Lower Duwamish Waterway Survey of Potential PCB-Containing Building Material Sources

Sampling and Analysis Plan and Quality Assurance Project Plan

Prepared for

Toxics Cleanup Program
Northwest Regional Office
Washington State Department of Ecology
Bellevue, Washington

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List of Acronyms

ARI	Analytical Resources, Inc.
CAS	Chemical Abstracts Service (Division of the American Chemical Society)
COC	chain of custody
CSO	Combined Sewer Overflow
Ecology	Washington State Department of Ecology
EDD	electronic data deliverable
EIM	Environmental Information Management
EPA	U.S. Environmental Protection Agency
FM	field manager
GPM	Government Project Manager
HRGC/HRMS	high resolution gas chromatography/high resolution mass spectroscopy
HSP	Health and Safety Plan
IDW	investigation derived waste
LCS	laboratory control sample
LCSD	laboratory control sample duplicate
LDW	Lower Duwamish Waterway
MDL	method detection limit
MS	matrix spike
MSD	matrix spike duplicate
PCB	polychlorinated biphenyl
PPE	personal protective equipment
QA	quality assurance
QAPP	quality assurance project plan
QC	quality control
RL	reporting limit
RPD	relative percent difference
SAIC	Science Applications International Corporation
SAP	Sampling and Analysis Plan
USEPA	U.S. Environmental Protection Agency
WAC	Washington Administrative Code

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1.0 Introduction

The Lower Duwamish Waterway (LDW) is located south of Elliott Bay in Seattle, Washington, as shown in Figure 1. The LDW Site consists of 5.5 miles of the Duwamish Waterway as measured from the southern tip of Harbor Island to just south of the Norfolk Combined Sewer Overflow (CSO). As part of the cleanup of contaminated sediment at the Site, the Washington State Department of Ecology (Ecology) is leading efforts to control sources of sediment pollution, including polychlorinated biphenyls (PCBs), into the LDW. Source control is the process of finding and stopping or reducing releases of pollution to waterway sediments. The goal of source control is to stop ongoing sources and prevent sediments from becoming polluted again after clean up.

In many areas of the LDW, source tracing efforts and business inspections have not identified a specific source of PCBs. Although PCBs have been detected at high concentrations in paints and other building materials in the LDW drainage area, the contribution of PCBs from building materials (primarily paints and caulks) to the LDW sediments is not fully understood. Therefore, Science Applications International Corporation (SAIC) has been tasked to conduct a survey of PCBs in building paint and caulking materials in the LDW basin. The primary purposes of this survey are to:

- Collect composite paint and building caulk samples to assess the prevalence of PCB-containing building materials in the LDW drainage basin, using data from a representative drainage basin, and
- Evaluate the contribution of these PCB sources to the LDW sediments.

As a secondary purpose, this survey will examine the potential contribution of selected metals, specifically arsenic, cadmium, chromium, copper, lead, mercury, silver, and zinc, from building paints to the LDW sediments.

The Diagonal Avenue S stormwater drainage basin was selected as representative of the LDW basin (SAIC 2011). This Sampling and Analysis Plan (SAP) and Quality Assurance Project Plan (QAPP) describes the activities to be conducted to collect paint and caulk samples in the Diagonal Avenue S drainage basin.

This SAP/QAPP was prepared in accordance with the requirements outlined in Washington Administrative Code (WAC) 173-340-820. Analytical procedures are identified in this SAP/QAPP in accordance with WAC 173-340-830.

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2.0 Project Organization and Responsibilities

SAIC and its subcontractors will implement this SAP/QAPP under the direction of Ecology. The following sections describe the key roles and responsibilities of the project team.

2.1 Project Planning and Coordination

Dan Cargill of Ecology will serve as the Government Project Manager (GPM) who will conduct overall project coordination, supply government-furnished services, review reports, and coordinate with contractors. Iris Winstanley will serve as the SAIC project manager and be responsible for executing the approved SAP/QAPP, overseeing the collection and analysis of field samples, and reporting analytical results.

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2.2 Building Materials Sample Collection

John Whelpley of SAIC will serve as field manager (FM) responsible for the collection and processing of the paint and caulk samples within the LDW drainage area in accordance with the SAP/QAPP and transporting samples to the analytical laboratory for analysis. The FM will also oversee field preparation to ensure all field staff personnel and sampling equipment are in accordance with the SAP/QAPP.

2.3 Laboratory Coordination and QA/QC Management

Marina Mitchell of SAIC will serve as laboratory coordinator and Quality Assurance (QA)/Quality Control (QC) Manager responsible for subcontracting state-certified laboratories, and ensuring observation of established protocols for decontamination, sample preservation, holding times, chain-of-custody (COC) documentation, and laboratory reporting. As the QA/QC Manager, she will provide quality assurance oversight for the laboratory programs, ensuring that the laboratory analytical and QA/QC data are considered valid, and that procedures meet the required analytical quality control limits.

2.4 Site Health and Safety Manager

John Whelpley of SAIC will serve as the designated SAIC Site Health and Safety Manager. The Health and Safety Manager is responsible for ensuring that all personnel are properly trained, fully aware of potential site hazards, conduct all work in a safe manner, wear appropriate personal protective equipment (PPE), and abide by the conditions set forth in the site-specific Health and Safety Plan (HSP).

2.5 Subcontractor Support

The SAIC project team will include the following subcontractor to support the data collection activities and laboratory analytical services:

- Analytical Chemistry

  Analytical Resources, Incorporated
  Cheronne Oreiro
  4611 South 134th Place
  Tukwila, WA 98166
  Phone: (206) 695-6200
  mailto: cheronneo@arilabs.com

2.6 Project Schedule

Property Access Agreement Letters were sent to 92 proposed parcel sampling locations on February 18, 2011. Appendix A provides a list of the properties for which access was requested. In order to ensure that sufficient property access agreements are obtained, an additional 25 parcels were selected for potential sampling after these letters were sent out. These 25 parcels are located near the 92 primary parcels, but do not have nearby stormwater solids sample results. The "Tier 2 Properties" are listed in Appendix G and Property Access Agreement Letters were sent to these properties on March 14, 2011. Assuming that sufficient numbers of signed access letters are received, building materials sampling is estimated to occur from April 4–8, 2011. Using a two-week turnaround time, SAIC expects to receive the analytical laboratory results 14 days after the completion of the sampling effort. The Draft Summary Report will be due one week after SAIC receives the validated laboratory results from the QA Officer. SAIC will then submit the Final Summary Report to Ecology one week following receipt of Ecology's comments on the draft report, but no later than June 30, 2011.

3.0 Field Sampling Plan

The purpose of the field sampling plan is to describe the manner and methods by which data collection efforts will be performed in the selected LDW drainage basin. This sampling plan describes potential sampling locations, types of buildings and building materials, and the sample collection methods to be used during this survey.

3.1 Selection of Building Material Sampling Locations

A visual survey of the buildings within the Diagonal Avenue S stormwater drainage basin, shown in Figure 2, was conducted between January 31 and February 3, 2011. Buildings that were near existing storm drain solids sampling locations, shown in Figure 3, and that were constructed between 1950 and 1977, shown in Figure 4, were preferentially selected for the visual survey.

Of the 2,286 buildings in the Diagonal Avenue S drainage area that were constructed between 1950 and 1977, a total of 92 parcels were evaluated during the visual survey. Most parcels contain only one or two buildings. Some had as many as nine buildings. The visual survey results for each of these parcels are summarized in Appendix A, which includes the Parcel Identification Number, building construction date, building address, taxpayer name and address, current building occupant, condition of paint, caulk types, and, if available, the maximum PCB solids concentration in a nearby storm drain manhole or catch basin. The properties evaluated during the visual survey included 56 industrial parcels, 31 commercial parcels, and 5 residential parcels.

