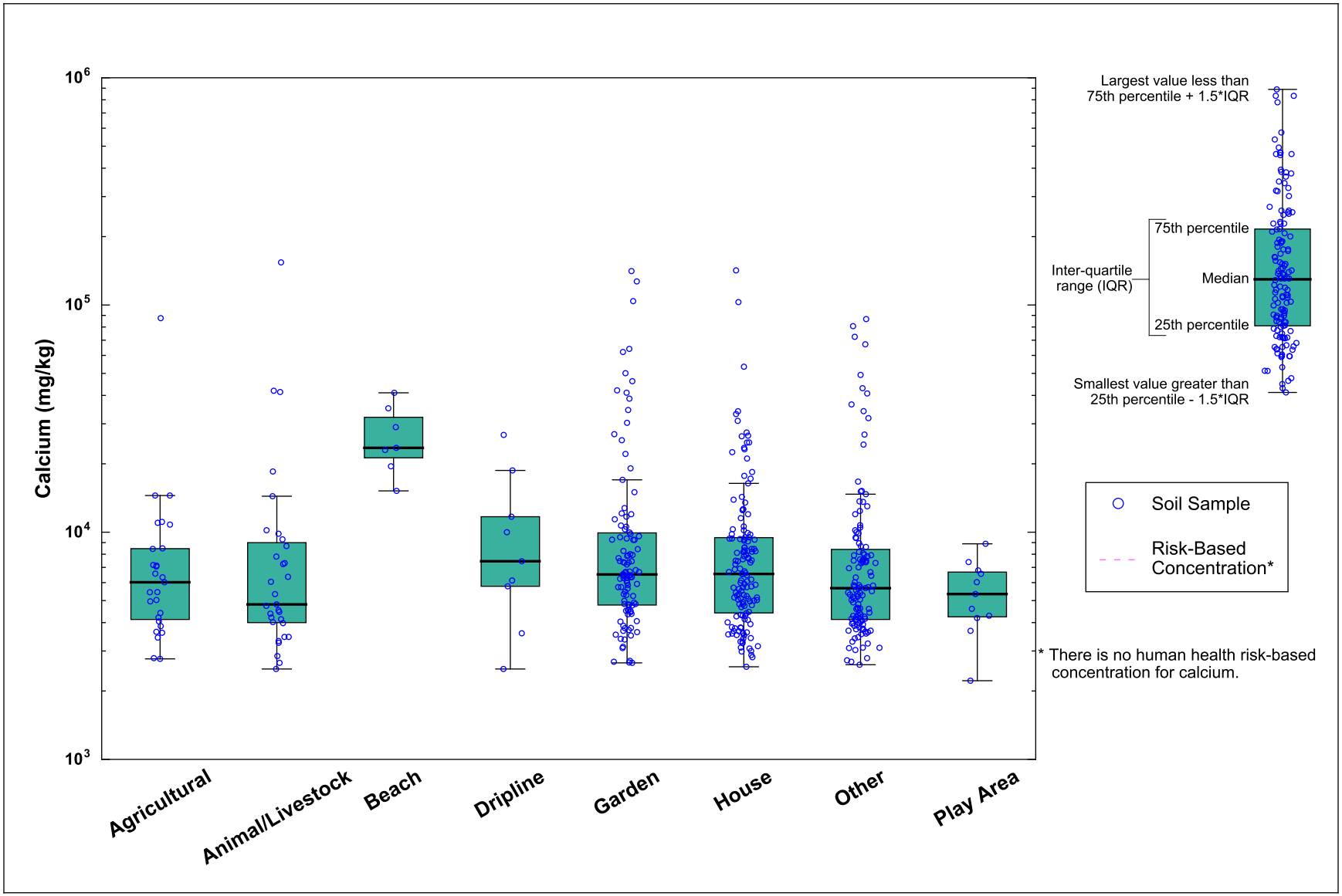
Notes: Results from triplicate samples have been averaged. Data plotted are not log-transformed.

Figure 5–2e. Beryllium Concentrations in IC Soil Samples by DU Type



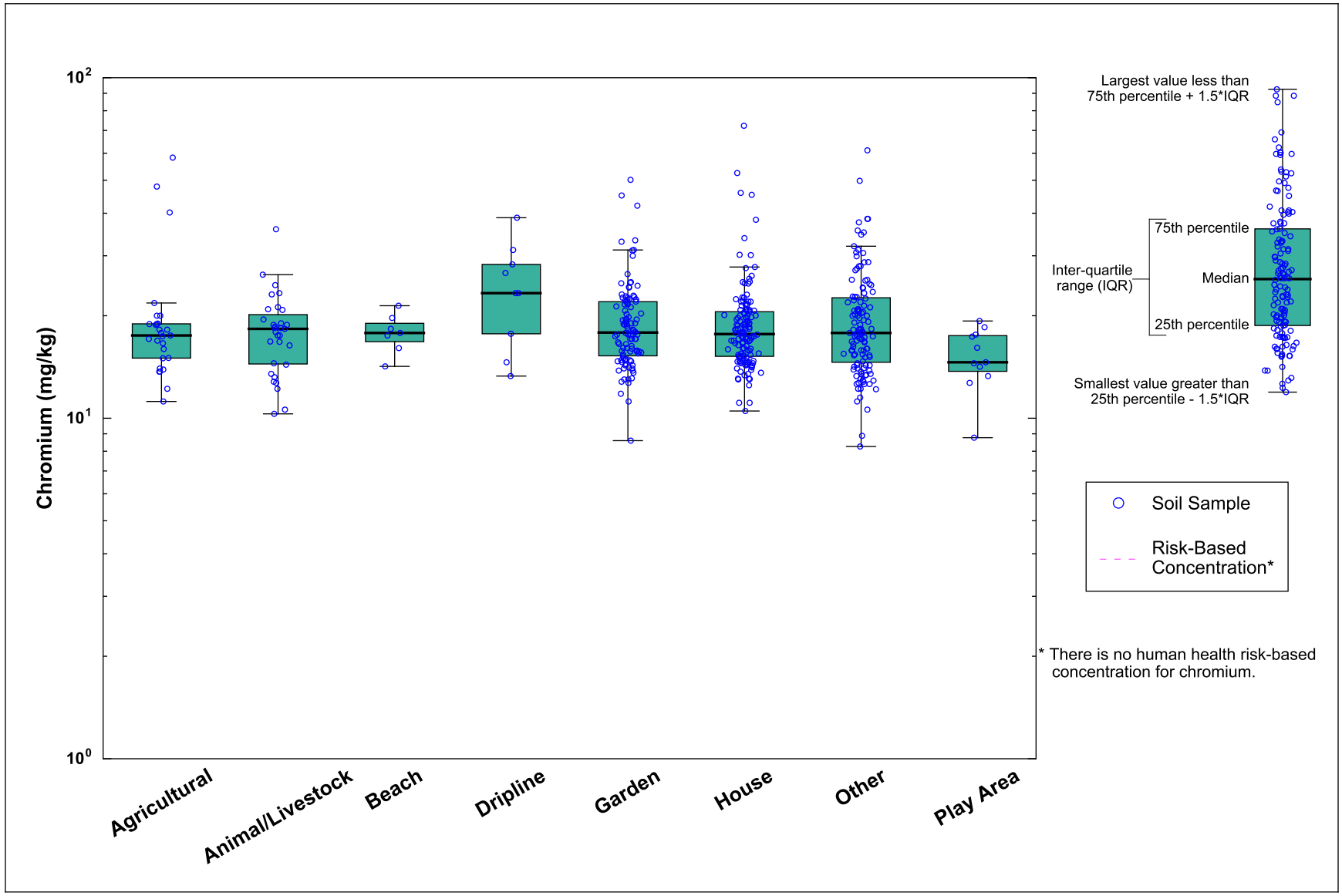
Notes: Results from triplicate samples have been averaged. Data plotted are not log-transformed.

Figure 5–2f. Cadmium Concentrations in IC Soil Samples by DU Type



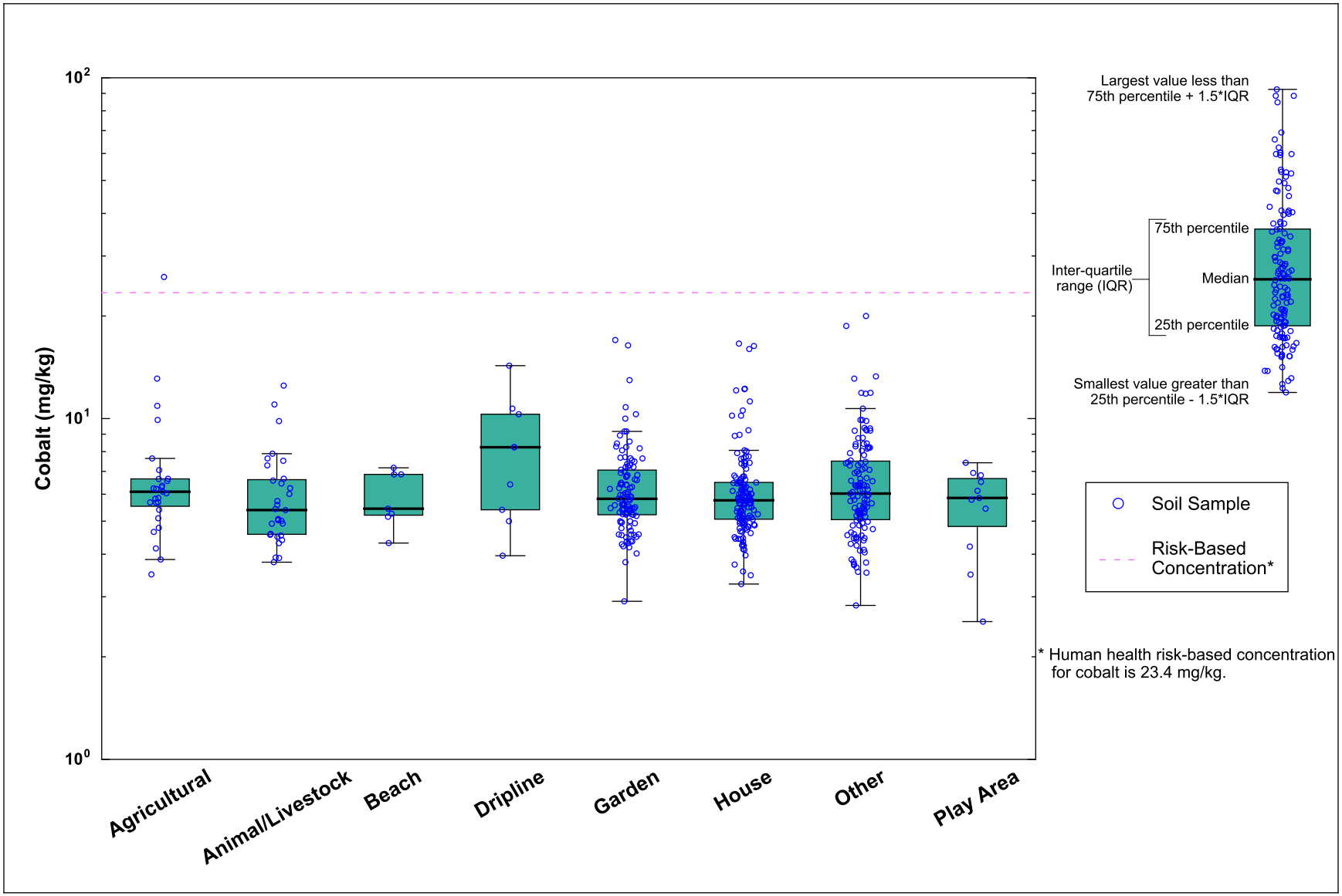
Notes: Results from triplicate samples have been averaged. Data plotted are not log-transformed.

Figure 5–2g. Calcium Concentrations in IC Soil Samples by DU Type



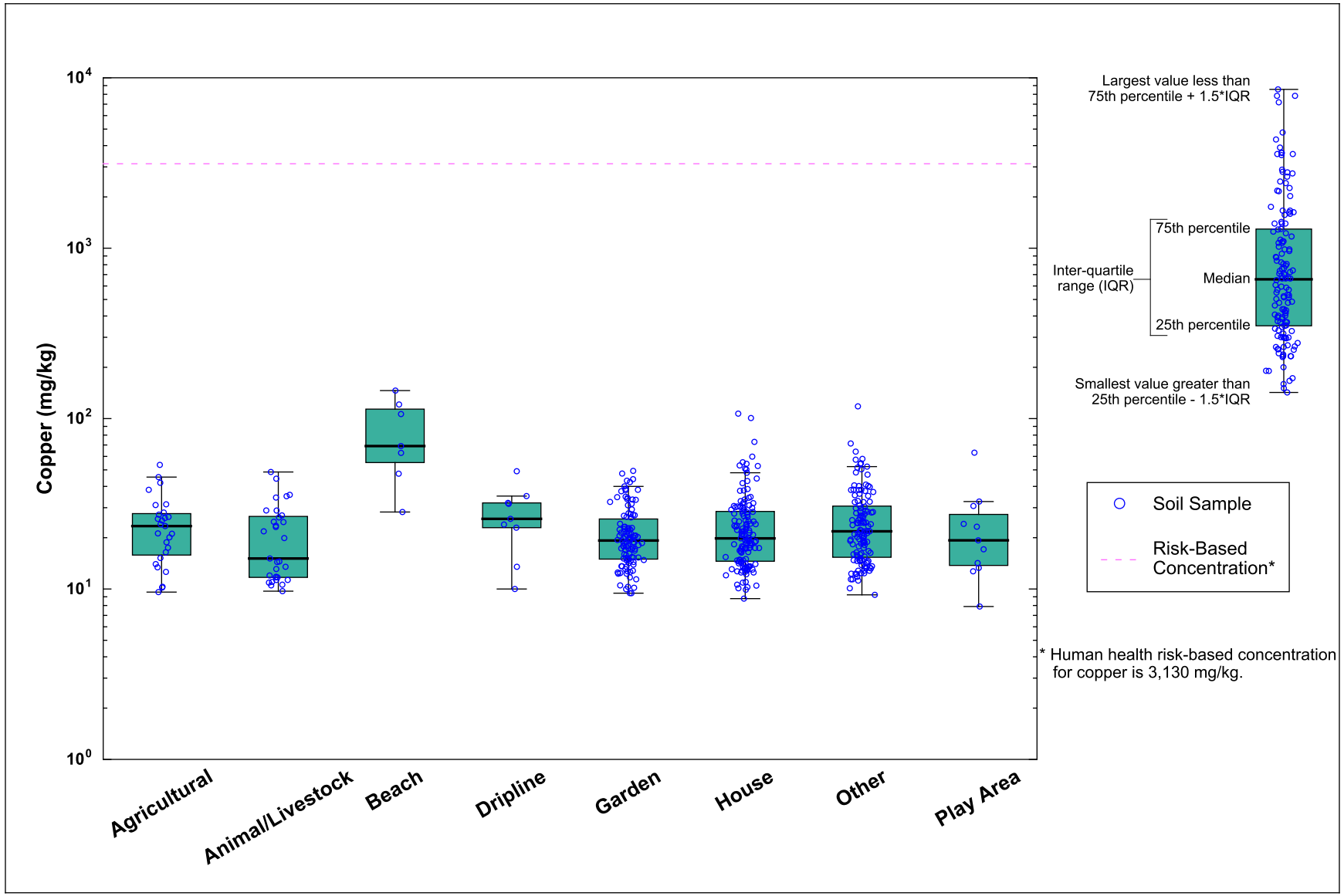
Notes: Results from triplicate samples have been averaged. Data plotted are not log-transformed.

Figure 5–2h. Chromium Concentrations in IC Soil Samples by DU Type



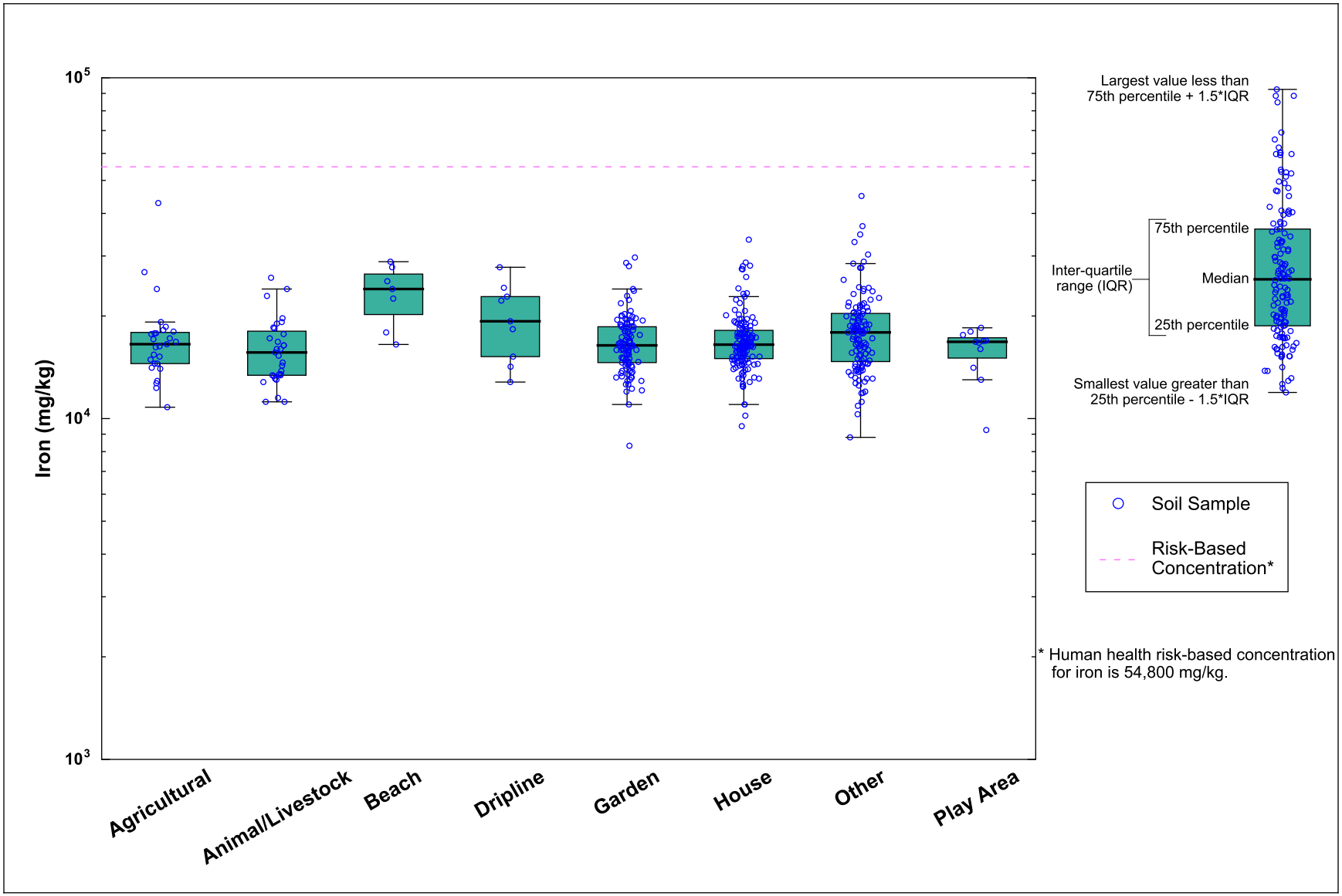
Notes: Results from triplicate samples have been averaged. Data plotted are not log-transformed.

Figure 5–2i. Cobalt Concentrations in IC Soil Samples by DU Type



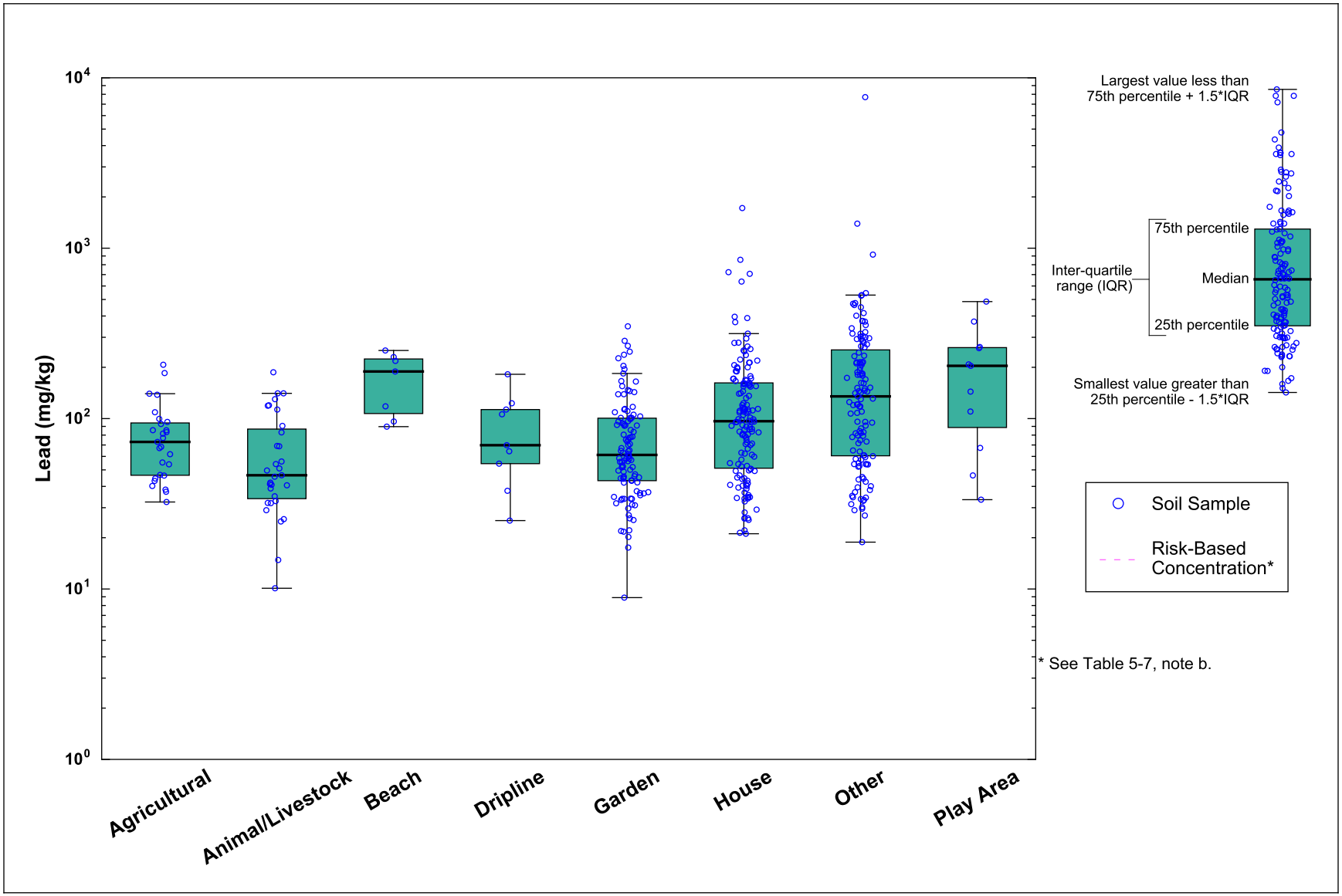
Notes: Results from triplicate samples have been averaged. Data plotted are not log-transformed.

Figure 5–2j. Copper Concentrations in IC Soil Samples by DU Type



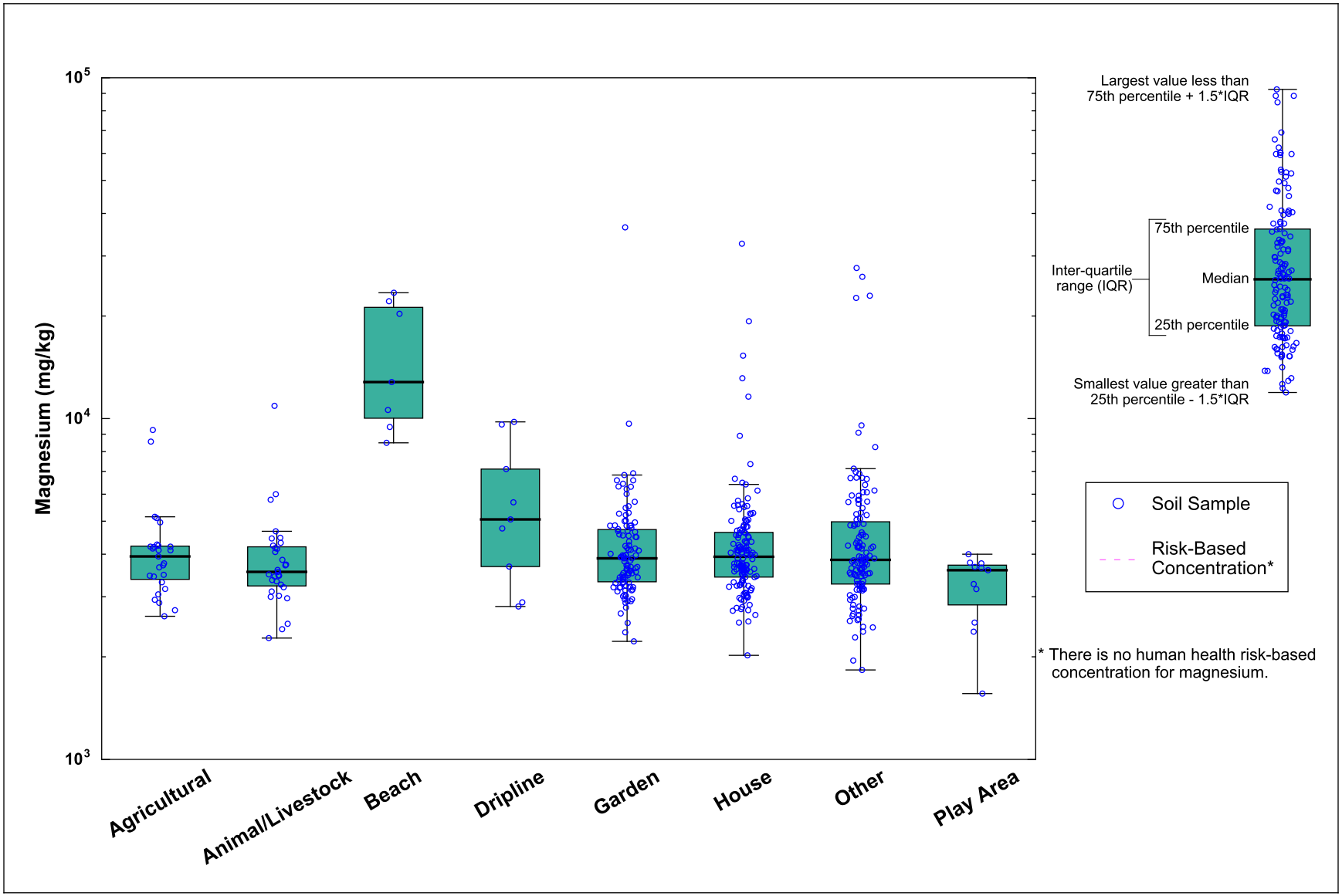
Notes: Results from triplicate samples have been averaged. Data plotted are not log-transformed.

Figure 5–2k. Iron Concentrations in IC Soil Samples by DU Type



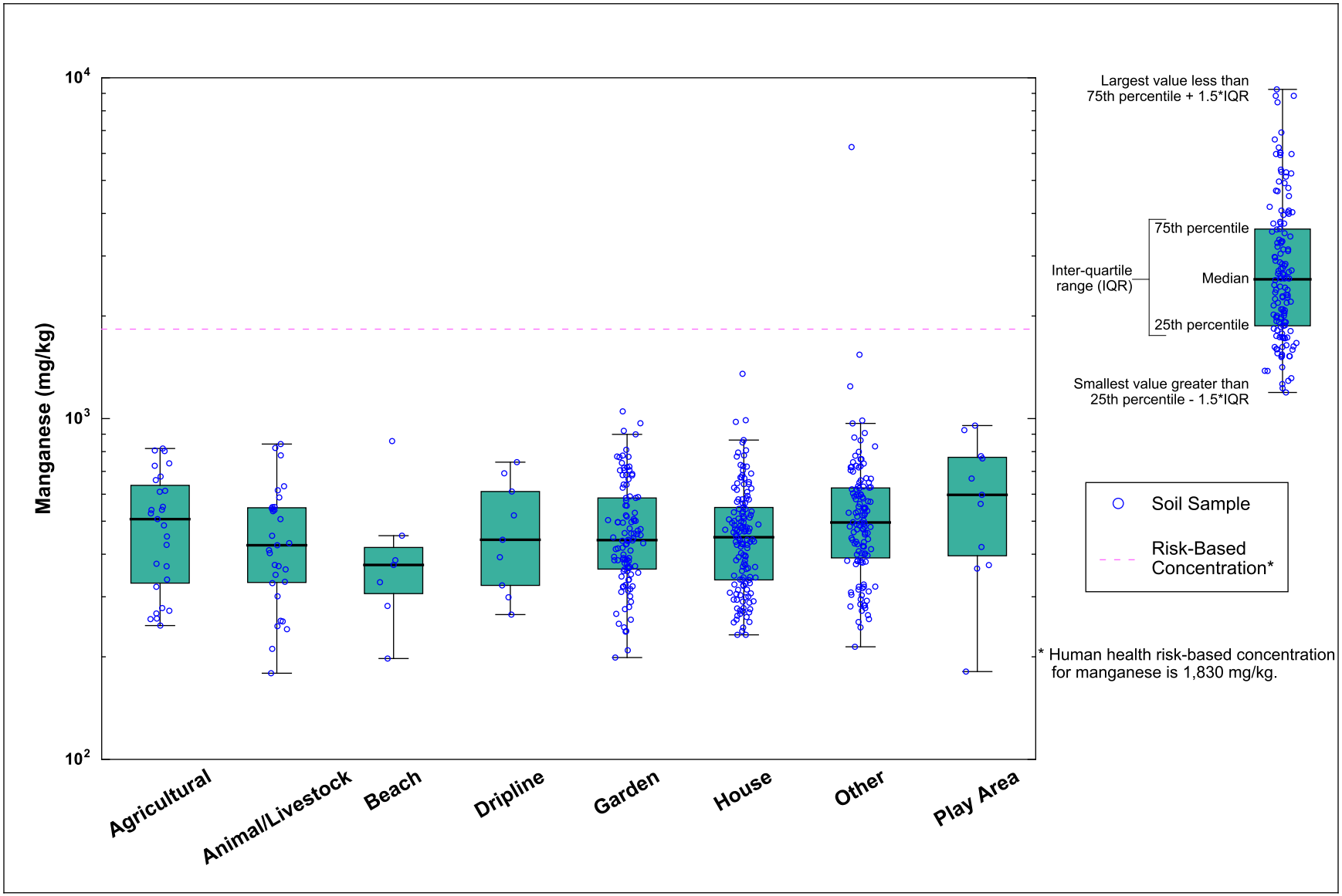
Notes: Results from triplicate samples have been averaged. Data plotted are not log-transformed.

Figure 5–2l. Lead Concentrations in IC Soil Samples by DU Type



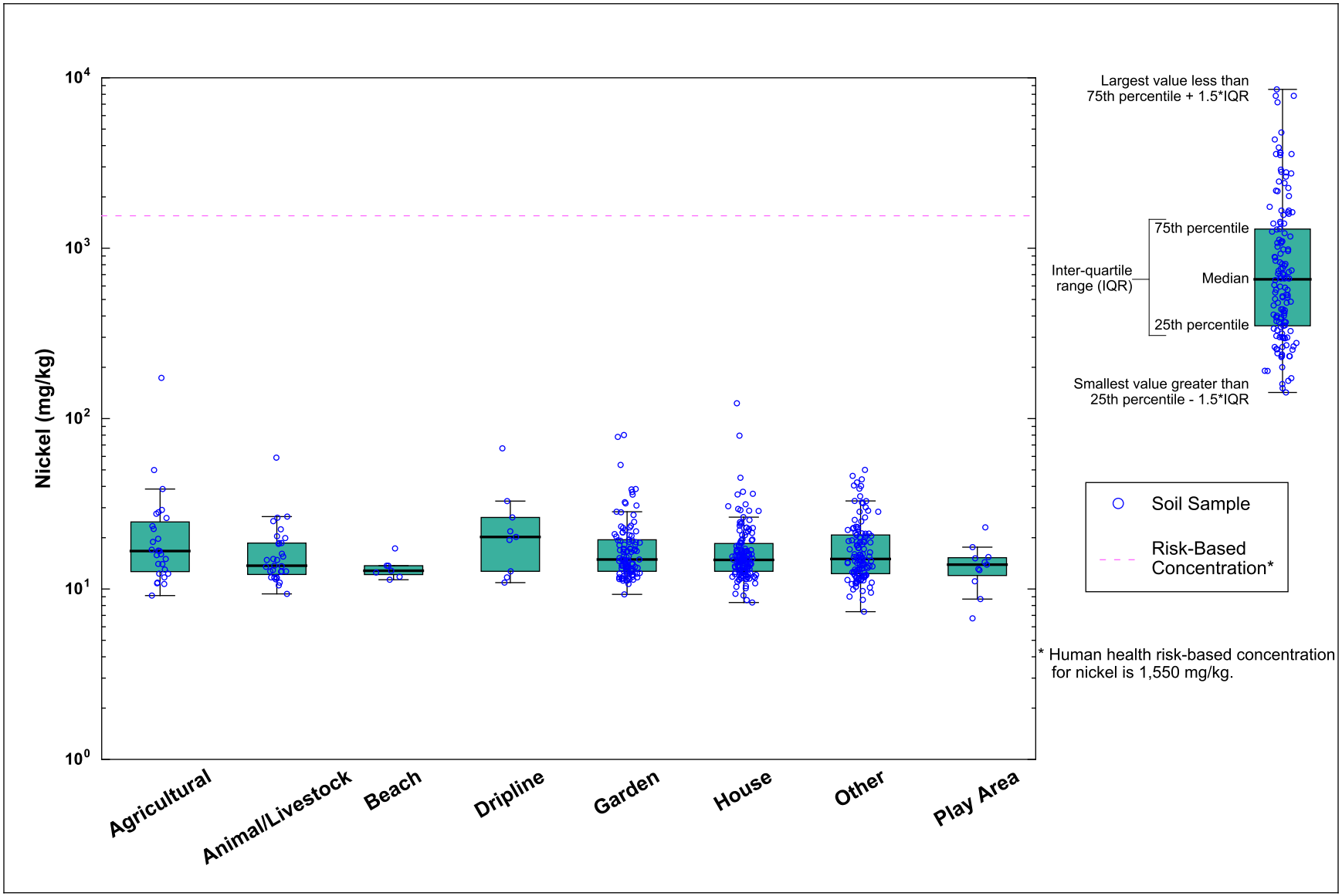
Notes: Results from triplicate samples have been averaged. Data plotted are not log-transformed.

Figure 5–2m. Magnesium Concentrations in IC Soil Samples by DU Type



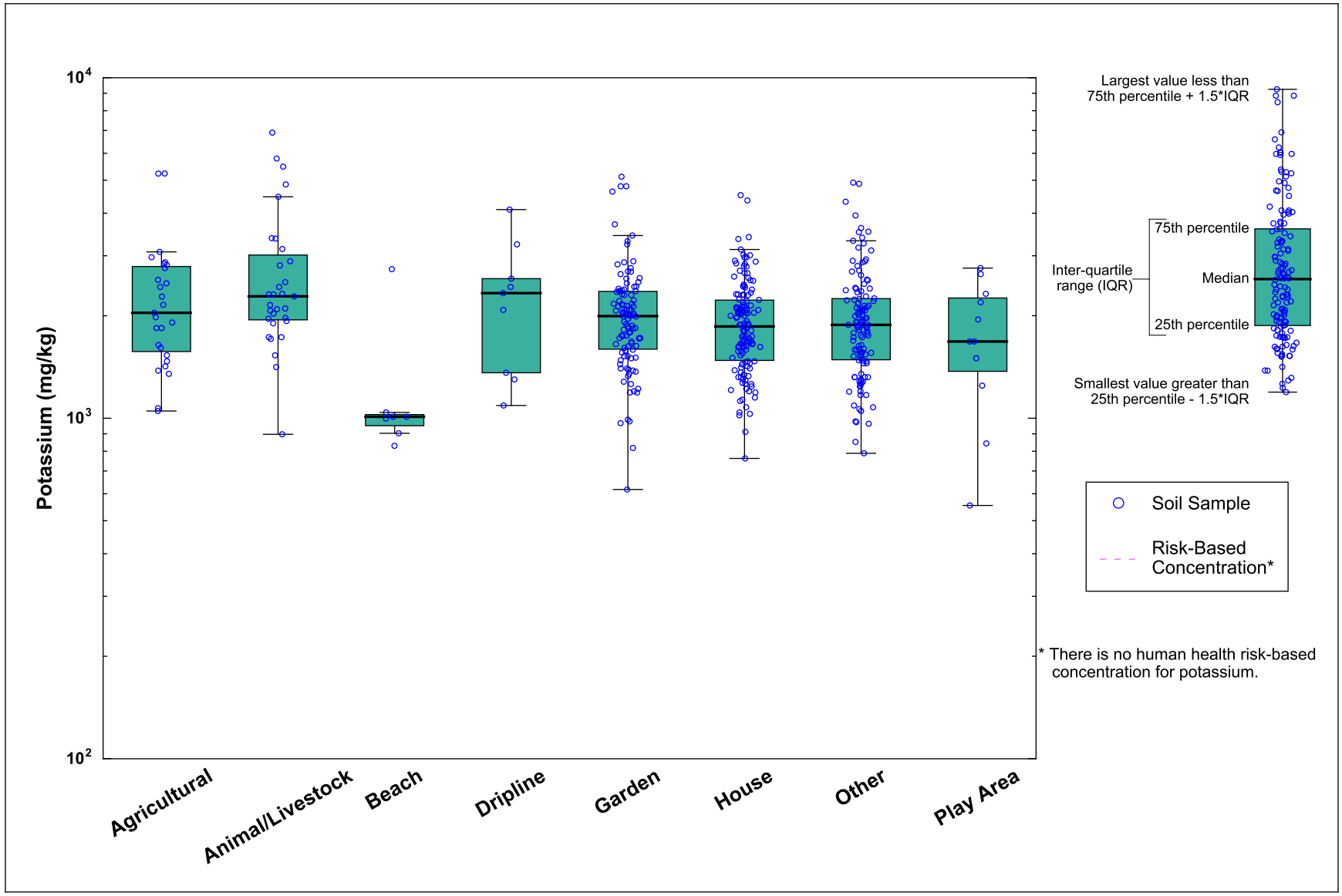
Notes: Results from triplicate samples have been averaged. Data plotted are not log-transformed.

Figure 5–2n. Manganese Concentrations in IC Soil Samples by DU Type



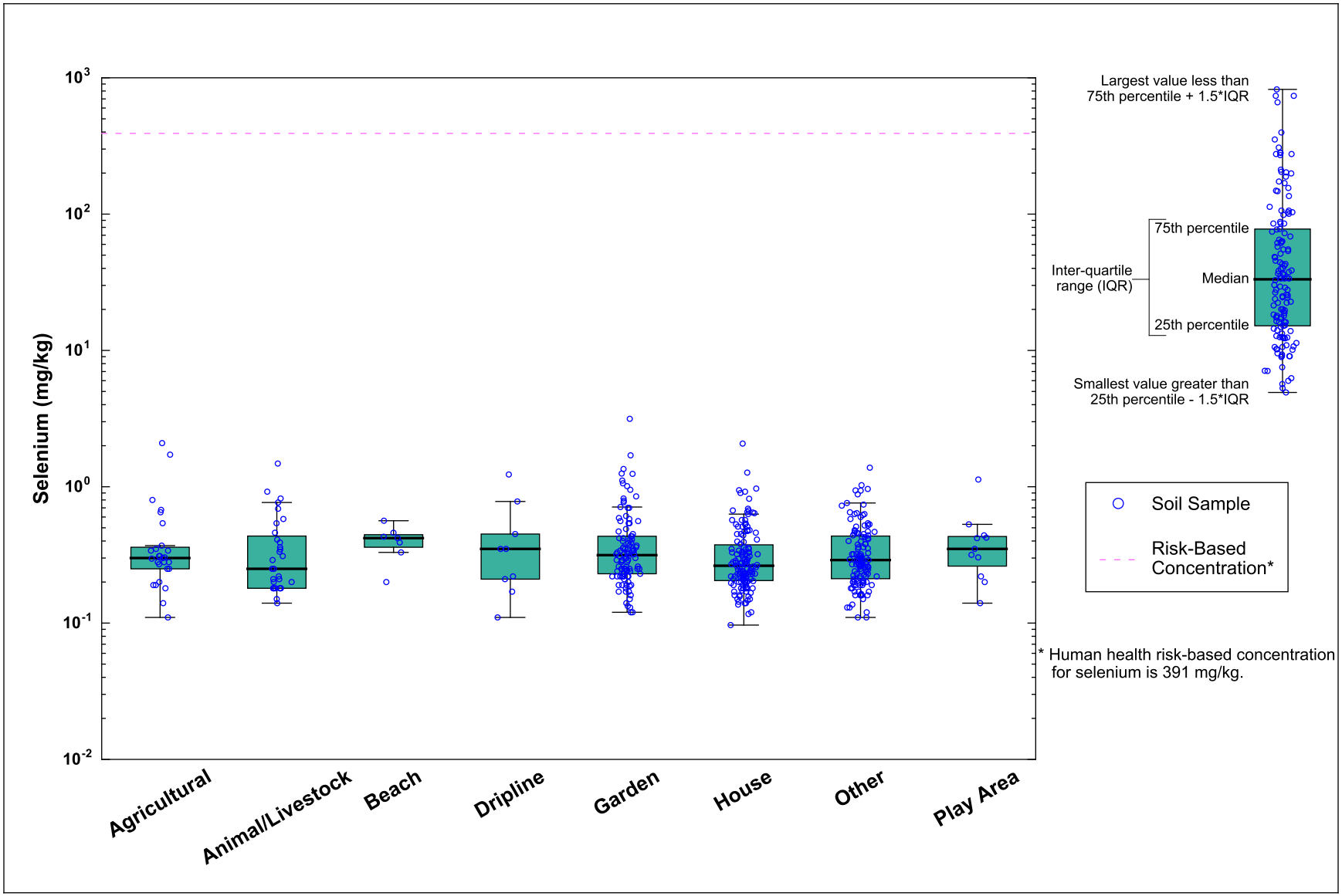
Notes: Results from triplicate samples have been averaged. Data plotted are not log-transformed.

Figure 5–2o. Nickel Concentrations in IC Soil Samples by DU Type



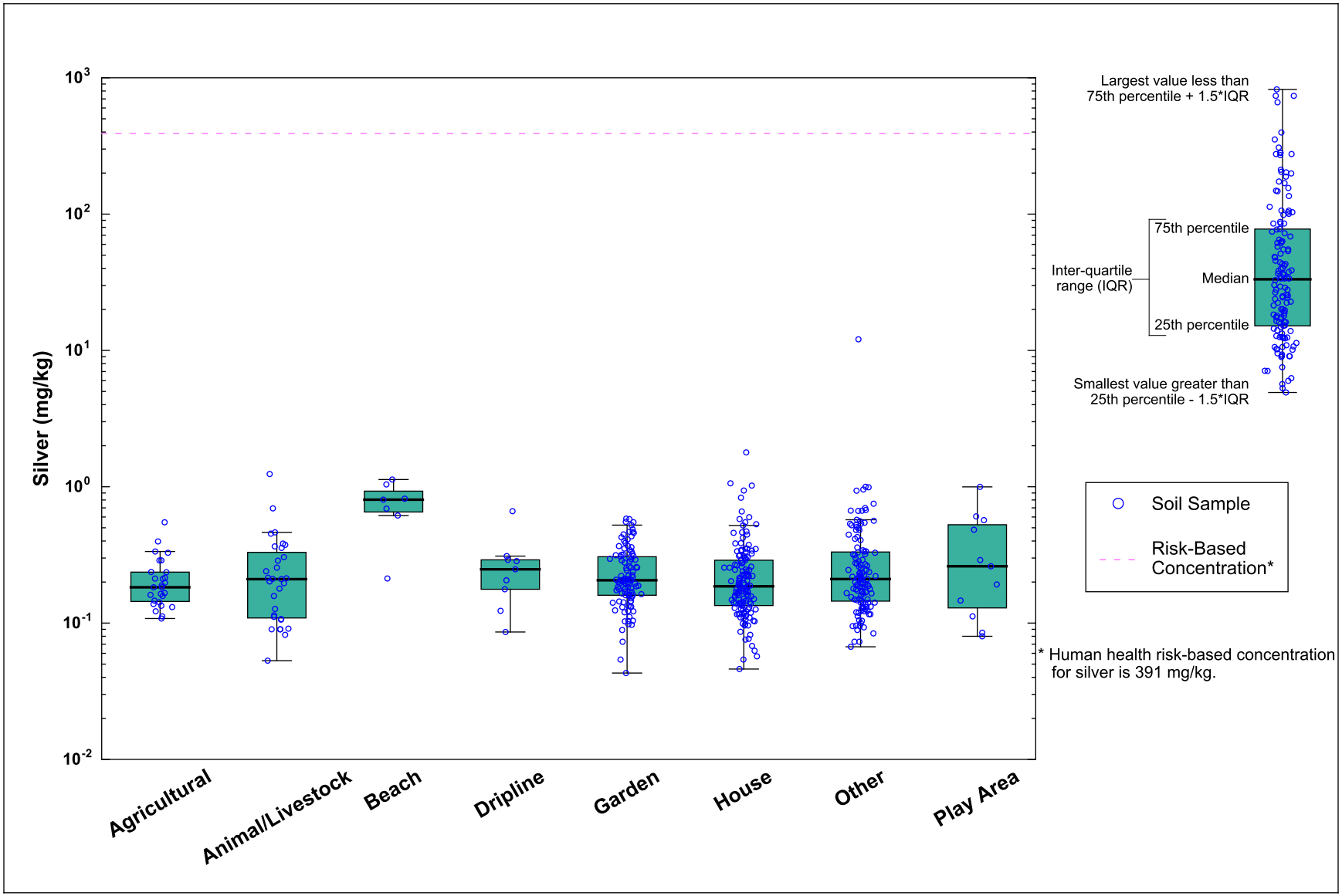
Notes: Results from triplicate samples have been averaged. Data plotted are not log-transformed.

Figure 5–2p. Potassium Concentrations in IC Soil Samples by DU Type



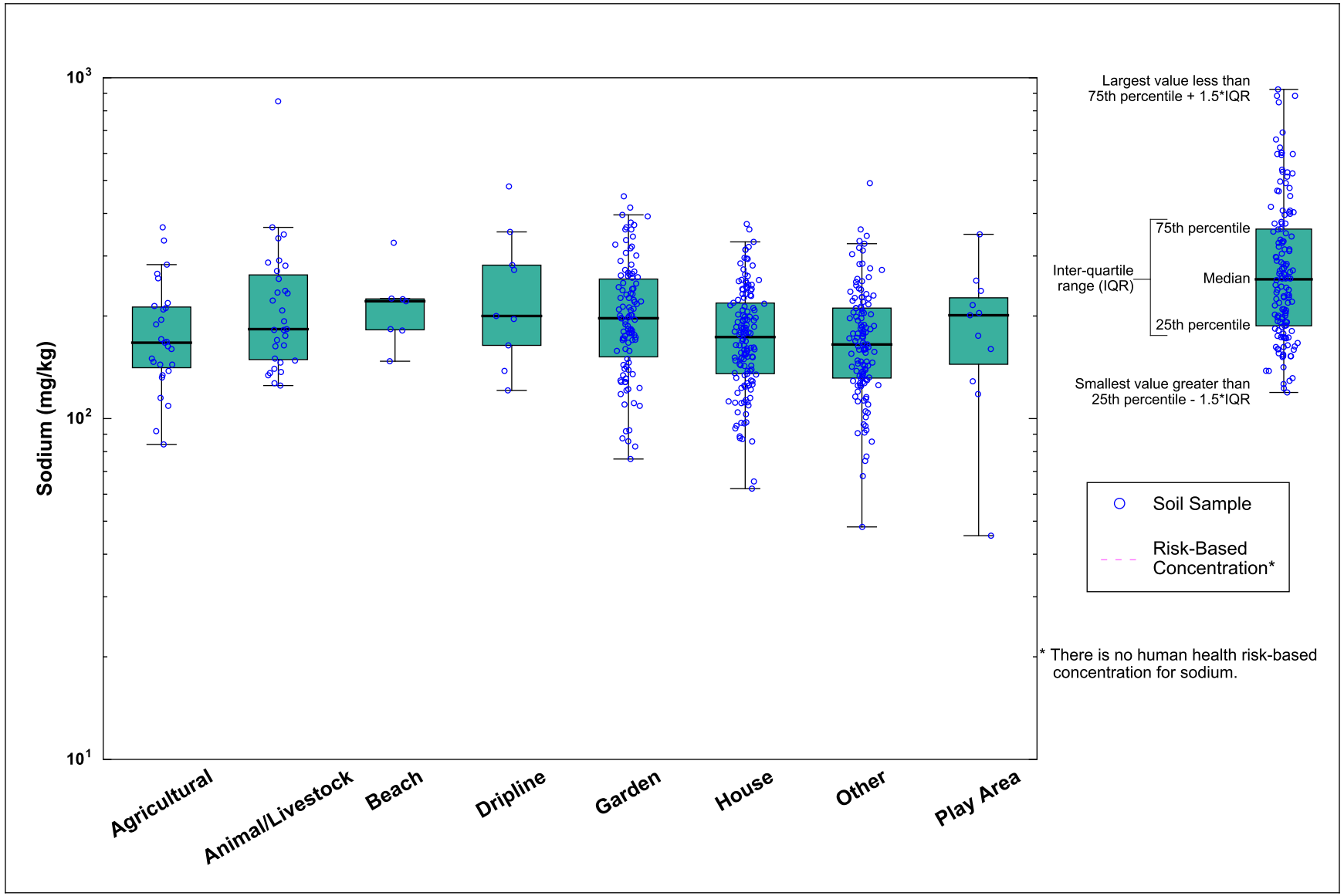
Notes: Results from triplicate samples have been averaged. Data plotted are not log-transformed.

Figure 5–2q. Selenium Concentrations in IC Soil Samples by DU Type



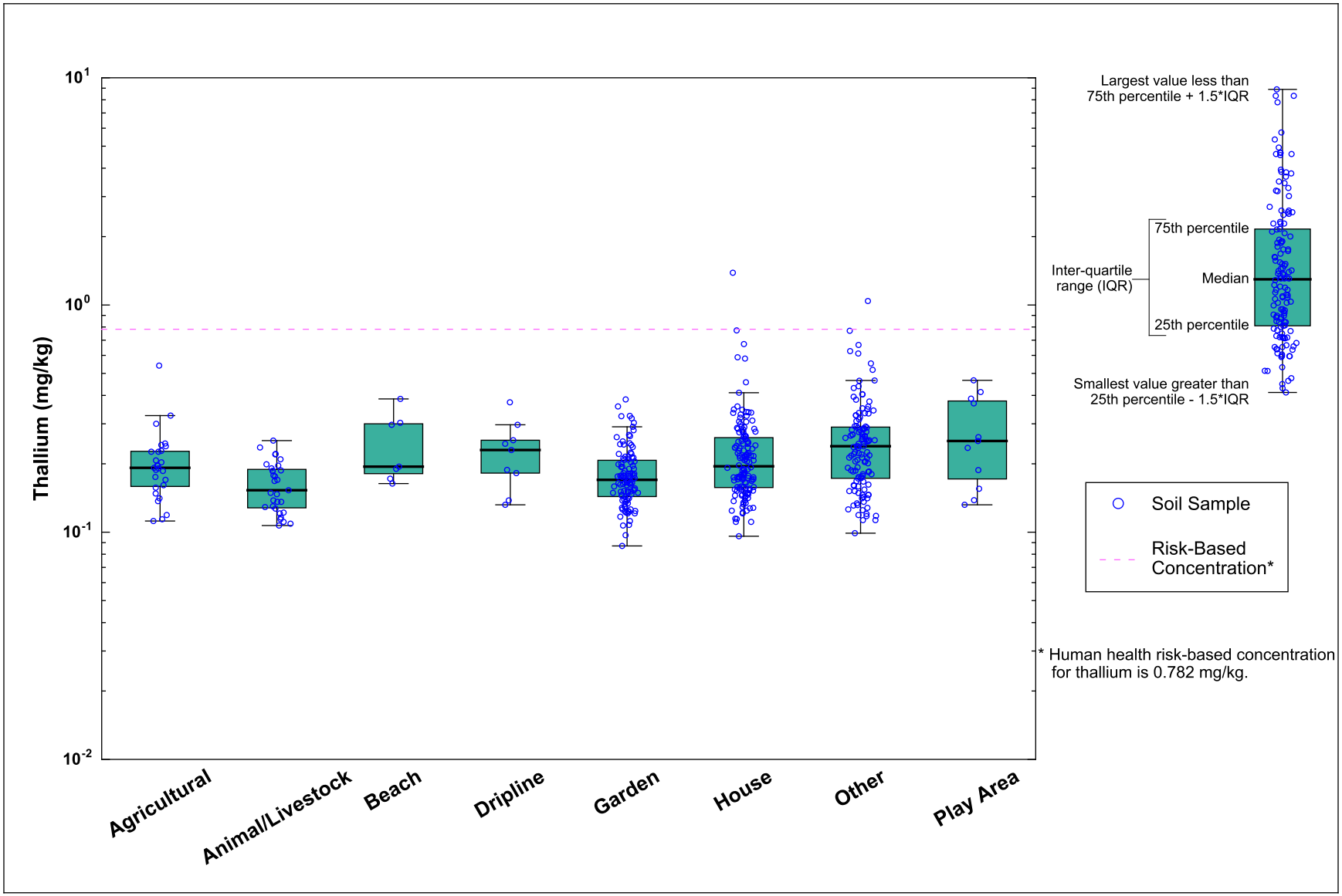
Notes: Results from triplicate samples have been averaged. Data plotted are not log-transformed.

Figure 5–2r. Silver Concentrations in IC Soil Samples by DU Type



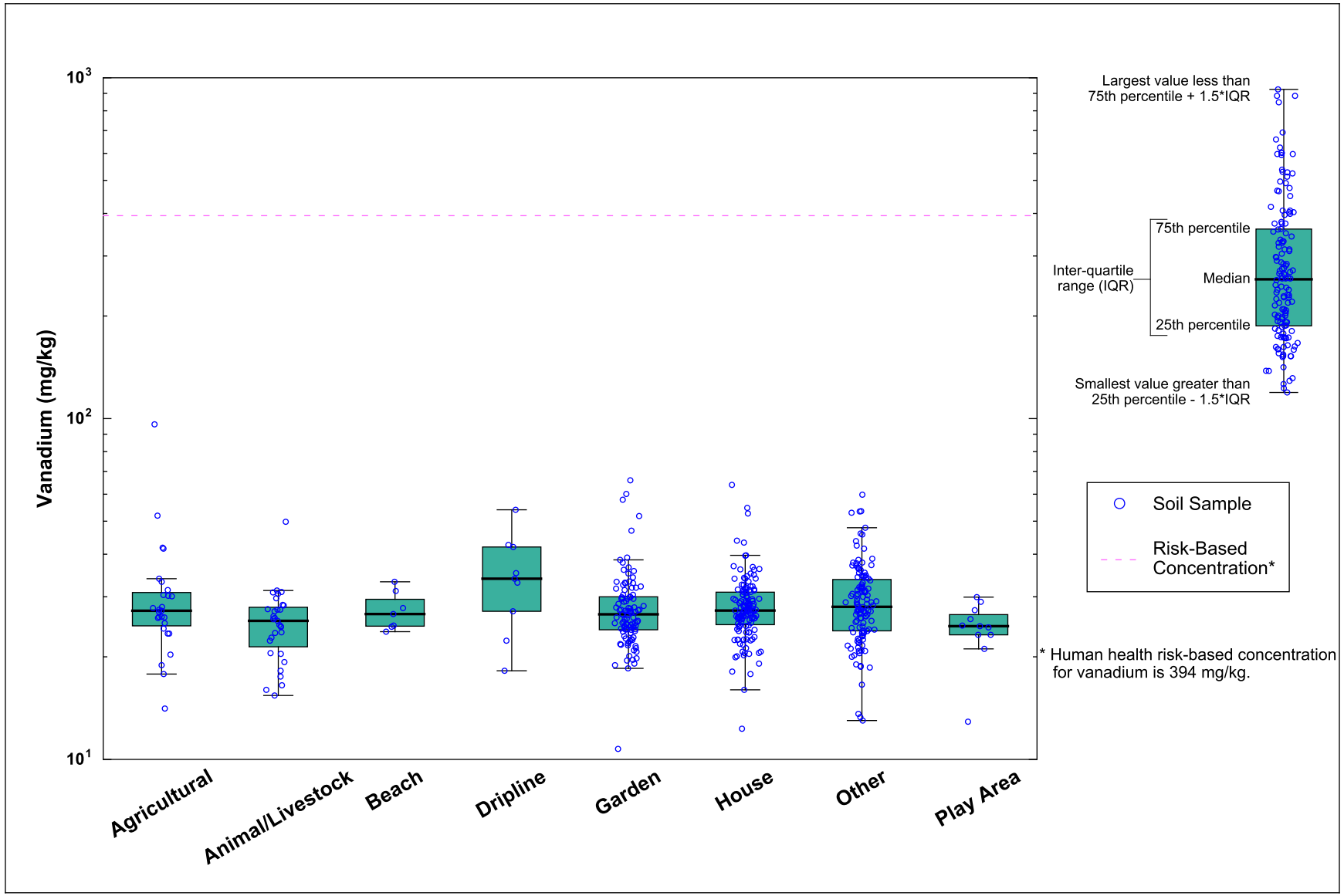
Notes: Results from triplicate samples have been averaged. Data plotted are not log-transformed.

Figure 5–2s. Sodium Concentrations in IC Soil Samples by DU Type



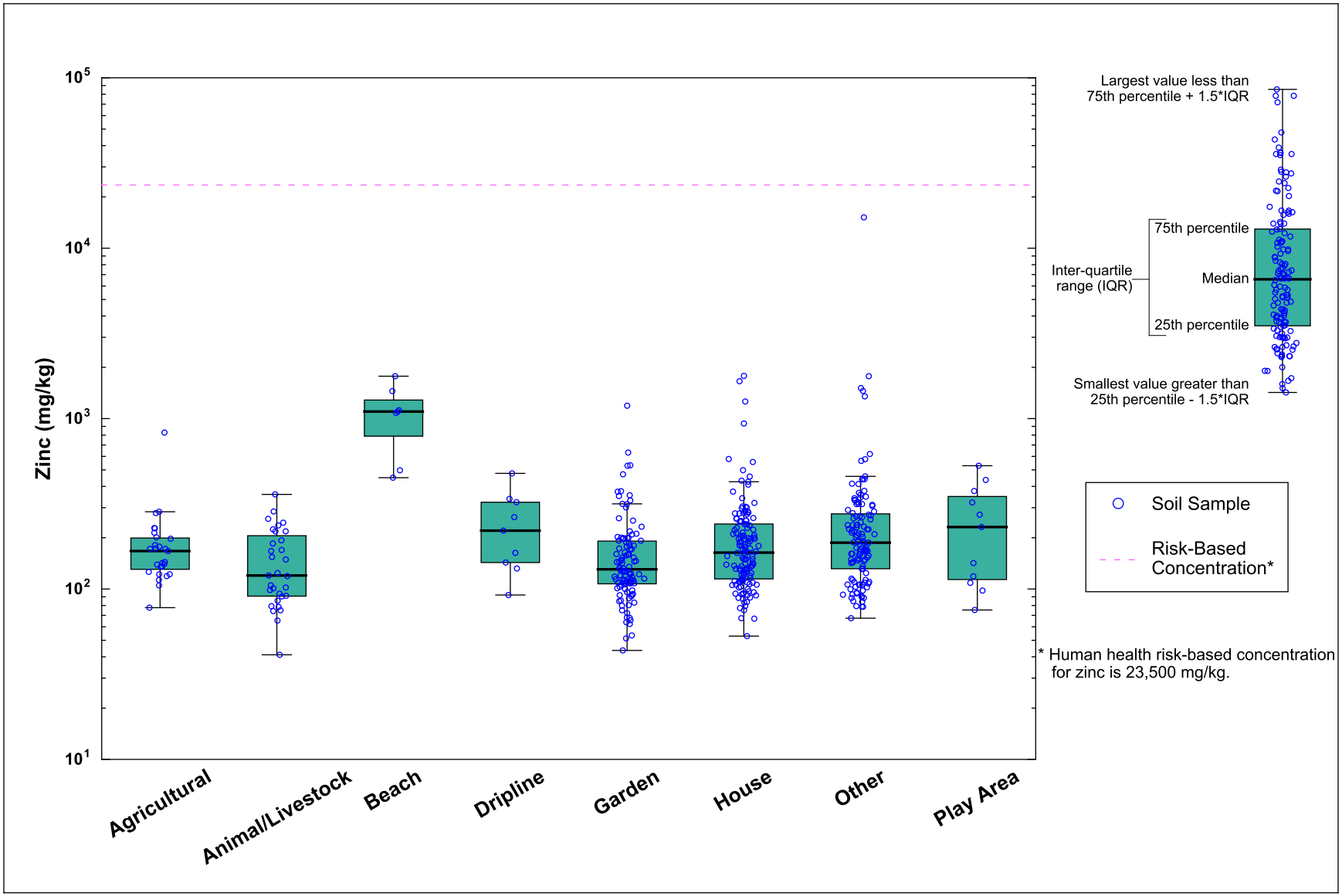
Notes: Results from triplicate samples have been averaged. Data plotted are not log-transformed.

Figure 5–2t. Thallium Concentrations in IC Soil Samples by DU Type



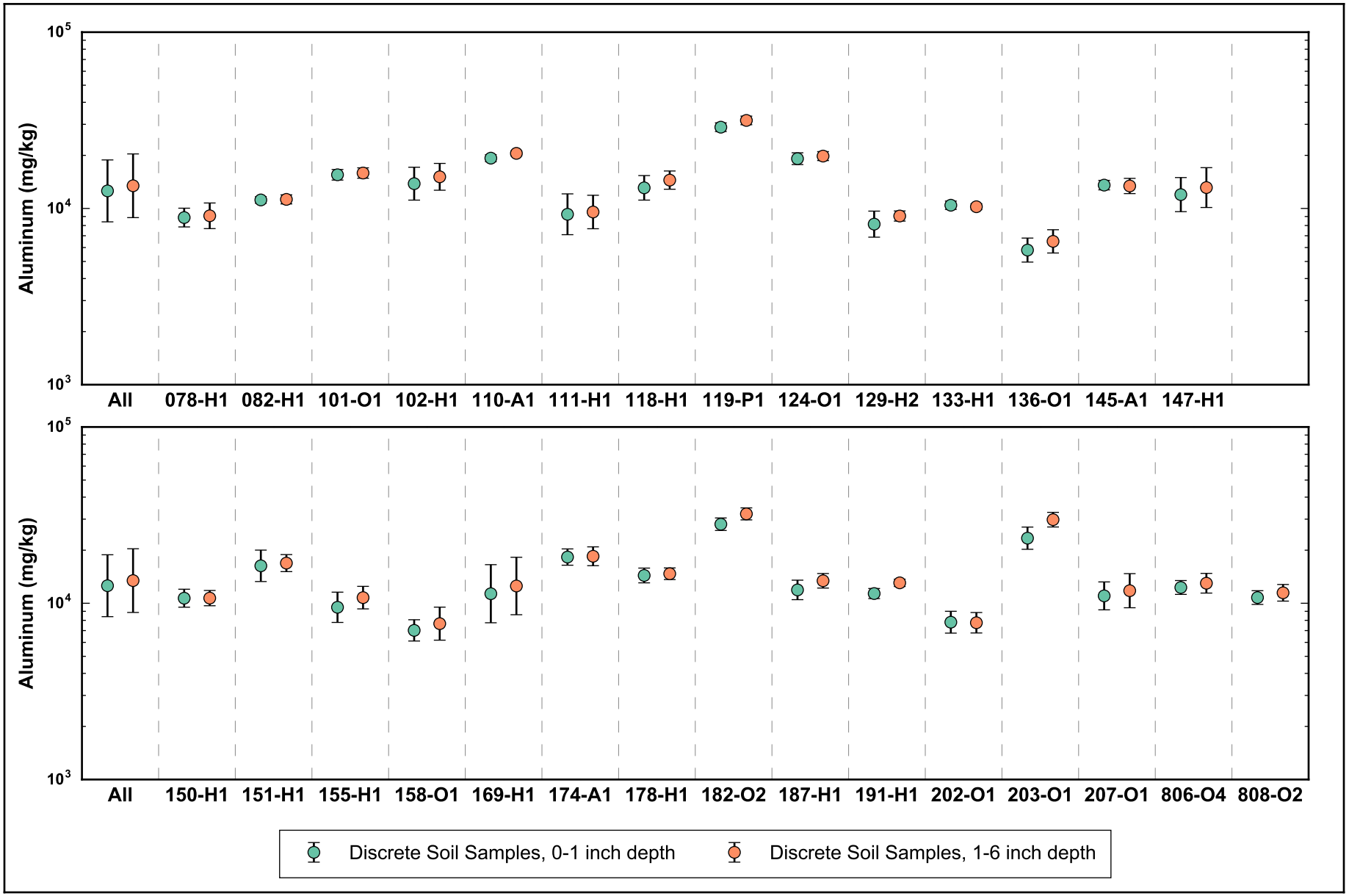
Notes: Results from triplicate samples have been averaged. Data plotted are not log-transformed.

Figure 5–2u. Vanadium Concentrations in IC Soil Samples by DU Type



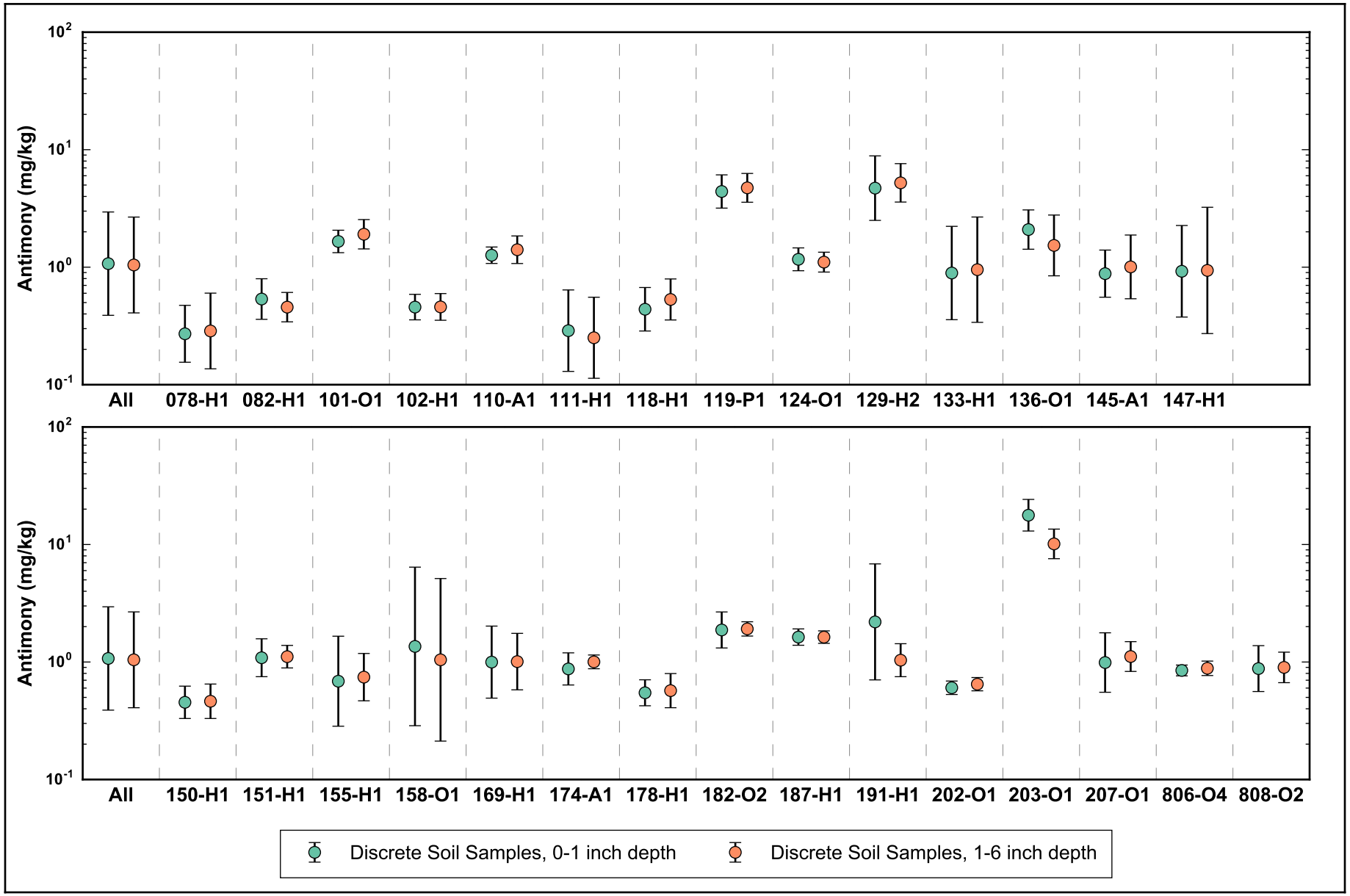
Notes: Results from triplicate samples have been averaged. Data plotted are not log-transformed.

Figure 5–2v. Zinc Concentrations in IC Soil Samples by DU Type



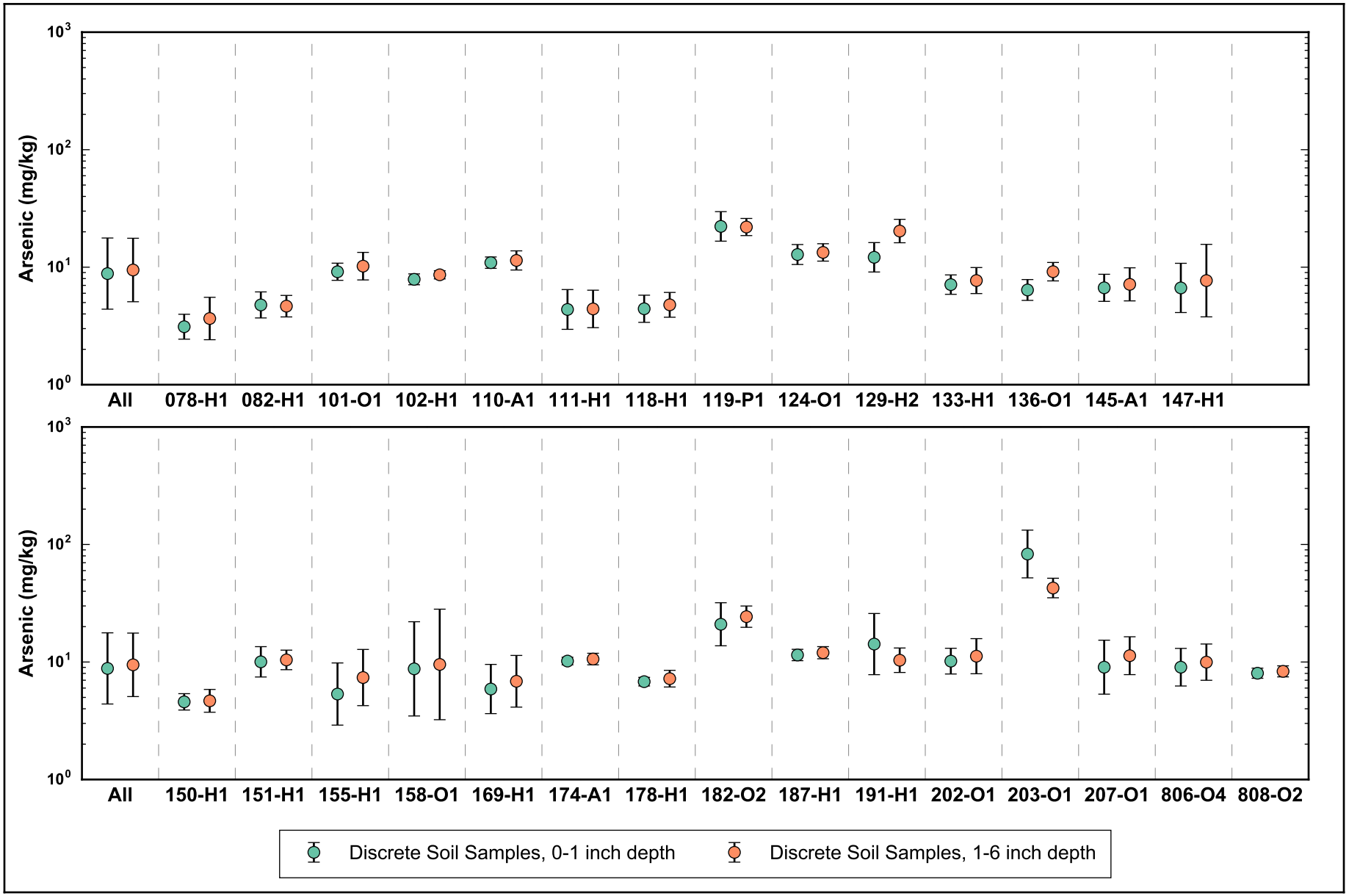
Notes: Data shown as log-transformed means and standard deviations. Discrete field duplicates have been pre-averaged.

Figure 5–3a. Aluminum Concentrations in Discrete Soil Samples by DU



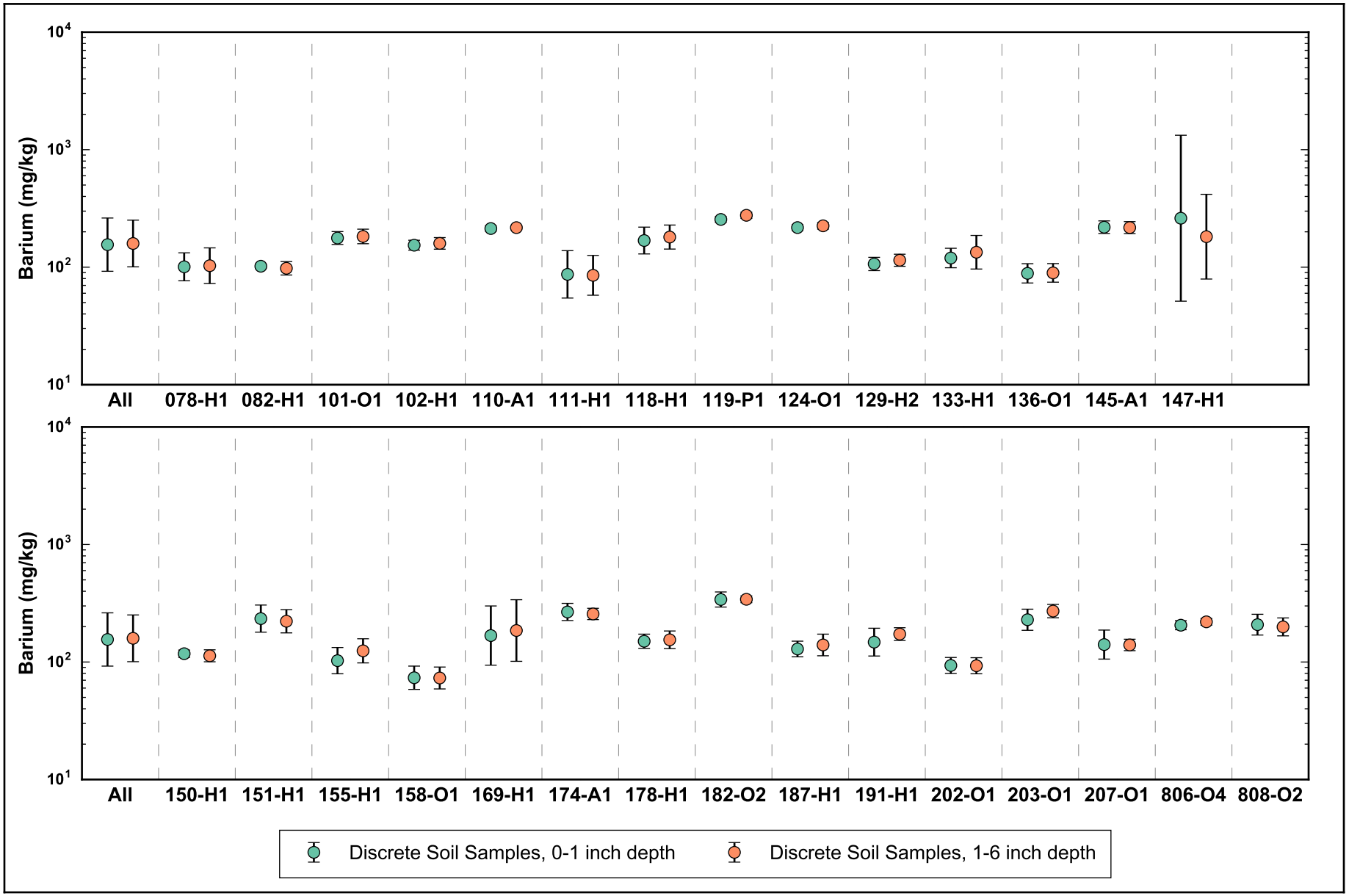
Notes: Data shown as log-transformed means and standard deviations. Discrete field duplicates have been pre-averaged.

Figure 5–3b. Antimony Concentrations in Discrete Soil Samples by DU



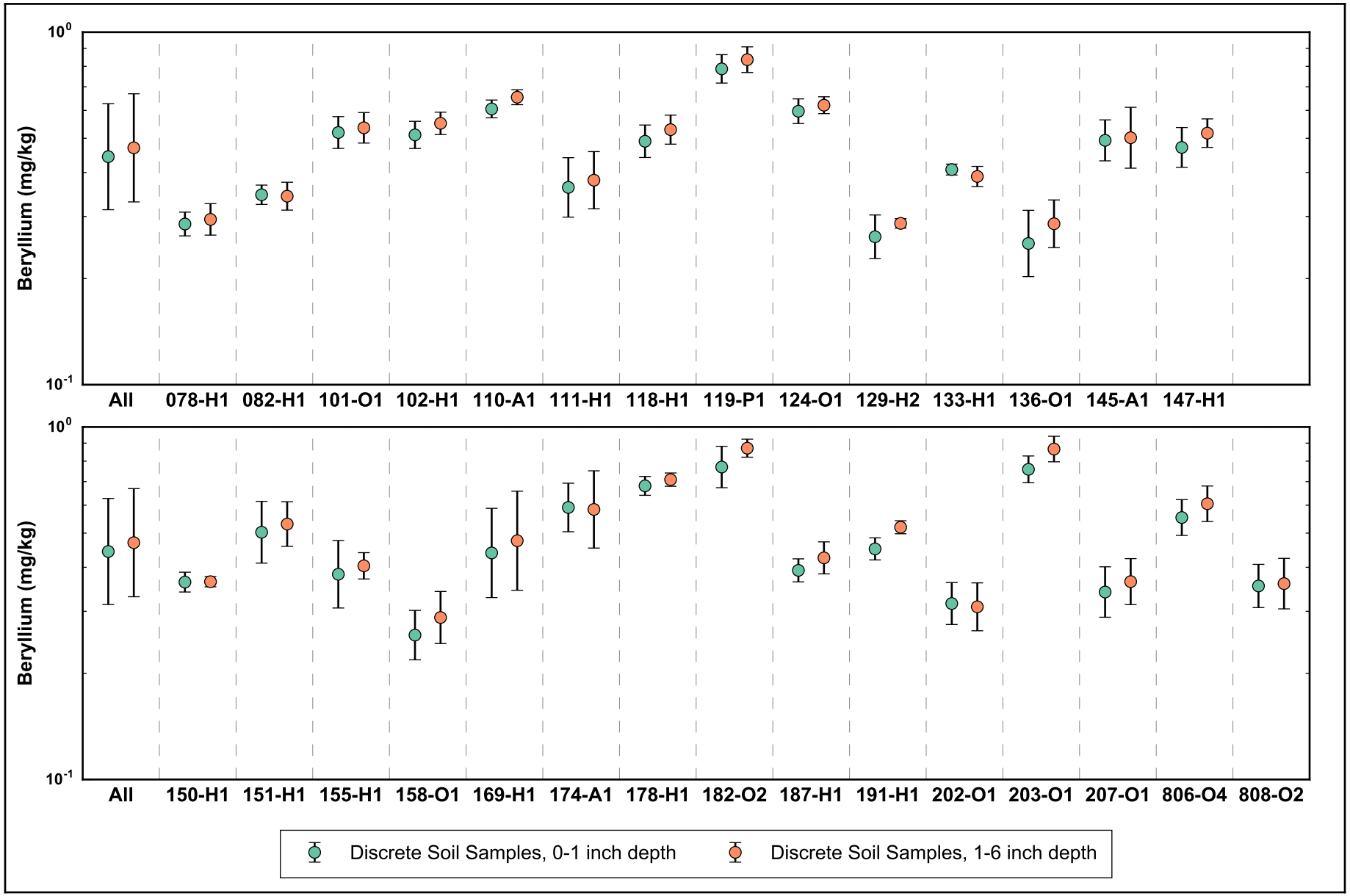
Notes: Data shown as log-transformed means and standard deviations. Discrete field duplicates have been pre-averaged.
Arsenic concentrations are as reported by the analytical laboratory without adjustment for bioavailability.

Figure 5–3c. Arsenic Concentrations in Discrete Soil Samples by DU



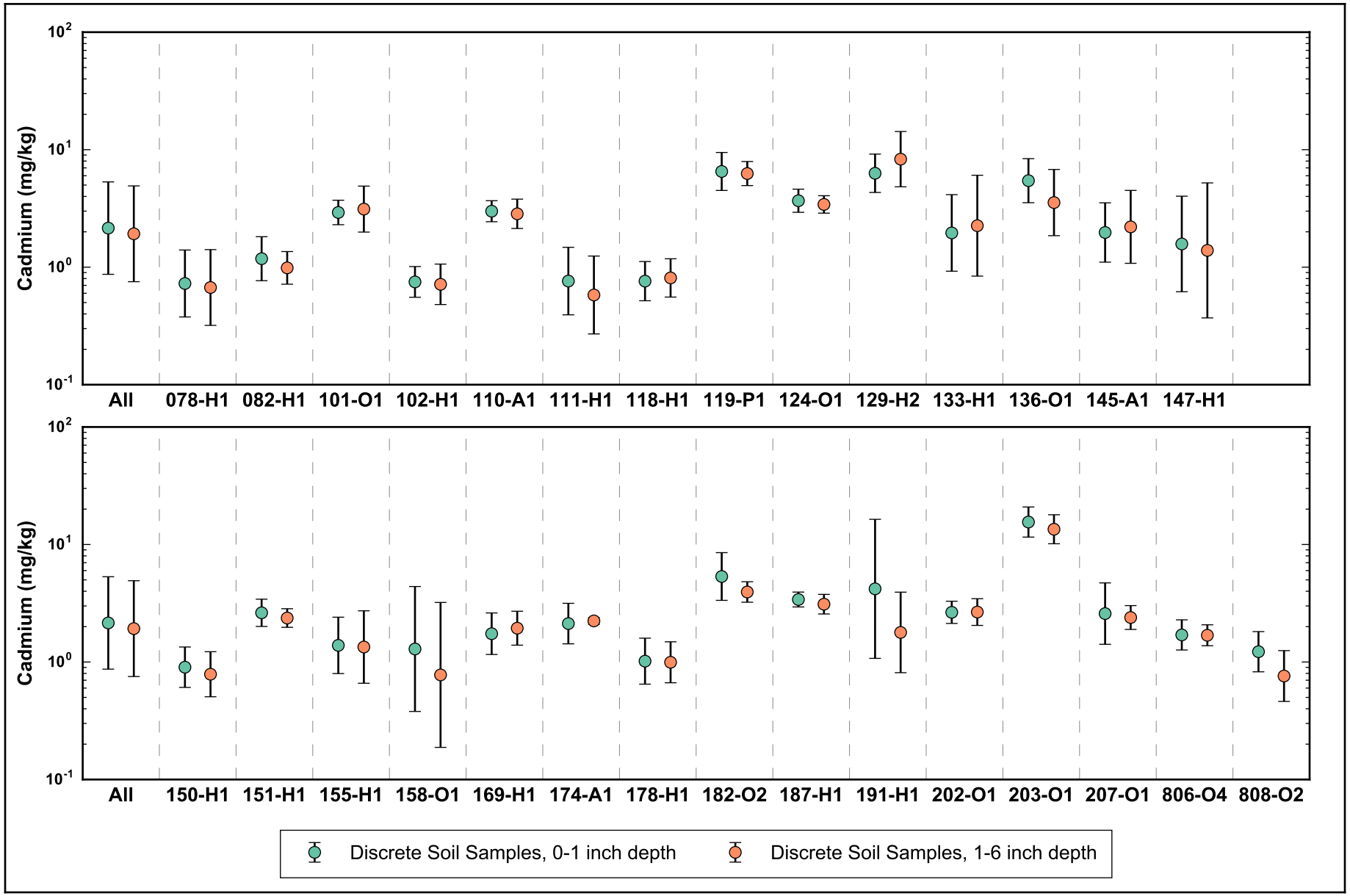
Notes: Data shown as log-transformed means and standard deviations. Discrete field duplicates have been pre-averaged.

Figure 5–3d. Barium Concentrations in Discrete Soil Samples by DU



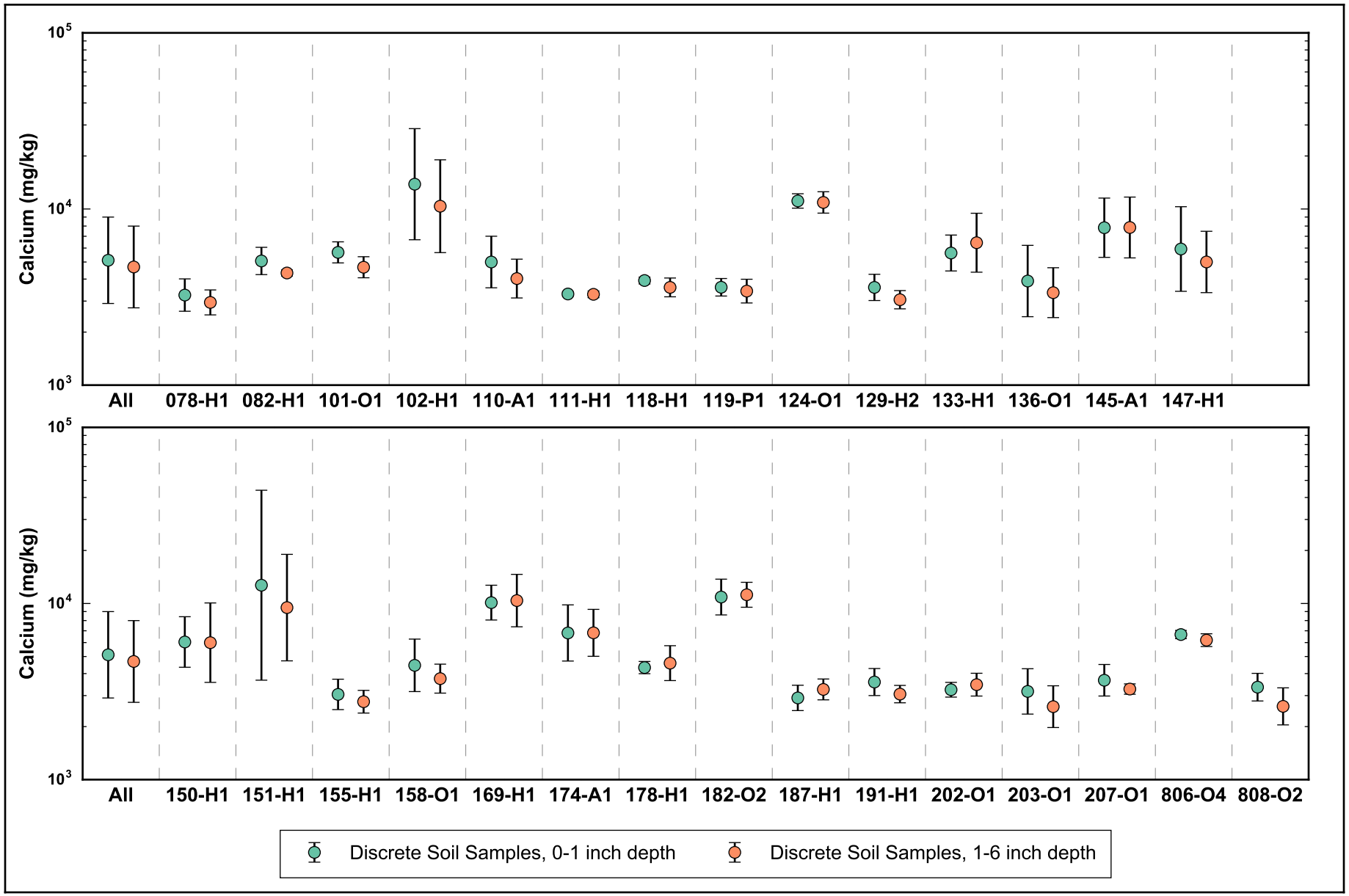
Notes: Data shown as log-transformed means and standard deviations. Discrete field duplicates have been pre-averaged.

Figure 5–3e. Beryllium Concentrations in Discrete Soil Samples by DU



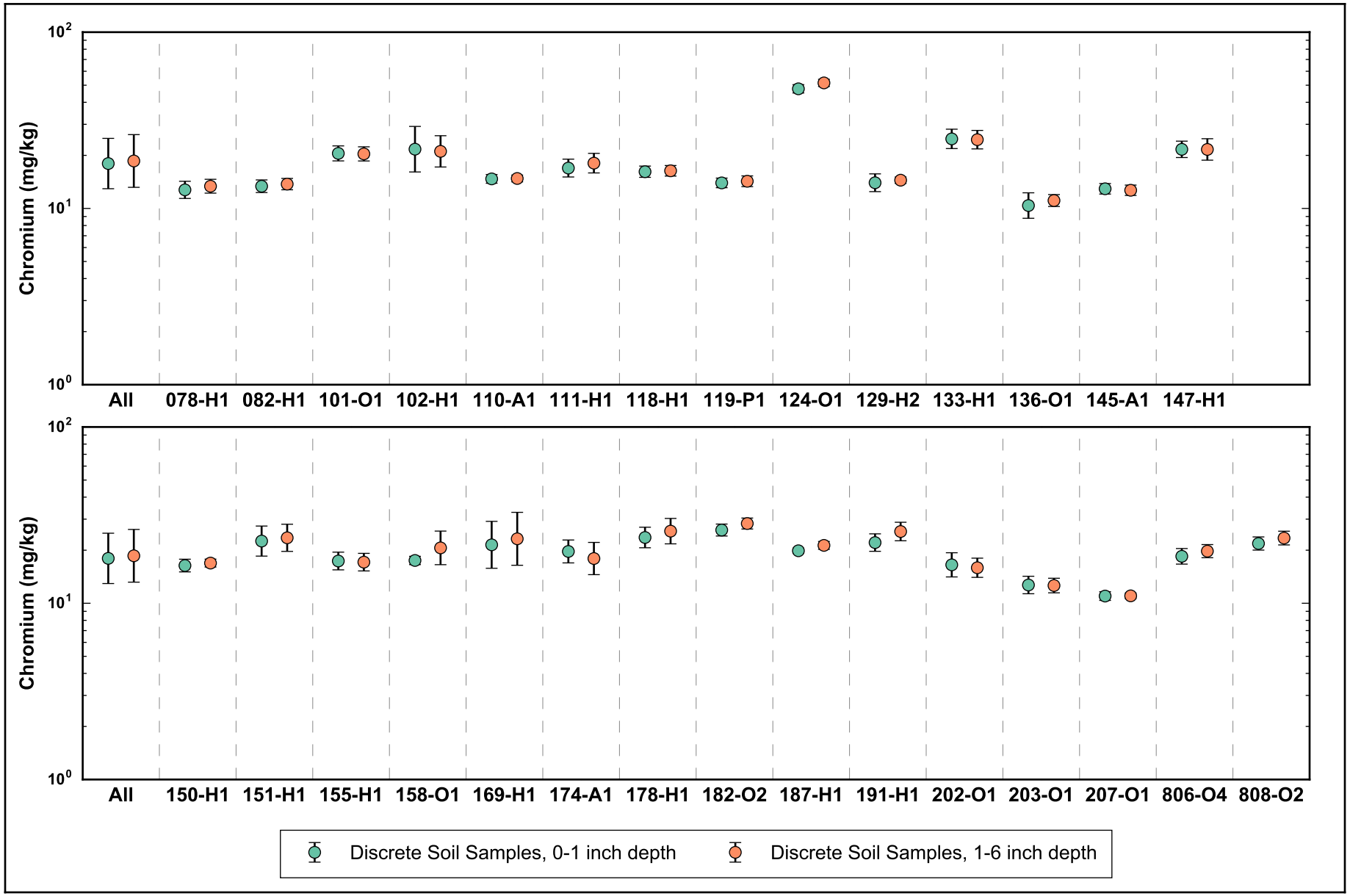
Notes: Data shown as log-transformed means and standard deviations. Discrete field duplicates have been pre-averaged.