Depending on the signed Property Access Agreements received by SAIC's subcontractor, EnviroIssues, these parcels will be grouped into up to 40 Composite Sampling Areas based on their location, building type, and construction date. Materials will be collected in composite samples, meaning samples from multiple structures will be tested together. As a result, an individual building's contaminant level, if any exists, will not be able to be identified. The building sampling maps showing all 92 primary parcels and 25 Tier 2 properties are provided in Appendix B.

The sampling will focus primarily on industrial buildings because these types of structures were more likely to use the more expensive industrial-grade PCB additives in their paint and caulk. Samples from both commercial and residential buildings will also be collected to provide a more complete evaluation of the drainage area. An ideal Composite Sampling Area will contain two or more buildings in proximity that have been constructed in the same time period, are close to a storm drain sampling location, and have paint or caulk with similar color and texture. If this is not possible, then two buildings constructed within the same approximate time period and within a ½-mile radius will be used.

3.2 Building Material Sampling

This section describes the procedures for sample collection, processing, identification, documentation, equipment decontamination, and waste handling for the proposed field investigation.

SAIC will collect samples of paint and caulk building materials at the composite areas identified during the one-week visual survey. If one or more of the composite sample areas cannot be sampled due to the lack of property access agreements, then either (1) alternate composite sample areas will be selected or (2) additional property access agreements will be obtained.

A field laboratory or similar space will be established to provide a secure and clean area for equipment storage.

3.2.1 Pre-Sampling Evaluation Procedure

As discussed earlier, each Composite Sample Area will consist of two buildings located within ½-mile and constructed during the same time period. The two buildings will be located on separate parcels in order to ensure that no source is directly identifiable.

The sampling team will arrive at the first parcel and notify staff at the main office of the planned activities and the approximate duration. If office staff or residents are present, the sampling team will also inquire as to the last time the building was painted or renovated. The team will then walk around each painted building to identify potential paint and caulk sample locations. This evaluation will include visually inspecting the color and condition and then touching the paint and caulk to determine its elasticity and brittleness. In addition, it may be necessary to make up to six test cuts into the paint and caulk to determine the extent of paint and caulk layers present.

The sampling team will then drive or walk to the second parcel and perform a similar evaluation of the paint and caulk on the second building. Based on this evaluation, the Field Manager will select the locations of the sampling points for the four paint composite samples and three caulk composite samples. The Field Manager will attempt to ensure that each composite sample has similar color, condition, and/or brittleness. However, this may not be possible.

Each composite sample will consist of four discrete samples, two from the first building and two from the second building. As described in Section 3.2.2, all discrete sample areas and test areas will be repaired by an Ecology subcontractor after sampling is completed.

3.2.2 Sample Collection and Handling Methods

The sampling team will use a step ladder to collect paint and caulk samples at up to 10 feet above ground surface. Appropriate personal protective equipment such as Kevlar™ gloves and safety glasses will be used at all times during sample location selection as specified in the SAIC Health and Safety Plan. Each composite sample will consist of discrete samples collected from two buildings in two different parcels. Three paint and three caulk composite samples from each Composite Sample Area will be analyzed for PCBs. Metals will also be analyzed for one paint composite sample per Composite Sample Area.

SAIC personnel will attempt to collect the paint and caulk samples in non-obvious and already damaged areas. Repair of the paint sample areas with primer and caulk sample areas with silicone caulk will then be conducted by another Ecology contractor.

As described previously, the discrete paint and caulk samples will be collected from various points on the two buildings based on physical factors including pigmentation, condition, and façade direction. Ideally, each composite sample will have similar physical factors, although this may not be possible. Each discrete paint sample will be approximately 2 by 2 inches and each

discrete caulk sample will be approximately 6 linear inches in order to ensure that each discrete sample provides an equal contribution to the composite sample. Prior to mixing, the paint and caulk samples will be cut or broken into smaller pieces approximately 0.25 square inch in size to ensure homogeneity in the composite sample. The discrete paint and caulk samples may be mixed in a sealed plastic bag or on the matte side of aluminum foil prior to placing in the glass sample jar.

Field duplicate samples will be collected at a rate of one per twenty samples for each matrix. One rinse blank sample will also be collected. The total number of building material samples and QA samples is estimated as follows:

	Composite Sample Locations	Total Number of Samples	Field Duplicate Samples (5%)	Rinse Blank	Total
Paint-PCB	40	120	6	1	127
Paint-Metals	40	40	2	1	43
Caulk-PCB	40	120	6	1	127

A single-edged stainless steel razor blade in a utility knife will be used to collect paint samples from the painted surfaces and caulk samples from the door frames, window frames, window glazing, and expansion joints. A minimum of a teaspoonful of bulk material will be collected from each location. Approximately 5 to 6 grams for a composite sample is the minimum amount of material needed by the laboratory for analysis. The samples will be mixed as described previously and placed into a labeled wide-mouth glass jar. Disposable equipment may also be used during the sample collection, particle size reduction, homogenization, and compositing process such as Ziplock bags, plastic spoons, and the matte side of aluminum foil. Composite samples will be delivered to the laboratory in 2 oz wide-mouth glass jars and labeled with a unique sample identification number. Samples will be transferred in sturdy coolers under ambient temperature using proper chain-of-custody procedures. The samples will then be delivered to Analytical Resources Incorporated (ARI) in Tukwila, WA, for analysis of PCBs and metals.

SAIC will notify Ecology in writing of any changes to procedures outlined in this SAP/QAPP caused by access issues or any other limitations or problems. Ecology will then provide written e-mail authorization within three working days of any verbal authorizations for changes to the approved procedures outlined in this SAP.

3.2.3 Equipment Decontamination

Disposable equipment such as razor blades, Ziplock bags, aluminum foil, and plastic spoons will be used to collect and mix the paint and caulk samples. Prior to use, the stainless steel razor blades may be rinsed with reagent-free deionized water to remove any residual paper or cardboard packing material residue.

One rinse blank will be collected from the unused razor blades and sample processing equipment and analyzed for PCBs and metals to confirm that no contamination is introduced into the samples during collection or processing. This rinse blank will be collected prior to the start of sampling activities.

All sampling will be conducted using disposable nitrile gloves over cut-resistant Kevlar gloves. The disposable nitrile gloves will be removed and changed after handling each individual sample and between sampling each Composite Sample Area, as appropriate, to prevent cross-contamination between composite samples. The used gloves will be disposed of as investigation derived waste (IDW).

3.2.4 Sample Identification, Containers, and Labels

Samples will be identified by project, location name, and sample type. All samples collected during the investigation will be labeled clearly and legibly. Each sample will be labeled with a unique alphanumeric sample identification number that identifies characteristics of the sample as follows:

- *Project* consists of characters describing the project ("DAS" for Diagonal Avenue S).
- *Location Number* consists of alpha-numeric characters identifying the sample location ("CA01" to "CA40" for Composite Area 01 through 40).
- *Sample Type* consists of one or two characters indicating the sample type where "P" = Paint chip composite and "C" = Caulk composite. Additionally, field duplicate samples are designated with "D" and rinse blank samples with "RB".

  For example:

  DAS-CA01-C is the caulk composite sample collected from composite sampling area 01 within the Diagonal Avenue S drainage basin.

  DAS-CA15-PD is the field duplicate sample for the paint chip composite sample collected from composite sampling area 15 within the Diagonal Avenue S drainage basin.

Sample labels will be self-adhering, waterproof material. Indelible ink will be used to complete each label. Each sample label will contain the project name ("DAS"), sample identification, date and time of collection, complete list of analyses to be conducted (PCB or metals), and the initials of the person preparing the sample. Labels will be affixed to the wide-mouth glass sample jar.

3.2.5 Sample Storage and Delivery

All samples will be transported in sturdy, insulated coolers. Paint chip and caulk samples will not need thermal preservation. Samples for chemical analyses will be hand-delivered to ARI upon completion of sampling each day by the FM using the directions provided in Appendix C. The COC will be signed by the individual relinquishing samples to the onsite laboratory representative. Upon receipt of samples at the laboratory, the condition of the samples will be recorded. Field personnel will be responsible for:

- Packaging the samples,
- Signing the COC before placing inside the cooler or delivering to ARI, and
- Notifying the laboratory coordinator of when the samples are being delivered to the laboratory.

3.2.6 Investigation Derived Waste Management

The IDW generated during the building materials sampling will include used razor blades, Ziplock bags, aluminum foil, plastic spoons, and nitrile gloves. All waste generated during field sampling activities will be placed into garbage bags and disposed of as IDW via municipal waste. Used razor blades and other sharp objects will first be placed in a puncture-proof container, for safe handling. No liquid IDW wastes will be generated.

3.3 Field Documentation

A complete record of field activities will be maintained. Documentation necessary to meet QA objectives for this project include field notes and field forms, sample container labels, and COC forms. The field documentation will provide descriptions of all sampling activities, sampling personnel, and weather conditions, and will record all modifications, decisions, and/or corrective actions to the study design and procedures identified in this SAP. An example of the sample compositing form is provided in Appendix D.

Field logbook(s) will be kept on site during field operations. Daily activities will be recorded in a bound field logbook of water-resistant paper. All entries will be made legibly, in indelible ink, and will be signed and dated. Information recorded will include the following:

- Date, time, place, and location of sampling;
- Onsite personnel and visitors;
- Daily safety discussion and any safety issues;
- Field QC samples (i.e., duplicate samples and rinse blanks); and
- Observations about site, location, and samples (weather, odors, appearance, etc.).

Field logbooks are intended to provide sufficient data and observations to enable participants to reconstruct events that occur during project field activities. Entries will be factual, detailed, and objective. Unless restricted by weather conditions, all original data recorded in field logbooks and on sample identification tags, COC records, and field forms will be written in waterproof ink. If an error is made, the individual responsible may make corrections simply by crossing out the error and entering the correct information. The erroneous information will not be obliterated. All corrections must be initialed and dated. All documentation, including voided entries, must be maintained within project files.

3.3.1 Chain-of-Custody Procedures

The field crew will securely keep all samples in their possession at all times until the samples are delivered to the laboratory. COC forms will be initiated at the time of sample collection to ensure that all collected samples are properly documented and traceable through storage, transport, and analysis. When all line items on the form are completed or when the samples are relinquished, the sample collection custodian will sign and date the form, list the time, and confirm the completeness of all descriptive information contained on the form. Each individual who subsequently assumes responsibility for the sample will sign the COC form and provide the reason for assuming custody. The field chain-of-custody terminates when the laboratory receives

the samples. The field manager will retain a copy of the completed, signed, COC form(s) for project files. An example COC form can be found in Appendix E.

3.4 Laboratory Analyses

All of the chemical and physical analytical procedures used in this program will be performed by the subcontracted laboratory (ARI) in accordance with Ecology guidelines as outlined below. The laboratory analysis for sediments will be consistent with Ecology's Sediment Sampling and Analysis Plan Appendix (Ecology 2008). Analyses will be required to conform to accepted standard methods and the laboratory's internal QA Plan prior to final approval.

3.4.1 Analytical Laboratory Reporting

Analytical laboratory reports will be accompanied by sufficient raw data and QC results to enable independent reviewers to evaluate the quality of the data results. The parameters, analytical methods, target reporting limits (RLs), accuracy limits, and precision limits are provided in Table 1.

Table 1. Parameter, Preparation Method, Analytical Method, and Target RL for Analytes

Analyte	Prep Method[1]	Analytical Method[1]	Target RL mg/kg[2]	Accuracy Limits	Precision Limits
Metals					
Arsenic	EPA 3050B	EPA 6010B	5.0	80-120%	35%
Cadmium	EPA 3050B	EPA 6010B	0.2	80-120%	35%
Chromium	EPA 3050B	EPA 6010B	0.5	80-120%	35%
Copper	EPA 3050B	EPA 6010B	0.2	80-120%	35%
Lead	EPA 3050B	EPA 6010B	2.0	80-120%	35%
Mercury	---	EPA 7471A	0.5	80-120%	35%
Silver	EPA 3050B	EPA 6010B	0.3	80-120%	35%
Zinc	EPA 3050B	EPA 6010B	1.0	80-120%	35%
PCB Aroclors					
Total PCBs	EPA 3580A/3550B	EPA 8082	0.8 - 10	laboratory control limits[3]	50%

Notes:
1. Recommended sample preparation and analytical methods are from SW-846 (USEPA 1986 and updates).
2. Actual reporting limits will vary based on the sample volumes used for analysis, dilution factors, and matrix interferences. Paint and caulk results are reported "as received" assuming 100% solids.
3. The QC limits used to evaluate the accuracy of the PCB analyses will be provided by the laboratory using performance based control charted results.

The analytical laboratory deliverables will include but are not limited to the following:

- Method detection limits (MDLs) and RLs for each sample;
- Laboratory qualifiers reported with analyte concentrations and a summary of qualifier definitions, as applicable;

- Case narrative (including any problems encountered, protocol modifications, and/or corrective actions taken);
- Sample analytical and QA/QC results with units and control limits;
- All method references used during analyses;
- Any protocol deviations from the approved sampling plan;
- Surrogate recovery results;
- Matrix spike/matrix spike duplicate (MS/MSD) results;
- Laboratory duplicate results;
- Method blank results;
- Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) results;
- Sample custody records (including original COC forms); and
- Analytical results in the electronic format specified in Appendix F. This format provides all information required for submittal to Ecology's Environmental Information Management (EIM) database.

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4.0 Quality Assurance Project Plan

The purpose of the project QAPP is to provide confidence in the project data results through a system of QA/QC performance checks with respect to data collection methods, laboratory analysis, data reporting, and appropriate corrective actions to achieve compliance with established performance, and data quality criteria. This section presents the QA/QC procedures to ensure that the investigation data results are defensible and usable for their intended purpose.

4.1 Measurements of Data Quality

The tolerable limits for the data reported by the laboratory will be measured with precision, accuracy, representativeness, completeness, and comparability as described below.

Precision is a measure of mutual agreement among individual measurements of the same property under prescribed conditions. Precision will be assessed by the analysis of MS/MSD, field duplicate samples, and LCS/LCSD. The calculated relative percent differences (RPDs) for field and MS/MSD pairs will provide information on the precision of sampling and analytical procedures, and the RPDs for LCS/LCSD pairs will provide information on precision of the analytical procedures.

Accuracy is the degree to which an observed measurement agrees with an accepted reference or true value. Accuracy is a measure of the bias in the system and is expressed as the percent recoveries of spiked analytes in MS/MSD and LCS/LCSD samples. Accuracy will also be evaluated through the surrogate spikes in each sample during PCB analysis. The laboratory control limits for surrogates will be used for the project.

Representativeness expresses the degree to which data accurately and precisely represent an actual condition or characteristic at a particular sampling point. Representativeness is achieved by collecting samples representative of the matrix at the time of collection. Representativeness can be evaluated using replicate samples and blanks.