Figure 5–3f. Cadmium Concentrations in Discrete Soil Samples by DU



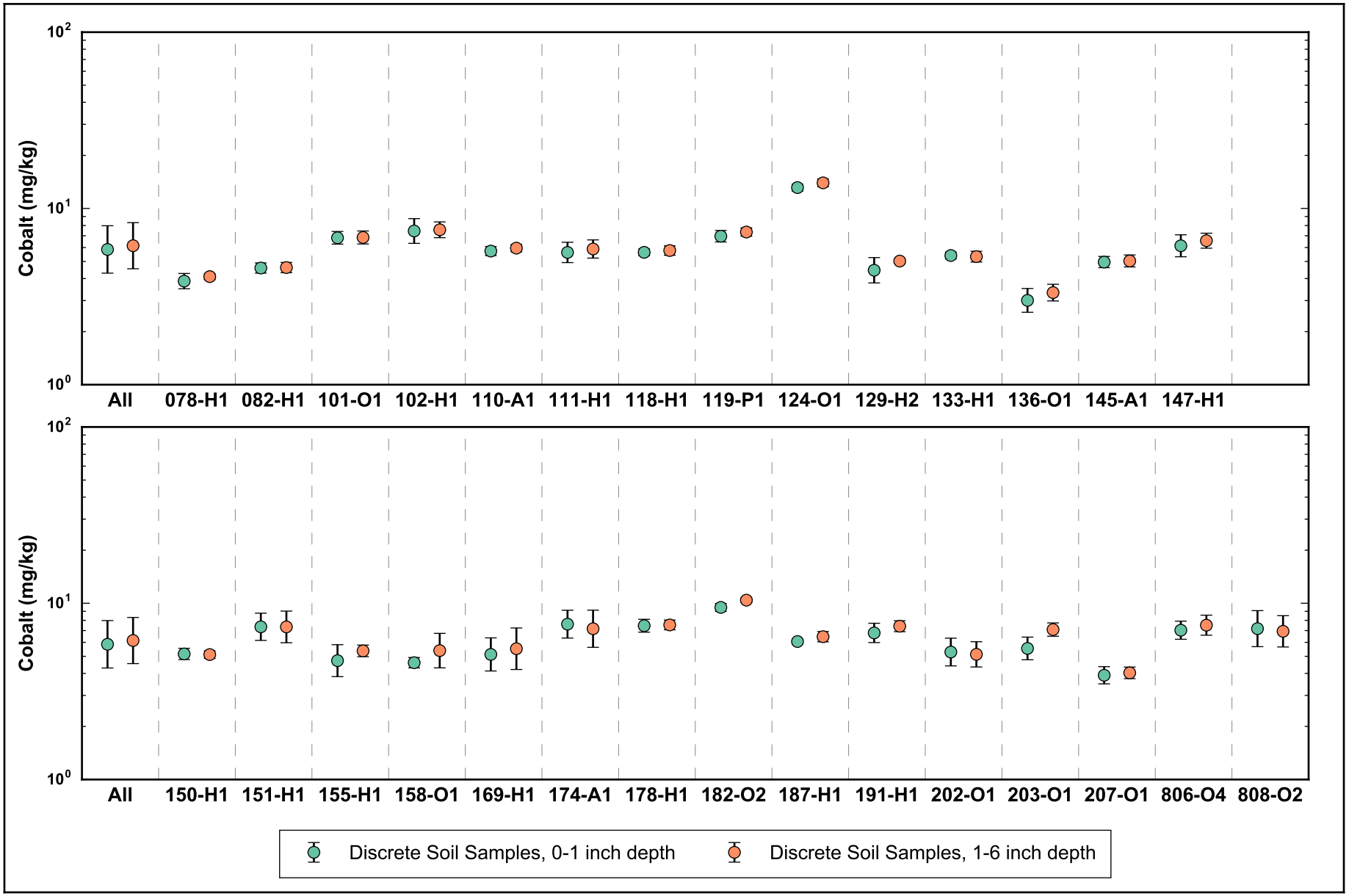
Notes: Data shown as log-transformed means and standard deviations. Discrete field duplicates have been pre-averaged.

Figure 5–3g. Calcium Concentrations in Discrete Soil Samples by DU



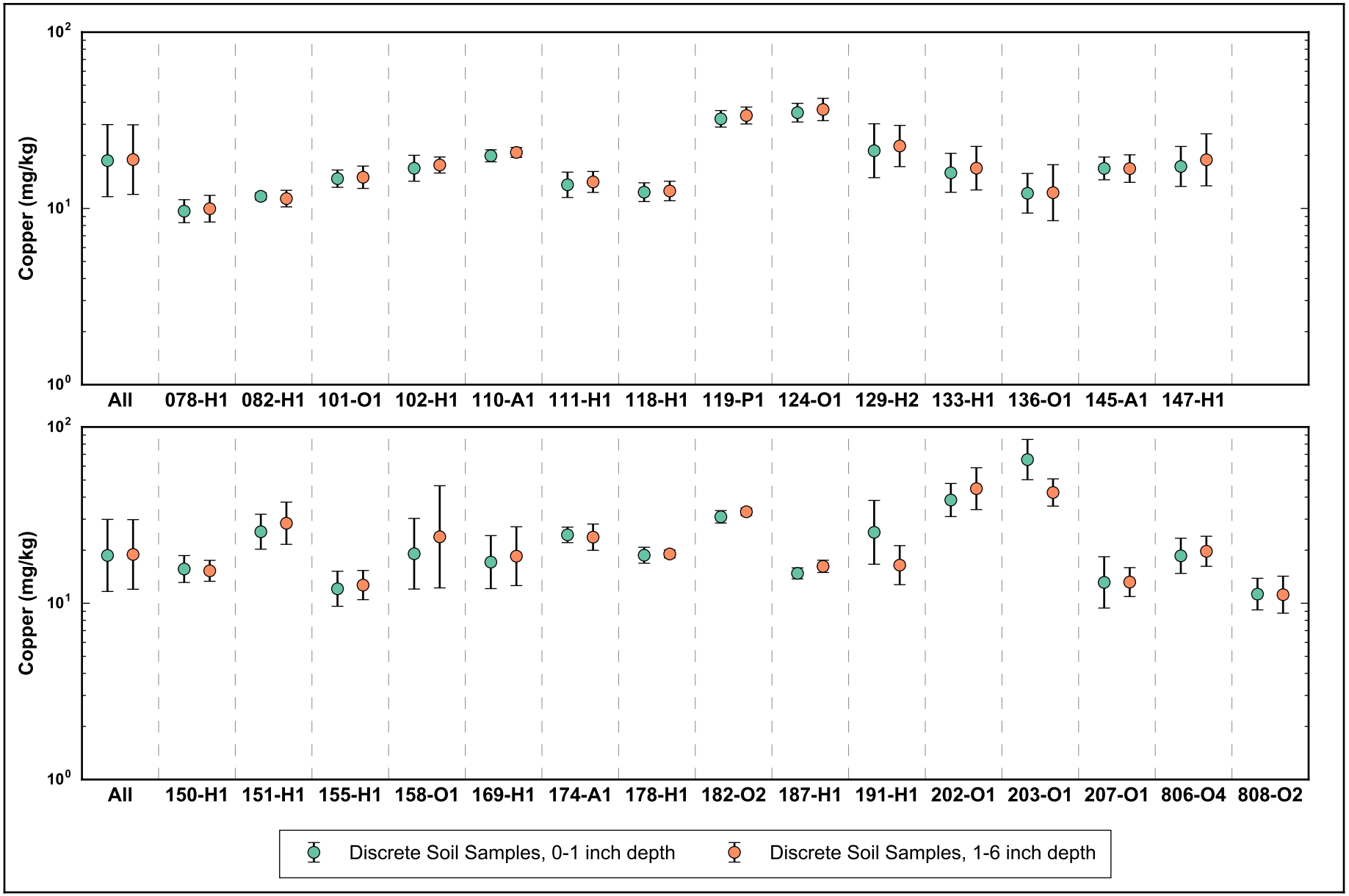
Notes: Data shown as log-transformed means and standard deviations. Discrete field duplicates have been pre-averaged.

Figure 5–3h. Chromium Concentrations in Discrete Soil Samples by DU



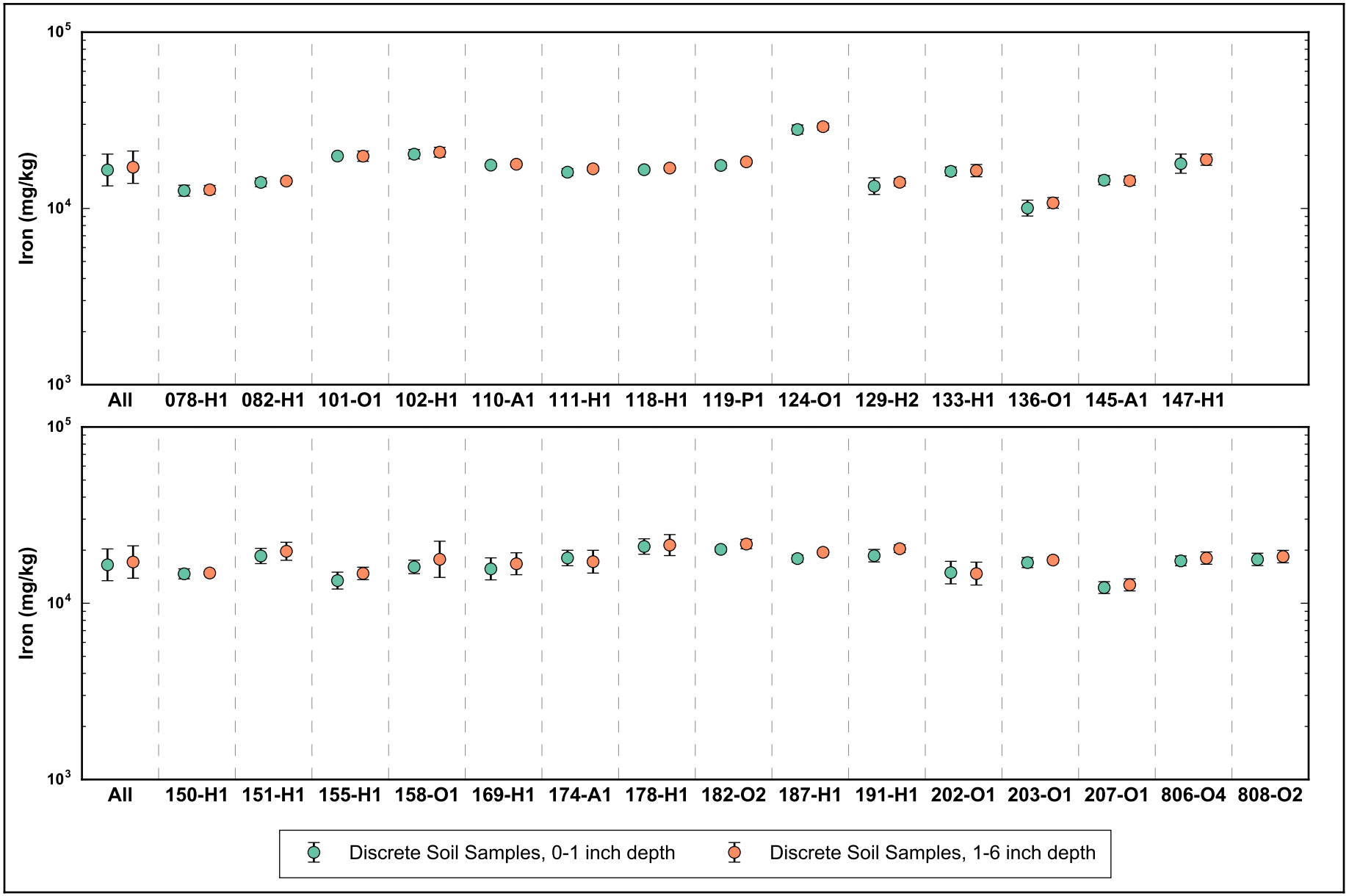
Notes: Data shown as log-transformed means and standard deviations. Discrete field duplicates have been pre-averaged.

Figure 5–3i. Cobalt Concentrations in Discrete Soil Samples by DU



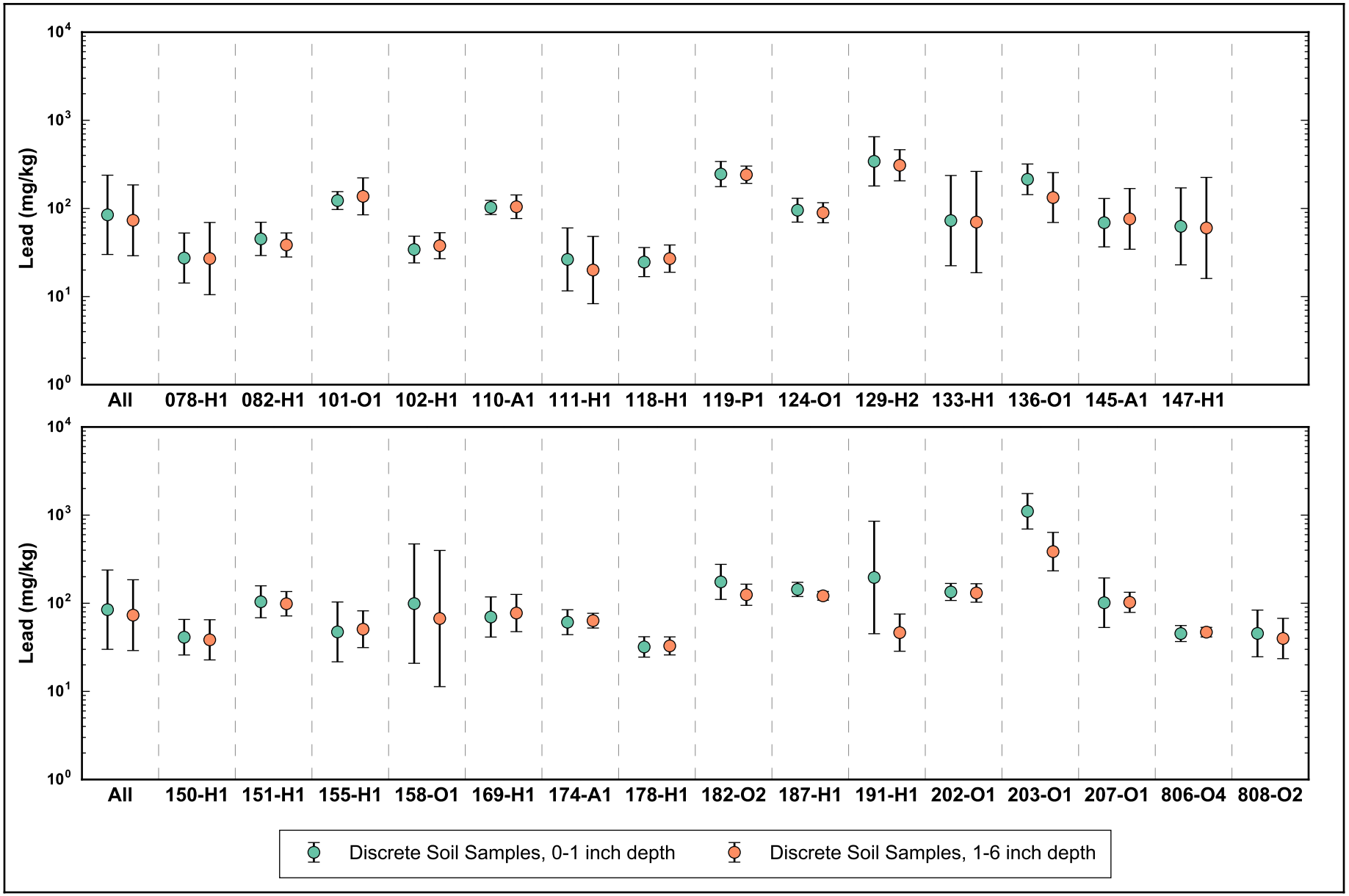
Notes: Data shown as log-transformed means and standard deviations. Discrete field duplicates have been pre-averaged.

Figure 5–3j. Copper Concentrations in Discrete Soil Samples by DU



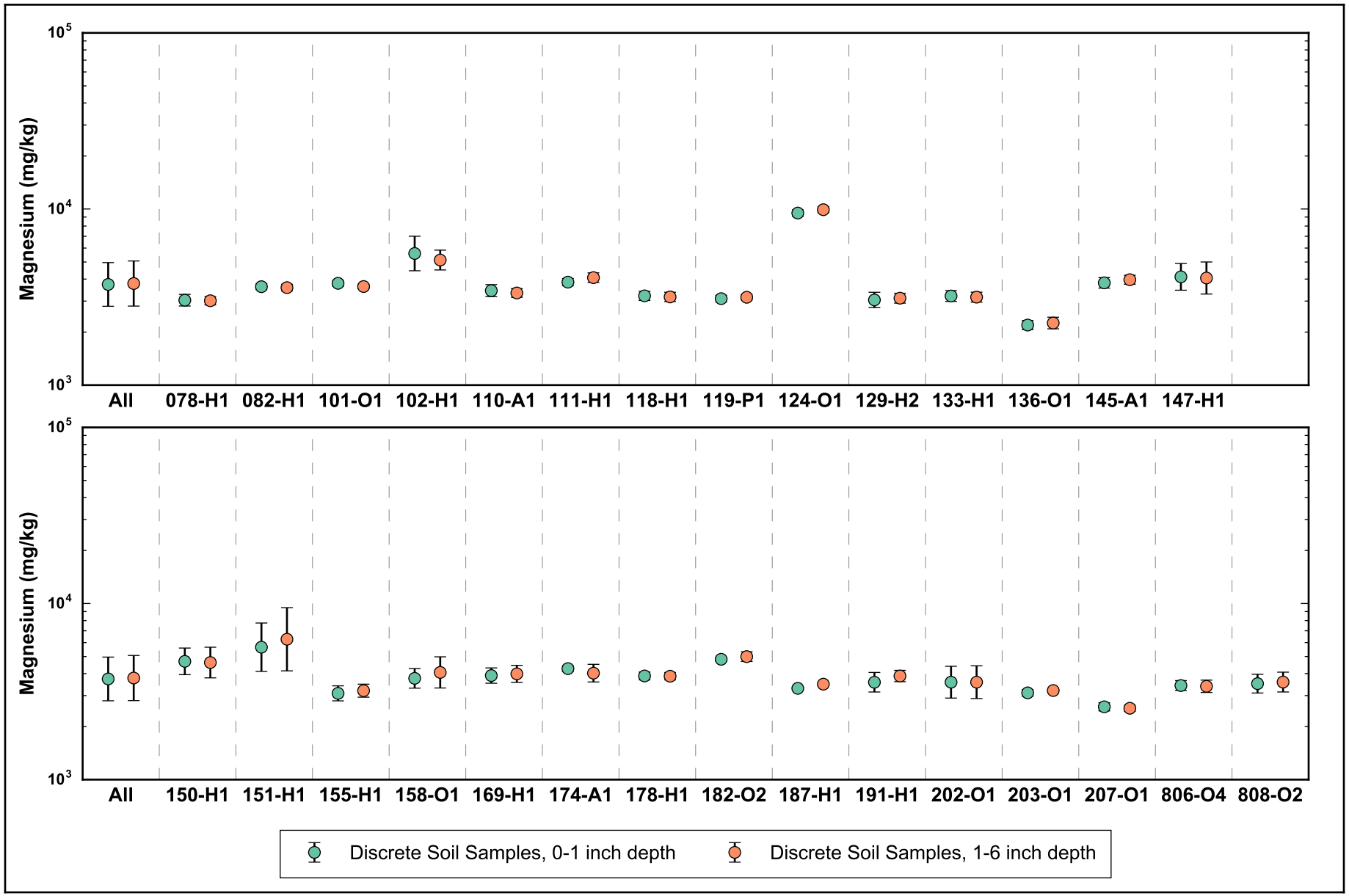
Notes: Data shown as log-transformed means and standard deviations. Discrete field duplicates have been pre-averaged.

Figure 5–3k. Iron Concentrations in Discrete Soil Samples by DU



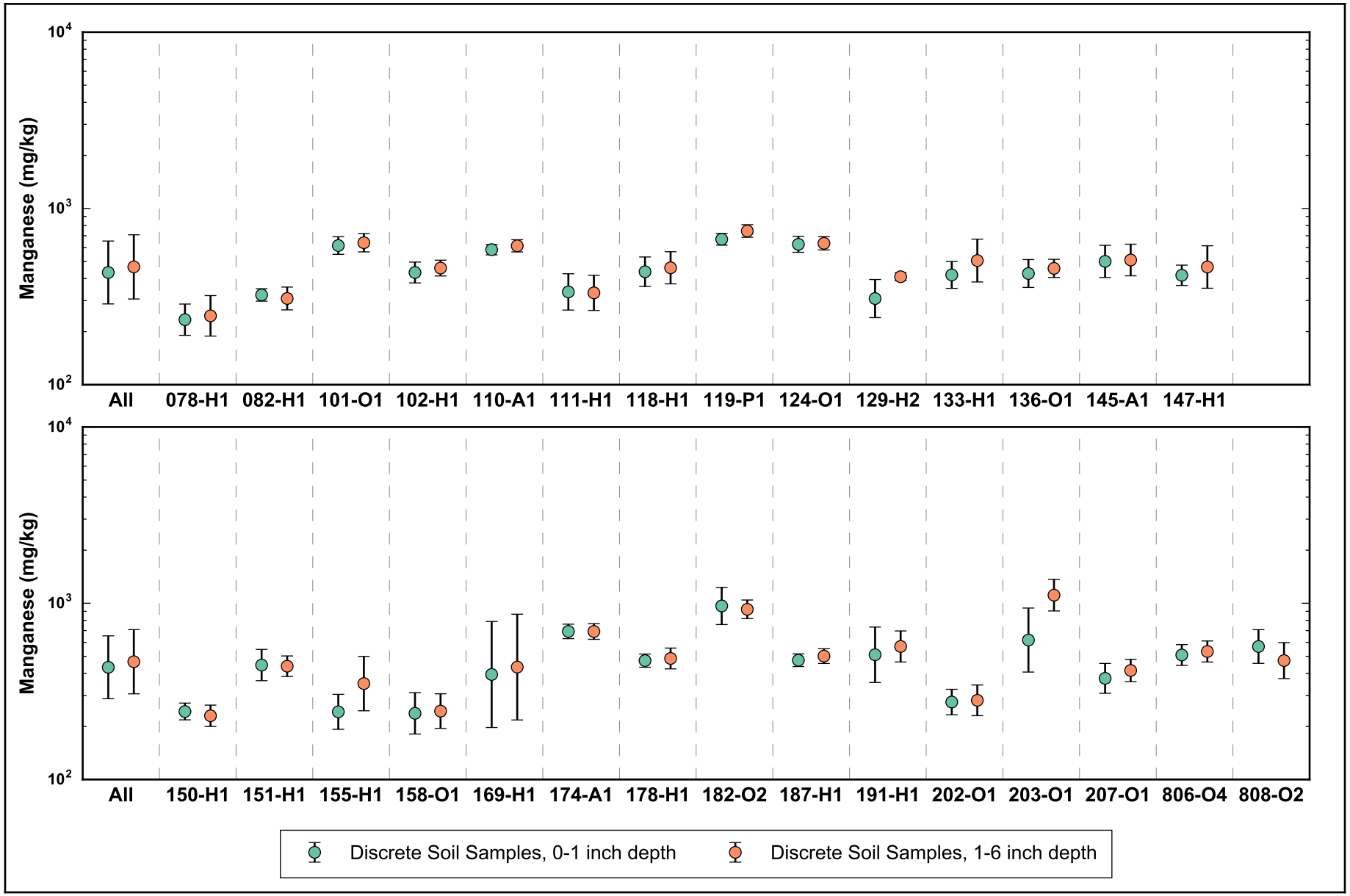
Notes: Data shown as log-transformed means and standard deviations. Discrete field duplicates have been pre-averaged.
Lead concentrations are as reported by the analytical laboratory without adjustment for bioavailability.

Figure 5–3l. Lead Concentrations in Discrete Soil Samples by DU



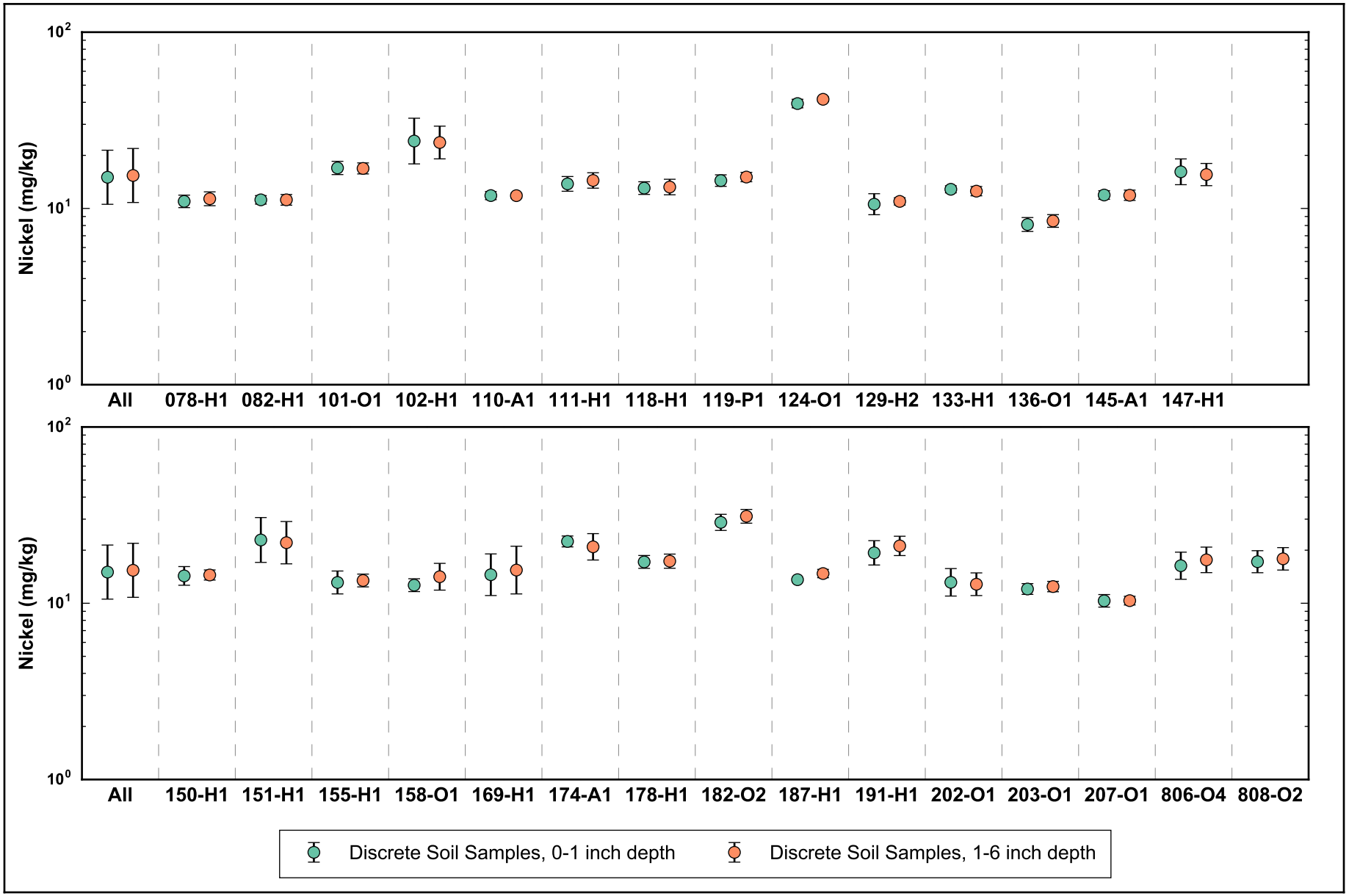
Notes: Data shown as log-transformed means and standard deviations. Discrete field duplicates have been pre-averaged.

Figure 5–3m. Magnesium Concentrations in Discrete Soil Samples by DU



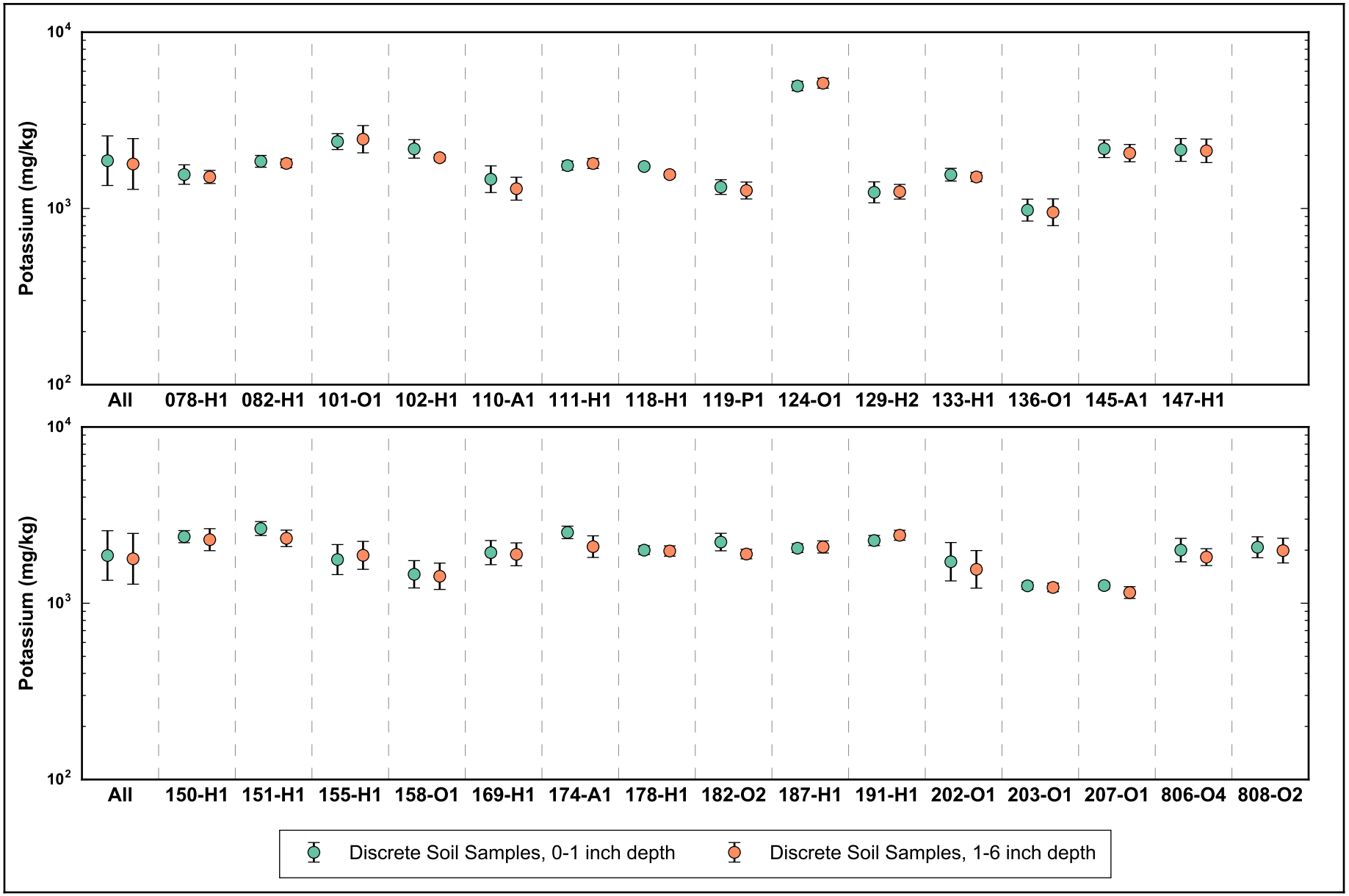
Notes: Data shown as log-transformed means and standard deviations. Discrete field duplicates have been pre-averaged.

Figure 5–3n. Manganese Concentrations in Discrete Soil Samples by DU



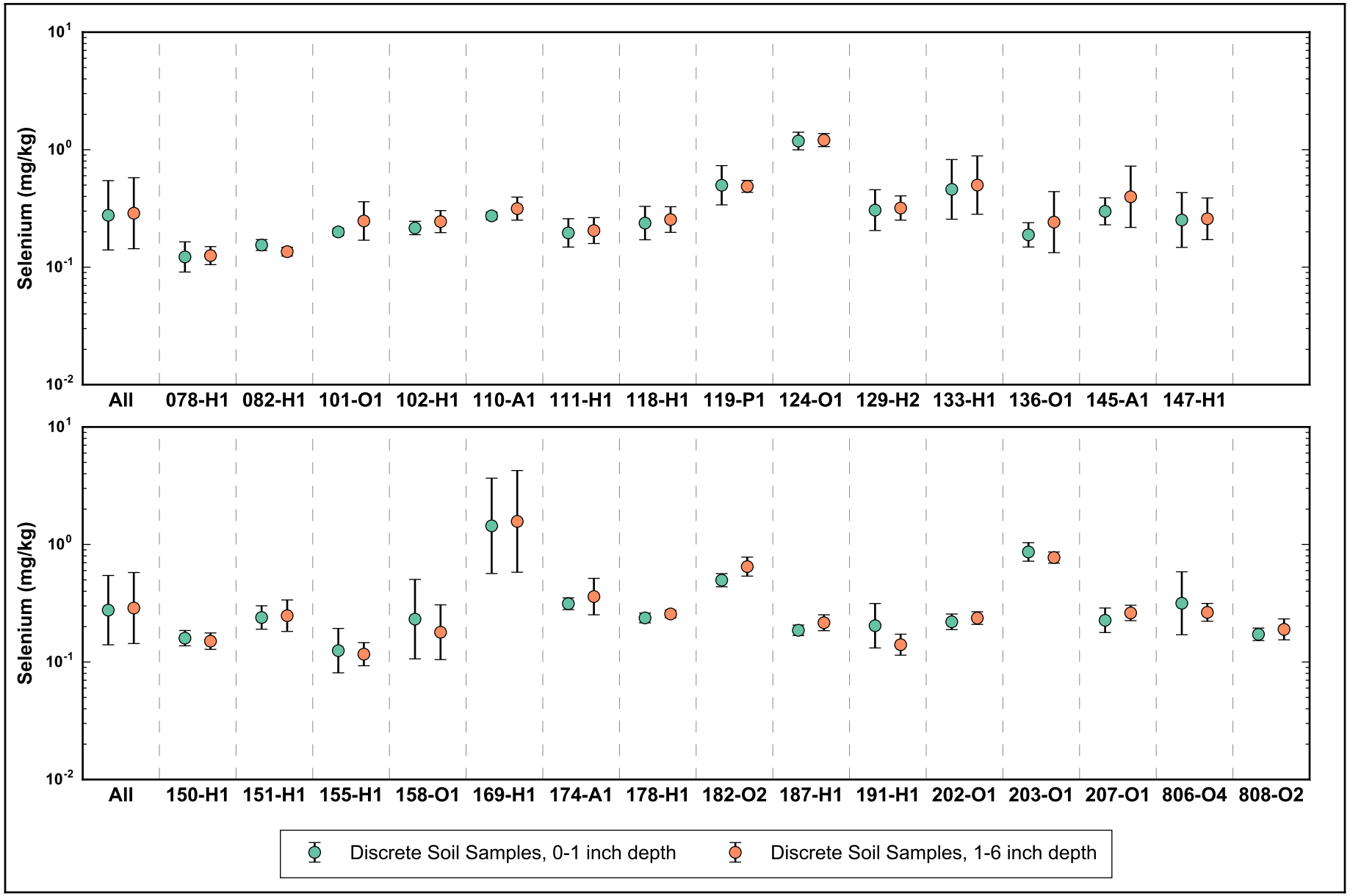
Notes: Data shown as log-transformed means and standard deviations. Discrete field duplicates have been pre-averaged.

Figure 5–3o. Nickel Concentrations in Discrete Soil Samples by DU



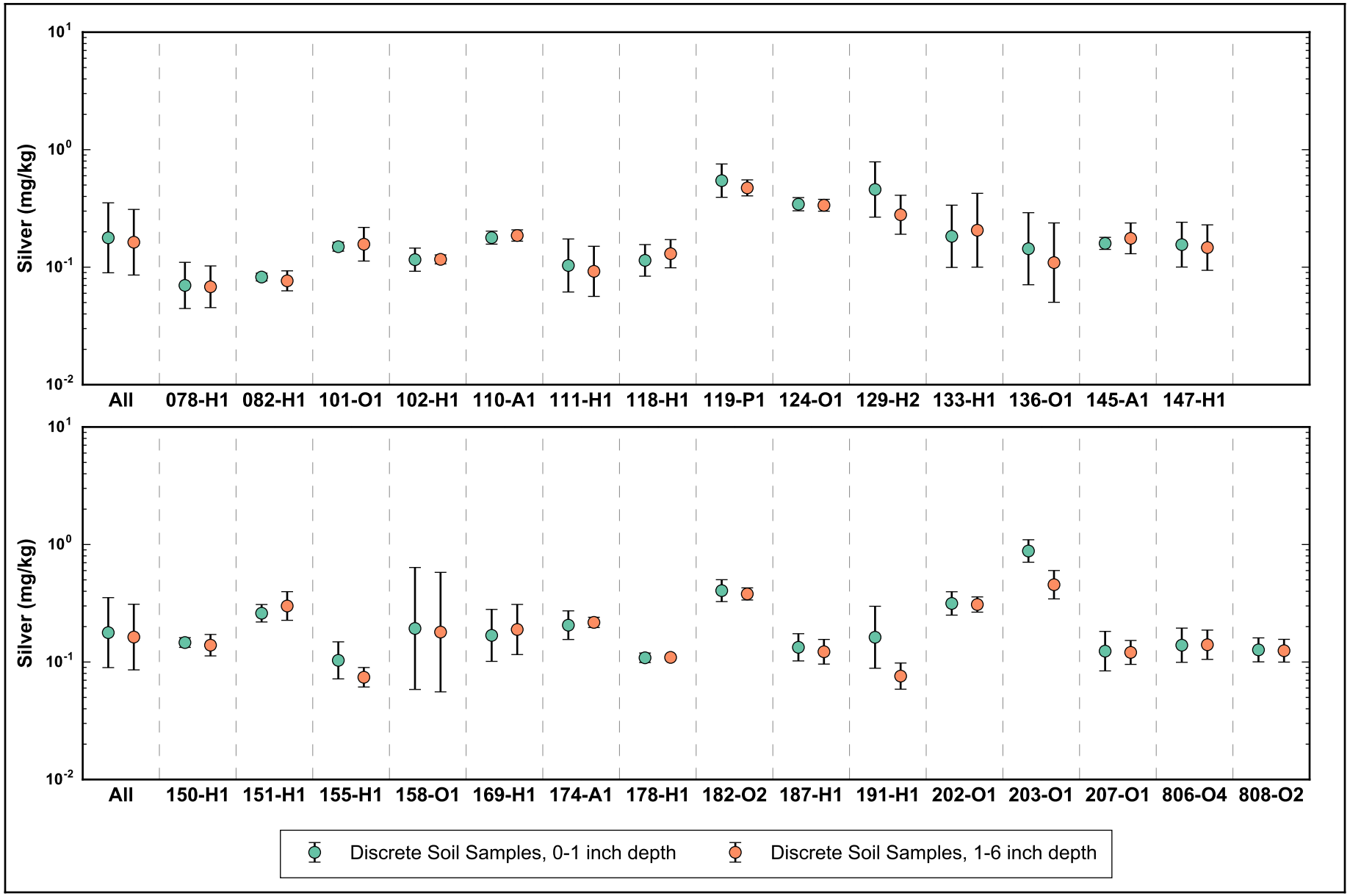
Notes: Data shown as log-transformed means and standard deviations. Discrete field duplicates have been pre-averaged.

Figure 5–3p. Potassium Concentrations in Discrete Soil Samples by DU



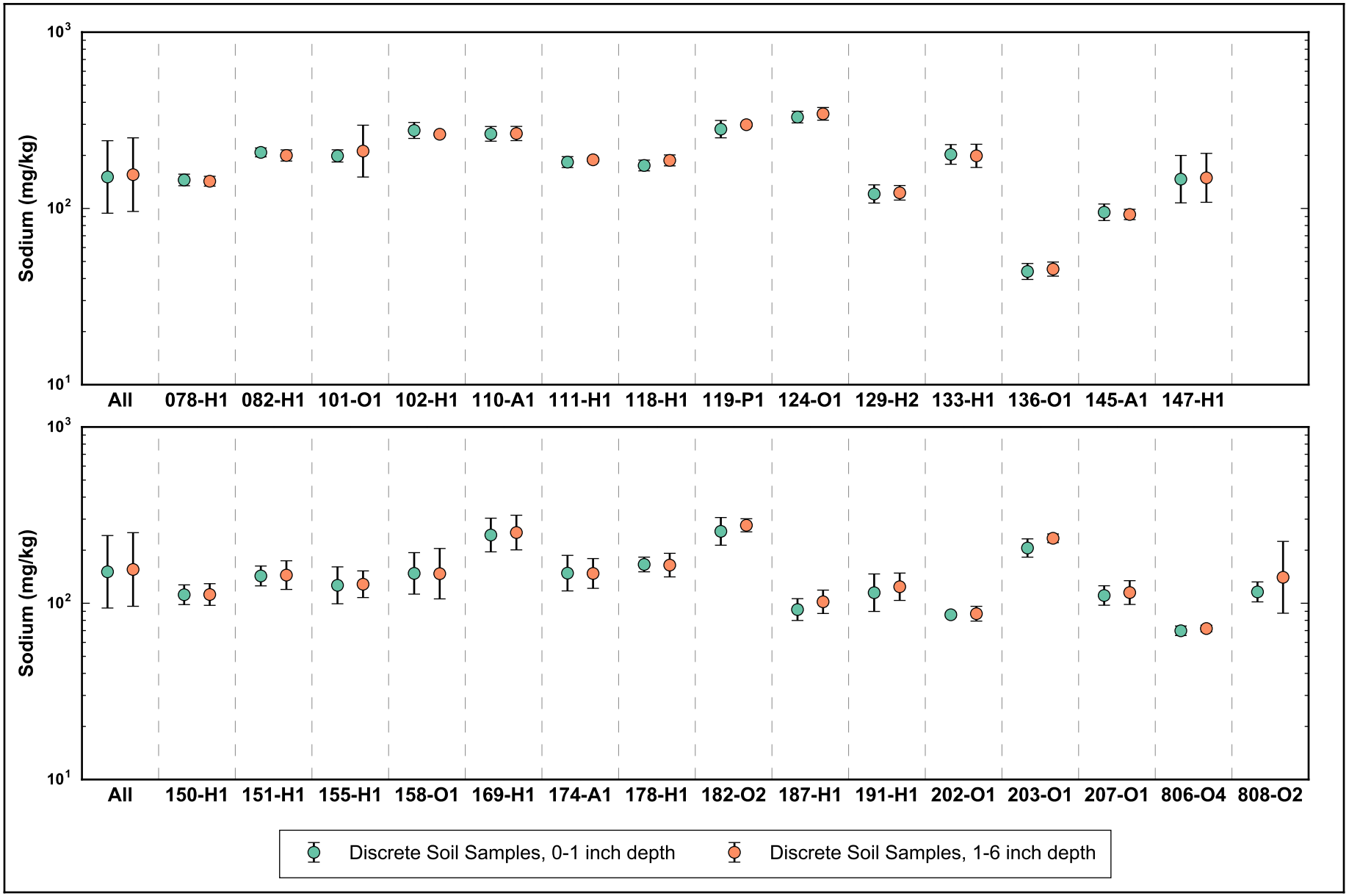
Notes: Data shown as log-transformed means and standard deviations. Discrete field duplicates have been pre-averaged.

Figure 5–3q. Selenium Concentrations in Discrete Soil Samples by DU



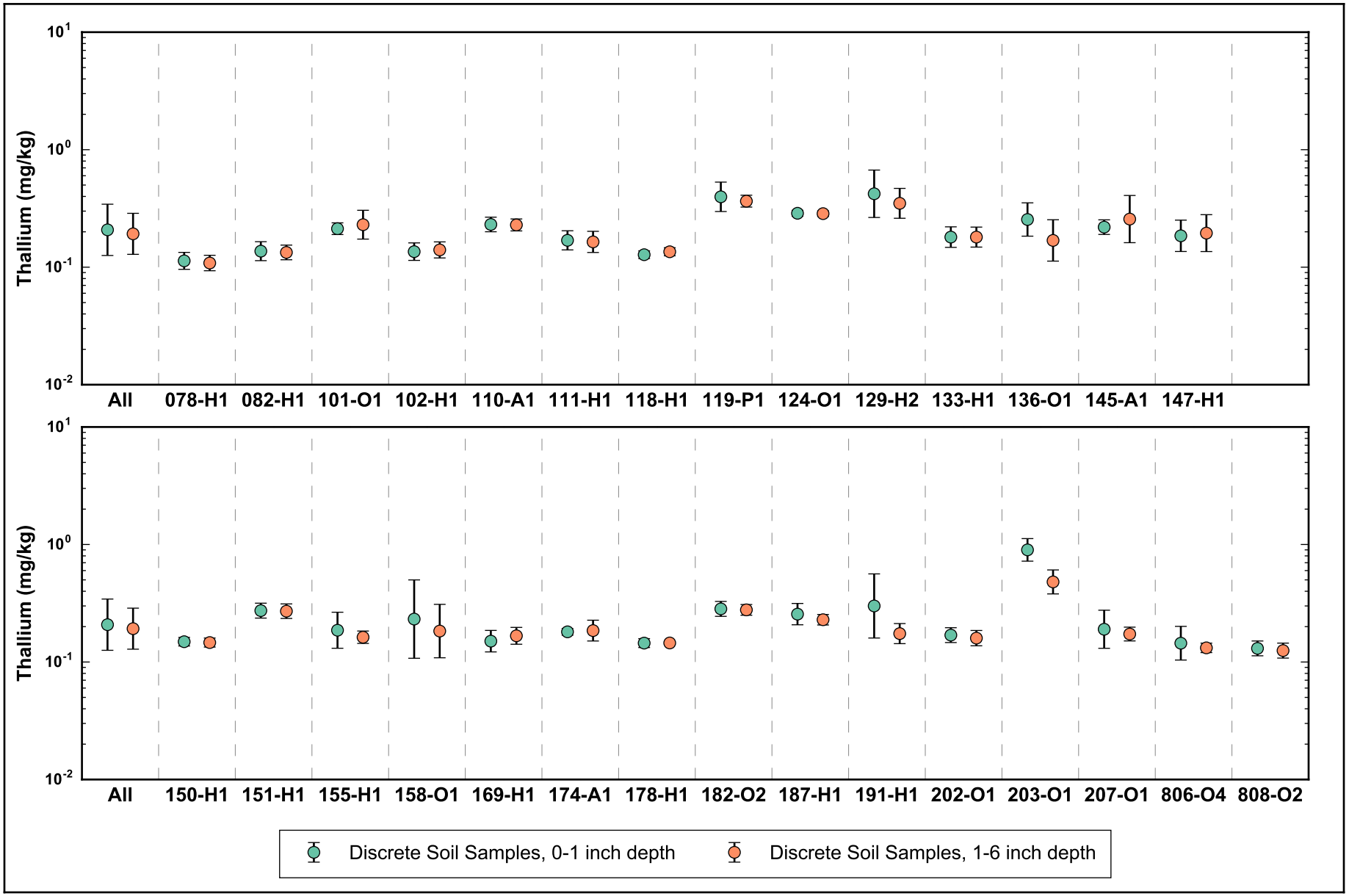
Notes: Data shown as log-transformed means and standard deviations. Discrete field duplicates have been pre-averaged.

Figure 5–3r. Silver Concentrations in Discrete Soil Samples by DU



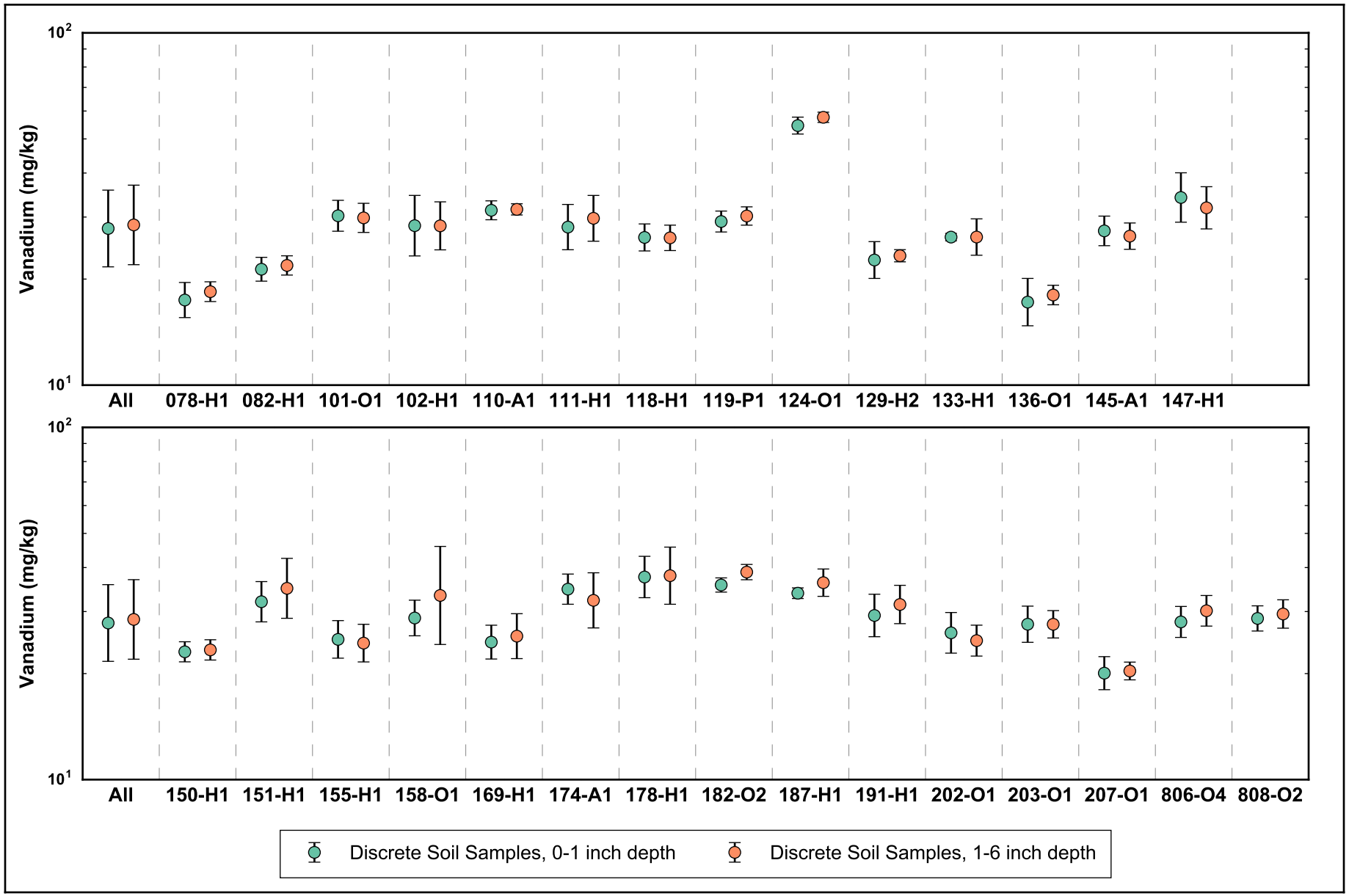
Notes: Data shown as log-transformed means and standard deviations. Discrete field duplicates have been pre-averaged.

Figure 5–3s. Sodium Concentrations in Discrete Soil Samples by DU



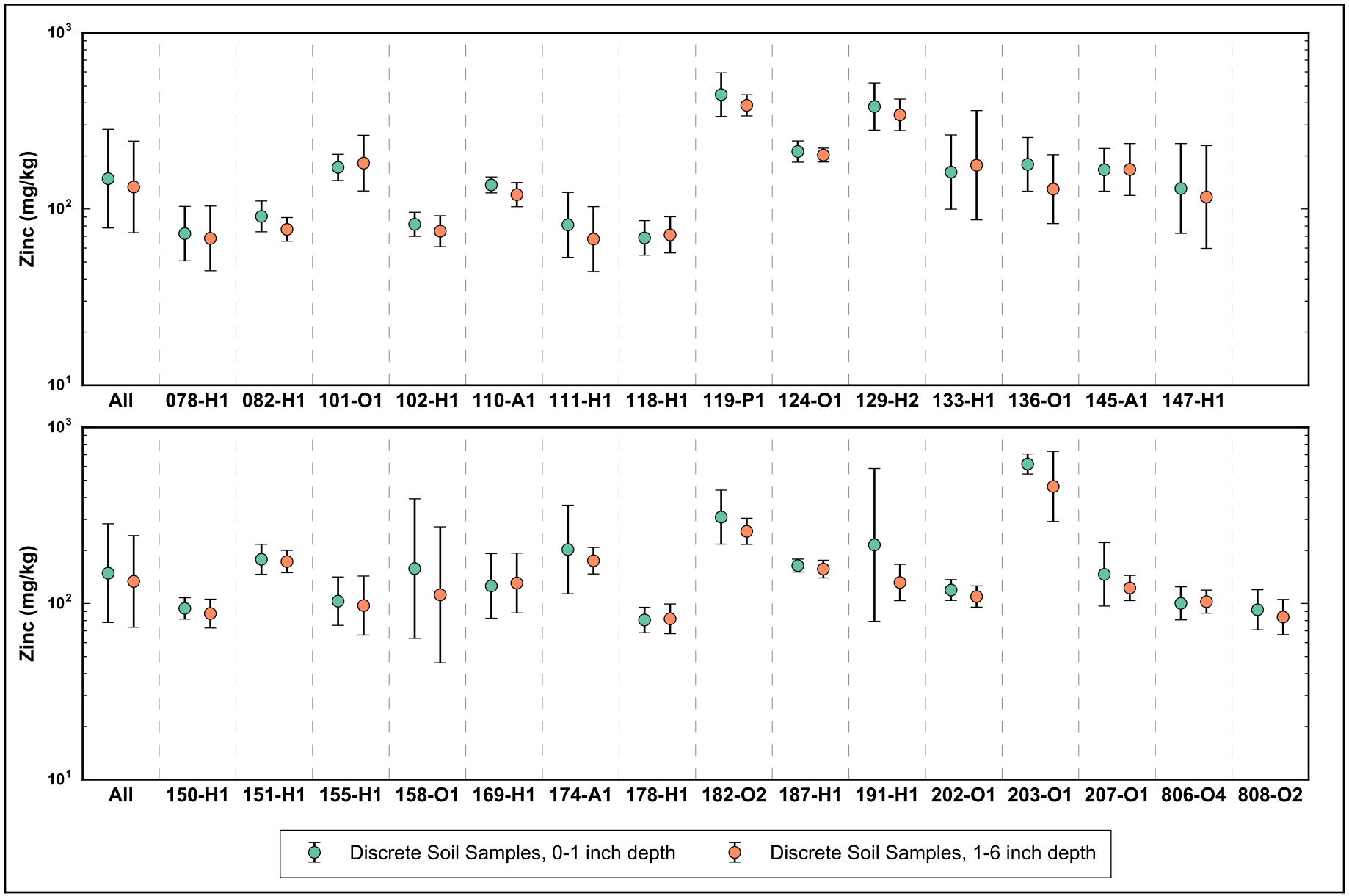
Notes: Data shown as log-transformed means and standard deviations. Discrete field duplicates have been pre-averaged.

Figure 5–3t. Thallium Concentrations in Discrete Soil Samples by DU



Notes: Data shown as log-transformed means and standard deviations. Discrete field duplicates have been pre-averaged.

Figure 5–3u. Vanadium Concentrations in Discrete Soil Samples by DU



Notes: Data shown as log-transformed means and standard deviations. Discrete field duplicates have been pre-averaged.

Figure 5–3v. Zinc Concentrations in Discrete Soil Samples by DU

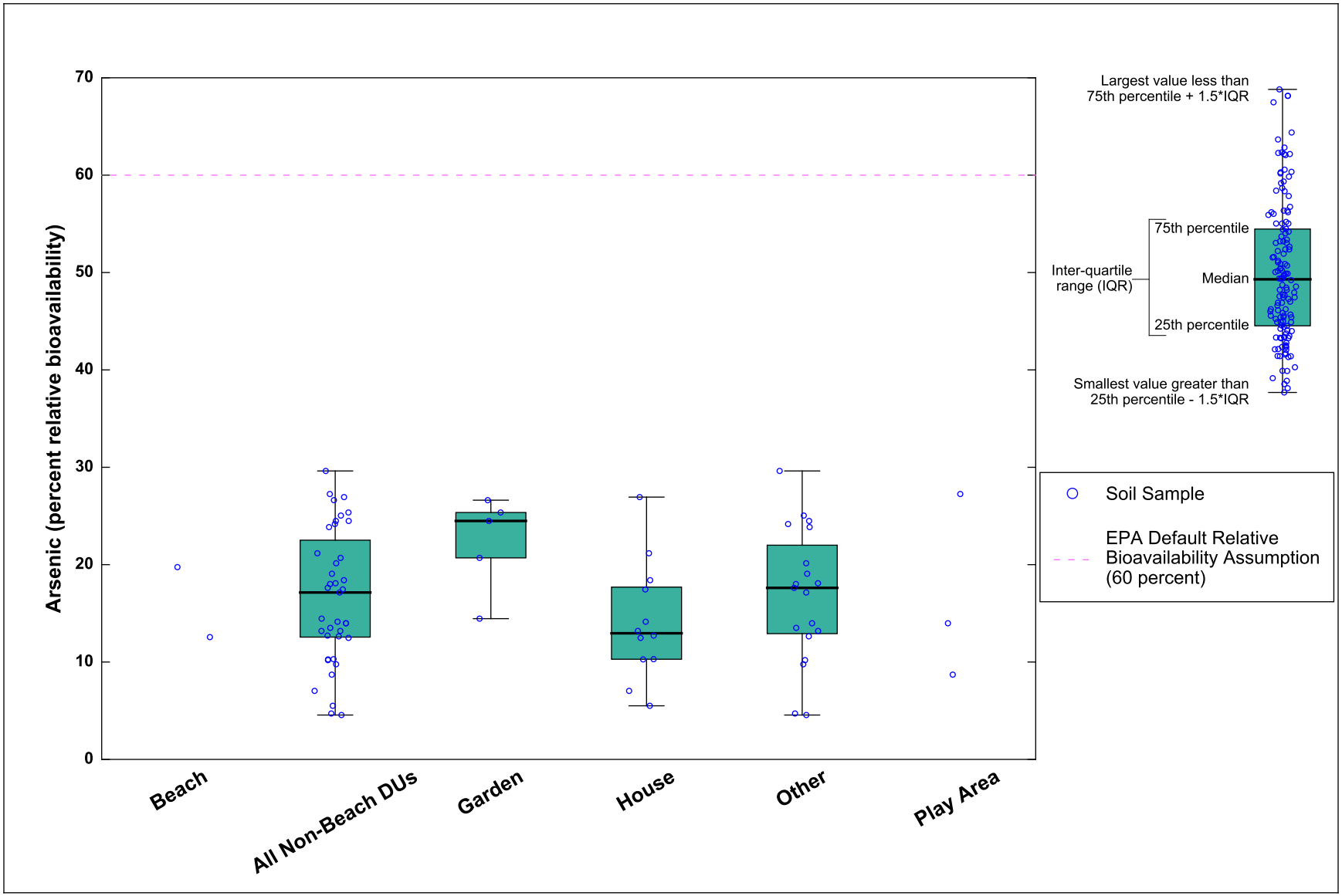


Figure 5–4a. Percent Relative Bioavailable Arsenic by DU Type

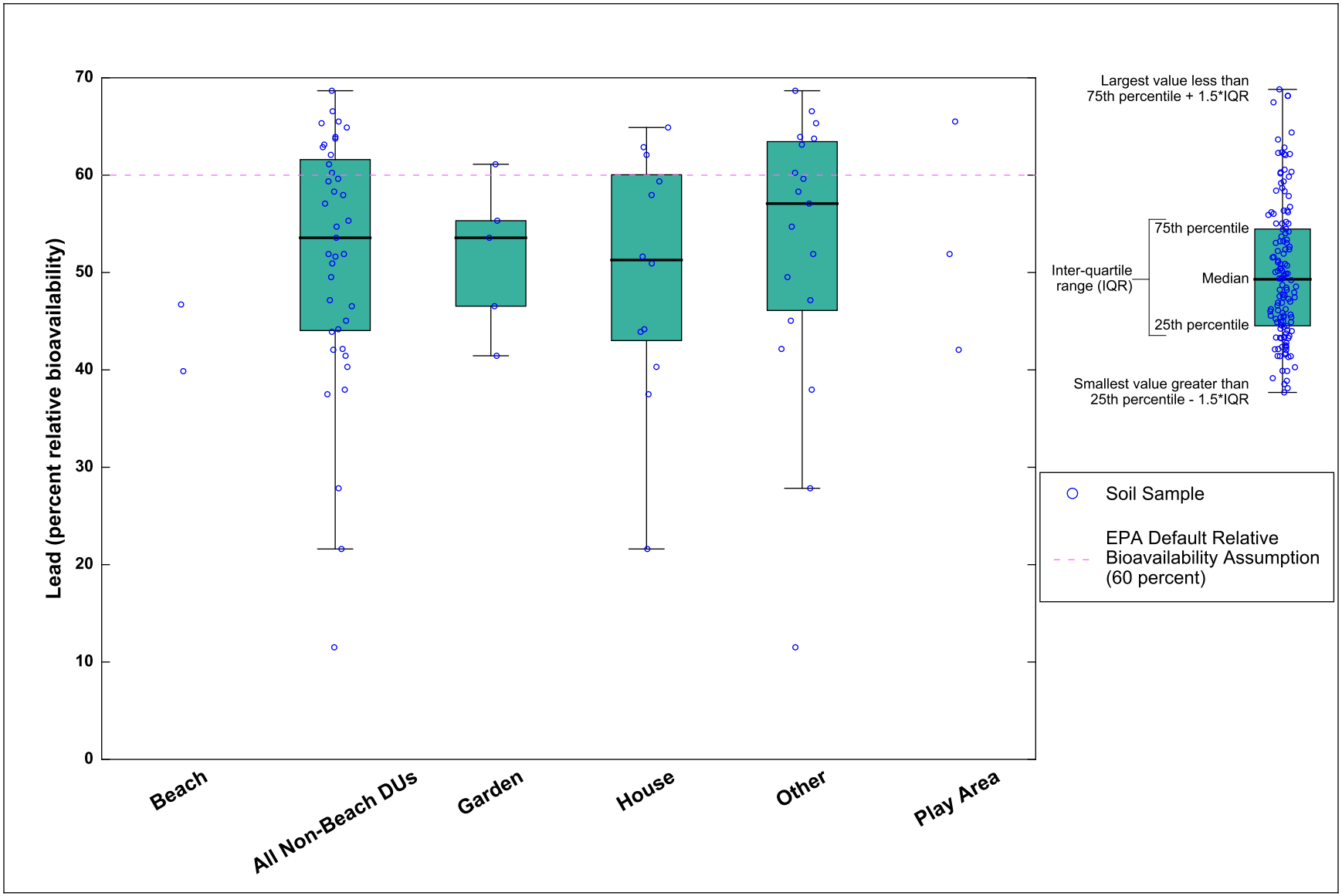


Figure 5–4b. Percent Relative Bioavailable Lead by DU Type

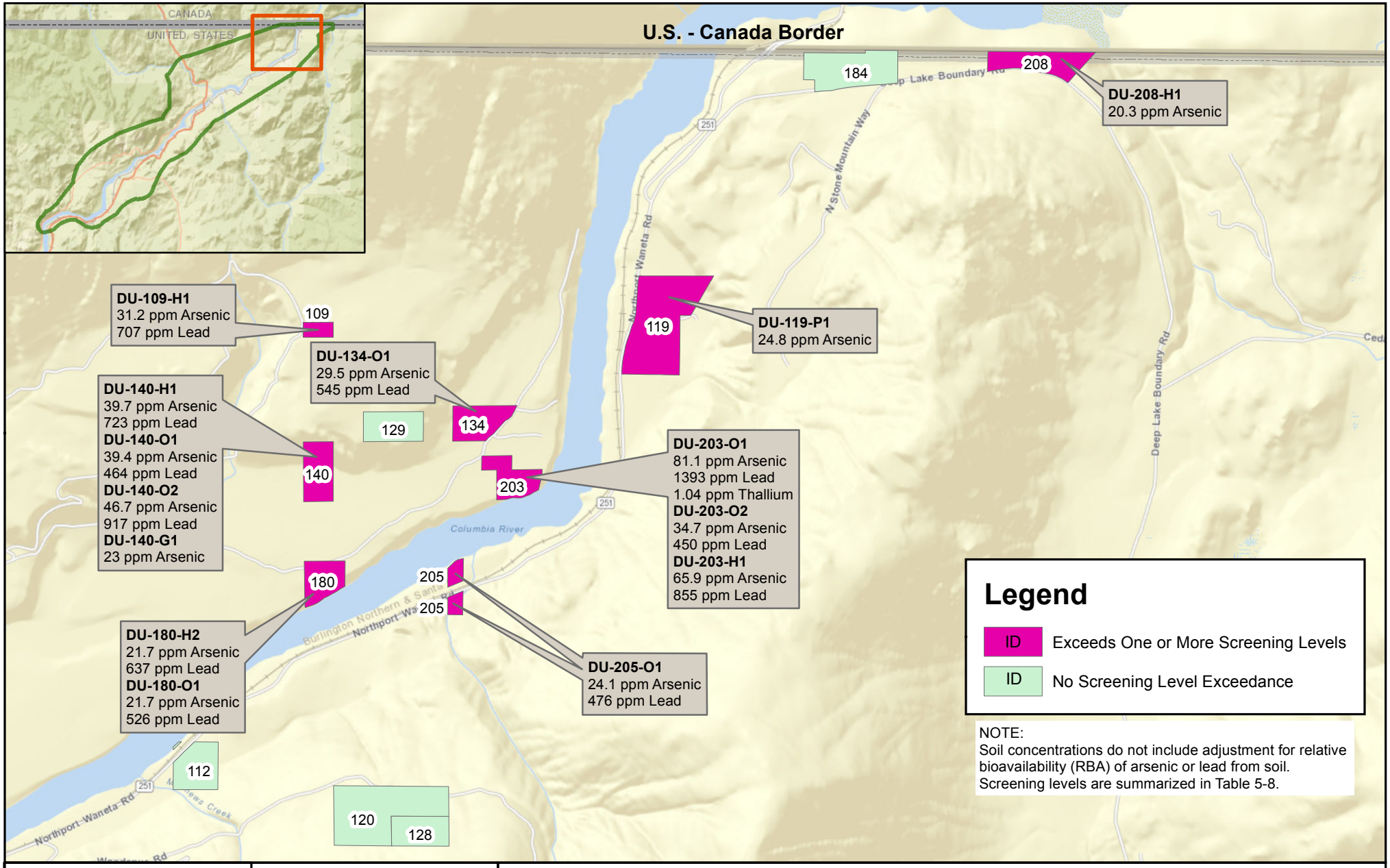
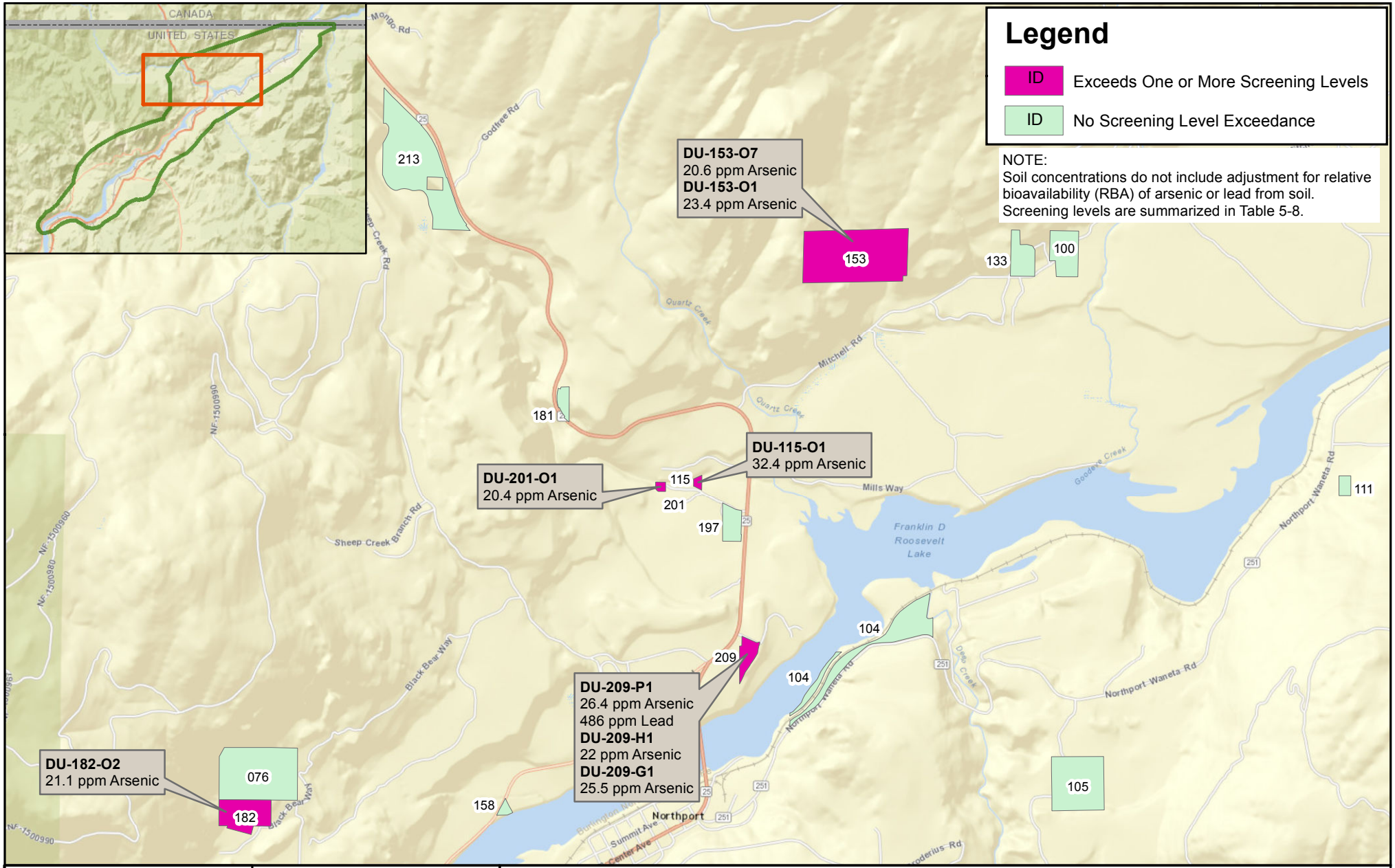


Figure 5-5a. 2016 Residential Soil Study
Screening Level Exceedances by Residence, Detail 1
Upper Columbia River, Washington



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Figure 5-5b. 2016 Residential Soil Study
Screening Level Exceedances by Residence, Detail 2
Upper Columbia River, Washington

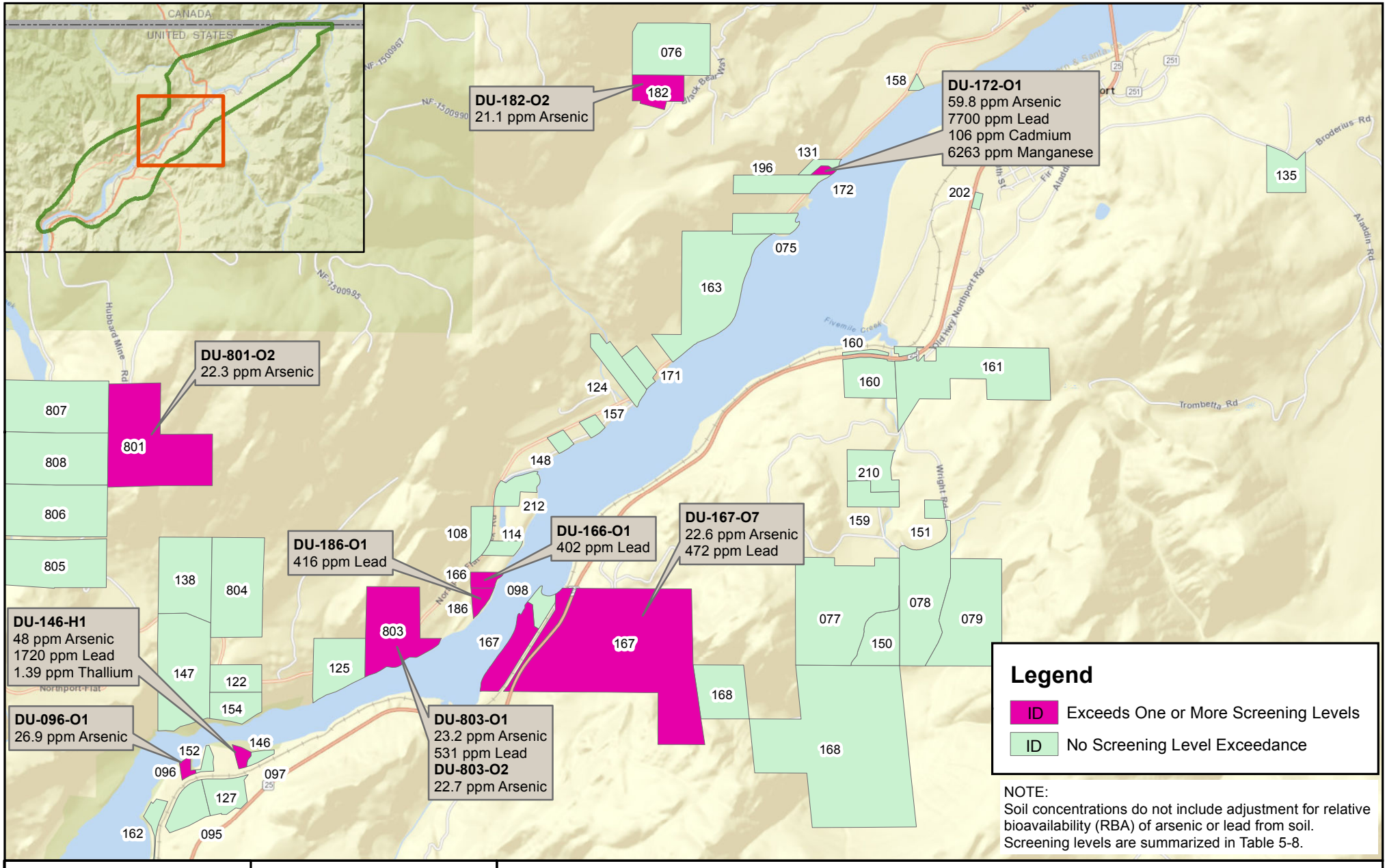
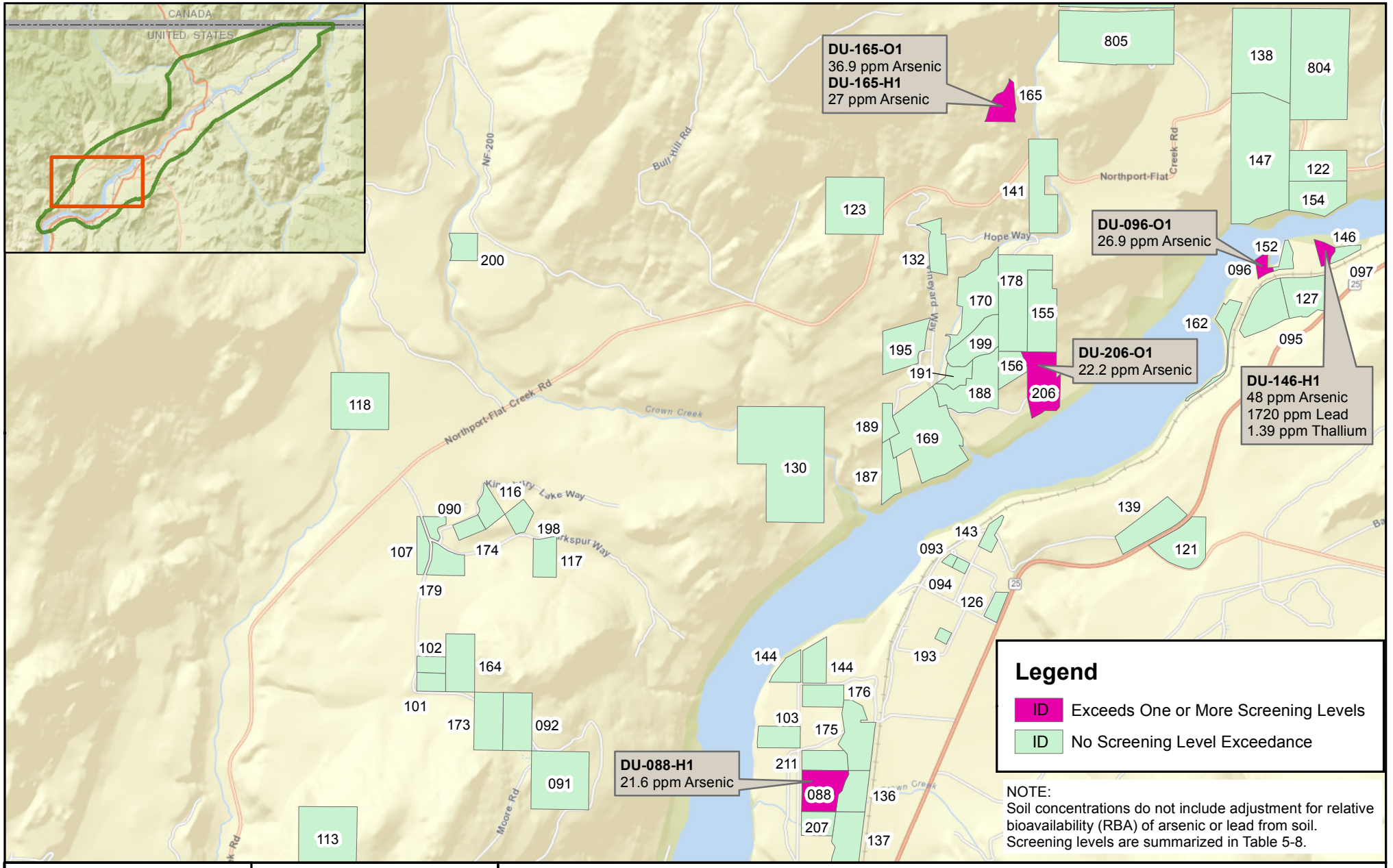


Figure 5-5c. 2016 Residential Soil Study
Screening Level Exceedances by Residence, Detail 3
Upper Columbia River, Washington

DRAFT



RAMBOLL ENVIRON

Figure 5-5d. 2016 Residential Soil Study
Screening Level Exceedances by Residence, Detail 4
Upper Columbia River, Washington

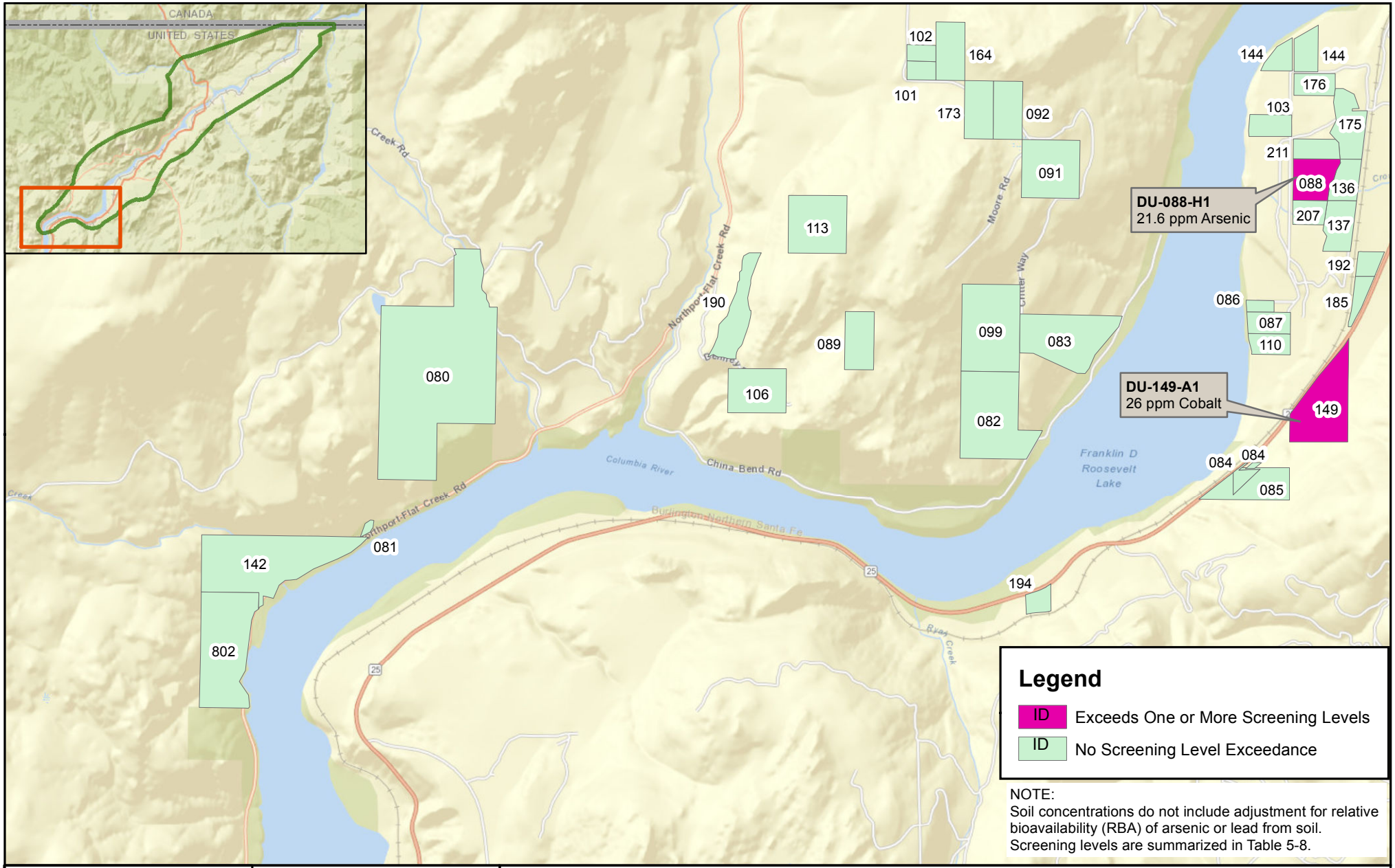
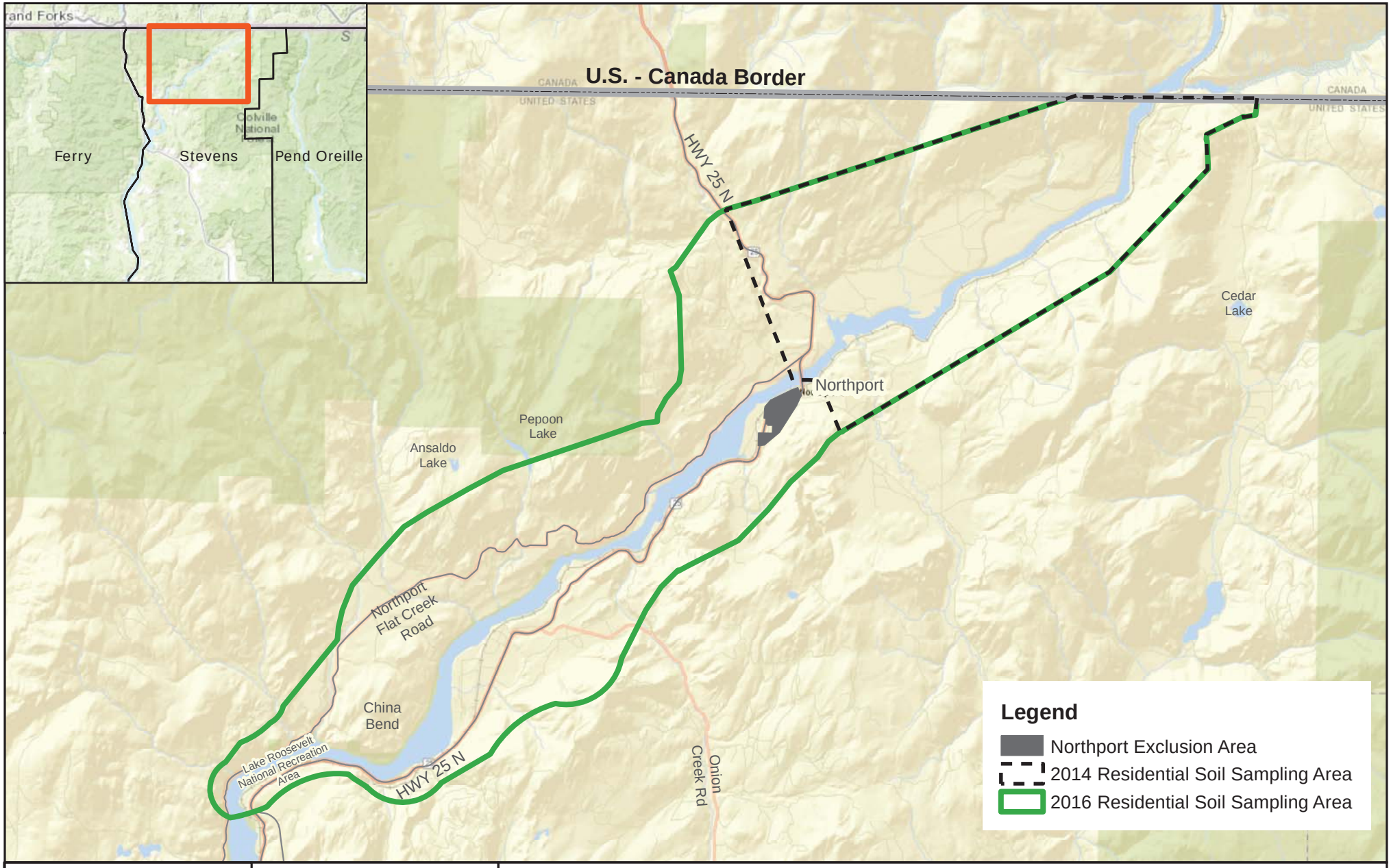


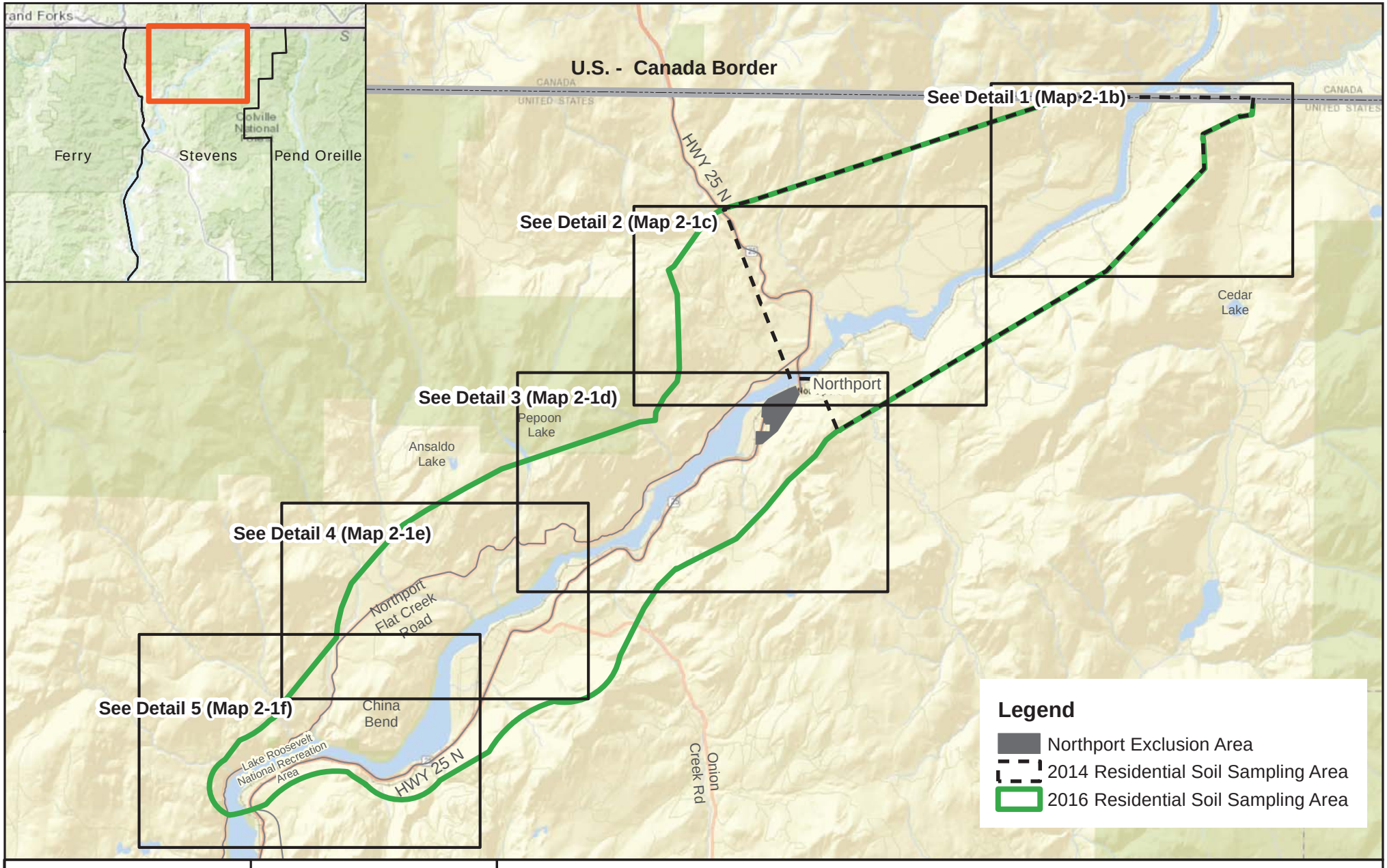
Figure 5-5e. 2016 Residential Soil Study
Screening Level Exceedances by Residence, Detail 5
Upper Columbia River, Washington