Completeness refers to the amount of measurement data collected relative to that needed to assess the project's technical objectives. It is calculated as the number of valid data points achieved divided by the total number of data points requested by virtue of the study design. For this project, completeness objectives have been established at 95 percent.

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

4.2 Quality Assurance and Quality Control for Chemistry Samples

Field and laboratory QA/QC samples will be used to evaluate the data precision, accuracy, representativeness, and comparability of the analytical results. The field QA samples to be collected are described in Section 4.2.1. The laboratory QA samples are discussed in Section 4.2.2.

4.2.1 Field QA/QC Samples

Field QC samples will be collected during sampling to quantitatively measure and ensure the quality of the sampling effort and the analytical data. Field QC samples include duplicates and equipment rinse blanks. QC samples are to be handled in the same manner as the environmental samples collected. Descriptions of the field QC samples are provided below.

Field Duplicate Samples

Field duplicate samples will be collected at a rate of one per twenty normal samples collected for analysis. Field duplicate samples will be collected at the same time and analyzed for the same chemicals as the original sample. Field duplicate sample results are used to assess the precision of the sample collection process and to help determine the representativeness of the sample. If the results of the field duplicate samples exceed QA/QC criteria for precision, this information will be discussed in the data validation report, but data qualifiers will not be applied to the associated results.

Rinse Blank

One rinse blank sample will be collected to provide a quality control check on the potential for contamination from the sampling equipment. The rinse blank sample consists of reagent free deionized water provided by ARI rinsed across sample collection and processing equipment. The rinse blank sample will be analyzed for metals and PCBs. If chemicals are detected in the rinse blank sample, the detected concentrations will be compared to the associated sample results to evaluate the potential for contamination. The blank result will be discussed in the data validation report, and data qualifiers may be applied to the associated results.

4.2.2 Laboratory QA/QC Samples

Laboratory QA/QC sample requirements are defined in the test methods. One laboratory method blank and LCS will be analyzed for all constituents for each analytical batch to assess potential laboratory contamination and accuracy. An LCSD will be analyzed if the laboratory does not have enough sample volume to prepare a project-specific MS/MSD for PCBs and/or laboratory duplicate sample for metals. Laboratory control samples, MS/MSD, and surrogate spikes will be used as defined by the analytical methods. The results of these samples will provide information on the accuracy and precision of the chemical analysis.

4.3 Data Validation

The data generated as part of this investigation will undergo a compliance level screening, EPA Stage 2 quality assurance review, and data validation by SAIC of Bothell, WA, using EPA guidance (USEPA 1994, 2008, 2009, 2010). If data quality concerns are noted, the laboratory will be contacted and the data will be (a) reanalyzed, (b) qualified, or (c) unqualified with an explanation. The results of the data validation will be summarized in a data validation memo, which will be included as an appendix to the data report.

The analytical laboratory will provide Level 3 data packages that will allow for the review of all sample and laboratory QC sample results (i.e., method blanks, LCS/LCSD, and MS/MSD).

5.0 Data Analysis, Recordkeeping, and Reporting Requirements

5.1 Analysis of Chemistry Data

The chemical data results will be summarized and presented in tables indicating composite area locations and detected contaminants, along with any data qualifiers assigned by the laboratory or during data validation.

5.2 Recordkeeping

At the conclusion of the study, all records including field records, laboratory analytical data, reports, and reviews will be transmitted to Ecology for archiving.

5.3 Data Report

A written data report documenting all activities associated with collection, transportation, and chemical analyses of samples will be prepared. The laboratory data and data validation reports will be included as appendices. At a minimum, the following will be included in the Data Report:

- Description of sampling and analysis activities,
- Protocols used during sampling and testing and an explanation of any deviations from the sampling plan protocols or the approved SAP,
- Physical descriptions of samples,
- COC records,
- Chemistry results and laboratory reports, and
- QA/QC summary and data validation report.

In addition, the validated chemistry data from the investigation (see Section 3.3) will be entered into Ecology's EIM database. Information for entering environmental data into EIM can be found on Ecology's website: http://www.ecy.wa.gov/eim/.

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6.0 References

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Figures

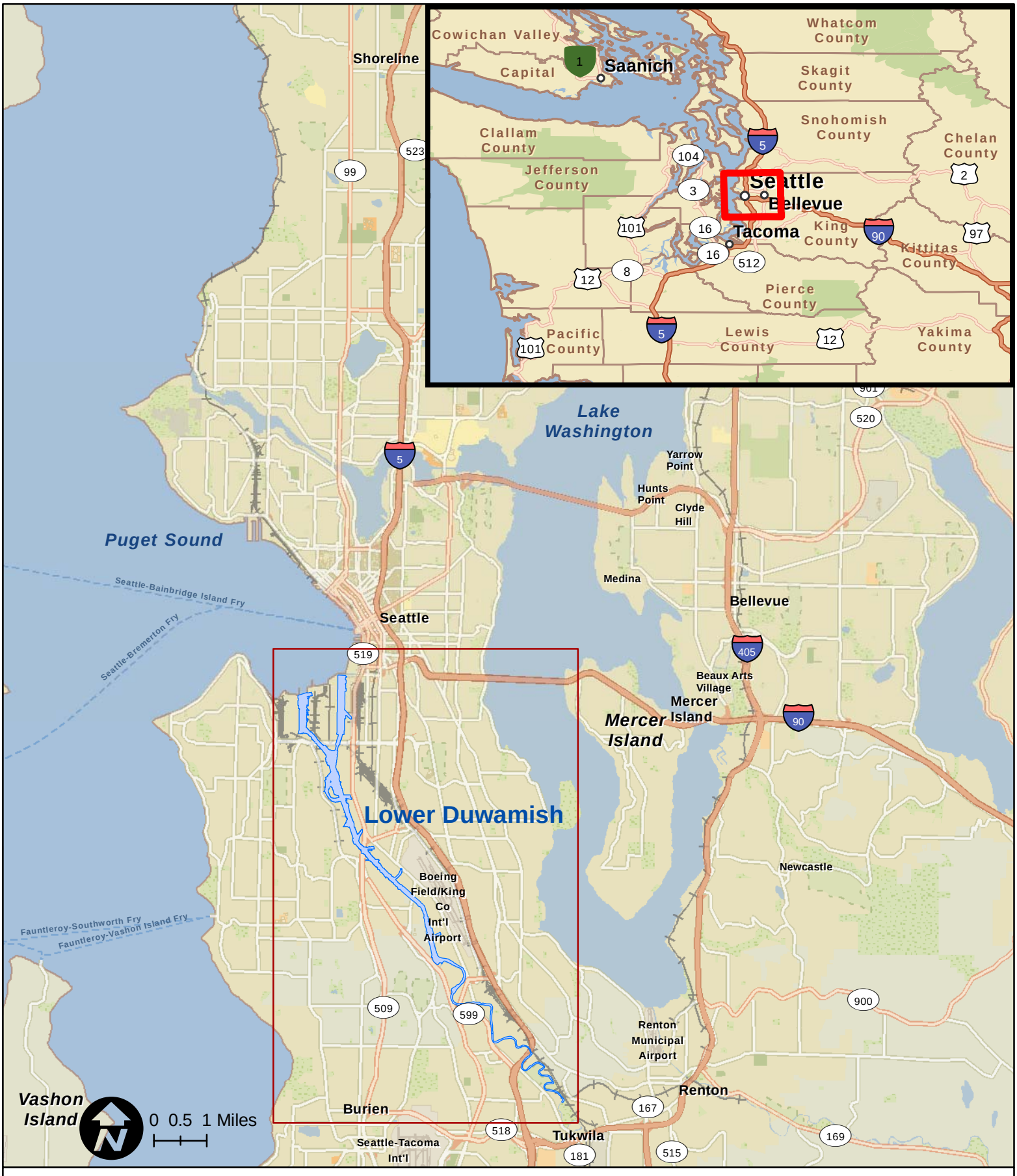

Figure 1. Lower Duwamish Waterway Site Location

From Science to Solutions

Coordinate System:
NAD 1983 StatePlane Washington North FIPS 4601 Feet
Prepared By: apw
File: Fig_2_LDW_DrainageBasins.mxd
Illustrative purposes only.

DEPARTMENT OF ECOLOGY
State of Washington

Figure 2. Diagonal Avenue S Storm Drain Basin

From Science to Solutions

Coordinate System:
NAD 1983 StatePlane Washington North FIPS 4601 Feet
Prepared By: apw
File: Fig_3_Overview_Diagonal.mxd
Illustrative purposes only.

DEPARTMENT OF ECOLOGY
State of Washington

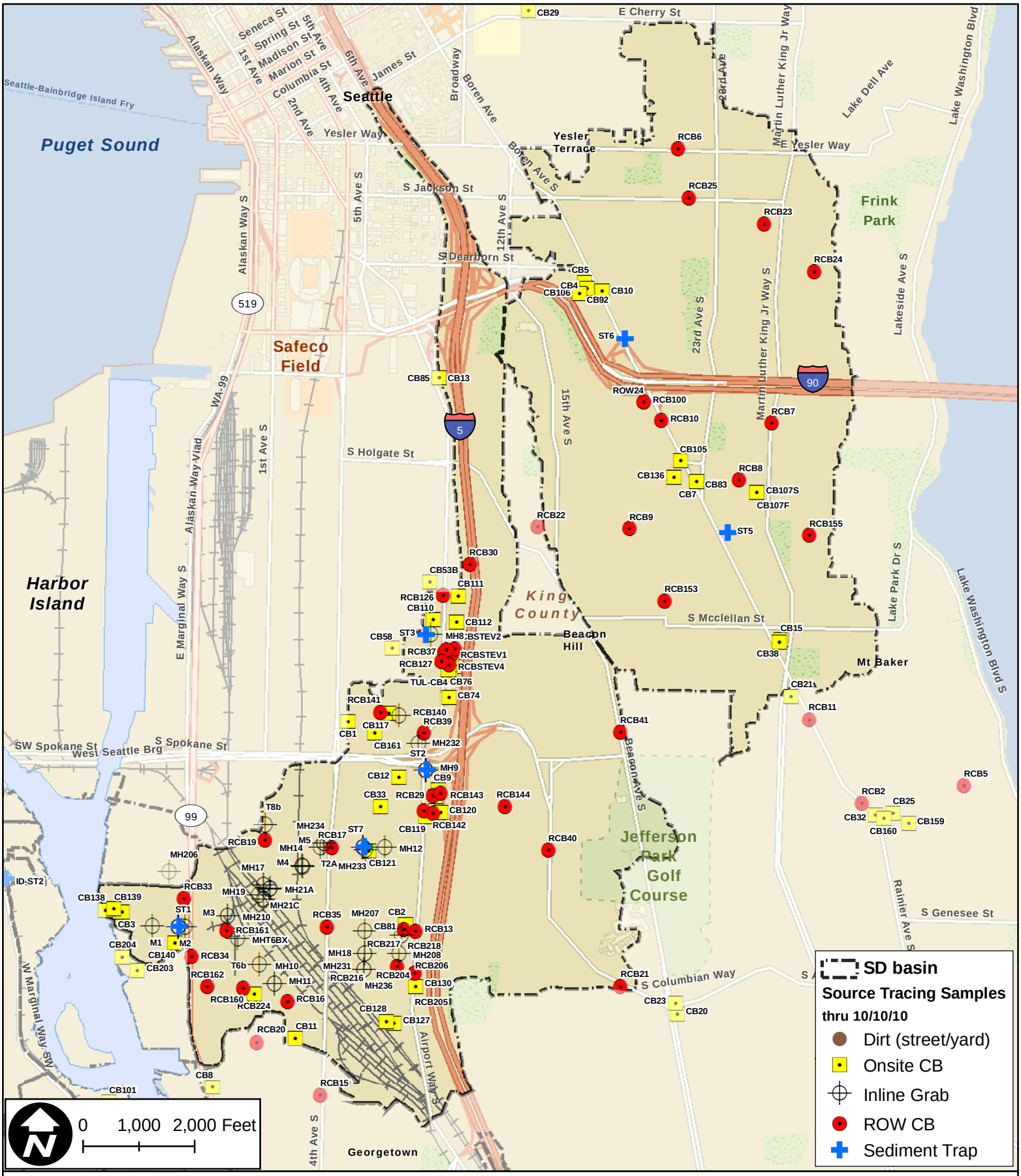

Figure 3. Source Tracing Sample Locations in the Diagonal Avenue S Storm Drain Basin

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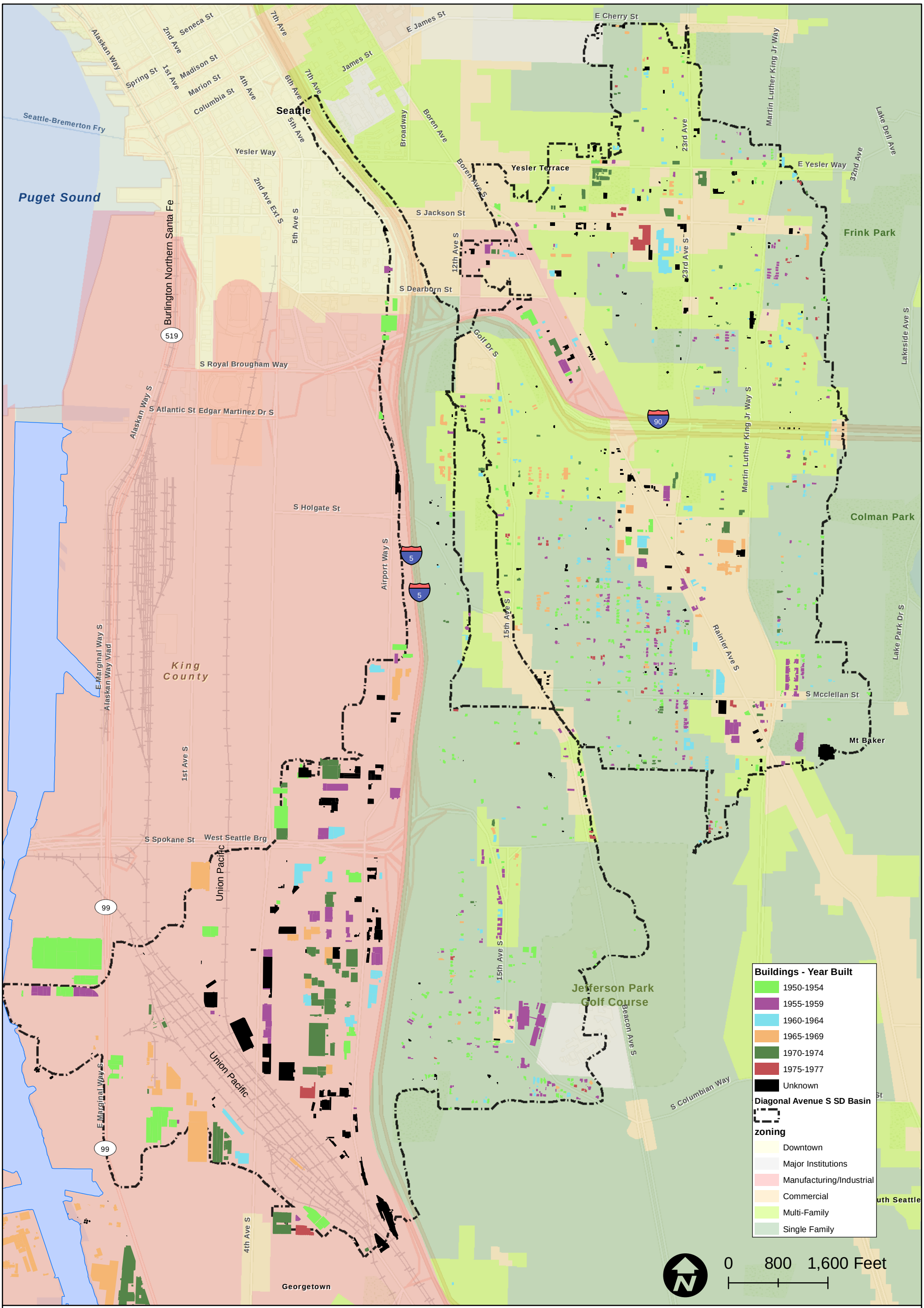