Maps



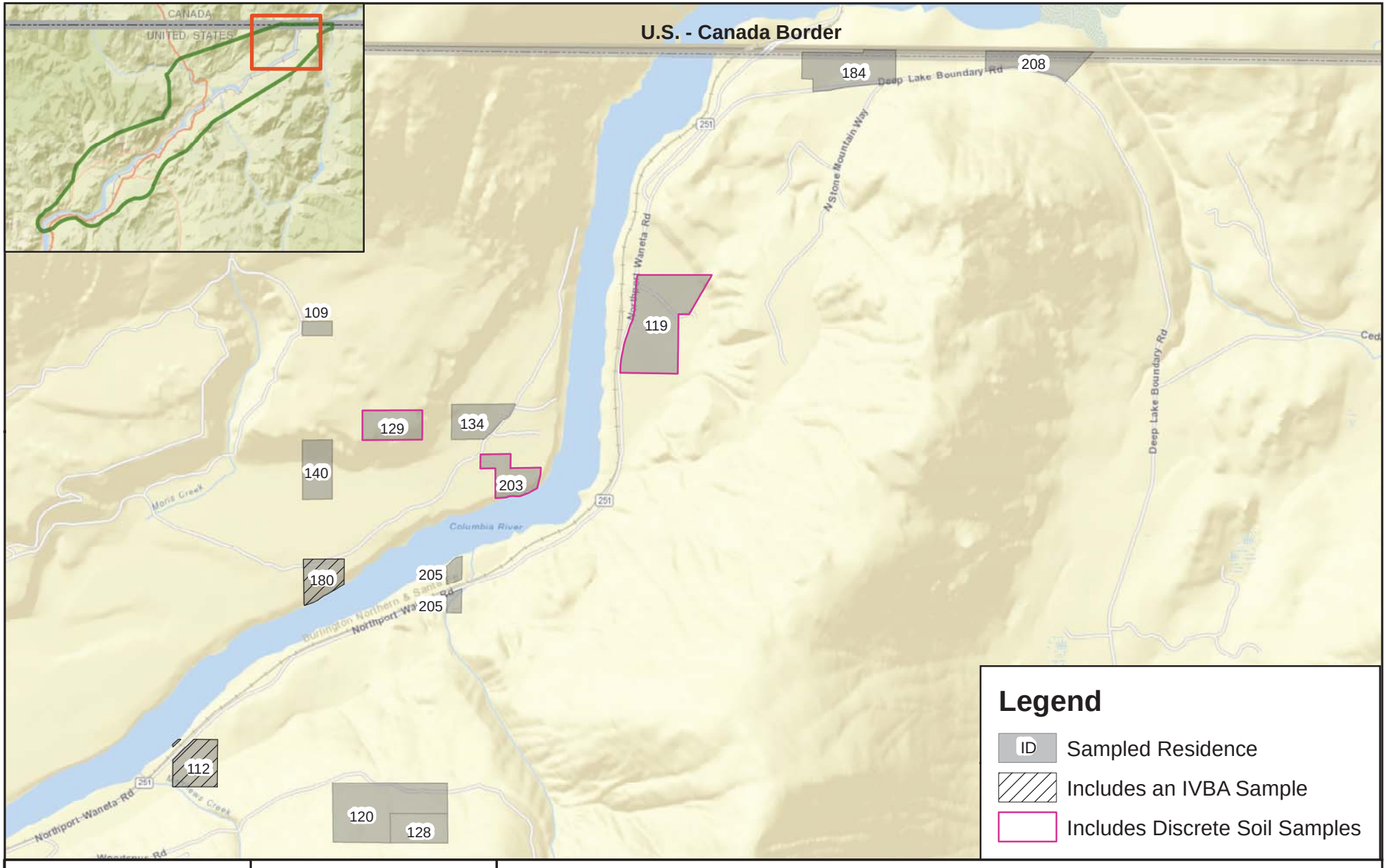
RAMBOLL ENVIRON

Map 1-1. 2016 Residential Soil Study Sampled Residences (overview)
UCR Study Area
Upper Columbia River, Washington



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Map 2-1a. 2016 Residential Soil Study
Sampled Residences Overview
Upper Columbia River, Washington



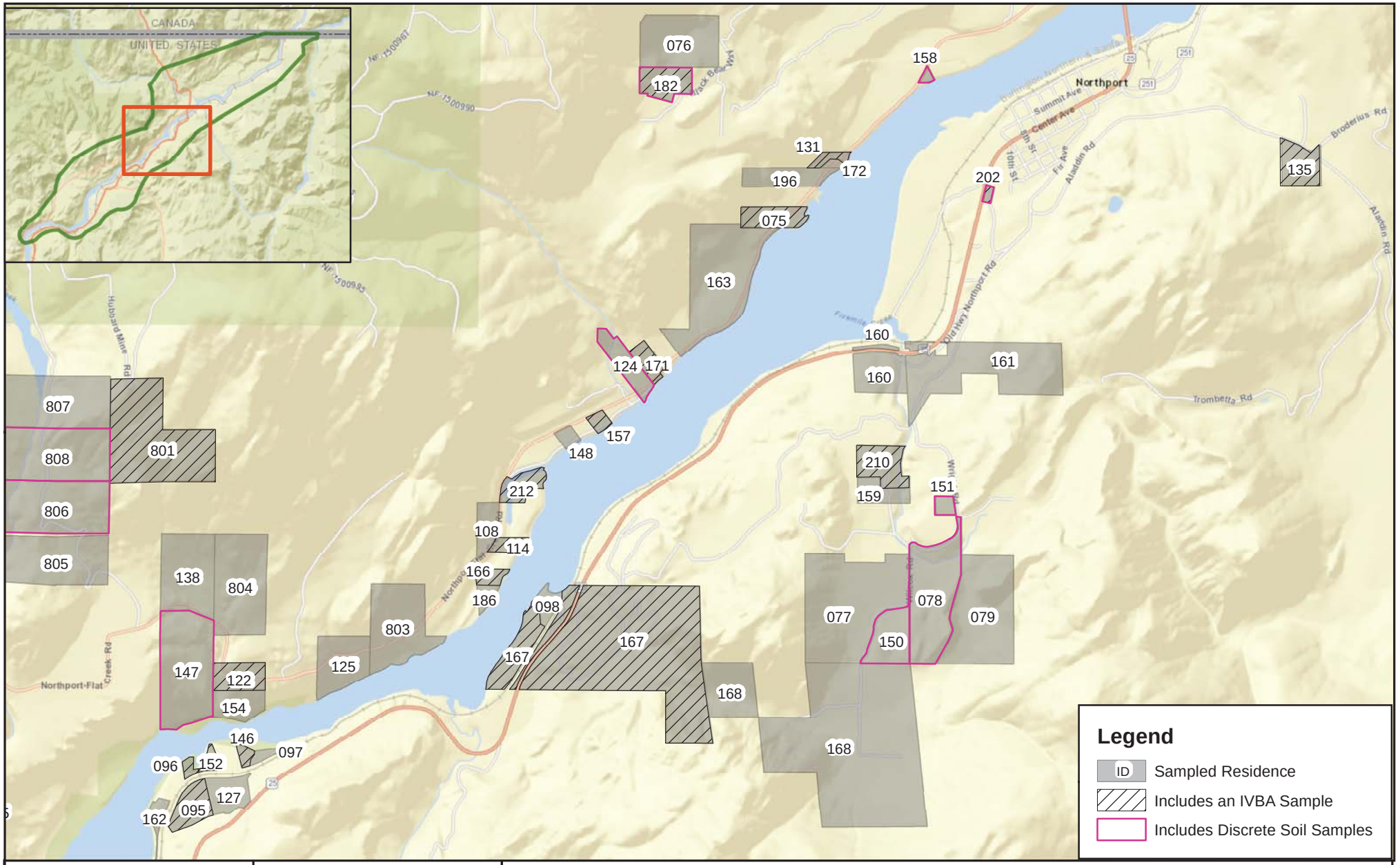
RAMBOLL ENVIRON

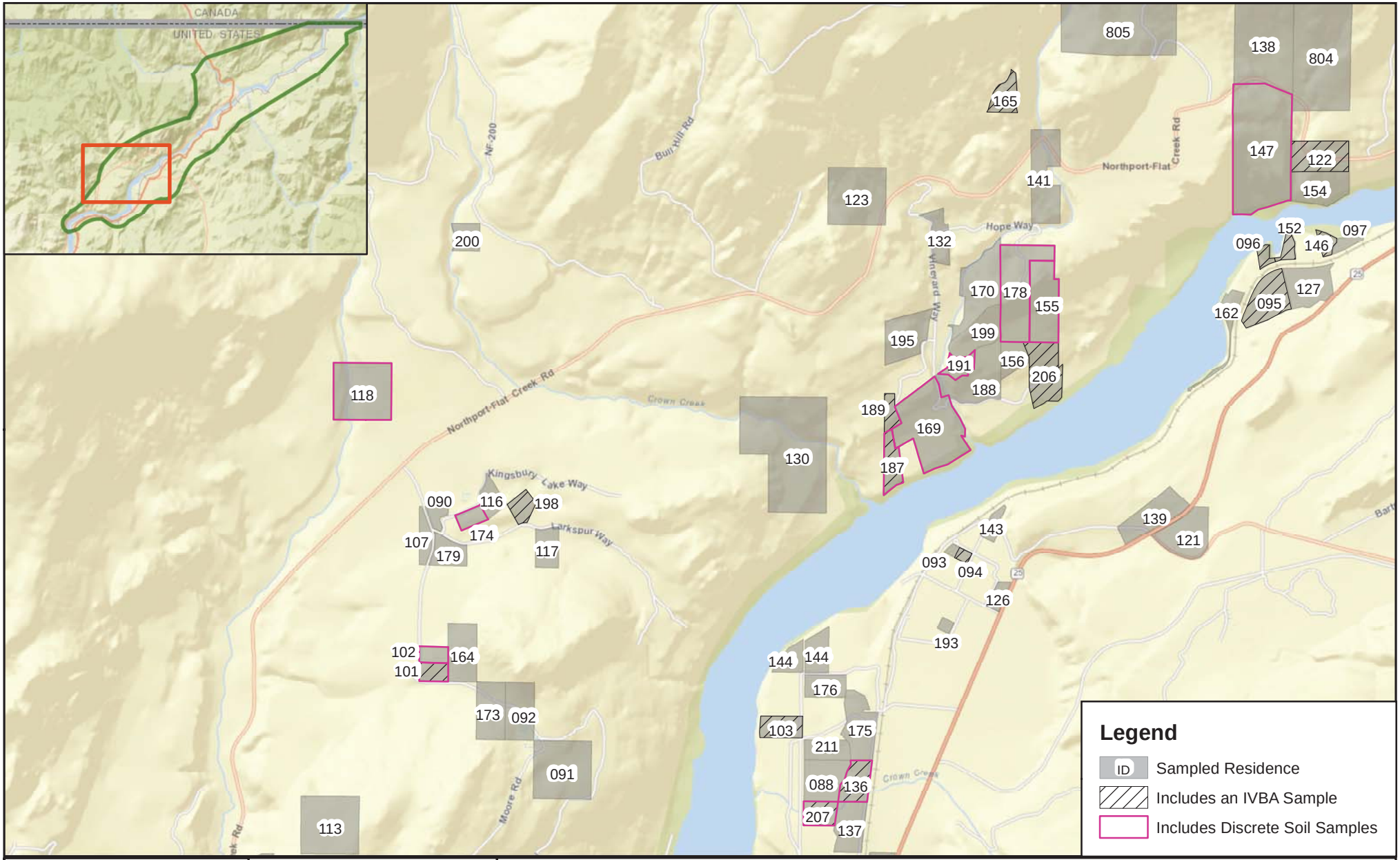
Map 2-1b. 2016 Residential Soil Study
Sampled Residences Detail 1
Upper Columbia River, Washington



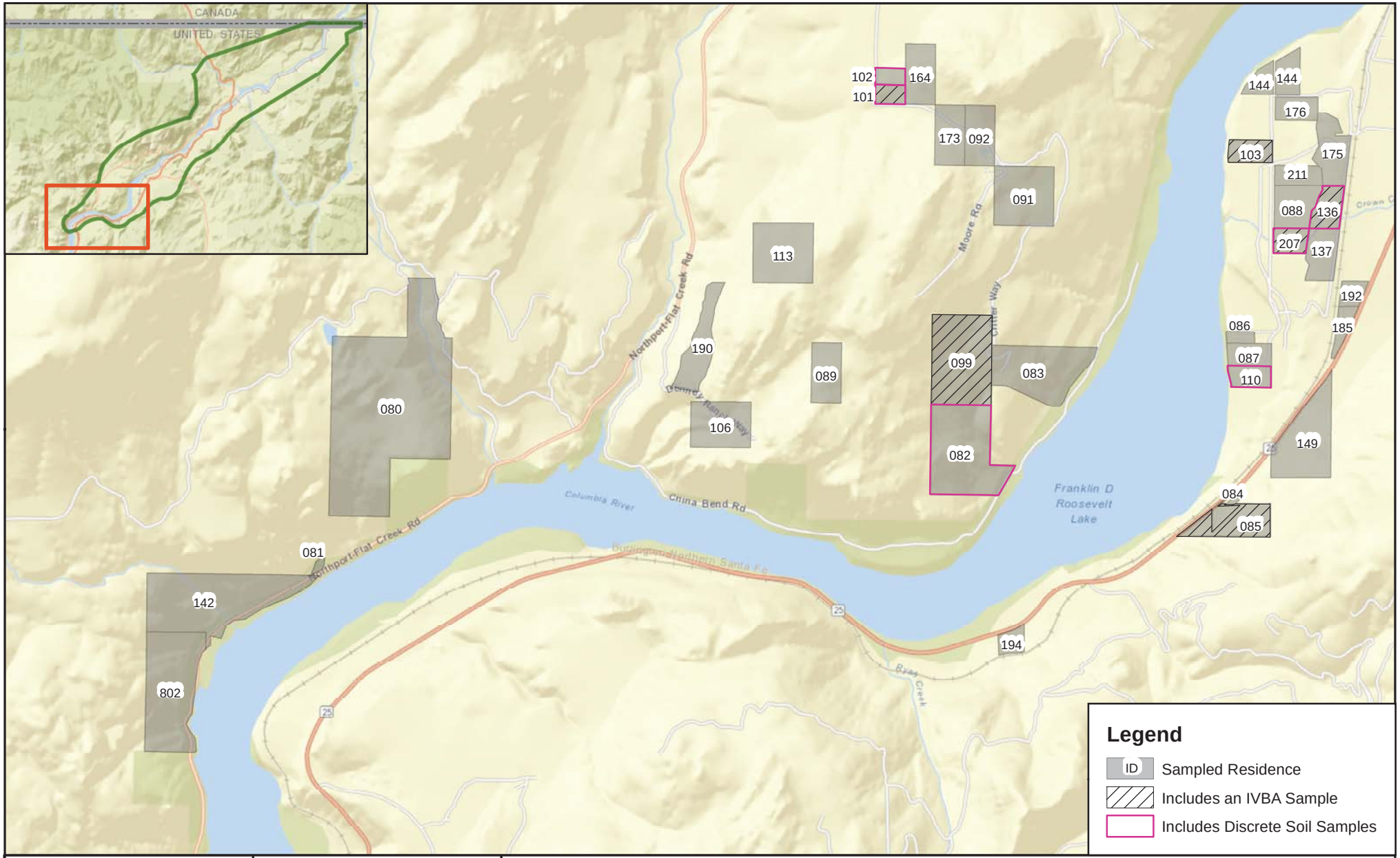
RAMBOLL ENVIRON

Map 2-1c. 2016 Residential Soil Study
Sampled Residences Detail 2
Upper Columbia River, Washington


CANADA
UNITED STATES
076
182
158
Northport
131
172
196
202
135
075
163
160
124
171
161
160
807
808
801
157
148
210
212
159
151
806
805
108
114
166
186
138
804
803
098
167
167
077
078
079
150
147
122
125
154
168
168
146
097
096
152
127
095
162
Hubbard Mine Rd
Northport-Flat Creek Rd
Trombetta Rd
Broderius Rd
Aladdin Rd
Summit Ave
Center Ave
8th St
10th St
Fir Ave
Old Hwy Northport Rd
Legend
ID
Sampled Residence
Includes an IVBA Sample
Includes Discrete Soil Samples
RAMBOLL ENVIRON
0 0.25 0.5
Kilometers
0 0.25 0.5
Miles
N
Map 2-1d. 2016 Residential Soil Study
Sampled Residences Detail 3
Upper Columbia River, Washington



Map 2-1e. 2016 Residential Soil Study
Sampled Residences Detail 4
Upper Columbia River, Washington



Map 2-1f. 2016 Residential Soil Study
Sampled Residences Detail 5
Upper Columbia River, Washington

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LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 25 50 Meters

0 100 200 Feet

N

Map 5-1. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 075
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_076-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 20 40 Meters

0 50 100 Feet

N

Map 5-2. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 076
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_077-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 25 50 Meters

0 100 200 Feet

N

Map 5-3. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 077
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_078-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

Discrete Soil Sample Locations

RAMBOLL ENVIRON

0 10 20 Meters

0 40 80 Feet

N

Map 5-4. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 078
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_079A-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

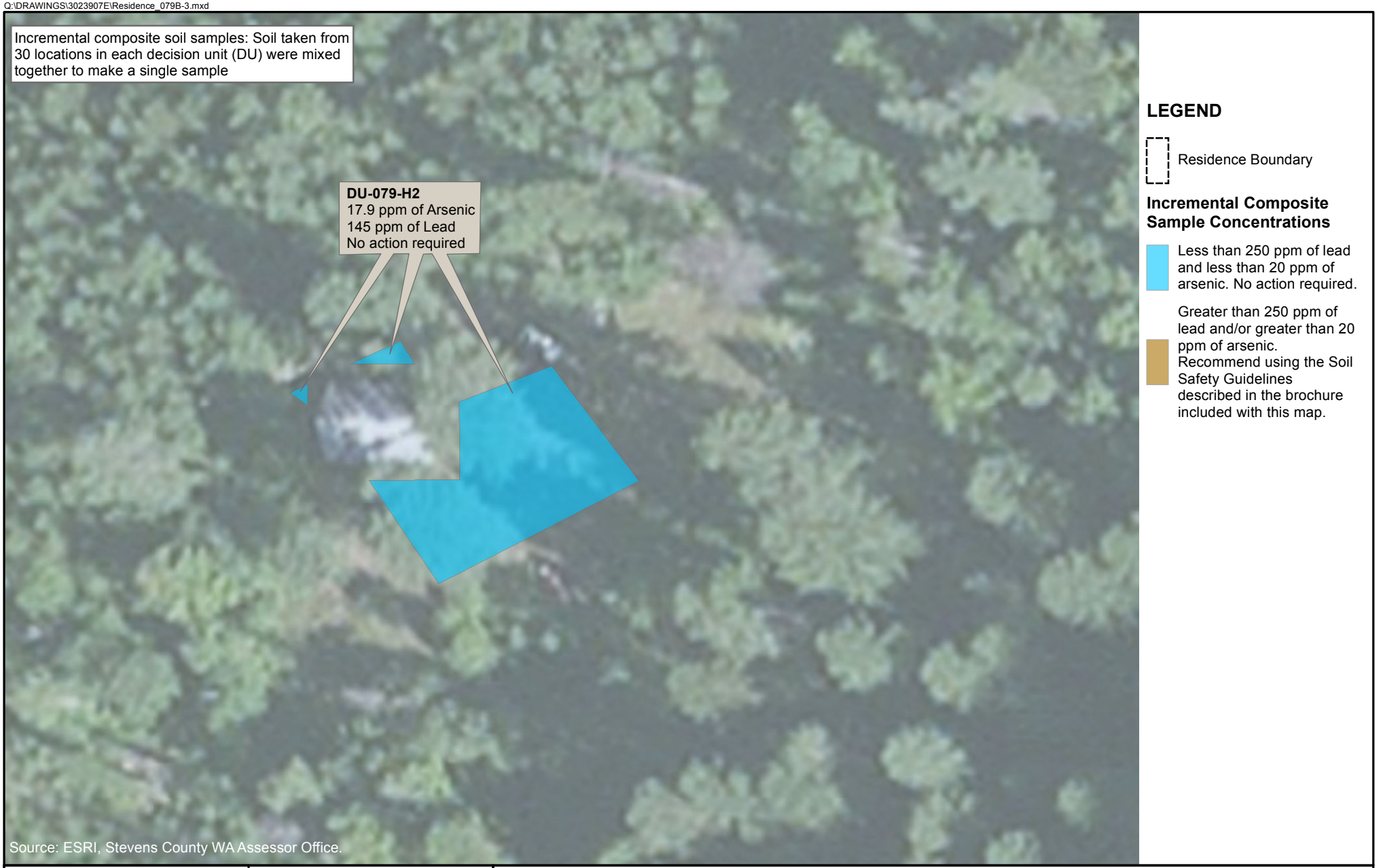
0 10 20 Meters

0 40 80 Feet

N

Map 5-5a. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 079
Upper Columbia River, WA

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RAMBOLL ENVIRON

0 5 10 Meters

0 20 40 Feet

N

Map 5-5b. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 079
Upper Columbia River, WA

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LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 5 10 Meters

0 25 50 Feet

N

Map 5-6. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 080
Upper Columbia River, WA

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LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 10 20 Meters

0 40 80 Feet

N

Map 5-7. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 081
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_082-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

Discrete Soil Sample Locations

RAMBOLL ENVIRON

0 20 40 Meters

0 75 150 Feet

N

Map 5-8. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 082
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_083-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 5 10 Meters

0 25 50 Feet

N

Map 5-9. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 083
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_084-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 5 10 Meters

0 25 50 Feet

N

Map 5-10. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 084
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_085A-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 10 20 Meters

0 40 80 Feet

N

Map 5- 11a. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 085
Upper Columbia River, WA

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LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 10 20 Meters

0 40 80 Feet

N

Map 5-11b. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 085
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_086-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 15 30 Meters

0 50 100 Feet

N

Map 5-12. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 086
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_087-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

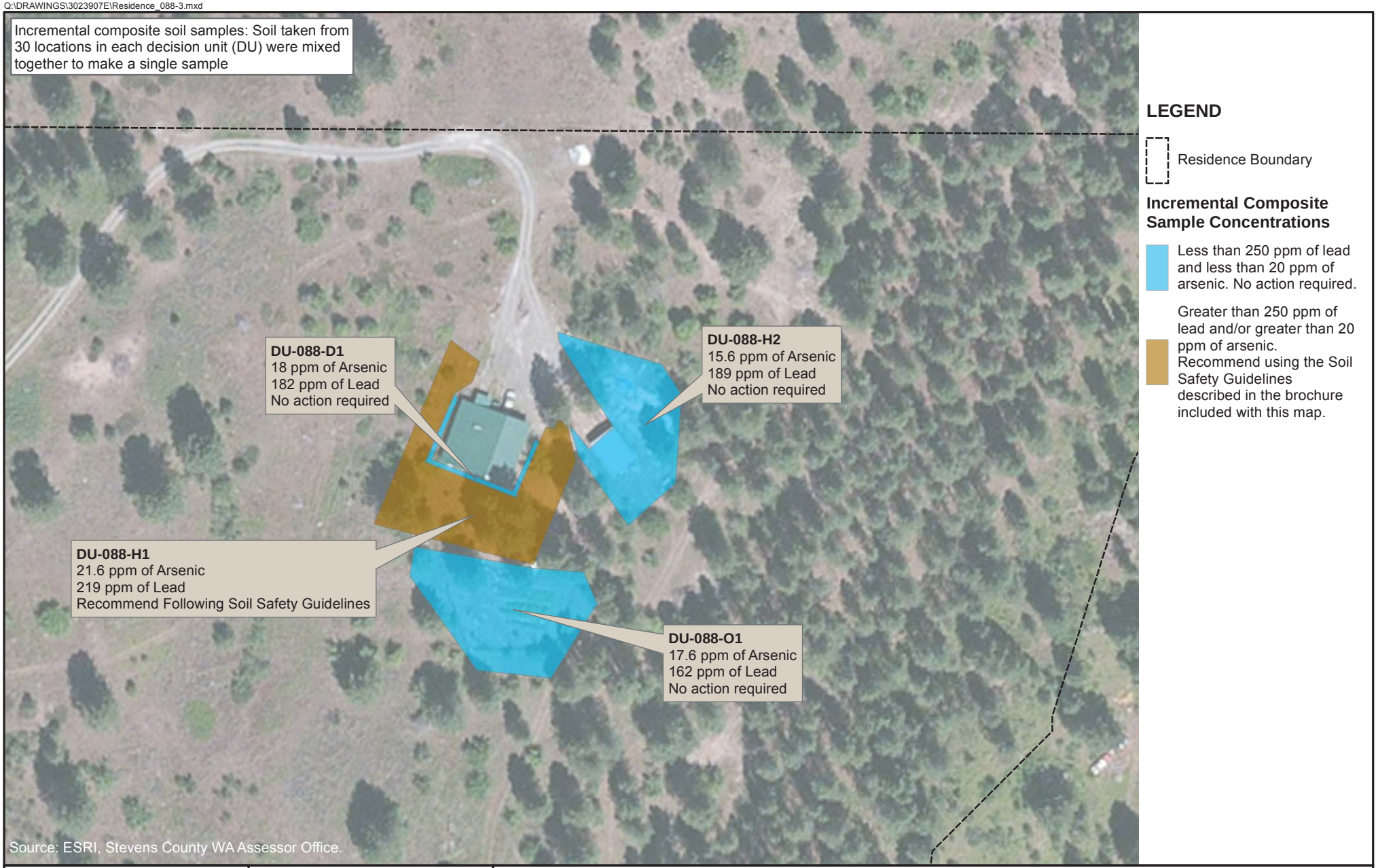
0 15 30 Meters

0 50 100 Feet

N

Map 5-13. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 087
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_088-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 15 30 Meters

0 50 100 Feet

N

Map 5-14. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 088
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_089-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 15 30 Meters

0 50 100 Feet

N

Map 5-15. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 089
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_090-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

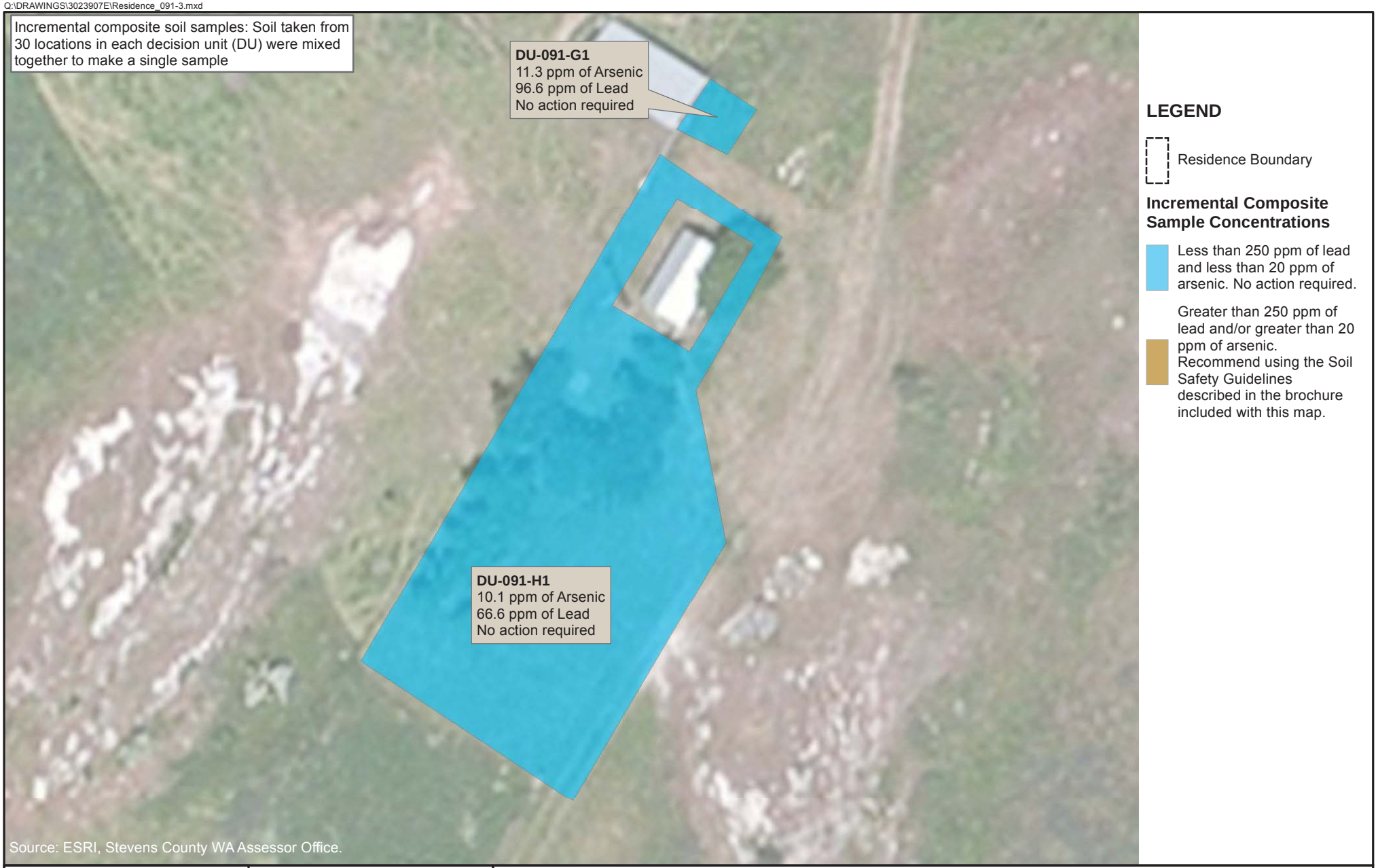
0 10 20 Meters

0 30 60 Feet

N

Map 5-16. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 090
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_091-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 5 10 Meters

0 20 40 Feet

N

Map 5-17. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 091
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_092-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

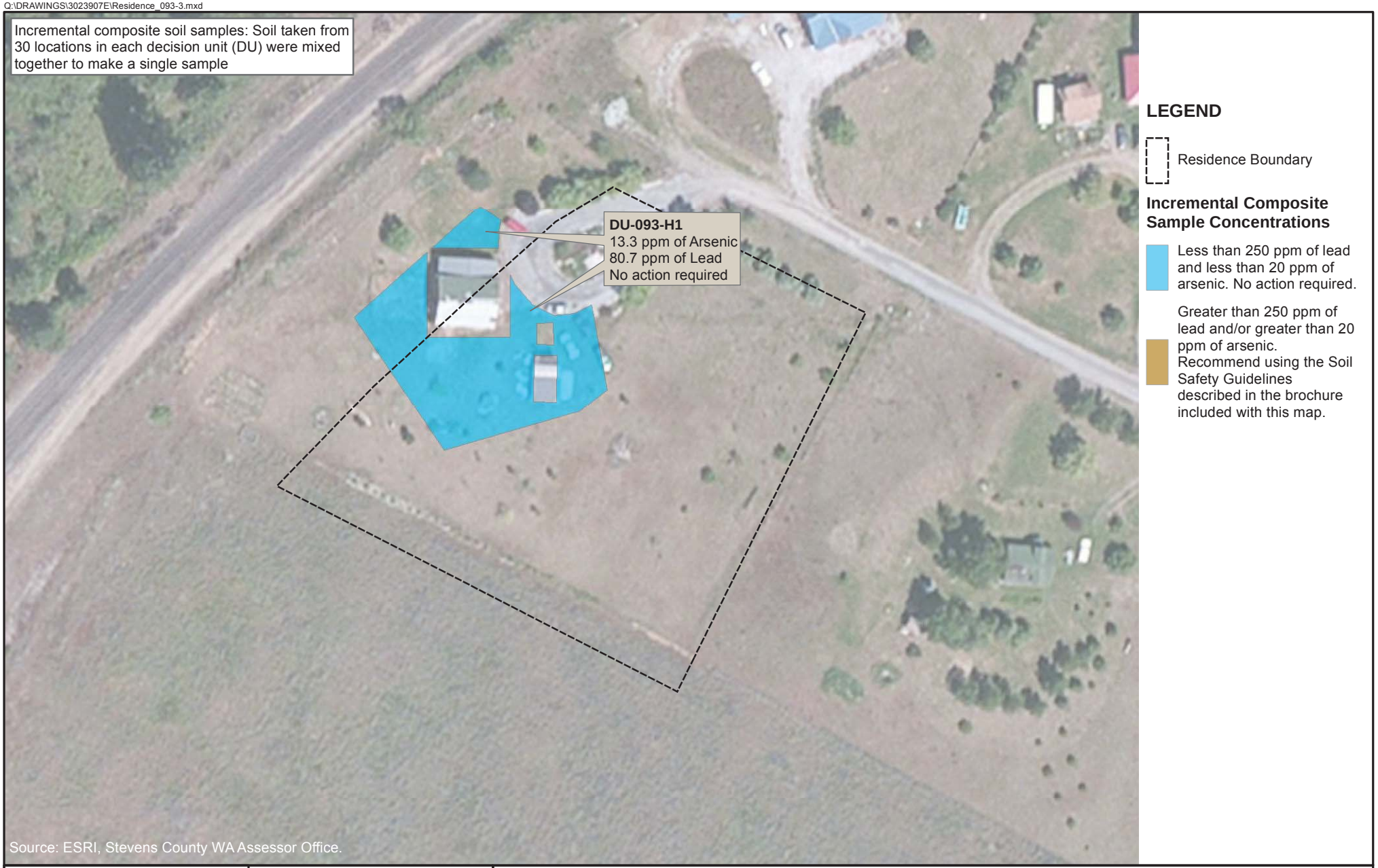
0 10 20 Meters

0 30 60 Feet

N

Map 5-18. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 092
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_093-3.mxd



RAMBOLL ENVIRON

0 10 20 Meters

0 40 80 Feet

N

Map 5-19. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 093
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_094-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 10 20 Meters

0 40 80 Feet

N

Map 5-20. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 094
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_095-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 25 50 Meters

0 100 200 Feet

N

Map 5-21. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 095
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_096-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 15 30 Meters

0 50 100 Feet

N

Map 5-22. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 096
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_097-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

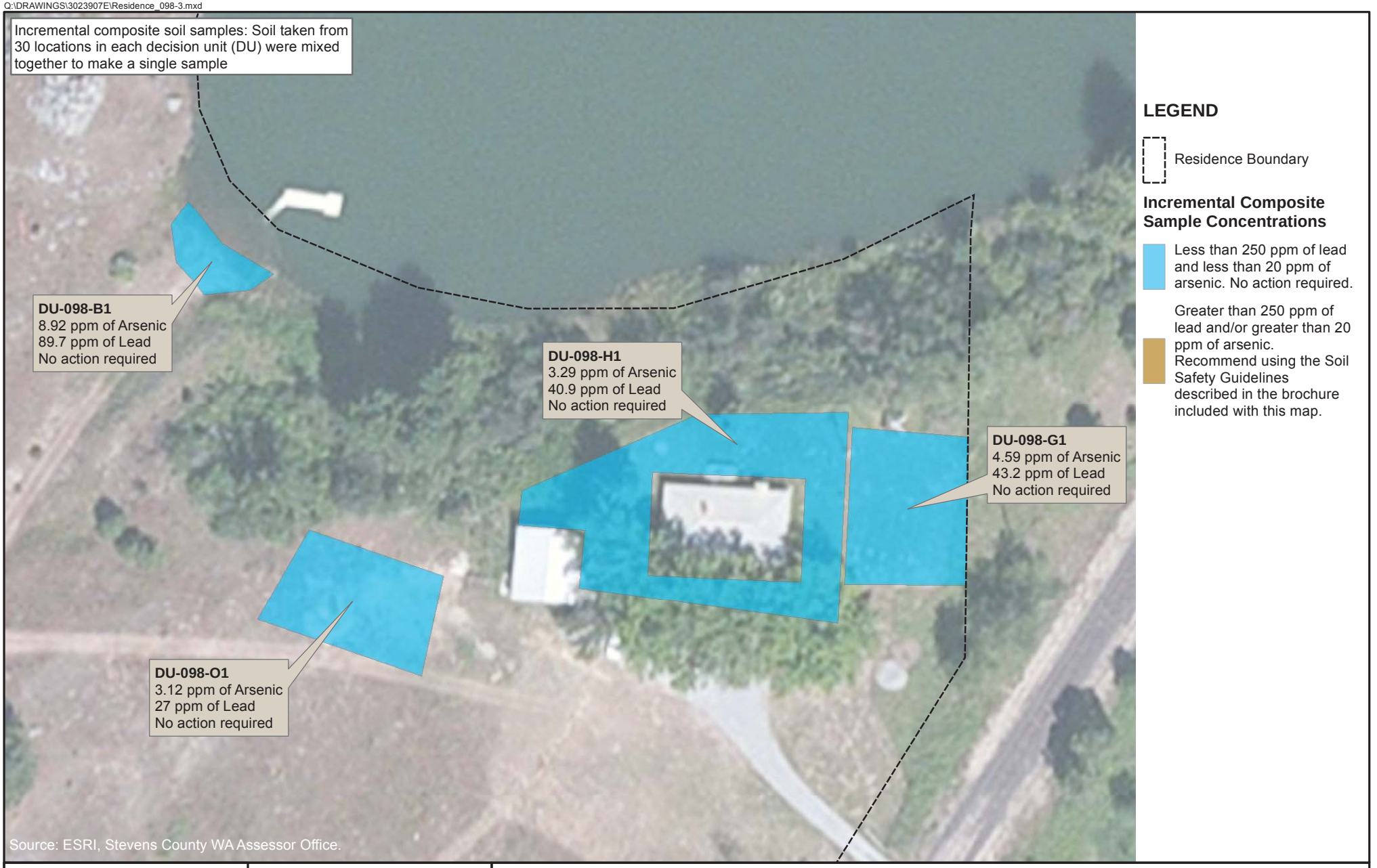
0 15 30 Meters

0 50 100 Feet

N

Map 5-23. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 097
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_098-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 10 20 Meters

0 30 60 Feet

N

Map 5-24. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 098
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_099-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

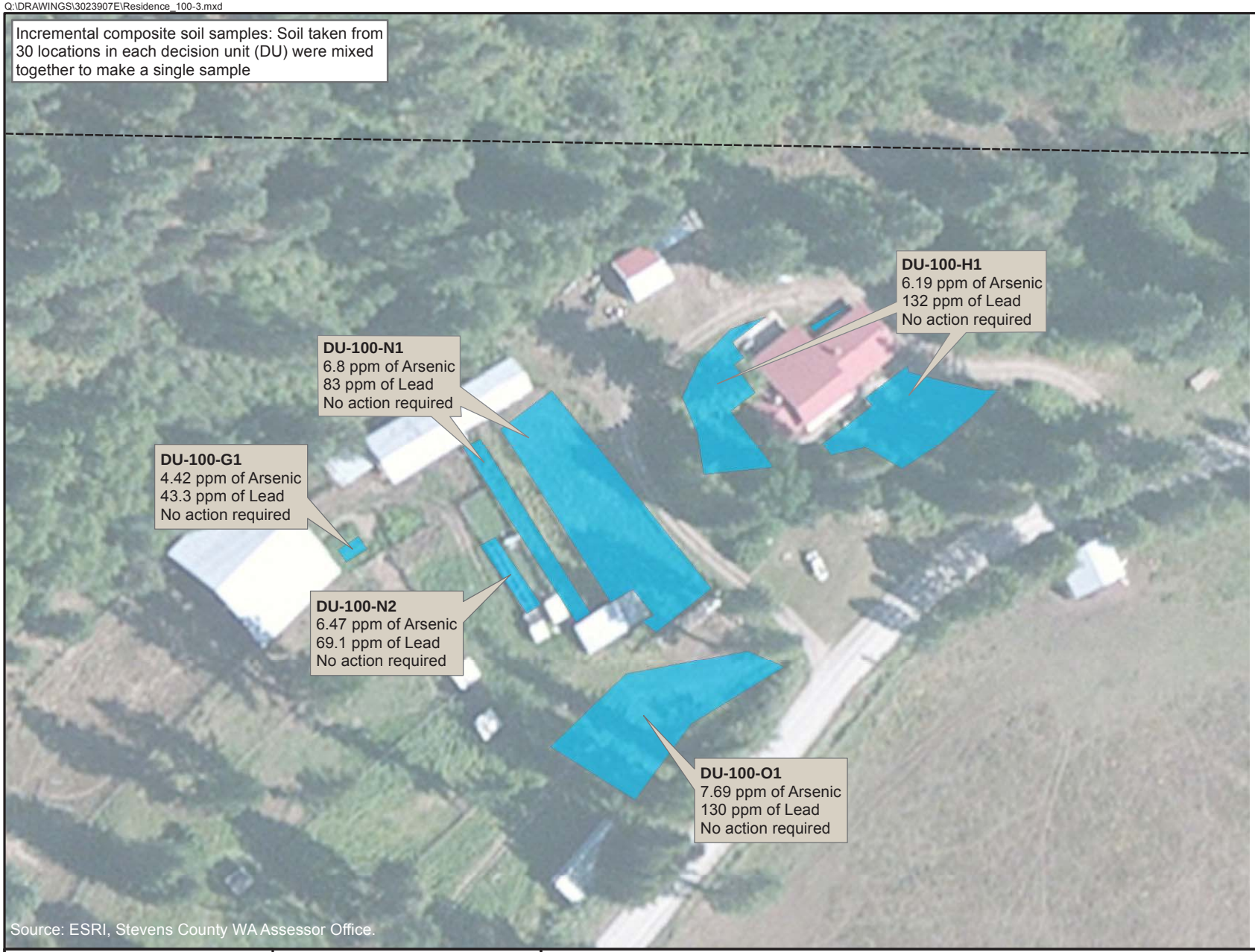
0 15 30 Meters

0 50 100 Feet

N

Map 5-25. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 099
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_100-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

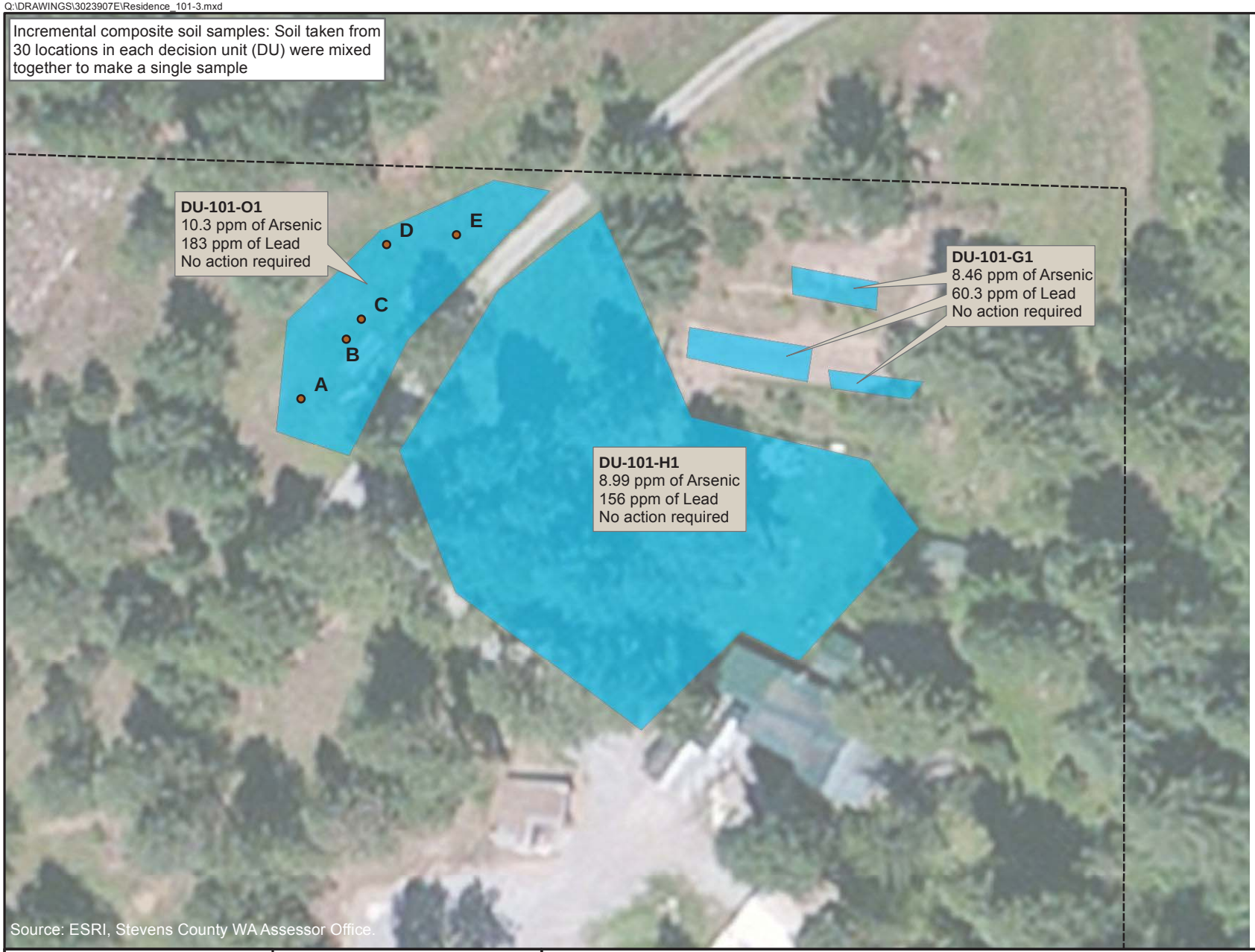
0 10 20 Meters

0 40 80 Feet

N

Map 5-26. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 100
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_101-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

Discrete Soil Sample Locations

RAMBOLL ENVIRON

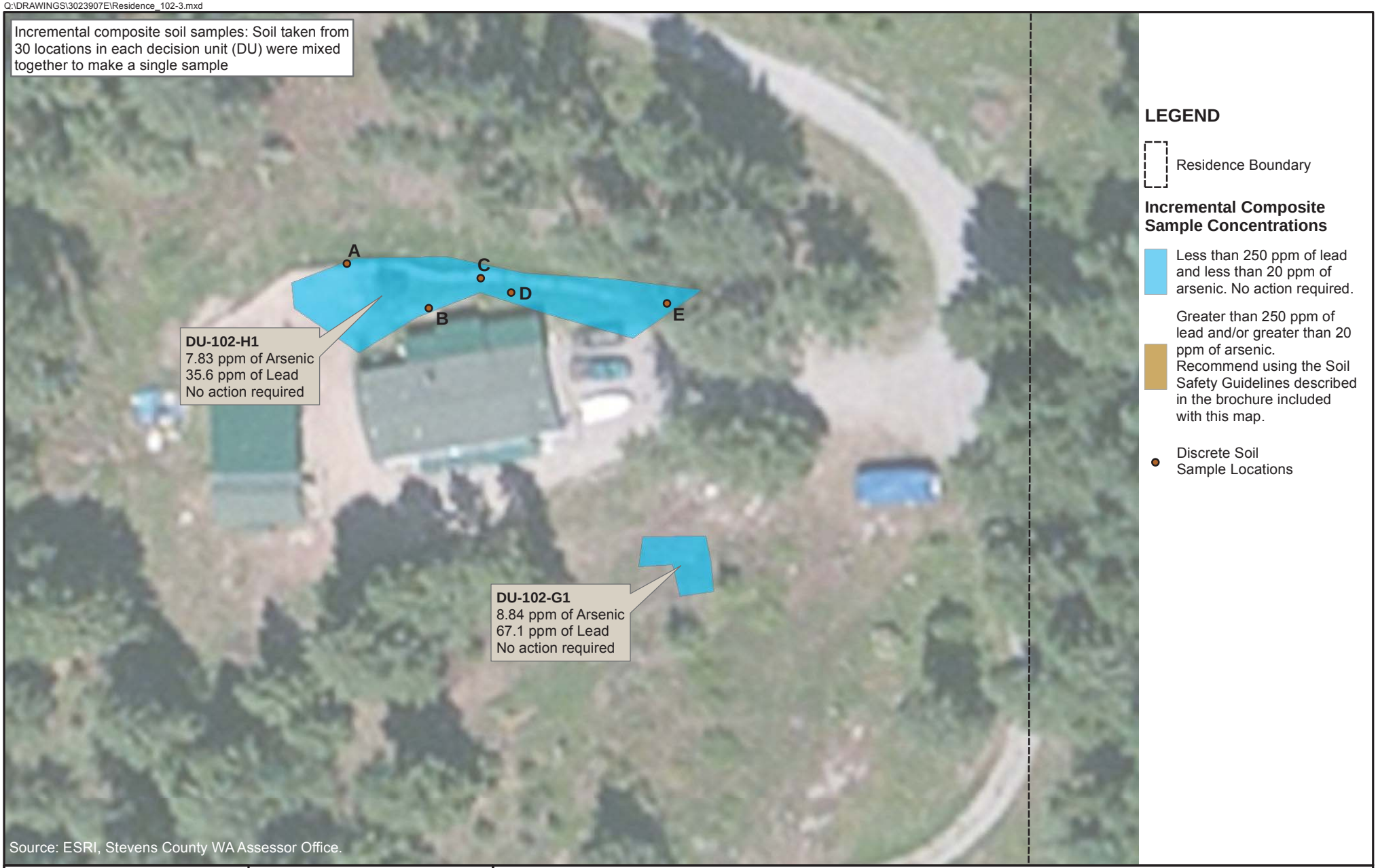
0 5 10 Meters

0 25 50 Feet

N

Map 5-27. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 101
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_102-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

Discrete Soil Sample Locations

RAMBOLL ENVIRON

0 5 10 Meters

0 20 40 Feet

N

Map 5-28. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 102
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_103-3.mxd



RAMBOLL ENVIRON

0 15 30 Meters

0 50 100 Feet

N

Map 5-29. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 103
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_104-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

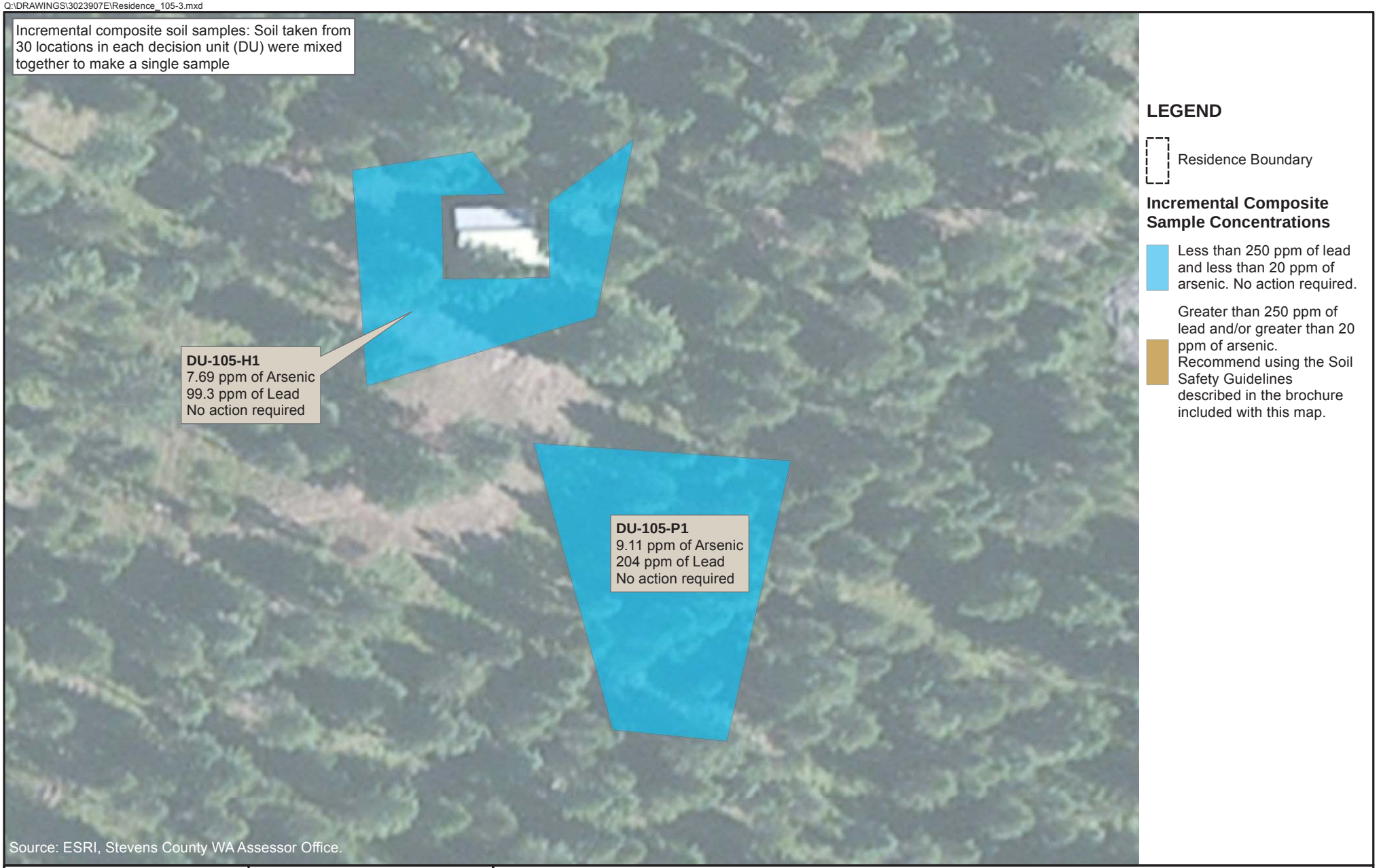
0 10 20 Meters

0 30 60 Feet

N

Map 5-30. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 104
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_105-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 10 20 Meters

0 30 60 Feet

N

Map 5-31. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 105
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_106-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 15 30 Meters

0 50 100 Feet

N

Map 5-32. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 106
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_107-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

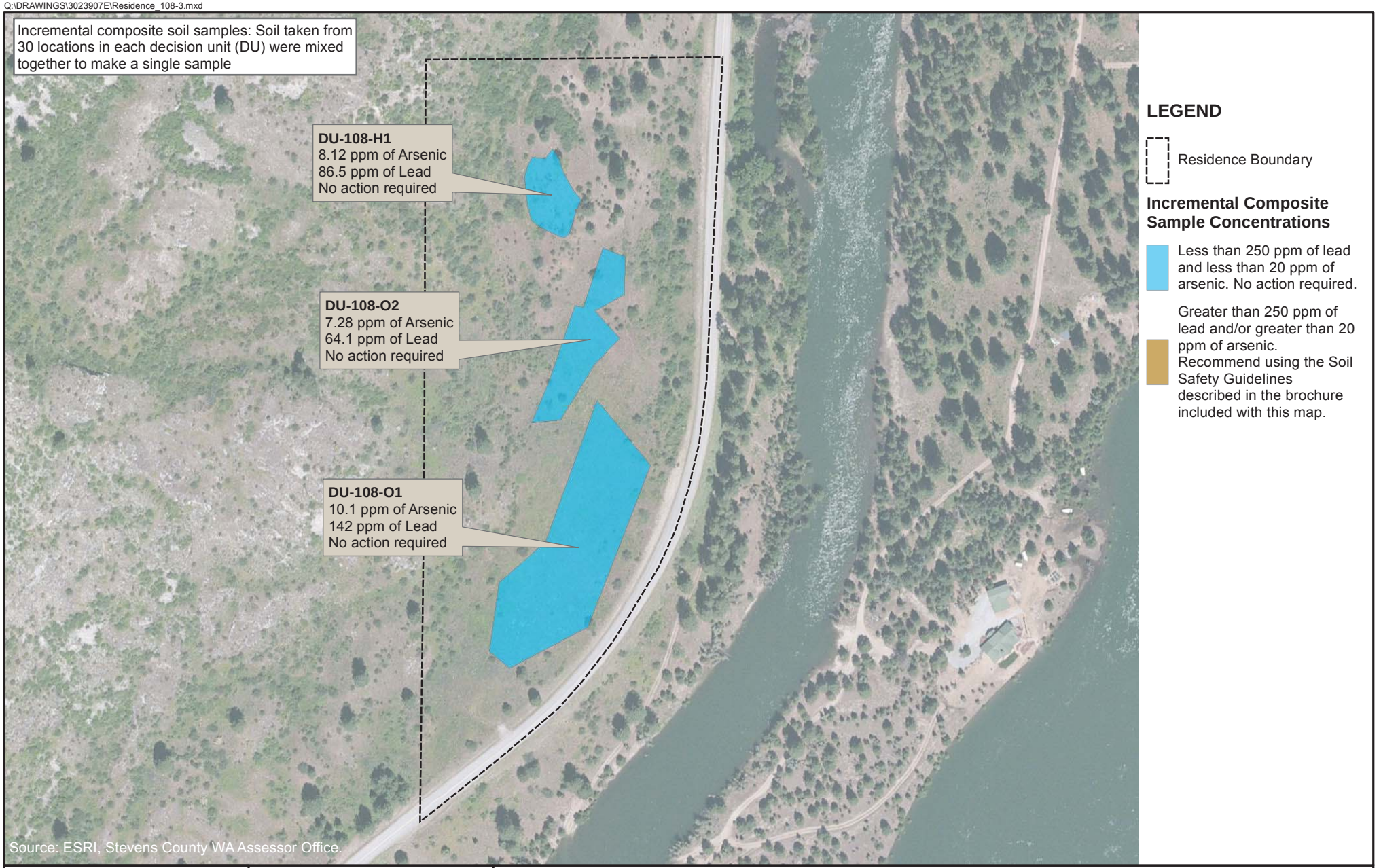
0 5 10 Meters

0 20 40 Feet

N

Map 5-33. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 107
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_108-3.mxd



RAMBOLL ENVIRON

0 40 80 Meters

0 125 250 Feet

N

Map 5-34. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 108
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_109-3.mxd



RAMBOLL ENVIRON

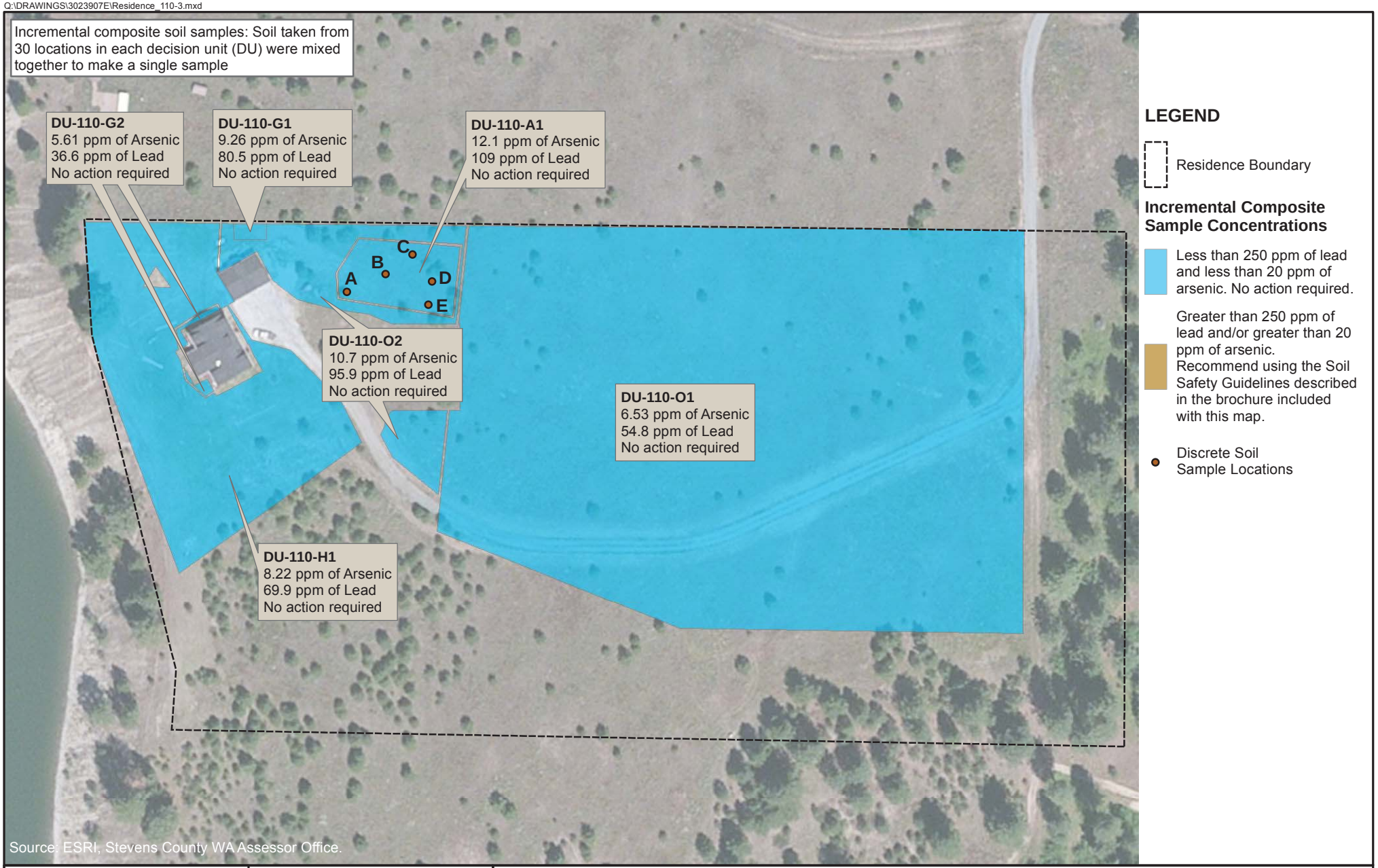
0 5 10 Meters

0 15 30 Feet

N

Map 5-35. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 109
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_110-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

Discrete Soil Sample Locations

RAMBOLL ENVIRON

0 20 40 Meters

0 60 120 Feet

N

Map 5-36. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 110
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_111-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

Discrete Soil Sample Locations

RAMBOLL ENVIRON

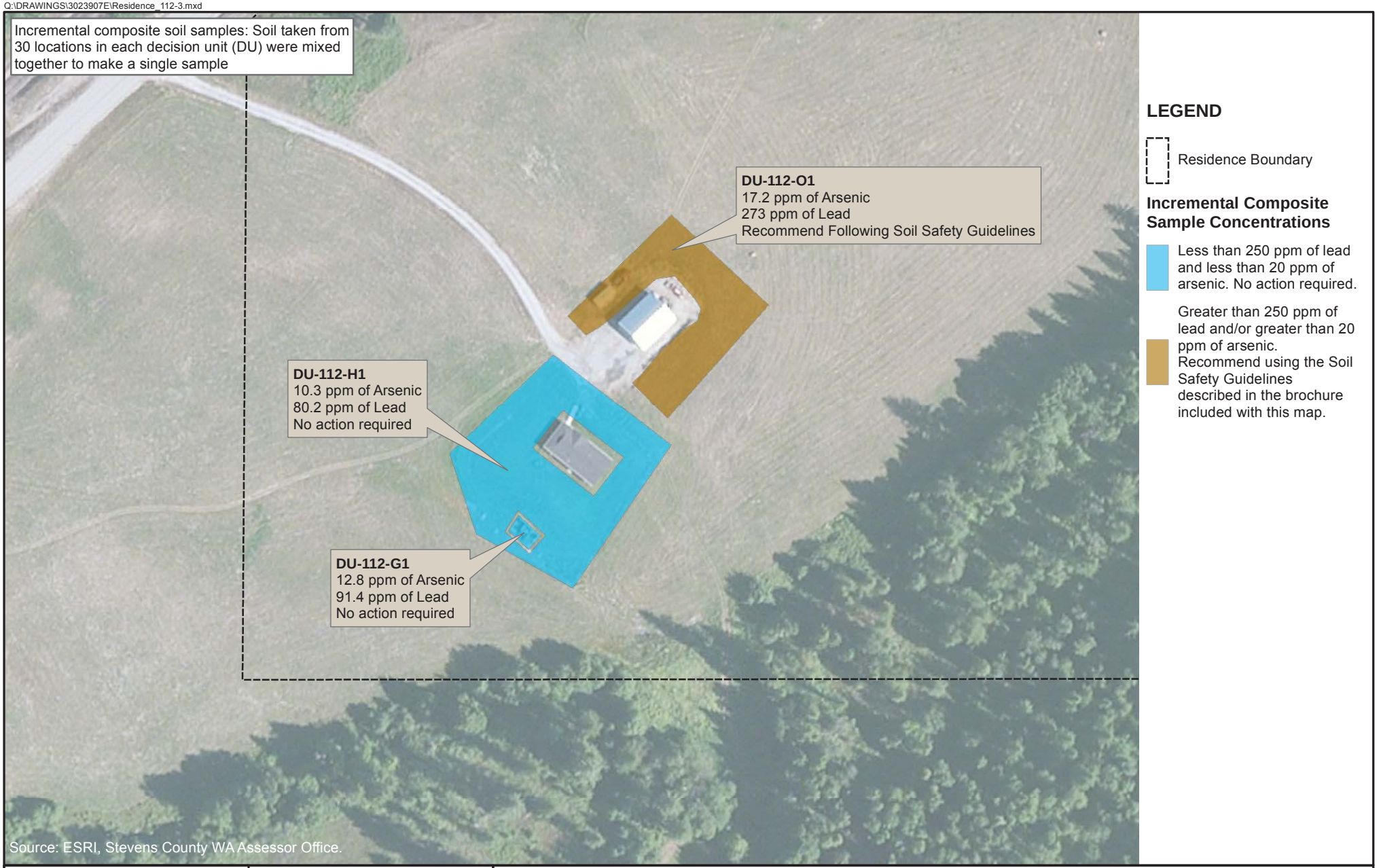
0 5 10 Meters

0 20 40 Feet

N

Map 5-37. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 111
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_112-3.mxd



RAMBOLL ENVIRON

0 20 40 Meters

0 60 120 Feet

N

Map 5-38. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 112
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_113-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 10 20 Meters

0 35 70 Feet

N

Map 5-39. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 113
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_114-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 15 30 Meters

0 60 120 Feet

N

Map 5-40. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 114
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_115-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 10 20 Meters

0 40 80 Feet

N

Map 5-41. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 115
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_116-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 5 10 Meters

0 15 30 Feet

N

Map 5-42. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 116
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_117-3.mxd

Incremental composite soil samples: Soil taken from 30 locations in each decision unit (DU) were mixed together to make a single sample



Source: ESRI, Stevens County WA Assessor Office.

LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

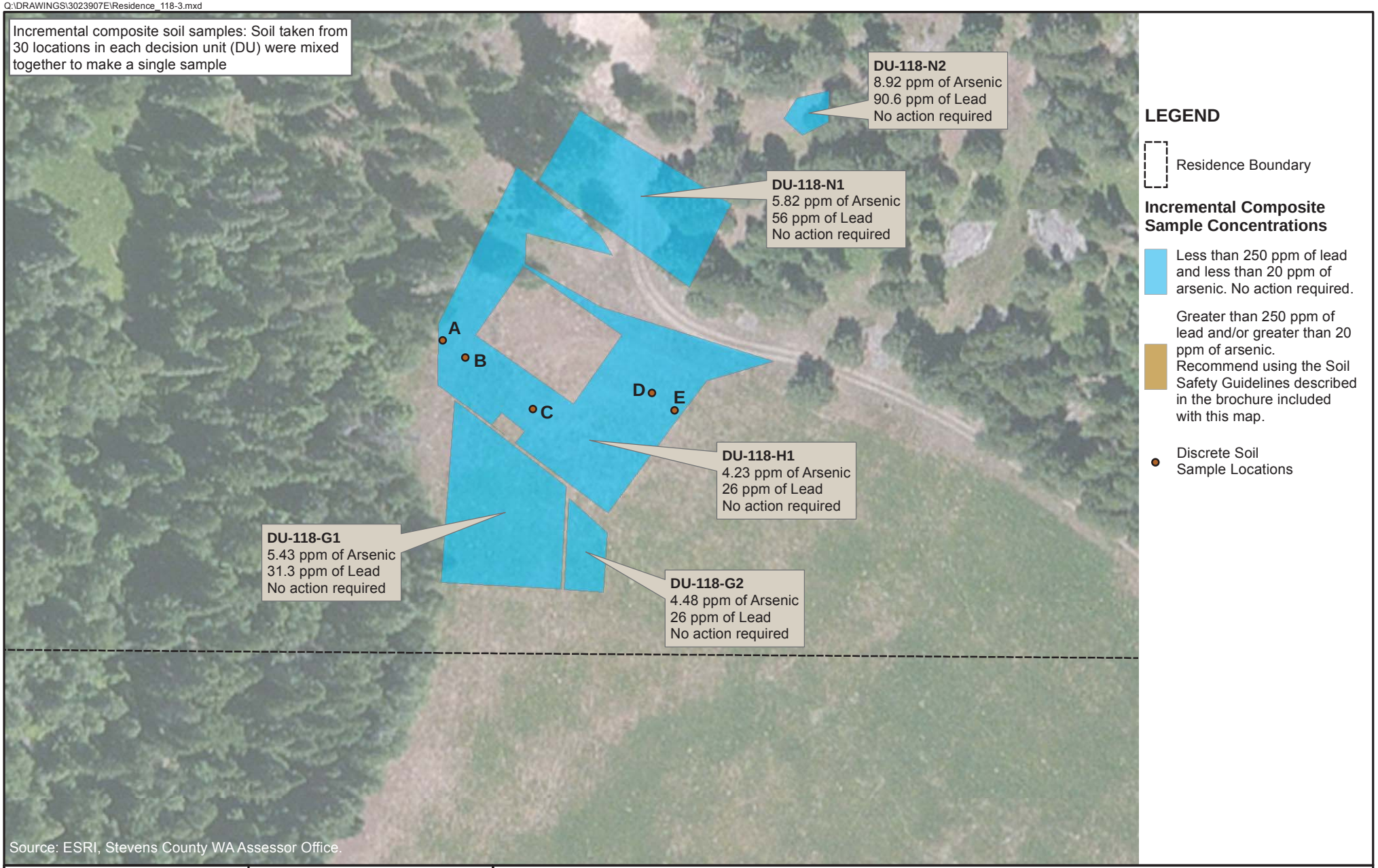
0 5 10 Meters

0 15 30 Feet

N

Map 5-43. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 117
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_118-3.mxd



RAMBOLL ENVIRON

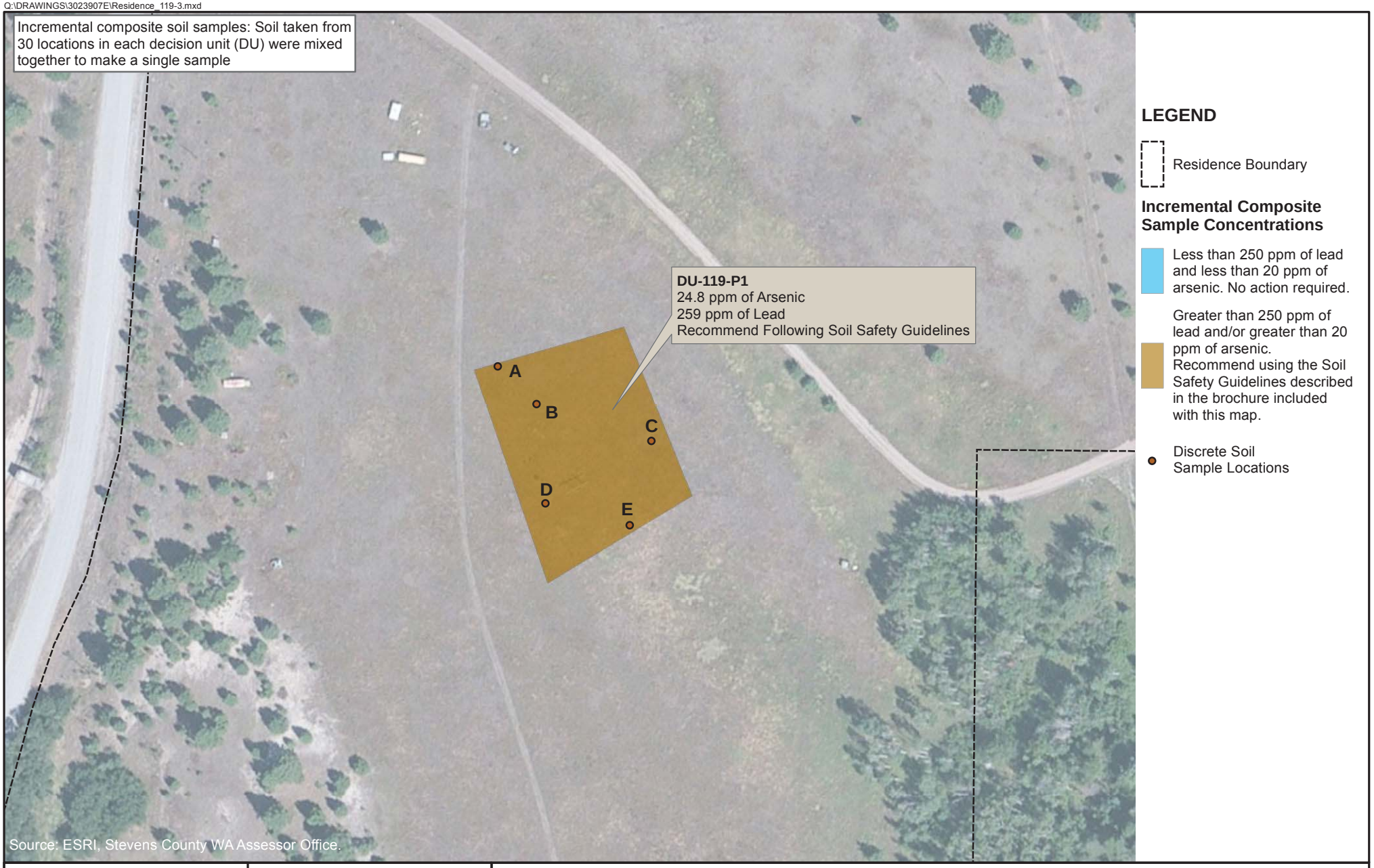
0 15 30 Meters

0 50 100 Feet

N

Map 5-44. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 118
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_119-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

Discrete Soil Sample Locations

RAMBOLL ENVIRON

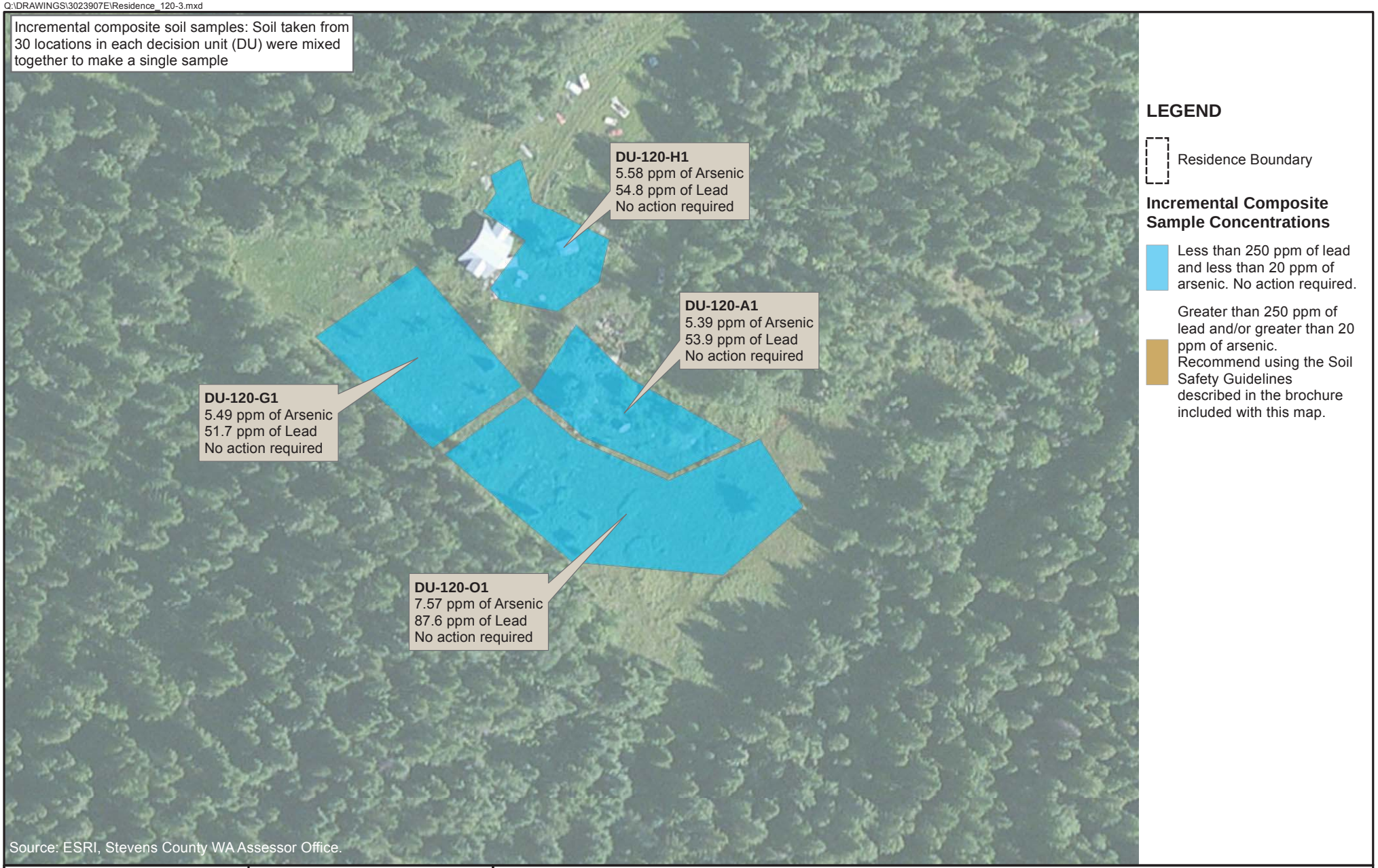
0 25 50 Meters

0 75 150 Feet

N

Map 5-45. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 119
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_120-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

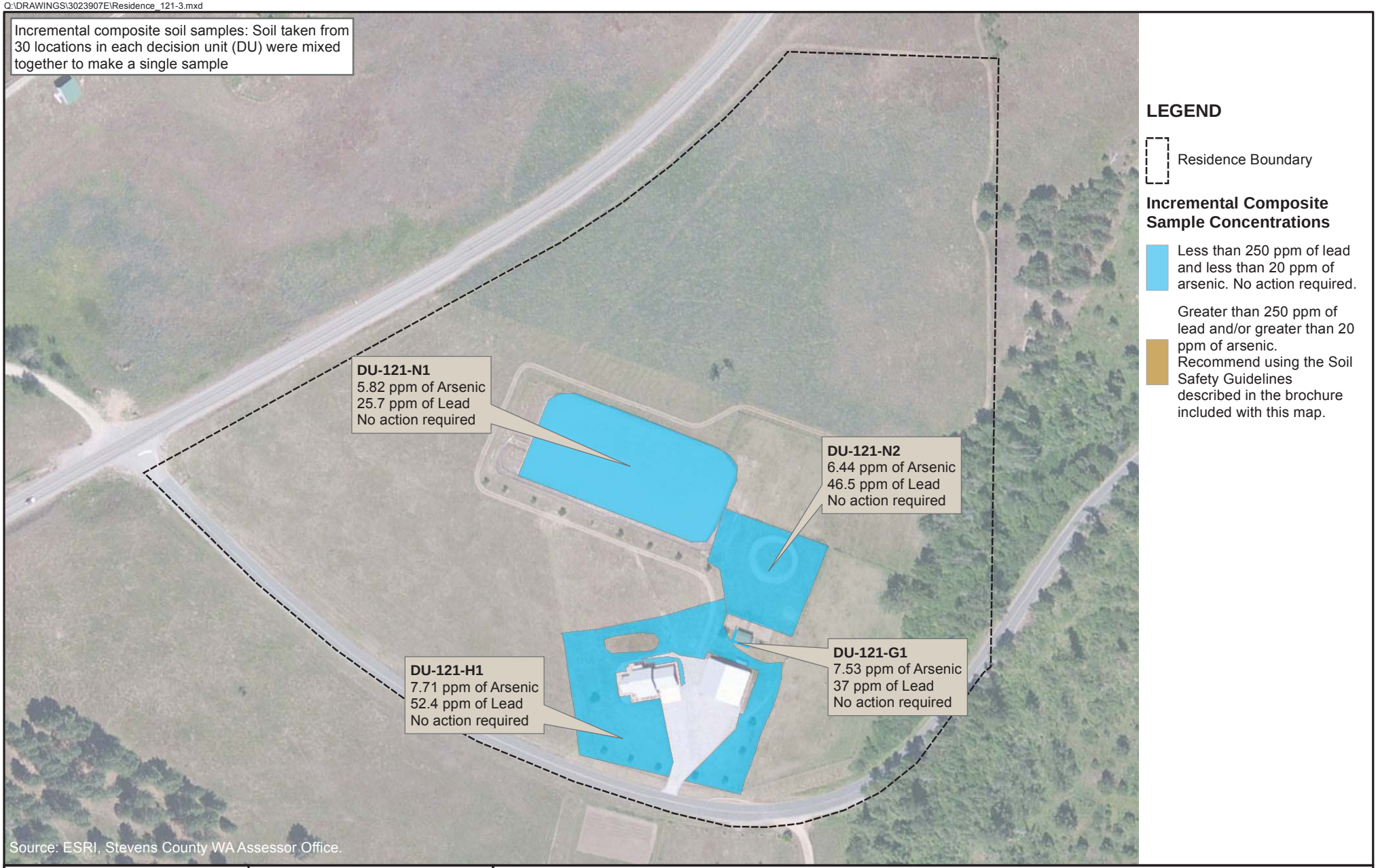
0 20 40 Meters

0 60 120 Feet

N

Map 5-46. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 120
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_121-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

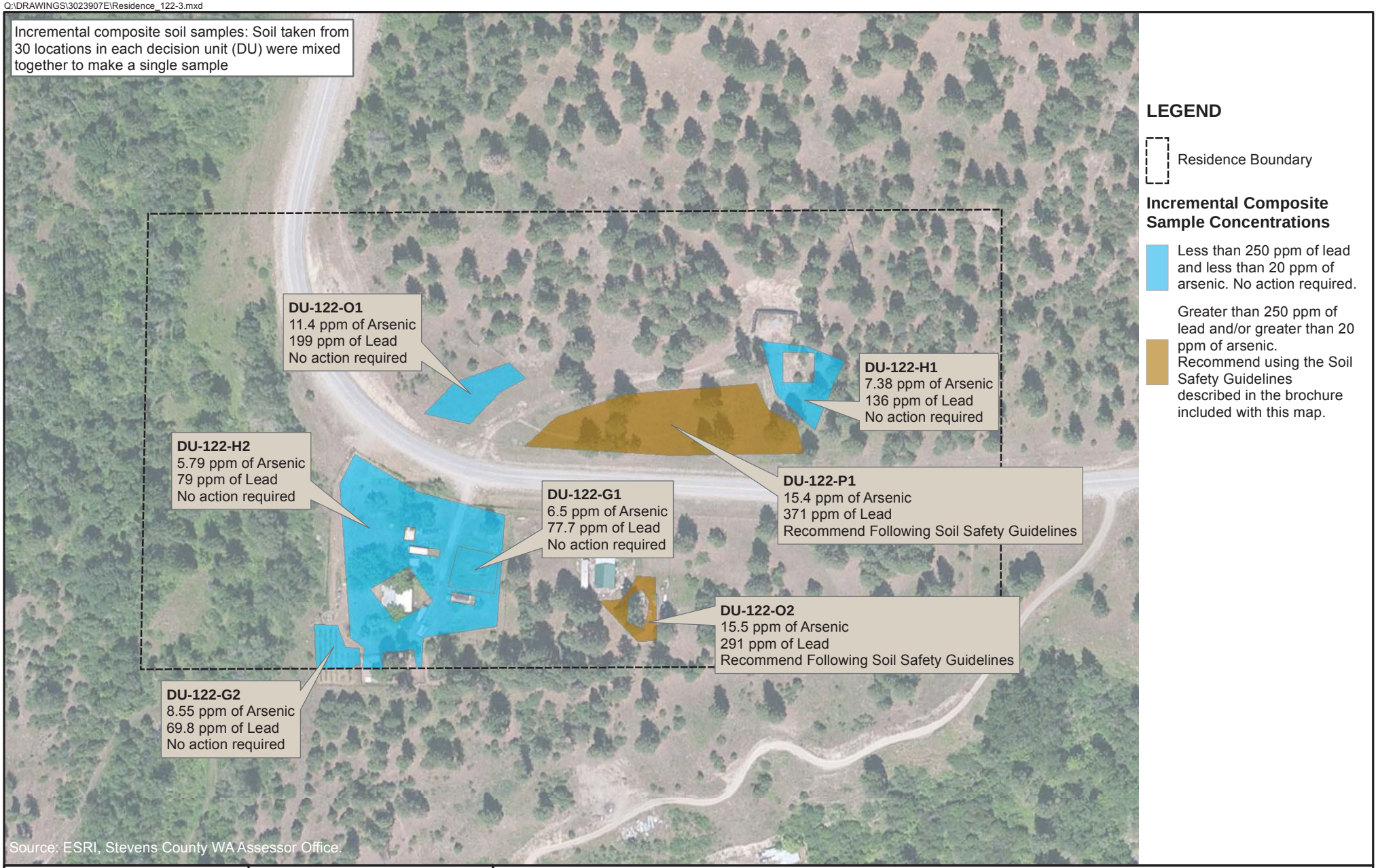
0 25 50 Meters

0 100 200 Feet

N

Map 5-47. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 121
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_122-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

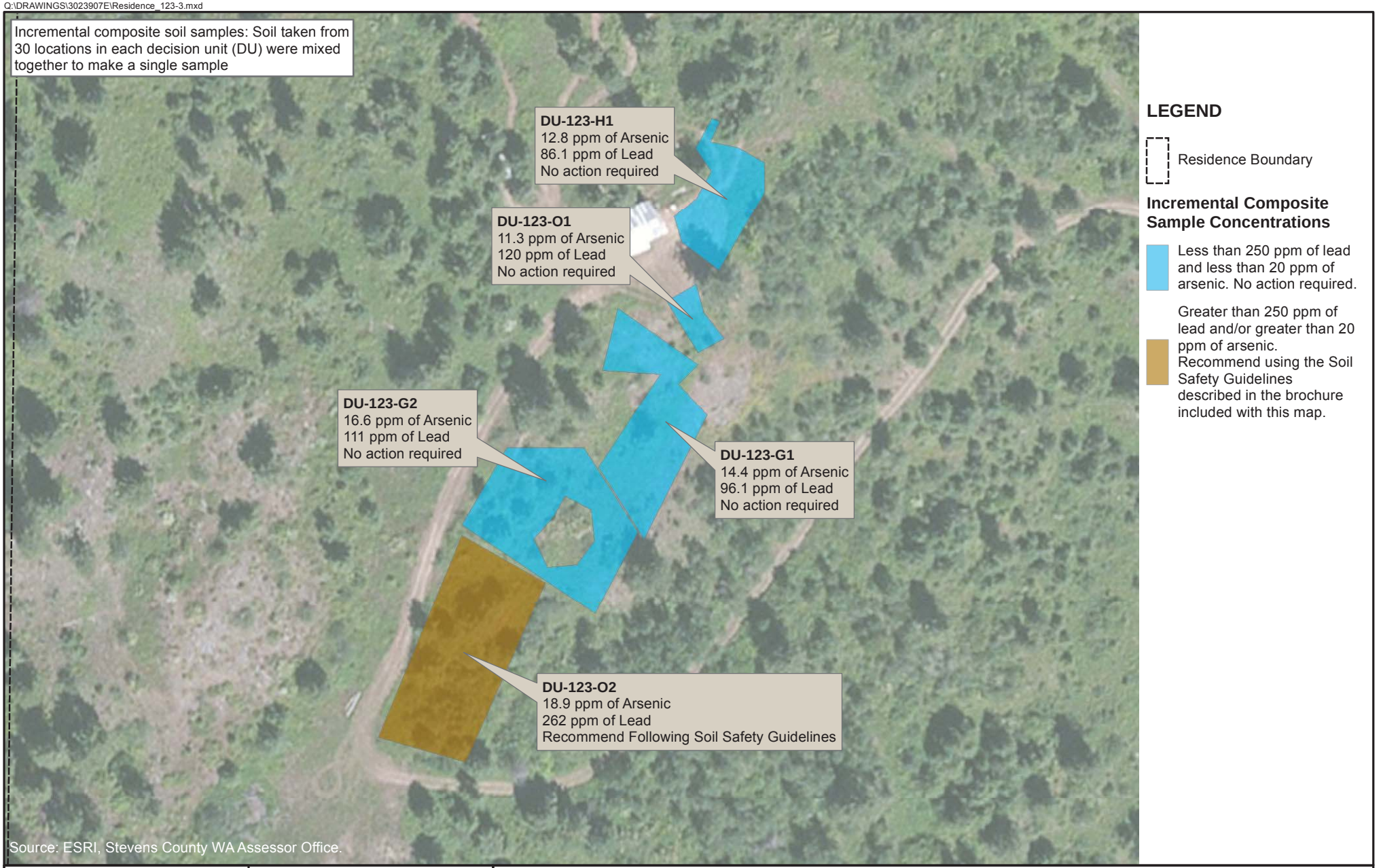
0 25 50 Meters

0 100 200 Feet

N

Map 5-48. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 122
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_123-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 15 30 Meters

0 50 100 Feet

N

Map 5-49. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 123
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_124A-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

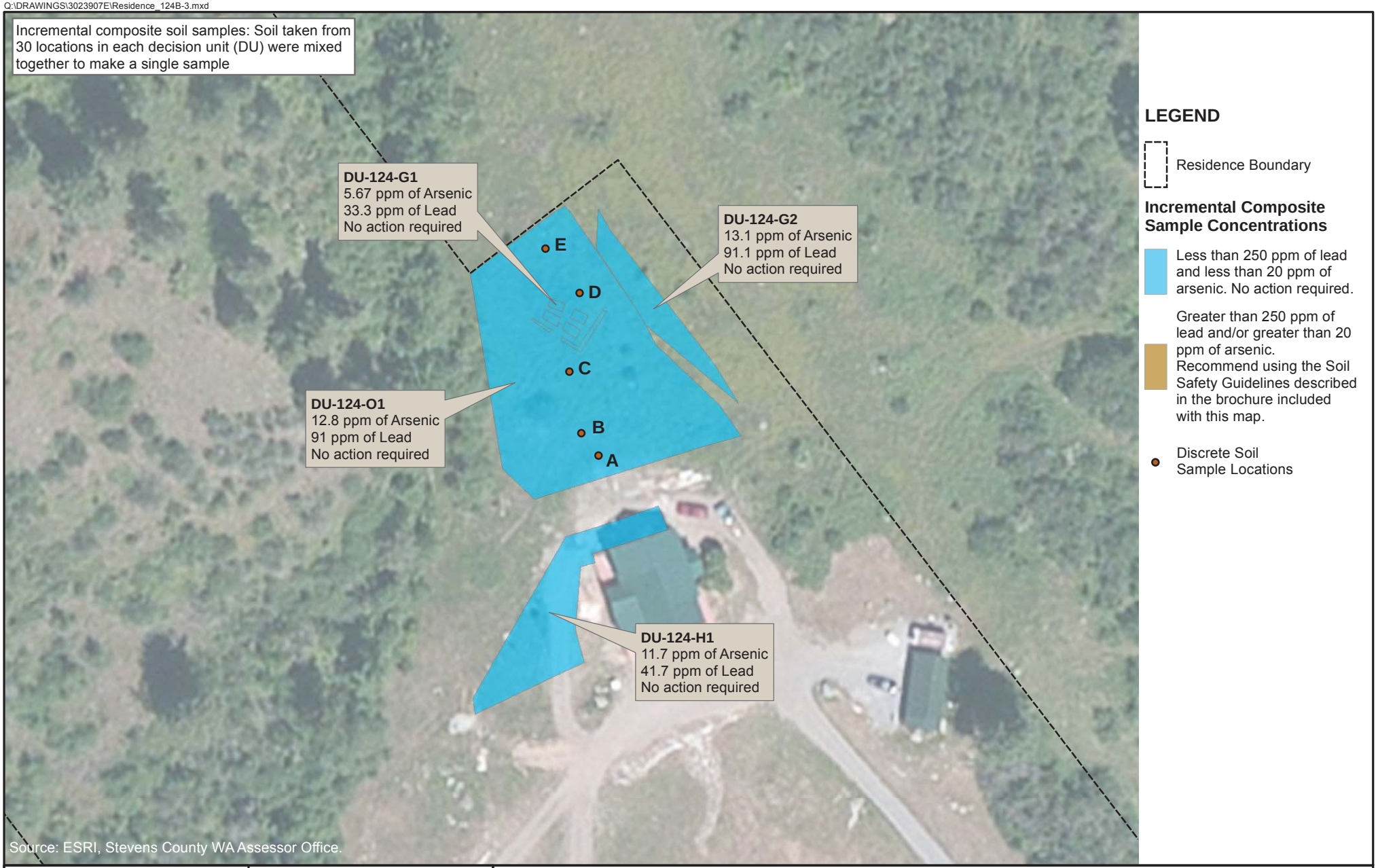
0 50 100 Meters

0 150 300 Feet

N

Map 5-50a. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 124
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_124B-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

Discrete Soil Sample Locations

RAMBOLL ENVIRON

0 10 20 Meters

0 35 70 Feet

N

Map 5-50b. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 124
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_125-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

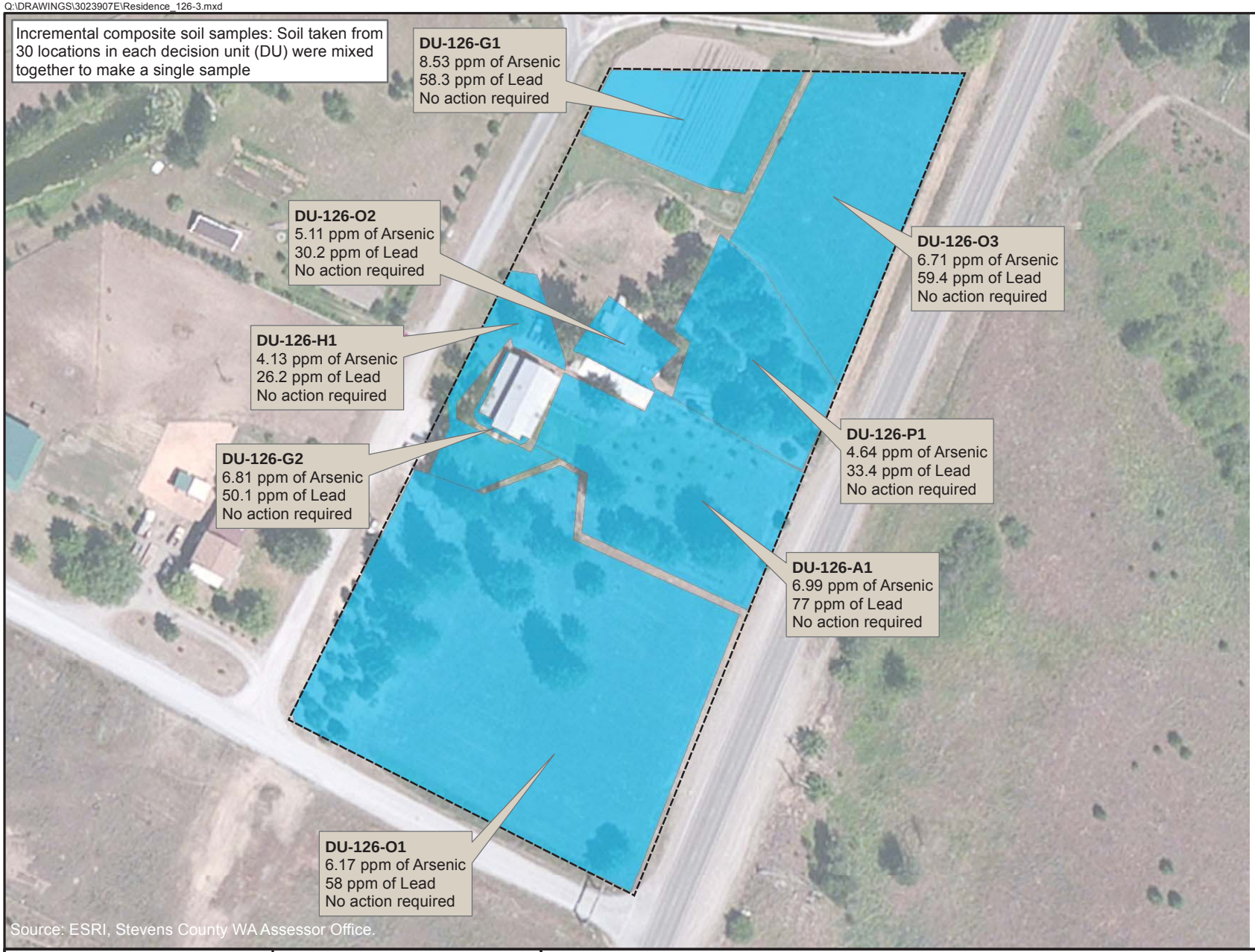
0 2.5 5 Meters

0 10 20 Feet

N

Map 5-51. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 125
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_126-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

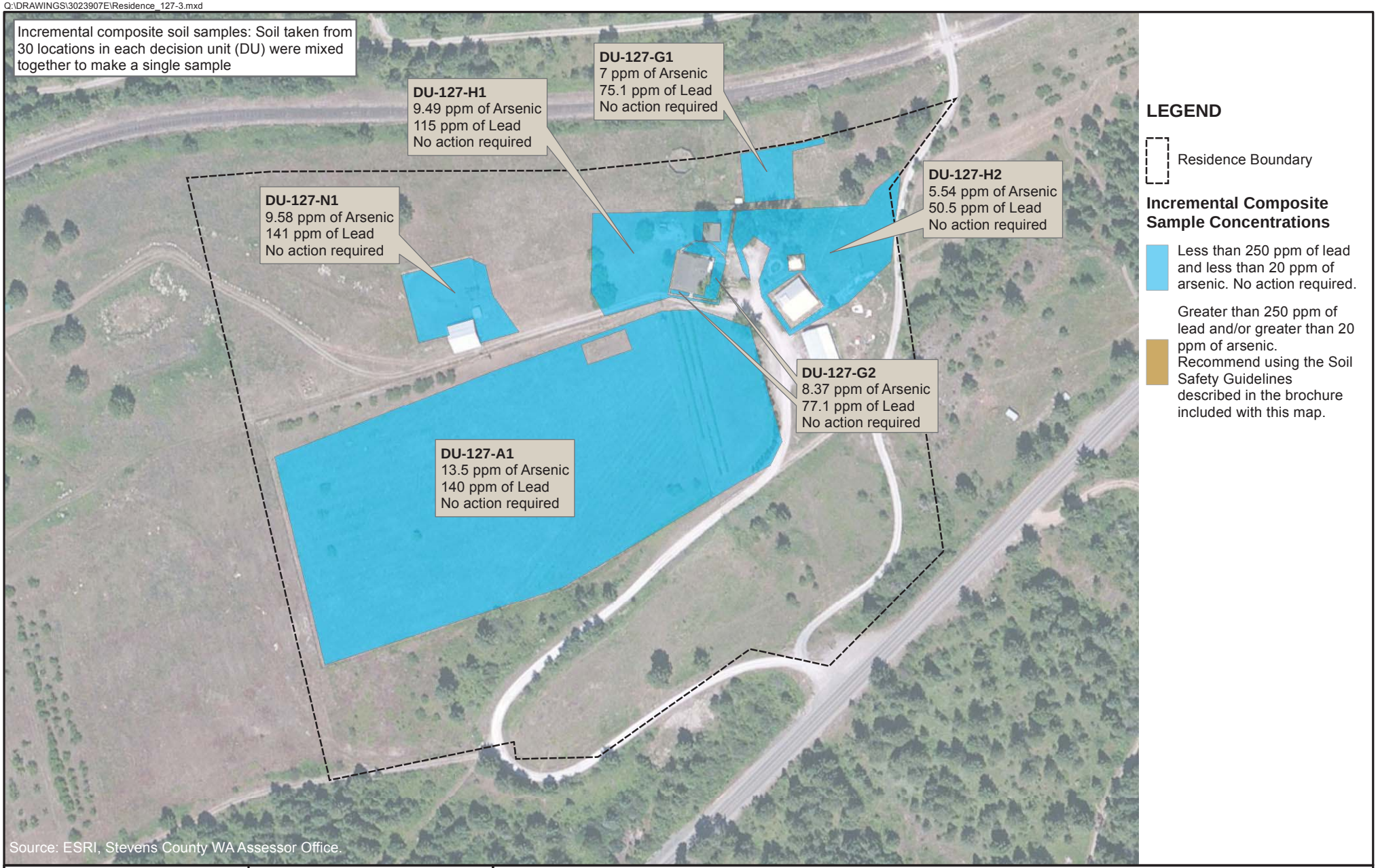
0 15 30 Meters

0 60 120 Feet

N

Map 5-52. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 126
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_127-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 25 50 Meters

0 100 200 Feet

N

Map 5-53. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 127
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_128-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

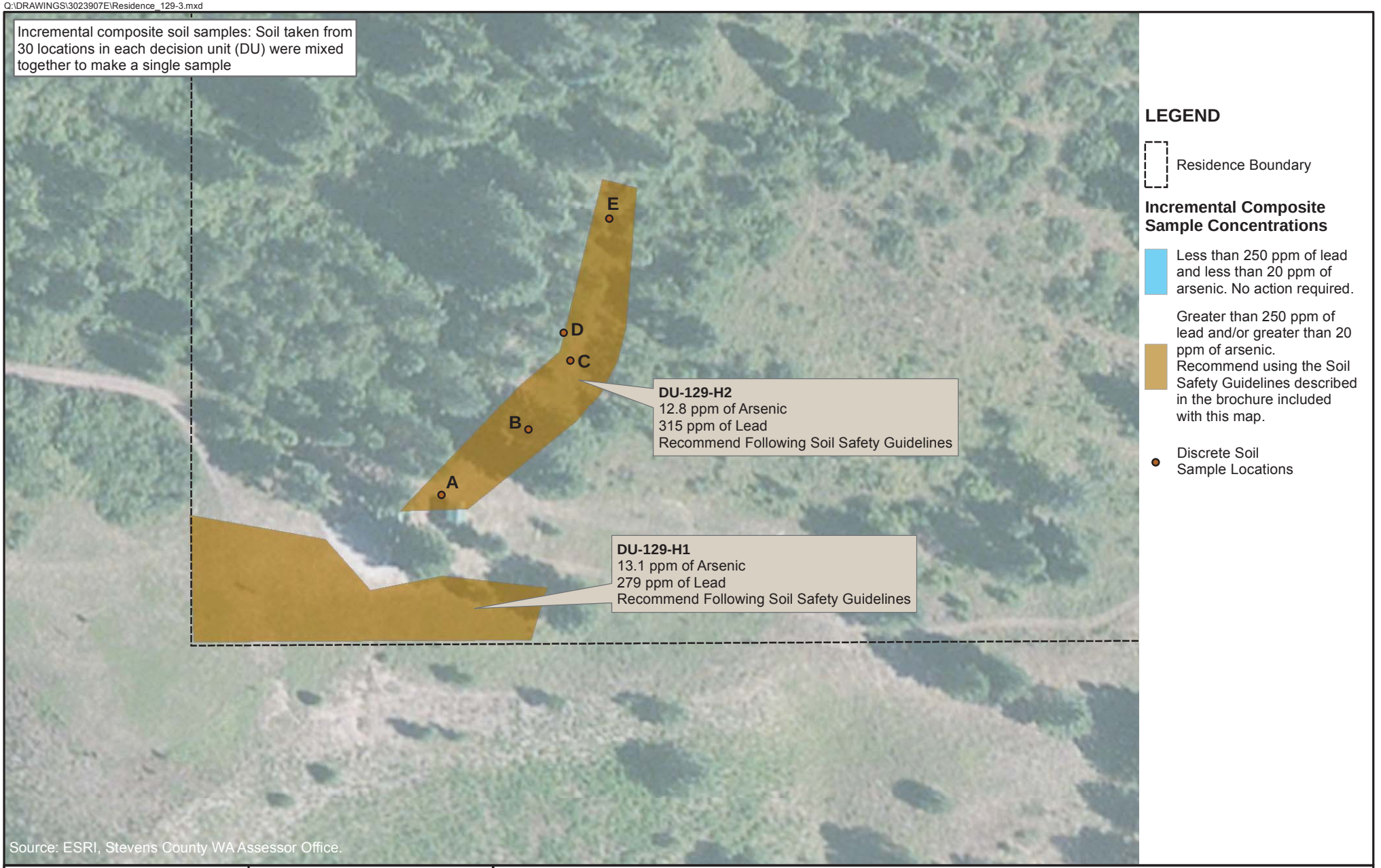
0 10 20 Meters

0 40 80 Feet

N

Map 5-54. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 128
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_129-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

Discrete Soil Sample Locations

RAMBOLL ENVIRON

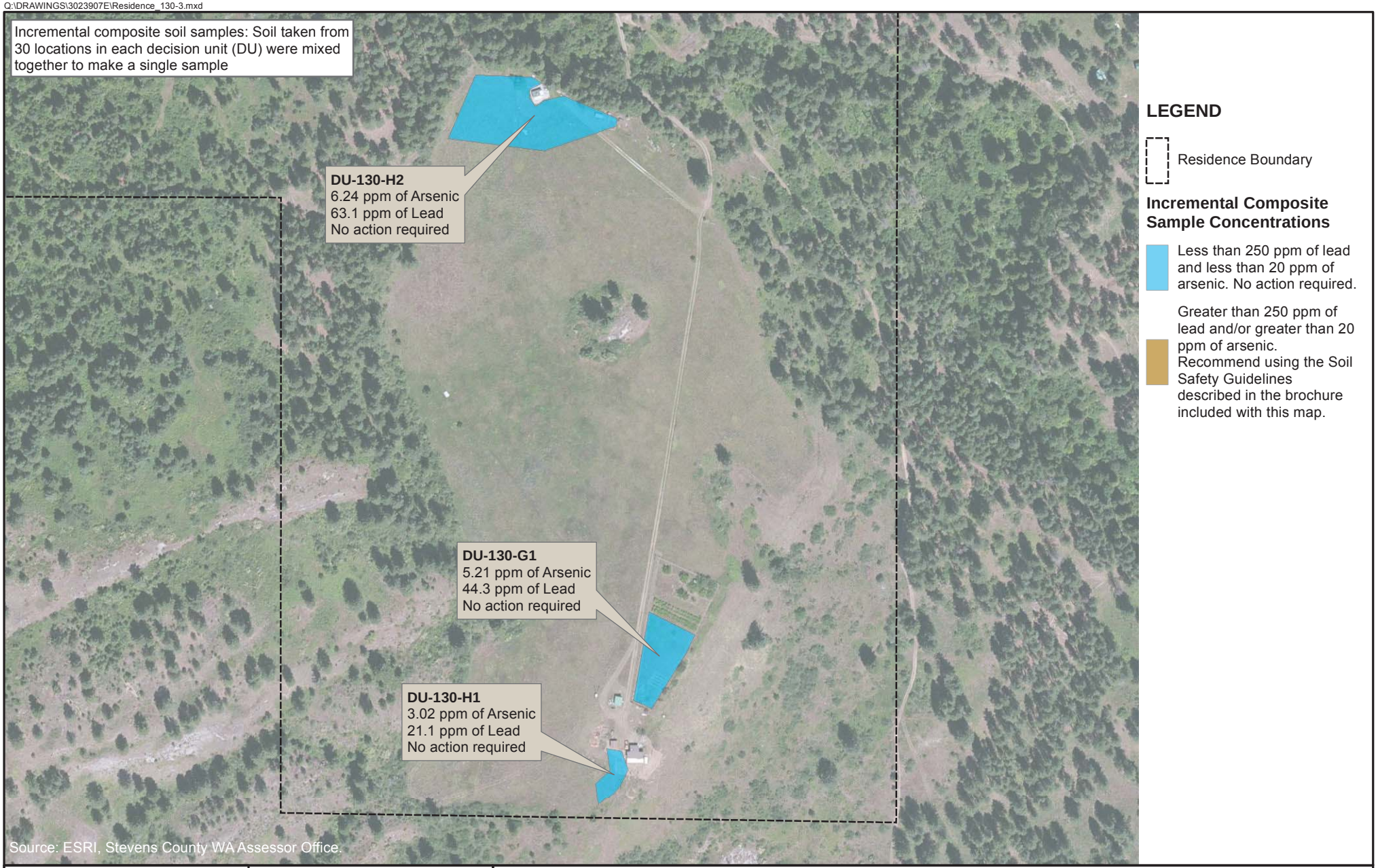
0 10 20 Meters

0 40 80 Feet

N

Map 5-55. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 129
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_130-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

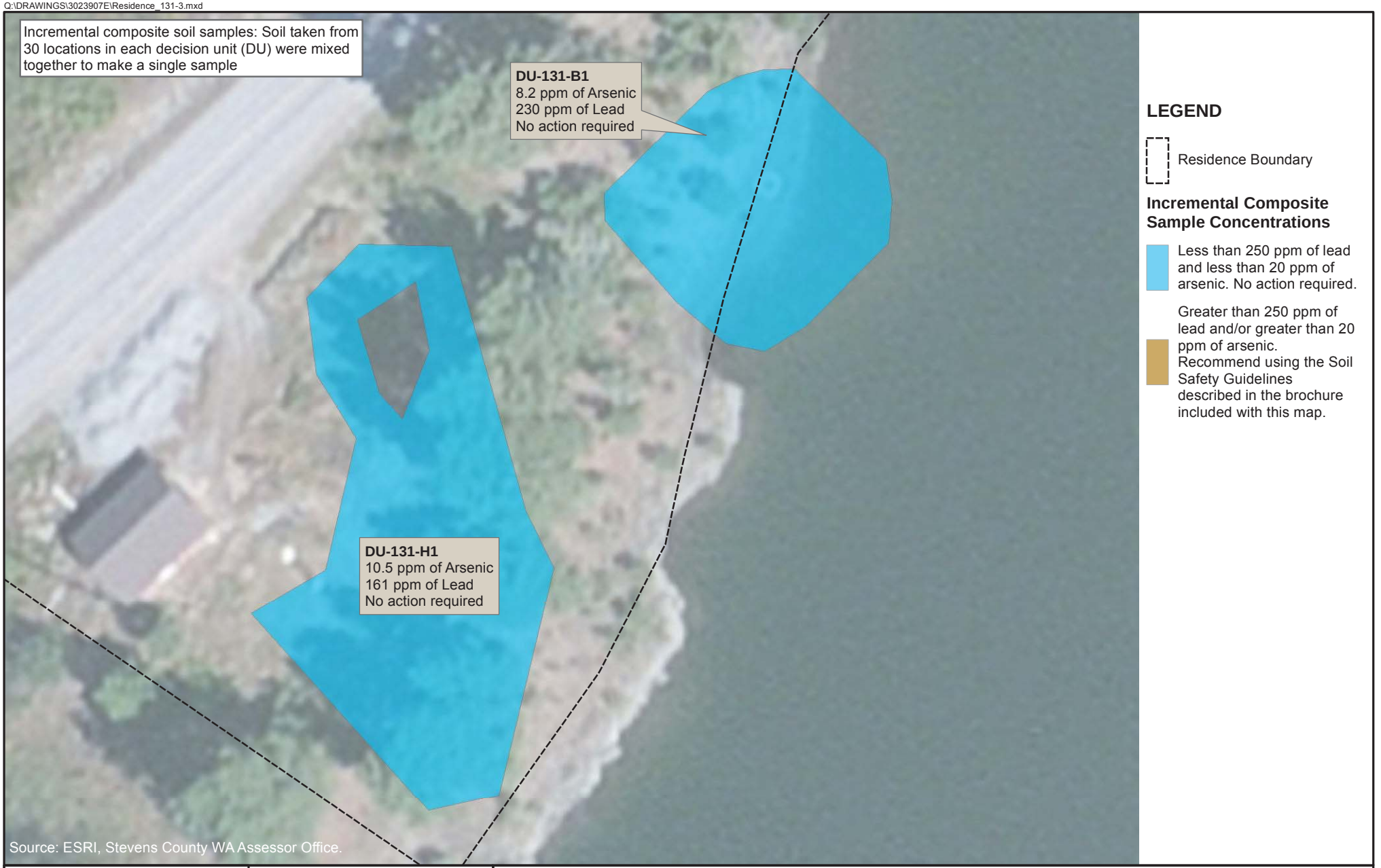
0 40 80 Meters

0 140 280 Feet

N

Map 5-56. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 130
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_131-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 5 10 Meters

0 20 40 Feet

N

Map 5-57. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 131
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_132-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 15 30 Meters

0 60 120 Feet

N

Map 5-58. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 132
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_133-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

Discrete Soil Sample Locations

RAMBOLL ENVIRON

0 5 10 Meters

0 25 50 Feet

N

Map 5-59. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 133
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_134-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

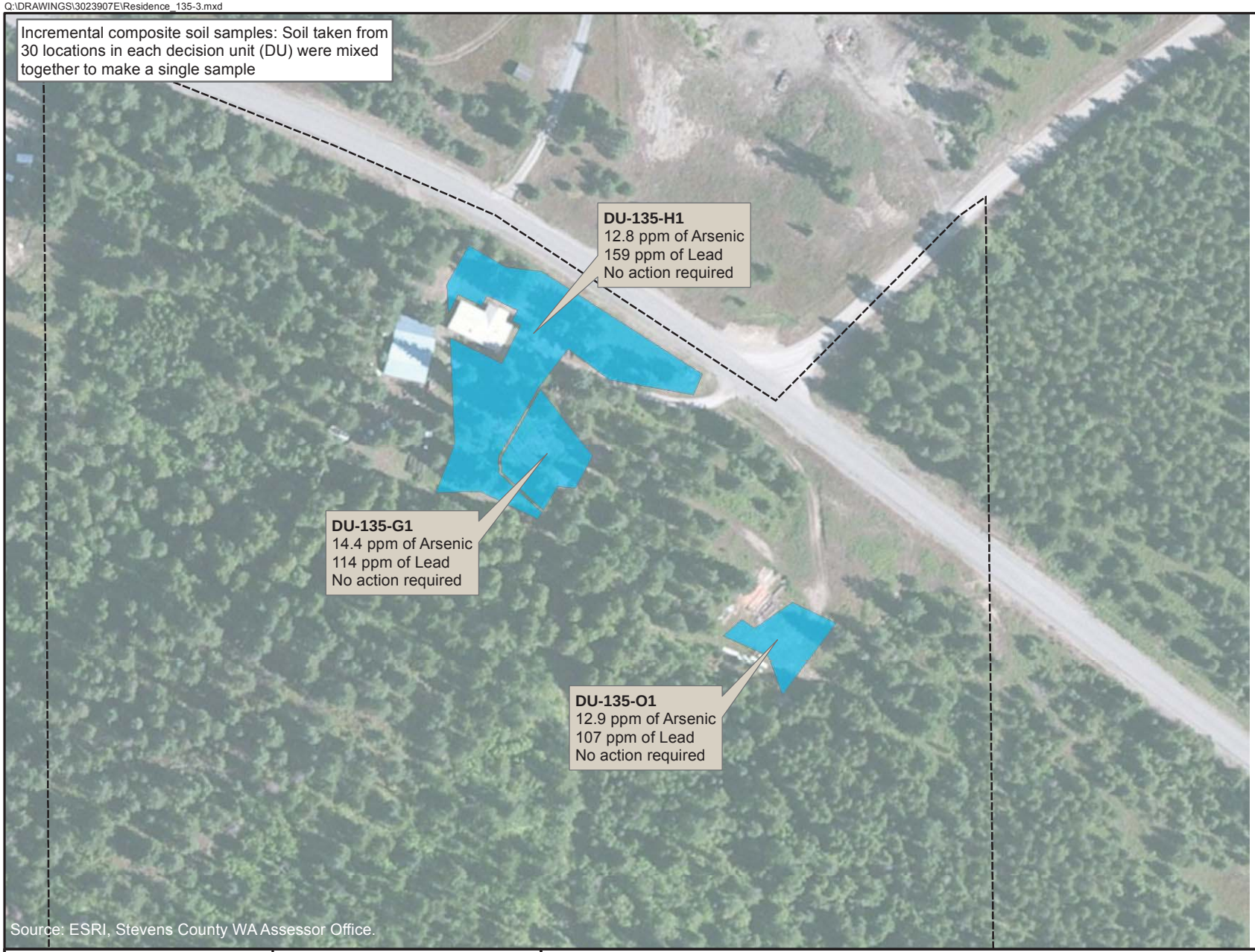
0 5 10 Meters

0 25 50 Feet

N

Map 5-60. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 134
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_135-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

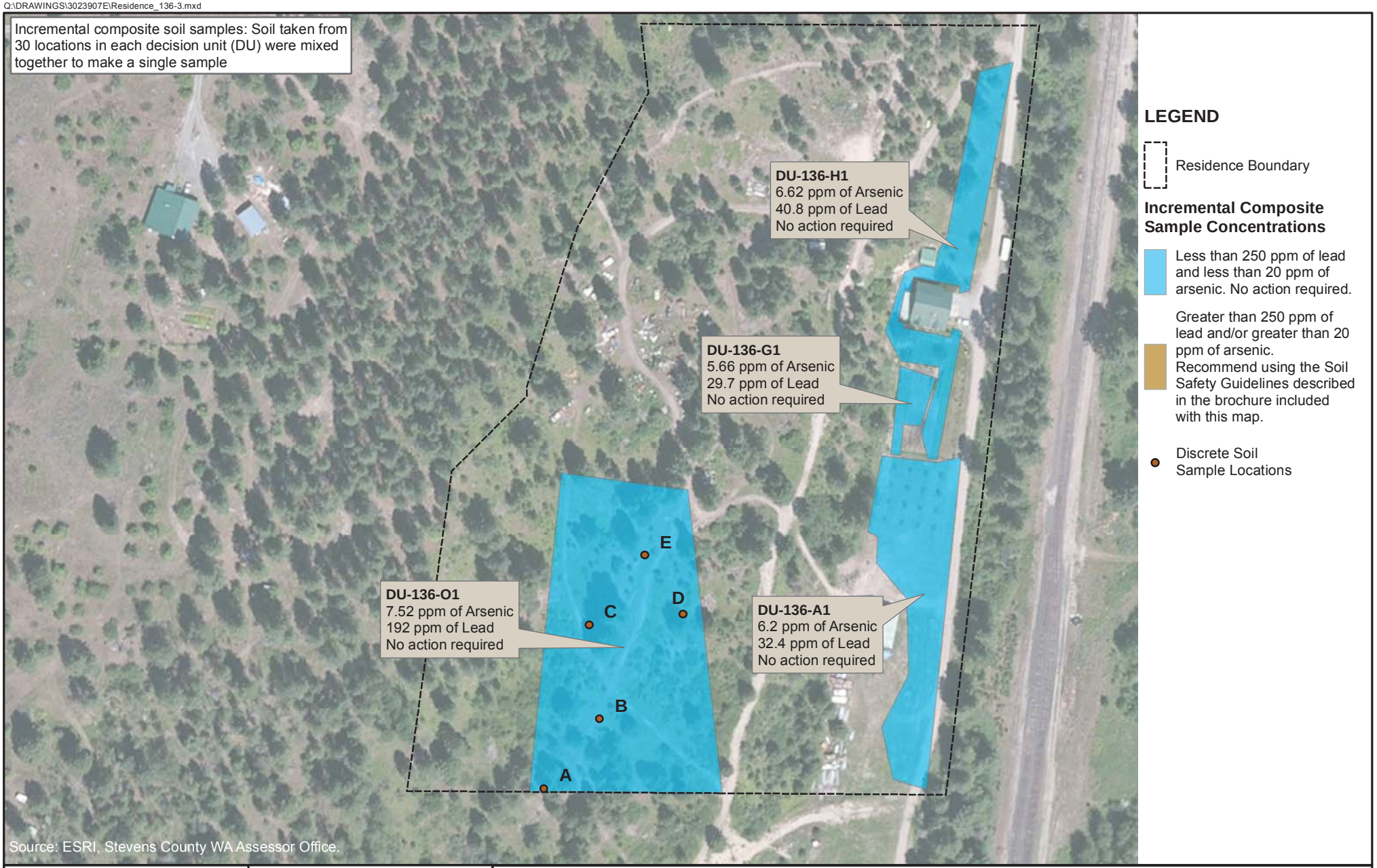
0 25 50 Meters

0 75 150 Feet

N

Map 5-61. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 135
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_136-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

Discrete Soil Sample Locations

RAMBOLL ENVIRON

0 25 50 Meters

0 80 160 Feet

N

Map 5-62. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 136
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_137-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

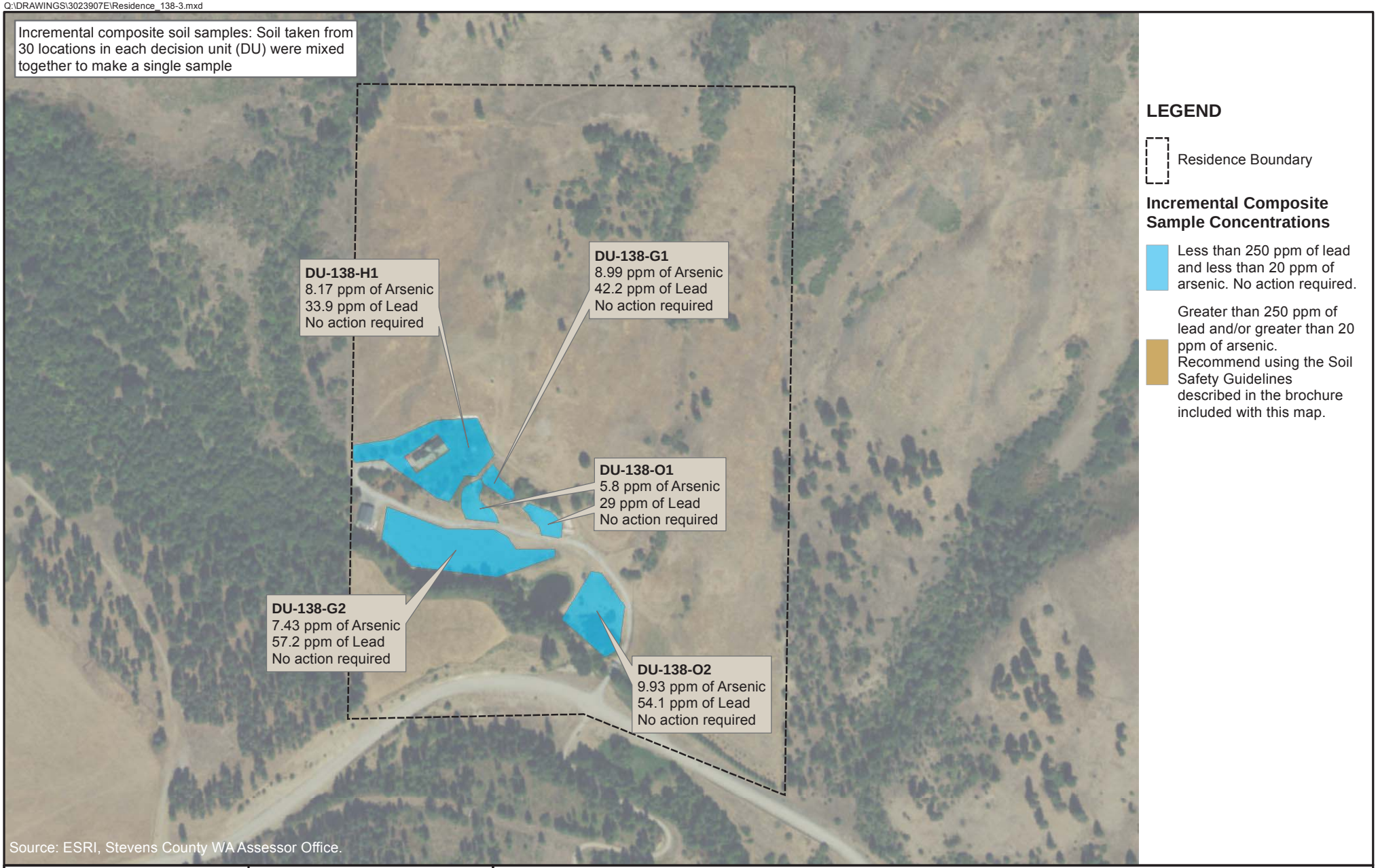
0 25 50 Meters

0 100 200 Feet

N

Map 5-63. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 137
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_138-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

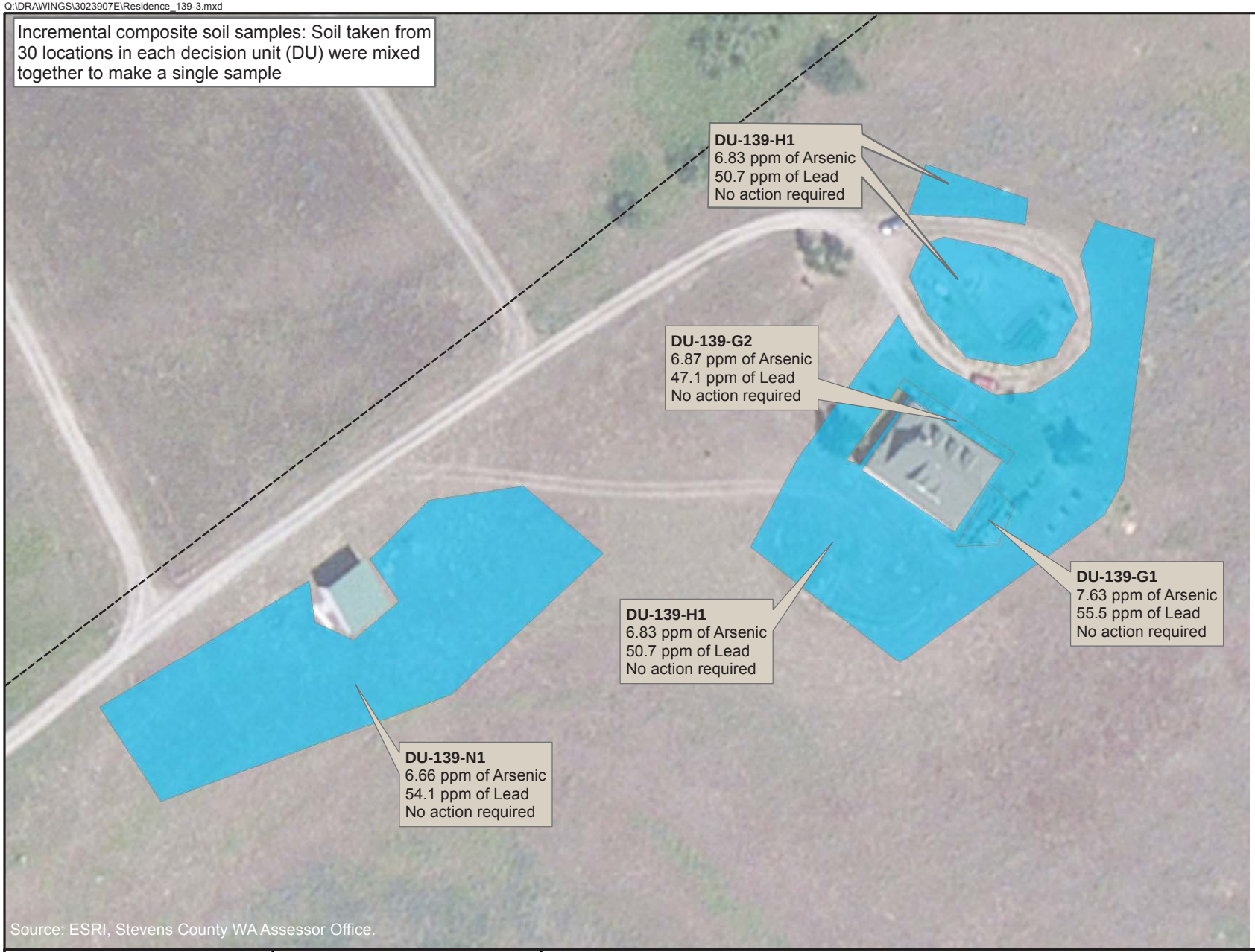
0 60 120 Meters

0 200 400 Feet

N

Map 5-64. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 138
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_139-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 10 20 Meters

0 40 80 Feet

N

Map 5-65. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 139
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_140-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

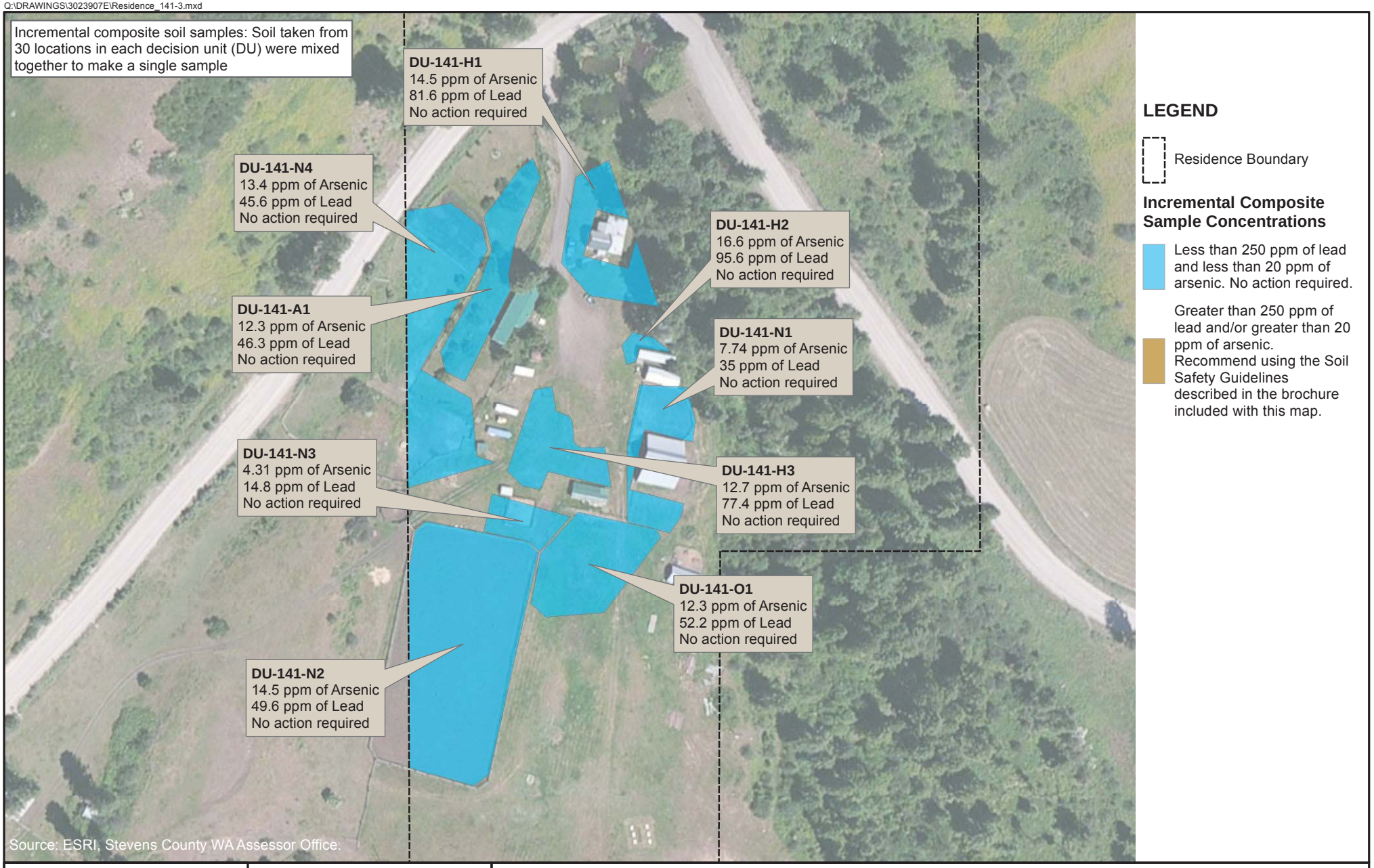
0 5 10 Meters

0 25 50 Feet

N

Map 5-66. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 140
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_141-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

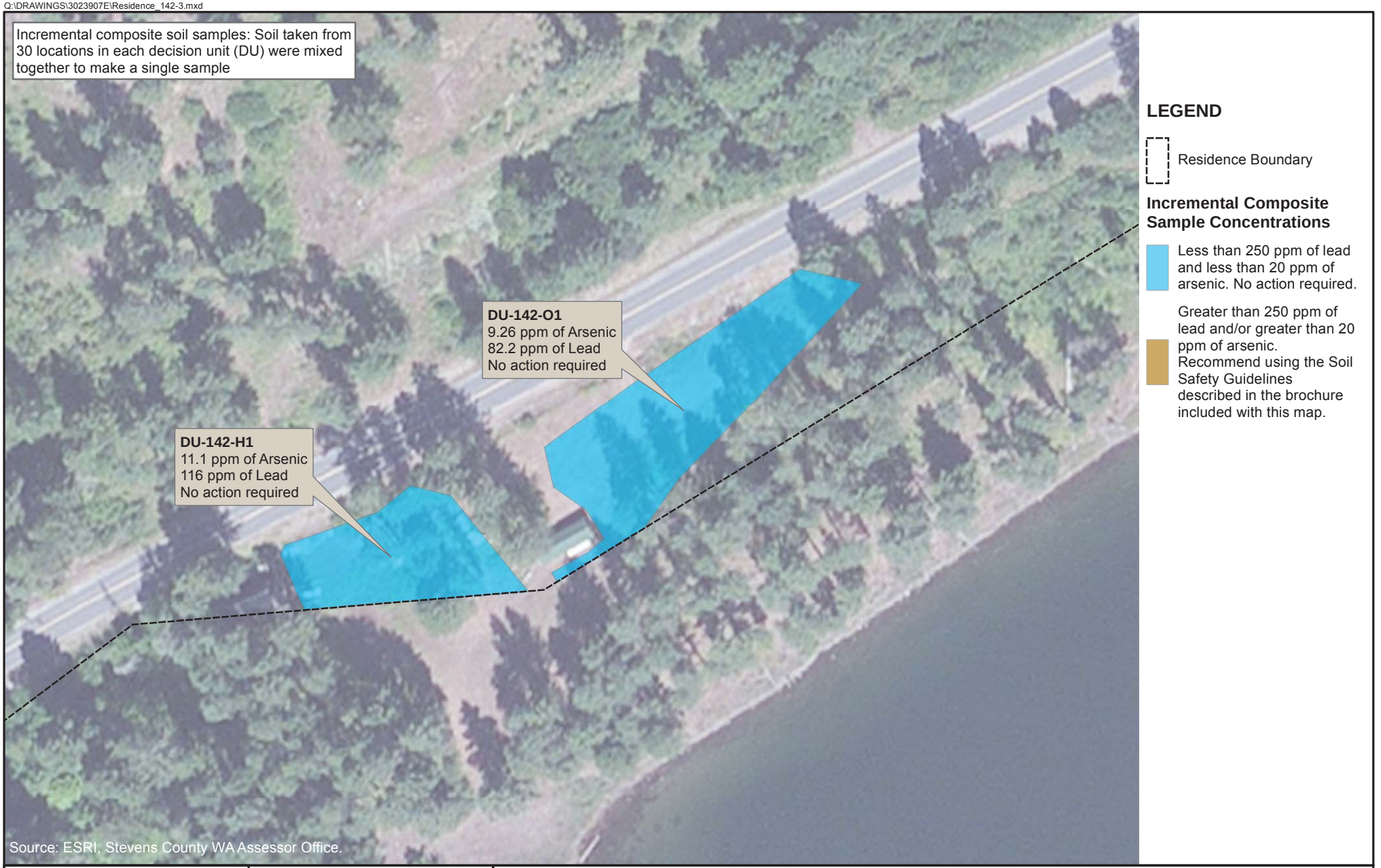
0 25 50 Meters

0 75 150 Feet

N

Map 5-67. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 141
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_142-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 10 20 Meters

0 40 80 Feet

N

Map 5-68. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 142
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_143-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

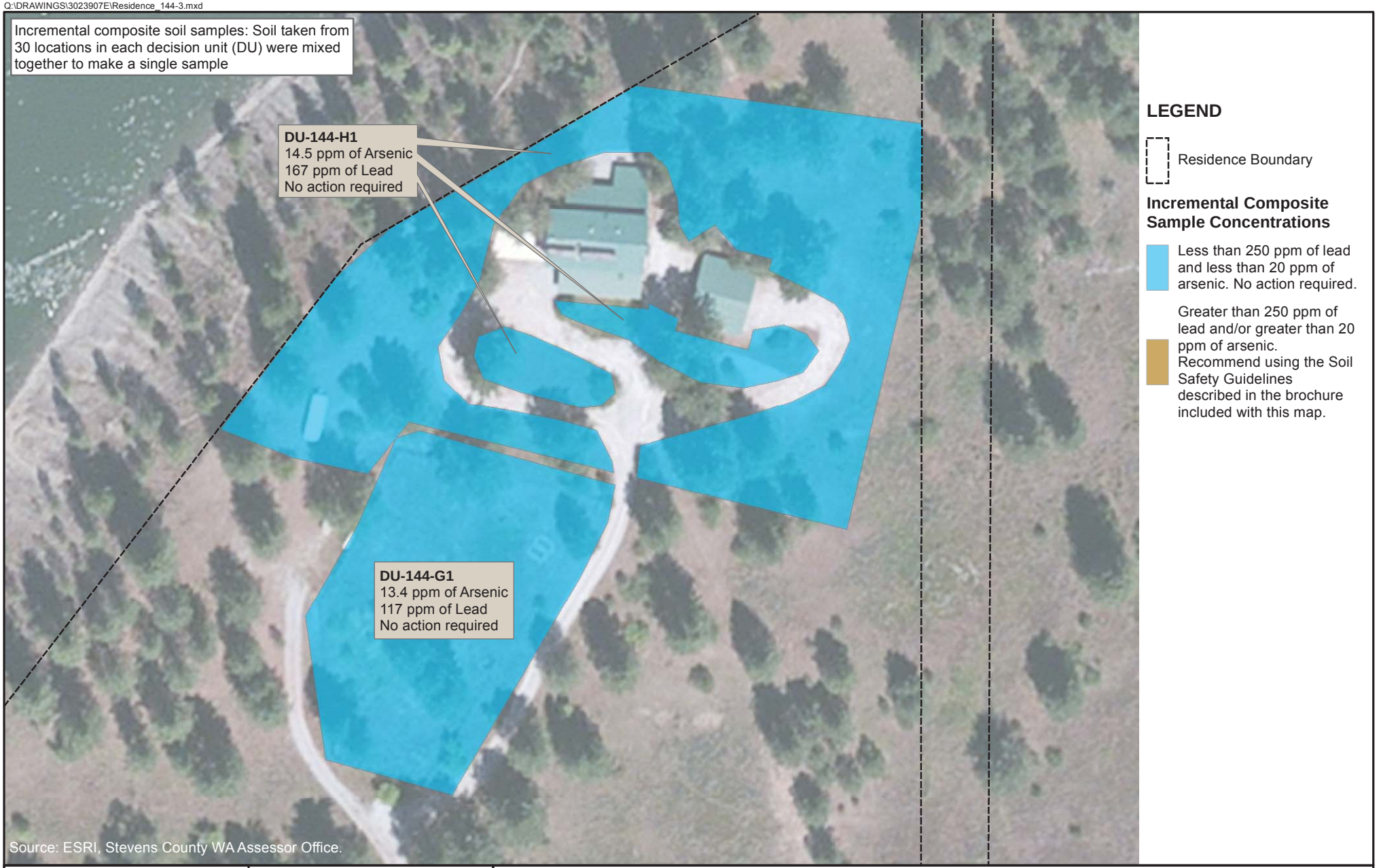
0 25 50 Meters

0 75 150 Feet

N

Map 5-69. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 143
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_144-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

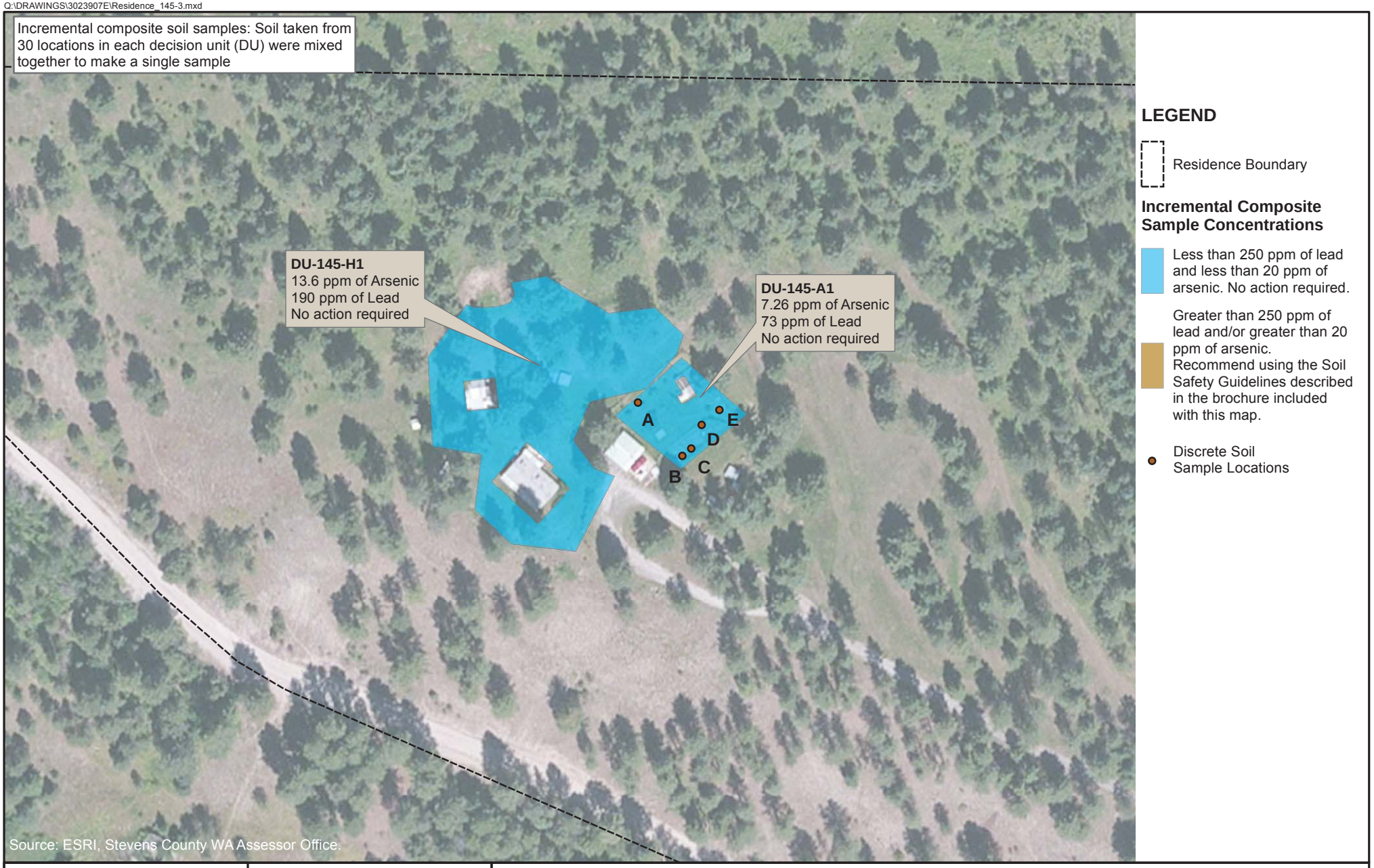
0 10 20 Meters

0 40 80 Feet

N

Map 5-70. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 144
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_145-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

Discrete Soil Sample Locations

RAMBOLL ENVIRON

0 15 30 Meters

0 60 120 Feet

N

Map 5-71. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 145
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_146-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

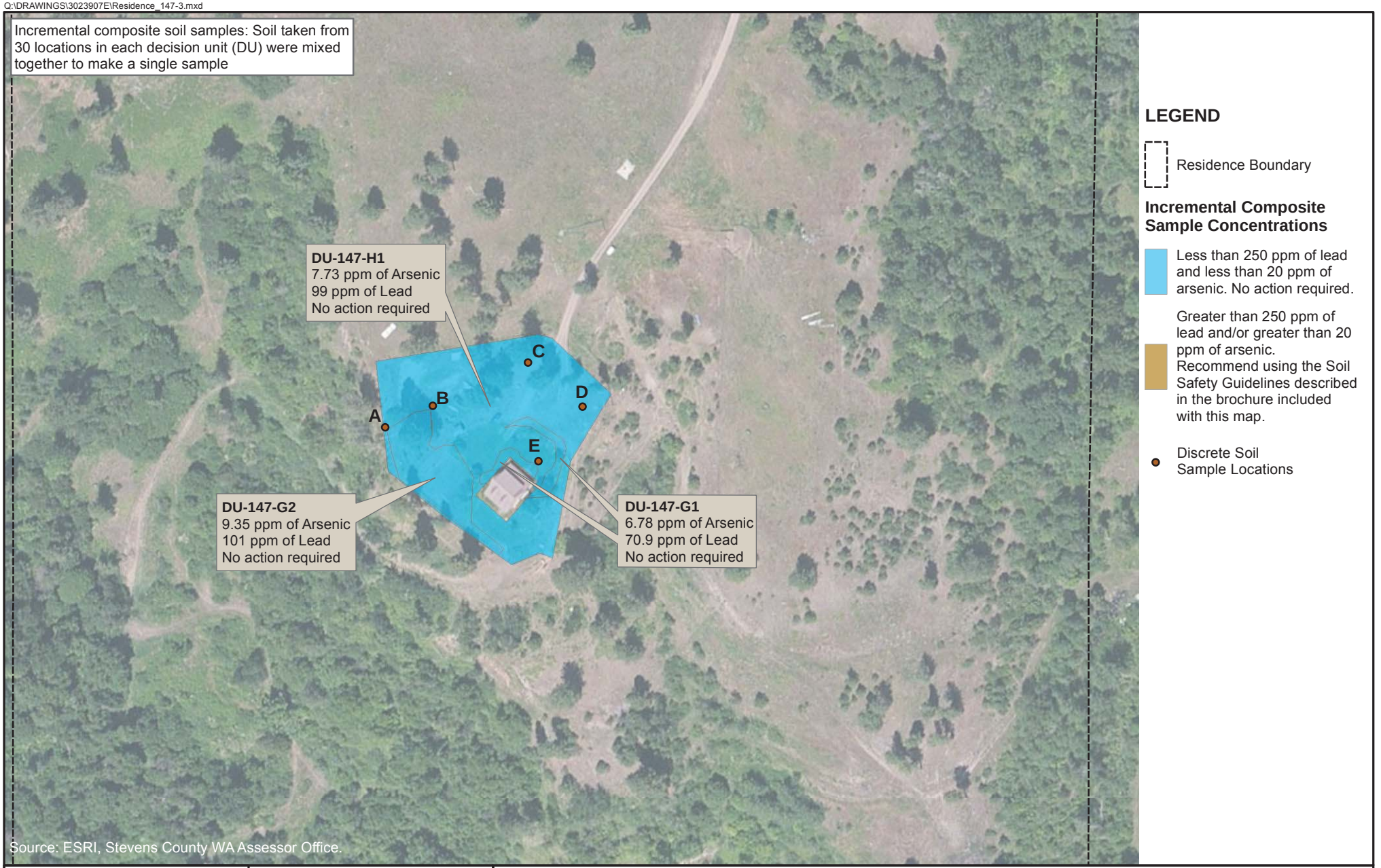
0 20 40 Meters

0 60 120 Feet

N

Map 5-72. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 146
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_147-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

Discrete Soil Sample Locations

RAMBOLL ENVIRON

0 25 50 Meters

0 100 200 Feet

N

Map 5-73. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 147
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_148-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 15 30 Meters

0 60 120 Feet

N

Map 5-74. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 148
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_149-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 25 50 Meters

0 75 150 Feet

N

Map 5-75. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 149
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_150-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

Discrete Soil Sample Locations

RAMBOLL ENVIRON

0 10 20 Meters

0 40 80 Feet

N

Map 5-76. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 150
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_151-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

Discrete Soil Sample Locations

RAMBOLL ENVIRON

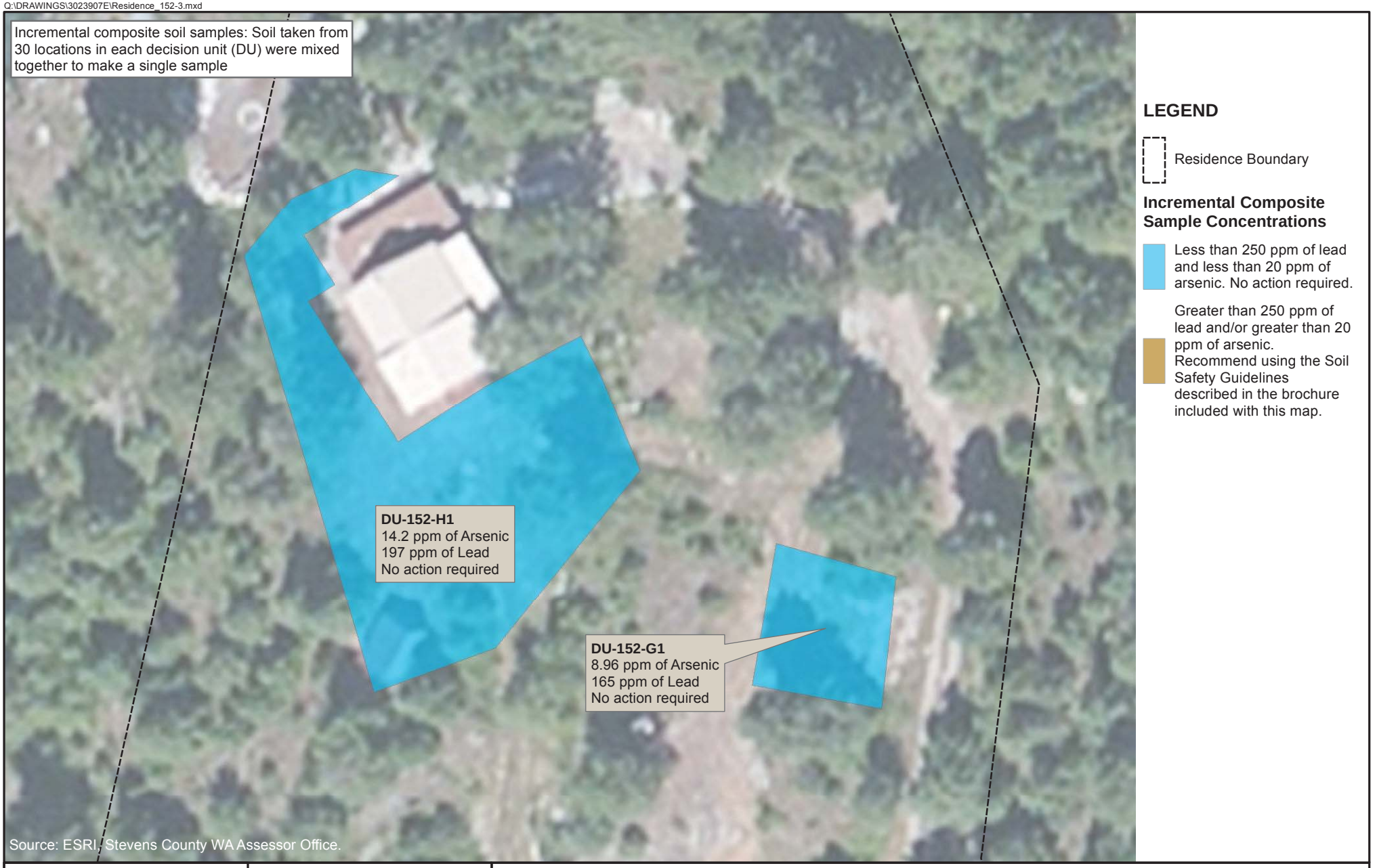
0 10 20 Meters

0 40 80 Feet

N

Map 5-77. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 151
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_152-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

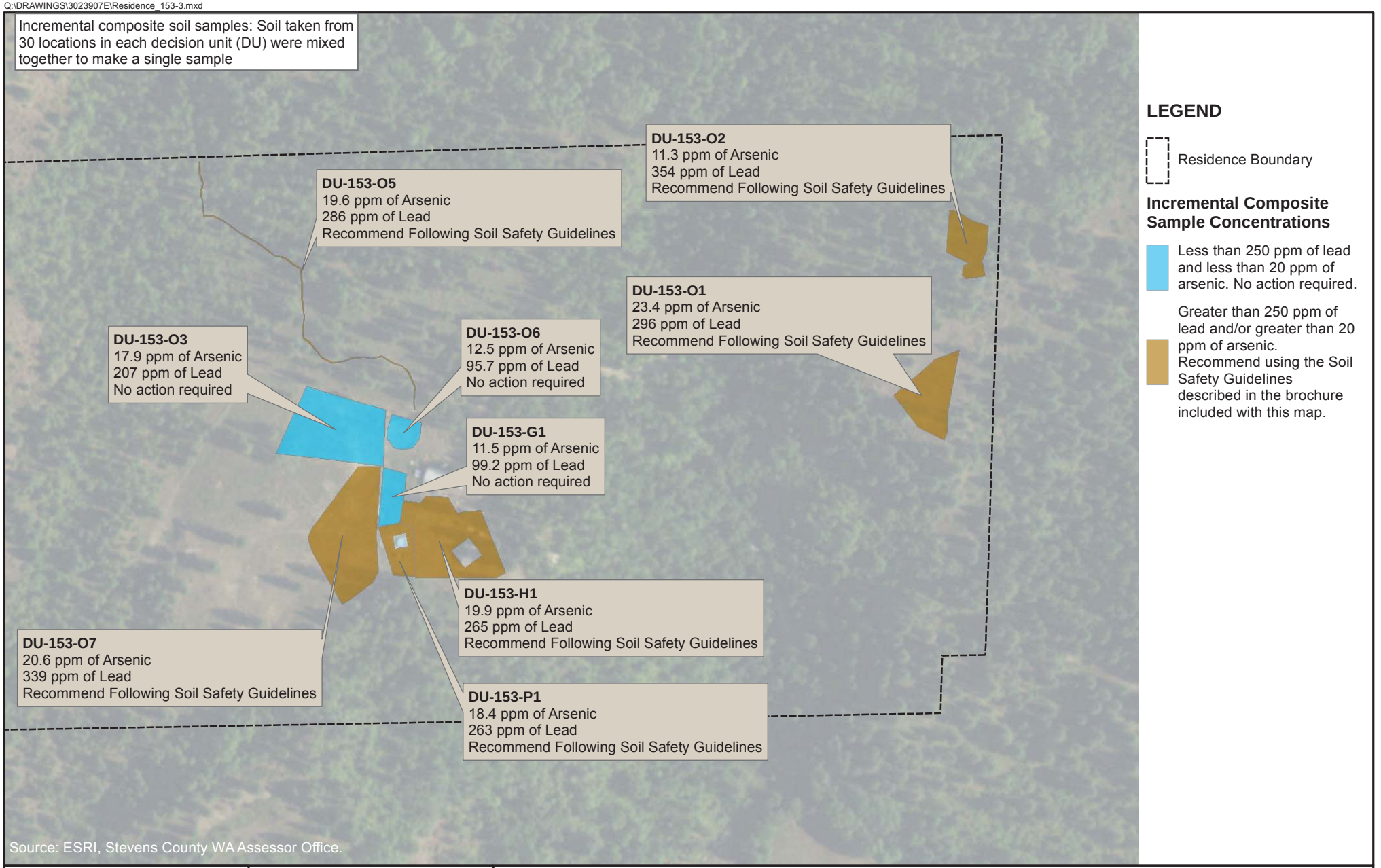
0 5 10 Meters

0 20 40 Feet

N

Map 5-78. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 152
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_153-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

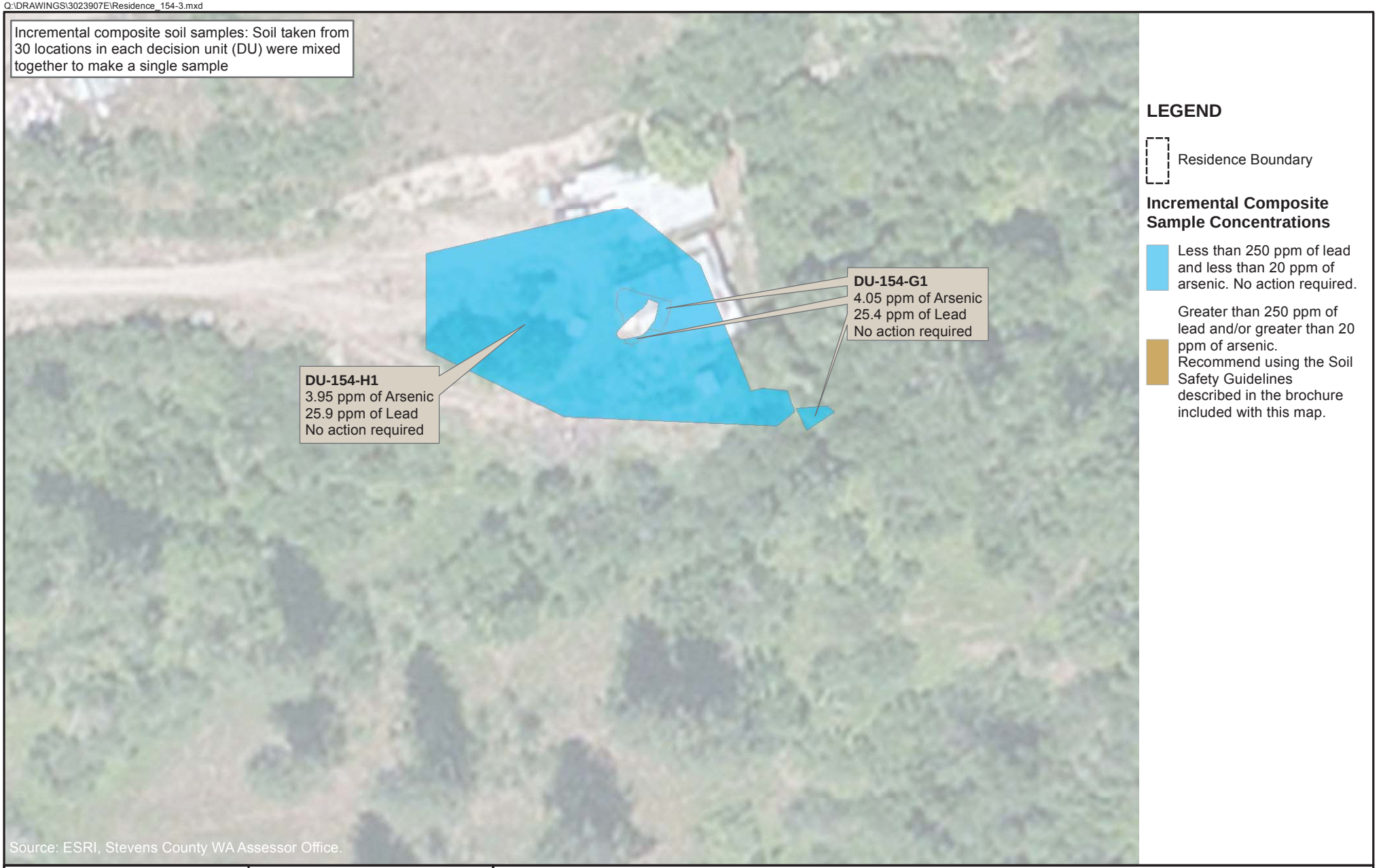
0 50 100 Meters

0 150 300 Feet

N

Map 5-79. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 153
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_154-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

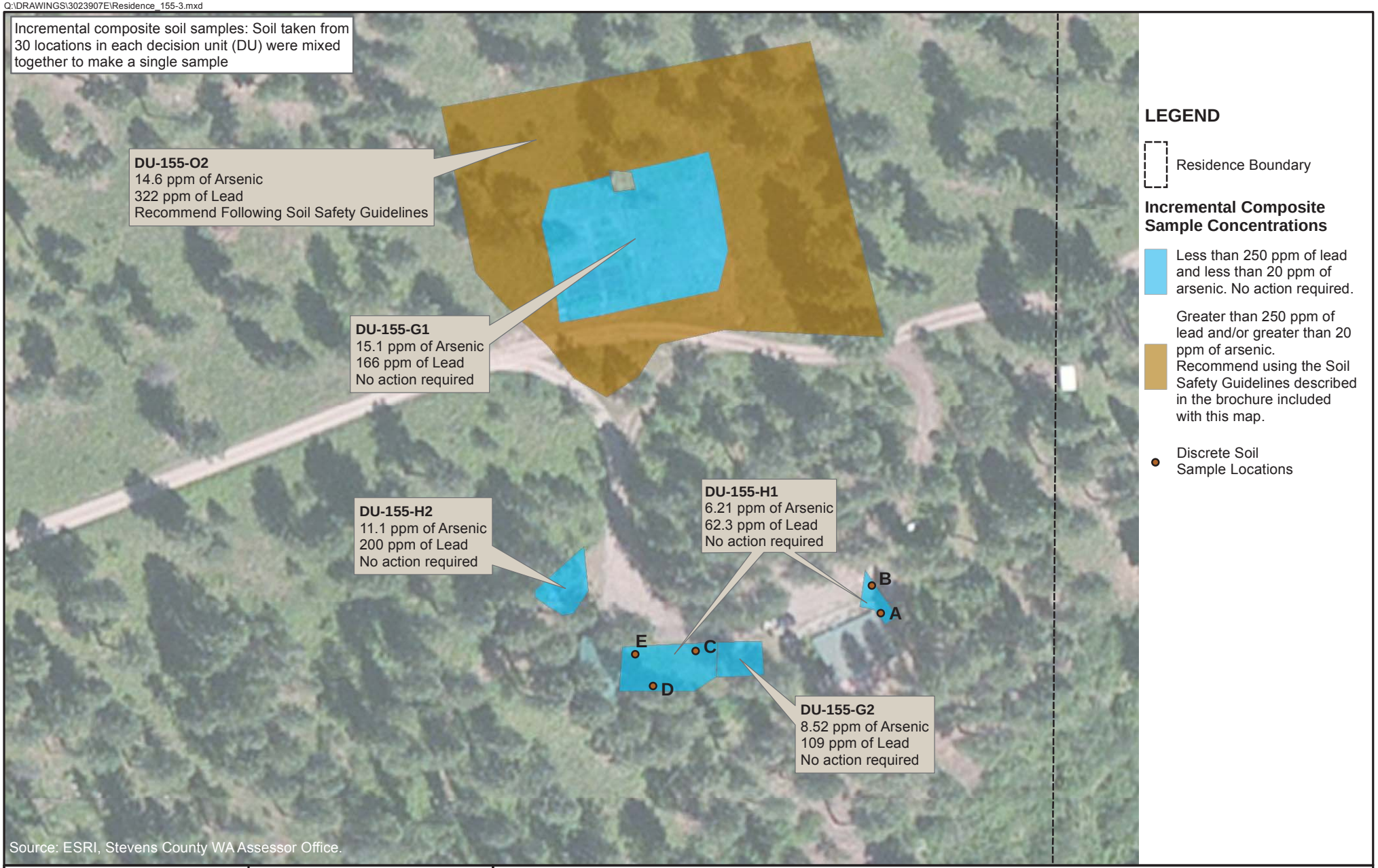
0 5 10 Meters

0 25 50 Feet

N

Map 5-80. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 154
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_155-3.mxd



RAMBOLL ENVIRON

0 10 20 Meters

0 40 80 Feet

N

Map 5-81. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 155
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_156-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

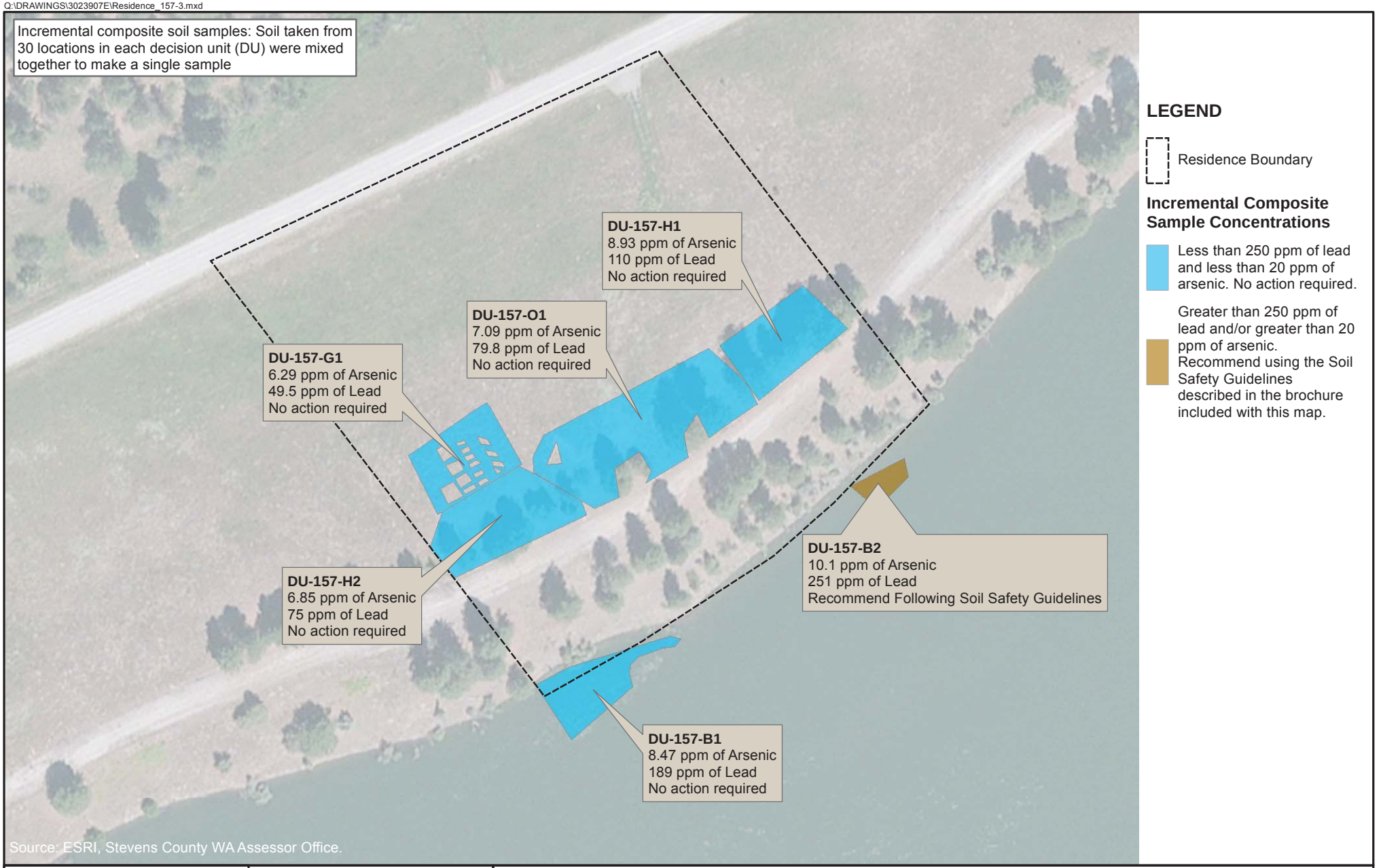
0 5 10 Meters

0 25 50 Feet

N

Map 5-82. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 156
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_157-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

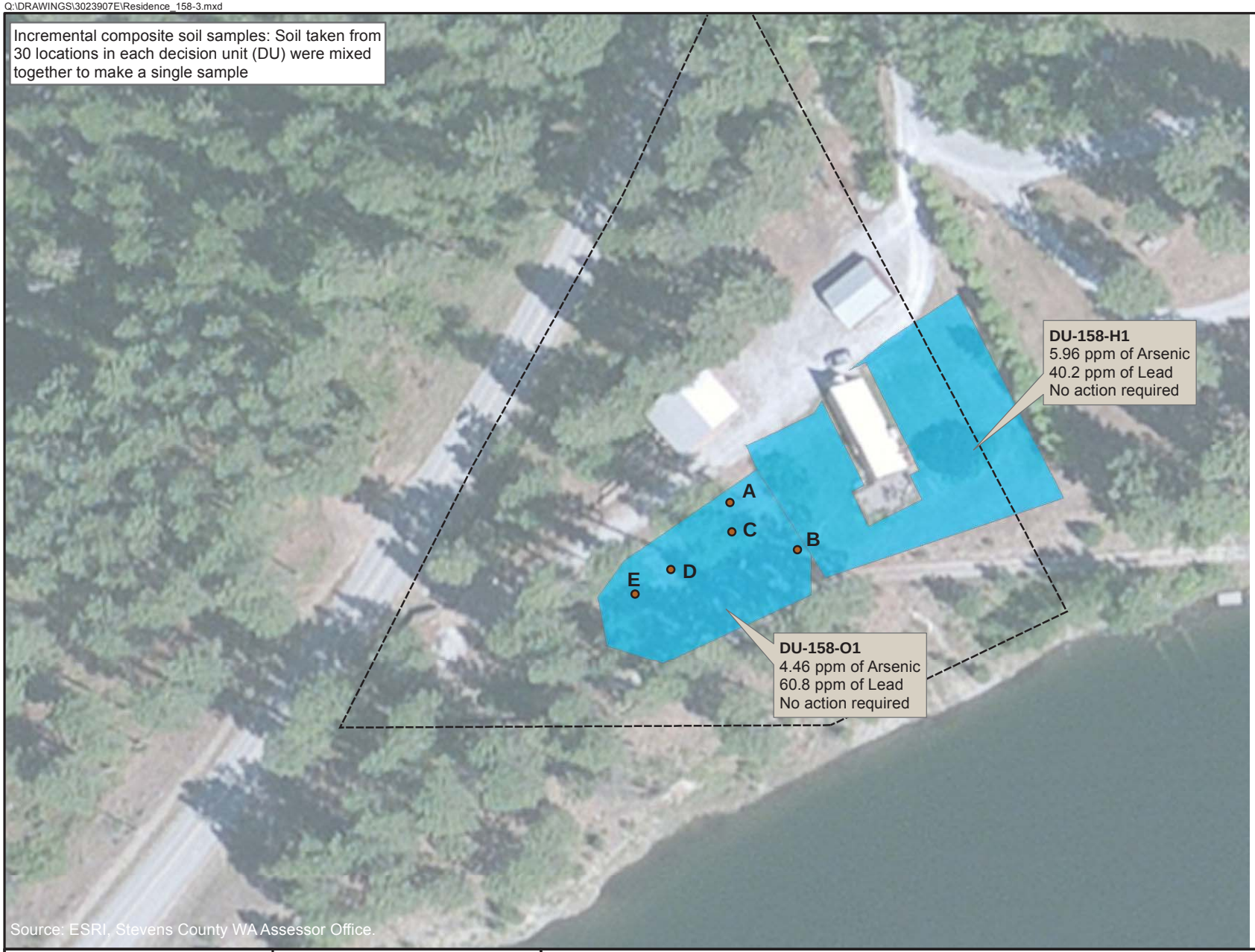
0 20 40 Meters

0 60 120 Feet

N

Map 5-83. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 157
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_158-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

Discrete Soil Sample Locations

RAMBOLL ENVIRON

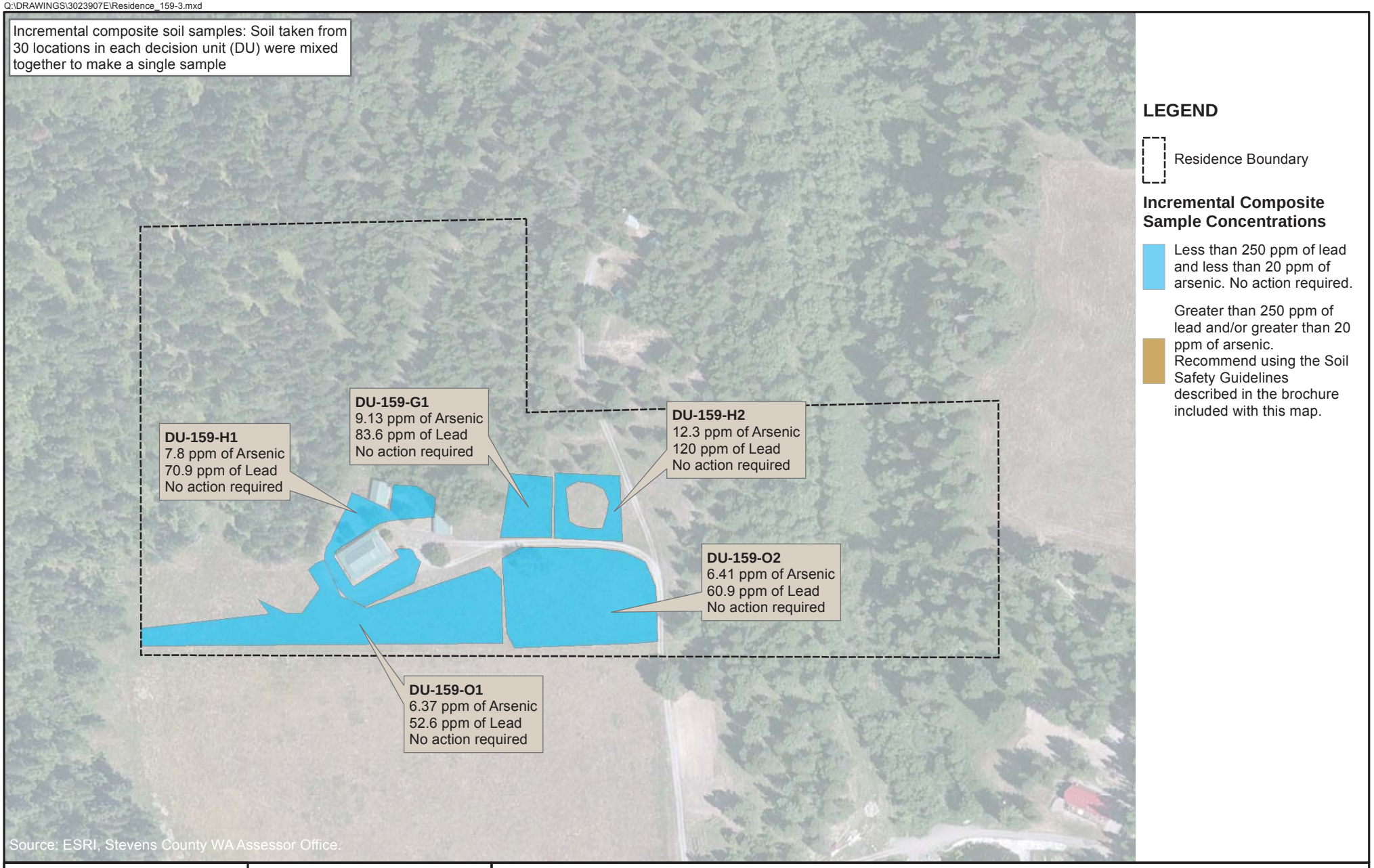
0 10 20 Meters

0 40 80 Feet

N

Map 5-84. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 158
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_159-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 25 50 Meters

0 100 200 Feet

N

Map 5-85. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 159
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_160-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

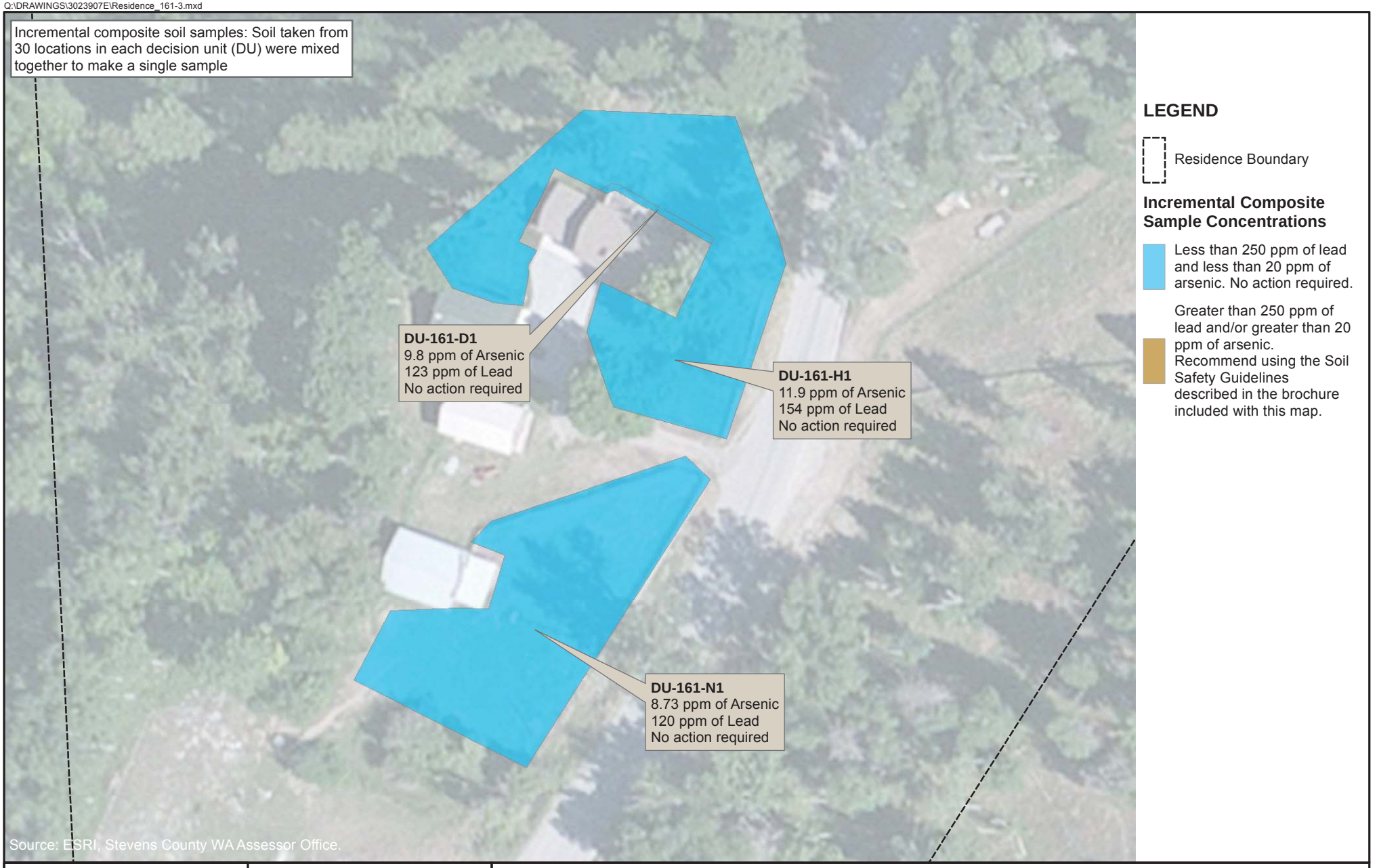
0 10 20 Meters

0 30 60 Feet

N

Map 5-86. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 160
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_161-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 10 20 Meters

0 35 70 Feet

N

Map 5-87. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 161
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_162-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 5 10 Meters

0 25 50 Feet

N

Map 5-88. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 162
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_163-3.mxd



RAMBOLL ENVIRON

0 10 20 Meters

0 40 80 Feet

N

Map 5-89. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 163
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_164-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 10 20 Meters

0 40 80 Feet

N

Map 5-90. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 164
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_165-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

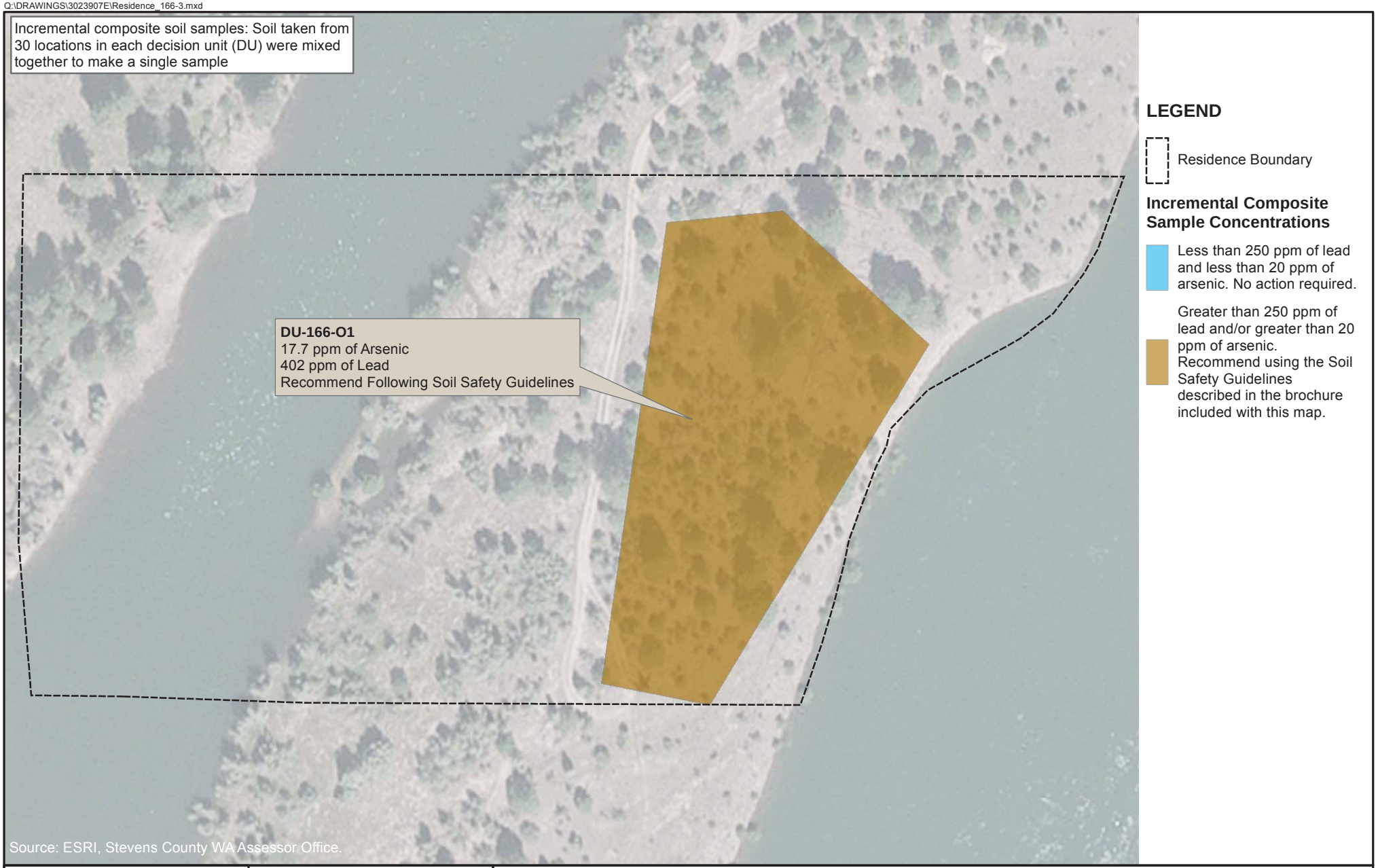
0 15 30 Meters

0 50 100 Feet

N

Map 5-91. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 165
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_166-3.mxd