Figure 4. Buildings Constructed Between 1950 and 1977, Diagonal Avenue S Storm Drain Basin

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Coordinate System:
NAD 1983 StatePlane Washington North FIPS 4601 Feet
Prepared By: apw
File: building_AGE.mxd
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DEPARTMENT OF ECOLOGY State of Washington

Appendix A
Visual Building Survey Summary

Parcel Information				Property Owner Information				Current Occupant/Tenant	Paint - Condition/Type	Potential Caulk Locations	Closest Stormwater Solids Sample Concentrations	
Parcel Number	Year Built	Parcel Address	Zipcode	Taxpayer Name	Taxpayer Address	Taxpayer City/State	Zipcode				Max PCB Result (ug/kg)	Catch Basin Number
0003600010	1959	2910 RAINIER AVE S	98144	U S BANK CORPORATE PROPS	2800 E LAKE ST	MINNEAPOLIS MN	55406	US Bank	beige paint on brick and teal paint on metal siding (good)	Lots of windows with thick glazing	3,100	CB38
0003600026	1959	2800 Rainier Ave S	98144	Seattle Public Schools	P.O. Box 34165	Seattle, WA	98124	Franklin High School	Some painted masonry (moderate)	lots of doors and windows		
0003600062	1974	2824 RAINIER AVE S	98144	CPSTRA (Sound Transit)	401 S JACKSON ST	SEATTLE WA	98104	CPSTRA Sound Transit Bus Shelters	Black paint on metal shelter areas (very good)	possible around windows	3,100	CB38
0003600063	1955	2815 Martin Luther King Jr. Way S	98144	CPSTRA (Sound Transit)	401 S JACKSON ST	SEATTLE WA	98104	Commercial Building (with barber shop)	beige painted masonry (moderate)	few doors and windows with caulk	3,100	CB38
0272000915	1970	1730 Bradner Place S	98144	City of Seattle Parks Department	800 Maynard Ave S, 3rd Floor	Seattle, WA	98134	Park Building	Some painted masonry (moderate)	None visible		
0424049067	1957	800 Martin Luther King Jr Way S	98144	Seattle Housing Authority	P.O. Box 19028	Seattle, WA	98109	Maintenance Building	white painted masonry (moderate)	some windows and a door		
0567000535	1973	819 YAKIMA AVE S	98144	TAIANI MARK G	819 YAKIMA AVE S	SEATTLE WA	98144	Residence (1-story)	yellow and dark brown painted wood siding (good)	windows and door caulk	250	RCB24
0567000585	1963	818 29TH AVE S	98144	CLARKE D	812 29TH AVE S APT 3	SEATTLE WA	98144	Apartment building (3-story), copy of 0567000590	white painted concrete with green painted wood trim (moderate)	windows and door caulk	250	RCB24
0567000590	1963	812 29TH AVE S	98144	CLARKE D	812 29TH AVE S APT 3	SEATTLE WA	98144	Apartment building (3-story), copy of 0567000585	white painted concrete with green painted wood trim (moderate)	windows and door caulk	250	RCB24
1250200771	1955	2615 S KING ST	98144	LONDON WILLIE JR	5307 55TH AVE S	SEATTLE WA	98118	Residence (2-story)	tan painted wood siding (good)	windows and doors	45	RCB23
1327300006	1972	423 S HORTON ST	98134	PARAMOUNT SERVICES	PO BOX 34560	SEATTLE WA	98124	Paratex (pesticide contractor)	gray and red painted metal siding and wood (poor)	doors and windows	1,600	CB1
1327300010	1952	3314 4TH AVE S	98134	3314 4th Ave S LLC	PO Box 3665	Bellevue, WA	98009	Bexel Corp (ECO Corp on the east side of property with as street address of 420 S. Hinds is actually in the drainage area)	ECO Corp has green painted metal siding (moderate/poor) with peeling green paint on wood trim (poor)	few doors and windows with caulk	1,600	CB1
1327300012	1955	3300 6TH AVE S	98134	ALCO INVESTMENTS CO	3200 6TH AVE S	SEATTLE WA	98134	Alaskan Copper Works	white and blue painted concrete (moderate/poor)	window and door caulk	2,350	CB117
1498302345	1954	1911 22ND AVE S	98144	KUSAK NEVA L	6314 SE 22ND ST	MERCER ISLAND WA	98040	Kusak's Fine Crystal and Cut Glass Works	green and brown painted wood siding (moderate)	doors and windows	2,100	CB105
1498303190	1969	2100 25TH AVE S	98144	SEATTLE HOUSING AUTHORITY	120 6TH AVE N	SEATTLE WA	98109	Center Park (6-story apartment building)	mostly unpainted brick on east side, some brown painted wood on west side (moderate/good)	lots of windows and doors	200	CB107S
1498303240	1966	2501 S PLUM ST	98144	LIGHTHOUSE FOR THE BLIND	2501 S PLUM ST	SEATTLE WA	98144	The Lighthouse for the Blind Incorporated (3 buildings with 2-story warehouse)	white painted concrete with dark green trim (moderate/good)	lots of windows on north side	200	CB107S
1498302300	1950	2104 S Plum Street	98144	Skeeters Auto Rebuild	2104 S Plum St, c/o Sharon Keene	Seattle, WA	98144	Skeeter's Auto Rebuild	white concrete block with blue and red trim (good)	doors and windows	1,390	CB136
1594600030	1964	2202 RAINIER AVE S	98144	2200 RAINIER LLC	2411 S WALKER ST	SEATTLE WA	98144	Parent Trust for Washington Children (two buildings)	beige/brown painted wood and brick (moderate)	lots of windows and doors	8,000	ST5
1594600070	1962	2464 S COLLEGE ST	98144	WONG SUZANNE S	PO BOX 28677	SEATTLE WA	98118	Residence (2-story)	green and white paint on wood trim (moderate/poor)	windows and doors	8,000	ST5
1594600105	1959	2300 RAINIER AVE S	98144	Buchanan Brian K	4254 Sandstone Shores Dr	Thonia, GA	30038	Thompson-Buchanan Building with Rainer Dental Care	Lavender/brown painted wood (moderate)	big windows with caulk	8,000	ST5
1624049080	1950	4101 Beacon Ave S	98108	City of Seattle Parks Department	800 Maynard Ave S, 3rd Floor	Seattle, WA	98134	Jefferson Park Golf Course Clubhouse	white painted masonry (good)	windows and doors		
1624049214	1957	1600 S Columbian Way	98108	Seattle Public Schools	P.O. Box 34165	Seattle, WA	98124	Mercer Middle School	white painted masonry (moderate/good)	big windows with caulk		
1824049012	1955	20 S IDAHO ST	98134	MCNIVEN C FBO MIRIAM TA/I	PO BOX 13495	ARLINGTON TX	76094	Fiberlay Composite Materials	beige and blue paint (good)	doors and windows	530	RCB33
1824049070	1952	14 S IDAHO ST	98134	R 2 R INVESTMENTS L L C	7979 S 180TH ST	KENT WA	98032	Unmarked warehouse-type operation	red painted wood doors, beige painted concrete (moderate); peeling black paint on trim (poor)	doors and windows	530	RCB33
1824049072	1953	12 S IDAHO ST	98134	Industrial LLC	PO Box 9443	SEATTLE WA	98109	RH Brown Company	Dark brown paint (new/good)	doors and windows	530	RCB33
1824049074	1953	21 S Nevada Street	98134	NEVADA St LLC	15439 53rd Ave S #B	Tukwila, WA	98188	Habitat for Humanity	white, blue, and green paint (moderate/poor)	doors and windows	2,010	MH206
1824049113	1954	13 S Nevada Street	98134	JJD LAND DEVELOPMENT L L C	6400 Corson Ave S	Seattle, WA	98108	Habitat for Humanity	white, blue, and green paint (moderate/poor)	doors and windows	2,010	MH206
2024049035	1975	615 S ALASKA ST	98108	615 SOUTH ALASKA LLC	5603 11TH AVE NE	SEATTLE WA	98105	Vacant Office	painted concrete (good)	caulk around doors and windows	3,000	MH231
3573200005	1969	4727 DENVER AVE S	98134	LOROLIVE LLC	3414 NE 55TH ST	SEATTLE WA	98105	Bartell Drugs and Pacific Shipping Company	some beige painted concrete (moderate); mostly unpainted pebbled siding	very little potential caulk	4,800	T6B
3573200050	1967	4580 COLORADO AVE S	98134	M BLOCH & CO INC	P O BOX 24063	SEATTLE WA	98124	Bloch Steel Warehouses (11 buildings in industrial complex with massive scrap metal pile)	Mostly unpainted metal siding buildings, one building with peeling paint on wood (poor)	few doors and windows with caulk	9,000	MHT6BX