RAMBOLL ENVIRON

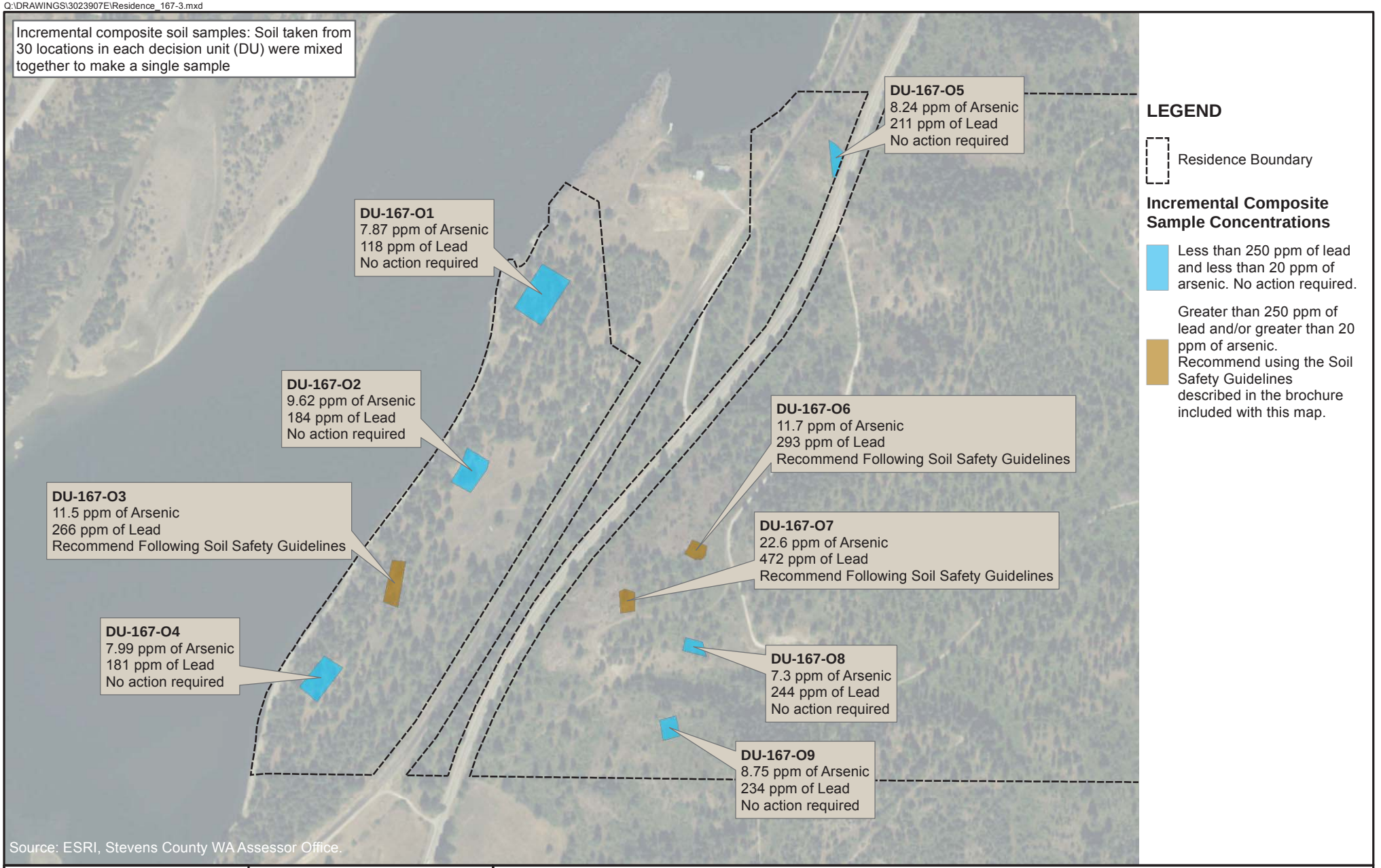
0 15 30 Meters

0 50 100 Feet

N

Map 5-92. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 166
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_167-3.mxd



RAMBOLL ENVIRON

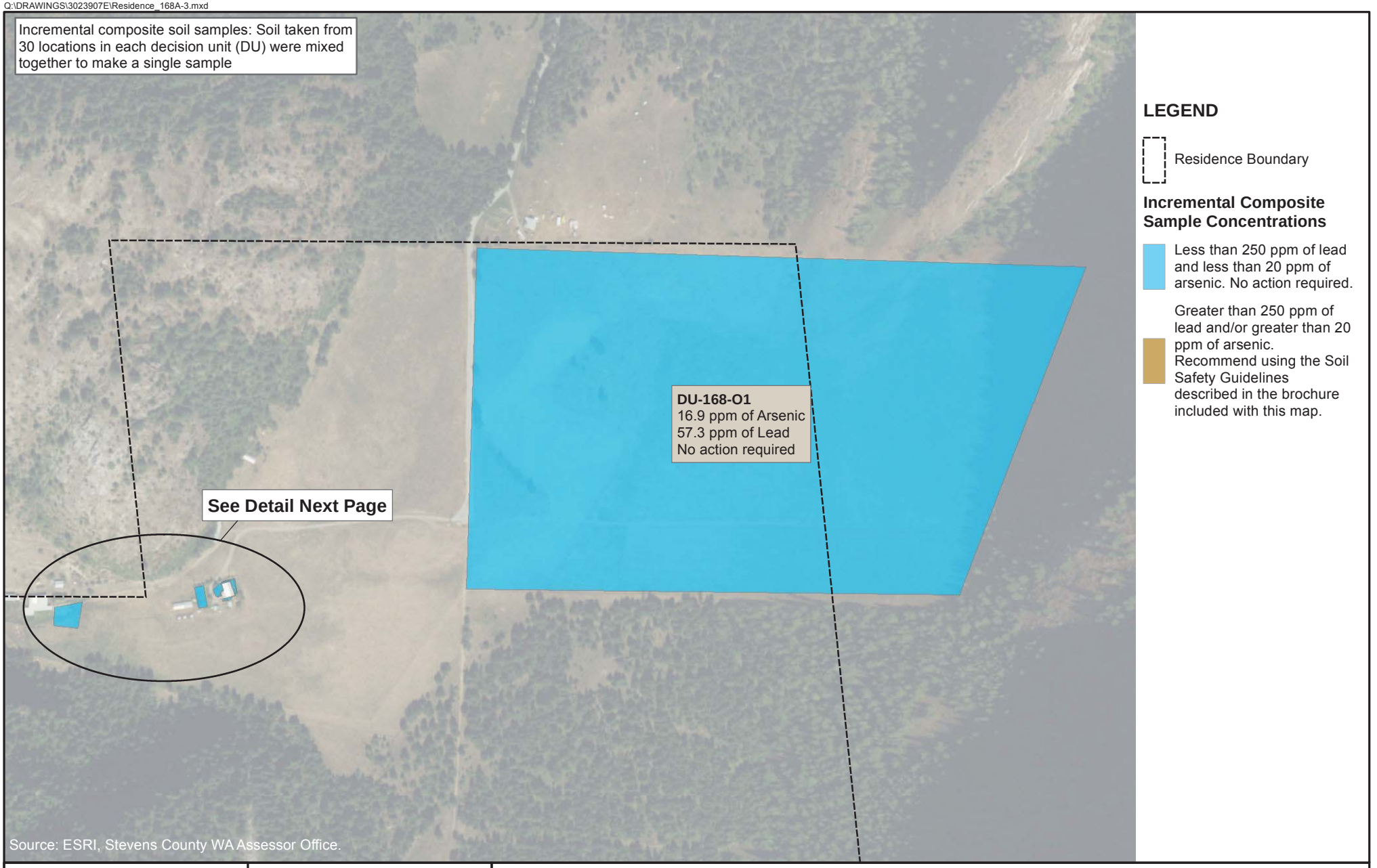
0 75 150 Meters

0 250 500 Feet

N

Map 5-93. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 167
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_168A-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 75 150 Meters

0 250 500 Feet

N

Map 5-94a. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 168
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_168B-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

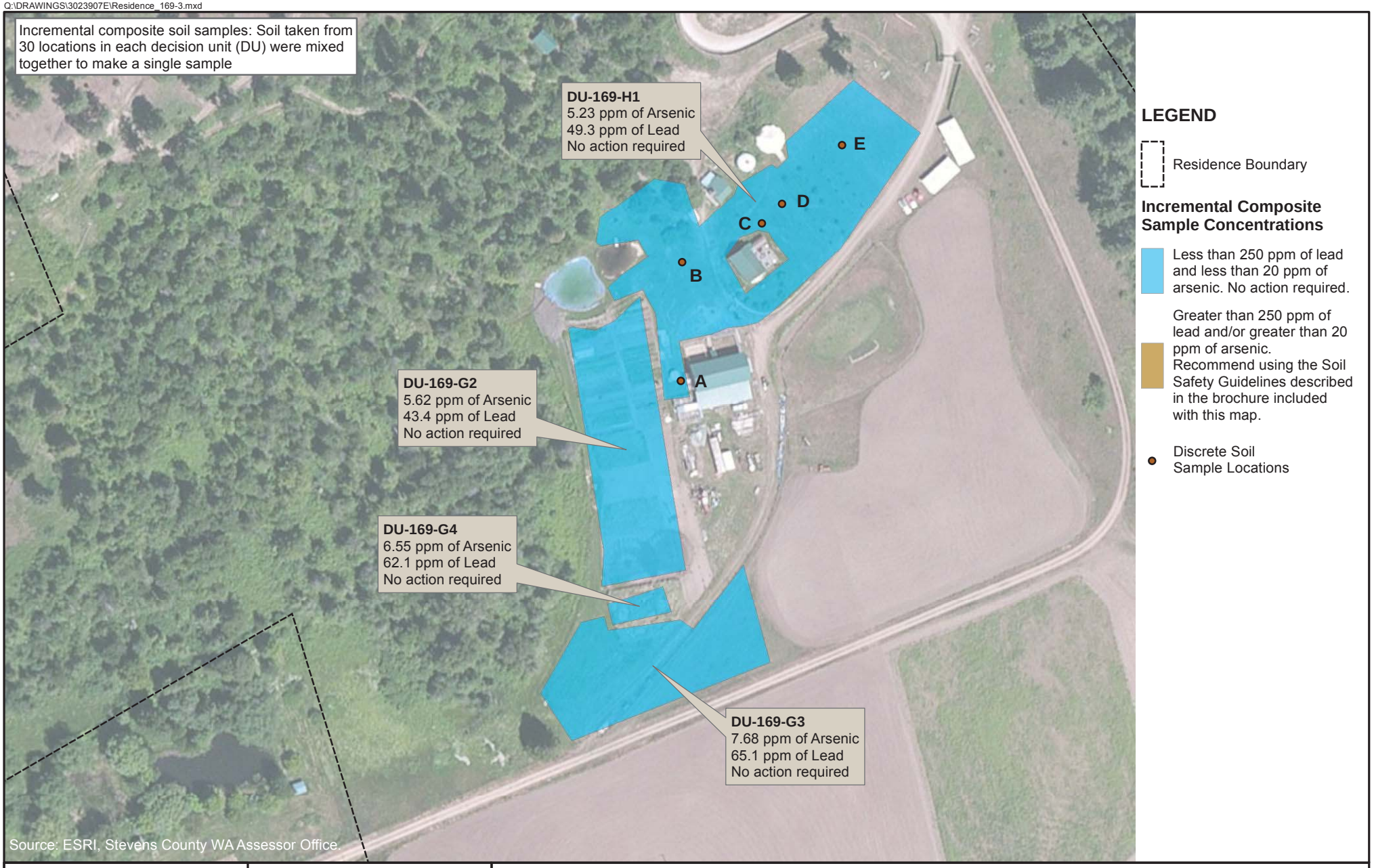
0 15 30 Meters

0 50 100 Feet

N

Map 5-94b. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 168
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_169-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

Discrete Soil Sample Locations

RAMBOLL ENVIRON

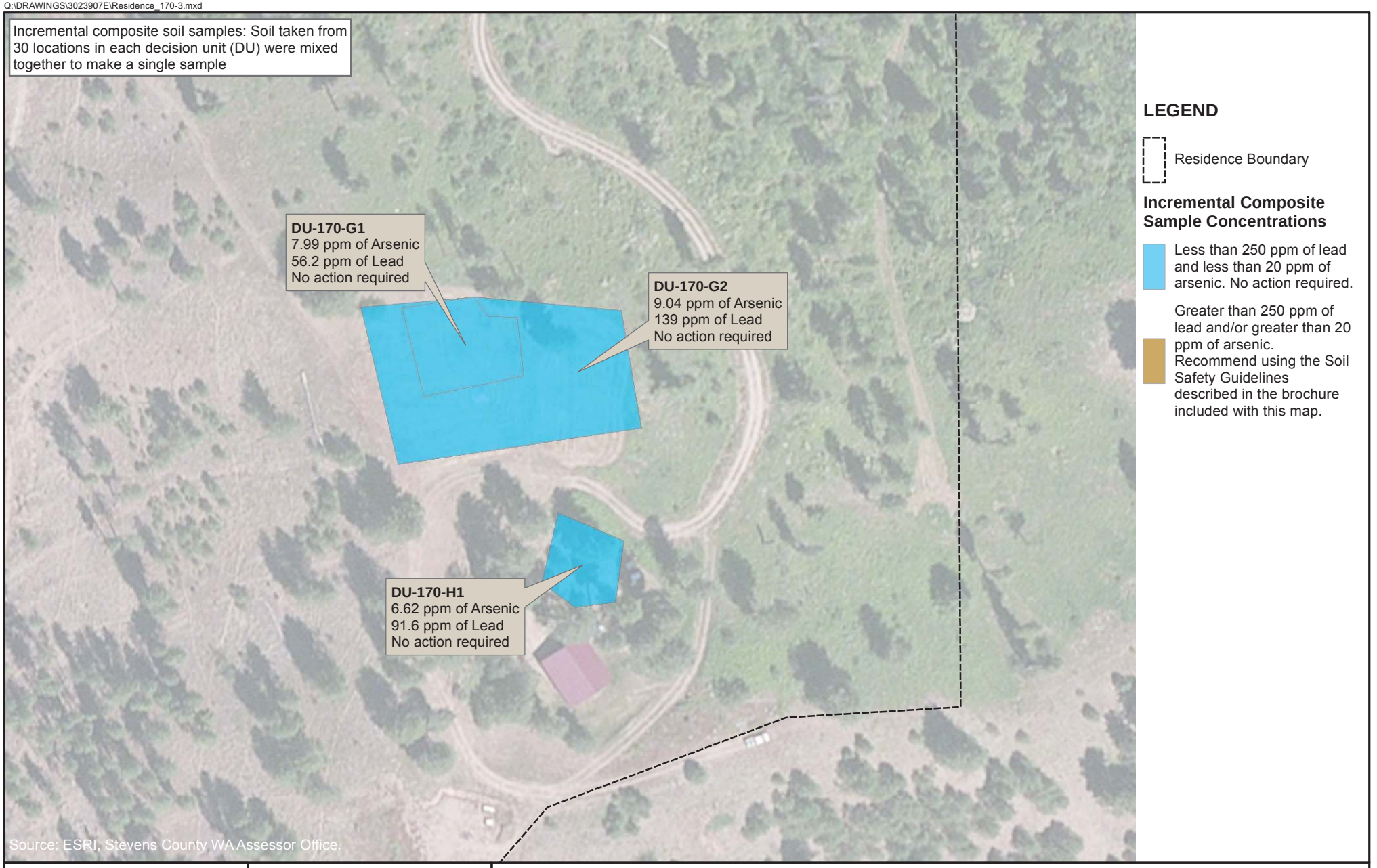
0 25 50 Meters

0 75 150 Feet

N

Map 5-95. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 169
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_170-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

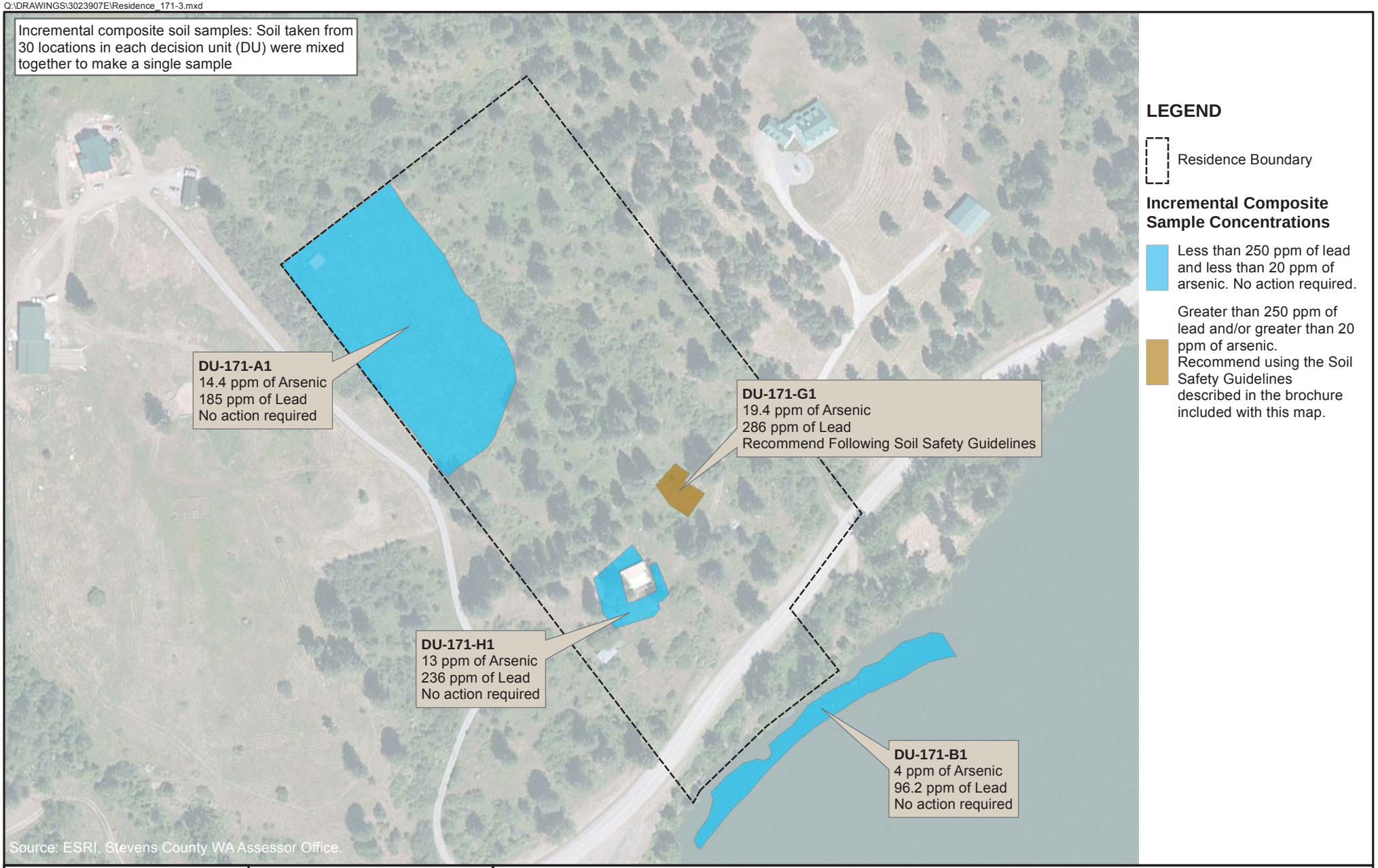
0 10 20 Meters

0 50 100 Feet

N

Map 5-96. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 170
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_171-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 25 50 Meters

0 100 200 Feet

N

Map 5-97. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 171
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_172-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

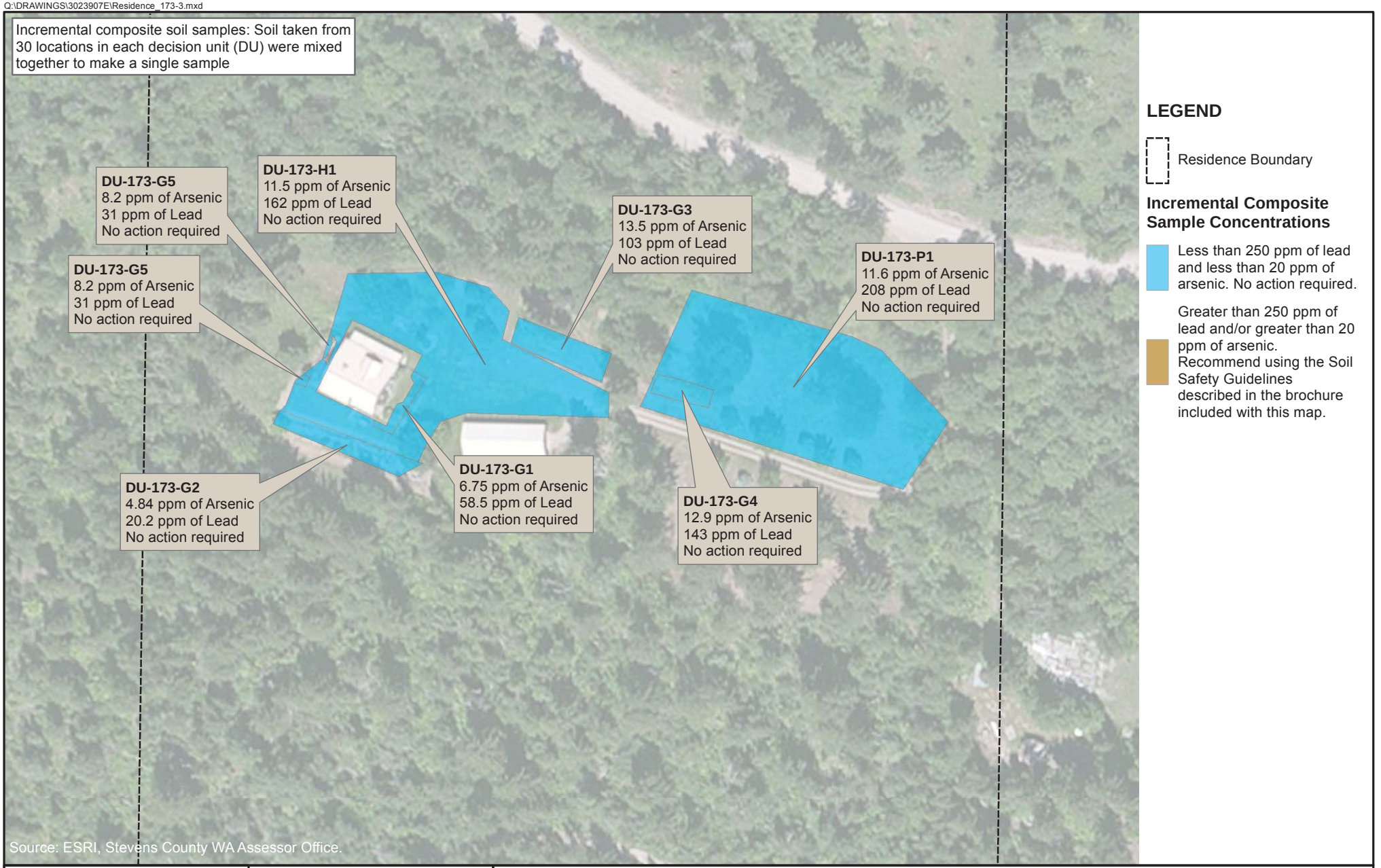
0 4 8 Meters

0 12.5 25 Feet

N

Map 5-98. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 172
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_173-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

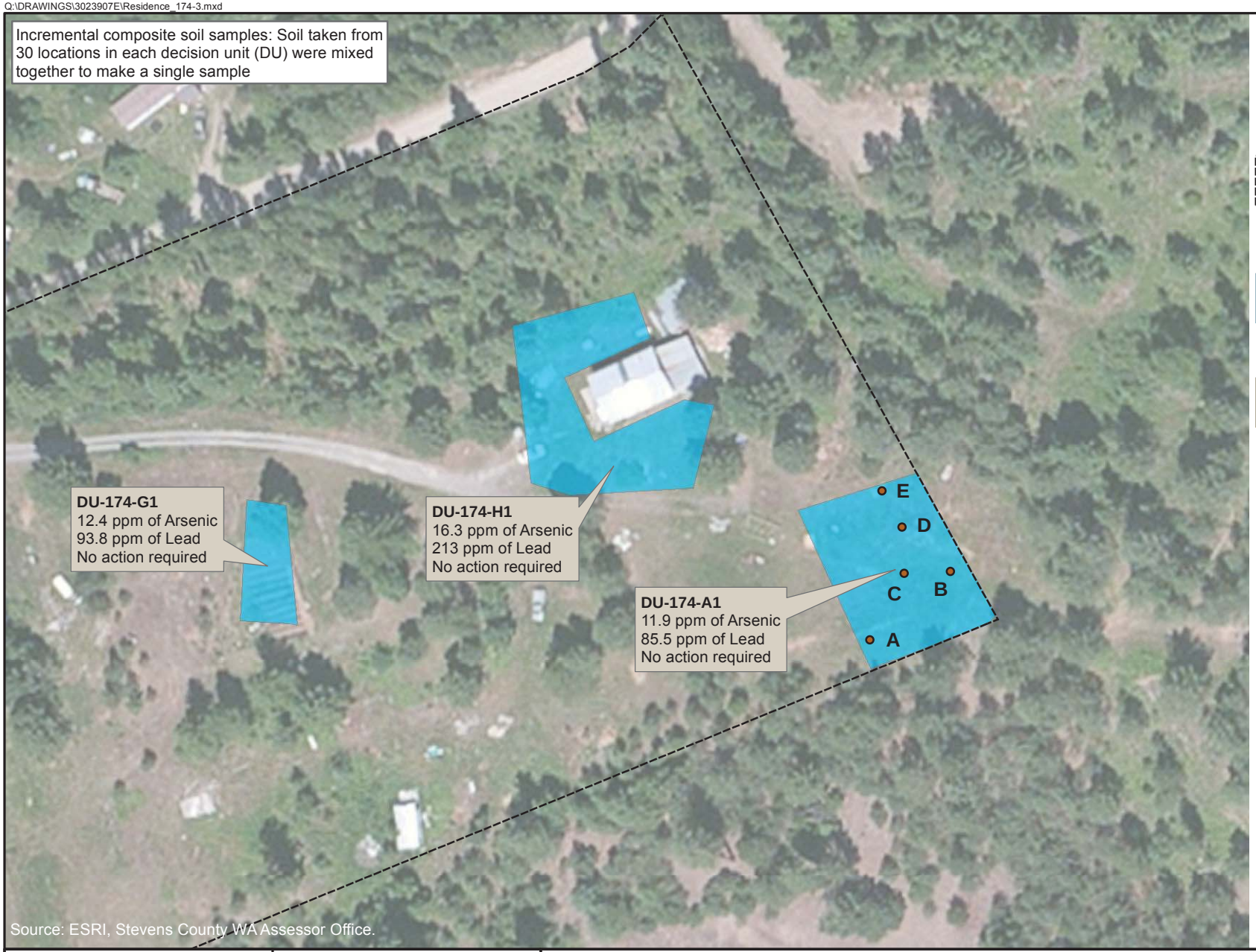
0 15 30 Meters

0 50 100 Feet

N

Map 5-99. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 173
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_174-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

Discrete Soil Sample Locations

RAMBOLL ENVIRON

0 10 20 Meters

0 40 80 Feet

N

Map 5-100. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 174
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_175-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

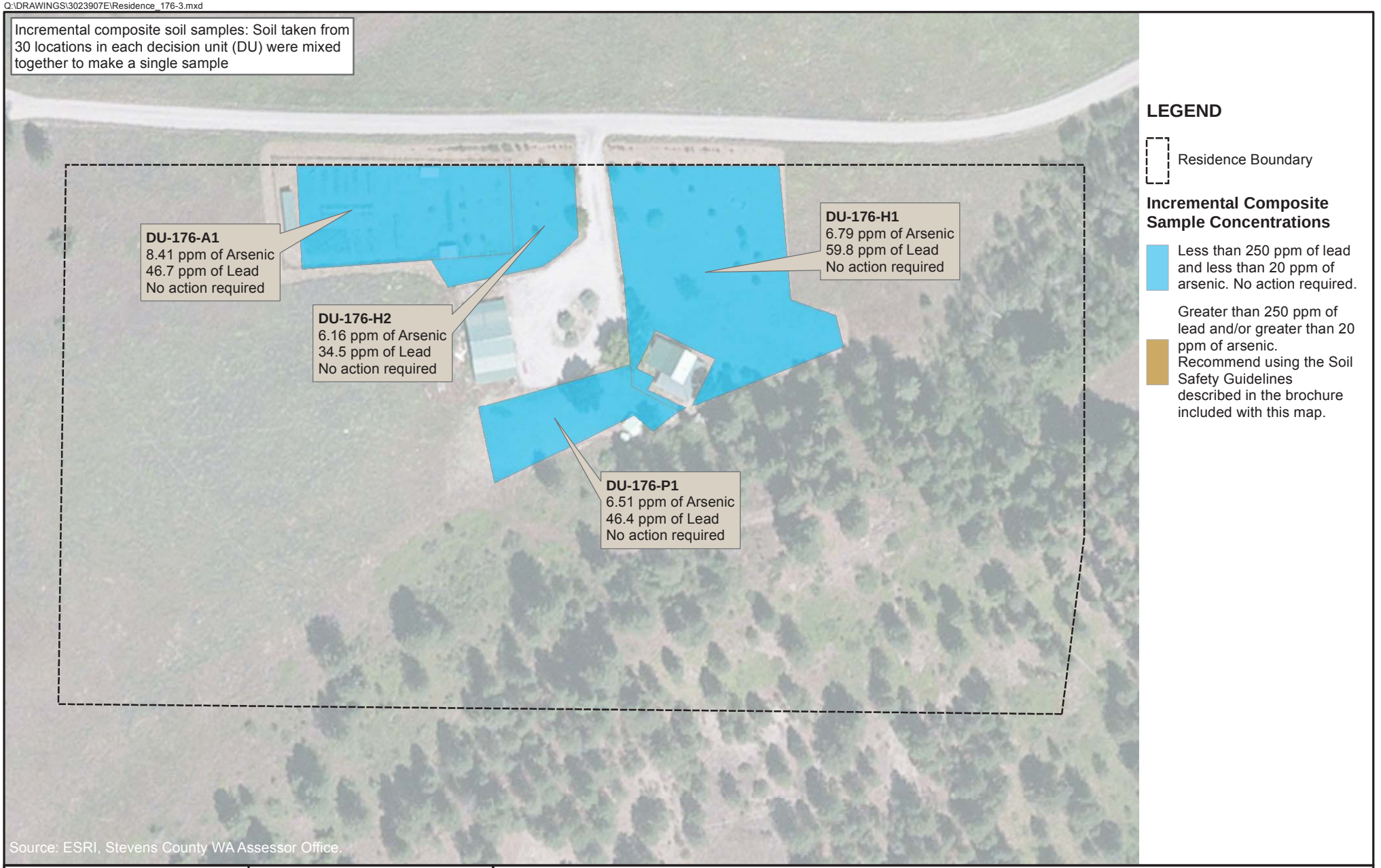
0 15 30 Meters

0 50 100 Feet

N

Map 5-101. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 175
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_176-3.mxd



RAMBOLL ENVIRON

0 15 30 Meters

0 60 120 Feet

N

Map 5-102. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 176
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_178-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

Discrete Soil Sample Locations

RAMBOLL ENVIRON

0 5 10 Meters

0 20 40 Feet

N

Map 5-103. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 178
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_179-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

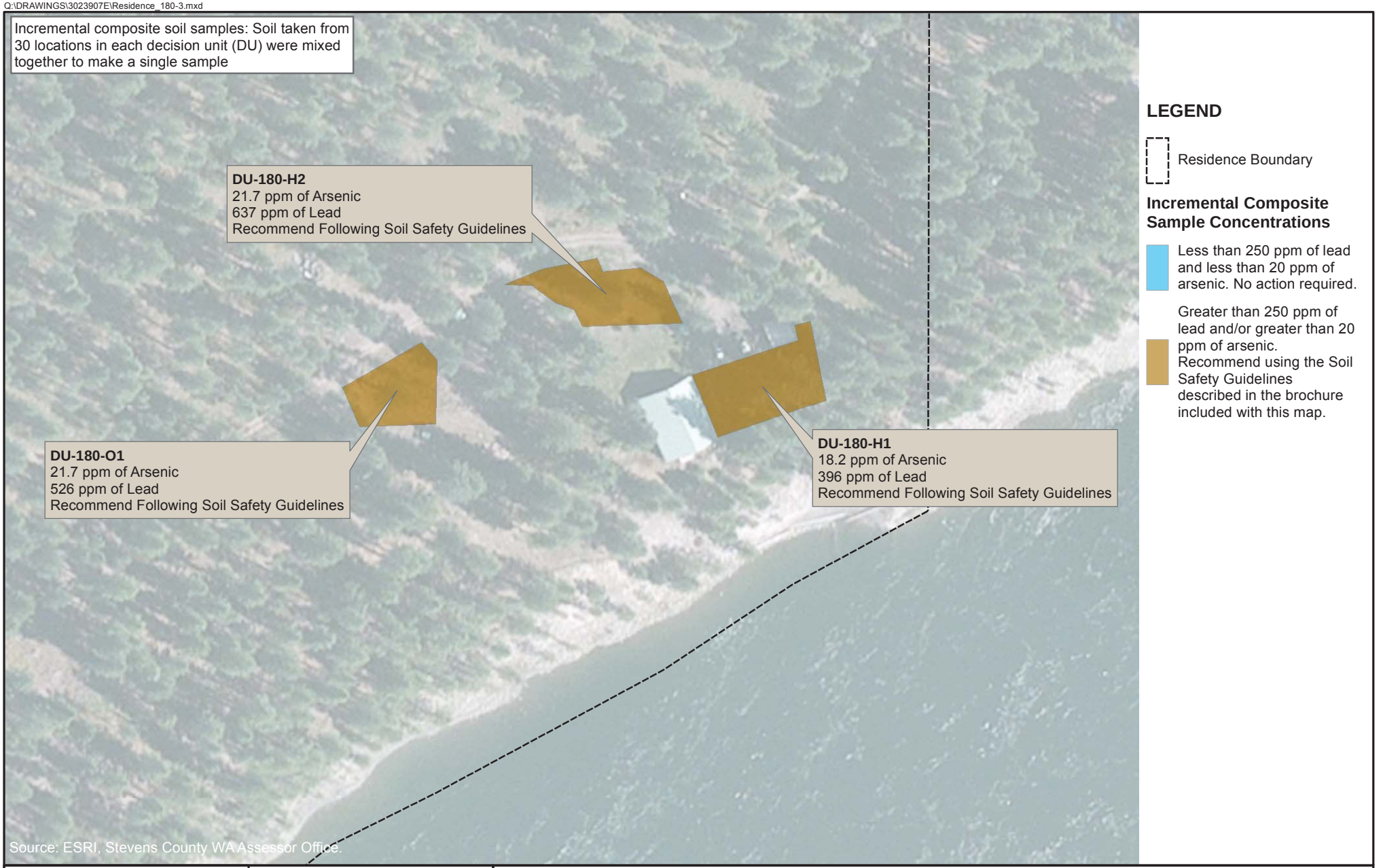
0 5 10 Meters

0 25 50 Feet

N

Map 5-104. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 179
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_180-3.mxd



RAMBOLL ENVIRON

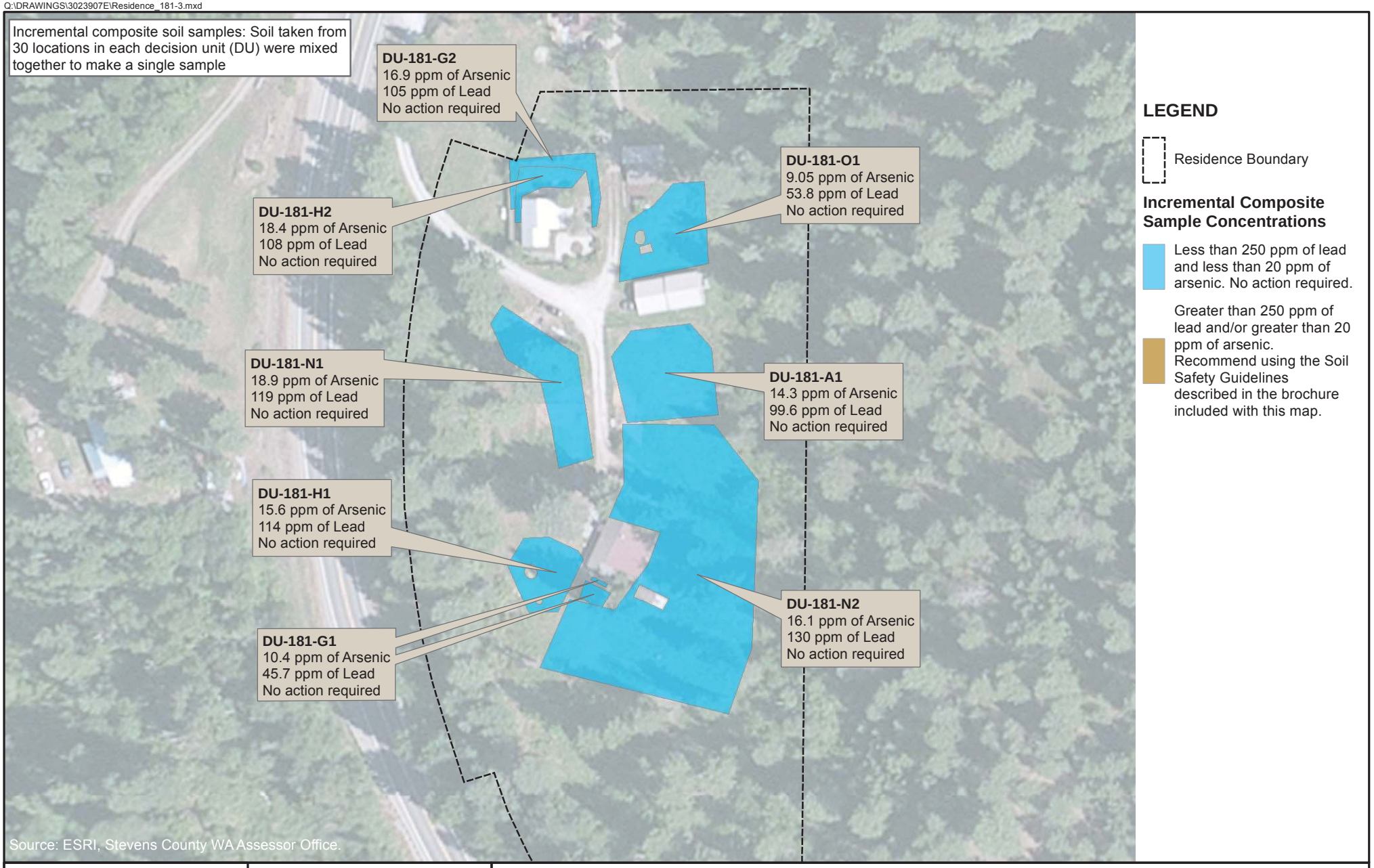
0 15 30 Meters

0 50 100 Feet

N

Map 5-105. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 180
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_181-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

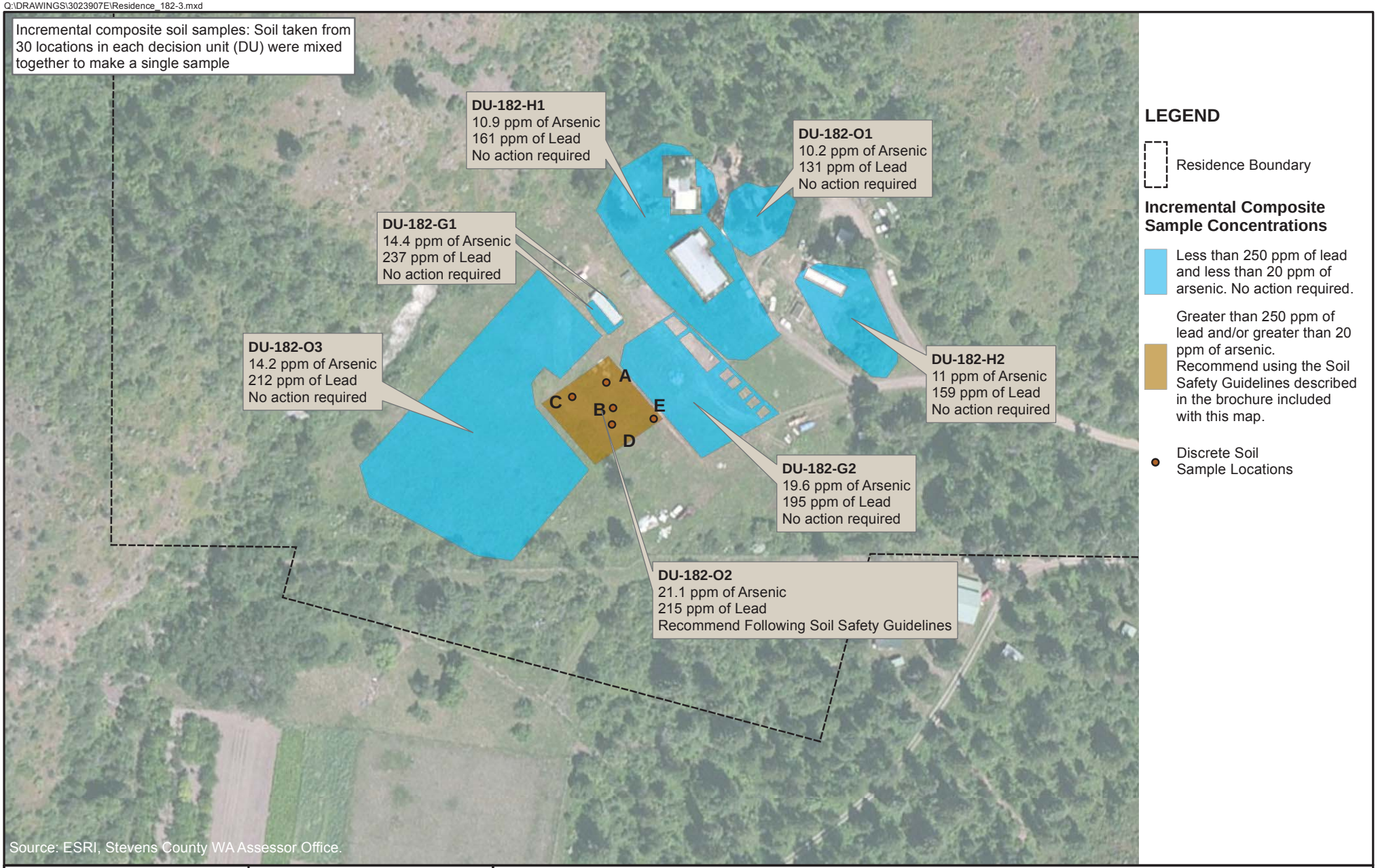
0 15 30 Meters

0 50 100 Feet

N

Map 5-106. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 181
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_182-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

Discrete Soil Sample Locations

RAMBOLL ENVIRON

0 25 50 Meters

0 75 150 Feet

N

Map 5-107. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 182
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_184-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 10 20 Meters

0 40 80 Feet

N

Map 5-108. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 184
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_185-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

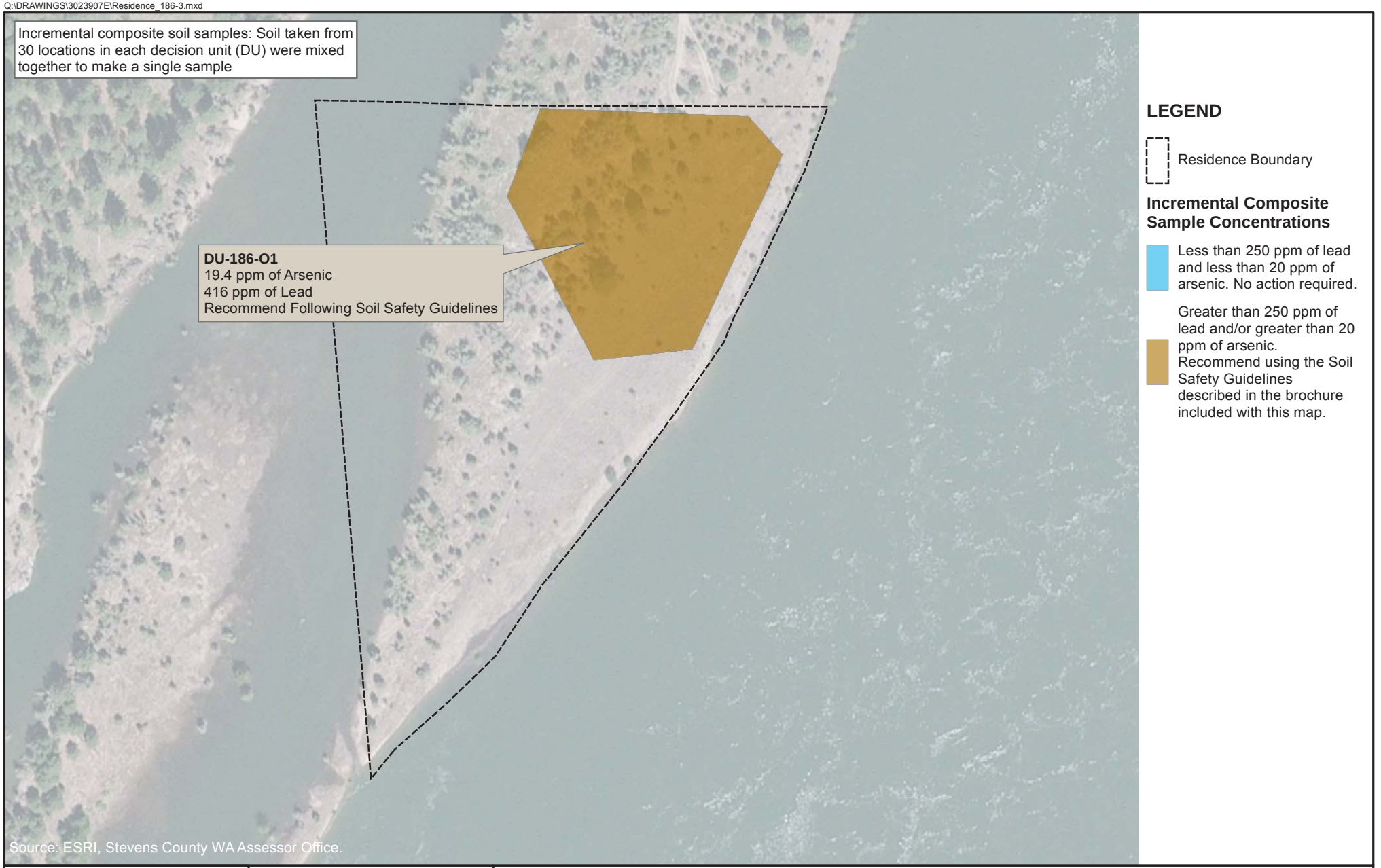
0 5 10 Meters

0 25 50 Feet

N

Map 5-109. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 185
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_186-3.mxd



RAMBOLL ENVIRON

0 25 50 Meters

0 75 150 Feet

N

Map 5-110. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 186
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_187-3.mxd



RAMBOLL ENVIRON

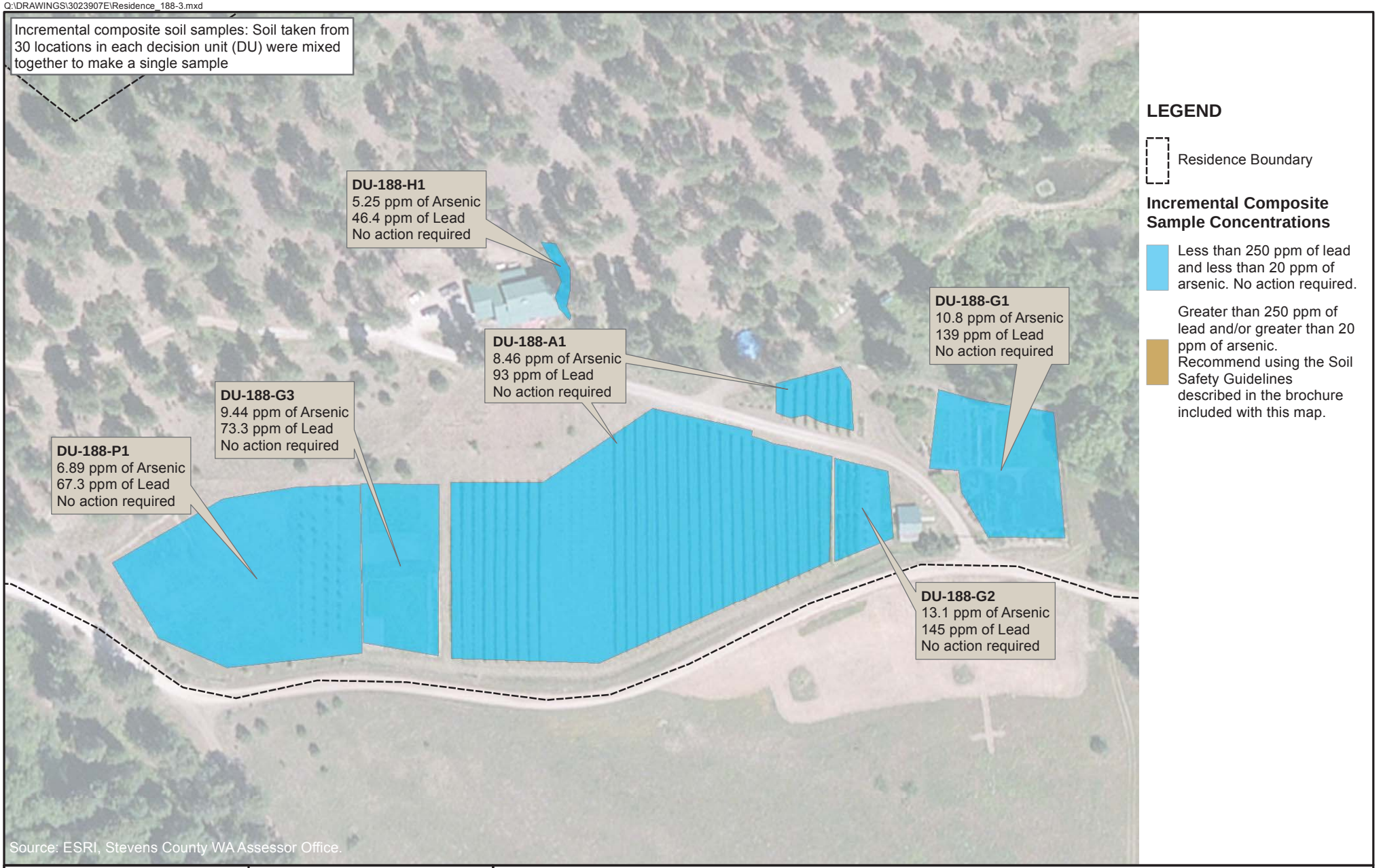
0 10 20 Meters

0 40 80 Feet

N

Map 5-111. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 187
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_188-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

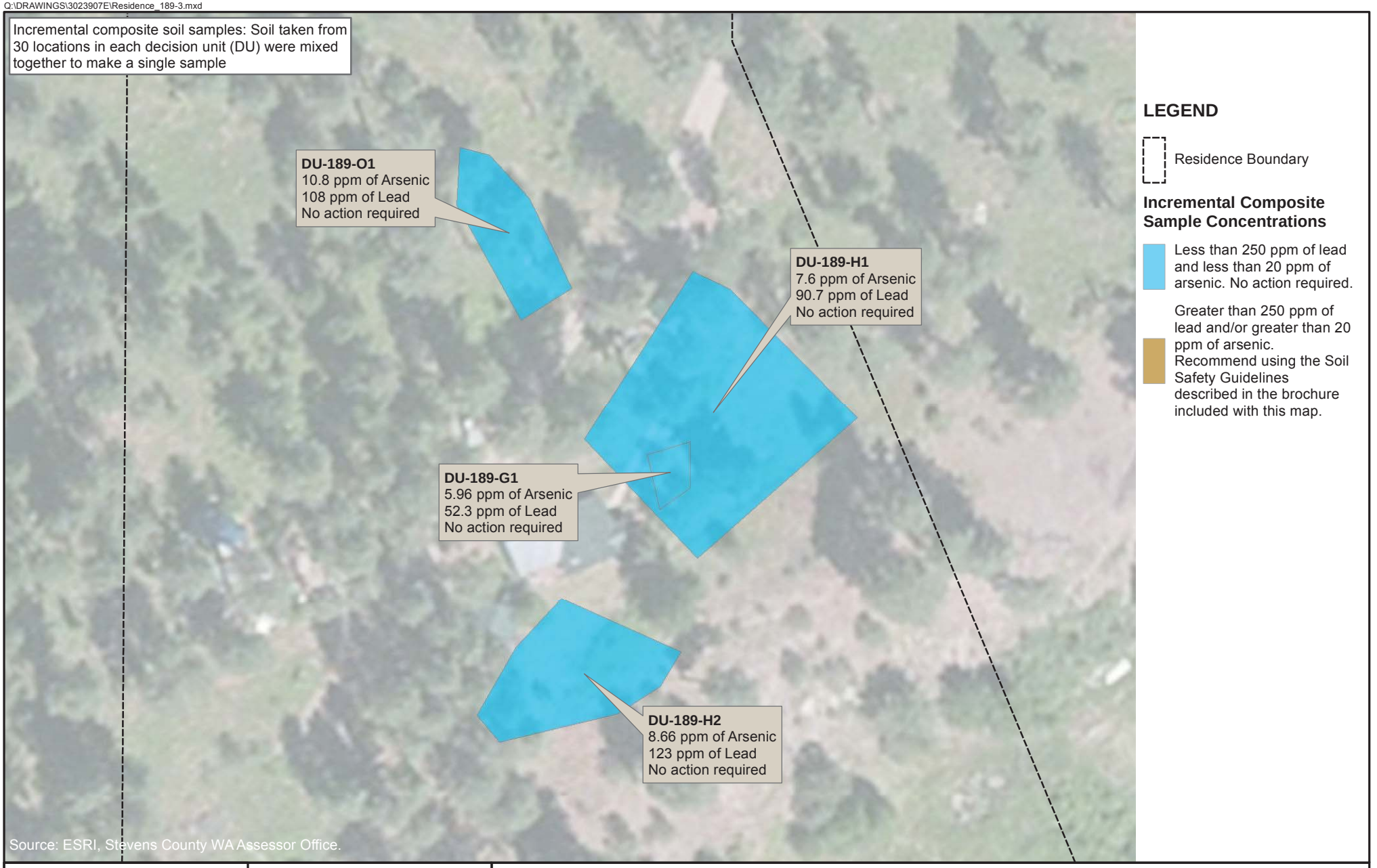
0 20 40 Meters

0 60 120 Feet

N

Map 5-112. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 188
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_189-3.mxd



RAMBOLL ENVIRON

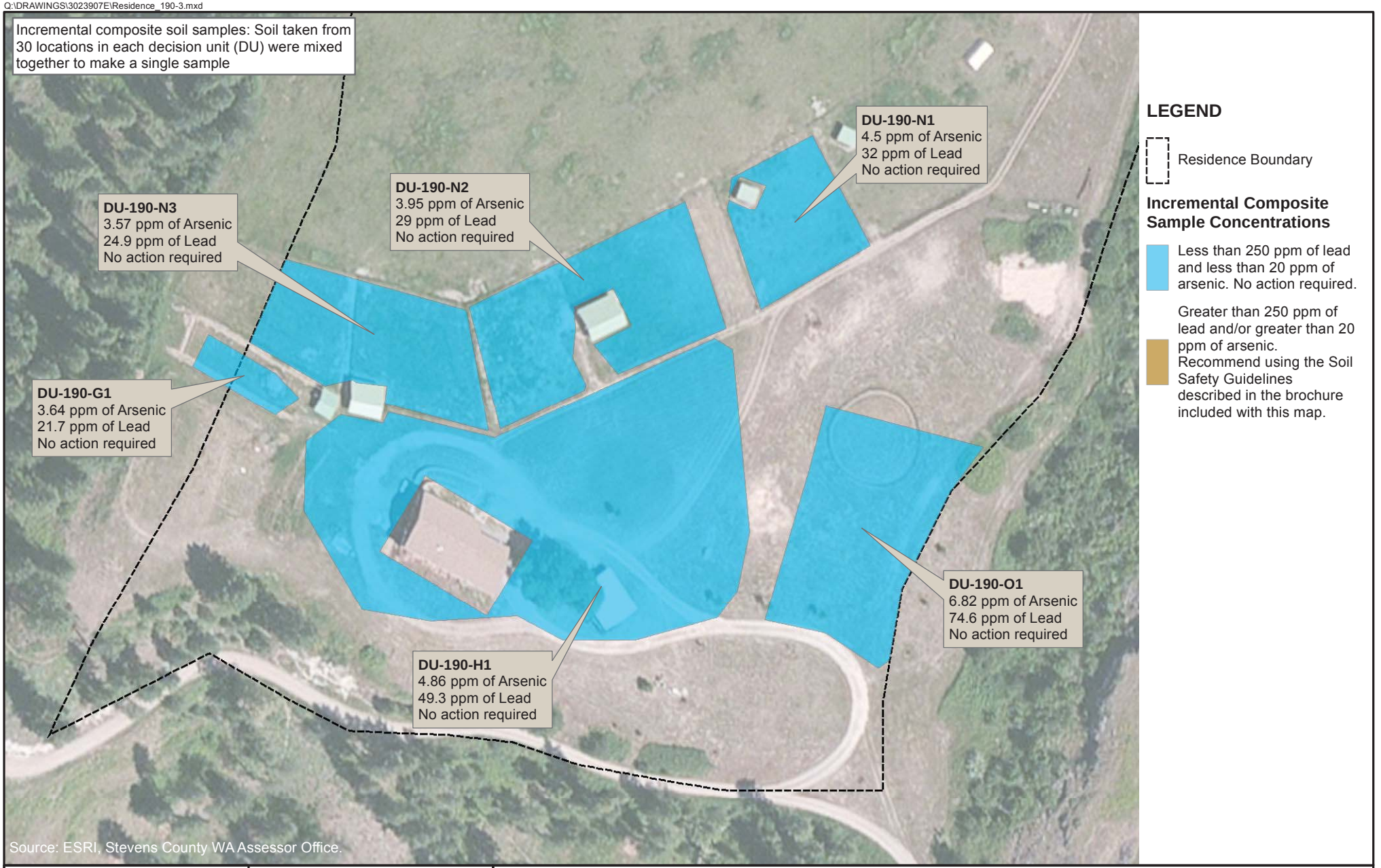
0 5 10 Meters

0 25 50 Feet

N

Map 5-113. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 189
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_190-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

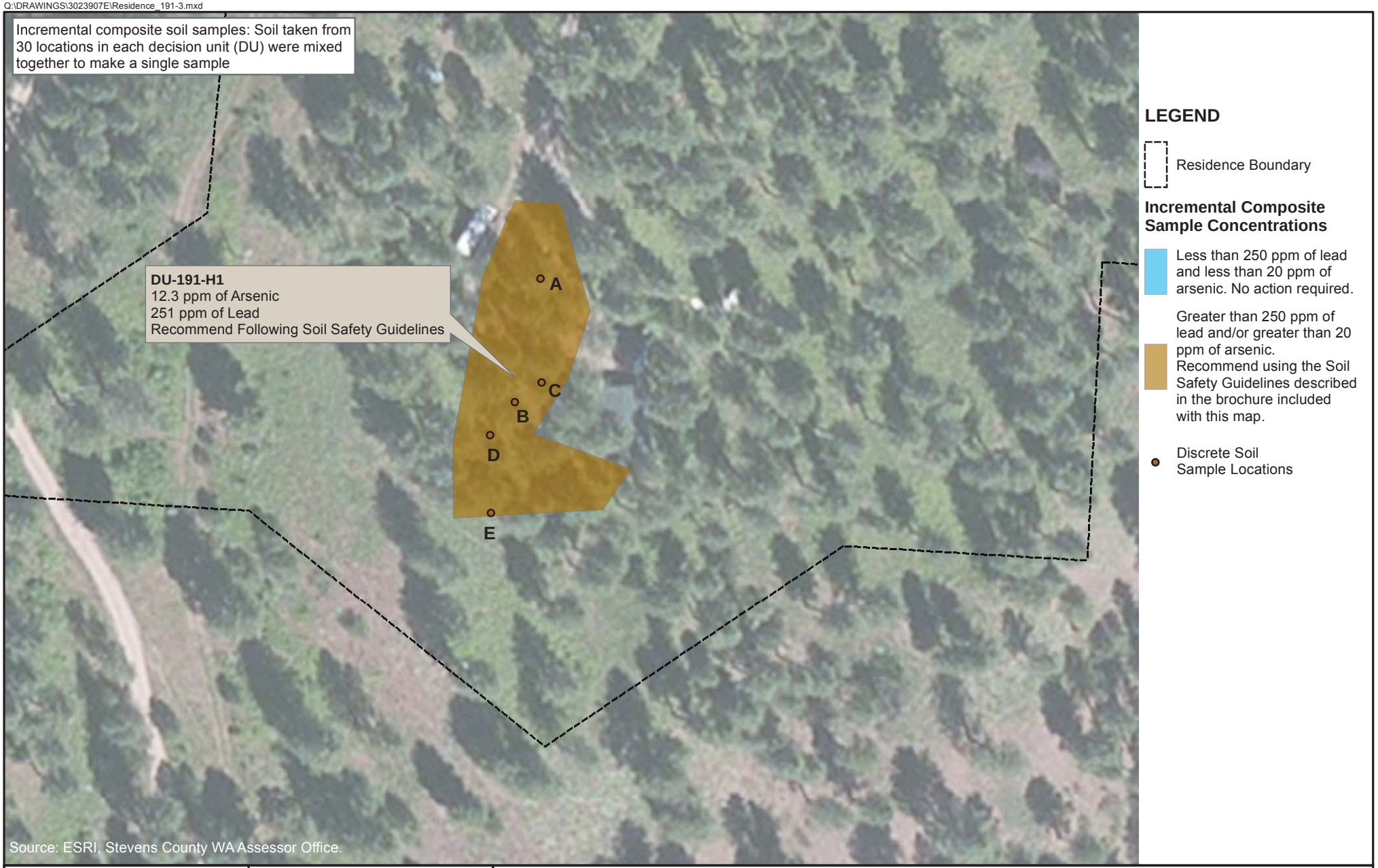
0 15 30 Meters

0 50 100 Feet

N

Map 5-114. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 190
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_191-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

Discrete Soil Sample Locations

RAMBOLL ENVIRON

0 10 20 Meters

0 35 70 Feet

N

Map 5-115. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 191
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_192-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 10 20 Meters

0 30 60 Feet

N

Map 5-116. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 192
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_193-3.mxd



RAMBOLL ENVIRON

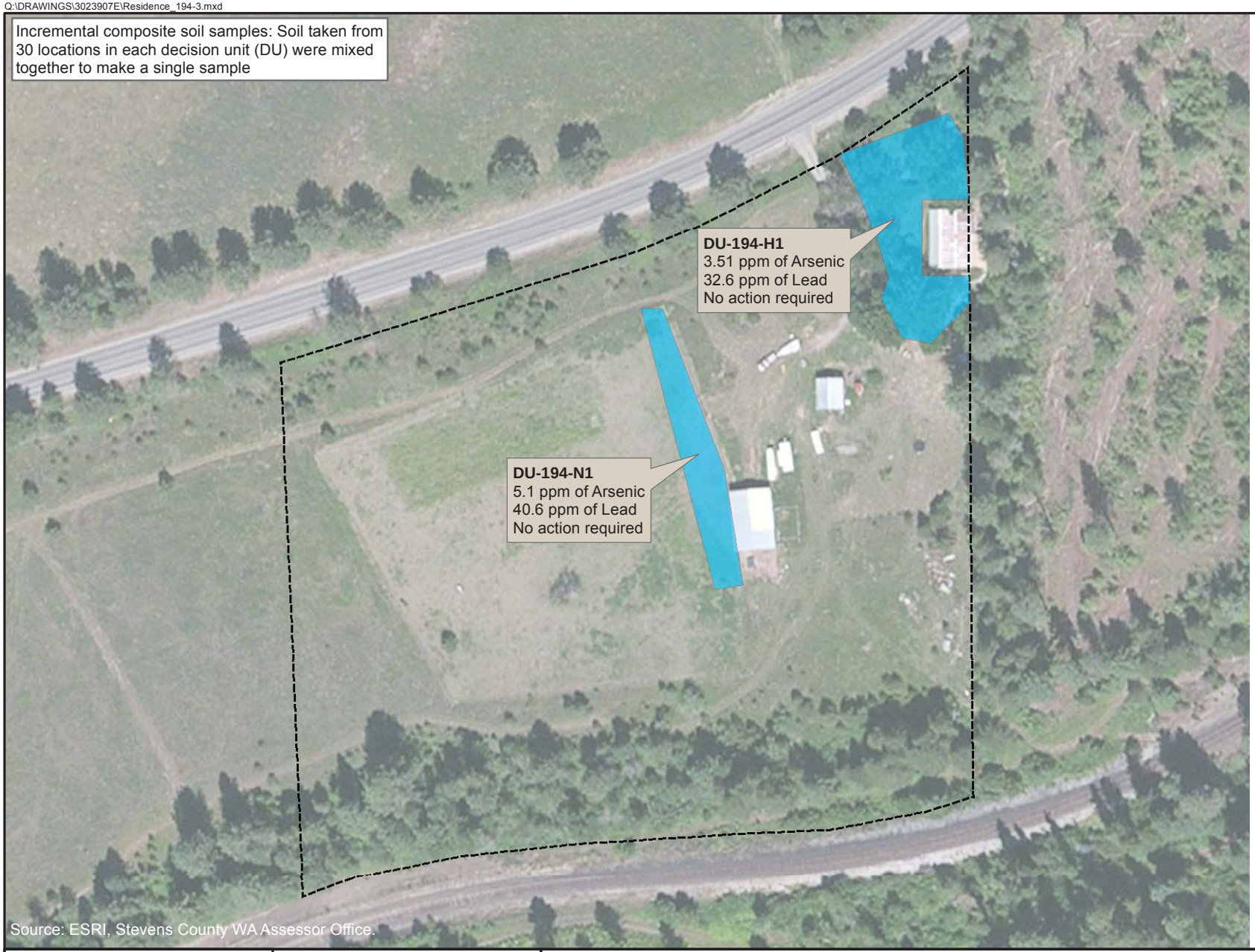
0 15 30 Meters

0 50 100 Feet

N

Map 5-117. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 193
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_194-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 20 40 Meters

0 60 120 Feet

N

Map 5-118. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 194
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_195-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

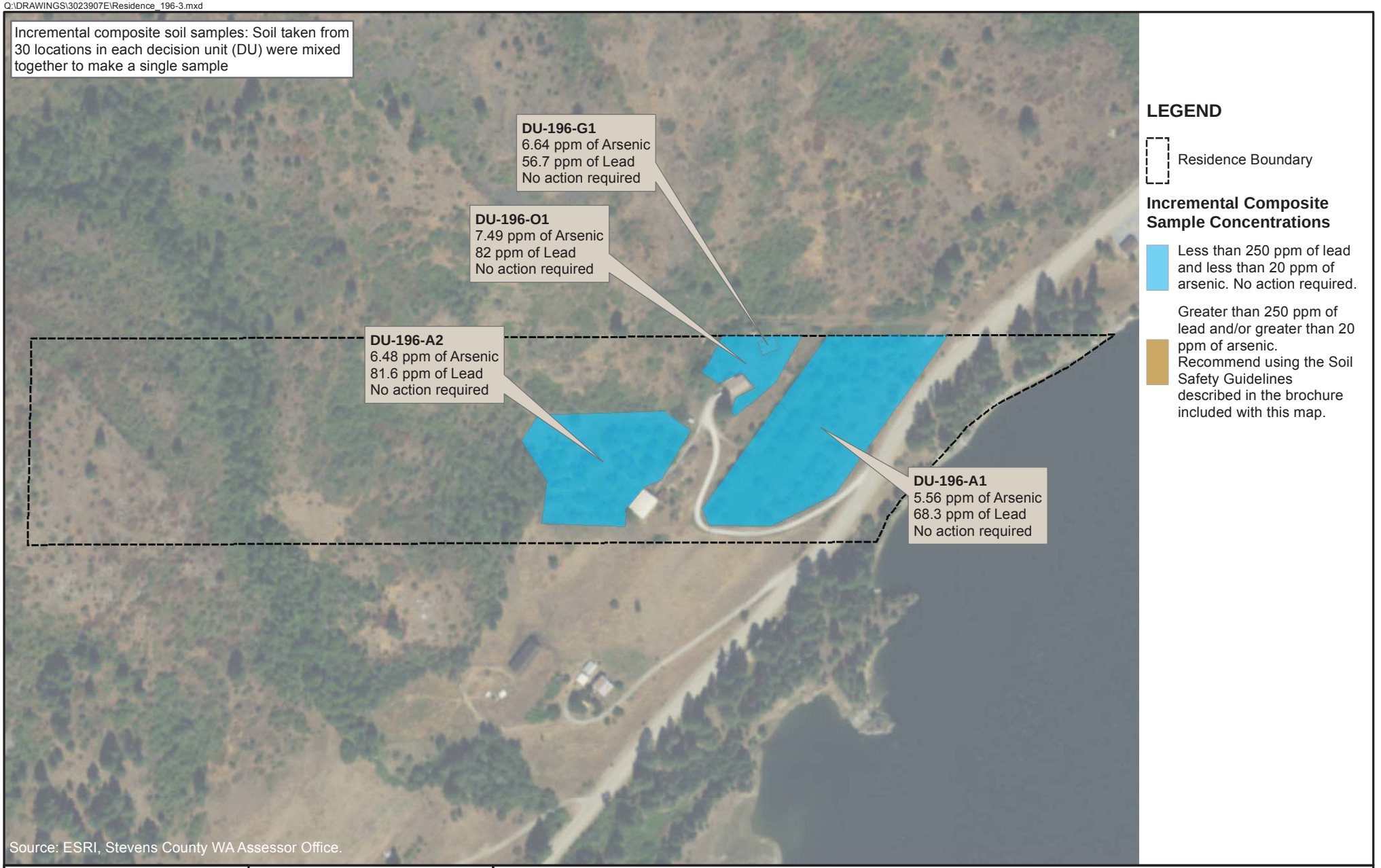
0 15 30 Meters

0 50 100 Feet

N

Map 5-119. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 195
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_196-3.mxd



RAMBOLL ENVIRON

0 50 100 Meters

0 150 300 Feet

N

Map 5-120. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 196
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_197-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 5 10 Meters

0 20 40 Feet

N

Map 5-121. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 197
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_198-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 5 10 Meters

0 30 60 Feet

N

Map 5-122. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 198
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_199-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

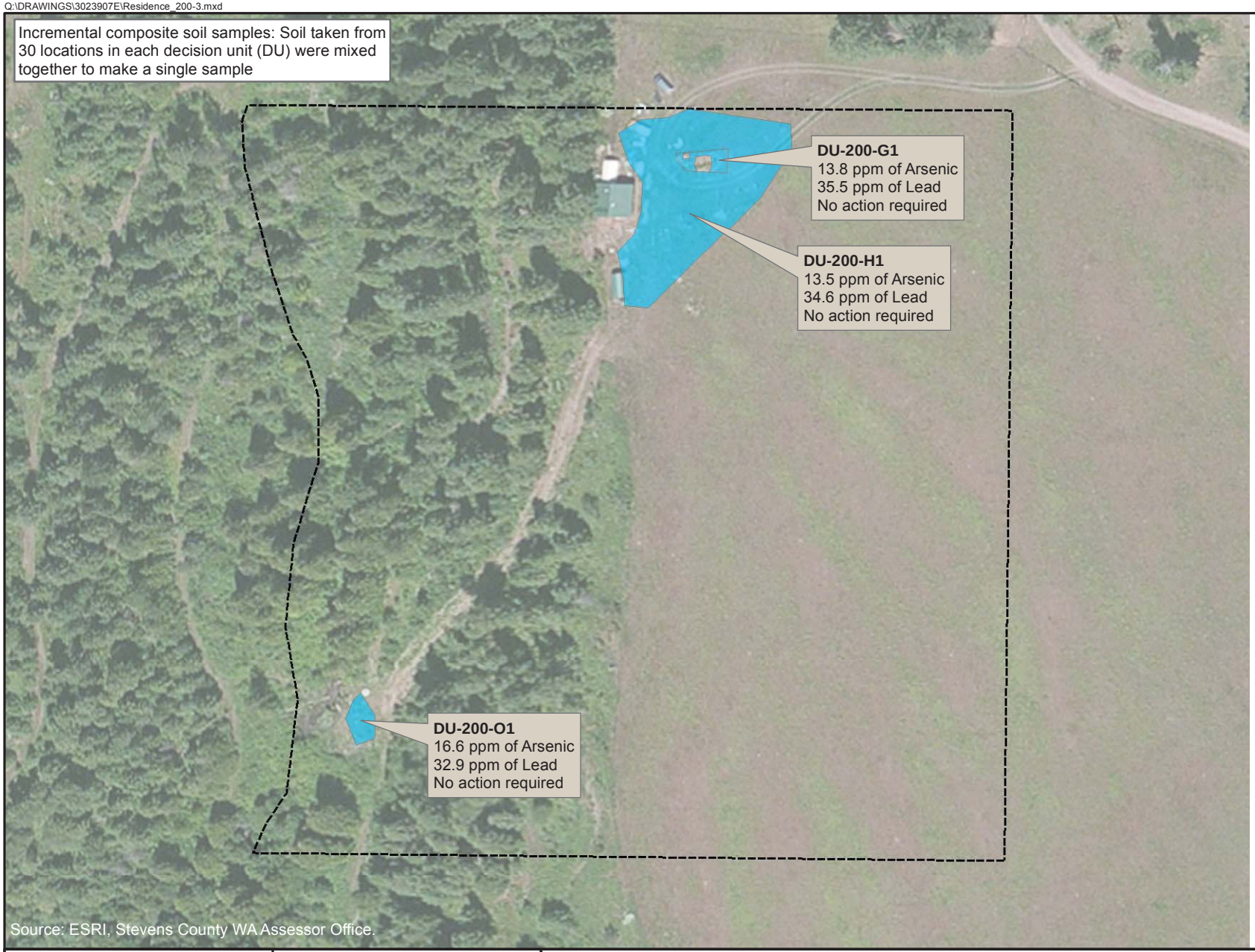
0 5 10 Meters

0 20 40 Feet

N

Map 5-123. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 199
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_200-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

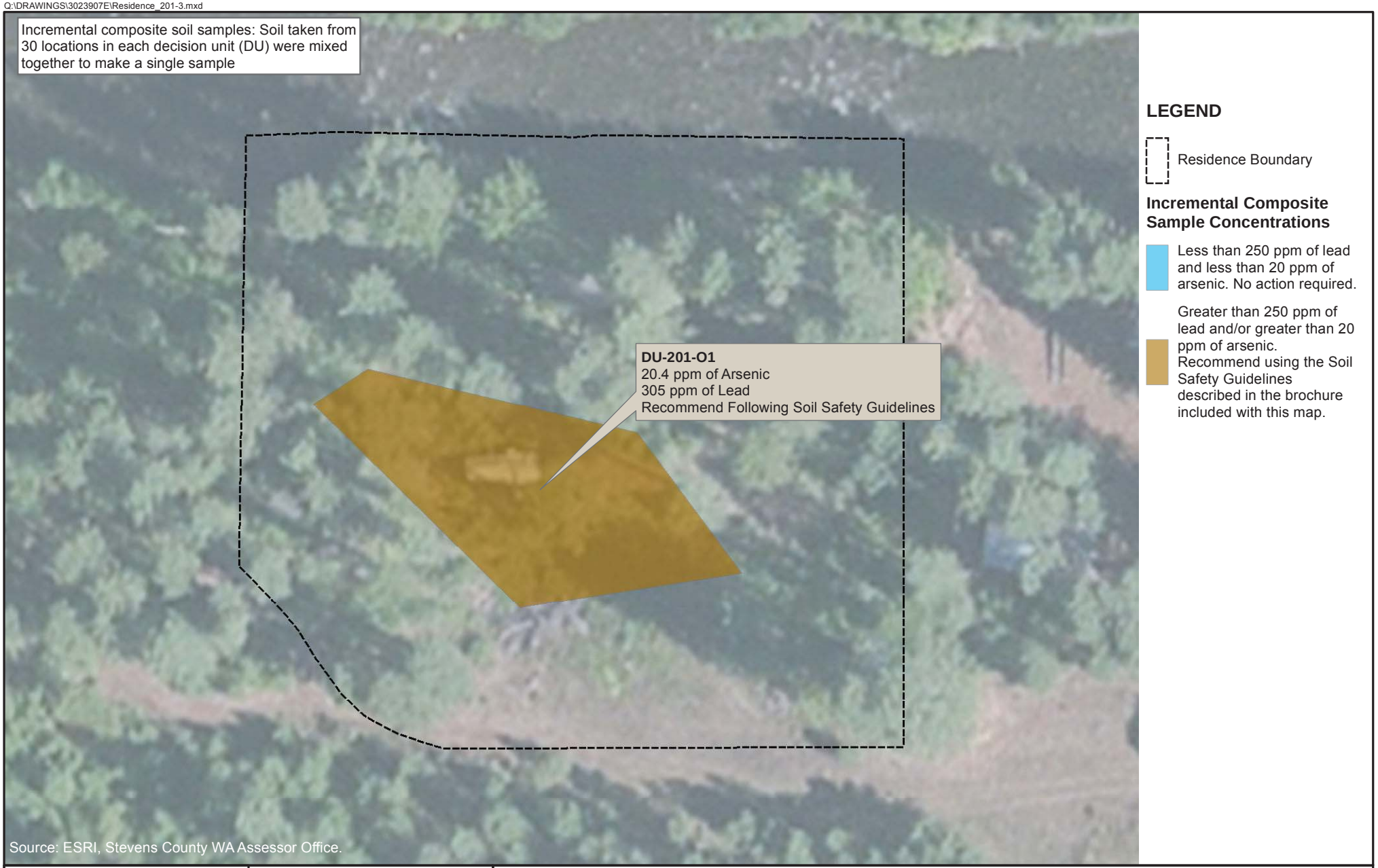
0 20 40 Meters

0 60 120 Feet

N

Map 5-124. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 200
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_201-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

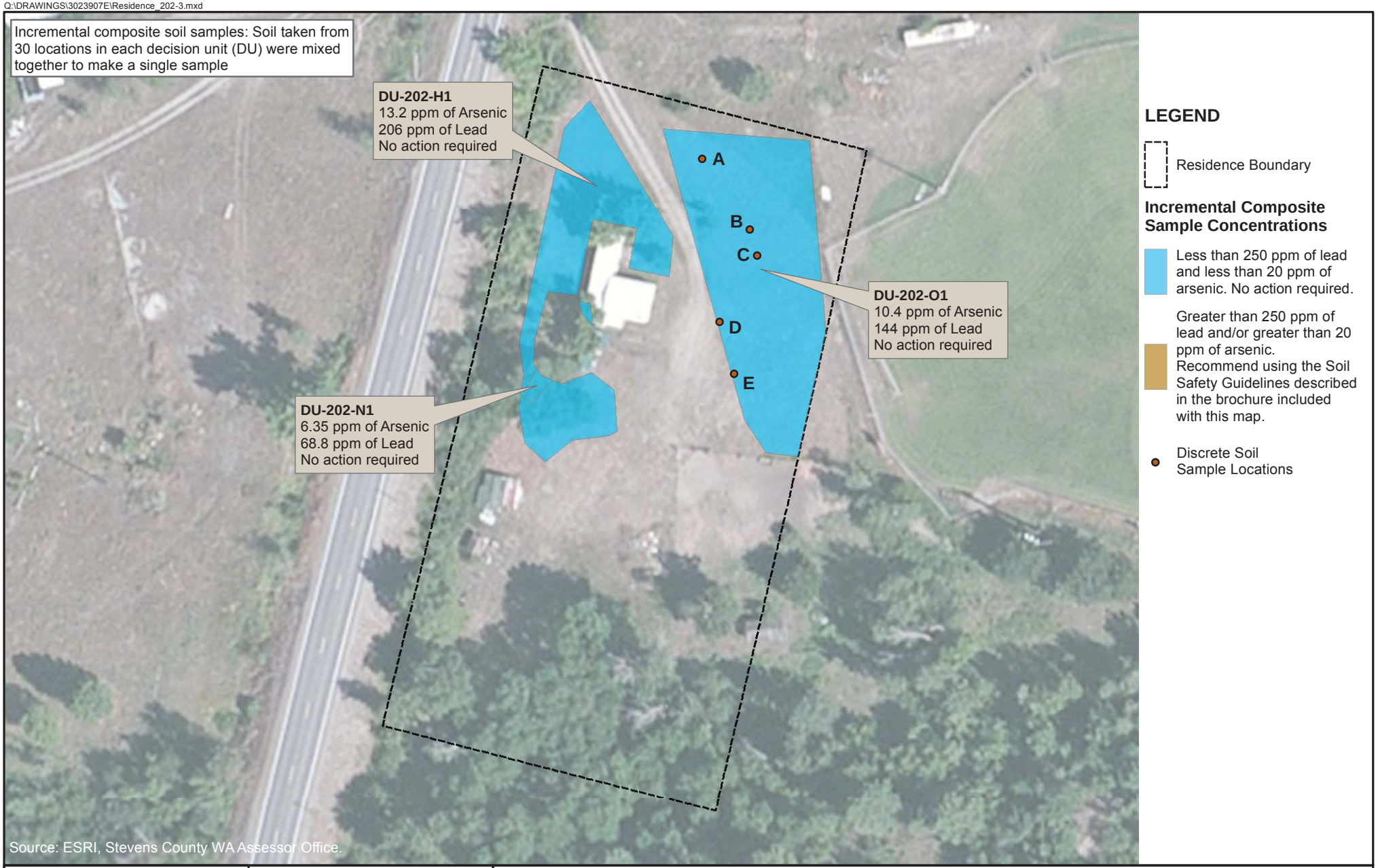
0 5 10 Meters

0 25 50 Feet

N

Map 5-125. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 201
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_202-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

Discrete Soil Sample Locations

RAMBOLL ENVIRON

0 10 20 Meters

0 40 80 Feet

N

Map 5-126. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 202
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_203-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

Discrete Soil Sample Locations

RAMBOLL ENVIRON

0 15 30 Meters

0 50 100 Feet

N

Map 5-127. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 203
Upper Columbia River, WA

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LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

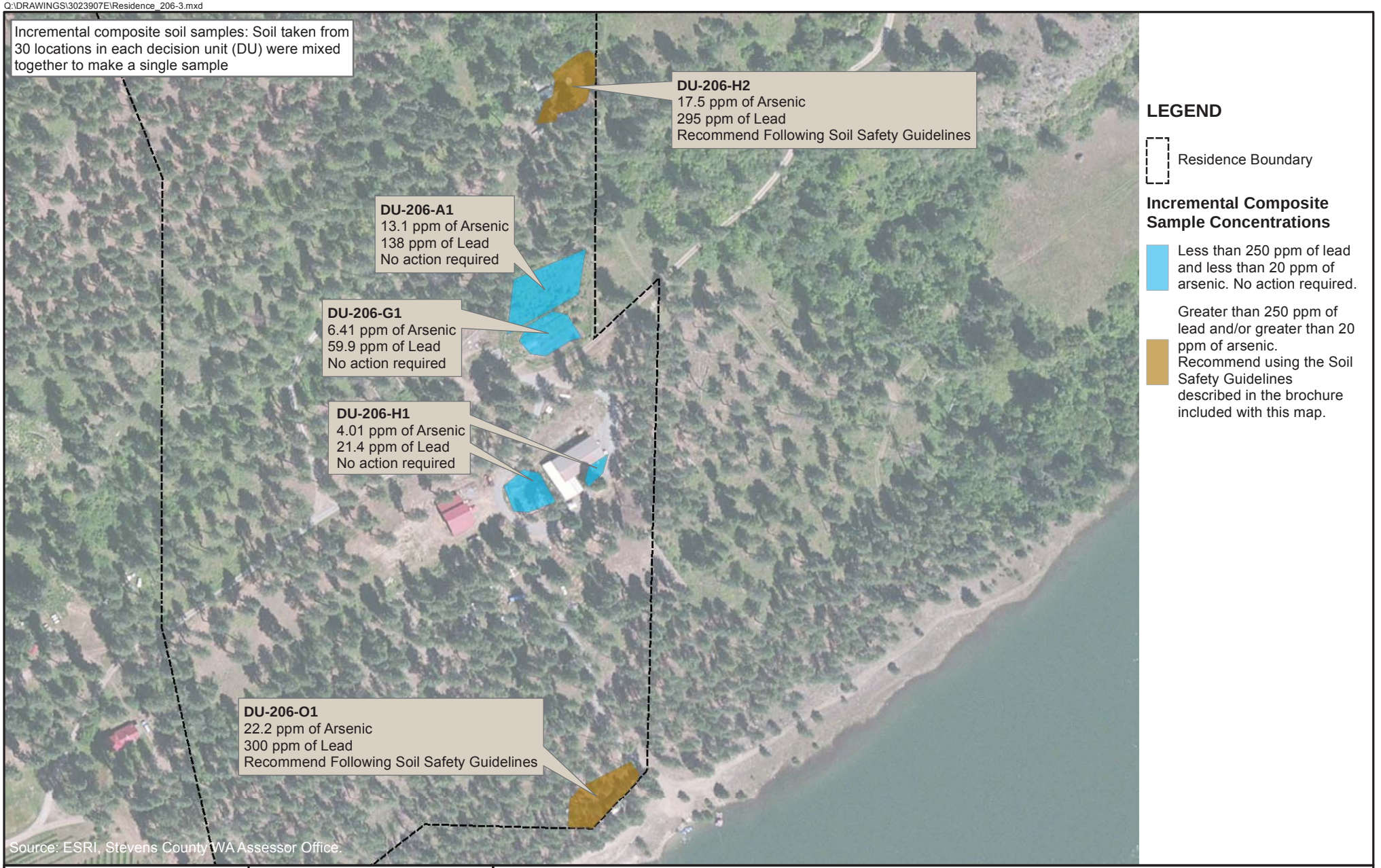
0 30 60 Meters

0 100 200 Feet

N

Map 5-128. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 205
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_206-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

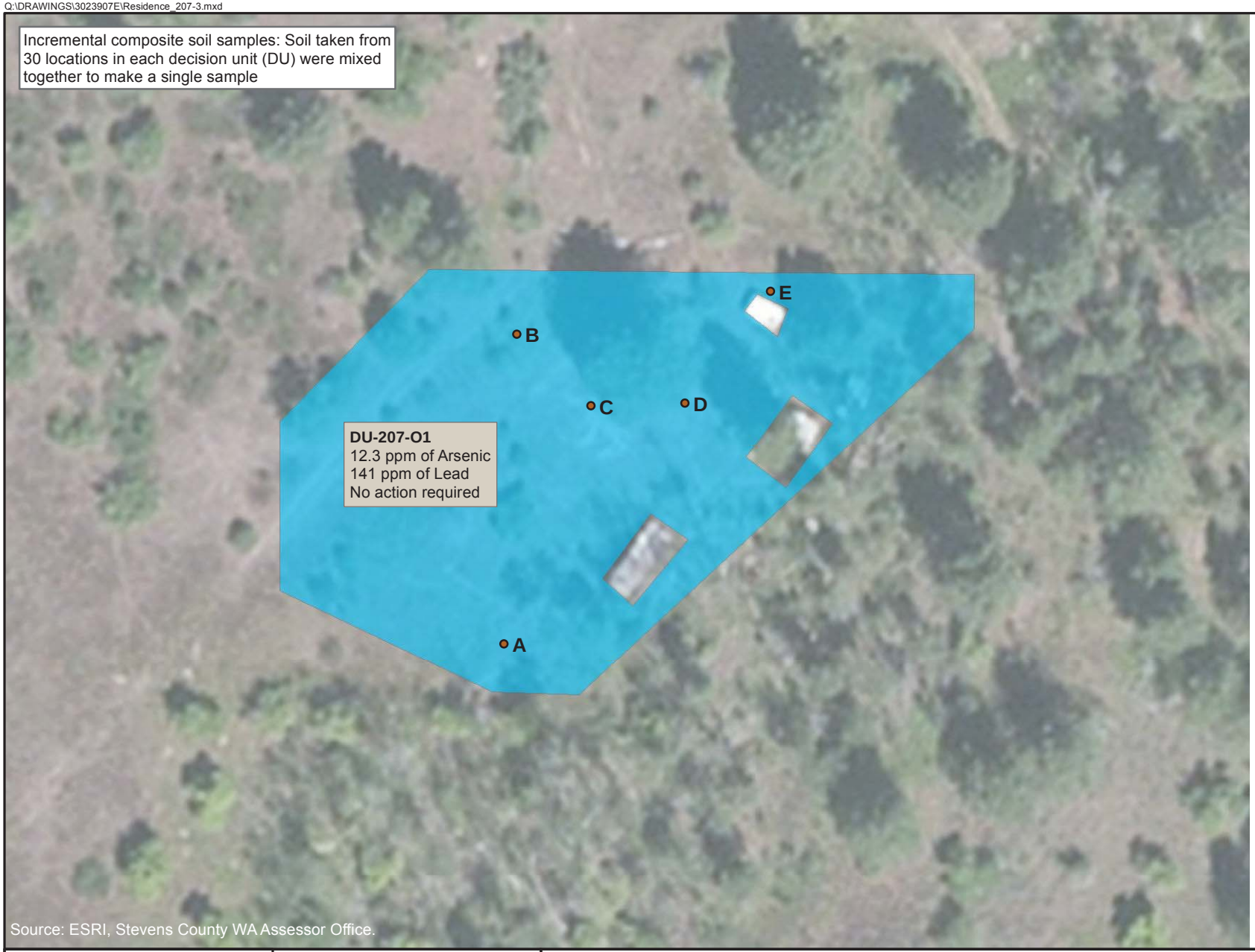
0 25 50 Meters

0 100 200 Feet

N

Map 5-129. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 206
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_207-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

Discrete Soil Sample Locations

RAMBOLL ENVIRON

0 5 10 Meters

0 25 50 Feet

N

Map 5-130. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 207
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_208-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 5 10 Meters

0 20 40 Feet

N

Map 5-131. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 208
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_209-3.mxd



RAMBOLL ENVIRON

0 5 10 Meters

0 25 50 Feet

N

Map 5-132. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 209
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_210-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 5 10 Meters

0 25 50 Feet

N

Map 5-133. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 210
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_211-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 10 20 Meters

0 30 60 Feet

N

Map 5-134. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 211
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_212-3.mxd



RAMBOLL ENVIRON

0 10 20 Meters

0 40 80 Feet

N

Map 5-135. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 212
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_213-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 10 20 Meters

0 30 60 Feet

N

Map 5-136a. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 213
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_213b-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 10 20 Meters

0 30 60 Feet

N

Map 5-136b. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 213
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_801A-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 10 20 Meters

0 35 70 Feet

N

Map 5-137a . 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 801
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_801B-3.mxd



RAMBOLL ENVIRON

0 10 20 Meters

0 35 70 Feet

N

Map 5-137b. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 801
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_802-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 5 10 Meters

0 25 50 Feet

N

Map 5-138. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 802
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_803-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

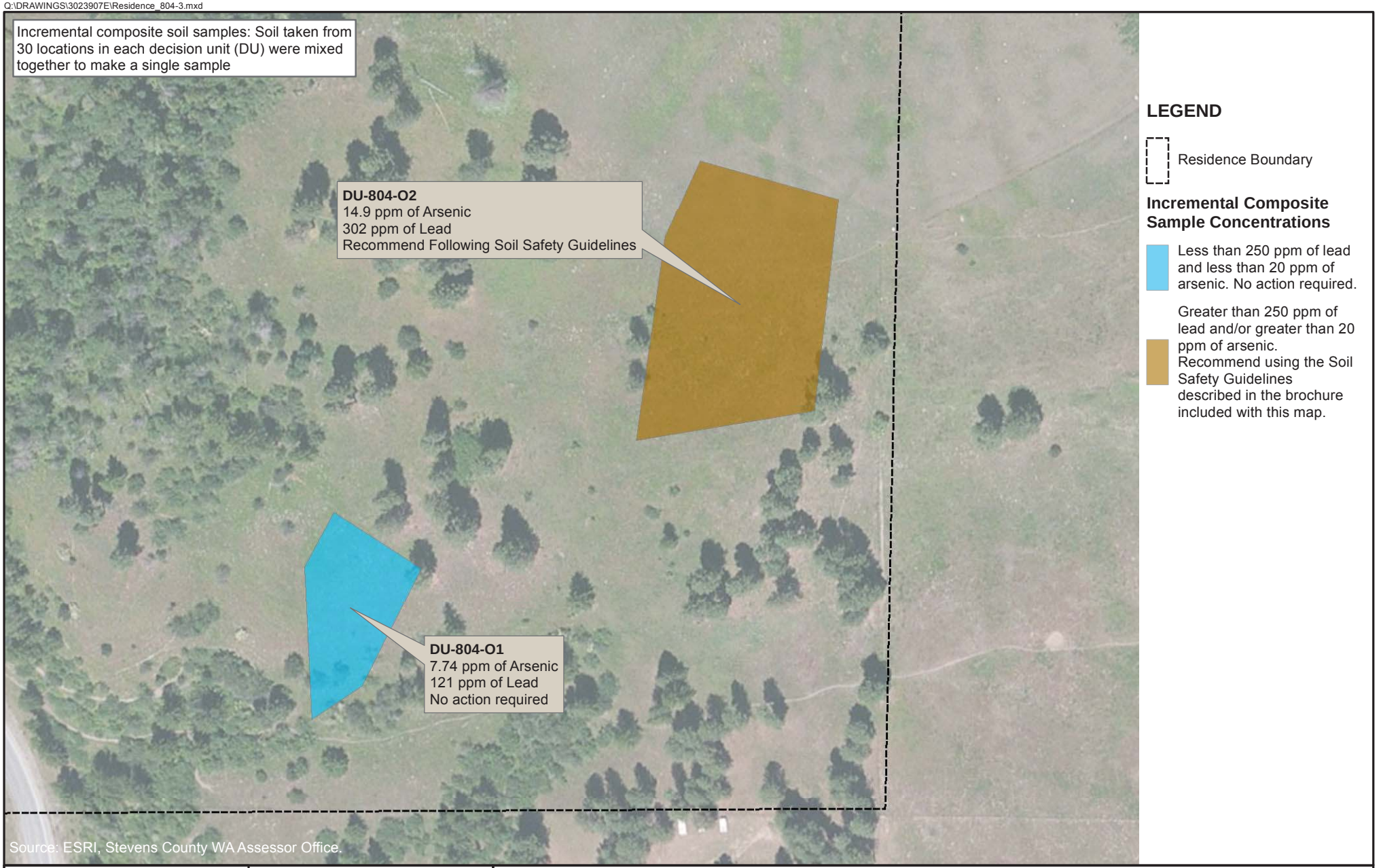
0 25 50 Meters

0 100 200 Feet

N

Map 5-139. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 803
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_804-3.mxd



RAMBOLL ENVIRON

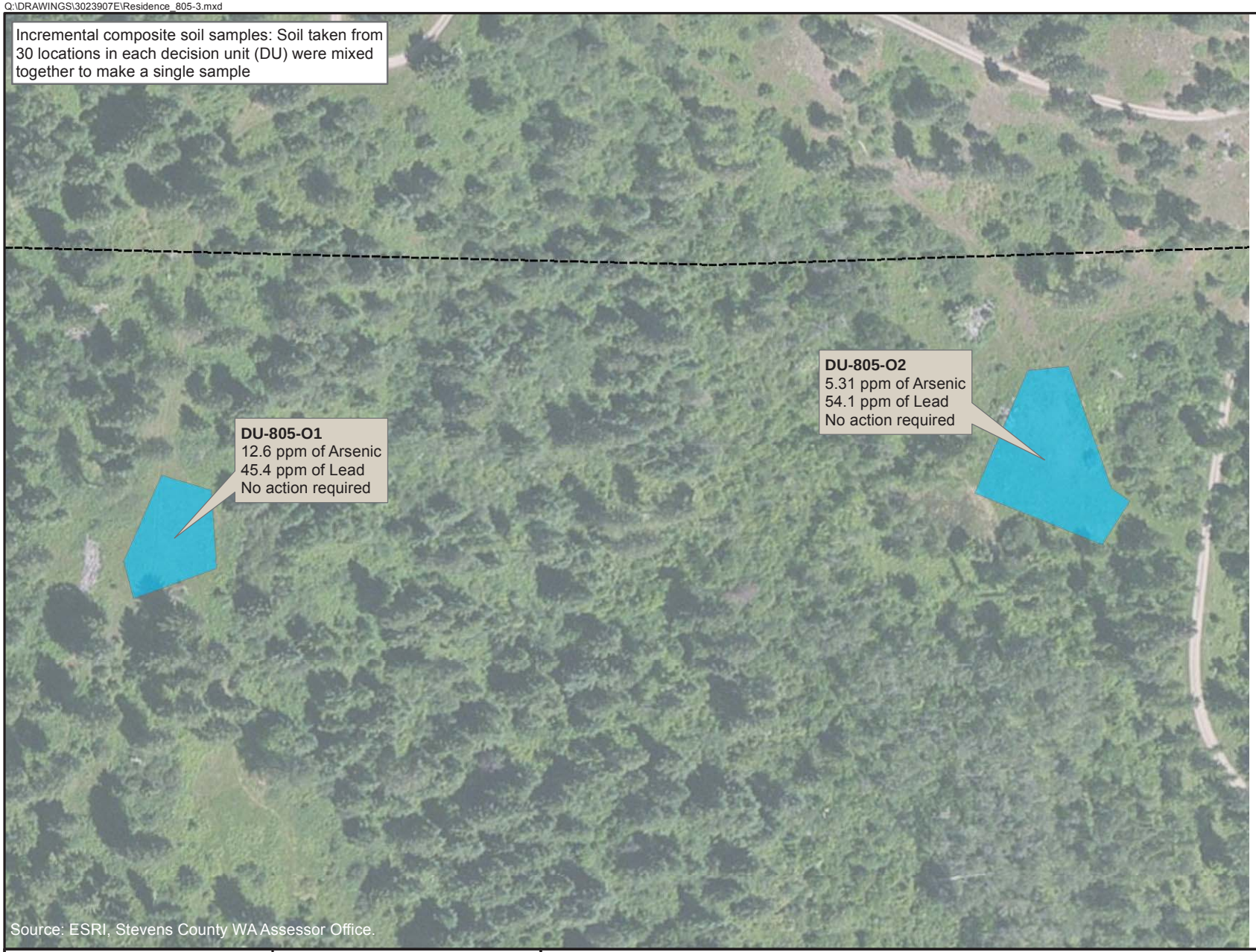
0 25 50 Meters

0 75 150 Feet

N

Map 5-140. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 804
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_805-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 25 50 Meters

0 75 150 Feet

N

Map 5-141. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 805
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_806-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

Discrete Soil Sample Locations

RAMBOLL ENVIRON

0 40 80 Meters

0 125 250 Feet

N

Map 5-142. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 806
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_807-3.mxd



LEGEND

Residence Boundary

Incremental Composite Sample Concentrations

Less than 250 ppm of lead and less than 20 ppm of arsenic. No action required.

Greater than 250 ppm of lead and/or greater than 20 ppm of arsenic. Recommend using the Soil Safety Guidelines described in the brochure included with this map.

RAMBOLL ENVIRON

0 5 10 Meters

0 20 40 Feet

N

Map 5-143. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 807
Upper Columbia River, WA

Q:\DRAWINGS\3023907E\Residence_808-3.mxd



RAMBOLL ENVIRON

0 25 50 Meters

0 100 200 Feet

N

Map 5-144. 2016 Residential Soil Study
Lead and Arsenic Concentrations
Residence 808
Upper Columbia River, WA

TABLES

Table 2-1. Planned and Sampled Residential Decision Units

DU	Sampled?	Collection Date[a]	Planned Increments Sampled[b]	Actual Increments Sampled[b]	Discrete Samples Collected[c]	IC Sample Submitted for IVBA Analysis?	QC Samples Collected[d]	Comments[e]	X Coordinate[f]	Y Coordinate[f]
075-A1	Yes	8/3/2016	30	30	0	No	EPA Split (IC)		440336.83	5417576.93
075-B1	Yes	9/9/2016	30	30	0	No			440688.17	5417608.13
075-H1	Yes	8/3/2016	90	90	0	Yes	EPA Split (IC)		440358.77	5417530.80
075-O1	Yes	8/2/2016	30	30	0	No			440621.42	5417548.11
076-D1	Yes	8/5/2016	30	30	0	No			439908.19	5418902.84
076-G1	Yes	8/5/2016	30	30	0	No			439868.64	5418939.26
076-G2	Yes	8/5/2016	30	30	0	No	EPA Split (IC)		439934.48	5418887.33
076-H1	Yes	8/5/2016	30	30	0	No			439890.49	5418941.44
076-H2	Yes	8/5/2016	90	90	0	No			439940.84	5418919.79
076-N1	Yes	8/5/2016	30	30	0	No			439865.12	5418921.14
077-A1	Yes	8/3/2016	90	30	0	No			441414.27	5414809.62
077-A2	Yes	8/3/2016	30	30	0	No	EPA Split (IC)		441294.06	5414843.88
077-D1	Yes	8/3/2016	30	30	0	No			441348.40	5414740.41
077-G1	Yes	8/2/2016	30	30	0	No			441390.90	5414732.57
077-H1	Yes	8/2/2016	30	90	0	No			441271.70	5414796.47
077-H2	Yes	8/3/2016	30	30	0	No			441384.27	5414781.51
077-N1	Yes	8/2/2016	30	30	0	No			441318.91	5414709.57
078-G1	Yes	8/4/2016	30	30	0	No			441458.66	5414929.36
078-H1	Yes	8/4/2016	90	90	12	No	EPA Split (D1E, D6B, D6E)		441470.44	5414932.13
078-N1	Yes	8/4/2016	30	30	0	No			441530.23	5414899.94
078-O1	Yes	8/4/2016	30	30	0	No			441456.85	5414903.33
079-H1	Yes	8/6/2016	30	30	0	No			441923.07	5414918.23
079-H2	Yes	8/6/2016	90	90	0	No			441966.99	5414428.62
080-H1	Yes	8/5/2016	30	90	0	No	EPA Split (IC)		426772.40	5408543.70
080-O1	No	ns	ns	ns	ns	No		DU not sampled due to imported gravel surface	ns	ns
081-A1	Yes	8/5/2016	30	30	0	No			426294.13	5407261.50
081-D1	Yes	8/5/2016	30	30	0	No			426318.43	5407323.31
081-H1	Yes	8/5/2016	90	90	0	No	EPA Split (IC)		426328.48	5407321.53
081-O1	Yes	8/5/2016	30	30	0	No	EPA Split (IC)		426335.70	5407343.68
082-G1	Yes	8/3/2016	30	30	0	No			430878.30	5407913.84
082-G2	Yes	8/3/2016	30	30	0	No			430784.89	5407858.60
082-H1	Yes	8/3/2016	30	90	12	No	EPA Split (D1B, D6D)		430856.77	5407881.51
082-N1	Yes	8/4/2016	30	30	0	No			430788.47	5407824.90
082-N2	Yes	8/4/2016	30	30	0	No	EPA Split (IC)		430794.02	5407899.03
082-O1	No	ns	ns	ns	ns	No		DU not sampled at owner's request	ns	ns
083-G1	Yes	8/4/2016	30	30	0	No			431031.44	5408638.15
083-G2	Yes	8/4/2016	30	30	0	No			431010.32	5408647.80
083-H1	Yes	8/4/2016	90	90	0	No	EPA Split (IC)		431031.70	5408678.77
084-D1	Yes	8/5/2016	30	30	0	No			432362.54	5407617.66
084-H1	Yes	8/5/2016	90	90	0	No	EPA Split (IC)		432356.68	5407625.02
085-D1	Yes	8/5/2016	30	30	0	No	EPA Split (IC)		432540.76	5407546.60
085-H1	Yes	8/5/2016	90	90	0	No	EPA Split (IC)		432544.52	5407545.32
085-H2	No	ns	ns	ns	ns	No		DU not sampled due to debris	ns	ns
085-O1	Yes	8/5/2016	30	30	0	No			432575.08	5407532.74
085-P1	Yes	8/5/2016	30	30	0	Yes			432169.03	5407542.53
086-G1	Yes	8/4/2016	90	90	0	No			432456.47	5408795.35
086-H1	Yes	8/4/2016	30	30	0	No			432408.13	5408831.05
086-H2	Yes	8/4/2016	30	30	0	No			432470.19	5408825.85
087-H1	Yes	8/5/2016	90	90	0	No	EPA Split (IC)		432417.58	5408687.14
087-O1	Yes	8/6/2016	30	30	0	No		New DU added to planned residence	432458.62	5408692.45
088-D1	Yes	8/7/2016	30	30	0	No			432868.59	5409765.88
088-H1	Yes	8/7/2016	30	30	0	No			432867.57	5409762.88
088-H2	Yes	8/7/2016	90	90	0	No			432903.27	5409777.93
088-O1	Yes	8/7/2016	30	30	0	No	EPA Split (IC)		432873.89	5409735.98
089-A1	Yes	8/4/2016	30	30	0	No			429773.03	5408488.13
089-H1	Yes	8/4/2016	30	30	0	No			429794.72	5408493.09
089-O1	Yes	8/4/2016	90	90	0	No			429805.12	5408544.04
090-H1	Yes	8/5/2016	90	90	0	No			430162.47	5411499.58

Table 2-1. Planned and Sampled Residential Decision Units

DU	Sampled?	Collection Date[a]	Planned Increments Sampled[b]	Actual Increments Sampled[b]	Discrete Samples Collected[c]	IC Sample Submitted for IVBA Analysis?	QC Samples Collected[d]	Comments[e]	X Coordinate[f]	Y Coordinate[f]
090-O1	No	ns	ns	ns	ns	No		DU not sampled, originally mapped as exclusion area	ns	ns
090-O2	Yes	8/23/2016	30	30	0	No	EPA Split (IC)	New DU added to planned residence	430232.56	5411565.30
091-G1	Yes	8/8/2016	30	30	0	No			431142.30	5409733.19
091-H1	Yes	8/8/2016	90	90	0	No			431130.06	5409697.28
092-O1	Yes	8/9/2016	90	90	0	No			430730.37	5410108.23
092-O2	Yes	8/9/2016	30	30	0	No			430745.77	5410154.89
093-H1	Yes	8/6/2016	90	90	0	No			433722.59	5411320.69
094-H1	Yes	8/7/2016	90	90	0	No			433819.37	5411279.94
094-P1	Yes	8/7/2016	30	30	0	Yes			433785.73	5411273.82
095-A1	Yes	8/8/2016	30	30	0	No			435956.13	5413013.03
095-H1	Yes	8/8/2016	30	30	0	No			435886.97	5413141.42
095-O1	Yes	8/8/2016	90	90	0	Yes	EPA Split (IC)		435931.11	5413181.64
095-O2	Yes	8/8/2016	30	30	0	No			435963.63	5413215.71
096-H1	Yes	8/3/2016	30	30	0	No	EPA Split (IC)		435909.61	5413323.11
096-O1	Yes	8/3/2016	90	90	0	Yes	EPA Split (IC)		435911.50	5413394.93
097-H1	Yes	8/3/2016	30	30	0	No			436527.54	5413450.50
097-H2	Yes	8/3/2016	90	90	0	No	EPA Split (IC)		436572.52	5413485.52
098-B1	Yes	8/18/2016	30	30	0	No		New DU added to planned residence	438676.08	5414693.91
098-G1	Yes	8/7/2016	90	90	0	No	EPA Split (IC)		438773.91	5414659.46
098-H1	Yes	8/7/2016	30	30	0	No			438735.62	5414660.16
098-O1	Yes	8/7/2016	30	30	0	No			438696.57	5414646.45
099-A1	Yes	8/6/2016	30	30	0	No			430791.17	5408900.25
099-G1	No	ns	ns	ns	ns	No		DU area included in 099-H1	ns	ns
099-G2	Yes	8/6/2016	30	30	0	No			430693.49	5408776.56
099-H1	Yes	8/6/2016	90	90	0	No			430710.61	5408780.45
099-O1	Yes	8/6/2016	30	30	0	Yes			430706.74	5408765.62
100-G1	Yes	8/7/2016	30	30	0	No			445839.52	5423032.81
100-H1	Yes	8/7/2016	30	30	0	No	EPA Split (IC)		445926.51	5423052.67
100-N1	Yes	8/7/2016	30	30	0	No			445878.07	5423037.95
100-N2	Yes	8/7/2016	30	30	0	No			445866.48	5423028.48
100-O1	Yes	8/7/2016	90	90	0	No			445891.14	5423004.44
101-G1	Yes	8/6/2016	30	30	0	No	EPA Split (IC)		430208.68	5410504.08
101-H1	Yes	8/6/2016	90	90	0	No			430192.20	5410489.70
101-O1	Yes	8/6/2016	30	30	12	Yes	EPA Split (D1B)		430166.18	5410509.41
102-G1	Yes	8/6/2016	30	30	0	No			430213.91	5410576.76
102-H1	Yes	8/6/2016	90	90	12	No	EPA Split (D1B)		430194.76	5410603.38
103-H1	Yes	8/9/2016	30	30	0	Yes			432436.19	5410090.43
103-O1	Yes	8/9/2016	90	90	0	No	EPA Split (IC)		432474.30	5410080.66
104-H1	Yes	8/16/2016	30	30	0	No			444511.27	5419938.44
104-H2	Yes	8/16/2016	30	30	0	No			444553.88	5419967.26
104-N1	Yes	8/16/2016	90	90	0	No			444586.50	5419991.96
105-H1	Yes	8/9/2016	30	30	0	No			445955.50	5418904.25
105-P1	Yes	8/9/2016	90	90	0	No	EPA Split (IC)		445985.40	5418865.59
106-G1	Yes	8/9/2016	30	30	0	No			428986.27	5408203.78
106-G2	Yes	8/9/2016	30	30	0	No			428944.61	5408111.88
106-H1	Yes	8/9/2016	30	30	0	No			428978.64	5408237.62
106-O1	Yes	8/9/2016	90	90	0	No	EPA Split (IC)		428996.58	5408239.00
107-H1	Yes	8/6/2016	90	90	0	No			430075.46	5411397.71
108-H1	Yes	8/7/2016	30	30	0	No		New DU added to planned residence	438203.11	5415303.85
108-O1	Yes	8/7/2016	30	30	0	No			438215.68	5415097.86
108-O2	Yes	8/7/2016	90	90	0	No	EPA Split (IC)		438222.51	5415219.44
109-H1	Yes	8/22/2016	90	90	0	No			451261.78	5425797.07
110-A1	Yes	8/18/2016	30	30	12	No	EPA Split (D6C)		432497.09	5408622.66
110-G1	Yes	8/18/2016	30	30	0	No			432454.71	5408634.87
110-G2	Yes	8/18/2016	30	30	0	No			432436.08	5408603.56
110-H1	Yes	8/18/2016	90	30	0	No			432442.78	5408582.14
110-O1	Yes	8/18/2016	30	90	0	No	EPA Split (IC)		432594.52	5408581.52
110-O2	Yes	8/18/2016	30	30	0	No			432475.34	5408624.53

Table 2-1. Planned and Sampled Residential Decision Units

DU	Sampled?	Collection Date[a]	Planned Increments Sampled[b]	Actual Increments Sampled[b]	Discrete Samples Collected[c]	IC Sample Submitted for IVBA Analysis?	QC Samples Collected[d]	Comments[e]	X Coordinate[f]	Y Coordinate[f]
111-H1	Yes	8/19/2016	90	90	12	No	EPA Split (D6D)		448068.79	5421165.35
112-G1	Yes	8/16/2016	30	30	0	No			450319.81	5422763.50
112-H1	Yes	8/16/2016	30	30	0	No			450326.43	5422778.39
112-O1	Yes	8/16/2016	90	90	0	Yes			450368.43	5422819.13
113-G1	Yes	8/16/2016	30	30	0	No			429357.13	5409449.77
113-G2	Yes	8/16/2016	30	30	0	No	EPA Split (IC)		429364.51	5409474.82
113-G3	Yes	8/16/2016	30	30	0	No			429315.18	5409416.63
113-O1	Yes	8/16/2016	90	90	0	No	EPA Split (IC)		429339.16	5409480.64
114-G1	Yes	9/7/2016	30	30	0	No			438401.51	5415010.69
114-H1	Yes	9/7/2016	30	30	0	No			438451.00	5415017.93
114-O1	Yes	9/7/2016	90	90	0	Yes			438501.00	5415090.56
115-O1	Yes	8/16/2016	90	90	0	No	EPA Split (IC)		443064.62	5421182.14
116-O1	Yes	8/16/2016	90	90	0	No			430536.84	5411730.89
117-O1	Yes	8/16/2016	90	90	0	No	EPA Split (IC)		430909.77	5411288.57
118-G1	Yes	8/19/2016	30	30	0	No			429685.57	5412249.88
118-G2	Yes	8/19/2016	90	90	0	No	EPA Split (IC)		429705.30	5412240.61
118-H1	Yes	8/19/2016	30	30	12	No	EPA Split (IC, D6A, D6C, D1E)		429710.32	5412278.58
118-N1	Yes	8/19/2016	30	30	0	No			429717.39	5412323.74
118-N2	Yes	8/19/2016	30	30	0	No			429757.76	5412343.40
119-P1	Yes	8/17/2016	90	90	12	No	EPA Split (IC, D1A, D1E)		453528.98	5425928.89
120-A1	Yes	8/17/2016	30	30	0	No	EPA Split (IC)		451529.02	5422553.88
120-D1	No	ns	ns	ns	ns	No		DU not sampled due to debris	ns	ns
120-G1	Yes	8/17/2016	90	90	0	No			451471.89	5422568.45
120-H1	Yes	8/17/2016	30	30	0	No			451506.98	5422596.41
120-O1	Yes	8/17/2016	30	30	0	No			451528.86	5422524.82
121-G1	Yes	8/19/2016	30	30	0	No			435407.51	5411334.61
121-H1	Yes	8/19/2016	90	90	0	No			435366.38	5411301.12
121-N1	Yes	8/19/2016	30	30	0	No			435358.06	5411416.58
121-N2	Yes	8/19/2016	30	30	0	No			435420.89	5411367.96
122-G1	Yes	8/8/2016	30	30	0	No			436277.79	5413987.71
122-G2	Yes	8/8/2016	30	30	0	No			436213.86	5413947.29
122-H1	Yes	8/8/2016	30	30	0	No			436428.59	5414068.42
122-H2	Yes	8/8/2016	30	30	0	No	EPA Split (IC)		436254.80	5413987.74
122-O1	Yes	8/8/2016	90	90	0	No	EPA Split (IC)		436275.07	5414071.45
122-O2	Yes	8/8/2016	30	30	0	No			436346.89	5413968.00
122-P1	Yes	8/8/2016	30	30	0	Yes	EPA Split (IC)		436369.41	5414057.06
123-G1	Yes	8/17/2016	30	30	0	No			433036.51	5413807.33
123-G2	Yes	8/17/2016	90	90	0	No			433008.44	5413791.09
123-H1	Yes	8/17/2016	30	30	0	No			433051.67	5413863.11
123-O1	Yes	8/17/2016	30	30	0	No			433045.35	5413835.13
123-O2	Yes	8/17/2016	30	30	0	No			432991.18	5413757.20
124-B1	Yes	8/18/2016	30	30	0	No			439447.60	5416204.12
124-G1	Yes	8/18/2016	30	30	0	No			439198.56	5416634.13
124-G2	Yes	8/18/2016	90	90	0	No	EPA Split (IC)		439210.10	5416636.80
124-H1	Yes	8/18/2016	30	30	0	No			439194.14	5416586.48
124-N1	Yes	8/18/2016	30	30	0	No			439197.32	5416495.43
124-N2	Yes	8/18/2016	30	30	0	No			439255.70	5416476.55
124-O1	Yes	8/18/2016	30	30	12	No	EPA Split (D6A)		439202.26	5416622.07
125-O1	Yes	8/9/2016	90	90	0	No			437129.80	5414286.46
126-A1	Yes	8/20/2016	30	30	0	No			434083.50	5410979.64
126-G1	Yes	8/20/2016	30	30	0	No			434088.88	5411073.43
126-G2	Yes	8/20/2016	30	30	0	No	EPA Split (IC)		434035.99	5410996.30
126-H1	Yes	8/20/2016	30	30	0	No	EPA Split (IC)		434036.62	5411015.87
126-O1	Yes	8/20/2016	30	30	0	No			434044.44	5410932.86
126-O2	Yes	8/20/2016	30	30	0	No			434071.40	5411016.04
126-O3	Yes	8/20/2016	30	30	0	No			434127.04	5411053.77
126-P1	Yes	8/20/2016	90	90	0	No	EPA Split (IC)		434103.56	5411012.09
127-A1	Yes	8/20/2016	30	30	0	No			436201.38	5413130.50

Table 2-1. Planned and Sampled Residential Decision Units

DU	Sampled?	Collection Date[a]	Planned Increments Sampled[b]	Actual Increments Sampled[b]	Discrete Samples Collected[c]	IC Sample Submitted for IVBA Analysis?	QC Samples Collected[d]	Comments[e]	X Coordinate[f]	Y Coordinate[f]
127-G1	Yes	8/20/2016	30	30	0	No			436317.28	5413273.02
127-G2	Yes	8/20/2016	30	30	0	No			436291.20	5413225.16
127-H1	Yes	8/20/2016	30	30	0	No			436259.34	5413234.75
127-H2	Yes	8/20/2016	30	30	0	No			436341.27	5413237.50
127-N1	Yes	8/20/2016	90	90	0	No			436169.22	5413214.38
127-O1	No	ns	ns	ns	ns	No		DU not sampled at owner's request	ns	ns
128-G1	Yes	8/21/2016	30	30	0	No	EPA Split (IC)		451845.65	5422469.33
128-G2	Yes	8/21/2016	90	90	0	No			451837.40	5422469.56
128-G3	Yes	8/21/2016	30	30	0	No	EPA Split (IC)		451803.50	5422519.69
128-H1	No	ns	ns	ns	ns	No		DU not sampled as mainly driveway and buildings	ns	ns
128-H2	No	ns	ns	ns	ns	No		DU not sampled due to debris	ns	ns
128-N1	Yes	8/21/2016	30	30	0	No			451834.94	5422499.05
128-O1	Yes	8/21/2016	30	30	0	No			451865.42	5422514.87
129-H1	Yes	8/23/2016	30	30	0	No			451557.50	5425081.84
129-H2	Yes	8/23/2016	90	90	12	No	EPA Split (IC, D1A, D6E)		451598.60	5425126.63
130-G1	Yes	8/7/2016	90	90	0	No			432717.93	5411677.89
130-H1	Yes	8/7/2016	30	30	0	No			432686.71	5411601.41
130-H2	Yes	8/7/2016	30	30	0	No			432627.56	5412030.03
131-B1	Yes	8/8/2016	90	90	0	Yes	EPA Split (IC)		440982.81	5418042.43
131-H1	Yes	8/8/2016	30	30	0	No			440951.34	5418011.97
132-G1	Yes	8/22/2016	30	30	0	No			433640.95	5413340.12
132-G2	Yes	8/22/2016	30	30	0	No			433687.87	5413363.67
132-H1	Yes	8/22/2016	90	90	0	No			433671.73	5413357.53
132-O1	Yes	8/22/2016	30	30	0	No			433653.39	5413390.70
133-G1	Yes	8/17/2016	90	30	0	No			445647.62	5422914.32
133-H1	Yes	8/17/2016	30	90	12	No	EPA Split (IC, D6C, D1D, D1E)		445651.01	5422957.68
134-O1	Yes	8/19/2016	90	90	0	No			452327.62	5425276.49
135-G1	Yes	9/7/2016	90	90	0	Yes	EPA Split (IC)		444448.35	5418047.93
135-H1	Yes	9/7/2016	30	30	0	No			444456.07	5418090.98
135-O1	Yes	9/7/2016	30	30	0	No			444525.10	5417988.41
136-A1	Yes	9/7/2016	30	30	0	No			433147.32	5409633.53
136-G1	Yes	9/7/2016	30	30	0	No	EPA Split (IC)		433145.07	5409704.78
136-H1	Yes	9/7/2016	90	90	0	No			433162.03	5409762.58
136-O1	Yes	9/7/2016	30	30	12	Yes	EPA Split (D6A, D6C, D1D)		433038.26	5409613.48
137-O1	Yes	9/7/2016	90	90	0	No			433011.99	5409479.64
137-O2	Yes	9/7/2016	30	30	0	No	EPA Split (IC)	New DU added to planned residence	433007.16	5409443.62
138-G1	Yes	8/20/2016	30	30	0	No			435848.39	5414771.80
138-G2	Yes	8/20/2016	30	30	0	No			435809.88	5414711.85
138-H1	Yes	8/20/2016	30	30	0	No	EPA Split (IC)		435803.65	5414794.06
138-O1	Yes	8/20/2016	30	30	0	No			435839.90	5414742.01
138-O2	Yes	8/20/2016	90	90	0	No	EPA Split (IC)		435942.91	5414648.90
139-G1	Yes	9/8/2016	30	30	0	No			435191.66	5411607.65
139-G2	Yes	9/8/2016	30	30	0	No			435186.34	5411624.54
139-H1	Yes	9/8/2016	90	90	0	No	EPA Split (IC)		435194.34	5411625.40
139-N1	Yes	9/8/2016	30	30	0	No	EPA Split (IC)		435087.91	5411584.29
140-G1	Yes	8/17/2016	30	30	0	No			451199.69	5424812.50
140-H1	Yes	8/17/2016	90	90	0	No			451189.93	5424802.00
140-O1	Yes	8/17/2016	30	30	0	No			451164.62	5424785.35
140-O2	Yes	8/17/2016	30	30	0	No			451200.14	5424771.67
141-A1	Yes	9/23/2016	30	30	0	No			434328.44	5414070.82
141-H1	Yes	9/23/2016	90	90	0	No	EPA Split (IC)		434370.47	5414074.59
141-H2	Yes	9/23/2016	30	30	0	No			434379.00	5414051.32
141-H3	Yes	9/23/2016	30	30	0	No			434350.63	5414015.96
141-N1	Yes	9/23/2016	30	30	0	No	EPA Split (IC)		434379.82	5414018.07
141-N2	Yes	9/23/2016	30	30	0	No			434318.69	5413946.81
141-N3	Yes	9/23/2016	30	30	0	No			434339.88	5413990.00
141-N4	Yes	9/23/2016	30	30	0	No			434306.48	5414060.21
141-O1	Yes	9/23/2016	30	30	0	No			434363.14	5413974.68

Table 2-1. Planned and Sampled Residential Decision Units

DU	Sampled?	Collection Date[a]	Planned Increments Sampled[b]	Actual Increments Sampled[b]	Discrete Samples Collected[c]	IC Sample Submitted for IVBA Analysis?	QC Samples Collected[d]	Comments[e]	X Coordinate[f]	Y Coordinate[f]
141-O2	No	ns	ns	ns	ns	No		DU not sampled as outside of property boundary	ns	ns
142-H1	Yes	8/21/2016	90	90	0	No			425787.42	5406941.13
142-O1	Yes	8/21/2016	30	30	0	No			425840.77	5406968.88
143-A1	Yes	9/8/2016	30	30	0	No			434101.70	5411600.11
143-G1	Yes	9/8/2016	90	90	0	No			434079.97	5411551.12
143-G2	Yes	9/8/2016	30	30	0	No			434067.46	5411563.68
143-H1	Yes	9/8/2016	30	30	0	No			434057.43	5411555.52
144-G1	Yes	9/9/2016	90	90	0	No			432624.14	5410560.48
144-H1	Yes	9/9/2016	30	30	0	No			432663.14	5410611.73
145-A1	Yes	9/9/2016	90	90	12	No	EPA Split (IC, D1A, D1B)		438231.88	5411858.39
145-H1	Yes	9/9/2016	30	30	0	No			438191.88	5411862.35
146-H1	Yes	9/9/2016	90	90	0	Yes			436337.51	5413485.96
147-G1	Yes	8/3/2016	90	90	0	No			435919.48	5413962.75
147-G2	Yes	8/2/2016	30	30	0	No			435883.70	5413961.76
147-H1	Yes	8/2/2016	30	30	12	No	EPA Split (D1E, D6A)		435904.22	5413975.40
148-H1	Yes	8/23/2016	30	90	0	No	EPA Split (IC)		438837.76	5415867.47
148-O1	Yes	8/23/2016	30	30	0	No			438878.84	5415894.73
148-O2	No	ns	ns	ns	ns	No		DU not sampled as mainly road surface	ns	ns
148-O3	Yes	8/23/2016	90	30	0	No			438891.14	5415861.32
149-A1	Yes	9/10/2016	90	90	0	No			432983.93	5408240.09
149-D1	Yes	9/10/2016	30	30	0	No			432917.77	5408260.32
149-G1	Yes	9/10/2016	30	30	0	No			432932.14	5408314.90
149-G2	Yes	9/10/2016	30	30	0	No			432936.54	5408252.52
149-H1	Yes	9/10/2016	30	30	0	No			432900.61	5408276.03
149-N1	Yes	9/10/2016	30	30	0	No	EPA Split (IC)		432922.52	5408332.63
150-G1	Yes	9/10/2016	30	30	0	No			441100.50	5414182.28
150-H1	Yes	9/10/2016	90	90	12	No			441140.93	5414182.75
151-H1	Yes	9/14/2016	90	90	12	No	EPA Split (IC, D1C)		441708.94	5415384.36
152-G1	Yes	9/11/2016	30	30	0	Yes			436124.58	5413422.36
152-H1	Yes	9/11/2016	30	90	0	No			436086.57	5413438.81
152-O1	No	ns	ns	ns	ns	No		DU not sampled as mainly imported gravel and fire pit	ns	ns
153-G1	Yes	8/3/2016	30	30	0	No			444257.56	5422865.15
153-G2	No	ns	ns	ns	ns	No		DU not sampled at owner's request	ns	ns
153-H1	Yes	8/3/2016	30	30	0	No			444295.07	5422836.32
153-O1	Yes	8/4/2016	90	90	0	Yes			444635.04	5422938.15
153-O2	Yes	8/3/2016	30	30	0	Yes			444660.93	5423044.69
153-O3	Yes	8/3/2016	30	30	0	No			444218.00	5422912.37
153-O4	No	ns	ns	ns	ns	No		DU not sampled at owner's request	ns	ns
153-O5	Yes	8/3/2016	30	30	0	No			444198.13	5422974.84
153-O6	Yes	8/3/2016	30	30	0	No			444265.53	5422910.22
153-O7	Yes	8/3/2016	30	30	0	No			444228.04	5422838.54
153-P1	Yes	8/3/2016	30	30	0	No			444266.41	5422825.59
154-G1	Yes	8/9/2016	30	30	0	No			436405.74	5413842.50
154-H1	Yes	8/9/2016	90	90	0	No			436399.99	5413841.85
155-G1	Yes	9/8/2016	30	30	0	No			434412.81	5412951.44
155-G2	Yes	9/8/2016	30	30	0	No			434432.21	5412872.87
155-H1	Yes	9/8/2016	90	30	12	No	EPA Split (IC, D6A, D6B, D1D)		434418.78	5412871.38
155-H2	Yes	9/8/2016	30	30	0	No			434399.69	5412886.50
155-O1	No	ns	ns	ns	ns	No		DU not sampled as used as vehicle/fuel storage	ns	ns
155-O2	Yes	9/8/2016	30	90	0	No			434432.90	5412954.38
156-H1	Yes	8/20/2016	30	30	0	No	EPA Split (IC)		434224.67	5412697.27
156-O1	Yes	8/20/2016	90	90	0	No	EPA Split (IC)		434208.52	5412734.03
157-B1	Yes	9/9/2016	30	30	0	No			439073.30	5415915.55
157-B2	Yes	9/9/2016	30	30	0	Yes			439154.24	5415972.30
157-G1	Yes	9/9/2016	30	30	0	No			439037.45	5415977.97
157-H1	Yes	9/9/2016	30	30	0	No			439126.09	5416012.29
157-H2	Yes	9/9/2016	30	30	0	No			439047.61	5415962.09

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DU	Sampled?	Collection Date[a]	Planned Increments Sampled[b]	Actual Increments Sampled[b]	Discrete Samples Collected[c]	IC Sample Submitted for IVBA Analysis?	QC Samples Collected[d]	Comments[e]	X Coordinate[f]	Y Coordinate[f]
157-O1	Yes	9/9/2016	90	90	0	No	EPA Split (IC)		439087.86	5415989.63
158-H1	Yes	8/2/2016	90	90	0	No			441621.43	5418649.08
158-O1	Yes	8/2/2016	30	30	12	No	EPA Split (D1D, D6A)		441580.96	5418629.16
159-G1	Yes	9/12/2016	30	30	0	No			441224.01	5415448.43
159-H1	Yes	9/12/2016	90	90	0	No			441145.87	5415439.79
159-H2	Yes	9/12/2016	30	30	0	No	EPA Split (IC)		441252.09	5415436.01
159-O1	Yes	9/12/2016	30	30	0	No			441133.20	5415396.84
159-O2	Yes	9/12/2016	30	30	0	No			441247.28	5415405.90
160-G1	Yes	9/12/2016	90	90	0	No	EPA Split (IC)		441281.85	5416377.37
160-H1	Yes	9/12/2016	30	30	0	No			441302.03	5416336.78
160-H2	Yes	9/12/2016	30	30	0	No			441308.03	5416320.02
161-D1	Yes	9/11/2016	30	30	0	No	EPA Split (IC)		441522.88	5416270.67
161-H1	Yes	9/11/2016	30	30	0	No			441530.23	5416257.70
161-N1	Yes	9/11/2016	90	90	0	No			441502.71	5416204.92
162-H1	Yes	9/13/2016	90	90	0	No	EPA Split (IC)		435678.83	5412970.25
163-G1	Yes	8/21/2016	90	90	0	No	EPA Split (IC)		440252.36	5417385.40
163-H1	No	ns	ns	ns	ns	No		DU not sampled due to recent topsoil removal	ns	ns
163-O1	Yes	8/21/2016	30	30	0	No			440234.34	5417376.93
164-H1	Yes	8/22/2016	90	90	0	No	EPA Split (IC)		430356.59	5410449.78
165-H1	Yes	9/14/2016	90	90	0	Yes			434132.12	5414446.86
165-O1	Yes	9/14/2016	30	30	0	Yes			434105.60	5414487.99
166-O1	Yes	9/11/2016	90	90	0	Yes[g]			438294.06	5414812.45
167-O1	Yes	8/22/2016	30	30	0	No			438538.53	5414514.18
167-O2	Yes	8/22/2016	30	90	0	No			438455.27	5414307.63
167-O3	Yes	8/22/2016	90	30	0	No			438366.73	5414176.61
167-O4	Yes	8/22/2016	30	30	0	Yes			438280.72	5414066.07
167-O5	Yes	8/23/2016	30	30	0	Yes		New DU added to planned residence	438881.40	5414673.70
167-O5	No	ns	ns	ns	ns	No		Original 167-O5 not sampled, new DU added with same DU number	ns	ns
167-O6	Yes	8/23/2016	30	30	0	No	EPA Split (IC)	New DU added to planned residence	438718.98	5414214.85
167-O7	Yes	8/23/2016	30	30	0	No		New DU added to planned residence	438638.01	5414155.63
167-O8	Yes	8/23/2016	30	30	0	No		New DU added to planned residence	438716.50	5414102.08
167-O9	Yes	8/23/2016	30	30	0	No		New DU added to planned residence	438687.69	5414007.66
168-D1	Yes	9/13/2016	30	30	0	No	EPA Split (IC)		440775.92	5413744.45
168-G1	Yes	9/13/2016	30	30	0	No			440750.30	5413736.71
168-G2	Yes	9/13/2016	30	30	0	No			440790.78	5413750.81
168-H1	Yes	9/13/2016	90	90	0	No	EPA Split (IC)		440772.60	5413744.01
168-N1	Yes	9/13/2016	30	30	0	No			440594.40	5413714.26
168-O1	Yes	9/24/2016	30	30	0	No		New DU added to planned residence	441389.54	5413945.79
169-G1	No	ns	ns	ns	ns	No		DU not sampled at owner's request	ns	ns
169-G2	Yes	8/19/2016	30	30	0	No			433597.27	5412145.70
169-G3	Yes	8/19/2016	30	30	0	No	EPA Split (IC)		433606.55	5412071.04
169-G4	Yes	8/19/2016	90	30	0	No			433601.86	5412090.53
169-H1	Yes	8/19/2016	30	90	12	No	EPA Split (D1D)		433651.67	5412223.66
170-G1	Yes	8/18/2016	30	30	0	No			433971.23	5413101.78
170-G2	Yes	8/18/2016	30	30	0	No			433983.75	5413091.57
170-H1	Yes	8/18/2016	90	90	0	No	EPA Split (IC)		433999.62	5413050.55
171-A1	Yes	8/22/2016	30	30	0	No		New DU added to planned residence	439357.01	5416510.59
171-B1	Yes	8/22/2016	30	90	0	No			439546.00	5416328.54
171-G1	Yes	8/22/2016	30	30	0	No			439483.18	5416433.87
171-H1	Yes	8/22/2016	90	30	0	Yes			439451.92	5416385.98
172-O1	Yes	9/11/2016	90	90	0	No	EPA Split (IC)		440924.87	5417992.95
173-G1	Yes	9/10/2016	30	30	0	No			430502.25	5410195.09
173-G2	Yes	9/10/2016	30	30	0	No			430490.01	5410187.50
173-G3	Yes	9/10/2016	30	30	0	No			430540.13	5410209.84
173-G4	Yes	9/10/2016	30	30	0	No			430568.35	5410200.18
173-G5	Yes	9/10/2016	30	30	0	No			430479.64	5410202.61
173-H1	Yes	9/10/2016	90	90	0	No	EPA Split (IC)		430512.28	5410206.14
173-P1	Yes	9/10/2016	30	30	0	No	EPA Split (IC)		430594.38	5410200.23

Table 2-1. Planned and Sampled Residential Decision Units

DU	Sampled?	Collection Date[a]	Planned Increments Sampled[b]	Actual Increments Sampled[b]	Discrete Samples Collected[c]	IC Sample Submitted for IVBA Analysis?	QC Samples Collected[d]	Comments[e]	X Coordinate[f]	Y Coordinate[f]
174-A1	Yes	9/11/2016	30	30	12	No			430508.02	5411531.66
174-G1	Yes	9/11/2016	30	30	0	No			430400.97	5411532.26
174-H1	Yes	9/11/2016	90	90	0	No			430452.35	5411556.29
175-G1	Yes	9/22/2016	30	30	0	No			433096.24	5410048.99
175-G2	Yes	9/22/2016	90	90	0	No			433183.27	5409912.22
175-H1	Yes	9/22/2016	30	30	0	No			433089.95	5410025.59
176-A1	Yes	9/14/2016	90	90	0	No	EPA Split (IC)		432820.46	5410427.12
176-H1	Yes	9/14/2016	30	30	0	No			432907.32	5410410.54
176-H2	Yes	9/14/2016	30	30	0	No	EPA Split (IC)		432859.26	5410426.39
176-P1	Yes	9/14/2016	30	30	0	No			432865.58	5410369.60
177-G1	No	ns	ns	ns	ns	No		DU not sampled at owner's request	ns	ns
177-H1	No	ns	ns	ns	ns	No		DU not sampled at owner's request	ns	ns
178-H1	Yes	8/18/2016	90	90	12	No	EPA Split (D1D)		434159.00	5413116.07
179-H1	Yes	8/16/2016	90	90	0	No	EPA Split (IC)		430213.28	5411279.18
180-H1	Yes	8/17/2016	30	30	0	No			451359.04	5424127.07
180-H2	Yes	8/17/2016	30	30	0	No		New DU added to planned residence	451322.29	5424148.30
180-O1	Yes	8/17/2016	90	90	0	Yes	EPA Split (IC)		451273.57	5424125.55
181-A1	Yes	9/12/2016	30	30	0	No			442040.67	5421834.64
181-G1	Yes	9/12/2016	30	30	0	No			442024.02	5421783.05
181-G2	Yes	9/12/2016	90	90	0	No			442020.19	5421884.71
181-H1	Yes	9/12/2016	30	30	0	No	EPA Split (IC)		442012.34	5421787.74
181-H2	Yes	9/12/2016	30	30	0	No			442013.69	5421881.13
181-N1	Yes	9/12/2016	30	30	0	No			442011.67	5421838.25
181-N2	Yes	9/12/2016	30	30	0	No			442043.10	5421787.44
181-O1	Yes	9/12/2016	30	30	0	No			442041.16	5421867.59
182-G1	Yes	9/13/2016	30	30	0	No			439550.36	5418600.73
182-G2	Yes	9/13/2016	30	30	0	Yes			439580.76	5418577.21
182-H1	Yes	9/13/2016	30	30	0	Yes			439570.58	5418630.63
182-H2	Yes	9/13/2016	30	30	0	No			439637.44	5418602.15
182-O1	Yes	9/13/2016	30	30	0	No			439603.75	5418637.86
182-O2	Yes	9/13/2016	30	30	12	Yes	EPA Split (D6C)		439549.40	5418569.82
182-O3	Yes	9/13/2016	90	90	0	No	EPA Split (IC)		439515.09	5418563.11
183-O1	No	ns	ns	ns	ns	No		DU not sampled at owner's request	ns	ns
184-H1	Yes	9/23/2016	90	90	0	No			454564.91	5427628.61
185-A1	Yes	9/22/2016	90	90	0	No	EPA Split (IC)		433161.94	5409008.19
185-G1	No	ns	ns	ns	ns	No		DU not sampled as area too small and surrounded by railroad ties	ns	ns
185-H1	Yes	9/22/2016	30	30	0	No	EPA Split (IC)		433157.96	5408974.86
186-O1	Yes	8/21/2016	90	90	0	No			438242.12	5414711.47
187-H1	Yes	9/13/2016	90	90	12	Yes	EPA Split (IC, D6A, D1E)		433288.98	5411716.01
188-A1	Yes	8/20/2016	30	30	0	No	EPA Split (IC)		433929.33	5412375.74
188-G1	Yes	8/20/2016	30	30	0	No			434032.85	5412397.11
188-G2	Yes	8/20/2016	30	30	0	No			433993.34	5412384.85
188-G3	Yes	8/20/2016	30	30	0	No			433864.52	5412368.57
188-H1	Yes	8/20/2016	30	30	0	No			433910.14	5412447.23
188-P1	Yes	8/20/2016	90	90	0	No	EPA Split (IC)		433824.14	5412365.28
189-G1	Yes	9/7/2016	30	30	0	No	EPA Split (IC)		433343.89	5412257.99
189-H1	Yes	9/7/2016	90	90	0	No	EPA Split (IC)		433349.75	5412265.20
189-H2	Yes	9/7/2016	30	30	0	No			433332.49	5412234.41
189-O1	Yes	9/7/2016	30	30	0	Yes			433324.95	5412286.07
190-G1	Yes	9/22/2016	30	30	0	No			428710.10	5408559.74
190-H1	Yes	9/22/2016	90	90	0	No	EPA Split (IC)		428780.27	5408529.80
190-N1	Yes	9/22/2016	30	30	0	No			428838.62	5408595.64
190-N2	Yes	9/22/2016	30	30	0	No			428784.78	5408571.13
190-N3	Yes	9/22/2016	30	30	0	No			428740.50	5408567.75
190-O1	Yes	9/22/2016	30	30	0	No			428854.73	5408524.15
191-H1	Yes	9/14/2016	90	90	12	No	EPA Split (IC, D1B, D1C, D6D)		433769.89	5412553.40
192-A1	Yes	9/23/2016	30	30	0	No			433164.97	5409058.99
192-G1	Yes	9/23/2016	30	30	0	No	EPA Split (IC)		433202.22	5409127.52

Table 2-1. Planned and Sampled Residential Decision Units

DU	Sampled?	Collection Date[a]	Planned Increments Sampled[b]	Actual Increments Sampled[b]	Discrete Samples Collected[c]	IC Sample Submitted for IVBA Analysis?	QC Samples Collected[d]	Comments[e]	X Coordinate[f]	Y Coordinate[f]
192-H1	Yes	9/23/2016	90	90	0	No			433212.35	5409124.83
193-G1	Yes	9/21/2016	90	30	0	No			433704.84	5410821.33
193-H1	Yes	9/21/2016	30	90	0	No			433701.64	5410779.40
194-H1	Yes	9/21/2016	90	90	0	No			431024.44	5406861.73
194-N1	Yes	9/21/2016	30	30	0	No			430971.17	5406805.29
195-G1	Yes	9/21/2016	30	30	0	No			433324.84	5412816.50
195-G2	Yes	9/21/2016	30	30	0	No			433407.44	5412694.39
195-O1	Yes	9/21/2016	90	90	0	No	EPA Split (IC)		433324.39	5412782.00
196-A1	Yes	9/21/2016	30	30	0	No			440714.12	5417885.36
196-A2	Yes	9/21/2016	30	30	0	No			440560.32	5417861.23
196-G1	Yes	9/21/2016	30	30	0	No			440677.50	5417943.39
196-O1	Yes	9/21/2016	90	90	0	No	EPA Split (IC)		440667.00	5417932.12
197-H1	Yes	9/13/2016	90	90	0	Yes			443276.76	5420924.93
198-G1	Yes	9/13/2016	90	90	0	Yes			430735.40	5411560.83
198-H1	Yes	9/13/2016	30	30	0	No			430785.44	5411577.50
199-G1	Yes	9/7/2016	30	30	0	No			433911.02	5412775.28
199-O1	Yes	9/7/2016	90	90	0	No			433911.72	5412771.38
200-G1	Yes	9/22/2016	30	30	0	No			430383.93	5413567.29
200-H1	Yes	9/22/2016	90	90	0	No			430385.03	5413560.18
200-O1	Yes	9/22/2016	30	30	0	No			430300.49	5413424.96
201-O1	Yes	9/24/2016	90	90	0	No	EPA Split (IC)		442772.04	5421126.03
202-H1	Yes	9/24/2016	90	90	0	No			442039.89	5417781.58
202-N1	Yes	9/24/2016	30	30	0	No			442032.74	5417758.77
202-O1	Yes	9/24/2016	30	30	12	Yes	EPA Split (D6B)		442074.36	5417780.50
203-H1	Yes	8/21/2016	30	30	0	No			452646.02	5424794.80
203-O1	Yes	8/21/2016	90	90	12	No	EPA Split (D1A, D1B, D6D)		452563.78	5424806.09
203-O2	Yes	8/21/2016	30	30	0	No			452652.32	5424842.07
204-A1	No	ns	ns	ns	ns	No		DU not sampled at owner's request	ns	ns
204-G1	No	ns	ns	ns	ns	No		DU not sampled at owner's request	ns	ns
204-H1	No	ns	ns	ns	ns	No		DU not sampled at owner's request	ns	ns
205-O1	Yes	9/21/2016	30	90	0	No	EPA Split (IC)		452149.79	5424186.76
206-A1	Yes	9/7/2016	30	30	0	No			434466.34	5412598.59
206-G1	Yes	9/7/2016	30	30	0	No			434468.21	5412578.05
206-H1	Yes	9/7/2016	30	90	0	No			434458.63	5412504.04
206-H2	Yes	9/7/2016	30	30	0	Yes	EPA Split (IC)		434478.10	5412693.56
206-O1	Yes	9/7/2016	30	30	0	No			434492.08	5412361.80
207-O1	Yes	9/23/2016	30	90	12	Yes	EPA Split (IC, D6B, D6D, D1E)		432794.60	5409542.75
208-H1	Yes	9/22/2016	30	90	0	No			456101.39	5427685.25
209-G1	Yes	9/24/2016	30	90	0	Yes			443472.55	5419799.11
209-H1	Yes	9/24/2016	30	30	0	No	EPA Split (IC)		443458.65	5419769.24
209-P1	Yes	9/24/2016	30	30	0	No			443447.21	5419782.38
210-H1	Yes	9/22/2016	30	30	0	Yes			441272.56	5415567.38
210-O1	Yes	9/22/2016	30	90	0	No	EPA Split (IC)		441266.55	5415527.73
211-A1	Yes	9/24/2016	30	30	0	No			432898.81	5409913.60
211-G1	Yes	9/24/2016	30	30	0	No			432947.30	5409920.65
211-G2	Yes	9/24/2016	30	30	0	No			432900.18	5409913.37
211-H1	Yes	9/24/2016	30	30	0	No	EPA Split (IC)		432935.93	5409930.27
211-O1	Yes	9/24/2016	30	90	0	No			432945.31	5409947.44
212-H1	Yes	9/24/2016	30	30	0	Yes			438640.34	5415604.87
212-H2	Yes	9/24/2016	30	90	0	Yes	EPA Split (IC)		438615.09	5415535.23
213-O1	Yes	9/25/2016	30	30	0	No			440857.29	5423826.07
213-O2	Yes	9/25/2016	30	90	0	No	EPA Split (IC)		440847.76	5423800.97
213-O3	Yes	9/25/2016	30	30	0	No			440889.28	5423431.21
801-O1	Yes	9/11/2016	90	90	0	No			435477.80	5416299.14
801-O2	Yes	9/11/2016	30	30	0	Yes			435451.92	5416237.88
801-O3	Yes	9/11/2016	30	30	0	No			435363.49	5415596.04
802-O1	Yes	9/12/2016	90	90	0	No	EPA Split (IC)		425538.39	5406804.02
803-O1	Yes	9/8/2016	90	90	0	No			437689.64	5414262.83

Table 2-1. Planned and Sampled Residential Decision Units

DU	Sampled?	Collection Date[a]	Planned Increments Sampled[b]	Actual Increments Sampled[b]	Discrete Samples Collected[c]	IC Sample Submitted for IVBA Analysis?	QC Samples Collected[d]	Comments[e]	X Coordinate[f]	Y Coordinate[f]
803-O2	Yes	9/8/2016	30	30	0	No			437407.83	5414136.20
803-O3	Yes	9/8/2016	30	30	0	No	EPA Split (IC)		437384.27	5414314.81
804-O1	Yes	9/12/2016	90	90	0	No			436324.04	5414441.85
804-O2	Yes	9/8/2016	30	30	0	No	EPA Split (IC)		436459.90	5414548.11
805-O1	Yes	9/12/2016	30	30	0	No			434736.99	5415032.46
805-O2	Yes	9/12/2016	90	90	0	No			435018.06	5415057.43
806-O1	Yes	9/9/2016	30	30	0	No			435135.90	5415468.86
806-O2	Yes	9/10/2016	30	30	0	No			435293.12	5415509.56
806-O3	Yes	9/9/2016	30	30	0	No	EPA Split (IC)		434690.58	5415455.83
806-O4	Yes	9/9/2016	90	90	12	No	EPA Split (D1B, D6B,D1C)		434781.56	5415445.73
806-O5	Yes	9/9/2016	30	30	0	No			434748.46	5415406.99
807-O1	Yes	9/11/2016	90	90	0	No	EPA Split (IC)		435079.87	5416336.43
808-O1	Yes	9/10/2016	90	90	0	No			435066.04	5415684.02
808-O2	Yes	9/10/2016	30	30	12	No	EPA Split (D1A, D6D)		434624.01	5415854.08

Notes:

[a] Collection date is based on the primary sample for incremental composite (IC) triplicate samples.

[b] Decision units (DUs) with 90 increments sampled include a soil triplicate.

[c] Discrete samples were collected from two depth intervals at five locations in each DU. Field duplicate samples were collected from both depths at one location per DU.

[d] EPA split samples were collected from two of the three triplicate IC samples at the following DUs: 084-H1, 105-P1, and 108-O2.

[e] Based on information in Table 3 of Appendix B.

[f] Coordinates are based on the primary sample for IC triplicates. Coordinates are presented in NAD 83 UTM Zone 11 North.

[g] Submitted for *in vitro* bioaccessibility assay (IVBA) analysis per EPA's request on May 2, 2017.

ns - not sampled

QC - quality control

Table 3-1. Summary of Total Soil Samples Collected in the Field

DU Type	Number of DUs Sampled	Total Number of IC Samples[a]	Total Number of Discrete Samples[b]
Agricultural areas	27	35	36
Beach areas	7	11	0
Dripline areas	9	9	0
Garden areas	106	142	0
House areas	138	268	180
Animal/livestock areas	31	37	0
Other areas[c]	123	219	120
Play areas	11	19	12
Total	452	740	348

Notes:

[a] Includes field samples and field replicates.

[b] Includes samples collected at two depths and field duplicates.

[c] Includes 19 decision units (DUs) sampled at 8 tribal allotments.

IC - incremental composite

Table 3-2. Summary of Field QC Samples Collected by DU Type

DU Type	Number of DUs Sampled	Number of QC Samples by DU Type			
		EPA Split	Discrete Field Duplicate[a]	IC Field Replicate[b]	Field Equipment Rinsate Blanks
IC Soil Sampling					
Agricultural areas	27	7	0	8	2
Beach areas	7	1	0	4	0
Dripline areas	9	3	0	0	1
Garden areas	106	16	0	36	4
House areas	138	41	0	130	6
Animal/livestock areas	31	4	0	6	1
Other areas[c]	123	34	0	96	10
Play areas	11	7	0	8	1
Total	452	113	0	288	25
Discrete Soil Sampling					
Agricultural areas	3	3	6	0	1
Beach areas	0	0	0	0	0
Dripline areas	0	0	0	0	0
Garden areas	0	0	0	0	0
House areas	15	28	30	0	3
Animal/livestock areas	0	0	0	0	0
Other areas[c]	10	20	20	0	0
Play areas	1	2	2	0	0
Total	29	53	58	0	4

Notes:

[a] Discrete soil sample counts reflect one field duplicate collected from each of two depths at each discrete sample decision unit (DU).

[b] At each triplicate incremental composite (IC) DU, two IC replicates were collected in addition to the primary IC field sample.

[c] Includes 19 DUs sampled at 8 tribal allotments.

QC - quality control

Table 3-3. Analytical Methods for Soil Samples

Analytes	Laboratory	Sample Types	Sample Preparation		Quantitative Analysis	
			Protocol	Procedure	Protocol	Procedure
Conventional Parameters						
Total Solids	ALS	IC and discrete soil samples	NA	NA	EPA 160.3	Gravimetric
TAL Metals/Metalloids						
Calcium (Ca), iron (Fe), magnesium (Mg), potassium (K), and sodium (Na)	ALS	IC and discrete soil samples	EPA 3050B	Acid digestion	EPA 6010C	ICP-AES
Aluminum (Al), antimony (Sb), arsenic (As), barium (Ba), beryllium (Be), cadmium (Cd), chromium (Cr), cobalt (Co), copper (Cu), lead (Pb), manganese (Mn), nickel (Ni), selenium (Se), silver (Ag), thallium (Tl), vanadium (V), and zinc (Zn)	ALS	IC and discrete soil samples	EPA 3050B	Acid digestion	EPA 6020A	ICP-MS
IVBA Metals						
Arsenic	ALS	Selected IC soil samples[a]	Ruby extraction	In vitro extraction	EPA 6020A RubyBio	ICP-MS
Lead	ALS	Selected IC soil samples[a]	Ruby extraction	In vitro extraction	EPA 6020A RubyBio	ICP-MS

Notes:

[a] In vitro bioaccessibility assay (IVBA) analysis of lead and arsenic in soil was conducted on a randomly selected subset of decision units (DUs) where the lead or arsenic concentration in non-dripline incremental composite (IC) samples was greater than or equal to 100 or 20 mg/kg, respectively.

ICP - inductively coupled plasma

AES - atomic emission spectroscopy

MS - mass spectrometry

NA - not applicable

Table 3-4. Target Method Detection Limits and Method Reporting Limits

Analyte	Analytical Laboratory MDL	Analytical Laboratory MRL
Conventional Parameters		
Total solids (percent of whole weight)	0.01	0.01
Metals/Metalloids (mg/kg dw)		
Aluminum	0.6	2
Antimony	0.02	0.05
Arsenic	0.2	0.5
Barium	0.02	0.05
Beryllium	0.005	0.02
Cadmium	0.009	0.02
Calcium	1	4
Chromium	0.07	0.2
Cobalt	0.009	0.02
Copper	0.04	0.1
Iron	2	4
Lead	0.02	0.05
Magnesium	0.2	2
Manganese	0.02	0.05
Nickel	0.04	0.2
Potassium	10	40
Selenium	0.2	1
Silver	0.005	0.02
Sodium	5	40
Thallium	0.002	0.02
Vanadium	0.08	0.2
Zinc	0.2	0.5

Notes:
Method detection limits/method reporting limits (MDLs/MRLs) are on a dry weight (dw) basis.
The MRL is provided on a dry weight basis and assumes 50% moisture in the samples. The MRL for project samples will vary with the actual moisture content of the sample.

Table 4-1. Summary of TAL Metal/Metalloid Qualifiers for Equipment Blank and Experimental Blank Samples

Analyte	Number of Samples	Number of Rejected Results	Number of Accepted Results	Count of Results with No Flags	Count of Accepted Results Laboratory Flags		Count of Accepted Results Validator Flags			Laboratory Flags, % of Accepted Results		Validator Flags, % of Accepted Results		
					J	U	J	U	UJ	J	U	J	U	UJ
Equipment Blanks														
Aluminum	29	0	29	7	6	4	18	4	0	21	14	62	14	0
Antimony	29	0	29	0	5	24	5	24	0	17	83	17	83	0
Arsenic	29	0	29	0	0	29	0	29	0	0	100	0	100	0
Barium	29	0	29	28	1	0	1	0	0	3	0	3	0	0
Beryllium	29	0	29	0	0	29	0	29	0	0	100	0	100	0
Cadmium	29	0	29	0	1	28	1	28	0	3	97	3	97	0
Calcium	29	0	29	18	11	0	11	0	0	38	0	38	0	0
Chromium	29	0	29	5	24	0	24	0	0	83	0	83	0	0
Cobalt	29	0	29	2	10	17	10	17	0	34	59	34	59	0
Copper	29	0	29	13	15	1	15	1	0	52	3	52	3	0
Iron	29	0	29	10	17	2	17	2	0	59	7	59	7	0
Lead	29	0	29	27	2	0	2	0	0	7	0	7	0	0
Magnesium	29	0	29	10	18	1	18	1	0	62	3	62	3	0
Manganese	29	0	29	5	10	1	23	1	0	34	3	79	3	0
Nickel	29	0	29	3	20	6	20	6	0	69	21	69	21	0
Potassium	29	0	29	0	1	28	1	28	0	3	97	3	97	0
Selenium	29	0	29	0	0	29	0	29	0	0	100	0	100	0
Silver	29	0	29	4	4	18	7	8	10	14	62	24	28	34
Sodium	29	0	29	0	8	21	8	21	0	28	72	28	72	0
Thallium	29	0	29	0	5	24	5	24	0	17	83	17	83	0
Vanadium	29	0	29	0	12	17	12	17	0	41	59	41	59	0
Zinc	29	0	29	17	11	1	11	1	0	38	3	38	3	0
Experimental Blanks														
Aluminum	59	0	59	39	0	0	20	0	0	0	0	34	0	0
Antimony	59	0	59	1	37	21	37	21	0	63	36	63	36	0
Arsenic	59	0	59	0	2	57	2	57	0	3	97	3	97	0
Barium	59	0	59	59	0	0	0	0	0	0	0	0	0	0
Beryllium	59	0	59	0	9	50	9	50	0	15	85	15	85	0
Cadmium	59	0	59	3	30	26	30	26	0	51	44	51	44	0
Calcium	59	0	59	58	1	0	1	0	0	2	0	2	0	0
Chromium	59	0	59	1	56	2	56	2	0	95	3	95	3	0
Cobalt	59	0	59	9	31	19	31	19	0	53	32	53	32	0
Copper	59	0	59	39	0	0	20	0	0	0	0	34	0	0
Iron	59	0	59	18	34	1	40	0	1	58	2	68	0	2
Lead	59	0	59	39	0	0	20	0	0	0	0	34	0	0
Magnesium	59	0	59	59	0	0	0	0	0	0	0	0	0	0
Manganese	59	0	59	59	0	0	0	0	0	0	0	0	0	0
Nickel	59	0	59	4	49	6	49	6	0	83	10	83	10	0
Potassium	59	0	59	0	8	51	8	51	0	14	86	14	86	0
Selenium	59	0	59	0	0	59	0	59	0	0	100	0	100	0
Silver	59	0	59	0	9	50	9	50	0	15	85	15	85	0
Sodium	59	0	59	1	57	1	57	1	0	97	2	97	2	0
Thallium	59	0	59	0	3	56	3	56	0	5	95	5	95	0
Vanadium	59	0	59	0	39	20	39	20	0	66	34	66	34	0
Zinc	59	0	59	46	13	0	13	0	0	22	0	22	0	0

Notes:

TAL - target analyte list

Laboratory

J - The result is an estimated value that was detected between the detection limit (DL) and the reporting limit (RL).

U - The analyte was analyzed for, but was not detected ("non-detect") at or above the method reporting limit/method detection limit (MRL/MDL).

Validator

J - The concentration was considered estimated due to one or more of the following: laboratory control sample (LCS) or matrix spike/matrix spike duplicate (MS/MSD) recovery not within acceptable range, high percent difference, high relative percent difference (RPD) or relative standard deviation (RSD) for field or laboratory replicates, inductively coupled plasma (ICP) interference, instrument bias, or because the concentration was between the DL and the RL.

U - The analyte was not detected at or above the associated DL.

UJ - The analyte was not detected, but the DL was considered approximate due to bias identified during data review.

Table 4-2. Summary of Qualifiers for Conventional Parameters, IVBA, and Metals

Analyte	Number of Samples	Number of Rejected Results	Number of Accepted Results	Count of Results with No Flags	Count of Accepted Results Laboratory Flags				Count of Accepted Results Validator Flags	Laboratory Flags, % of Accepted Results				Validator Flags, % of Accepted Results
					*	J	N	N*	J	*	J	N	N*	J
Conventional Parameters														
Solids (IC Soil Samples)	740	0	740	740	0	0	0	0	0	0	0	0	0	0
Solids (0 to 1 inch Discrete Soil Samples)	174	0	174	174	0	0	0	0	0	0	0	0	0	0
Solids (1 to 6 inch Discrete Soil Samples)	174	0	174	174	0	0	0	0	0	0	0	0	0	0
IVBA														
Arsenic	43	0	43	39	0	0	0	0	4	0	0	0	0	9
Lead	43	0	43	40	0	0	0	0	3	0	0	0	0	7
Metals/Metalloids (IC Soil Samples)														
Aluminum	740	0	740	740	0	0	0	0	0	0	0	0	0	0
Antimony	740	0	740	0	0	0	740	0	740	0	0	100	0	100
Arsenic	740	0	740	740	0	0	0	0	0	0	0	0	0	0
Barium	740	0	740	728	0	0	12	0	12	0	0	2	0	2
Beryllium	740	0	740	663	0	0	0	0	77	0	0	0	0	10
Cadmium	740	0	740	728	0	0	0	0	12	0	0	0	0	2
Calcium	740	0	740	734	0	0	0	0	6	0	0	0	0	1
Chromium	740	0	740	717	0	0	0	20	23	0	0	0	3	3
Cobalt	740	0	740	740	0	0	0	0	0	0	0	0	0	0
Copper	740	0	740	725	0	0	0	0	15	0	0	0	0	2
Iron	740	0	740	740	0	0	0	0	0	0	0	0	0	0
Lead	740	0	740	725	0	0	0	0	15	0	0	0	0	2
Magnesium	740	0	740	735	0	0	0	0	5	0	0	0	0	1
Manganese	740	0	740	740	0	0	0	0	0	0	0	0	0	0
Nickel	740	0	740	717	0	0	0	20	23	0	0	0	3	3
Potassium	740	0	740	700	0	0	20	0	40	0	0	3	0	5
Selenium	740	0	740	23	0	717	0	0	717	0	97	0	0	97
Silver	740	0	740	574	60	0	0	0	166	8	0	0	0	22
Sodium	740	0	740	701	0	0	0	0	39	0	0	0	0	5
Thallium	740	0	740	674	20	0	0	0	66	3	0	0	0	9
Vanadium	740	0	740	740	0	0	0	0	0	0	0	0	0	0
Zinc	740	0	740	648	20	0	72	0	72	3	0	10	0	10
Metals/Metalloids (0 to 1 inch Discrete Soil Samples)														
Aluminum	174	0	174	174	0	0	0	0	0	0	0	0	0	0
Antimony	174	0	174	0	0	0	173	0	174	0	0	99	0	100
Arsenic	174	0	174	172	0	0	0	0	2	0	0	0	0	1
Barium	174	0	174	164	0	0	10	0	10	0	0	6	0	6
Beryllium	174	0	174	168	0	0	0	0	6	0	0	0	0	3
Cadmium	174	0	174	172	0	0	0	0	2	0	0	0	0	1
Calcium	174	0	174	173	0	0	0	0	1	0	0	0	0	1
Chromium	174	0	174	174	0	0	0	0	0	0	0	0	0	0
Cobalt	174	0	174	174	0	0	0	0	0	0	0	0	0	0
Copper	174	0	174	174	0	0	0	0	0	0	0	0	0	0
Iron	174	0	174	174	0	0	0	0	0	0	0	0	0	0
Lead	174	0	174	168	0	0	0	0	6	0	0	0	0	3
Magnesium	174	0	174	173	0	0	0	0	1	0	0	0	0	1
Manganese	174	0	174	172	0	0	0	0	2	0	0	0	0	1
Nickel	174	0	174	174	0	0	0	0	0	0	0	0	0	0
Potassium	174	0	174	174	0	0	0	0	0	0	0	0	0	0
Selenium	174	0	174	8	0	166	0	0	166	0	95	0	0	95
Silver	174	0	174	159	11	0	0	0	15	6	0	0	0	9
Sodium	174	0	174	143	0	2	0	0	31	0	1	0	0	18
Thallium	174	0	174	164	0	0	0	0	10	0	0	0	0	6
Vanadium	174	0	174	164	0	0	0	0	10	0	0	0	0	6
Zinc	174	0	174	136	0	0	28	0	38	0	0	16	0	22

Table 4-2. Summary of Qualifiers for Conventional Parameters, IVBA, and Metals

Analyte	Number of Samples	Number of Rejected Results	Number of Accepted Results	Count of Results with No Flags	Count of Accepted Results Laboratory Flags				Count of Accepted Results Validator Flags	Laboratory Flags, % of Accepted Results				Validator Flags, % of Accepted Results
					*	J	N	N*	J	*	J	N	N*	J
Metals/Metalloids (1 to 6 inch Discrete Soil Samples)														
Aluminum	174	0	174	174	0	0	0	0	0	0	0	0	0	0
Antimony	174	0	174	0	0	0	173	0	174	0	0	99	0	100
Arsenic	174	0	174	170	0	0	0	0	4	0	0	0	0	2
Barium	174	0	174	164	0	0	10	0	10	0	0	6	0	6
Beryllium	174	0	174	168	0	0	0	0	6	0	0	0	0	3
Cadmium	174	0	174	166	0	0	0	0	8	0	0	0	0	5
Calcium	174	0	174	172	0	0	0	0	2	0	0	0	0	1
Chromium	174	0	174	174	0	0	0	0	0	0	0	0	0	0
Cobalt	174	0	174	174	0	0	0	0	0	0	0	0	0	0
Copper	174	0	174	172	0	0	0	0	2	0	0	0	0	1
Iron	174	0	174	174	0	0	0	0	0	0	0	0	0	0
Lead	174	0	174	166	0	0	0	0	8	0	0	0	0	5
Magnesium	174	0	174	170	0	0	0	0	4	0	0	0	0	2
Manganese	174	0	174	172	0	0	0	0	2	0	0	0	0	1
Nickel	174	0	174	174	0	0	0	0	0	0	0	0	0	0
Potassium	174	0	174	174	0	0	0	0	0	0	0	0	0	0
Selenium	174	0	174	9	0	165	0	0	165	0	95	0	0	95
Silver	174	0	174	159	9	0	0	0	15	5	0	0	0	9
Sodium	174	0	174	141	0	2	0	0	33	0	1	0	0	19
Thallium	174	0	174	158	0	0	0	0	16	0	0	0	0	9
Vanadium	174	0	174	164	0	0	0	0	10	0	0	0	0	6
Zinc	174	0	174	132	0	0	28	0	42	0	0	16	0	24

Notes:

IC - incremental composite

IVBA - in vitro bioaccessibility assay

Laboratory

* - The result is an outlier. See case narrative.

J - The result is an estimated value that was detected between the detection limit (DL) and the reporting limit (RL).

N - The matrix spike sample recovery is not within control limits. See case narrative.

N* - The matrix spike sample recovery is not within control limits. The result is an outlier. See case narrative.

Validator

J - Quantitation is approximate due to limitations identified during the quality assurance (QA) review (data validation).

Table 5-1. Summary of IC Soil Results

Analyte	Number of Sample Results[a]	Number of Detected Values	Minimum Detected Values	Mean Detected Values	Maximum Detected Values
Conventional Parameters (percent)					
Solids	452	452	82.1	97.0	100.2
Metals/Metalloids (mg/kg dw)					
Aluminum	452	452	4,480	13,737	31,833
Antimony	452	452	0.15	1.71	20.2
Arsenic	452	452	3.02	11.2	81.1
Barium	452	452	47.2	193	985
Beryllium	452	452	0.206	0.454	0.992
Cadmium	452	452	0.263	3.28	106
Calcium	452	452	2,220	11,528	154,000
Chromium	452	452	8.26	19.4	72.3
Cobalt	452	452	2.54	6.43	26.0
Copper	452	452	7.89	24.7	146
Iron	452	452	8,323	17,430	45,000
Lead	452	452	8.90	148	7,700
Magnesium	452	452	1,560	4,705	36,400
Manganese	452	452	179	503	6,263
Nickel	452	452	6.73	18.4	173
Potassium	452	452	554	2,048	6,900
Selenium	452	452	0.097	0.377	3.15
Silver	452	452	0.043	0.291	12.1
Sodium	452	452	45.3	192	853
Thallium	452	452	0.09	0.22	1.39
Vanadium	452	452	10.7	28.5	96.2
Zinc	452	452	41.1	258	15,167
IVBA (percent bioaccessible)					
Arsenic	41	41	1.97	17.3	33.7
Lead	41	41	16.3	61.4	81.4

Notes:

[a] Summary statistics for decision units (DUs) with triplicate incremental composite (IC) soil samples are based on the average of triplicate sample results.

IVBA - in vitro bioaccessibility assay

Table 5-2. Summary of Discrete Soil Sample Results

Analyte	Sample Interval (inches)	Number of Samples[a]	Number of Detected Values	Minimum Detected Values	Mean Detected Values	Maximum Detected Values
Conventional Parameters (percent)						
Solids	0 to 1	145	145	89.9	97.8	99.9
	1 to 6	145	145	89.5	97.8	99.8
Metals/Metalloids (mg/kg dw)						
Aluminum	0 to 1	145	145	4,450	13,669	31,600
	1 to 6	145	145	5,055	14,717	34,800
Antimony	0 to 1	145	145	0.108	2.05	23.9
	1 to 6	145	145	0.101	1.69	15.3
Arsenic	0 to 1	145	145	2.25	12.3	151
	1 to 6	145	145	2.23	11.6	54.4
Barium	0 to 1	145	145	54.1	198	4,690
	1 to 6	145	145	54.1	177	768
Beryllium	0 to 1	145	145	0.180	0.470	0.921
	1 to 6	145	145	0.227	0.500	0.952
Cadmium	0 to 1	145	145	0.267	3.27	22.6
	1 to 6	145	145	0.110	2.93	18.6
Calcium	0 to 1	145	145	2,280	6,396	78,400
	1 to 6	145	145	1,720	5,521	23,900
Chromium	0 to 1	145	145	8.19	19.0	51.2
	1 to 6	145	145	10.1	19.8	53.3
Cobalt	0 to 1	145	145	2.40	6.15	14.1
	1 to 6	145	145	2.98	6.44	14.7
Copper	0 to 1	145	145	8.41	21.1	83.9
	1 to 6	145	145	7.61	21.1	69.7
Iron	0 to 1	145	145	8,485	16,878	30,500
	1 to 6	145	145	9,635	17,525	30,100
Lead	0 to 1	145	145	9.03	157	1,540
	1 to 6	145	145	6.71	109	840
Magnesium	0 to 1	145	145	2,010	3,907	9,880
	1 to 6	145	145	1,975	3,969	10,400
Manganese	0 to 1	145	145	177	470	1,330
	1 to 6	145	145	175	508	1,420
Nickel	0 to 1	145	145	7.34	16.1	41.5
	1 to 6	145	145	7.49	16.5	43.3
Potassium	0 to 1	145	145	820	1972	5260
	1 to 6	145	145	749	1,897	5,550
Selenium	0 to 1	145	145	0.080	0.382	5.76
	1 to 6	145	145	0.085	0.404	6.84
Silver	0 to 1	145	145	0.036	0.233	1.37
	1 to 6	145	145	0.031	0.200	0.668
Sodium	0 to 1	145	145	38.5	167	364
	1 to 6	145	145	38.7	173	385
Thallium	0 to 1	145	145	0.100	0.242	1.17
	1 to 6	145	145	0.091	0.210	0.721
Vanadium	0 to 1	145	145	13.9	28.7	59.6
	1 to 6	145	145	16.6	29.5	59.2
Zinc	0 to 1	145	145	43.1	187	773
	1 to 6	145	145	36.1	161	674

Notes:

[a] For discrete soil samples with a field duplicate, summary statistics are based on the average of the field sample and duplicate results at that sample location.

Table 5-3. Summary of IVBA Results and RBA Estimates for Arsenic and Lead

		Arsenic		Lead	
Sample Number	DU Category	Measured IVBA (Percent)	Calculated Site-Specific RBA (Percent)[a]	Measured IVBA (Percent)	Calculated Site-Specific RBA (Percent)[b]
16R-131-B1-IC-01	Beach	21.2	19.7	56.4	46.7
16R-157-B2-IC-01	Beach	12.1	12.6	48.6	39.9
	Beach Average:	**16.7**	**16.2**	**52.5**	**43.3**
16R-075-H1-IC-01	House	12.9	13.2	53.2	43.9
16R-085-P1-IC-01	Play Area	30.7	27.3	77.8	65.5
16R-094-P1-IC-01	Play Area	7.22	8.70	51.1	42.1
16R-095-O1-IC-01	Other	19.0	18.0	59.6	49.5
16R-096-O1-IC-03	Other	19.1	18.1	71.1	59.6
16R-099-O1-IC-01	Other	13.9	14.0	71.8	60.2
16R-101-O1-IC-01	Other	27.2	24.5	81.4	68.7
16R-103-H1-IC-01	House	14.1	14.1	73.9	62.1
16R-112-O1-IC-03	Other	33.7	29.6	77.6	65.3
16R-114-O1-IC-02	Other	12.2	12.6	51.2	42.2
16R-122-P1-IC-01	Play Area	13.9	14.0	62.3	51.9
16R-135-G1-IC-01	Garden	28.3	25.4	72.8	61.1
16R-136-O1-IC-01	Other	18.5	17.6	76.0	63.9
16R-146-H1-IC-03	House	30.3	26.9	74.8	62.9
16R-152-G1-IC-01	Garden	29.9	26.6	50.4	41.5
16R-153-O1-IC-03	Other	8.57	9.77	54.5	45.1
16R-153-O2-IC-01	Other	26.8	24.2	75.1	63.1
16R-165-H1-IC-02	House	3.17	5.50	27.8	21.6
16R-165-O1-IC-01	Other	2.17	4.71	34.9	27.8
16R-166-O1-IC-01	Other	20.7	19.4	45.0	36.7
16R-166-O1-IC-02	Other	19.4	18.3	46.5	38.0
16R-166-O1-IC-03	Other	20.9	19.5	47.8	39.2
16R-167-O4-IC-01	Other	17.9	17.1	69.6	58.3
16R-167-O5-IC-01	Other	21.7	20.1	75.8	63.8
16R-171-H1-IC-01	House	12.0	12.5	70.8	59.4
16R-180-O1-IC-02	Other	13.3	13.5	65.5	54.7
16R-182-G2-IC-01	Garden	27.2	24.5	66.2	55.3
16R-182-H1-IC-01	House	18.3	17.5	62.0	51.6
16R-182-O2-IC-01	Other	26.4	23.9	62.3	51.9
16R-187-H1-IC-02	House	5.11	7.04	45.9	37.5
16R-189-O1-IC-01	Other	27.9	25.0	79.0	66.6
16R-197-H1-IC-03	House	9.23	10.3	61.2	50.9
16R-198-G1-IC-02	Garden	22.4	20.7	56.2	46.5
16R-202-O1-IC-01	Other	12.9	13.2	68.2	57.1
16R-206-H2-IC-01	House	9.20	10.3	69.2	58.0
16R-207-O1-IC-02	Other	9.11	10.2	56.9	47.2
16R-209-G1-IC-01	Garden	14.5	14.5	64.2	53.6
16R-210-H1-IC-01	House	23.0	21.2	77.1	64.9
16R-212-H1-IC-01	House	12.3	12.7	53.5	44.2
16R-212-H2-IC-01	House	19.5	18.4	49.1	40.3
16R-801-O2-IC-01	Other	1.97	4.56	16.3	11.5
	Non-beach Average:	**17.5**	**16.8**	**61.1**	**50.9**

Notes:

[a] Estimated based on sample-specific in vitro bioaccessibility assay (IVBA) result using the Diamond et al. (2016) equation: relative bioavailability (RBA) (percent) = 0.79 x IVBA (percent) + 3.0.

[b] As specified in USEPA (2007), estimated based on sample-specific IVBA result and using the linear regression model developed by Drexler and Brattin (2007): RBA (fraction) = 0.878 x IVBA (fraction) - 0.028

DU - decision unit

NA - not applicable

Table 5-4. Arsenic and Lead Soil Concentrations Adjusted for RBA

DU[a]	Bioavailability Adjusted Arsenic Soil Concentration Based on Site-Specific RBA[b] (mg/kg)	Bioavailability Adjusted Lead Soil Concentration Based on Site-Specific RBA[c] (mg/kg)
IC Soil Samples		
075-H1	1.61	82.0
085-P1	3.76	157
094-P1	1.41	77.1
095-O1	2.88	149
096-O1	4.87	313
099-O1	1.27	171
101-O1	2.52	209
103-H1	1.56	118
112-O1	5.10	297
114-O1	1.95	263
122-P1	2.15	321
131-B1	1.62	179
135-G1	3.65	116
136-O1	1.32	205
146-H1	12.9	1,800
152-G1	2.39	114
153-O1	2.29	222
153-O2	2.73	373
157-B2	1.27	167
165-H1	1.49	13.3
165-O1	1.74	62.6
166-O1	3.37	254
167-O4	1.37	176
167-O5	1.66	224
171-H1	1.62	233
180-O1	2.93	480
182-G2	4.80	180
182-H1	1.90	139
182-O2	5.03	186
187-H1	0.922	108
189-O1	2.70	120
197-H1	1.49	141
198-G1	2.48	78.3
202-O1	1.37	137
206-H2	1.80	285
207-O1	1.25	111
209-G1	3.69	238
210-H1	2.43	114
212-H1	1.56	188
212-H2	2.43	149
801-O2	1.02	14.9
Discrete Soil Samples		
101-O1-D1A	1.91	110
101-O1-D1B	2.34	196
101-O1-D1C	1.97	136
101-O1-D1D	2.91	159
101-O1-D1E	2.19	118
101-O1-D6A	3.72	287
101-O1-D6B	2.52	211
101-O1-D6C	1.83	81.8
101-O1-D6D	2.69	156
101-O1-D6E	2.11	124
136-O1-D1A	1.09	291
136-O1-D1B	1.31	175
136-O1-D1C	1.11	215
136-O1-D1D	1.39	144
136-O1-D1E	0.821	392
136-O1-D6A	1.88	143

Table 5-4. Arsenic and Lead Soil Concentrations Adjusted for RBA

DU[a]	Bioavailability Adjusted Arsenic Soil Concentration Based on Site-Specific RBA[b] (mg/kg)	Bioavailability Adjusted Lead Soil Concentration Based on Site-Specific RBA[c] (mg/kg)
Discrete Soil Samples (continued)		
136-O1-D6B	1.26	63.4
136-O1-D6C	1.87	150
136-O1-D6D	1.74	110
136-O1-D6E	1.42	383
182-O2-D1A	4.46	253
182-O2-D1B	5.11	159
182-O2-D1C	3.13	74.0
182-O2-D1D	9.88	138
182-O2-D1E	4.44	192
182-O2-D6A	6.08	95.1
182-O2-D6B	5.63	96.9
182-O2-D6C	4.51	109
182-O2-D6D	7.97	84.9
182-O2-D6E	5.34	173
187-H1-D1A	0.908	111
187-H1-D1B	0.760	79.4
187-H1-D1C	0.711	75.0
187-H1-D1D	0.908	108
187-H1-D1E	0.774	81.3
187-H1-D6A	1.04	90.0
187-H1-D6B	0.781	74.4
187-H1-D6C	0.802	73.8
187-H1-D6D	0.823	77.5
187-H1-D6E	0.802	65.6
202-O1-D1A	1.45	133
202-O1-D1B	1.65	158
202-O1-D1C	1.69	118
202-O1-D1D	0.937	90.9
202-O1-D1E	1.15	151
202-O1-D6A	1.79	144
202-O1-D6B	1.35	124
202-O1-D6C	2.36	134
202-O1-D6D	0.955	82.7
202-O1-D6E	1.30	152
207-O1-D1A	0.436	35.3
207-O1-D1B	1.94	216
207-O1-D1C	0.951	76.4
207-O1-D1D	0.959	77.7
207-O1-D1E	0.862	71.1
207-O1-D6A	0.907	81.7
207-O1-D6B	2.15	119
207-O1-D6C	0.848	63.1
207-O1-D6D	1.05	63.1
207-O1-D6E	1.18	88.0

Notes:

[a] For decision units (DUs) with field duplicate or replicate soil concentrations, the adjusted soil concentration is based on the average of duplicates or replicates.

[b] Adjusted soil concentration based on DU soil concentration multiplied by the site-specific relative bioavailability (RBA).

[c] Adjusted soil concentration based on DU soil concentration multiplied by the ratio of the site-specific RBA to the default RBA (60 percent).