Parcel Information				Property Owner Information				Current Occupant/Tenant	Paint - Condition/Type	Potential Caulk Locations	Closest Stormwater Solids Sample Concentrations	
Parcel Number	Year Built	Parcel Address	Zipcode	Taxpayer Name	Taxpayer Address	Taxpayer City/State	Zipcode				Max PCB Result (ug/kg)	Catch Basin Number
3573200120	1974	4580 COLORADO AVE S (same address as Parcel 3573200050)	98134	M.BLOCH & CO INC, c/o Joel Richards, President	P O BOX 24063	SEATTLE WA	98124	Bloch Steel Administration Building	painted aluminum siding (good)	None visible	2,060	RCB160
3573200250	1953	4634 EAST MARGINAL WAY S	98134	GOODMAN SSBP LLC	3131 S VAUGHN WAY #301	AURORA CO	80014	Multiple renters including: Cascade Machinery, Grand Central Bakery, Titan 360, and Arena Sports	Dark red painted brick and wood (good); some unpainted brick; some peeling paint near roof trim (poor)	very little potential caulk	1,140	RCB34
3573700006	1967	4786 1ST AVE S	98134	SEARS MERCHANDISE GROUP	3333 BEVERLY RD	HOFFMAN ESTATES IL	60179	Sears Parts and Repair Center (three buildings)	Lots of painted concrete block and painted wood doors with painted-over windows (poor); two buildings are unpainted metal siding	caulk around door and window frames	2,930	RCB160
3573700130	1973	210 S HUDSON ST	98134	HUDSON ST LLC	PO BOX 84941	SEATTLE WA	98124	McKistry (metal manufacturing - 2 buildings	very little paint on metal building and concrete block building (moderate); some red paint on McKistry sign (good)	very little potential caulk	255	CB11
3573700195	1964	4930 3RD AVE S	98134	WWGRAINGER INC	100 GRAINGER PKWY	LAKE FOREST IL	60045	Grainger (2 buildings)	mostly unpainted pebble siding with some red painted metal siding (good) and yellow and red painted safety rails (good)	very little window caulk; some around doors and windows	255	CB11
3646100540	1963	2101 S Jackson Street	98144	Seattle Public Schools	P.O. Box 34165	Seattle, WA	98124	Washington Middle School	few painted surfaces (moderate/good)	lots of windows and doors	19U	RCB25
3679400155	1965	1509 S Spokane Street	98144	City of Seattle, SPU/Real Prop - WTR	P.O. Box 34018	Seattle, WA	98124	Public Utility Buildings	few painted surfaces (moderate/good)	doors and windows		
3881900570	1963	1801 24th Ave South	98144	Japanese Presbyterian Church	1801 24th Ave South	Seattle, WA	98144	Japanese Presbyterian Church	brown painted wood (moderate)	doors and windows	2,100	CB105
3957900098	1960	4800 DENVER AVE S	98134	4800 Denver LLC	5005 Third Ave S	Seattle, WA	98134	Puget Sound Pipe & Supply	painted concrete and metal doors (moderate)	very little potential caulk	2,930	RCB16
3958900065	1962	4200 Airport Way South	98108	City of Seattle	P.O. Box 94689	Seattle, WA	98124	City of Seattle DOT Signs and Signals	white painted masonry (moderate)	doors and windows		
3958900320	1962	4413 Airport Way S	98108	AIRGAS NOR PAC INC	3591 N COLUMBIA BLVD	PORTLAND OR	97217	Airgas NORPAC	painted concrete block and concrete (moderate)	caulk around doors and windows	430	CB81
3958900340	1950	4429 AIRPORT WAY S	98108	PJM III LLC	7502 51st Ave NE, Attn: Victoria Symington	SEATTLE WA	98115	Western Waterproofing Company	beige painted concrete block (good); some white painted wood window frames (moderate)	very little potential caulk	1,610	RCB13
3958900545	1973	636 S ALASKA ST	98108	JENSEN CARLYLE B	8275 166TH AVE NE #201	REDMOND WA	98052	Pacific Publishing Company	peeling grey and white paint, especially near roof (poor)	doors and windows	3,000	MH231
3958900565	1971	4601 6th Ave S	98108	ADCO Properties	4601 6th Ave S	Seattle, WA	98108	ADCO	white painted concrete (moderate)	doors and windows	4,600	MH18
3958900601	1967	4604 4th Ave S	98108	Frank Ricchiazzi	330 Cajon Terrace	Laguna Beach, CA	92651	Pedersen's Event Rentals	beige painted concrete and wood (good)	caulk around doors and windows	1,420	RCB35
3958900645	1962	4500 4TH AVE S	98108	Pedersens Estates	4500 4th Ave S	Seattle, WA	98104	Pedersen's Event Rentals	beige painted concrete and wood (good)	caulk around doors and windows	1,420	RCB35
3958900650	1956	4500 4TH AVE S	98108	Frank Ricchiazzi	330 Cajon Terrace	Laguna Beach, CA	92651	Pedersen's Event Rentals	beige painted concrete and wood (good)	caulk around doors and windows	1,420	RCB35
3958900786	1956	4400 4TH AVE S	98108	4400 BUILDING LLC	5603 11TH AVE NE	SEATTLE WA	98105	Multiple tenants including: LeDuc Packaging, Inc., Trane Parts Center, and Carpet Liquidators	beige painted concrete and metal doors and brick (moderate)	caulk around doors and windows	1,420	RCB35
3958900851	1956	4100 4TH AVE S	98108	BIESOLD 4100 LLC	PO BOX 1230	FALL CITY WA	98024	Multiple tenants in warehouse including Merlino Foods and Bamboo Hardwoods	Peeling yellow paint on bollards (poor); beige and dark brown painted concrete, wood, and concrete block (good)	caulk around doors and windows	240	RCB17
4294800175	1951	720 30th Ave South	98144	Grace United Methodist Church	722 30th Ave S	Seattle, WA	98144	Grace United Methodist Church	Mostly unpainted brick, some painted surfaces (good)	doors and windows with potential caulk	250	RCB24
5680000380	1950	3811 13TH AVE S	98108	HENDRICKS ROBERT D	3811 13TH AVE S	SEATTLE WA	98108	Residence (1-story)	mostly unpainted red brick, some painted surfaces (good)	potential caulk at doors and windows	4,800	RCB144
6172900005	1968	3800 1ST AVE S	98134	MUSREF SPOKANE STREET L P	700 5TH AVE STE 6175	SEATTLE WA	98104	Old Sea-Pac Building; now used by MSR trucks and Parr Cabinet Outlet	mostly unpainted brick with blue painted trim and some white painted concrete (moderate); red peeling paint in loading dock (poor)	few doors and windows with caulk	640	RCB19
6172900220	1950	130 S DAKOTA ST	98134	CASCADE DESIGNS INC	4000 1ST AVE S	SEATTLE WA	98134	Cascade Designs	yellow painted concrete wall and wood door; red painted metal in loading dock (moderate)	few doors, no windows	640	RCB19
6834700175	1950	801 S. Dearborn St.	98134	City of Seattle	P.O. Box 94689	Seattle, WA	98124	City of Seattle Administration and Warehouse	grey painted masonry (moderate)	some large windows		