IC - incremental composite

Table 5-5. Summary of Residential Soil Metals Data based on Discrete Soil Samples

DU	Sample Depth (inches)	Sample Location [a]	Soil Concentration by Analyte (mg/kg dw)																				
			Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc
078-H1	0 to 1	D1A	8,580	0.336	2.95	132	0.263	1.26	4,270	12.4	3.53	10.4	11,900	39.0	2,890	257	11.3	1,560	0.130	0.094	150	0.115	16.0	106
		D1B	7,470	0.118	2.25	67.6	0.280	0.267	2,880	13.4	4.09	8.44	13,000	10.2	3,120	178	11.2	1,700	0.100	0.036	153	0.100	19.2	43.1
		D1C	8,710	0.215	2.81	89.7	0.271	0.556	2,490	11.0	3.49	8.41	11,500	20.8	2,780	201	9.87	1,330	0.100	0.053	131	0.103	15.0	62.0
		D1D	9,530	0.513	4.11	127	0.319	1.28	3,720	14.9	4.42	12.0	13,300	55.1	3,390	292	12.2	1,820	0.200	0.093	156	0.150	19.5	93.4
		D1E	10,350	0.335	3.82	102	0.299	0.846	3,160	12.4	3.90	9.44	13,500	33.7	3,030	260	10.4	1,425	0.105	0.101	137	0.105	18.0	75.6
		Average	8,928	0.303	3.19	104	0.286	0.842	3,304	12.8	3.89	9.74	12,640	31.8	3,042	238	11.0	1,567	0.127	0.075	145	0.115	17.5	76.0
	1 to 6	D6A	9,830	0.502	5.29	146	0.322	1.04	3,200	14.7	4.12	10.6	12,900	58.1	2,900	293	12.6	1,530	0.150	0.097	137	0.124	19.4	96.8
		D6B	6,930	0.110	2.23	60.0	0.253	0.237	2,590	12.6	4.08	8.44	12,100	8.61	3,070	195	10.5	1,650	0.100	0.038	158	0.091	18.1	36.1
		D6C	8,850	0.157	2.44	89.8	0.277	0.408	2,370	11.9	3.88	8.18	12,000	11.3	2,810	175	10.2	1,360	0.120	0.073	135	0.097	16.6	54.1
		D6D	9,490	0.595	5.01	126	0.315	1.41	3,370	14.5	4.33	12.2	13,100	65.0	3,230	308	12.1	1,620	0.150	0.100	146	0.129	18.8	91.0
		D6E	10,800	0.375	4.54	117	0.311	0.964	3,365	13.4	4.12	11.0	13,750	39.0	3,075	292	11.5	1,405	0.115	0.055	139	0.107	19.4	85.3
		Average	9,180	0.348	3.90	108	0.296	0.812	2,979	13.4	4.11	10.1	12,770	36.4	3,017	253	11.4	1,513	0.127	0.073	143	0.110	18.5	72.7
082-H1	0 to 1	D1A	11,300	0.387	4.22	106	0.357	0.863	4,910	13.6	4.68	11.7	14,300	32.9	3,550	325	11.3	1,730	0.150	0.081	218	0.123	22.7	75.6
		D1B	10,500	0.401	3.87	100	0.338	0.836	5,390	12.8	4.43	11.2	13,400	31.8	3,440	297	10.9	1,720	0.170	0.075	196	0.119	20.5	80.4
		D1C	11,000	0.511	4.35	95.7	0.322	1.18	5,230	12.2	4.27	11.2	13,300	43.2	3,610	301	10.5	1,810	0.130	0.090	209	0.132	19.3	87.5
		D1D	11,800	1.04	7.40	101	0.379	2.43	3,850	15.2	5.09	12.4	15,300	93.5	3,770	362	12.2	1,990	0.160	0.079	196	0.189	23.4	127
		D1E	11,300	0.536	4.72	107	0.336	1.11	6,280	13.2	4.53	12.1	14,050	44.3	3,745	335	11.1	2,025	0.165	0.088	222	0.132	21.0	91.5
		Average	11,180	0.575	4.91	102	0.346	1.28	5,132	13.4	4.60	11.7	14,070	49.1	3,623	324	11.2	1,855	0.155	0.083	208	0.139	21.4	92.4
	1 to 6	D6A	12,000	0.412	4.93	112	0.347	0.930	4,350	13.5	4.79	12.1	14,600	35.8	3,620	351	11.4	1,720	0.140	0.092	203	0.129	22.1	69.2
		D6B	10,800	0.320	3.43	93.4	0.317	0.689	4,550	12.2	4.20	10.2	13,500	25.8	3,320	281	10.2	1,680	0.120	0.066	195	0.107	19.9	67.1
		D6C	10,900	0.576	4.95	97.5	0.368	1.16	4,380	14.6	4.76	12.4	14,500	46.2	3,640	295	11.7	1,820	0.150	0.076	220	0.141	23.3	81.3
		D6D	12,000	0.651	6.08	109	0.379	1.56	4,320	14.6	4.95	12.4	14,800	58.8	3,720	369	12.1	1,870	0.140	0.094	203	0.158	22.9	97.7
		D6E	10,650	0.404	4.31	80.7	0.308	0.806	4,070	14.0	4.43	10.0	14,100	33.7	3,600	260	10.7	1,925	0.130	0.061	180	0.138	21.3	71.5
		Average	11,270	0.473	4.74	98.5	0.344	1.03	4,334	13.8	4.63	11.4	14,300	40.1	3,580	311	11.2	1,803	0.136	0.078	200	0.135	21.9	77.4
101-O1	0 to 1	D1A	15,000	1.26	7.82	159	0.535	2.19	4,640	22.4	6.69	14.6	20,000	95.9	3,930	523	17.4	2,640	0.190	0.134	215	0.195	31.8	142
		D1B	15,500	2.15	9.56	181	0.562	3.88	5,400	21.7	7.11	14.1	19,900	171	3,590	579	17.2	2,330	0.210	0.156	189	0.245	32.8	194
		D1C	14,100	1.60	8.04	154	0.446	3.11	6,050	17.7	5.95	12.7	19,400	119	3,710	641	14.7	2,430	0.180	0.140	203	0.201	25.5	161
		D1D	16,700	1.98	11.9	210	0.573	3.38	6,720	21.7	7.33	17.2	20,200	139	3,930	705	18.6	2,590	0.210	0.167	211	0.236	31.8	217
		D1E	16,450	1.45	8.94	187	0.491	2.39	5,760	19.5	7.08	15.6	19,600	103	3,770	647	17.2	2,035	0.210	0.152	178	0.192	30.0	158
		Average	15,550	1.69	9.25	178	0.521	2.99	5,714	20.6	6.83	14.8	19,820	126	3,786	619	17.0	2,405	0.200	0.150	199	0.214	30.4	174
	1 to 6	D6A	17,500	2.19	15.2	231	0.627	5.55	5,360	23.5	7.75	19.0	21,800	251	3,770	754	19.0	3,370	0.480	0.260	385	0.360	34.8	294
		D6B	16,100	2.86	10.3	182	0.553	3.85	4,450	20.8	7.19	15.2	20,600	184	3,630	658	17.1	2,340	0.230	0.157	175	0.241	30.6	195
		D6C	14,700	1.37	7.46	163	0.509	1.68	4,060	20.3	6.56	13.2	19,300	71.5	3,650	559	16.4	2,370	0.210	0.109	198	0.168	28.6	109
		D6D	15,100	1.87	11.0	182	0.486	3.31	5,450	18.4	6.33	15.0	18,500	136	3,470	664	16.0	2,300	0.210	0.167	179	0.213	27.3	203
		D6E	16,150	1.57	8.61	163	0.513	2.50	4,205	19.3	6.48	13.4	18,950	108	3,630	579	16.0	2,140	0.190	0.128	177	0.207	28.5	158
		Average	15,910	1.97	10.5	184	0.538	3.38	4,705	20.5	6.86	15.2	19,830	150	3,630	643	16.9	2,504	0.264	0.164	223	0.238	30.0	192
102-H1	0 to 1	D1A	11,400	0.374	8.76	130	0.485	0.628	16,000	20.4	7.23	17.5	20,400	29.2	5,150	447	22.8	2,240	0.220	0.102	277	0.101	27.7	69.5
		D1B	15,600	0.438	7.64	155	0.546	0.761	6,850	21.4	7.22	16.3	20,000	35.2	4,740	425	23.2	2,140	0.210	0.109	235	0.143	28.8	79.9
		D1C	18,500	0.707	6.76	160	0.519	1.25	6,870	13.9	5.86	12.9	18,500	60.2	4,630	512	15.5	2,550	0.180	0.099	279	0.158	20.6	103
		D1D	11,100	0.415	7.74	165	0.452	0.590	38,600	30.9	8.71	18.7	21,000	23.6	8,000	351	34.1	1,820	0.260	0.110	286	0.139	33.3	88.2
		D1E	13,800	0.417	8.69	162	0.562	0.671	17,400	25.6	8.60	20.1	21,800	31.9	6,035	446	29.2	2,195	0.215	0.173	314	0.145	33.5	72.9
		Average	14,080	0.470	7.92	154	0.513	0.780	17,144	22.4	7.52	17.1	20,340	36.0	5,711	436	25.0	2,189	0.217	0.119	278	0.137	28.8	82.7
	1 to 6	D6A	11,500	0.392	9.19	132	0.501	0.603	15,700	21.1	7.71	19.3	20,700	30.2	5,090	438	24.3	1,920	0.280	0.124	261	0.110	28.7	67.2
		D6B	16,300	0.402	8.46	159	0.611	0.520	5,160	23.8	8.00	18.5	22,100	33.9	4,700	453	24.9	1,890	0.210	0.104	259	0.135	32.0	65.0
		D6C	17,800	0.639	7.54	169	0.546	1.18	7,930	15.1	6.40	14.9	18,800	54.6	4,950	538	16.9	2,080	0.230	0.108	272	0.166	21.8	97.8
		D6D	14,100	0.352	9.01	163	0.537	0.500	23,500	25.8	8.40	18.8	21,900	25.7	6,410	407	30.6	1,940	0.330	0.125	268	0.142	32.0	62.3
		D6E	16,750	0.576	8.97	178	0.568	1.01	7,940	21.3	7.48	17.1	20,900	53.3	4,680	468	23.7	1,875	0.195	0.124	258	0.155	28.5	88.1
		Average	15,290	0.472	8.63	160	0.553	0.763	12,046	21.4	7.60	17.7	20,880	39.5	5,166	461	24.1	1,941	0.249	0.117	264	0.142	28.6	76.1

Table 5-5. Summary of Residential Soil Metals Data based on Discrete Soil Samples

DU	Sample Depth (inches)	Sample Location [a]	Soil Concentration by Analyte (mg/kg dw)																				
			Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc
110-A1	0 to 1	D1A	18,400	1.10	9.53	196	0.575	2.10	7,250	16.1	6.04	20.9	18,100	74.1	3,810	545	12.8	1,900	0.280	0.167	286	0.197	33.7	115
		D1B	18,900	1.49	11.8	211	0.569	3.01	7,200	14.0	5.68	20.2	17,300	106	3,670	615	11.5	1,180	0.280	0.177	300	0.206	29.6	140
		D1C	19,600	1.47	12.2	220	0.636	3.34	3,830	14.8	5.99	20.7	17,300	116	3,190	609	12.0	1,370	0.290	0.189	256	0.252	33.0	147
		D1D	18,900	1.05	9.88	216	0.605	3.26	4,080	14.0	5.21	17.3	17,500	109	3,270	539	11.1	1,430	0.240	0.152	247	0.279	29.4	149
		D1E	20,700	1.28	11.5	225	0.648	3.50	3,830	14.8	5.76	20.6	17,850	115	3,300	616	11.8	1,535	0.280	0.213	241	0.231	31.3	137
		Average	19,300	1.28	11.0	214	0.607	3.04	5,238	14.7	5.74	19.9	17,610	104	3,448	585	11.8	1,483	0.274	0.180	266	0.233	31.4	138
	1 to 6	D6A	20,100	0.921	8.45	209	0.623	1.73	5,230	16.0	6.26	21.6	18,300	60.7	3,600	536	12.4	1,610	0.300	0.187	305	0.191	33.3	95.5
		D6B	19,700	1.92	14.2	233	0.622	3.62	5,390	14.6	6.16	22.4	16,900	131	3,470	655	11.9	1,080	0.300	0.209	279	0.229	31.6	148
		D6C	20,800	1.58	11.8	216	0.688	3.12	3,430	14.5	5.97	20.3	17,900	118	3,180	645	11.8	1,200	0.460	0.190	259	0.265	31.7	120
		D6D	20,700	1.36	11.5	216	0.684	2.97	3,230	14.5	5.54	18.9	17,700	115	3,160	614	11.4	1,270	0.250	0.155	242	0.230	30.1	118
		D6E	21,400	1.46	11.9	212	0.656	3.22	3,390	14.4	5.86	20.9	18,300	116	3,290	625	11.6	1,370	0.300	0.194	250	0.236	31.1	128
		Average	20,540	1.45	11.6	217	0.655	2.93	4,134	14.8	5.96	20.8	17,820	108	3,340	615	11.8	1,306	0.322	0.187	267	0.230	31.6	122
111-H1	0 to 1	D1A	10,300	0.410	4.42	109	0.363	1.06	3,320	15.9	5.38	14.8	15,300	38.9	3,630	342	13.5	1,630	0.180	0.122	189	0.182	26.2	114
		D1B	7,290	0.182	3.44	57.9	0.295	0.740	3,440	15.7	4.94	12.6	16,300	18.2	3,760	284	12.8	1,770	0.170	0.096	184	0.149	24.8	67.4
		D1C	7,040	0.108	2.86	56.0	0.304	0.299	3,290	15.7	5.07	10.7	15,300	9.03	3,840	263	12.4	1,780	0.140	0.056	162	0.131	25.7	45.2
		D1D	9,600	0.280	4.56	82.4	0.422	0.615	3,170	20.6	6.65	14.2	16,500	24.7	4,130	345	15.1	1,900	0.240	0.080	188	0.188	35.7	78.2
		D1E	13,450	0.881	8.02	170	0.458	1.78	3,245	17.3	6.31	16.5	16,950	81.1	3,870	486	15.4	1,680	0.280	0.225	195	0.208	29.4	131
		Average	9,536	0.372	4.66	95.1	0.368	0.899	3,293	17.0	5.67	13.8	16,070	34.4	3,846	344	13.8	1,752	0.202	0.116	184	0.172	28.4	87.1
	1 to 6	D6A	10,300	0.285	4.68	91.4	0.390	0.652	3,150	17.6	5.62	13.7	17,000	23.7	3,880	303	14.3	1,720	0.230	0.091	191	0.161	28.6	72.9
		D6B	7,560	0.143	3.33	57.0	0.302	0.558	3,430	16.0	5.25	13.0	16,200	11.8	3,850	292	12.8	1,670	0.180	0.081	184	0.132	25.5	49.9
		D6C	7,730	0.101	2.94	61.7	0.327	0.197	3,440	17.0	5.41	12.0	16,300	7.14	4,250	277	13.6	1,910	0.140	0.050	190	0.138	27.9	42.0
		D6D	10,400	0.304	4.87	92.5	0.454	0.542	3,180	22.4	6.96	16.7	17,200	21.6	4,450	335	16.7	1,940	0.260	0.092	184	0.188	38.0	72.8
		D6E	12,650	0.794	7.50	152	0.455	1.69	3,195	18.0	6.37	15.8	17,200	74.2	3,980	491	15.0	1,770	0.240	0.197	195	0.216	30.2	126
		Average	9,728	0.325	4.66	90.8	0.386	0.728	3,279	18.2	5.92	14.2	16,780	27.7	4,082	340	14.5	1,802	0.210	0.102	189	0.167	30.0	72.7
118-H1	0 to 1	D1A	12,800	0.636	5.51	198	0.471	1.15	4,210	17.0	5.51	13.3	16,200	36.0	3,330	498	14.7	1,770	0.370	0.139	168	0.122	24.5	91.4
		D1B	11,700	0.348	3.90	147	0.494	0.610	3,930	17.7	5.94	11.8	17,200	19.0	3,130	364	13.2	1,750	0.210	0.094	179	0.122	29.9	63.5
		D1C	11,700	0.344	3.59	140	0.448	0.616	3,720	14.9	5.31	10.8	16,100	19.5	3,180	402	11.8	1,670	0.170	0.100	162	0.122	24.6	56.9
		D1D	12,700	0.284	3.51	135	0.464	0.513	3,920	16.2	5.64	11.6	17,100	17.6	3,470	383	12.4	1,770	0.190	0.084	195	0.129	27.7	55.4
		D1E	17,250	0.750	6.28	248	0.587	1.15	3,860	15.2	5.80	14.7	16,350	38.5	2,970	574	13.3	1,690	0.300	0.178	174	0.145	25.0	82.8
		Average	13,230	0.472	4.56	174	0.493	0.808	3,928	16.2	5.64	12.4	16,590	26.1	3,216	444	13.1	1,730	0.248	0.119	176	0.128	26.3	70.0
	1 to 6	D6A	14,200	0.745	5.87	215	0.501	1.23	4,200	17.4	5.81	13.3	17,200	39.7	3,260	543	15.3	1,590	0.360	0.150	192	0.134	25.4	95.7
		D6B	12,400	0.363	3.64	138	0.466	0.577	3,220	15.1	5.21	10.4	16,500	18.7	3,010	370	11.5	1,500	0.190	0.093	179	0.119	24.7	56.1
		D6C	14,700	0.490	4.55	180	0.543	0.729	3,160	16.7	6.15	12.1	16,900	24.1	3,170	444	13.1	1,620	0.220	0.132	181	0.138	26.7	72.1
		D6D	14,200	0.367	4.01	149	0.546	0.572	3,550	17.4	5.89	12.7	17,800	20.4	3,450	387	13.1	1,590	0.240	0.108	210	0.140	30.0	56.7
		D6E	17,300	0.870	6.42	241	0.599	1.18	3,915	15.3	5.84	14.7	16,350	38.9	2,970	600	13.4	1,485	0.295	0.189	177	0.147	24.5	83.9
		Average	14,560	0.567	4.90	185	0.531	0.858	3,609	16.4	5.78	12.6	16,950	28.4	3,172	469	13.3	1,557	0.261	0.134	188	0.136	26.3	72.9
119-P1	0 to 1	D1A	30,500	6.15	28.7	268	0.921	8.36	3,210	14.5	7.80	38.0	18,200	328	3,030	767	15.7	1,250	0.950	0.584	257	0.490	31.7	466
		D1B	27,200	2.87	15.6	237	0.737	4.24	3,810	13.0	6.75	29.9	16,700	164	3,030	640	13.5	1,340	0.390	0.392	276	0.272	27.2	309
		D1C	30,300	4.14	20.6	251	0.792	5.43	3,830	14.4	6.87	30.1	17,900	213	3,220	642	14.2	1,320	0.410	0.436	342	0.345	30.5	367
		D1D	27,200	6.05	31.1	248	0.738	10.8	4,060	13.1	6.36	34.1	16,900	361	2,950	650	13.3	1,190	0.530	0.910	263	0.564	27.2	634
		D1E	29,500	3.76	19.0	272	0.760	5.69	3,150	14.9	7.08	29.9	18,000	216	3,265	653	15.4	1,535	0.380	0.530	278	0.381	29.4	527
		Average	28,940	4.59	23.0	255	0.790	6.90	3,612	14.0	6.97	32.4	17,540	256	3,099	670	14.4	1,327	0.532	0.570	283	0.410	29.2	461
	1 to 6	D6A	33,400	6.82	25.7	290	0.934	7.92	3,710	14.9	7.85	39.3	19,000	314	3,200	832	16.1	1,200	0.570	0.562	301	0.407	32.9	413
		D6B	29,100	3.88	18.7	268	0.800	5.19	4,210	14.6	7.45	33.5	18,000	196	3,190	692	15.1	1,360	0.430	0.466	311	0.325	30.9	379
		D6C	30,700	3.74	19.4	253	0.754	5.12	3,120	12.9	6.78	29.7	17,800	203	3,030	709	13.7	1,230	0.490	0.391	297	0.330	28.0	311
		D6D	33,000	6.04	26.9	279	0.882	8.26	3,400	13.7	7.21	35.5	18,400	302	3,050	794	14.9	1,100	0.520	0.545	293	0.417	29.4	450
		D6E	31,850	3.98	20.4	294	0.819	5.55	2,815	15.4	7.48	31.1	18,750	217	3,300	707	15.7	1,460	0.440	0.424	291	0.355	30.1	400
		Average	31,610	4.89	22.2	277	0.838	6.41	3,451	14.3	7.35	33.8	18,390	246	3,154	747	15.1	1,270	0.490	0.478	299	0.367	30.3	391

Table 5-5. Summary of Residential Soil Metals Data based on Discrete Soil Samples

DU	Sample Depth (inches)	Sample Location [a]	Soil Concentration by Analyte (mg/kg dw)																				
			Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc
124-O1	0 to 1	D1A	19,700	1.71	17.1	219	0.603	5.39	12,000	44.6	13.1	39.8	28,600	161	9,260	729	37.4	5,010	1.11	0.417	296	0.315	53.1	254
		D1B	21,000	1.08	13.8	233	0.670	3.06	11,200	51.2	14.1	38.3	30,500	83.2	9,880	664	41.5	5,190	1.03	0.359	325	0.285	59.6	179
		D1C	19,300	0.956	12.7	213	0.600	3.14	12,000	49.5	13.2	34.8	28,200	76.1	9,790	588	41.5	4,790	1.40	0.309	342	0.271	55.3	194
		D1D	19,000	1.15	11.1	222	0.583	3.60	11,000	47.1	12.6	33.7	26,900	77.9	9,570	599	39.7	5,260	1.45	0.343	364	0.278	53.5	210
		D1E	17,000	1.07	10.4	201	0.535	3.60	9,535	46.4	12.7	29.2	26,150	99.8	8,945	564	36.9	4,530	1.01	0.302	326	0.291	51.6	231
		Average	19,200	1.19	13.0	218	0.598	3.76	11,147	47.8	13.1	35.2	28,070	99.6	9,489	629	39.4	4,956	1.20	0.346	331	0.288	54.6	214
	1 to 6	D6A	19,900	1.47	16.3	241	0.641	4.40	12,400	51.5	14.6	41.8	29,900	129	10,000	694	42.6	5,370	1.23	0.389	320	0.306	58.8	230
		D6B	21,000	1.04	14.2	224	0.646	2.96	11,000	52.2	14.0	38.3	30,000	82.4	9,970	658	41.2	5,170	1.05	0.335	312	0.276	59.2	180
		D6C	20,800	1.22	14.7	239	0.651	3.73	12,500	53.3	14.7	41.0	30,100	106	10,400	670	43.3	5,550	1.35	0.366	360	0.298	58.6	210
		D6D	18,200	0.973	11.2	212	0.585	3.28	9,940	47.6	13.0	32.2	27,200	72.4	9,390	570	40.3	4,910	1.38	0.303	353	0.281	54.6	198
		D6E	19,300	0.904	11.2	211	0.584	2.94	9,060	53.3	13.6	30.3	28,400	69.9	9,805	587	40.7	4,720	1.07	0.298	380	0.269	56.9	198
		Average	19,840	1.12	13.5	225	0.621	3.46	10,980	51.6	14.0	36.7	29,120	91.9	9,913	636	41.6	5,144	1.22	0.338	345	0.286	57.6	203
129-H2	0 to 1	D1A	6,680	4.26	7.84	86.9	0.226	5.85	4,780	11.7	3.57	17.4	11,300	271	2,650	317	8.57	996	0.260	0.611	109	0.395	18.7	354
		D1B	9,180	3.43	11.5	108	0.297	5.67	3,320	14.0	4.84	19.8	13,900	245	3,140	341	10.9	1,250	0.300	0.427	141	0.348	23.5	357
		D1C	6,860	13.90	17.0	105	0.224	12.0	3,680	13.6	3.92	39.3	12,800	1060	2,850	202	10.0	1,220	0.610	0.991	106	0.932	21.9	647
		D1D	8,980	4.19	14.2	112	0.287	5.57	3,260	15.6	5.02	19.4	14,400	303	3,270	326	12.0	1,300	0.250	0.288	122	0.376	25.4	344
		D1E	9,485	2.72	12.1	124	0.291	4.47	3,120	15.4	5.19	16.5	14,800	220	3,375	390	11.8	1,450	0.225	0.272	130	0.276	24.4	287
		Average	8,237	5.70	12.5	107	0.265	6.71	3,632	14.1	4.51	22.5	13,440	420	3,057	315	10.6	1,243	0.329	0.518	122	0.465	22.8	398
	1 to 6	D6A	8,230	4.99	16.7	95.9	0.289	7.82	3,680	13.5	4.80	21.3	13,100	297	2,880	408	10.2	1,080	0.330	0.377	109	0.314	21.7	337
		D6B	8,760	7.43	22.8	117	0.301	9.89	2,920	14.4	5.01	28.9	13,700	537	2,950	392	10.8	1,180	0.420	0.397	118	0.437	23.7	406
		D6C	9,200	7.64	26.6	118	0.283	18.6	2,880	14.8	5.05	30.3	14,300	395	3,200	403	11.0	1,300	0.380	0.324	128	0.512	23.8	433
		D6D	9,410	4.39	22.2	112	0.277	6.28	2,700	14.6	5.06	19.9	14,600	222	3,210	400	11.3	1,310	0.250	0.166	120	0.293	23.6	263
		D6E	9,760	3.12	15.4	133	0.285	4.37	3,180	15.1	5.23	15.9	14,750	201	3,365	448	11.6	1,370	0.250	0.212	141	0.253	23.8	302
		Average	9,072	5.51	20.7	115	0.287	9.39	3,072	14.5	5.03	23.3	14,090	330	3,121	410	11.0	1,248	0.326	0.295	123	0.362	23.3	348
133-H1	0 to 1	D1A	9,730	1.10	6.68	126	0.395	2.41	5,300	23.0	5.10	15.4	15,100	92.6	2,970	401	12.1	1,610	0.450	0.194	164	0.183	25.5	169
		D1B	10,400	0.714	6.47	126	0.404	1.72	4,540	22.6	5.26	14.8	15,400	61.6	3,000	343	12.7	1,530	0.370	0.159	214	0.162	25.9	118
		D1C	11,100	1.39	8.14	150	0.426	3.25	6,910	27.2	5.71	18.9	16,800	131	3,290	532	13.4	1,750	0.660	0.269	201	0.204	26.4	233
		D1D	10,900	2.43	9.10	116	0.420	3.73	7,480	29.6	5.56	21.5	16,900	250	3,290	471	13.5	1,400	0.930	0.350	209	0.230	27.1	280
		D1E	10,065	0.213	5.66	88.9	0.394	0.571	4,525	22.5	5.42	11.1	17,050	10.9	3,515	378	12.6	1,500	0.200	0.071	231	0.137	26.7	85.7
		Average	10,439	1.17	7.21	121	0.408	2.34	5,751	25.0	5.41	16.3	16,250	109	3,213	425	12.9	1,558	0.522	0.209	204	0.183	26.3	177
	1 to 6	D6A	9,700	1.16	6.97	118	0.360	2.81	5,510	21.8	4.86	15.6	14,700	104	2,940	423	11.6	1,580	0.440	0.209	172	0.183	23.1	173
		D6B	10,800	1.26	9.55	131	0.395	3.48	5,960	23.6	5.29	17.5	16,000	96.8	3,080	553	12.6	1,580	0.640	0.318	178	0.179	25.8	195
		D6C	10,200	1.84	7.47	233	0.370	3.79	11,400	25.7	5.13	20.6	16,200	150	3,230	711	12.2	1,560	0.710	0.336	218	0.225	24.9	384
		D6D	10,300	1.86	10.1	124	0.424	4.02	7,320	29.6	5.80	22.6	18,300	164	3,080	575	13.7	1,390	0.800	0.283	188	0.196	31.8	242
		D6E	10,150	0.157	5.38	96.9	0.403	0.392	4,025	22.8	5.61	10.9	16,950	6.80	3,490	348	12.7	1,440	0.195	0.059	247	0.132	26.8	55.8
		Average	10,230	1.26	7.89	141	0.390	2.90	6,843	24.7	5.34	17.4	16,430	104	3,164	522	12.6	1,510	0.557	0.241	201	0.183	26.5	210
136-O1	0 to 1	D1A	5,930	1.86	6.21	96.7	0.271	5.95	2,620	11.2	3.19	13.4	10,500	273	2,320	372	8.01	1,110	0.150	0.141	46.9	0.327	18.5	163
		D1B	6,730	1.71	7.45	107	0.321	4.10	4,350	12.9	3.67	11.9	11,200	164	2,310	480	9.27	820	0.200	0.144	50.2	0.187	21.1	142
		D1C	6,210	2.14	6.31	99.7	0.271	5.77	4,140	10.2	3.04	10.3	9,950	202	2,200	536	7.63	981	0.180	0.140	41.3	0.302	16.6	204
		D1D	5,970	1.47	7.87	68.1	0.238	3.31	2,450	10.0	2.89	9.15	10,300	135	2,140	343	7.34	880	0.160	0.054	43.5	0.171	16.8	127
		D1E	4,450	3.98	4.67	77.9	0.180	10.3	7,800	8.19	2.40	17.9	8,485	368	2,010	434	8.41	1,140	0.275	0.398	38.5	0.339	13.9	308
		Average	5,858	2.23	6.50	89.9	0.256	5.89	4,272	10.5	3.04	12.5	10,087	228	2,196	433	8.13	986	0.193	0.175	44.1	0.265	17.4	189
	1 to 6	D6A	6,650	1.76	10.7	116	0.338	3.83	2,520	12.0	3.92	13.4	11,000	134	2,300	473	9.16	1,040	0.630	0.125	47.5	0.241	19.0	151
		D6B	6,670	0.747	7.14	85.9	0.270	1.68	3,390	10.6	2.98	7.61	10,500	59.5	2,270	450	7.49	749	0.140	0.071	48.4	0.106	17.1	69.7
		D6C	7,640	1.60	10.6	90.1	0.319	3.98	3,200	10.9	3.31	11.0	11,200	141	2,370	548	8.20	958	0.190	0.083	44.9	0.168	17.4	124
		D6D	6,790	1.09	9.89	91.6	0.290	2.35	2,680	12.0	3.46	11.9	11,500	103	2,370	426	8.63	876	0.170	0.054	47.6	0.121	19.6	116
		D6E	5,055	3.68	8.04	69.6	0.227	9.33	5,750	10.1	3.06	21.0	9,635	359	1,975	401	9.08	1,190	0.290	0.394	38.7	0.265	17.2	242
		Average	6,561	1.77	9.27	90.6	0.289	4.23	3,508	11.1	3.35	13.0	10,767	159	2,257	460	8.51	963	0.284	0.145	45.4	0.180	18.1	140

Table 5-5. Summary of Residential Soil Metals Data based on Discrete Soil Samples

DU	Sample Depth (inches)	Sample Location [a]	Soil Concentration by Analyte (mg/kg dw)																				
			Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc
145-A1	0 to 1	D1A	14,100	1.63	9.17	244	0.527	3.73	6,250	13.0	5.23	16.3	15,100	132	4,020	667	12.3	2,240	0.230	0.193	106	0.269	28.0	194
		D1B	12,800	0.749	5.49	196	0.435	2.04	9,630	12.1	4.59	17.9	13,800	68.9	3,660	461	11.4	1,790	0.390	0.148	95.9	0.230	25.4	167
		D1C	13,900	1.15	7.29	254	0.512	2.73	8,920	12.2	4.89	19.4	13,800	102	3,500	562	11.6	2,250	0.380	0.166	82.9	0.223	25.8	215
		D1D	12,600	0.785	7.62	213	0.426	1.82	12,100	13.1	4.69	18.2	14,000	66.7	4,140	475	11.4	2,250	0.310	0.147	105	0.188	26.2	178
		D1E	14,500	0.482	4.74	195	0.584	0.792	4,525	14.4	5.47	13.3	15,700	25.1	3,750	383	13.0	2,425	0.225	0.148	88.0	0.195	32.2	104
		Average	13,580	0.959	6.86	220	0.497	2.22	8,285	13.0	4.97	17.0	14,480	78.9	3,814	510	11.9	2,191	0.307	0.160	95.6	0.221	27.5	172
	1 to 6	D6A	14,200	2.50	10.9	240	0.661	5.18	6,870	13.4	5.73	18.9	14,800	191	4,130	648	13.2	1,960	1.01	0.289	96.7	0.577	28.2	224
		D6B	12,700	0.855	6.40	208	0.447	2.42	8,370	12.2	4.82	16.9	13,500	84.7	3,760	482	11.4	1,790	0.360	0.155	85.1	0.219	24.6	168
		D6C	13,900	1.24	7.68	251	0.486	2.95	10,300	11.5	4.82	19.1	14,100	105	3,930	606	11.5	2,100	0.410	0.186	89.4	0.229	24.7	206
		D6D	11,600	0.856	7.75	203	0.396	1.90	11,800	12.9	4.74	17.9	13,800	68.2	4,290	467	11.2	2,060	0.350	0.151	101	0.215	25.5	180
		D6E	14,900	0.454	4.48	190	0.560	0.739	4,270	13.5	5.13	12.4	15,700	22.0	3,750	390	12.2	2,440	0.190	0.134	90.8	0.179	29.8	94.6
		Average	13,460	1.18	7.44	218	0.510	2.64	8,322	12.7	5.05	17.0	14,380	94.2	3,972	519	11.9	2,070	0.464	0.183	92.6	0.284	26.6	175
147-H1	0 to 1	D1A	8,970	2.23	12.1	112	0.430	4.51	3,980	20.0	5.96	17.8	16,600	216	3,490	432	13.3	2,050	0.200	0.168	93.8	0.251	28.7	209
		D1B	13,500	0.322	3.75	147	0.494	0.612	3,430	20.2	5.89	12.4	18,000	20.5	3,500	382	14.3	2,210	0.140	0.093	158	0.136	29.3	79.5
		D1C	12,300	2.41	9.54	4690	0.408	4.13	11,600	20.1	5.18	19.9	15,200	150	3,980	444	19.8	2,140	0.590	0.277	124	0.237	42.2	287
		D1D	15,900	0.777	6.37	158	0.570	0.986	4,680	23.0	7.69	24.2	20,300	38.7	5,060	493	18.5	2,670	0.220	0.192	182	0.204	35.8	93.4
		D1E	10,415	0.498	4.76	99.4	0.470	0.867	9,860	25.4	6.23	14.6	20,200	37.3	4,820	351	15.7	1,765	0.280	0.110	203	0.131	36.3	85.9
		Average	12,217	1.25	7.30	1041	0.474	2.22	6,710	21.7	6.19	17.8	18,060	92.5	4,170	420	16.3	2,167	0.286	0.168	152	0.192	34.5	151
	1 to 6	D6A	9,090	2.29	13.9	97.4	0.449	3.62	3,980	21.8	6.25	18.4	18,400	163	3,460	460	13.7	1,830	0.220	0.125	97.0	0.200	31.7	159
		D6B	13,600	0.178	3.11	158	0.500	0.238	3,280	19.3	5.85	11.7	18,100	11.0	3,450	366	13.9	2,100	0.160	0.079	159	0.123	28.5	56.2
		D6C	16,100	4.25	17.8	768	0.532	7.03	5,430	18.4	6.39	27.7	17,400	306	3,540	732	14.6	2,230	0.360	0.254	120	0.333	27.2	319
		D6D	17,200	0.696	6.21	150	0.574	0.868	4,690	23.5	7.55	24.4	20,600	34.7	5,220	470	19.0	2,680	0.210	0.195	206	0.204	35.9	89.2
		D6E	11,400	0.604	5.62	112	0.540	0.985	9,430	25.9	6.89	16.5	20,250	41.1	4,980	377	17.3	1,875	0.430	0.140	194	0.169	37.3	86.1
		Average	13,478	1.60	9.33	257	0.519	2.55	5,362	21.8	6.59	19.7	18,950	111	4,130	481	15.7	2,143	0.276	0.159	155	0.206	32.1	142
150-H1	0 to 1	D1A	12,700	0.325	4.62	113	0.405	0.509	6,880	18.3	5.66	20.2	16,400	22.5	5,200	224	17.1	2,720	0.190	0.139	127	0.150	25.0	75.6
		D1B	11,000	0.463	3.96	116	0.345	1.01	6,270	14.7	4.81	13.7	14,100	44.2	4,490	215	13.0	2,200	0.140	0.154	120	0.139	21.0	91.4
		D1C	9,350	0.338	3.84	108	0.347	0.722	6,580	16.4	5.08	13.8	14,000	29.9	5,160	245	14.2	2,360	0.160	0.135	98.1	0.144	22.8	96.5
		D1D	9,860	0.562	5.21	123	0.363	1.25	8,250	17.0	5.47	17.5	14,200	56.4	5,360	254	15.0	2,310	0.180	0.169	121	0.142	24.0	111
		D1E	10,800	0.675	5.51	130	0.359	1.30	3,450	15.7	4.83	14.0	14,850	70.7	3,525	284	12.6	2,375	0.135	0.138	96.5	0.172	22.7	97.8
		Average	10,742	0.473	4.63	118	0.364	0.957	6,286	16.4	5.17	15.8	14,710	44.7	4,747	244	14.4	2,393	0.161	0.147	113	0.149	23.1	94.5
	1 to 6	D6A	11,900	0.322	3.54	108	0.383	0.527	6,590	16.7	5.03	16.7	15,200	23.5	4,620	212	14.6	2,840	0.170	0.136	119	0.135	22.1	73.0
		D6B	11,600	0.556	5.22	121	0.365	1.02	6,610	15.7	5.05	15.3	14,700	54.2	4,600	233	14.1	2,040	0.150	0.156	122	0.148	21.7	109
		D6C	9,620	0.325	3.81	97.5	0.360	0.453	4,520	17.9	4.94	13.1	14,400	20.4	4,650	190	14.9	2,420	0.120	0.103	96.7	0.139	23.4	70.9
		D6D	9,670	0.549	5.64	109	0.349	1.06	12,600	17.6	5.58	18.2	15,100	50.1	6,130	256	15.7	1,990	0.180	0.181	131	0.143	25.5	95.2
		D6E	10,900	0.669	5.61	133	0.364	1.17	3,115	16.7	5.00	13.7	14,850	64.7	3,480	268	13.2	2,280	0.140	0.132	96.3	0.170	24.3	96.4
		Average	10,738	0.484	4.76	114	0.364	0.846	6,687	16.9	5.12	15.4	14,850	42.6	4,696	232	14.5	2,314	0.152	0.142	113	0.147	23.4	88.9
151-H1	0 to 1	D1A	17,900	1.35	14.8	259	0.526	3.50	27,300	21.5	7.57	29.9	19,400	140	6,090	605	22.9	2,610	0.270	0.283	155	0.300	31.6	207
		D1B	13,400	0.572	7.56	224	0.436	1.79	78,400	30.5	8.27	22.3	17,700	50.4	9,290	369	32.3	2,970	0.280	0.210	157	0.247	34.3	134
		D1C	21,900	1.41	12.0	329	0.671	2.76	4,620	23.5	8.69	33.8	21,600	120	5,450	441	28.2	2,690	0.290	0.330	156	0.332	37.6	215
		D1D	16,200	1.27	10.2	233	0.526	3.15	6,080	21.1	7.16	24.9	17,600	133	4,390	481	19.3	2,730	0.210	0.253	134	0.270	31.2	188
		D1E	13,550	1.10	7.44	158	0.398	2.28	5,495	17.9	5.51	19.1	16,800	108	4,240	373	15.5	2,310	0.170	0.240	117	0.231	26.4	160
		Average	16,590	1.14	10.4	241	0.511	2.70	24,379	22.9	7.44	26.0	18,620	110	5,892	454	23.6	2,662	0.244	0.263	144	0.276	32.2	181
	1 to 6	D6A	18,900	1.06	11.7	273	0.579	2.55	15,000	26.8	8.84	36.9	22,800	85.0	8,290	510	28.3	2,560	0.330	0.418	185	0.311	43.7	190
		D6B	16,300	0.817	8.60	214	0.538	1.87	23,900	29.3	8.58	31.1	20,900	61.8	10,200	401	26.7	2,670	0.290	0.320	163	0.264	38.8	154
		D6C	18,800	1.50	13.0	279	0.617	2.93	8,850	23.4	8.08	35.6	20,500	135	6,800	457	25.9	2,260	0.310	0.359	143	0.316	37.8	212
		D6D	16,400	1.21	11.1	208	0.520	2.58	4,740	20.0	6.27	23.2	17,700	127	4,030	478	16.8	2,100	0.180	0.225	121	0.244	29.4	167
		D6E	14,500	1.07	8.46	160	0.421	2.07	5,085	19.6	5.55	19.7	17,250	104	4,170	367	15.9	2,140	0.175	0.224	121	0.230	27.6	150
		Average	16,980	1.13	10.6	227	0.535	2.40	11,515	23.8	7.46	29.3	19,830	103	6,698	443	22.7	2,346	0.257	0.309	147	0.273	35.5	175

Table 5-5. Summary of Residential Soil Metals Data based on Discrete Soil Samples

DU	Sample Depth (inches)	Sample Location [a]	Soil Concentration by Analyte (mg/kg dw)																				
			Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc
155-H1	0 to 1	D1A	9,660	0.606	5.73	107	0.451	1.12	2,880	20.1	6.24	14.2	15,500	46.3	3,510	311	16.3	2,060	0.110	0.089	120	0.155	28.9	87.6
		D1B	9,670	3.21	14.8	84.8	0.305	3.19	2,280	15.0	3.65	16.4	13,500	182	2,690	228	10.7	1,990	0.220	0.190	101	0.332	21.2	173
		D1C	7,750	0.374	3.40	77.9	0.324	1.19	3,540	18.4	4.29	9.90	12,800	28.6	3,220	177	12.8	1,470	0.090	0.106	124	0.159	27.5	87.6
		D1D	12,900	0.415	4.40	151	0.511	0.723	2,980	16.0	5.40	11.5	14,200	27.4	2,980	295	13.1	2,070	0.080	0.088	190	0.136	24.4	78.7
		D1E	8,225	0.505	3.42	107	0.358	1.66	3,790	17.8	4.47	9.71	11,550	35.9	3,105	225	13.3	1,390	0.175	0.075	113	0.202	23.8	112
		Average	9,641	1.02	6.35	106	0.390	1.58	3,094	17.5	4.81	12.3	13,510	64.0	3,101	247	13.2	1,796	0.135	0.110	130	0.197	25.2	108
	1 to 6	D6A	11,000	0.668	5.32	109	0.424	0.971	2,850	18.8	5.58	12.8	16,300	44.2	3,580	321	14.6	2,080	0.110	0.075	124	0.154	25.8	79.6
		D6B	10,700	1.08	17.7	121	0.389	3.95	2,140	17.0	5.78	16.7	15,400	66.0	3,160	557	12.9	2,210	0.160	0.063	105	0.191	23.2	175
		D6C	9,050	0.435	4.41	100	0.383	0.714	3,010	19.6	5.57	11.2	14,800	31.7	3,370	217	14.7	1,680	0.120	0.076	139	0.141	29.5	66.0
		D6D	13,500	1.32	8.79	185	0.458	1.90	3,100	15.1	5.19	13.5	14,400	102	2,880	430	12.1	2,070	0.120	0.100	165	0.177	22.3	116
		D6E	10,050	0.549	5.99	123	0.371	0.834	2,860	15.5	4.78	10.1	13,100	35.7	3,050	316	13.2	1,430	0.085	0.063	116	0.155	22.0	81.9
		Average	10,860	0.810	8.44	128	0.405	1.67	2,792	17.2	5.38	12.9	14,800	55.9	3,208	368	13.5	1,894	0.119	0.075	130	0.164	24.6	104
158-O1	0 to 1	D1A	6,340	1.79	11.7	83.8	0.242	2.69	3,590	17.5	4.44	23.7	14,300	182	3,290	285	12.4	1,290	0.170	0.150	97.9	0.218	24.5	317
		D1B	7,130	0.258	3.20	68.3	0.294	0.389	3,900	16.8	4.94	12.2	15,000	16.3	4,000	223	12.8	1,340	0.140	0.063	158	0.105	27.1	59.0
		D1C	7,940	8.44	25.5	99.0	0.274	5.08	8,200	16.4	4.37	36.0	16,700	562	4,130	343	13.5	1,860	0.820	1.37	187	0.659	29.6	448
		D1D	8,070	0.296	3.48	69.9	0.288	0.324	3,870	18.1	4.96	12.2	17,300	22.5	4,240	186	13.7	1,670	0.120	0.093	185	0.121	30.0	65.8
		D1E	5,870	3.99	15.4	54.1	0.199	2.08	3,950	18.8	4.33	20.0	17,350	255	3,255	186	11.1	1,235	0.285	0.222	132	0.368	33.4	178
		Average	7,070	2.95	11.9	75.0	0.259	2.11	4,702	17.5	4.61	20.8	16,130	207	3,783	245	12.7	1,479	0.307	0.380	152	0.294	28.9	213
	1 to 6	D6A	6,570	2.49	13.0	80.4	0.255	2.43	3,300	17.2	4.38	49.2	14,600	234	3,440	233	12.4	1,340	0.130	0.138	103	0.192	23.9	309
		D6B	6,610	0.139	2.47	66.7	0.285	0.110	3,170	17.4	4.92	11.0	14,100	6.71	3,590	223	13.3	1,210	0.100	0.031	115	0.097	25.4	39.5
		D6C	10,800	4.24	30.0	96.2	0.356	2.19	5,100	29.6	7.76	44.6	25,300	278	5,590	359	18.6	1,720	0.380	0.410	216	0.324	53.1	201
		D6D	8,330	0.253	3.86	74.9	0.326	0.266	3,550	20.6	5.71	14.3	17,600	14.3	4,430	237	15.1	1,700	0.150	0.646	199	0.121	35.6	50.4
		D6E	6,755	3.34	21.2	54.1	0.236	1.82	3,885	20.4	4.76	22.2	19,250	218	3,615	198	12.2	1,230	0.250	0.166	136	0.284	35.9	143
		Average	7,813	2.09	14.1	74.5	0.292	1.36	3,801	21.0	5.51	28.3	18,170	150	4,133	250	14.3	1,440	0.202	0.278	154	0.204	34.8	148
169-H1	0 to 1	D1A	8,630	0.375	3.81	90.7	0.347	0.978	8,760	28.7	4.58	14.7	15,200	31.9	4,010	200	12.7	2,010	5.76	0.094	205	0.123	23.3	74.9
		D1B	7,220	0.735	3.76	98.2	0.318	1.71	15,000	30.1	3.84	11.1	13,500	73.8	3,520	182	10.3	1,490	2.44	0.125	221	0.127	22.9	101
		D1C	16,900	2.45	10.2	325	0.593	2.76	9,880	19.0	6.42	25.5	18,400	117	4,320	793	18.7	2,280	0.720	0.298	318	0.197	26.6	211
		D1D	16,400	1.44	9.41	275	0.591	2.35	9,480	18.9	6.26	23.3	18,000	106	4,220	709	19.6	2,030	0.650	0.277	300	0.179	28.6	177
		D1E	10,800	1.02	5.17	168	0.423	1.48	8,605	14.7	5.01	15.2	13,900	57.0	3,495	467	13.5	1,975	0.945	0.140	200	0.140	22.1	112
		Average	11,990	1.20	6.47	191	0.454	1.85	10,345	22.3	5.22	18.0	15,800	77.1	3,913	470	15.0	1,957	2.10	0.187	249	0.153	24.7	135
	1 to 6	D6A	10,500	0.456	4.61	106	0.428	1.20	10,500	36.7	5.54	16.1	17,300	37.2	4,630	222	15.5	2,050	6.84	0.109	235	0.148	27.9	85.5
		D6B	7,630	0.785	3.96	95.8	0.299	1.97	18,500	29.3	3.60	11.0	14,300	80.6	3,700	198	9.66	1,470	2.58	0.136	222	0.138	21.2	99.5
		D6C	18,900	1.98	12.4	365	0.655	2.73	8,230	21.0	7.14	29.0	19,500	121	4,140	851	20.6	2,160	0.690	0.317	332	0.203	28.4	212
		D6D	17,500	1.30	10.8	305	0.640	2.54	7,880	19.5	6.80	25.0	18,800	118	4,090	787	20.3	1,970	0.630	0.316	304	0.192	28.9	182
		D6E	11,650	1.13	6.20	194	0.454	1.68	9,605	15.3	5.30	16.9	14,550	65.1	3,465	525	14.0	1,905	1.26	0.163	193	0.164	22.4	116
		Average	13,236	1.13	7.59	213	0.495	2.02	10,943	24.4	5.68	19.6	16,890	84.4	4,005	517	16.0	1,911	2.40	0.208	257	0.169	25.8	139
174-A1	0 to 1	D1A	16,400	0.507	9.94	203	0.755	1.06	3,860	25.1	10.5	24.4	21,500	37.5	4,520	602	25.0	2,490	0.260	0.129	101	0.169	40.5	94.4
		D1B	17,800	1.04	9.64	275	0.551	2.63	7,790	17.4	7.01	23.3	17,000	68.5	4,210	704	22.2	2,360	0.330	0.243	143	0.182	33.3	478
		D1C	18,500	1.11	11.3	269	0.556	2.80	7,040	17.9	7.09	23.2	17,600	89.3	4,130	672	20.8	2,720	0.330	0.220	158	0.184	32.7	193
		D1D	17,400	0.891	10.7	322	0.499	2.47	10,600	20.5	6.75	29.1	16,700	53.8	4,360	779	21.4	2,770	0.350	0.265	175	0.171	31.7	216
		D1E	21,750	0.976	9.47	279	0.626	2.24	6,495	18.4	7.25	22.7	17,900	68.4	4,130	717	23.0	2,310	0.305	0.202	179	0.199	36.2	181
		Average	18,370	0.905	10.2	270	0.597	2.24	7,157	19.9	7.72	24.5	18,140	63.5	4,270	695	22.5	2,530	0.315	0.212	151	0.181	34.9	232
	1 to 6	D6A	19,200	0.880	12.3	273	0.864	2.00	4,690	24.7	10.9	28.6	21,800	58.0	4,740	726	27.3	2,430	0.360	0.226	113	0.204	43.2	142
		D6B	17,800	0.964	9.45	231	0.502	2.26	6,820	14.9	6.14	20.5	16,000	60.6	3,950	660	18.8	1,920	0.280	0.211	145	0.162	29.0	219
		D6C	16,500	1.12	9.51	227	0.512	2.34	6,270	15.0	6.17	20.5	15,100	77.8	3,450	591	17.4	1,820	0.260	0.186	135	0.164	27.3	160
		D6D	17,000	0.897	11.3	294	0.468	2.26	11,000	19.5	6.38	28.5	15,800	49.4	4,180	737	20.4	2,450	0.360	0.243	173	0.158	30.4	198
		D6E	22,450	1.19	10.7	264	0.652	2.35	6,660	17.3	7.19	21.9	18,150	76.2	3,900	759	21.9	1,940	0.645	0.225	183	0.254	33.7	166
		Average	18,590	1.01	10.7	258	0.600	2.24	7,088	18.3	7.36	24.0	17,370	64.4	4,044	695	21.2	2,112	0.381	0.218	150	0.188	32.7	177

Table 5-5. Summary of Residential Soil Metals Data based on Discrete Soil Samples

DU	Sample Depth (inches)	Sample Location [a]	Soil Concentration by Analyte (mg/kg dw)																				
			Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc
178-H1	0 to 1	D1A	15,900	0.579	6.62	165	0.694	0.840	4,620	21.2	6.97	17.3	19,700	34.0	3,810	497	16.1	2,150	0.210	0.104	164	0.134	33.7	78.0
		D1B	14,300	0.658	6.98	145	0.745	1.74	3,990	26.3	8.27	21.8	22,800	38.4	4,160	499	19.3	2,000	0.250	0.117	145	0.159	41.5	89.4
		D1C	14,300	0.667	7.24	160	0.682	1.13	4,800	23.6	7.76	19.3	19,800	42.9	3,910	496	17.3	2,000	0.270	0.122	172	0.158	37.0	90.6
		D1D	15,300	0.541	7.32	167	0.634	1.25	4,150	20.2	6.72	16.7	19,100	26.4	3,610	471	15.6	2,030	0.230	0.097	189	0.143	32.5	88.1
		D1E	12,350	0.357	5.96	120	0.654	0.527	4,130	27.6	7.67	19.0	23,950	22.5	3,915	408	17.8	1,835	0.230	0.105	163	0.133	44.7	61.1
		Average	14,430	0.560	6.82	151	0.682	1.10	4,338	23.8	7.48	18.8	21,070	32.8	3,881	474	17.2	2,003	0.238	0.109	167	0.145	37.9	81.4
	1 to 6	D6A	14,500	0.756	7.06	173	0.731	1.17	4,940	21.7	7.09	17.7	18,700	44.2	3,710	526	15.7	2,140	0.250	0.109	149	0.140	32.4	88.1
		D6B	14,500	0.480	6.21	138	0.732	1.14	3,560	28.5	7.87	20.2	22,800	30.9	3,900	442	18.7	1,890	0.260	0.112	137	0.146	41.3	71.9
		D6C	16,700	0.820	8.91	197	0.668	1.13	6,500	22.0	7.08	18.8	18,500	38.1	3,740	589	16.0	2,100	0.290	0.103	204	0.154	30.5	101
		D6D	14,400	0.562	8.12	144	0.686	1.32	4,080	25.6	7.52	18.9	22,200	30.7	3,810	471	17.2	1,950	0.240	0.109	164	0.144	39.9	91.5
		D6E	13,600	0.362	6.16	130	0.731	0.490	4,345	31.9	8.17	19.7	25,500	23.8	4,180	421	19.4	1,830	0.245	0.115	177	0.143	48.2	62.6
		Average	14,740	0.596	7.29	156	0.710	1.05	4,685	25.9	7.55	19.1	21,540	33.5	3,868	490	17.4	1,982	0.257	0.110	166	0.145	38.5	83.0
182-O2	0 to 1	D1A	25,300	2.74	18.7	419	0.637	8.58	13,900	25.6	8.98	34.5	19,500	292	4,880	1,330	27.7	2,460	0.560	0.517	202	0.328	34.0	437
		D1B	28,800	1.58	21.4	329	0.744	5.48	12,700	26.0	9.37	28.5	20,300	184	4,730	944	29.6	2,100	0.530	0.459	229	0.267	36.5	285
		D1C	31,600	1.12	13.1	284	0.908	2.45	8,900	24.7	9.52	29.4	20,700	85.6	4,780	692	26.9	2,050	0.400	0.308	309	0.226	36.8	175
		D1D	28,000	2.01	41.4	367	0.841	5.95	8,120	29.7	10.3	29.8	21,000	160	5,010	1,090	34.1	2,000	0.500	0.342	254	0.304	37.4	370
		D1E	27,100	2.37	18.6	318	0.748	6.35	11,950	24.5	9.23	32.9	19,600	222	4,715	886	26.2	2,570	0.510	0.435	302	0.303	33.9	350
		Average	28,160	1.96	22.6	343	0.776	5.76	11,114	26.1	9.48	31.0	20,220	189	4,823	988	28.9	2,236	0.500	0.412	259	0.286	35.7	323
	1 to 6	D6A	34,700	1.69	25.5	369	0.808	3.75	11,300	28.1	10.3	32.7	23,500	110	5,390	1,080	30.8	2,090	0.590	0.414	252	0.258	39.6	254
		D6B	34,800	1.80	23.6	361	0.900	3.51	13,000	30.2	10.9	32.5	22,000	112	5,060	933	34.3	1,850	0.700	0.393	263	0.246	42.0	230
		D6C	32,100	1.81	18.9	313	0.943	3.34	12,200	26.0	10.2	32.0	20,900	126	4,800	799	28.7	1,770	0.870	0.347	316	0.310	37.5	209
		D6D	30,200	1.92	33.4	333	0.852	3.91	8,510	30.7	10.5	32.2	22,100	98.1	5,170	992	34.0	1,870	0.560	0.325	276	0.272	37.2	283
		D6E	29,300	2.43	22.4	336	0.857	5.56	11,600	27.0	10.2	36.0	20,000	200	4,585	842	28.4	1,945	0.570	0.430	282	0.309	38.1	323
		Average	32,220	1.93	24.8	342	0.872	4.01	11,322	28.4	10.4	33.1	21,700	129	5,001	929	31.2	1,905	0.658	0.382	278	0.279	38.9	260
187-H1	0 to 1	D1A	10,900	1.85	12.9	109	0.372	4.06	2,490	19.1	5.74	13.8	16,600	178	3,290	414	13.1	1,880	0.190	0.103	86.8	0.347	32.6	184
		D1B	13,300	1.41	10.8	145	0.418	3.04	3,250	19.2	6.08	15.0	18,300	127	3,320	509	13.4	2,150	0.170	0.195	101	0.208	33.1	165
		D1C	13,600	1.47	10.1	154	0.423	2.94	3,650	20.1	6.14	16.3	18,600	120	3,280	491	14.0	2,170	0.220	0.140	112	0.214	35.2	145
		D1D	10,100	2.02	12.9	112	0.355	3.88	2,520	20.5	6.21	15.2	17,700	173	3,250	469	13.9	2,040	0.180	0.145	78.3	0.278	33.3	166
		D1E	12,000	1.49	11.0	132	0.397	3.24	2,805	20.4	6.17	13.8	18,500	130	3,350	499	13.7	2,040	0.175	0.104	86.2	0.254	35.0	163
		Average	11,980	1.65	11.5	130	0.393	3.43	2,943	19.9	6.07	14.8	17,940	146	3,298	476	13.6	2,056	0.187	0.137	92.9	0.260	33.8	165
	1 to 6	D6A	12,400	1.96	14.8	119	0.397	4.31	3,290	20.6	6.09	16.0	18,600	144	3,440	431	14.2	1,830	0.260	0.091	94.3	0.270	35.6	189
		D6B	15,100	1.46	11.1	167	0.450	2.90	3,390	21.4	6.58	16.8	19,900	119	3,440	541	14.7	2,200	0.210	0.156	120	0.216	37.2	156
		D6C	14,200	1.49	11.4	177	0.484	2.87	3,940	23.0	7.14	18.1	20,100	118	3,440	527	16.1	2,200	0.230	0.152	120	0.233	40.6	154
		D6D	12,000	1.73	11.7	108	0.371	3.07	2,730	20.1	6.05	14.6	19,000	124	3,570	482	14.0	2,180	0.170	0.126	86.6	0.225	31.7	152
		D6E	13,600	1.56	11.4	140	0.434	2.62	3,030	21.5	6.52	15.7	19,700	105	3,530	535	14.8	2,050	0.220	0.101	93.6	0.206	36.7	138
		Average	13,460	1.64	12.1	142	0.427	3.15	3,276	21.3	6.48	16.2	19,460	122	3,484	503	14.8	2,092	0.218	0.125	103	0.230	36.4	158
191-H1	0 to 1	D1A	10,500	0.617	7.40	102	0.453	0.926	3,170	24.5	7.17	17.5	19,600	33.8	3,930	331	22.2	2,020	0.120	0.087	155	0.148	33.7	70.1
		D1B	12,200	4.67	17.5	152	0.457	7.39	2,910	21.4	7.02	21.0	18,100	469	3,380	696	17.3	2,320	0.230	0.120	102	0.426	27.6	236
		D1C	12,000	0.675	7.59	127	0.504	1.09	4,570	25.3	7.87	19.0	20,900	49.6	4,250	417	23.4	2,300	0.140	0.124	142	0.158	34.2	91.8
		D1D	11,400	6.81	24.1	206	0.425	20.4	3,910	19.6	6.47	47.7	17,600	918	3,230	787	18.5	2,370	0.330	0.407	102	0.578	25.7	773
		D1E	10,750	3.85	24.5	173	0.421	8.54	3,575	20.3	5.63	30.9	17,150	403	3,190	458	16.2	2,355	0.275	0.215	87.1	0.422	26.2	392
		Average	11,370	3.32	16.2	152	0.452	7.67	3,627	22.2	6.83	27.2	18,670	375	3,596	538	19.5	2,273	0.219	0.191	118	0.346	29.5	313
	1 to 6	D6A	12,200	1.13	14.3	152	0.511	6.34	3,220	29.4	8.19	23.3	21,600	88.6	4,180	572	24.9	2,240	0.200	0.101	144	0.245	36.6	170
		D6B	13,200	1.17	10.6	186	0.511	2.31	2,830	24.3	7.39	16.2	19,700	56.2	3,650	649	20.0	2,570	0.120	0.068	110	0.171	29.3	148
		D6C	13,700	0.590	7.35	150	0.557	0.918	3,650	28.7	7.68	18.8	21,500	44.7	4,210	406	23.5	2,300	0.130	0.098	157	0.166	35.4	90.1
		D6D	12,700	1.35	11.0	195	0.498	1.23	2,880	23.4	6.87	14.1	19,600	41.6	3,620	579	19.3	2,480	0.140	0.057	111	0.155	28.4	137
		D6E	13,550	1.14	9.71	187	0.523	1.10	2,795	22.6	7.00	12.1	19,650	23.3	3,760	682	18.8	2,585	0.125	0.066	107	0.150	28.4	127
		Average	13,070	1.08	10.6	174	0.520	2.38	3,075	25.7	7.43	16.9	20,410	50.9	3,884	578	21.3	2,435	0.143	0.078	126	0.177	31.6	134

Table 5-5. Summary of Residential Soil Metals Data based on Discrete Soil Samples

DU	Sample Depth (inches)	Sample Location [a]	Soil Concentration by Analyte (mg/kg dw)																				
			Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc
202-O1	0 to 1	D1A	8,530	0.652	11.0	87.2	0.318	2.64	3,240	17.0	5.48	35.3	16,300	140	3,950	280	13.6	2,010	0.200	0.265	87.0	0.191	26.9	119
		D1B	8,730	0.687	12.5	107	0.387	3.47	3,440	20.0	6.58	48.2	16,400	166	4,140	298	16.2	2,040	0.280	0.369	86.3	0.200	31.1	131
		D1C	8,390	0.549	12.8	94.0	0.316	2.96	3,500	17.1	5.52	48.5	16,700	124	4,010	313	13.5	1,820	0.230	0.309	85.2	0.170	26.8	135
		D1D	7,510	0.504	7.10	109	0.306	1.93	3,320	16.4	5.21	34.1	14,000	95.5	3,560	293	13.4	1,820	0.190	0.423	89.6	0.148	25.1	120
		D1E	6,185	0.648	8.72	74.4	0.264	2.49	2,750	12.9	3.99	30.1	11,850	159	2,500	206	9.86	1,110	0.210	0.243	82.3	0.145	21.6	95.5
		Average	7,869	0.608	10.4	94.3	0.318	2.70	3,250	16.7	5.36	39.2	15,050	137	3,632	278	13.3	1,760	0.222	0.322	86.1	0.171	26.3	120
	1 to 6	D6A	8,270	0.731	13.6	91.2	0.355	2.91	3,200	17.6	5.93	46.1	15,700	151	3,890	280	14.5	1,790	0.230	0.320	80.7	0.186	27.2	109
		D6B	8,150	0.525	10.2	82.9	0.303	2.71	3,540	15.7	5.22	37.2	15,800	130	3,980	292	12.9	1,770	0.230	0.295	83.2	0.158	24.0	110
		D6C	8,790	0.696	17.9	107	0.370	3.67	3,930	18.3	6.04	69.7	17,200	141	4,220	346	14.8	1,700	0.280	0.390	86.9	0.185	28.0	128
		D6D	7,600	0.626	7.24	111	0.271	1.78	3,990	15.0	4.65	43.1	13,900	86.9	3,620	308	12.2	1,690	0.200	0.262	103	0.133	23.0	117
		D6E	6,220	0.682	9.84	77.2	0.261	2.60	2,795	13.4	4.09	34.6	11,700	160	2,470	203	10.3	1,006	0.250	0.290	84.1	0.144	22.4	87.9
		Average	7,806	0.652	11.8	93.9	0.312	2.73	3,491	16.0	5.19	46.1	14,860	134	3,636	286	12.9	1,591	0.238	0.311	87.6	0.161	24.9	110
203-O1	0 to 1	D1A	21,500	20.90	71.1	233	0.751	18.7	5,140	11.4	5.30	71.3	15,900	1540	2,970	598	11.7	1,330	1.09	0.975	189	0.892	24.4	613
		D1B	24,400	17.80	78.3	301	0.818	22.6	2,910	11.2	5.47	58.6	16,200	1160	3,030	876	10.9	1,260	0.880	0.909	189	0.889	24.4	706
		D1C	19,500	18.70	108	204	0.676	11.9	2,320	14.5	4.72	77.9	17,200	1210	3,050	368	12.0	1,200	0.800	0.985	190	1.00	29.2	498
		D1D	28,700	10.60	43.4	252	0.835	15.9	3,250	12.9	7.07	43.6	17,100	499	3,280	1,000	12.8	1,300	0.670	0.598	245	0.639	29.1	645
		D1E	23,900	23.90	151	175	0.724	11.3	2,830	13.8	5.41	83.9	18,800	1530	3,225	469	13.0	1,195	0.940	1.02	222	1.17	31.8	655
		Average	23,600	18.38	90.4	233	0.761	16.1	3,290	12.8	5.59	67.1	17,040	1188	3,111	662	12.1	1,257	0.876	0.896	207	0.917	27.8	623
	1 to 6	D6A	31,300	10.30	42.1	301	0.952	14.4	3,380	12.1	7.32	40.0	17,100	401	3,220	1,420	12.8	1,330	0.720	0.385	239	0.481	26.4	608
		D6B	29,800	10.20	32.6	318	0.832	14.1	2,900	11.0	6.32	35.5	17,400	365	3,200	1,330	11.1	1,240	0.680	0.497	233	0.414	24.1	602
		D6C	26,200	6.75	39.9	230	0.794	8.31	1,810	14.2	7.39	37.1	17,300	209	3,070	965	12.6	1,140	0.890	0.320	213	0.421	29.2	226
		D6D	28,500	15.30	54.4	264	0.822	17.6	3,170	13.1	6.67	52.6	17,500	840	3,310	878	12.5	1,240	0.840	0.668	237	0.721	28.8	674
		D6E	33,750	9.78	47.3	253	0.942	15.0	2,095	12.9	7.86	50.1	18,650	331	3,230	1,060	13.3	1,205	0.760	0.476	248	0.423	30.0	375
		Average	29,910	10.47	43.3	273	0.868	13.9	2,671	12.7	7.11	43.1	17,590	429	3,206	1,131	12.5	1,231	0.778	0.469	234	0.492	27.7	497
207-O1	0 to 1	D1A	9,680	0.482	4.28	108	0.307	1.26	3,170	10.7	3.59	9.74	10,900	44.9	2,490	287	9.41	1,180	0.170	0.087	105	0.147	18.1	98.6
		D1B	15,100	2.43	19.0	214	0.445	6.65	5,270	12.0	4.65	22.6	13,300	275	2,820	467	11.7	1,270	0.330	0.235	135	0.360	23.7	293
		D1C	10,900	0.854	9.33	157	0.358	2.41	3,510	11.1	4.11	14.4	12,600	97.2	2,520	418	10.3	1,250	0.230	0.129	107	0.168	20.4	125
		D1D	10,300	1.05	9.40	109	0.303	2.64	3,380	10.9	3.64	11.2	12,800	98.8	2,640	330	10.5	1,330	0.210	0.111	114	0.190	20.2	149
		D1E	9,865	0.905	8.45	140	0.308	2.16	3,340	10.3	3.63	11.0	11,900	90.5	2,495	401	9.84	1,275	0.220	0.099	96.0	0.147	18.4	125
		Average	11,169	1.14	10.1	146	0.344	3.02	3,734	11.0	3.92	13.8	12,300	121	2,593	381	10.4	1,261	0.232	0.132	111	0.202	20.2	158
	1 to 6	D6A	10,000	0.942	8.89	119	0.330	2.44	3,180	11.4	3.96	11.3	11,500	104	2,460	353	10.2	1,070	0.290	0.113	104	0.179	19.6	118
		D6B	17,300	1.78	21.1	160	0.471	3.48	3,530	10.9	4.56	18.3	14,200	151	2,700	526	10.6	1,140	0.320	0.176	144	0.215	22.2	158
		D6C	11,200	0.825	8.32	140	0.337	1.90	3,490	10.4	3.72	12.8	12,600	80.3	2,500	394	9.46	1,110	0.220	0.100	119	0.154	19.2	101
		D6D	11,500	1.07	10.3	134	0.368	2.05	3,130	11.3	4.04	12.4	13,200	80.3	2,590	408	11.0	1,310	0.250	0.128	118	0.157	20.9	115
		D6E	10,195	1.16	11.6	149	0.333	2.37	3,035	11.1	3.91	12.2	12,250	112	2,465	416	10.5	1,135	0.240	0.101	95.7	0.167	20.0	127
		Average	12,039	1.15	12.0	140	0.368	2.45	3,273	11.0	4.04	13.4	12,750	105	2,543	419	10.4	1,153	0.264	0.124	116	0.174	20.4	124
806-O4	0 to 1	D1A	12,400	0.799	7.98	219	0.561	1.66	6,930	18.1	6.83	18.4	17,000	42.8	3,440	497	16.1	2,260	0.220	0.113	72.9	0.116	27.6	98.3
		D1B	12,400	0.863	8.81	206	0.569	1.61	6,260	19.5	7.17	18.1	18,200	45.3	3,440	493	17.0	2,310	0.260	0.137	68.2	0.120	30.1	94.3
		D1C	11,400	0.879	7.13	191	0.520	1.19	6,570	17.7	6.81	15.6	16,400	34.7	3,460	457	14.9	2,090	0.920	0.162	76.0	0.253	26.2	77.4
		D1D	11,300	0.738	7.02	186	0.478	1.65	6,450	16.2	6.10	15.6	16,500	45.7	3,090	473	13.3	1,600	0.200	0.093	65.4	0.119	24.9	99.9
		D1E	14,150	0.978	17.1	230	0.655	2.71	7,145	21.2	8.45	27.4	19,000	62.2	3,700	644	21.4	1,845	0.300	0.223	67.1	0.151	32.0	141
		Average	12,330	0.851	9.61	206	0.557	1.76	6,671	18.5	7.07	19.0	17,420	46.1	3,426	513	16.5	2,021	0.380	0.146	69.9	0.152	28.2	102
	1 to 6	D6A	12,100	0.720	7.50	204	0.517	1.50	6,350	17.4	6.43	17.1	16,400	40.6	3,250	482	15.0	1,700	0.220	0.118	66.8	0.115	26.0	93.8
		D6B	12,800	1.04	9.70	229	0.631	1.86	6,610	20.6	7.77	20.3	18,500	51.4	3,540	517	18.6	2,070	0.270	0.164	72.7	0.139	31.9	104
		D6C	11,500	0.838	8.10	208	0.584	1.28	5,590	19.1	6.96	17.2	17,000	43.1	3,120	476	16.1	1,980	0.260	0.107	74.2	0.128	28.8	86.2
		D6D	12,900	0.887	9.13	221	0.602	1.76	5,760	20.1	7.53	18.2	18,400	55.1	3,260	540	16.5	1,580	0.240	0.122	74.0	0.133	31.0	104
		D6E	16,100	0.970	18.4	239	0.711	2.19	6,740	21.9	9.12	27.4	20,150	46.3	3,815	669	23.0	1,850	0.350	0.215	72.0	0.147	33.7	129
		Average	13,080	0.891	10.6	220	0.609	1.72	6,210	19.8	7.56	20.0	18,090	47.3	3,397	537	17.8	1,836	0.268	0.145	71.9	0.132	30.3	103

Table 5-5. Summary of Residential Soil Metals Data based on Discrete Soil Samples

DU	Sample Depth (inches)	Sample Location [a]	Soil Concentration by Analyte (mg/kg dw)																				
			Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc
808-O2	0 to 1	D1A	11,300	1.41	8.94	235	0.378	1.63	3,500	22.5	7.03	12.0	18,100	76.2	3,610	722	17.5	2,280	0.190	0.144	114	0.159	28.8	113
		D1B	11,200	0.552	8.77	151	0.419	0.708	3,100	24.1	10.4	15.2	19,200	20.4	3,980	409	20.8	2,210	0.180	0.105	132	0.121	32.4	61.3
		D1C	11,500	0.715	7.23	196	0.359	1.39	3,650	22.5	7.31	11.6	18,400	39.7	3,820	582	18.1	2,380	0.170	0.147	120	0.128	28.6	100
		D1D	10,800	0.657	7.31	219	0.342	0.943	2,570	21.2	6.52	9.32	17,700	34.5	3,300	524	16.3	1,850	0.140	0.093	124	0.109	28.3	83.3
		D1E	9,225	1.44	8.05	255	0.286	1.82	4,140	19.2	5.47	9.23	15,500	91.2	2,930	658	14.1	1,745	0.185	0.159	93.8	0.142	25.7	115
		Average	10,805	0.954	8.06	211	0.357	1.30	3,392	21.9	7.35	11.5	17,780	52.4	3,528	579	17.4	2,093	0.173	0.130	117	0.132	28.8	94.6
	1 to 6	D6A	10,900	1.24	8.94	246	0.368	1.43	3,130	23.4	7.01	11.8	17,500	68.5	3,370	662	17.9	2,040	0.270	0.166	111	0.160	28.8	115
		D6B	11,900	0.674	9.59	153	0.447	0.479	2,720	26.4	9.24	15.9	20,200	21.4	4,100	366	21.8	2,040	0.190	0.115	130	0.114	33.8	62.3
		D6C	13,600	0.833	7.44	188	0.364	0.852	3,060	23.2	7.04	11.4	19,600	39.3	4,090	536	18.6	2,540	0.170	0.146	321	0.123	28.8	86.4
		D6D	10,900	0.691	8.29	207	0.357	0.440	1,720	24.0	6.75	9.91	18,400	26.3	3,400	404	17.3	1,710	0.170	0.094	112	0.110	30.5	73.5
		D6E	10,300	1.23	7.57	213	0.281	0.986	2,680	20.6	5.20	8.26	16,550	66.1	3,060	451	14.5	1,725	0.165	0.116	105	0.124	26.3	90.7
		Average	11,520	0.933	8.37	201	0.363	0.837	2,662	23.5	7.05	11.5	18,450	44.3	3,604	484	18.0	2,011	0.193	0.127	156	0.126	29.6	85.6

Notes:

[a] Duplicate discrete measures were taken at the E location for all samples. The average of the duplicate is reported.

Table 5-6. Summary of Discrete Soil Field Sample RPDs and IC Soil Field Sample Triplicate RSDs

Analyte	Discrete 0 to 1 inch Duplicate Samples			Discrete 1 to 6 inch Duplicate Samples			IC Triplicate Samples		
	Number of Samples	Number of RPDs ± 35%[a]	Maximum RPD (%)	Number of Samples	Number of RPDs ± 35%[a]	Maximum RPD (%)	Number of Samples	Number of RSDs > 30%[b]	Maximum RSD (%)
Conventional Parameters									
Solids	29	0	5.70	29	0	1.85	144	0	5.91
Metals/Metalloids									
Aluminum	29	0	15.1	29	0	15.2	144	0	11.9
Antimony	29	2	53.7	29	3	100	144	0	24.5
Arsenic	29	0	32.1	29	1	52.6	144	0	23.8
Barium	29	0	17.5	29	0	33.8	144	0	20.5
Beryllium	29	0	13.3	29	0	32.1	144	2	36.4
Cadmium	29	1	62.3	29	4	110	144	0	27.7
Calcium	29	0	32.5	29	1	37.3	144	3	71.7
Chromium	29	0	14.0	29	0	26.1	144	1	114
Cobalt	29	0	17.1	29	0	31.8	144	0	22.7
Copper	29	0	29.4	29	1	44.7	144	1	36.0
Iron	29	0	10.9	29	0	14.5	144	0	13.7
Lead	29	3	61.0	29	4	118	144	1	37.2
Magnesium	29	0	25.5	29	0	24.9	144	0	12.7
Manganese	29	1	39.7	29	1	55.0	144	0	11.5
Nickel	29	0	17.1	29	0	30.2	144	1	75.3
Potassium	29	0	19.0	29	0	19.6	144	0	9.4
Selenium	29	2	85.7	29	6	107	144	8	90.4
Silver	29	2	44.0	29	3	56.3	144	5	83.8
Sodium	29	0	13.3	29	0	14.1	144	0	13.9
Thallium	29	0	30.4	29	3	53.3	144	2	36.1
Vanadium	29	0	16.2	29	0	25.8	144	0	22.0
Zinc	29	0	33.8	29	2	38.3	144	0	26.0

Notes:

Highlighted cells identify relative percent differences (RPDs) and relative standard deviations (RSDs) greater than the control limit.

[a] As specified in the QAPP Addendum (Ramboll Environ 2016a), 35% is a data quality indicator used to assess precision in the measurements between primary and duplicate discrete soil field samples. The RPD is calculated as the difference between the primary and duplicate sample results divided by the average of those results and expressed as a percentage. RPDs that fall within the range of -35% to +35% are considered to have met the RPD data quality indicator.

[b] As specified in the QAPP Addendum (Ramboll Environ 2016a), 30% is a data quality indicator used to assess precision in the measurements between triplicate IC soil field samples. The RSD is expressed as a percentage and is calculated by dividing the standard deviation of the triplicate results by the mean of the triplicate results. RSDs that do not exceed 30% are considered to have met the RSD data quality indicator.

IC - Incremental composite

Table 5-7. Summary of IC Soil Sample Metals Data Compared with Available Human Health Screening Levels

Analyte	Screening Level (mg/kg)[a]	Number of DUs	Number of DUs > Screening Level
Soil Concentrations with RBA Adjustment			
Site-Specific Bioavailability Adjusted Arsenic	20	41	0
Site-Specific Bioavailability Adjusted Lead	400	41	2
Soil Concentrations without RBA Adjustment			
Aluminum	77,400	452	0
Antimony	31.3	452	0
Arsenic	20	452	33
Barium	15,300	452	0
Beryllium	156	452	0
Cadmium	70.3	452	1
Calcium	na	452	na
Chromium	na	452	na
Cobalt	23.4	452	1
Copper	3,130	452	0
Iron	54,800	452	0
Lead	see above[b]	452	see above[b]
Magnesium	na	452	na
Manganese	1,830	452	1
Nickel	1,550	452	0
Potassium	na	452	na
Selenium	391	452	0
Silver	391	452	0
Sodium	na	452	na
Thallium	0.782	452	2
Vanadium	394	452	0
Zinc	23,500	452	0

Notes:

Highlighted cells identify metals with incremental composite (IC) soil sample results that exceed the screening level.

[a] Except for arsenic, chromium, and four essential nutrients (calcium, magnesium, potassium, and sodium) screening levels are conservative risk-based concentrations calculated using EPA's Regional Screening Level Calculator (http://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search) and default values for residential exposure factors. The screening level for arsenic is based on the Washington cleanup level (20 mg/kg) and was established as the project action limit for arsenic in the 2014 study. There is no human health screening level for total chromium.

[b] The EPA screening value for lead (400 mg/kg) incorporates a default relative bioavailability (RBA) assumption and is not directly comparable to measured lead as reported by the analytical laboratory without adjustment for RBA. Note, the State of Washington has adopted a screening level for lead of 250 mg/kg, which is the value that was reported to landowners in letters summarizing their residence-specific study results.

DU - decision unit

na - not available

Table 5-8. Comparison of Residential Soil Metals Data based on IC Soil Samples[a]

DU	Sample Depth (inches)	Site-Specific Bioavailability Adjusted Soil Concentration (mg/kg dw)		Soil Concentration by Analyte (mg/kg dw)																			
		Arsenic[b]	Lead[c]	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc
Screening Level (mg/kg)		20[d]	400	77,400	31.3	20[d]	15,300	156	70.3	na	na	23.4	3,130	54,800	NA[e]	na	1,830	1,550	na	391	391	na	0.782	394	23,500
075-A1	0 to 1	na	na	14,900	1.03	7.83	167	0.448	2.34	14,500	20.0	6.29	21.1	16,200	83.3	4,210	451	16.8	2,550	0.340	0.183	258	0.186	26.0	172
075-B1	0 to 1	na	na	5,640	11.5	7.28	375	0.253	2.26	19,500	18.3	6.86	146.0	22,500	118	10,600	372	12.5	1,010	0.390	1.13	225	0.172	23.7	1,120
075-H1	0 to 1	1.61	82.0	19,567	1.60	12.2	170	0.563	3.19	23,167	19.2	6.16	28.4	15,967	112	4,560	487	15.7	1,363	0.473	0.316	239	0.241	27.9	240
075-O1	0 to 1	na	na	6,360	2.40	12.8	545	0.280	6.09	40,800	17.7	5.16	50.4	30,300	315	22,600	374	15.9	1,170	0.510	0.667	211	0.288	29.5	1,350
076-D1	0 to 1	na	na	19,700	1.30	12.9	237	0.546	2.74	6,130	23.3	8.25	25.8	19,300	113	4,760	691	20.2	2,080	0.350	0.248	200	0.230	33.9	338
076-G1	0 to 3	na	na	18,400	1.34	11.5	226	0.493	2.74	15,000	24.2	7.21	23.1	18,600	101	6,830	591	18.2	2,150	0.590	0.292	172	0.215	30.0	301
076-G2	0 to 4.5	na	na	22,400	1.73	17.6	226	0.610	3.14	5,990	21.6	7.48	27.8	19,400	113	4,530	720	19.3	2,370	0.360	0.368	178	0.215	31.4	209
076-H1	0 to 1	na	na	17,100	1.32	12.7	396	0.479	3.36	22,500	26.2	8.02	30.2	18,700	111	6,410	978	20.7	3,010	0.330	0.549	250	0.217	32.2	373
076-H2	0 to 1	na	na	19,733	1.34	15.0	231	0.620	2.82	8,197	22.0	7.74	30.0	18,400	109	4,550	651	19.2	2,033	0.347	0.210	129	0.205	31.9	205
076-N1	0 to 3	na	na	18,800	3.02	15.6	252	0.531	3.09	8,690	26.4	7.89	24.8	19,200	187	6,000	633	19.9	3,370	0.390	0.694	257	0.220	31.0	258
077-A1	0 to 1	na	na	10,300	0.381	4.13	99.0	0.285	0.746	2,790	13.9	4.16	9.59	12,900	38.3	2,880	259	11.7	1,380	0.110	0.112	132	0.112	18.9	77.7
077-A2	0 to 1	na	na	9,520	0.423	3.43	101	0.270	0.931	4,410	13.7	3.86	10.3	12,300	37.2	2,940	258	10.8	1,530	0.140	0.122	134	0.119	17.8	284
077-D1	0 to 1	na	na	10,400	0.616	5.76	110	0.275	1.08	2,500	13.3	3.96	10.0	12,800	54.4	2,810	299	10.9	1,300	0.110	0.086	121	0.132	18.2	92.2
077-G1	0 to 12	na	na	11,300	0.402	3.94	116	0.314	0.718	2,660	15.4	4.55	10.5	13,800	33.8	3,230	257	12.4	1,740	0.120	0.459	146	0.123	20.7	72.2
077-H1	0 to 1	na	na	9,897	0.463	4.90	105	0.310	0.894	2,557	15.5	4.44	10.6	13,100	43.2	3,013	262	12.6	1,470	0.117	0.077	134	0.137	20.5	83.2
077-H2	0 to 1	na	na	10,100	0.466	4.05	114	0.287	0.916	3,940	15.2	4.24	10.9	12,800	44.2	3,000	276	11.8	1,530	0.140	0.103	138	0.128	19.1	102
077-N1	0 to 3	na	na	10,600	0.484	4.32	109	0.328	0.817	2,660	18.4	4.56	11.0	13,500	41.3	3,200	255	13.5	1,930	0.140	1.24	140	0.138	20.4	78.4
078-G1	0 to 12	na	na	10,800	0.350	4.56	150	0.318	1.12	7,860	14.1	4.37	14.2	13,000	45.1	3,640	344	12.1	1,870	0.250	0.188	178	0.121	18.5	125
078-H1	0 to 1	na	na	9,333	0.226	3.14	102	0.275	0.758	3,550	13.1	3.97	10.3	12,633	29.2	3,080	244	11.3	1,617	0.097	0.076	111	0.114	17.8	83.9
078-N1	0 to 3	na	na	9,310	0.274	3.73	107	0.287	0.669	4,380	13.2	3.90	11.3	11,500	31.9	2,970	241	11.4	1,960	0.180	0.215	150	0.107	16.5	85.3
078-O1	0 to 1	na	na	10,700	0.259	3.68	118	0.302	0.877	3,720	14.5	4.49	11.4	13,800	38.1	3,490	304	12.4	1,820	0.110	0.095	132	0.128	18.7	88.6
079-H1	0 to 1	na	na	15,600	0.923	9.74	206	0.379	2.20	4,010	14.3	5.18	16.8	16,100	83.0	3,760	435	14.9	1,460	0.180	0.163	179	0.189	22.4	168
079-H2	0 to 1	na	na	20,700	1.64	17.9	330	0.497	3.46	4,293	14.4	6.47	24.2	17,367	145	3,493	705	22.9	1,410	0.280	0.259	213	0.285	24.7	277
080-H1	0 to 1	na	na	16,933	0.545	13.0	146	0.516	0.970	5,870	30.1	12.2	29.7	22,800	28.1	7,353	521	35.9	2,967	0.320	0.170	281	0.203	43.8	109
081-A1	0 to 1	na	na	14,300	0.565	5.84	155	0.448	1.19	8,440	18.9	6.66	18.8	16,800	43.1	5,150	426	16.0	2,490	0.250	0.138	266	0.157	27.5	140
081-D1	0 to 1	na	na	16,200	0.728	10.8	158	0.550	2.05	18,700	28.3	10.7	32.0	24,200	69.8	9,780	520	26.3	2,430	0.450	0.291	353	0.254	42.0	264
081-H1	0 to 1	na	na	13,233	0.785	10.1	135	0.478	1.83	34,067	25.7	10.2	28.1	21,833	54.1	11,600	481	24.7	2,387	0.380	0.344	285	0.175	36.2	189
081-O1	0 to 1	na	na	15,800	1.54	10.9	148	0.538	4.16	9,420	22.7	9.91	26.2	21,800	150	6,700	620	22.4	2,870	0.290	0.259	232	0.239	32.6	224
082-G1	0 to 9	na	na	10,800	0.319	4.65	101	0.321	0.657	5,340	13.0	4.48	12.4	12,900	27.1	3,430	310	11.5	1,440	0.230	0.217	167	0.128	19.6	67.7
082-G2	0 to 10	na	na	14,400	0.517	6.54	140	0.405	1.26	4,530	12.8	4.69	13.9	12,900	48.8	3,420	386	11.5	1,400	0.180	0.195	233	0.143	19.5	113
082-H1	0 to 1	na	na	11,833	0.442	5.33	111	0.356	1.19	5,417	14.2	4.78	12.0	14,400	49.6	3,593	357	11.8	1,687	0.147	0.082	186	0.145	22.4	94.4
082-N1	0 to 1	na	na	12,500	0.475	5.70	131	0.363	1.08	6,360	13.5	4.31	13.1	13,500	42.1	3,730	369	11.7	2,510	0.180	0.082	281	0.130	20.5	101
082-N2	0 to 1	na	na	13,400	0.506	6.38	119	0.410	1.34	3,980	12.8	4.59	13.5	13,100	51.0	3,460	403	11.6	1,710	0.150	0.090	193	0.153	19.3	119
083-G1	0 to 8	na	na	15,500	0.527	8.07	179	0.455	1.22	6,240	19.0	6.26	19.9	16,300	42.1	4,360	384	15.7	2,300	0.320	0.198	243	0.159	28.2	83.2
083-G2	0 to 11.5	na	na	14,700	0.572	7.63	158	0.409	1.13	6,420	15.6	5.60	17.9	15,400	36.4	4,250	384	13.4	2,130	0.340	0.160	226	0.142	23.7	88.2
083-H1	0 to 1	na	na	13,300	0.642	8.74	141	0.413	1.63	6,683	19.3	6.50	22.5	16,600	52.8	4,617	384	16.6	2,667	0.253	0.150	178	0.153	28.2	112
084-D1	0 to 1	na	na	14,600	0.357	4.36	185	0.499	0.766	10,000	26.7	8.24	22.9	22,200	25.2	7,110	441	21.8	3,240	0.210	0.123	282	0.182	35.2	143
084-H1	0 to 1	na	na	13,900	0.602	4.69	198	0.429	1.00	9,380	22.4	6.72	17.2	19,833	44.6	5,743	496	18.1	3,403	0.247	0.126	217	0.179	28.3	105
085-D1	0 to 1	na	na	10,300	0.487	5.38	134	0.320	1.02	3,590	14.6	5.00	13.5	14,200	64.3	2,890	324	11.7	1,360	0.170	0.206	138	0.138	22.3	323
085-H1	0 to 1	na	na	11,500	0.899	7.88	150	0.373	1.96	5,920	14.6	5.77	16.5	15,267	71.4	3,180	489	13.1	1,630	0.230	0.221	129	0.174	23.8	136
085-O1	0 to 1	na	na	11,800	1.65	10.1	204	0.360	2.54	10,000	15.3	8.29	46.9	15,000	94.7	3,130	549	16.4	1,800	0.290	0.991	178	0.184	22.4	217
085-P1	0 to 1	3.76	157	16,200	1.79	13.8	547	0.492	4.12	6,790	18.5	6.82	23.2	16,800	144	3,160	925	23.0	2,760	0.420	0.261	254	0.252	21.1	273
086-G1	0 to 10	na	na	18,867	1.28	10.0	196	0.527	2.20	9,600	14.3	5.60	26.9	16,600	85.7	4,173	589	11.6	1,610	0.287	0.388	306	0.190	29.0	145
086-H1	0 to 1	na	na	16,400	0.880	8.82	154	0.435	1.73	7,720	12.5	4.66	15.4	15,400	72.3	3,510	436	10.1	1,210	0.180	0.136	262	0.157	26.4	106
086-H2	0 to 1	na	na	20,800	1.38	12.2	217	0.633	3.08	6,560	14.5	5.78	21.0	16,600	110	3,360	593	12.7	1,400	0.270	0.198	274	0.222	29.6	156
087-H1	0 to 1	na	na	17,100	0.923	8.02	178	0.479	1.72	4,137	13.1	5.17	17.2	15,700	61.4	3,257	451	10.8	1,240	0.210	0.139	238	0.170	25.6	100
087-O1	0 to 1	na	na	20,600	1.46	12.5	218	0.595	3.14	3,740	12.6	5.78	20.7	16,500	110	3,270	600	11.3	1,320	0.260	0.166	239	0.237	27.2	146
088-D1	0 to 1	na	na	25,300	2.04	18.0	310	0.753	4.43	26,800	31.2	10.3	35.1	22,800	182	9,610	611	32.8	2,570	0.350	0.285	480	0.373	42.6	220
088-H1	0 to 1	na	na	24,300	2.44	21.6	237	0.697	5.50	9,110	16.7	6.31	25.0	18,600	219	4,480	642	15.9	1,810	0.320	0.247	295	0.347	31.0	228
088-H2	0 to 1	na	na	14,333	1.73	15.6	164	0.482	4.38	5,770	16.1	5.46	17.8	16,233	189	3,560	543	13.3	1,550	0.237	0.179	185	0.264	27.2	180
088-O1	0 to 1	na	na	26,100	1.98	17.6	232	0.769	3.86	5,730	12.8	5.65	23.7	18,000	162	3,350	633	12.3	1,530	0.300	0.221	317	0.260	28.9	238
089-A1	0 to 4	na	na	14,800	1.06	11.6	137	0.447	2.03	3,610	18.8	6.22	13.4	19,200	95.6	3,460	507	19.7	1,840	0.190	0.215	160	0.170	25.1	119
089-H1	0 to 1	na	na	14,100	1.14	10.9	136	0.448	2.46	3,820	18.9	6.38	13.4	19,000	113	3,450	501	19.6	2,020	0.170	0.140	150	0.173	25.8	135
089-O1	0 to 1	na	na	14,533	0.801	8.80	125	0.426	1.78	3,627	17.4	6.37	12.4	18,767	71.7	3,587	482	18.3	2,140	0.163	0.116	159	0.152	23.9	109
090-H1	0 to 1	na	na	13,400	1.28	5.59	187	0.382	2.01	5,990	22.2	5.92	18.8	17,667	113	4,870	527	17.9	2,710	0.203	0.188	149	0.219	26.7	205
090-O2	0 to 1	na	na	15,500	1.13	5.46	242	0.497	1.73	5,800	28.7	7.47	20.0	20,400	187	5,620	649	21.2	3,390	0.220	0.199	213	0.245	34.6	230
091-G1	0 to 10	na	na	13,900	1.23	11.3	155	0.393	2.24	6,810	19.5	7.23	22.3	18,900	96.6	4,680	474	17.2	3,710	0.290	0.201	189	0.162	25.7	133
091-H1	0 to 1	na	na	13,000	0.889	10.1	128	0.382	1.70	9,917	17.0	6.13	20.9	16,467	66.6	5,010	430	14.9	2,607	0.357	0.171	180	0.164	23.6	141
092-O1	0 to 1	na	na	9,803	2.14	8.63	156	0.328	4.67	15,200	15.8	4.24	15.8	13,167	214	8,250	311	13.6	2,060	0.397	0.252	202	0.292	19.0	238
092-O2	0 to 1	na	na	9,220	1.42	8.52	112	0.274	2.65	34,100	11.5	3.78	15.2	10,900	121	2,670	265	11.8	1,520	0.320	0.159	188	0.180	13.6	136
093-H1	0 to 1	na	na	17,433	0.979	13.3	172	0.479	1.83	5,350	14.4	5.40	16.3	16,200	80.7	3,623	475	12.1	1,620	0.220	0.140	194	0.183	26.0	131
094-H1	0 to 1	na	na	22,033	1.25	13.8	194	0.623	2.17	6,913	15.4	5.65	18.1	17,267	95.3	4,113	494	13.1	1,650	0.360	0.184	253	0.216	27.3	138
094-P1	0 to 1	1.41	77.1	22,700	1.35	16.2	208	0.620	2.53	4,600	14.6	5.78	19.3	18,000	110	3,760	562	12.9	1,680	0.220	0.192	237	0.235	27.4	142
095-A1	0 to 1	na	na	17,200	2.45	16.5	220	0.504	5.15	6,570	13.7	5.10	31.1	18,200	207	3,480	727	10.9	1,350	0.270	0.288	211	0.300	26.2	228
095-H1	0 to 1	na	na	18,900	1.73	15.7	215	0.505	3.51	6,470	16.6	6.00	24.0	18,900	141	4,640	609	15.2	2,080	0.250	0.265	229	0.248	27.0	197
095-O1	0 to 1	2.88	149	20,400	2.26	16.0	242	0.551	4.33	5,030	15.8	5.92	25.4	18,467	181	4,240	649	14.6	1,997	0.280	0.300	227	0.287	25.2	225
095-O2	0 to 1	na	na	19,800	2.60	18.4	244	0.491	4.78	5,730	14.0	5.28	27.9	18,100	211	4,230	727	13.3	1,920	0.290	0.319	226	0.266	23.1	237
096-H1	0 to 1	na	na	14,800	2.38	15.0	251	0.421	4.59	5,730	22.0	6.75	24.9	17,500	213	4,160	672	16.8	1,800	0.280	0.352	211	0.257	25.9	283
096-O1	0 to 1	4.87	313	22,400	2.77	26.9	217	0.656	7.20	8,937	21.2	7.40	32.4	22,333	315	5,707	621	18.8	1,630	0.380	0.482	344	0.395	34.3	357
097-H1	0 to 1	na	na	10,300	1.59	9.00	122	0.347	2.88	4,680	20.7	5.49	19.4	17,500	169	4,040	329	14.5	1,720	0.230	0.196	192	0.290	31.7	223
097-H2	0 to 1	na	na	9,793	0.955	8.57	89.1	0.339	3.04	7,843	22.6	6.02	17.4	18,167	140	5,837	308	16.5	1,653	0.200	0.181	208	0.330	33.9	275

Table 5-8. Comparison of Residential Soil Metals Data based on IC Soil Samples[a]

DU	Sample Depth (inches)	Site-Specific Bioavailability Adjusted Soil Concentration (mg/kg dw)		Soil Concentration by Analyte (mg/kg dw)																			
		Arsenic[b]	Lead[c]	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc
Screening Level (mg/kg)		20[d]	400	77,400	31.3	20[d]	15,300	156	70.3	na	na	23.4	3,130	54,800	NA[e]	na	1,830	1,550	na	391	391	na	0.782	394	23,500
098-B1	0 to 4	na	na	8,780	1.63	8.92	450	0.314	1.98	23,500	17.8	5.26	47.5	17,900	89.7	8,490	859	12.8	2,740	0.330	0.615	328	0.190	26.7	450
098-G1	0 to 6	na	na	11,600	0.559	4.59	139	0.391	0.820	4,987	18.8	5.50	17.3	17,333	43.2	4,490	321	14.6	2,693	0.187	0.238	192	0.165	24.7	112
098-H1	0 to 1	na	na	9,370	0.559	3.29	93.7	0.316	0.804	5,000	18.5	4.67	12.5	15,500	40.9	4,100	257	12.1	2,030	0.150	0.151	199	0.145	22.5	110
098-O1	0 to 1	na	na	8,140	0.324	3.12	83.7	0.309	0.567	4,080	16.9	4.98	11.8	16,200	27.0	4,040	283	12.9	1,880	0.110	0.073	145	0.125	25.5	78.6
099-A1	0 to 1	na	na	12,100	0.976	7.26	172	0.439	1.87	4,050	17.8	6.04	15.2	15,200	67.1	3,660	527	15.0	2,840	0.190	0.161	84.0	0.191	24.2	135
099-G2	0 to 12	na	na	10,100	0.925	8.09	118	0.315	1.79	6,540	14.4	4.36	13.5	12,600	75.3	2,910	520	11.6	1,390	0.220	0.207	82.8	0.149	19.8	145
099-H1	0 to 1	na	na	8,800	1.69	9.77	115	0.311	3.22	3,107	13.9	4.43	13.2	12,400	172	2,653	442	12.9	1,420	0.230	0.175	62.3	0.277	20.1	188
099-O1	0 to 1	1.27	171	8,110	1.66	9.07	112	0.280	3.33	2,790	12.7	4.12	11.4	11,200	170	2,370	408	11.1	1,240	0.170	0.122	48.1	0.269	18.8	168
100-G1	0 to 8	na	na	12,600	0.613	4.42	185	0.489	1.44	7,380	22.6	6.77	20.8	18,600	43.3	4,570	460	15.6	3,310	0.560	0.284	266	0.243	30.4	146
100-H1	0 to 1	na	na	10,600	1.60	6.19	159	0.378	3.93	12,600	22.6	5.85	23.1	14,800	132	4,690	533	15.0	1,810	0.330	0.340	125	0.233	26.1	341
100-N1	0 to 3	na	na	13,500	1.11	6.80	232	0.436	2.24	7,310	20.9	6.45	24.7	16,000	83.0	4,060	616	14.8	2,890	0.460	0.453	127	0.187	24.6	236
100-N2	0 to 3	na	na	15,300	0.944	6.47	233	0.542	1.83	7,810	23.1	7.29	26.3	18,500	69.1	4,670	535	16.1	3,380	0.290	0.375	287	0.191	29.7	224
100-O1	0 to 1	na	na	10,333	1.97	7.69	181	0.369	3.30	10,733	20.6	5.55	64.0	13,767	130	3,767	446	14.0	2,377	0.267	0.284	96.1	0.223	24.0	266
101-G1	0 to 3	na	na	11,700	0.808	8.46	155	0.550	1.38	4,450	21.6	7.71	15.8	17,300	60.3	3,300	575	20.3	1,890	0.200	0.200	85.8	0.149	31.7	114
101-H1	0 to 1	na	na	10,867	1.74	8.99	163	0.462	3.76	13,903	20.8	6.31	14.9	16,800	156	3,623	550	16.3	2,120	0.237	0.187	111	0.251	29.4	253
101-O1	0 to 1	2.52	209	12,600	1.84	10.3	187	0.458	4.67	7,300	18.2	6.55	16.4	17,100	183	3,500	699	16.0	2,400	0.190	0.192	134	0.254	26.3	273
102-G1	0 to 6	na	na	18,100	0.901	8.84	222	0.661	1.36	5,290	21.3	8.45	17.2	19,900	67.1	4,680	664	20.7	1,920	0.220	0.244	131	0.194	33.2	114
102-H1	0 to 1	na	na	13,600	0.440	7.83	152	0.515	0.767	12,633	23.1	7.62	17.4	19,600	35.6	5,283	469	24.4	2,227	0.210	0.117	135	0.146	31.4	87.2
103-H1	0 to 1	1.56	118	14,700	1.20	11.0	152	0.401	2.79	4,820	14.6	5.24	26.8	15,100	114	3,500	441	12.1	1,610	0.230	0.169	123	0.216	24.0	177
103-O1	0 to 1	na	na	15,533	1.35	11.7	169	0.448	3.23	4,283	14.2	5.19	19.2	14,467	118	3,157	464	11.5	1,477	0.270	0.183	116	0.217	24.1	174
104-H1	0 to 1	na	na	15,900	1.56	16.9	179	0.465	3.85	23,500	16.0	5.49	37.7	16,600	171	4,100	534	14.3	1,440	0.300	0.334	265	0.299	26.7	213
104-H2	0 to 1	na	na	15,200	1.30	14.4	164	0.395	3.59	9,180	15.1	5.06	34.3	15,900	155	3,610	470	12.6	1,450	0.330	0.309	240	0.262	25.9	251
104-N1	0 to 3	na	na	15,700	1.38	16.4	208	0.432	3.33	4,533	14.4	4.92	35.0	15,633	141	3,257	550	12.7	1,413	0.347	0.383	208	0.209	24.5	169
105-H1	0 to 1	na	na	7,510	1.18	7.69	86.9	0.269	2.13	3,000	10.5	3.47	13.5	10,200	99.3	2,020	336	8.61	762	0.170	0.096	65.4	0.142	16.0	103
105-P1	0 to 1	na	na	6,677	2.71	9.11	74.7	0.206	3.06	2,220	8.77	2.54	12.7	9,257	204	1,560	372	6.73	554	0.200	0.085	45.3	0.188	12.9	109
106-G1	0 to 6	na	na	7,850	0.535	4.66	141	0.421	0.796	4,760	19.1	5.85	16.0	12,000	33.8	2,680	301	16.7	1,720	0.190	0.142	92.4	0.123	27.4	98.2
106-G2	0 to 6	na	na	11,100	0.604	5.11	135	0.418	0.848	2,670	16.7	5.25	11.4	14,700	33.9	2,910	414	13.7	1,720	0.150	0.104	91.8	0.122	25.5	80.4
106-H1	0 to 1	na	na	9,010	0.347	3.93	139	0.375	0.746	7,450	17.4	5.19	14.5	14,800	22.1	3,260	315	14.6	2,040	0.150	0.098	103	0.111	26.4	139
106-O1	0 to 1	na	na	10,100	0.443	5.55	123	0.448	0.667	5,107	22.5	6.89	16.2	17,800	29.6	3,770	383	20.5	2,240	0.170	0.112	101	0.120	33.0	78.8
107-H1	0 to 1	na	na	12,433	3.39	8.56	199	0.350	3.44	6,133	17.4	4.82	14.1	15,800	278	3,760	580	13.7	2,300	0.240	0.192	143	0.310	22.5	214
108-H1	0 to 1	na	na	12,000	1.04	8.12	110	0.419	2.03	3,790	16.4	5.39	17.5	17,300	86.5	4,040	392	12.7	2,150	0.210	0.159	158	0.193	26.2	109
108-O1	0 to 1	na	na	14,900	1.52	10.1	150	0.428	3.48	5,820	15.8	5.50	18.9	17,400	142	3,960	441	13.1	2,110	0.220	0.217	225	0.220	26.9	168
108-O2	0 to 1	na	na	15,733	0.811	7.28	159	0.499	1.73	7,827	18.3	6.34	21.6	18,233	64.1	6,390	457	15.0	2,097	0.213	0.193	304	0.187	30.2	108
109-H1	0 to 1	na	na	13,033	10.2	31.2	232	0.422	14.3	3,623	13.6	5.03	37.9	13,900	707	2,797	690	11.8	1,077	0.647	0.659	139	0.589	22.3	556
110-A1	0 to 1	na	na	20,100	1.60	12.1	226	0.624	3.09	4,960	16.6	6.10	21.2	18,000	109	3,310	610	12.3	1,470	0.280	0.189	283	0.226	33.2	144
110-G1	0 to 8	na	na	16,600	1.30	9.26	158	0.466	2.03	6,440	14.3	5.40	20.2	17,400	80.5	3,570	516	10.7	1,280	0.260	0.208	324	0.156	31.9	118
110-G2	0 to 5	na	na	19,300	0.566	5.61	158	0.500	0.972	4,830	15.7	5.40	17.8	19,100	36.6	3,420	439	11.2	1,380	0.220	0.352	416	0.141	32.5	68.0
110-H1	0 to 1	na	na	15,800	0.950	8.22	148	0.426	1.72	5,700	13.7	4.81	14.8	16,500	69.9	3,370	426	10.3	1,220	0.230	0.119	313	0.155	28.0	96.7
110-O1	0 to 1	na	na	14,533	0.762	6.53	138	0.384	1.55	3,297	13.4	4.46	12.2	15,367	54.8	2,997	435	10.8	1,470	0.160	0.096	205	0.152	24.4	92.9
110-O2	0 to 1	na	na	19,500	1.42	10.7	209	0.576	2.84	4,650	15.4	5.73	20.2	17,900	95.9	3,230	570	11.7	1,490	0.280	0.179	273	0.213	32.2	131
111-H1	0 to 1	na	na	10,300	0.505	5.15	101	0.346	1.02	3,150	15.9	5.65	14.0	15,967	39.4	3,720	372	13.6	1,717	0.190	0.127	201	0.171	26.0	92.0
112-G1	0 to 12	na	na	10,200	1.97	12.8	380	0.357	4.42	127,000	17.6	7.55	38.2	16,400	91.4	4,650	429	35.8	1,350	1.06	0.549	238	0.200	27.1	316
112-H1	0 to 1	na	na	9,320	1.65	10.3	317	0.290	3.92	142,000	15.5	6.47	30.5	15,200	80.2	4,720	362	31.4	1,330	0.920	0.470	240	0.174	23.6	278
112-O1	0 to 1	5.10	297	10,303	4.02	17.2	403	0.309	8.50	72,433	17.9	7.54	40.6	18,067	273	4,167	516	30.1	1,563	0.937	0.955	211	0.333	27.2	565
113-G1	0 to 8	na	na	16,400	2.70	17.1	207	0.468	5.26	6,490	18.9	7.36	20.2	19,500	204	3,150	717	18.8	2,310	0.330	0.296	232	0.262	26.7	260
113-G2	0 to 8	na	na	16,700	3.19	19.1	200	0.520	5.63	5,470	19.4	7.68	20.6	19,700	226	3,040	706	19.2	2,170	0.340	0.317	195	0.281	27.5	252
113-G3	0 to 6	na	na	10,900	1.77	9.80	164	0.348	2.56	41,100	17.6	5.00	18.8	13,300	90.7	3,890	357	14.4	1,820	0.420	0.260	342	0.171	21.2	159
113-O1	0 to 1	na	na	16,533	2.28	14.4	182	0.538	4.14	5,670	20.4	6.98	21.9	19,467	146	3,170	552	17.4	1,967	0.263	0.197	157	0.225	30.6	210
114-G1	0 to 1	na	na	4,480	1.70	11.9	985	0.254	6.66	62,100	12.7	4.02	40.0	22,900	348	36,400	357	13.5	818	0.490	0.433	135	0.251	29.9	1,190
114-H1	0 to 1	na	na	5,950	2.56	14.7	942	0.300	7.69	53,500	17.4	5.09	54.3	28,100	389	32,600	398	15.3	1,030	0.480	0.598	179	0.285	36.9	1,780
114-O1	0 to 1	1.95	263	7,063	2.36	15.4	600	0.321	7.63	36,500	20.6	6.03	58.0	32,967	374	22,933	421	18.1	1,170	0.520	0.751	160	0.314	35.9	1,510
115-O1	0 to 1	na	na	12,733	3.39	32.4	133	0.509	5.05	10,480	37.6	9.39	26.9	24,200	371	6,890	462	24.9	1,910	0.420	0.329	491	0.465	52.9	315
116-O1	0 to 1	na	na	17,167	1.50	6.50	249	0.486	2.76	4,817	20.9	6.17	17.4	18,567	161	4,637	760	18.0	3,260	0.197	0.189	222	0.251	27.3	188
117-O1	0 to 1	na	na	18,367	0.492	14.9	153	0.612	0.445	6,670	38.5	11.8	28.8	28,500	18.8	7,130	534	32.8	2,713	0.257	0.143	311	0.126	43.7	67.4
118-G1	0 to 6	na	na	17,900	0.643	5.43	203	0.496	0.959	3,710	17.4	6.01	13.6	16,900	31.3	3,370	529	15.4	1,750	0.230	0.184	220	0.145	23.5	92.0
118-G2	0 to 12	na	na	15,933	0.545	4.48	178	0.438	0.758	3,633	15.8	5.43	12.5	15,800	26.0	3,303	461	14.0	1,660	0.210	0.156	210	0.124	21.5	79.8
118-H1	0 to 1	na	na	14,300	0.438	4.23	147	0.408	0.784	4,110	14.1	4.97	11.0	15,800	26.0	3,210	435	11.4	1,660	0.200	0.099	199	0.122	21.7	67.4
118-N1	0 to 1	na	na	12,000	0.789	5.82	184	0.340	1.65	4,140	12.7	3.91	9.71	13,000	56.0	2,500	539	10.5	1,530	0.210	0.090	233	0.136	17.5	102
118-N2	0 to 3	na	na	15,500	1.30	8.92	214	0.375	2.42	4,460	10.3	3.79	11.3	13,400	90.6	2,270	780	9.36	897	0.220	0.107	148	0.149	16.0	124
119-P1	0 to 1	na	na	31,833	4.59	24.8	257	0.795	7.25	4,290	14.2	6.93	32.6	18,467	259	3,270	776	14.4	1,247	0.423	0.606	347	0.387	29.9	437
120-A1	0 to 1	na	na	9,520	0.851	5.39	121	0.217	1.84	87,500	11.2	5.66	23.4	10,800	53.9	4,200	247	29.1	1,050	0.650	0.158	364	0.114	14.1	105
120-G1	0 to 10	na	na	9,660	1.18	5.49	142	0.227	2.41	104,000	8.59	2.91	14.9	8,323	51.7	3,517	267	24.8	618	0.710	0.178	359	0.108	10.7	159
120-H1	0 to 1	na	na	8,760	1.27	5.58	129	0.228	2.03	103,000	11.1	3.73	23.5	9,500	54.8	4,110	232	20.7	1,020	0.570	0.260	319	0.111	12.3	153
120-O1	0 to 1	na	na	11,700	1.53	7.57	148	0.301	2.82	86,700	10.6	4.05	19.5	10,300	87.6	3,520	273	35.0	852	0.740	0.191	326	0.146	13.3	168
121-G1	0 to 6	na	na	13,500	0.713	7.53	109	0.370	0.932	4,040	18.7	5.57	15.1	16,600	37.0	3,950	410	16.5	2,040	0.240	0.205	208	0.154	25.0	108
121-H1	0 to 1	na	na	13,000	1.02	7.71	131	0.441	1.63	3,777	17.8	6.02	13.1	16,800	52.4	3,590	517	16.0	2,313	0.213	0.151	164	0.181	28.6	129
121-N1	0 to 3	na	na	12,000	0.673	5.82	99.0	0.405	0.784	2,500	18.4	5.43	11.8	16,400	25.7	3,360	361	15.0	2,090	0.200	0.196	170	0.136	27.2	74.2
121-N2	0 to 3	na	na	11,900	0.989	6.44	126	0.417	1.31	2,850	19.0	5.58	11.7	16,800	46.5	3,490	453	15.5	2,320	0.180	0.356	163	0.168	27.5	105
122-G1	0 to 7	na	na	9,210	1.18	6.50	105	0.354	1.80	4,060	16.0	4.96	13.1	13,500	77.7	3,130	427	11.8	1,840	0.190	0.145	87.5	0.177	22.4	112
122-G2	0 to 6	na	na	8,670	0.905	8.55	97.4	0.326	1.72	4,370	15.2	4.57	14.4	13,200	69.8	3,010	382	11.7	1,370	0.300	0.162	76.1	0.147	20.9	106
122-H1	0 to 1	na	na	13,300	1.28	7.38	139	0.518	3.33	4,260	17.1	5.94	18.3	17,700	136	4,140	565	13.4	1,880	0.210	0.155	195	0.228	26.4	149

Table 5-8. Comparison of Residential Soil Metals Data based on IC Soil Samples[a]

DU	Sample Depth (inches)	Site-Specific Bioavailability Adjusted Soil Concentration (mg/kg dw)		Soil Concentration by Analyte (mg/kg dw)																			
		Arsenic[b]	Lead[c]	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc
Screening Level (mg/kg)		20[d]	400	77,400	31.3	20[d]	15,300	156	70.3	na	na	23.4	3,130	54,800	NA[e]	na	1,830	1,550	na	391	391	na	0.782	394	23,500
122-H2	0 to 1	na	na	10,600	0.980	5.79	114	0.363	1.90	5,160	14.3	4.76	13.2	14,900	79.0	3,650	439	11.4	2,080	0.180	0.122	151	0.158	20.4	125
122-O1	0 to 1	na	na	11,800	2.09	11.4	147	0.496	5.16	5,280	19.4	6.38	18.3	19,267	199	3,833	705	13.9	2,080	0.247	0.231	125	0.265	31.2	212
122-O2	0 to 1	na	na	12,600	3.02	15.5	152	0.508	6.71	4,910	16.2	5.50	24.9	16,400	291	3,530	583	13.0	1,690	0.260	0.263	129	0.334	25.3	260
122-P1	0 to 1	2.15	321	15,600	3.87	15.4	177	0.508	8.27	6,030	16.1	5.85	24.1	16,700	371	3,670	667	13.1	2,320	0.350	0.290	160	0.369	24.4	322
123-G1	0 to 7.5	na	na	24,700	1.43	14.4	242	0.885	2.91	8,270	19.8	8.07	21.3	19,500	96.1	5,290	705	19.5	2,510	0.260	0.196	290	0.190	31.9	173
123-G2	0 to 5.5	na	na	23,200	1.70	16.6	276	0.864	3.26	6,293	22.3	8.56	22.8	20,267	111	3,890	770	23.3	2,070	0.290	0.208	200	0.194	33.0	164
123-H1	0 to 1	na	na	21,600	1.32	12.8	229	0.779	2.40	10,200	20.1	7.67	20.8	20,100	86.1	3,990	731	21.8	1,880	0.270	0.171	223	0.179	31.5	155
123-O1	0 to 1	na	na	23,900	1.07	11.3	235	0.908	3.04	12,400	20.0	8.05	26.4	20,400	120	6,080	745	20.2	2,360	0.270	0.213	276	0.205	32.1	191
123-O2	0 to 1	na	na	19,100	3.79	18.9	262	0.740	6.96	7,380	20.9	7.92	24.4	19,300	262	3,670	799	21.3	1,970	0.360	0.212	185	0.269	31.2	232
124-B1	0 to 3	na	na	6,240	2.93	8.03	767	0.296	3.95	35,100	17.5	5.44	69.0	24,000	218	22,100	331	13.7	1,040	0.460	0.691	224	0.303	27.8	1,100
124-G1	0 to 8	na	na	10,500	0.578	5.67	115	0.388	1.40	42,100	24.9	7.08	22.6	18,200	33.3	6,440	313	21.5	2,700	0.470	0.178	376	0.177	35.1	115
124-G2	0 to 3	na	na	18,967	1.41	13.1	199	0.504	3.20	12,100	50.1	13.0	34.6	28,633	91.1	9,660	641	38.6	5,120	1.24	0.315	396	0.265	51.8	197
124-H1	0 to 1	na	na	17,200	0.761	11.7	184	0.528	1.78	18,400	45.3	12.1	31.0	28,000	41.7	8,900	583	36.2	4,360	0.510	0.214	359	0.215	54.7	132
124-N1	0 to 1	na	na	7,330	0.530	6.21	168	0.261	1.18	154,000	24.6	6.25	15.1	13,400	32.8	10,900	254	26.6	6,900	0.580	0.127	853	0.147	26.3	120
124-N2	0 to 3	na	na	9,310	0.154	3.77	71.3	0.362	0.269	4,810	18.3	5.73	12.0	18,400	10.1	3,850	301	14.8	1,730	0.200	0.053	182	0.109	28.4	41.1
124-O1	0 to 1	na	na	18,100	1.36	12.8	208	0.529	3.40	12,000	49.8	13.3	35.5	27,700	91.0	9,090	625	40.5	4,880	1.38	0.336	359	0.269	53.4	202
125-O1	0 to 1	na	na	11,667	1.14	9.74	152	0.560	2.25	7,393	31.2	8.25	23.4	18,100	83.2	5,463	382	22.6	2,927	0.240	0.245	137	0.212	38.5	149
126-A1	0 to 1	na	na	9,550	0.895	6.99	95.2	0.274	1.79	5,440	12.2	3.49	10.2	12,700	77.0	2,630	321	9.15	1,070	0.200	0.146	163	0.141	20.3	122
126-G1	0 to 8	na	na	10,300	0.759	8.53	105	0.339	1.03	3,510	18.9	5.00	12.3	15,600	58.3	4,010	353	13.1	2,360	0.170	0.132	170	0.165	24.8	90.5
126-G2	0 to 11	na	na	11,500	0.826	6.81	134	0.340	1.59	6,680	13.6	4.31	14.9	13,200	50.1	2,880	361	11.2	1,200	0.320	0.255	212	0.126	23.8	532
126-H1	0 to 1	na	na	8,590	0.384	4.13	73.0	0.237	0.851	5,110	11.1	3.27	10.1	11,000	26.2	2,520	238	8.33	912	0.260	0.057	164	0.096	18.1	79.4
126-O1	0 to 1	na	na	9,980	0.700	6.17	93.3	0.284	1.37	7,500	12.2	3.74	9.24	12,500	58.0	2,810	315	9.73	1,200	0.120	0.089	162	0.136	20.5	94.3
126-O2	0 to 1	na	na	8,110	0.597	5.11	73.6	0.243	0.835	5,210	12.9	3.53	12.4	12,700	30.2	2,580	244	8.64	1,090	0.180	0.073	160	0.099	20.2	106
126-O3	0 to 1	na	na	9,030	0.745	6.71	103	0.331	1.29	3,980	18.2	5.19	11.2	15,500	59.4	3,590	378	13.0	2,140	0.270	0.100	140	0.185	25.5	100
126-P1	0 to 1	na	na	6,480	0.539	4.64	47.2	0.248	0.851	3,680	13.3	3.49	7.89	13,000	33.4	2,370	181	8.73	843	0.303	0.080	129	0.138	23.2	75.3
127-A1	0 to 11	na	na	16,900	2.46	13.5	184	0.533	3.78	5,450	17.1	5.85	31.4	17,700	140	3,440	660	13.0	1,420	0.310	0.328	209	0.228	28.0	173
127-G1	0 to 6.5	na	na	12,800	0.979	7.00	164	0.411	1.72	4,900	15.7	5.45	17.8	15,900	75.1	3,610	455	12.8	2,220	0.170	0.160	201	0.177	24.1	127
127-G2	0 to 6	na	na	12,600	1.15	8.37	178	0.410	1.95	27,000	17.8	5.88	27.5	16,900	77.1	4,850	502	14.9	2,000	0.330	0.579	263	0.169	26.9	171
127-H1	0 to 1	na	na	12,500	1.55	9.49	172	0.428	3.04	13,500	17.9	5.66	24.9	17,300	115	4,140	499	14.0	1,630	0.270	0.228	206	0.197	28.4	183
127-H2	0 to 1	na	na	11,900	0.699	5.54	134	0.364	1.37	17,700	16.0	5.13	17.5	14,700	50.5	4,050	368	13.4	2,060	0.140	0.134	255	0.158	24.1	114
127-N1	0 to 3	na	na	13,667	1.88	9.58	214	0.452	3.53	9,847	16.8	5.07	27.0	17,200	141	3,597	507	11.7	2,150	0.333	0.305	234	0.196	27.5	245
128-G1	0 to 6	na	na	17,200	0.829	13.1	175	0.463	1.55	7,940	25.1	9.17	29.3	21,800	34.7	5,470	431	37.1	2,170	0.360	0.311	364	0.173	36.6	232
128-G2	0 to 12	na	na	18,667	1.26	13.7	227	0.533	3.08	9,247	22.0	8.92	24.1	20,067	64.4	4,740	585	53.5	1,780	0.337	0.447	320	0.213	32.2	632
128-G3	0 to 4	na	na	20,100	0.672	8.77	214	0.493	1.06	4,500	22.8	8.18	19.1	20,700	37.5	4,960	458	22.1	2,020	0.250	0.178	316	0.181	34.2	109
128-N1	0 to 3	na	na	17,900	1.58	11.5	248	0.487	2.55	5,340	23.3	7.64	21.8	19,700	113	4,450	550	22.4	2,070	0.310	0.287	271	0.199	30.9	193
128-O1	0 to 1	na	na	19,000	1.04	9.26	201	0.460	1.84	13,000	20.5	7.28	16.7	19,300	65.0	4,560	462	46.1	1,870	0.310	0.168	285	0.205	29.1	279
129-H1	0 to 1	na	na	8,190	4.09	13.1	77.5	0.273	4.59	3,520	15.2	4.25	19.2	14,600	279	3,040	264	10.4	1,300	0.290	0.446	126	0.338	27.3	241
129-H2	0 to 1	na	na	9,593	3.58	12.8	105	0.296	5.64	3,527	15.8	4.93	19.1	15,133	315	3,427	342	11.7	1,383	0.283	0.324	155	0.337	27.3	288
130-G1	0 to 6	na	na	10,700	0.640	5.21	125	0.361	1.11	3,393	16.5	4.57	10.2	15,000	44.3	3,417	375	13.7	1,960	0.133	0.104	131	0.139	22.6	85.6
130-H1	0 to 1	na	na	8,140	0.285	3.02	75.3	0.282	0.541	3,250	14.6	4.12	8.78	14,300	21.1	3,310	253	11.5	1,900	0.120	0.054	136	0.121	20.7	52.9
130-H2	0 to 1	na	na	13,000	0.772	6.24	145	0.434	1.42	5,160	18.7	5.66	12.7	16,500	63.1	3,680	417	14.8	2,090	0.160	0.096	158	0.178	25.3	95.6
131-B1	0 to 5	1.62	179	4,947	3.76	8.20	428	0.226	4.27	41,067	16.1	5.15	106	28,867	230	23,400	453	11.8	903	0.563	0.817	147	0.194	24.7	1,773
131-H1	0 to 1	na	na	9,350	1.05	10.5	102	0.299	3.34	7,650	18.3	5.75	22.2	17,700	161	5,610	337	14.8	2,120	0.220	0.239	115	0.229	26.0	304
132-G1	0 to 2	na	na	7,140	0.352	4.22	53.0	0.326	0.602	3,130	16.1	4.93	10.3	14,900	21.9	3,350	238	12.4	1,520	0.130	0.043	110	0.112	24.6	53.4
132-G2	0 to 1	na	na	9,140	0.164	3.35	73.3	0.317	0.263	4,770	15.8	5.37	12.3	16,000	8.90	3,970	280	13.2	1,650	0.120	0.054	197	0.107	25.0	43.6
132-H1	0 to 1	na	na	9,383	0.479	4.89	85.0	0.347	0.971	2,880	14.7	4.92	9.90	13,967	34.0	3,077	303	12.1	1,573	0.143	0.046	125	0.134	22.5	75.1
132-O1	0 to 1	na	na	12,300	0.670	5.09	126	0.409	0.894	3,100	18.8	5.91	12.3	17,000	39.5	3,610	402	14.2	2,070	0.160	0.067	146	0.154	26.0	84.9
133-G1	0 to 7.5	na	na	12,300	2.31	11.6	167	0.502	4.19	4,810	20.2	5.82	18.6	16,400	147	3,520	555	14.1	1,790	0.310	0.278	197	0.237	27.2	218
133-H1	0 to 1	na	na	11,567	1.19	7.65	133	0.433	2.27	6,543	72.3	5.76	23.7	17,133	101	3,550	475	23.5	1,813	0.440	0.277	255	0.192	28.6	210
134-O1	0 to 1	na	na	17,967	7.07	29.5	175	0.486	9.12	3,927	16.8	6.20	32.4	18,000	545	4,187	481	13.3	1,597	0.467	0.665	155	0.553	28.3	440
135-G1	0 to 6	3.65	116	18,133	1.33	14.4	294	0.526	2.92	9,817	18.4	6.25	33.4	16,233	114	3,977	683	18.1	2,387	0.433	0.318	172	0.221	27.9	202
135-H1	0 to 1	na	na	18,400	1.29	12.8	224	0.533	3.61	5,510	16.3	5.90	29.9	16,700	159	3,720	579	14.9	1,680	0.230	0.246	158	0.250	26.7	198
135-O1	0 to 1	na	na	19,000	1.23	12.9	315	0.563	2.62	3,450	17.2	5.94	24.4	16,200	107	3,270	738	15.2	1,950	0.210	0.225	147	0.208	23.8	157
136-A1	0 to 1	na	na	8,760	1.02	6.20	129	0.351	1.16	2,770	15.0	4.78	14.0	14,100	32.4	2,740	273	15.8	1,910	0.310	0.131	109	0.148	30.2	122
136-G1	0 to 4	na	na	8,620	0.729	5.66	129	0.329	0.985	6,100	15.7	4.57	15.4	14,000	29.7	3,200	322	14.6	2,050	0.310	0.162	128	0.124	27.9	111
136-H1	0 to 1	na	na	8,373	1.02	6.62	119	0.358	1.40	3,077	15.9	4.86	14.1	14,567	40.8	2,947	290	15.7	1,927	0.297	0.117	109	0.148	34.5	129
136-O1	0 to 1	1.32	205	6,740	2.39	7.52	103	0.296	5.06	4,140	12.9	3.55	13.6	11,900	192	2,280	473	9.02	974	0.210	0.147	67.8	0.246	21.6	189
137-O1	0 to 1	na	na	7,163	2.39	7.64	113	0.314	5.53	4,247	13.0	3.72	14.4	11,867	215	2,450	521	9.52	1,063	0.203	0.151	75.1	0.263	21.1	207
137-O2	0 to 1	na	na	7,560	1.62	7.45	124	0.297	3.92	4,050	13.5	3.86	12.8	12,000	145	2,440	434	10.2	1,050	0.190	0.123	92.5	0.201	22.6	161
138-G1	0 to 5	na	na	12,400	1.11	8.99	212	0.402	2.18	50,100	21.8	6.82	26.3	15,900	42.2	6,310	441	23.5	3,240	0.820	0.342	370	0.211	29.7	148
138-G2	0 to 4	na	na	10,200	1.27	7.43	217	0.316	2.27	141,000	23.1	6.93	31.0	15,000	57.2	4,860	585	27.2	2,160	0.850	0.367	217	0.126	21.8	171
138-H1	0 to 1	na	na	15,200	1.01	8.17	173	0.466	1.71	14,300	24.9	7.48	24.1	19,600	33.9	5,580	458	26.4	3,020	0.450	0.298	313	0.168	32.2	142
138-O1	0 to 1	na	na	13,200	0.619	5.80	144	0.451	1.21	26,900	24.2	6.48	18.7	21,200	29.0	6,150	428	20.8	2,900	0.430	0.198	332	0.143	31.7	103
138-O2	0 to 1	na	na	10,700	1.18	9.93	188	0.366	4.75	80,700	24.1	7.16	28.4	16,500	54.1	5,083	497	38.8	2,343	0.880	0.406	252	0.149	28.0	331
139-G1	0 to 4	na	na	14,500	0.873	7.63	183	0.499	1.38	7,690	17.1	6.41	21.8	15,500	55.5	3,670	448	14.1	2,030	0.370	0.158	183	0.177	30.0	132
139-G2	0 to 6	na	na	14,100	0.863	6.87	153	0.473	1.37	5,850	16.5	6.09	19.4	15,600	47.1	3,670	416	13.9	2,030	0.320	0.165	170	0.169	28.6	120
139-H1	0 to 1	na	na	15,400	0.757	6.83	185	0.521	1.49	7,353	17.8	6.77	19.2	16,200	50.7	4,820	466	14.8	2,337	0.257	0.140	160	0.175	29.2	131
139-N1	0 to 3	na	na	13,000	0.883	6.66	126	0.435	1.52	3,460	16.8	6.01	14.5	15,300	54.1	3,330	411	12.9	2,310	0.180	0.210	125	0.178	25.8	98.6
140-G1	0 to 12	na	na	31,200	5.06	23.0	233	0.836	6.16	6,690	14.1	5.91	34.8	16,400	247	3,310	741	12.7	1,260	0.610	0.553	359	0.324	27.4	331
140-H1	0 to 1	na	na	20,767	9.77	39.7	197	0.646	9.10	5,093	14.0	4.93	44.5	15,567	723	3,133	465	11.6	1,290	0.670	0.938	372	0.581	26.3	410
140-O1	0 to 1	na	na	20,900	6.89	39.4	191	0.630	10.3	5,500	14.3	5.25	38.1	15,300	464	3,220	562	12.0	1,260	0.540	0.698	241	0.464	26.6	413

Table 5-8. Comparison of Residential Soil Metals Data based on IC Soil Samples[a]

DU	Sample Depth (inches)	Site-Specific Bioavailability Adjusted Soil Concentration (mg/kg dw)		Soil Concentration by Analyte (mg/kg dw)																			
		Arsenic[b]	Lead[c]	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc
Screening Level (mg/kg)		20[d]	400	77,400	31.3	20[d]	15,300	156	70.3	na	na	23.4	3,130	54,800	NA[e]	na	1,830	1,550	na	391	391	na	0.782	394	23,500
140-O2	0 to 1	na	na	20,400	11.4	46.7	190	0.611	10.2	4,160	13.8	4.86	51.5	15,600	917	3,270	443	12.3	1,280	0.650	0.936	253	0.770	26.0	458
141-A1	0 to 1	na	na	16,600	0.892	12.3	215	0.569	1.40	10,800	21.8	10.9	42.0	24,000	46.3	4,960	614	26.1	2,970	0.540	0.198	195	0.137	30.1	142
141-H1	0 to 1	na	na	16,500	1.17	14.5	234	0.582	1.89	11,533	22.0	11.2	55.4	26,033	81.6	4,470	563	29.0	2,470	0.653	0.350	198	0.154	31.5	228
141-H2	0 to 1	na	na	17,200	1.64	16.6	249	0.624	2.60	9,270	20.6	12.2	73.0	27,400	95.6	4,040	642	30.6	2,800	0.640	0.275	232	0.166	31.3	252
141-H3	0 to 1	na	na	15,300	1.14	12.7	227	0.531	2.06	9,330	20.8	9.24	48.1	24,100	77.4	3,680	506	25.4	2,670	0.510	0.191	164	0.144	28.8	222
141-N1	0 to 1	na	na	12,000	0.721	7.74	239	0.421	1.29	18,500	17.9	6.66	35.7	19,000	35.0	4,240	431	18.4	5,480	0.820	0.111	364	0.111	23.5	285
141-N2	0 to 3	na	na	19,100	1.28	14.5	220	0.706	1.77	6,050	21.2	11.0	44.4	25,900	49.6	3,550	587	25.0	2,810	0.540	0.213	175	0.176	31.3	149
141-N3	0 to 1	na	na	6,180	0.464	4.31	77.6	0.298	0.574	4,210	12.2	4.40	14.4	11,200	14.8	2,410	179	10.9	2,280	0.920	0.114	347	0.186	18.2	65.3
141-N4	0 to 1	na	na	14,600	0.988	13.4	223	0.529	1.54	14,400	20.8	9.83	48.6	22,900	45.6	4,470	545	26.2	4,860	0.690	0.202	291	0.122	26.0	185
141-O1	0 to 1	na	na	17,200	1.05	12.3	235	0.594	1.82	9,890	20.0	9.36	40.3	24,000	52.2	3,860	529	23.0	3,530	0.530	0.170	167	0.141	30.2	174
142-H1	0 to 1	na	na	14,533	1.50	11.1	159	0.531	3.09	9,493	20.3	7.42	22.6	19,133	116	6,483	580	18.0	2,043	0.277	0.187	244	0.245	33.3	172
142-O1	0 to 1	na	na	15,100	1.19	9.26	164	0.463	2.47	9,460	16.8	6.57	21.3	18,500	82.2	4,900	588	15.9	1,750	0.270	0.222	246	0.192	28.6	147
143-A1	0 to 1	na	na	13,600	0.831	7.28	130	0.412	1.47	4,210	14.0	4.65	12.6	14,000	61.8	3,050	375	10.7	1,610	0.180	0.108	150	0.161	23.4	113
143-G1	0 to 3	na	na	14,100	1.09	8.86	156	0.481	1.90	4,553	14.7	5.24	14.6	14,167	78.4	3,133	399	11.3	1,837	0.243	0.163	144	0.181	25.1	126
143-G2	0 to 3	na	na	13,100	0.738	7.34	151	0.430	1.26	6,710	14.8	5.45	16.8	13,600	55.7	3,470	367	12.3	1,590	0.340	0.144	183	0.164	25.3	123
143-H1	0 to 1	na	na	14,000	1.06	8.61	139	0.432	2.01	5,720	14.5	5.03	13.6	14,800	83.9	3,340	383	11.7	1,880	0.210	0.119	156	0.173	24.4	137
144-G1	0 to 7	na	na	15,267	1.76	13.4	189	0.576	3.01	3,873	17.1	6.48	20.5	15,833	117	3,210	504	14.9	1,400	0.353	0.222	150	0.242	32.8	160
144-H1	0 to 1	na	na	16,400	1.95	14.5	194	0.487	4.14	4,820	14.6	5.73	19.8	15,600	167	3,300	477	12.5	1,470	0.290	0.220	186	0.306	28.2	202
145-A1	0 to 1	na	na	16,933	0.999	7.26	221	0.533	2.17	7,063	15.0	5.68	17.5	16,533	73.0	4,157	539	14.0	2,153	0.297	0.166	144	0.226	31.4	177
145-H1	0 to 1	na	na	19,600	1.97	13.6	285	0.589	5.13	7,950	16.7	6.16	23.2	17,100	190	3,980	726	16.0	2,130	0.320	0.245	152	0.319	34.1	300
146-H1	0 to 1	12.9	1,800	13,467	14.8	48.0	235	0.664	39.3	26,433	17.2	6.46	107	18,100	1720	13,133	1,353	13.5	1,260	0.943	1.79	161	1.387	29.6	1,657
147-G1	0 to 6	na	na	16,600	0.891	6.78	147	0.586	1.70	7,207	22.3	7.01	20.5	19,100	70.9	4,847	495	17.1	2,400	0.320	0.194	221	0.187	33.3	144
147-G2	0 to 8	na	na	13,300	1.19	9.35	130	0.481	2.45	6,490	18.2	6.05	27.2	16,600	101	3,970	496	13.7	2,080	0.300	0.152	179	0.177	27.2	153
147-H1	0 to 1	na	na	15,300	1.24	7.73	388	0.489	2.35	5,030	18.8	5.75	17.5	16,300	99.0	3,770	476	14.5	2,310	0.260	0.160	171	0.187	25.9	150
148-H1	0 to 1	na	na	8,207	0.544	4.68	92.4	0.333	1.20	8,317	19.3	5.37	12.9	16,267	57.5	4,197	306	14.2	1,970	0.137	0.130	151	0.146	29.8	107
148-O1	0 to 1	na	na	8,600	0.693	5.24	97.6	0.353	1.40	7,520	20.0	5.78	14.2	16,600	73.3	4,210	321	14.8	2,010	0.150	0.129	159	0.161	31.4	113
148-O3	0 to 1	na	na	8,720	1.55	11.3	92.0	0.336	3.09	14,700	18.2	5.47	18.7	17,200	125	5,210	281	14.2	2,030	0.200	0.237	197	0.254	28.9	256
149-A1	0 to 1	na	na	26,167	1.89	17.4	643	0.888	14.4	7,173	58.3	26.03	45.4	42,900	55.3	9,260	806	173.3	5,233	2.09	0.549	218	0.541	96.2	828
149-D1	0 to 1	na	na	19,500	1.70	15.5	597	0.553	4.76	11,700	38.8	14.3	49.1	27,800	106	5,680	745	66.9	4,100	1.23	0.662	273	0.297	54.0	477
149-G1	0 to 4	na	na	21,100	1.46	12.8	755	0.659	5.61	10,700	45.1	17.0	44.1	29,700	58.2	6,590	723	80.1	4,630	1.70	0.584	260	0.317	65.9	471
149-G2	0 to 2	na	na	17,400	1.37	13.2	570	0.583	5.61	46,200	42.1	16.4	42.4	28,000	64.7	6,910	640	78.1	4,800	1.25	0.487	240	0.325	60.1	529
149-H1	0 to 1	na	na	19,500	1.73	13.8	684	0.664	6.55	16,400	45.9	16.6	50.3	27,500	87.0	6,660	646	79.4	4,520	1.27	0.531	232	0.336	63.9	498
149-N1	0 to 3	na	na	16,000	1.03	9.59	602	0.486	4.01	41,400	35.9	12.5	34.4	24,000	40.9	5,780	542	59.0	5,790	1.48	0.365	237	0.253	49.8	359
150-G1	0 to 6	na	na	10,500	0.503	5.21	141	0.294	0.920	38,700	15.0	4.22	12.8	13,600	52.0	3,920	237	12.1	2,570	0.140	0.111	180	0.138	21.6	117
150-H1	0 to 1	na	na	12,133	0.502	4.72	115	0.350	0.981	8,537	17.2	5.11	14.7	15,933	45.1	5,003	267	15.1	2,447	0.157	0.143	226	0.135	25.2	121
151-H1	0 to 1	na	na	16,067	1.15	10.6	202	0.446	2.80	8,170	19.0	6.27	26.5	17,800	120	5,267	472	18.7	2,533	0.273	0.255	112	0.252	28.7	162
152-G1	0 to 4	2.39	114	17,100	1.32	8.96	202	0.482	2.94	25,400	13.0	5.24	20.2	15,900	165	6,590	438	13.0	1,680	0.560	0.335	392	0.203	25.1	355
152-H1	0 to 1	na	na	13,633	2.29	14.2	234	0.459	3.78	26,600	14.7	5.75	25.2	14,967	197	5,050	421	16.1	2,000	0.630	0.290	296	0.274	23.6	279
153-G1	0 to 8	na	na	18,200	1.83	11.5	178	0.508	2.80	6,330	14.9	5.29	19.6	16,100	99.2	3,200	688	13.4	1,220	0.350	0.426	175	0.176	24.5	188
153-H1	0 to 1	na	na	18,600	3.56	19.9	246	0.631	8.38	7,600	18.8	7.28	33.5	17,300	265	4,350	851	16.5	2,190	0.450	0.463	178	0.335	29.5	426
153-O1	0 to 1	2.29	222	26,033	3.92	23.4	265	0.793	8.18	5,427	15.5	7.07	32.9	18,000	296	3,887	1,243	14.7	1,600	0.457	0.499	203	0.343	28.4	367
153-O2	0 to 1	2.73	373	7,580	5.28	11.3	197	0.229	6.77	3,810	8.26	2.83	13.8	8,810	354	1,950	666	7.36	789	0.290	0.315	85.6	0.335	13.0	315
153-O3	0 to 1	na	na	23,100	3.34	17.9	212	0.691	5.26	3,870	16.0	6.16	22.1	18,300	207	3,200	778	14.7	1,300	0.380	0.506	187	0.285	28.9	264
153-O5	0 to 1	na	na	17,100	3.63	19.6	253	0.523	6.49	4,160	15.8	5.55	19.6	17,100	286	3,340	907	13.7	1,350	0.350	0.320	144	0.327	24.3	315
153-O6	0 to 1	na	na	22,400	1.79	12.5	230	0.684	2.88	3,970	17.1	6.39	21.2	18,700	95.7	3,510	719	15.5	1,480	0.290	0.274	197	0.221	30.9	172
153-O7	0 to 1	na	na	19,200	5.09	20.6	266	0.619	9.69	7,380	15.4	6.09	29.8	16,500	339	3,640	968	13.8	2,250	0.470	0.535	169	0.348	26.3	441
153-P1	0 to 1	na	na	21,400	3.80	18.4	260	0.749	7.53	7,390	17.6	7.42	30.7	17,600	263	4,000	954	15.4	2,190	1.13	0.484	204	0.414	29.0	376
154-G1	0 to 6	na	na	12,100	0.340	4.05	116	0.395	0.721	5,920	20.7	6.38	18.7	17,600	25.4	5,260	369	17.1	2,870	0.190	0.255	121	0.146	29.6	109
154-H1	0 to 1	na	na	8,197	0.859	3.95	113	0.363	0.882	8,113	20.0	6.05	18.4	15,233	25.9	4,513	325	16.6	2,543	0.213	0.185	143	0.141	28.8	110
155-G1	0 to 5	na	na	14,800	2.48	15.1	213	0.559	3.83	4,510	14.8	5.58	19.8	13,200	166	2,790	501	12.7	1,840	0.280	0.186	198	0.221	22.1	199
155-G2	0 to 6	na	na	10,300	1.46	8.52	112	0.418	2.29	3,790	17.7	5.58	18.1	15,000	109	3,550	366	14.5	2,080	0.220	0.207	128	0.196	24.4	129
155-H1	0 to 1	na	na	10,600	0.892	6.21	136	0.489	1.31	3,300	18.2	5.61	12.8	13,400	62.3	3,140	278	14.4	1,690	0.410	0.126	152	0.212	27.6	93.9
155-H2	0 to 1	na	na	12,600	2.28	11.1	159	0.430	3.08	3,610	14.6	4.49	14.7	13,200	200	2,840	367	12.2	1,740	0.220	0.126	176	0.275	20.7	173
155-O2	0 to 1	na	na	12,533	4.69	14.6	166	0.413	5.56	4,183	14.3	4.74	19.0	13,867	322	2,653	496	11.2	2,073	0.297	0.213	133	0.289	20.8	246
156-H1	0 to 1	na	na	12,300	1.35	7.89	124	0.388	1.95	3,420	17.8	5.27	13.0	16,700	97.1	3,590	446	13.9	2,050	0.200	0.104	159	0.183	25.0	127
156-O1	0 to 1	na	na	10,767	2.52	10.9	124	0.333	3.26	3,687	15.8	4.55	14.5	14,833	173	3,033	502	12.0	1,773	0.227	0.131	130	0.255	22.5	160
157-B1	0 to 1	na	na	6,560	4.60	8.47	427	0.313	2.82	23,000	21.4	7.17	121	27,800	189	12,800	384	13.7	1,010	0.430	0.804	221	0.297	31.2	1,450
157-B2	0 to 1	1.27	167	6,630	3.11	10.1	727	0.349	4.52	29,000	19.7	6.86	62.9	25,300	251	20,300	282	17.3	998	0.420	1.04	183	0.386	33.2	1,080
157-G1	0 to 6	na	na	8,160	0.700	6.29	101	0.357	1.28	3,680	19.0	5.97	14.7	15,800	49.5	3,920	316	14.9	1,720	0.160	0.120	118	0.163	29.1	101
157-H1	0 to 1	na	na	7,280	1.38	8.93	98.8	0.335	2.75	24,800	18.8	5.85	18.5	14,500	110	4,320	299	15.1	1,650	0.200	0.203	119	0.235	29.1	197
157-H2	0 to 1	na	na	7,290	0.886	6.85	93.7	0.314	1.75	21,100	17.1	5.36	15.0	14,400	75.0	4,190	294	13.8	1,590	0.160	0.142	127	0.175	26.4	136
157-O1	0 to 1	na	na	7,120	1.01	7.09	89.5	0.317	1.95	24,300	17.6	5.35	14.7	13,933	79.8	4,243	278	14.0	1,560	0.180	0.149	131	0.187	27.0	148
158-H1	0 to 1	na	na	8,637	0.522	5.96	155	0.312	0.918	27,467	18.6	5.85	20.7	16,233	40.2	5,057	294	16.3	1,983	0.190	0.287	215	0.158	26.1	113
158-O1	0 to 1	na	na	9,730	0.681	4.46	90.5	0.301	0.950	4,340	18.3	5.26	14.8	14,800	60.8	3,840	253	13.5	1,730	0.200	0.147	220	0.175	27.2	113
159-G1	0 to 5	na	na	11,200	0.833	9.13	131	0.361	1.81	4,350	14.0	4.50	18.8	13,800	83.6	2,950	364	11.9	1,330	0.190	0.174	109	0.151	22.3	107
159-H1	0 to 1	na	na	8,620	0.620	7.80	91.7	0.301	1.47	3,667	13.0	4.27	16.5	12,467	70.9	2,760	270	11.0	1,123	0.157	0.108	113	0.133	20.5	93.0
159-H2	0 to 1	na	na	10,500	1.28	12.3	128	0.344	2.61	5,630	13.5	4.44	21.4	13,100	120	2,740	364	12.0	1,270	0.180	0.221	95.3	0.175	20.2	121
159-O1	0 to 1	na	na	10,300	0.534	6.37	106	0.328	1.30	3,960	13.3	4.46	13.4	13,400	52.6	2,840	292	11.7	1,450	0.130	0.119	95.1	0.134	20.0	84.1
159-O2	0 to 1	na	na	9,630	0.594	6.41	104	0.316	1.46	4,420	13.9	4.46	13.2	13,100	60.9	2,730	285	12.0	1,320	0.130	0.132	90.6	0.131	20.8	90.9
160-G1	0 to 6	na	na	15,300	1.16	11.9	216	0.432	3.29	6,303	16.3	5.31	37.5	14,667	155	3,470	476	12.7	2,363	0.353	0.360	241	0.178	24.0	147
160-H1	0 to 1	na	na	13,900	0.634	8.77	182	0.405	1.63	8,580	16.6	5.24	30.3	15,200	95.4	3,630	376	12.6	2,440	0.270	0.255	242	0.149	27.5	130

Table 5-8. Comparison of Residential Soil Metals Data based on IC Soil Samples[a]

DU	Sample Depth (inches)	Site-Specific Bioavailability Adjusted Soil Concentration (mg/kg dw)		Soil Concentration by Analyte (mg/kg dw)																			
		Arsenic[b]	Lead[c]	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc
Screening Level (mg/kg)		20[d]	400	77,400	31.3	20[d]	15,300	156	70.3	na	na	23.4	3,130	54,800	NA[e]	na	1,830	1,550	na	391	391	na	0.782	394	23,500
160-H2	0 to 1	na	na	13,500	0.561	7.77	171	0.422	1.27	8,250	18.3	5.77	30.7	16,000	89.2	3,870	343	13.4	2,850	0.240	0.239	330	0.138	30.5	150
161-D1	0 to 1	na	na	11,400	1.04	9.80	130	0.391	2.69	7,450	17.7	5.40	31.6	15,200	123	3,680	392	12.7	1,090	0.780	0.310	196	0.245	27.2	163
161-H1	0 to 1	na	na	11,500	1.33	11.9	158	0.369	3.52	9,500	17.6	5.34	38.6	14,800	154	3,890	429	13.7	1,320	0.570	0.384	183	0.207	26.7	201
161-N1	0 to 3	na	na	10,267	0.979	8.73	169	0.349	2.80	41,933	16.4	5.04	28.9	13,333	120	4,170	348	12.6	2,430	0.767	0.463	183	0.186	22.8	154
162-H1	0 to 1	na	na	6,833	1.51	5.78	91.6	0.250	2.24	5,263	14.7	4.14	14.0	13,567	96.0	2,783	232	9.37	1,200	0.190	0.163	87.1	0.152	24.6	124
163-G1	0 to 8	na	na	11,033	1.04	6.19	136	0.347	1.64	6,463	14.0	4.80	15.3	14,300	63.0	3,517	386	11.4	1,627	0.220	0.133	181	0.151	22.5	127
163-O1	0 to 1	na	na	10,500	1.20	6.35	114	0.315	2.31	5,530	14.3	4.54	13.3	13,700	84.4	3,470	318	11.6	1,540	0.190	0.141	183	0.180	23.5	176
164-H1	0 to 1	na	na	13,167	1.88	12.8	164	0.471	3.83	9,303	19.5	6.42	19.8	19,067	155	3,720	467	16.9	2,080	0.340	0.205	230	0.218	28.2	236
165-H1	0 to 1	1.49	13.3	14,967	1.07	27.0	219	0.647	1.40	12,000	20.9	16.3	101	33,500	36.8	3,653	668	45.0	2,583	0.817	0.375	122	0.127	30.1	150
165-O1	0 to 1	1.74	62.6	15,000	2.27	36.9	236	0.670	3.57	7,480	16.7	20.0	118	36,700	135	3,940	880	50.0	2,280	0.940	0.537	77.4	0.193	31.9	214
166-O1	0 to 1	3.37	254	4,990	3.50	17.7	629	0.253	8.26	49,233	14.0	4.64	52.3	23,633	402	27,667	379	12.5	963	0.460	0.522	163	0.276	29.5	1,453
167-O1	0 to 1	na	na	7,690	1.00	7.87	102	0.285	2.52	4,120	15.1	5.03	14.8	15,000	118	3,920	303	12.7	1,750	0.160	0.126	177	0.225	23.5	187
167-O2	0 to 1	na	na	7,563	1.90	9.62	104	0.293	2.78	2,730	16.5	4.86	12.8	14,467	184	3,473	321	11.9	1,917	0.137	0.128	105	0.308	24.6	165
167-O3	0 to 1	na	na	10,500	2.76	11.5	128	0.342	4.87	5,060	15.3	5.34	24.0	14,300	266	3,450	423	12.6	1,850	0.250	0.328	181	0.351	23.6	270
167-O4	0 to 1	1.37	176	8,540	1.78	7.99	103	0.320	2.88	3,090	17.4	4.94	13.2	15,500	181	3,850	309	12.0	2,230	0.170	0.104	125	0.376	23.5	192
167-O5	0 to 1	1.66	224	8,560	2.11	8.24	106	0.313	2.93	2,610	17.3	4.58	12.3	13,900	211	3,740	295	10.9	2,180	0.160	0.116	104	0.383	22.2	187
167-O6	0 to 1	na	na	9,610	2.78	11.7	128	0.291	4.98	7,920	12.2	4.42	21.8	13,700	293	2,980	476	10.8	1,880	0.190	0.267	128	0.282	18.6	220
167-O7	0 to 1	na	na	12,700	5.07	22.6	143	0.389	7.55	4,430	12.6	4.78	35.2	14,200	472	2,770	486	11.1	1,280	0.320	0.481	142	0.405	21.3	312
167-O8	0 to 1	na	na	8,620	2.60	7.30	95.3	0.256	3.09	3,580	13.4	3.66	12.8	13,100	244	2,940	321	10.3	1,730	0.190	0.178	132	0.265	20.8	161
167-O9	0 to 1	na	na	8,600	2.59	8.75	106	0.281	3.33	3,910	14.7	4.10	14.6	14,200	234	3,140	399	11.3	1,880	0.230	0.192	143	0.282	23.0	153
168-D1	0 to 1	na	na	12,500	0.531	4.78	173	0.454	1.66	5,780	23.3	6.41	23.9	18,300	37.7	5,060	266	19.4	2,330	0.220	0.177	164	0.188	33.0	132
168-G1	0 to 6	na	na	11,200	0.609	3.83	218	0.375	1.92	17,000	15.5	4.96	21.8	13,700	44.6	6,010	290	16.5	3,440	0.260	0.210	223	0.153	21.9	153
168-G2	0 to 4	na	na	13,100	0.704	4.92	241	0.399	1.57	19,100	17.1	5.44	26.5	14,300	45.2	6,210	325	19.2	2,000	0.250	0.208	213	0.176	24.9	180
168-H1	0 to 1	na	na	11,833	0.468	4.10	159	0.418	1.18	6,723	19.6	5.79	19.9	16,433	34.2	4,810	252	16.9	2,080	0.197	0.157	169	0.171	28.5	116
168-N1	0 to 3	na	na	13,000	0.748	5.14	184	0.359	1.78	10,200	10.6	4.54	19.9	11,200	38.9	4,320	246	20.4	4,470	0.250	0.179	338	0.121	15.4	167
168-O1	0 to 1	na	na	10,700	2.80	16.9	232	0.443	3.86	3,560	8.88	5.97	28.3	14,600	57.3	1,830	214	44.0	1,850	0.760	0.668	127	0.213	27.5	333
169-G2	0 to 12	na	na	8,780	0.849	5.62	126	0.332	1.44	22,100	33.0	4.55	11.7	14,600	43.4	3,710	209	12.1	1,500	3.150	0.124	283	0.130	21.7	75.0
169-G3	0 to 5	na	na	13,400	1.07	7.68	180	0.515	1.64	9,380	22.9	6.74	18.6	20,100	65.1	3,690	497	17.3	2,350	0.700	0.184	262	0.152	29.6	108
169-G4	0 to 4	na	na	10,700	1.20	6.55	154	0.380	1.68	30,300	20.3	5.18	18.0	17,000	62.1	4,230	336	13.1	2,010	1.35	0.288	449	0.136	22.8	93.5
169-H1	0 to 1	na	na	10,067	0.787	5.23	121	0.335	1.24	9,763	20.0	4.35	13.4	14,367	49.3	3,577	346	12.4	2,033	2.07	0.116	242	0.115	21.8	93.6
170-G1	0 to 8	na	na	12,500	0.893	7.99	125	0.449	1.45	5,240	18.1	5.63	14.8	18,600	56.2	3,520	469	13.4	1,630	0.220	0.253	231	0.121	27.1	92.3
170-G2	0 to 1	na	na	10,300	1.87	9.04	125	0.428	3.91	5,650	17.9	5.46	17.3	16,800	139	3,290	437	13.3	1,860	0.250	0.169	142	0.199	27.3	180
170-H1	0 to 1	na	na	9,447	1.05	6.62	90.6	0.372	2.05	4,280	17.7	4.87	12.9	17,333	91.6	2,977	396	11.8	1,573	0.203	0.110	143	0.152	27.2	116
171-A1	0 to 1	na	na	19,100	2.11	14.4	228	0.567	5.94	14,500	47.9	13.1	38.2	26,900	185	8,560	676	38.6	5,230	1.72	0.397	333	0.326	51.9	279
171-B1	0 to 6	na	na	5,910	0.811	4.00	308	0.254	1.80	15,200	14.2	4.31	28.3	16,500	96.2	9,450	198	11.3	830	0.200	0.212	181	0.164	24.5	497
171-G1	0 to 1	na	na	24,700	3.35	19.4	276	0.651	7.50	7,360	33.3	10.8	47.6	24,000	286	6,320	774	28.2	4,800	0.390	0.466	273	0.384	38.5	351
171-H1	0 to 1	1.62	233	14,800	2.42	13.0	167	0.429	5.42	8,210	27.6	8.07	34.7	20,200	236	5,550	464	22.8	3,360	0.320	0.302	247	0.325	36.0	261
172-O1	0 to 1	na	na	13,367	7.24	59.8	143	0.465	105.87	31,767	23.5	9.28	57.4	45,000	7,700	6,977	6,263	21.1	2,480	0.727	12.067	178	0.239	28.5	15,167
173-G1	0 to 5.5	na	na	11,700	0.730	6.75	136	0.417	1.37	9,500	22.0	5.52	22.3	18,100	58.5	4,120	337	18.9	1,750	0.240	0.170	268	0.129	29.9	135
173-G2	0 to 4	na	na	8,880	0.282	4.84	80.4	0.376	0.411	12,000	22.4	5.22	12.6	18,400	20.2	3,810	244	18.2	1,190	0.170	0.103	226	0.087	32.9	65.6
173-G3	0 to 4	na	na	12,100	1.28	13.5	170	0.434	2.31	6,630	22.3	5.44	16.1	19,600	103	3,430	445	22.8	1,520	0.220	0.210	179	0.152	30.4	157
173-G4	0 to 4	na	na	11,900	1.59	12.9	205	0.418	3.09	5,730	21.2	5.61	15.2	18,000	143	3,110	497	23.0	1,580	0.250	0.225	173	0.175	27.5	187
173-G5	0 to 5	na	na	12,100	0.526	8.20	124	0.395	0.722	8,010	17.5	6.60	21.4	17,900	31.0	3,830	390	16.7	2,080	0.250	0.122	209	0.117	26.1	95.8
173-H1	0 to 1	na	na	10,767	1.68	11.5	158	0.429	3.65	6,610	20.4	5.15	14.5	17,400	162	3,233	403	18.6	1,503	0.243	0.204	181	0.190	27.9	199
173-P1	0 to 1	na	na	11,400	2.26	11.6	181	0.398	4.36	6,560	19.3	5.44	14.2	16,900	208	3,590	420	17.6	1,950	0.440	0.998	201	0.262	25.8	231
174-A1	0 to 1	na	na	20,500	1.14	11.9	297	0.654	2.77	8,490	18.9	7.64	28.1	17,800	85.5	4,270	817	22.5	2,430	0.370	0.237	189	0.203	33.9	227
174-G1	0 to 6	na	na	21,100	1.32	12.4	303	0.653	2.49	10,300	17.9	7.30	27.1	17,200	93.8	4,540	969	21.8	1,990	0.400	0.308	270	0.209	27.8	200
174-H1	0 to 1	na	na	20,633	2.51	16.3	268	0.612	4.61	9,803	16.9	6.80	28.6	17,667	213	4,257	989	19.3	1,737	0.537	0.386	219	0.288	26.3	320
175-G1	0 to 6	na	na	8,630	1.11	7.36	123	0.331	2.22	9,970	14.7	4.36	17.4	12,100	91.8	3,200	377	11.5	990	0.290	0.141	139	0.161	23.0	132
175-G2	0 to 6	na	na	8,650	0.630	4.51	103	0.320	0.883	2,717	13.8	4.28	10.0	12,233	31.8	2,513	250	11.7	1,560	0.220	0.097	129	0.133	25.4	84.7
175-H1	0 to 1	na	na	6,470	1.18	5.52	87.1	0.276	2.09	6,080	13.0	3.56	12.5	11,000	89.7	2,540	328	9.16	1,040	0.220	0.129	97.5	0.149	21.2	133
176-A1	0 to 1	na	na	12,567	1.01	8.41	167	0.458	1.50	3,437	16.0	5.82	16.4	14,900	46.7	3,163	369	17.0	2,277	0.303	0.142	91.9	0.196	30.4	136
176-H1	0 to 1	na	na	10,300	0.816	6.79	130	0.332	1.50	3,410	14.8	4.46	12.2	14,100	59.8	2,730	323	13.1	1,740	0.180	0.110	93.6	0.155	27.4	112
176-H2	0 to 1	na	na	9,750	0.775	6.16	123	0.356	1.10	3,300	15.2	5.13	13.5	13,700	34.5	2,920	272	15.5	2,110	0.260	0.119	85.7	0.171	28.8	106
176-P1	0 to 1	na	na	11,700	0.676	6.51	141	0.346	1.30	4,190	12.7	4.21	13.3	14,100	46.4	2,520	363	11.1	1,500	0.140	0.112	118	0.132	24.6	97.9
178-H1	0 to 1	na	na	16,033	0.608	7.38	168	0.683	0.932	4,397	24.9	7.38	18.6	20,833	34.6	3,753	509	16.7	2,000	0.277	0.106	195	0.155	36.1	89.1
179-H1	0 to 1	na	na	19,300	1.14	12.0	218	0.610	2.17	4,917	21.7	6.62	17.7	19,200	98.6	3,893	627	22.1	1,893	0.237	0.166	247	0.208	30.3	166
180-H1	0 to 1	na	na	11,100	4.93	18.2	125	0.369	4.27	8,280	18.3	5.33	31.9	16,600	396	4,030	337	13.5	1,440	0.480	0.579	185	0.457	27.4	305
180-H2	0 to 1	na	na	13,800	6.55	21.7	151	0.528	8.88	10,300	21.4	6.10	41.8	18,300	637	4,820	570	14.3	1,620	0.530	1.02	194	0.673	33.9	457
180-O1	0 to 1	2.93	480	11,800	7.08	21.7	98.6	0.446	6.27	3,687	21.9	6.02	29.8	18,867	526	4,203	414	15.3	1,583	0.450	0.545	130	0.627	34.5	377
181-A1	0 to 1	na	na	22,500	1.52	14.3	289	0.600	2.55	11,100	17.5	6.35	24.0	16,300	99.6	3,710	739	18.9	1,640	0.350	0.211	168	0.207	27.1	201
181-G1	0 to 5	na	na	12,900	0.877	10.4	156	0.419	0.989	7,330	16.1	5.98	21.0	15,100	45.7	3,640	460	14.6	2,300	0.350	0.132	158	0.134	24.0	109
181-G2	0 to 2	na	na	24,333	1.87	16.9	267	0.725	2.84	12,767	22.7	8.25	32.4	18,933	105	4,497	773	21.5	1,507	0.387	0.294	182	0.246	36.0	192
181-H1	0 to 1	na	na	21,100	1.88	15.6	266	0.583	3.14	7,230	20.7	7.40	25.2	17,400	114	4,100	807	18.8	1,740	0.310	0.224	151	0.219	31.0	185
181-H2	0 to 1	na	na	23,900	1.93	18.4	272	0.712	2.97	8,440	20.8	7.73	29.2	18,400	108	5,010	780	19.5	2,300	0.330	0.215	185	0.236	32.5	249
181-N1	0 to 3	na	na	24,100	1.89	18.9	266	0.676	3.34	7,240	19.5	7.52	28.9	17,700	119	4,150	842	18.6	2,310	0.410	0.211	222	0.236	30.6	218
181-N2	0 to 2.5	na	na	20,000	2.32	16.1	314	0.601	3.54	9,300	18.8	6.58	23.5	16,000	130	3,710	820	18.6	1,730	0.360	0.255	182	0.221	28.3	218
181-O1	0 to 1	na	na	16,800	0.878	9.05	226	0.549	1.59	15,100	20.8	6.92	30.9	16,300	53.8	4,370	544	19.3	2,120	0.260	0.173	172	0.175	30.0	237
182-G1	0 to 1	na	na	20,500	2.39	14.4	290	0.585	6.34	64,100	30.0	9.17	38.7	18,800	237	5,530	779	30.9	2,580	0.950	0.468	200	0.291	35.7	314
182-G2	0 to 3.5	4.80	180	24,600	2.65	19.6	424	0.721	6.58	34,500	31.2	10.3	43.2	20,000	195	5,700	1,050	31.8	2,650	0.790	0.523	249	0.303	39.1	375
182-H1	0 to 1	1.90	139	18,100	1.73	10.9	265	0.503	4.48	33,100	30.2	8.96	31.7	19,100	161	5,540	673	28.7	2,900	0.670	0.352	188	0.266	36.7	283

Table 5-8. Comparison of Residential Soil Metals Data based on IC Soil Samples[a]

DU	Sample Depth (inches)	Site-Specific Bioavailability Adjusted Soil Concentration (mg/kg dw)		Soil Concentration by Analyte (mg/kg dw)																			
		Arsenic[b]	Lead[c]	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc
Screening Level (mg/kg)		20[d]	400	77,400	31.3	20[d]	15,300	156	70.3	na	na	23.4	3,130	54,800	NA[e]	na	1,830	1,550	na	391	391	na	0.782	394	23,500
182-H2	0 to 1	na	na	17,000	1.64	11.0	273	0.567	3.89	17,200	33.8	10.2	29.0	20,700	159	5,500	683	29.5	3,130	0.570	0.311	177	0.245	39.6	281
182-O1	0 to 1	na	na	16,100	1.38	10.2	224	0.470	3.28	13,600	32.0	9.22	27.0	20,500	131	5,780	591	28.4	3,170	0.520	0.275	227	0.235	37.8	291
182-O2	0 to 1	5.03	186	26,900	2.41	21.1	328	0.722	6.06	16,700	25.5	9.21	32.5	19,900	215	4,910	987	28.8	2,220	0.600	0.415	211	0.293	31.7	323
182-O3	0 to 1	na	na	17,500	2.32	14.2	280	0.457	6.90	67,133	28.7	8.46	36.2	18,500	212	5,297	829	32.2	2,553	0.963	0.445	165	0.327	32.0	344
184-H1	0 to 1	na	na	8,763	2.26	13.4	135	0.289	4.42	2,817	13.4	4.61	13.3	13,100	177	2,983	479	11.5	1,343	0.280	0.226	88.7	0.265	19.9	259
185-A1	0 to 1	na	na	13,300	1.55	10.1	176	0.538	2.10	3,643	19.0	6.65	25.2	17,100	40.2	4,107	278	27.6	3,080	0.677	0.288	147	0.246	41.5	197
185-H1	0 to 1	na	na	12,900	1.24	8.79	160	0.472	1.95	3,580	17.3	5.92	22.1	16,200	38.7	4,090	291	22.9	2,970	0.530	0.224	154	0.223	34.8	167
186-O1	0 to 1	na	na	5,417	3.49	19.4	520	0.272	8.09	43,033	16.0	5.07	54.2	28,867	416	26,067	403	14.3	1,077	0.413	0.560	230	0.284	33.9	1,773
187-H1	0 to 1	0.922	108	11,333	2.14	13.1	134	0.434	4.00	2,983	19.8	6.57	16.8	17,133	172	3,430	512	14.5	2,143	0.237	0.141	96.8	0.291	31.5	180
188-A1	0 to 1	na	na	16,000	1.27	8.46	186	0.485	2.89	11,000	20.0	7.06	20.1	17,800	93.0	4,210	803	23.4	2,760	0.280	0.183	214	0.175	23.4	172
188-G1	0 to 6	na	na	15,500	1.86	10.8	232	0.491	3.41	9,250	25.0	7.65	33.5	18,600	139	4,850	706	28.4	2,760	0.700	0.303	334	0.205	24.2	200
188-G2	0 to 10	na	na	16,600	2.20	13.1	216	0.536	3.97	8,420	24.3	8.28	31.6	18,000	145	4,780	899	32.3	2,490	0.450	0.324	250	0.213	24.1	199
188-G3	0 to 6	na	na	14,800	1.25	9.44	193	0.526	2.14	5,730	24.5	7.21	23.2	17,700	73.3	4,100	627	18.7	2,830	0.540	0.194	265	0.181	26.6	120
188-H1	0 to 1	na	na	12,300	0.722	5.25	114	0.429	1.23	10,600	25.1	6.66	27.7	16,300	46.4	5,420	531	37.2	2,420	0.470	0.178	253	0.169	26.3	207
188-P1	0 to 1	na	na	13,933	0.929	6.89	155	0.449	2.00	5,343	17.4	6.14	17.1	16,933	67.3	3,777	597	15.1	2,650	0.317	0.146	215	0.155	23.2	119
189-G1	0 to 4	na	na	12,200	0.785	5.96	151	0.467	1.00	3,370	22.6	6.22	13.6	16,800	52.3	4,120	386	16.9	2,440	0.230	0.089	134	0.182	27.7	100
189-H1	0 to 1	na	na	11,033	1.00	7.60	135	0.418	1.97	5,297	21.6	6.18	19.0	17,200	90.7	4,613	394	17.2	2,790	0.183	0.116	132	0.210	26.4	141
189-H2	0 to 1	na	na	11,100	1.26	8.66	171	0.396	2.81	7,490	19.8	5.63	17.4	16,500	123	4,290	509	15.6	2,840	0.200	0.146	124	0.240	24.8	179
189-O1	0 to 1	2.70	120	10,800	1.37	10.8	167	0.392	2.80	3,030	19.7	5.28	14.6	15,800	108	3,890	473	15.4	2,540	0.160	0.084	110	0.239	23.6	171
190-G1	0 to 4	na	na	8,670	0.473	3.64	97.2	0.363	0.523	3,090	17.6	5.23	9.45	14,600	21.7	3,020	322	12.3	2,140	0.580	0.098	123	0.181	25.9	62.3
190-H1	0 to 1	na	na	11,733	0.620	4.86	134	0.433	1.32	4,740	18.1	5.63	14.3	15,467	49.3	3,057	426	13.6	1,667	0.233	0.113	148	0.124	28.3	111
190-N1	0 to 3	na	na	11,200	0.497	4.50	125	0.419	0.843	3,260	18.6	5.39	10.9	16,400	32.0	3,110	425	13.6	1,900	0.210	0.106	136	0.127	27.6	90.4
190-N2	0 to 2	na	na	10,400	0.440	3.95	111	0.345	0.669	3,320	17.5	5.04	10.6	14,600	29.0	3,000	372	12.7	2,030	0.180	0.158	137	0.114	24.8	79.3
190-N3	0 to 2	na	na	9,890	0.373	3.57	102	0.346	0.599	3,460	17.5	4.92	10.5	14,300	24.9	3,020	332	12.7	2,100	0.180	0.090	134	0.116	25.5	75.0
190-O1	0 to 1	na	na	13,600	0.974	6.82	199	0.556	2.03	4,600	19.1	6.31	18.1	15,900	74.6	2,770	490	14.6	1,540	0.260	0.155	156	0.159	31.1	144
191-H1	0 to 1	na	na	10,967	2.65	12.3	148	0.436	4.55	5,233	25.2	7.13	21.8	19,300	251	3,667	543	21.6	2,233	0.313	0.148	87.6	0.283	32.6	197
192-A1	0 to 1	na	na	12,100	2.04	10.4	183	0.544	1.94	3,860	18.2	6.56	26.1	17,200	44.5	4,110	268	28.2	2,870	0.800	0.335	144	0.239	41.8	214
192-G1	0 to 2	na	na	11,600	2.44	14.0	198	0.569	1.82	11,700	19.5	7.64	34.3	19,300	33.8	5,210	276	38.4	2,890	1.11	0.411	301	0.244	57.8	211
192-H1	0 to 1	na	na	11,967	2.07	11.4	164	0.521	1.91	5,060	17.3	6.49	27.2	18,767	40.4	4,367	277	28.8	2,883	0.900	0.340	135	0.234	43.3	191
193-G1	0 to 12	na	na	8,040	0.311	3.91	85.9	0.284	0.528	3,540	11.8	3.79	9.46	11,000	22.1	2,360	199	9.30	979	0.240	0.073	122	0.097	20.1	51.3
193-H1	0 to 1	na	na	8,870	0.374	4.51	117	0.329	0.661	6,857	15.1	4.98	13.1	13,967	25.4	3,740	288	12.9	1,260	0.350	0.086	162	0.124	24.6	77.3
194-H1	0 to 1	na	na	9,300	0.428	3.51	115	0.316	0.793	3,807	15.3	4.89	10.5	14,467	32.6	3,553	301	12.2	2,080	0.173	0.068	104	0.159	22.9	88.7
194-N1	0 to 3	na	na	9,120	0.666	5.10	142	0.331	1.02	4,740	18.8	5.01	11.7	13,800	40.6	3,470	329	13.7	3,140	0.250	0.091	146	0.170	23.6	93.9
195-G1	0 to 8	na	na	14,500	1.57	9.13	157	0.424	1.82	2,690	11.2	4.19	12.7	12,600	92.5	2,220	418	11.2	967	0.280	0.144	128	0.166	19.1	113
195-G2	0 to 7	na	na	13,800	2.91	13.4	158	0.445	4.92	3,780	13.1	4.77	17.1	14,600	184	2,950	683	11.4	1,480	0.370	0.196	111	0.224	18.9	192
195-O1	0 to 1	na	na	11,033	3.36	11.9	126	0.325	5.29	4,617	11.2	3.80	14.8	12,933	232	2,563	593	9.93	1,320	0.313	0.210	114	0.256	16.6	210
196-A1	0 to 1	na	na	10,000	0.863	5.56	126	0.378	1.55	5,030	18.2	5.68	53.5	15,400	68.3	3,760	337	14.0	1,980	0.250	0.134	115	0.192	27.8	126
196-A2	0 to 1	na	na	11,900	1.02	6.48	149	0.418	2.57	6,330	16.9	6.24	27.3	14,500	81.6	3,940	486	16.7	2,040	0.280	0.212	171	0.188	26.1	167
196-G1	0 to 7	na	na	14,500	1.12	6.64	138	0.499	1.70	6,340	13.8	5.76	19.4	14,400	56.7	3,190	393	12.3	1,190	1.01	0.258	201	0.268	26.5	122
196-O1	0 to 1	na	na	12,833	1.21	7.49	144	0.424	2.28	7,010	15.1	5.64	38.1	14,533	82.0	3,530	383	13.2	1,640	0.327	0.246	174	0.172	28.0	168
197-H1	0 to 1	1.49	141	10,700	1.74	14.5	127	0.554	3.04	6,187	38.3	8.90	23.5	23,333	166	6,147	428	24.1	2,307	0.287	0.171	169	0.235	52.7	164
198-G1	0 to 4	2.48	78.3	20,700	1.41	12.0	299	0.632	2.38	10,567	14.6	6.42	22.8	16,333	101	4,157	921	17.1	2,433	0.407	0.211	160	0.208	24.4	178
198-H1	0 to 1	na	na	16,400	1.98	13.1	276	0.635	3.72	7,520	21.5	7.92	27.7	17,800	200	4,210	795	22.5	2,210	0.330	0.269	155	0.277	30.1	249
199-G1	0 to 5	na	na	11,300	0.386	4.04	127	0.536	0.441	4,830	31.1	6.83	15.3	23,700	17.5	3,580	349	16.8	1,990	0.770	0.131	158	0.138	46.9	63.8
199-O1	0 to 1	na	na	10,060	0.509	4.75	112	0.527	0.877	4,237	27.9	7.10	15.5	21,500	31.5	3,730	384	17.4	1,923	0.293	0.093	138	0.132	41.5	79.3
200-G1	0 to 3	na	na	24,700	0.749	13.8	298	0.839	1.23	7,460	26.5	10.0	33.7	22,300	35.5	4,860	810	20.5	2,020	0.410	0.204	176	0.165	37.8	103
200-H1	0 to 1	na	na	24,300	0.697	13.5	279	0.846	1.09	4,960	27.8	10.6	32.3	23,233	34.6	4,700	774	21.3	1,890	0.393	0.159	161	0.174	39.7	91.8
200-O1	0 to 1	na	na	18,600	0.703	16.6	245	0.666	0.901	6,320	35.6	11.9	41.0	27,700	32.9	5,950	722	28.4	2,170	0.630	0.219	260	0.141	45.7	95.2
201-O1	0 to 1	na	na	8,610	3.99	20.4	147	0.450	6.40	5,187	34.6	8.16	24.5	23,667	305	4,863	603	18.9	1,450	0.470	0.222	147	0.320	47.8	285
202-H1	0 to 1	na	na	8,300	1.19	13.2	102	0.319	3.43	4,327	17.3	5.11	50.8	15,167	206	3,700	274	12.8	1,680	0.267	0.422	112	0.188	26.7	163
202-N1	0 to 3	na	na	7,400	0.781	6.35	75.9	0.314	1.22	4,020	14.5	4.50	23.1	12,800	68.8	3,440	211	11.7	1,970	0.180	0.240	164	0.129	22.3	91.2
202-O1	0 to 1	1.37	137	7,770	0.698	10.4	93.3	0.322	2.74	3,650	17.8	5.42	38.2	15,600	144	3,860	283	13.6	1,820	0.240	0.291	113	0.168	27.5	115
203-H1	0 to 1	na	na	24,700	13.7	65.9	203	0.717	14.4	12,500	14.7	6.02	53.1	17,800	855	3,970	723	12.4	1,340	0.970	1.06	294	0.773	31.4	579
203-O1	0 to 1	na	na	23,567	20.2	81.1	196	0.680	16.0	3,103	12.6	5.08	71.4	17,767	1,393	3,147	632	11.5	1,320	1.03	1.00	216	1.04	26.6	620
203-O2	0 to 1	na	na	23,300	7.54	34.7	181	0.636	8.81	6,940	13.5	5.31	37.6	17,200	450	3,640	627	11.2	1,290	0.620	0.675	257	0.439	26.7	341
205-O1	0 to 1	na	na	7,323	4.05	24.1	193	0.295	6.30	5,677	17.9	5.78	19.9	18,167	476	5,050	258	14.7	1,197	0.427	0.359	112	0.518	30.3	578
206-A1	0 to 1	na	na	13,000	1.52	13.1	165	0.445	3.74	6,020	40.2	9.91	26.5	18,600	138	5,110	551	49.9	2,820	0.300	0.236	167	0.242	27.3	181
206-G1	0 to 4	na	na	11,000	0.753	6.41	141	0.360	1.54	7,450	22.2	5.81	17.0	15,100	59.9	3,890	390	21.0	2,210	0.250	0.123	140	0.150	24.2	108
206-H1	0 to 1	na	na	10,363	0.320	4.01	103	0.397	0.597	4,777	19.0	5.59	12.6	16,233	21.4	3,610	307	15.0	1,800	0.167	0.063	112	0.129	26.9	67.0
206-H2	0 to 1	1.80	285	19,000	2.78	17.5	230	0.631	6.82	8,440	52.5	16.0	32.8	19,600	295	5,250	618	123	2,090	0.460	0.304	202	0.346	31.1	259
206-O1	0 to 1	na	na	16,800	3.69	22.2	166	0.559	4.16	4,620	27.2	8.76	37.1	21,900	300	4,850	629	23.2	1,780	0.480	0.428	179	0.431	42.4	268
207-O1	0 to 1	1.25	111	11,100	1.49	12.3	149	0.368	3.05	3,760	12.2	4.29	13.5	12,833	141	2,637	399	10.7	1,267	0.237	0.141	125	0.218	22.0	157
208-H1	0 to 1	na	na	18,433	3.82	20.3	214	0.598	5.11	3,583	16.9	6.19	21.7	16,367	248	3,240	865	14.7	1,133	0.397	0.336	144	0.358	29.2	298
209-G1	0 to 1	3.69	238	21,867	2.96	25.5	258	0.639	7.11	7,903	14.8	6.40	49.3	16,033	267	3,977	682	13.7	1,713	0.433	0.401	170	0.358	25.2	372
209-H1	0 to 1	na	na	20,700	3.66	22.0	230	0.678	8.17	9,370	16.9	6.50	52.7	16,900	368	4,350	624	16.0	1,840	0.510	0.520	208	0.411	27.2	432
209-P1	0 to 1	na	na	21,600	4.44	26.4	294	0.656	11.0	8,890	14.5	6.52	63.1	16,000	486	3,650	764	13.9	1,680	0.530	0.569	175	0.466	24.7	529
210-H1	0 to 1	2.43	114	10,700	0.954	11.5	120	0.341	2.13	4,460	15.3	4.72	21.1	14,500	105	3,230	326	13.4	1,150	0.220	0.168	138	0.177	22.5	124
210-O1	0 to 1	na	na	11,767	1.39	15.3	133	0.362	3.27	2,690	13.7	4.39	28.4	14,067	152	2,547	380	12.1	979	0.260	0.233	116	0.204	21.6	143
211-A1	0 to 1	na	na	10,800	1.03	9.55	133	0.465	2.12	7,130	17.4	5.40	25.8	14,500	85.4	4,240	540	12.3	1,840	0.340	0.164	138	0.197	26.2	139
211-G1	0 to 8	na	na	11,500	0.742	9.23	151	0.483	1.08	9,270	19.5	6.30	22.5	16,700	45.9	5,020	507	14.7	2,130	0.420	0.180	187	0.162	29.6	122
211-G2	0 to 8	na	na	12,700	1.03	12.7	160	0.493	1.37	11,400	17.1	6.63	38.0	16,700	53.1	5,000	556	15.2	2,360	0.540	0.222	259	0.164	26.1	142

Table 5-8. Comparison of Residential Soil Metals Data based on IC Soil Samples[a]

DU	Sample Depth (inches)	Site-Specific Bioavailability Adjusted Soil Concentration (mg/kg dw)		Soil Concentration by Analyte (mg/kg dw)																			
		Arsenic[b]	Lead[c]	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc
Screening Level (mg/kg)		20[d]	400	77,400	31.3	20[d]	15,300	156	70.3	na	na	23.4	3,130	54,800	NA[e]	na	391	391	1,550	na	391	391	na	0.782	394	23,500
211-H1	0 to 1	na	na	10,000	0.822	7.97	112	0.487	2.23	3,670	19.7	6.05	17.4	15,100	84.0	3,990	486	13.9	1,630	0.230	0.138	97.2	0.218	30.8	120
211-O1	0 to 1	na	na	9,327	1.31	10.3	112	0.464	3.76	3,237	17.0	5.30	16.0	14,567	151	3,450	529	12.4	1,243	0.223	0.184	91.0	0.277	27.5	149
212-H1	0 to 1	1.56	188	6,670	3.25	12.3	732	0.351	5.45	30,900	20.0	6.01	59.8	28,700	256	19,300	342	16.0	1,190	0.690	0.831	193	0.307	35.1	1,260
212-H2	0 to 1	2.43	149	6,213	1.62	13.2	491	0.333	4.31	24,833	17.8	5.65	43.0	22,333	222	15,300	314	14.3	1,320	0.350	0.459	180	0.212	33.9	935
213-O1	0 to 1	na	na	19,800	0.672	9.81	313	0.670	0.895	4,320	24.6	8.78	21.8	19,800	33.3	4,320	720	26.3	2,800	0.230	0.169	194	0.173	30.6	110
213-O2	0 to 1	na	na	22,000	1.23	13.6	266	0.710	1.77	8,077	28.0	9.84	24.3	20,700	79.2	5,937	668	25.4	2,417	0.640	0.208	236	0.293	37.2	167
213-O3	0 to 1	na	na	9,000	0.866	9.28	114	0.519	1.06	6,430	38.5	8.43	16.0	24,300	54.0	5,690	430	21.1	1,590	0.300	0.120	207	0.146	53.5	92.6
801-O1	0 to 1	na	na	22,867	0.879	15.4	264	0.627	1.33	8,610	35.1	13.1	38.3	25,533	34.4	6,690	761	32.9	3,320	0.440	0.165	173	0.177	37.6	106
801-O2	0 to 1	1.02	14.9	27,500	1.74	22.3	337	0.801	2.05	7,590	61.2	18.7	54.7	34,700	77.9	9,550	1,540	42.2	4,920	0.440	0.270	186	0.273	59.8	151
801-O3	0 to 1	na	na	18,000	0.771	15.1	237	0.539	3.61	10,200	29.9	11.9	39.7	23,200	37.0	6,080	659	40.2	3,620	0.630	0.342	184	0.185	37.8	202
802-O1	0 to 1	na	na	12,433	1.88	12.4	152	0.451	4.75	6,020	17.8	6.37	18.8	16,700	179	4,303	725	15.5	1,873	0.270	0.137	139	0.258	27.3	224
803-O1	0 to 1	na	na	10,600	5.84	23.2	147	0.390	10.4	5,843	22.7	7.44	48.3	18,667	531	5,243	481	17.2	2,403	0.457	0.573	160	0.612	38.8	441
803-O2	0 to 1	na	na	9,830	4.87	22.7	97.9	0.351	5.95	4,590	20.7	6.37	27.6	18,400	374	4,890	326	15.5	2,010	0.360	0.335	199	0.667	36.6	415
803-O3	0 to 1	na	na	16,500	2.86	17.2	180	0.573	6.55	8,680	27.5	9.90	40.2	21,600	279	6,710	546	22.2	3,940	0.320	0.563	284	0.404	46.0	307
804-O1	0 to 1	na	na	14,400	1.40	7.74	190	0.569	3.06	5,313	30.6	8.22	22.2	21,200	121	6,650	520	20.6	4,323	0.300	0.187	178	0.252	35.3	159
804-O2	0 to 1	na	na	13,800	4.14	14.9	184	0.419	8.80	5,840	20.2	6.34	28.1	18,000	302	4,490	421	19.0	3,520	0.580	0.524	127	0.357	34.7	348
805-O1	0 to 1	na	na	17,000	0.882	12.6	224	0.625	1.44	7,910	24.8	9.23	25.3	21,200	45.4	4,570	536	20.7	2,890	0.310	0.177	120	0.160	33.5	97.9
805-O2	0 to 1	na	na	10,833	0.822	5.31	179	0.377	1.50	13,667	19.2	6.65	18.5	16,000	54.1	4,510	397	16.0	2,697	0.377	0.149	188	0.146	26.0	102
806-O1	0 to 1	na	na	12,900	0.645	9.76	186	0.503	2.40	7,970	25.5	8.22	24.4	20,700	33.7	4,180	493	23.0	2,630	0.320	0.173	173	0.118	36.3	132
806-O2	0 to 1	na	na	16,700	0.806	17.5	221	0.570	2.74	7,610	30.7	10.7	30.4	22,600	35.2	5,770	544	31.9	3,110	0.400	0.235	165	0.167	37.0	142
806-O3	0 to 1	na	na	13,400	0.914	7.95	195	0.528	1.70	7,500	23.3	6.69	17.8	20,300	60.2	3,800	597	18.9	1,850	0.220	0.105	143	0.113	35.3	124
806-O4	0 to 1	na	na	14,433	0.746	9.68	220	0.574	1.68	7,320	22.2	7.81	21.0	19,967	43.9	3,770	580	20.1	2,050	0.247	0.141	124	0.118	34.2	110
806-O5	0 to 1	na	na	15,200	0.740	8.89	232	0.616	1.59	8,190	21.9	7.41	20.5	19,700	44.4	3,620	597	19.1	1,840	0.270	0.131	137	0.119	34.6	106
807-O1	0 to 1	na	na	24,900	0.492	11.5	280	0.992	0.900	5,400	22.8	8.41	24.6	21,367	34.5	4,157	863	22.8	1,557	0.353	0.165	148	0.162	37.1	106
808-O1	0 to 1	na	na	11,267	0.581	6.60	143	0.544	1.22	5,357	25.4	7.30	16.3	20,300	40.1	3,510	526	18.7	2,090	0.200	0.095	135	0.113	36.3	89.4
808-O2	0 to 1	na	na	12,400	0.920	6.98	182	0.472	1.10	3,410	21.4	6.38	10.1	18,900	42.6	3,800	572	17.1	2,210	0.200	0.123	204	0.263	27.4	88.6
Average IC		**2.59**	**219**	**13,737**	**1.71**	**11.2**	**193**	**0.454**	**3.28**	**11,528**	**19.4**	**6.43**	**24.7**	**17,430**	**148**	**4,705**	**503**	**18.4**	**2,048**	**0.377**	**0.291**	**192**	**0.222**	**28.5**	**258**

Notes:

Highlighted cells identify levels exceeding the screening level for each analyte.

[a] The average of triplicate sample results is reported for decision units (DUs) with triplicate incremental composite (IC) samples.

[b] Adjusted for relative bioavailability (RBA), which is a measure of exposure. Calculated as the laboratory reported sample result multiplied by the site-specific RBA (see Table 5-3).

[c] Adjusted soil concentration based on DU soil concentration multiplied by the ratio of the site-specific RBA (see Table 5-3) to the default RBA (60 percent).

[d] Arsenic project action limit based on the Washington cleanup level (20 mg/kg).

[e] The screening value for lead incorporates a default RBA assumption and is not directly comparable to measured lead as reported by the analytical laboratory without adjustment for RBA.

na - not available

NA - not applicable