Parcel Information				Property Owner Information				Current Occupant/Tenant	Paint - Condition/Type	Potential Caulk Locations	Closest Stormwater Solids Sample Concentrations	
Parcel Number	Year Built	Parcel Address	Zipcode	Taxpayer Name	Taxpayer Address	Taxpayer City/State	Zipcode				Max PCB Result (ug/kg)	Catch Basin Number
7132300230	1966	828 RAINIER AVE S	98144	Chong Taek + Hyuna	9640 SE 61st Place	Mercer Island, WA	98040	Rice n Roll	green and brown paint on wood (good); appears to be newly renovated	large windows	255	CB10
7133800065	1971	1121 RAINIER AVE S	98144	OLEARY ELECTRIC BUILDING L	1121 RAINIER AVE S	SEATTLE WA	98144	Trig Electric	white and brown paint on wood (moderate/poor)	few windows and doors	1,400	ST6
7133800100	1955	1138 POPLAR PL S	98144	WESTROAD INVESTMENT LLC	PO BOX 2222	TACOMA WA	98401	Sprague Pest Solutions	brown paint on wood, block and metal (good); unpainted stone exterior portion	lots of windows	1,400	ST6
7133800110	1951	1128 POPLAR PL S	98144	Poplar Place LLC	1422 34th Ave	SEATTLE WA	98122	Unnamed Tenant	white paint on block and brick (good); blue paint on metal railing (good)	windows and doors	1,400	ST6
7134300390	1952	1421 S DEAN ST	98144	SIERRA NEVADA INVESTMENT GR	150 N MYERS ST	LOS ANGELS CA	90033	Color Graphics	tan paint on concrete (moderate/poor); blue paint on metal door (moderate); blue painted trim on roof (moderate)	few windows and doors	490	CB106
7134300435	1960	861 POPLAR PL S	98144	KENNEDY CURT J	5061 BEACH DR SW	SEATTLE WA	98136	Summit Radiology	tan paint on block and concrete (moderate); north side has white painted metal siding (moderate)	windows and doors	490	CB106
7134300440	1952	851 POPLAR PL S	98144	KENNEDY CURT J	5061 BEACH DR SW	SEATTLE WA	98136	Summit Radiology	tan paint on block and concrete (moderate)	windows and doors	490	CB106
7138300090	1953	2825 RAINIER AVE S	98144	KEY BANK NA-TRST REAL ESTAT	127 PUBLIC SQUARE 18TH FLOOR	CLEVELAND OH	44114	Pawn Shop	beige paint on concrete with some chipping (moderate/poor)	few windows and doors	3,100	CB38
7376600360	1962	4400 7TH AVE S	98108	AIRGAS NOR PAC INC	3591 N COLUMBIA BLVD	PORTLAND OR	97217	Airgas	painted concrete block and concrete (moderate)	caulk around doors and windows	430	CB81
7376600390	1970	4455 7TH AVE S	98108	BT-OH LLC	PO BOX 28606	ATLANTA GA	30358	UPS Warehouse (five buildings including car wash, warehouse, administration building, truck wash, and fuel station)	painted concrete (moderate)	caulk around windows and doors	2,530	MH18
7376600690	1970	4500 7th Ave S	98108	Poultry Plymouth	4500 7th Ave S	Seattle, WA	98108	Plymouth Poultry Company	Green/white painted concrete (good), peeling green paint on metal stairs (poor)	caulk around doors and windows	1,610	RCB13
7376600711	1953	4520 7TH AVE S	98108	SANFT LOUIE	6120 52ND AVE S	SEATTLE WA	98118	Plymouth Poultry Company	Green/white painted concrete (good), peeling green paint on metal stairs (poor)	caulk around doors and windows	1,110	RCB218
7376600737	1969	4623 7TH AVE S	98108	KING COUNTY	500 4TH AVE - RM 500	SEATTLE WA	98104	Sheriff Department Maintenance	Bright blue & aquamarine paint (moderate)	caulk around doors and windows	6,700	RCB1
7376600753	1970	633 S SNOQUALMIE ST	98108	PAULICH LIMITED PARTNERSHIP	1111 3RD AVE SUITE 1800	SEATTLE WA	98101	Magnum Laser	Painted concrete and metal doors (moderate)	caulk around doors and windows	4,600	MH18
7376600765	1971	601 S SNOQUALMIE ST	98108	PARK MANOR APARTMENTS LLC	14900 INTERURBAN AVE S #210	SEATTLE WA	98168	Siemens	Painted wood and concrete with some peeling (moderate/poor), bright green paint (moderate)	caulk around doors	3,000	MH231
7548300985	1953	1706 RAINIER AVE S	98144	WANG CHI YUK+YOKO	7802 NE 10TH ST	BELLEVUE WA	98004	Toshio's Teriyaki	brown and red painted concrete (very good)	large windows	540	RCB10
7548800025	1971	1311 S Massachusetts Street	98144	Seattle Housing Authority	120 6th Ave North	Seattle, WA	98109	Beacon Tower	mostly unpainted masonry, the portion of the building in the drainage area does have some painted surfaces (moderate)	doors and windows		
7666203000	1950	2520 Airport Way S	98134	2960 4TH AVENUE SOUTH LP+PR	2520 Airport Way S	Seattle, WA	98134	Old AC/Delco Building	white painted concrete block with blue and red stripes (moderate/poor)	large windows	470	CB111
7666203010	1966	918 S LANDER ST	98134	SEATTLE CITY OF	PO BOX 34018	SEATTLE WA	98124	Seattle Public Utilities (two buildings)	mostly unpainted pebble siding and unpainted concrete columns; some blue painted metal sheeting at roof (good)	Big windows with caulk	2,500	CB112
7666203011	1955	2548 AIRPORT WAY S	98134	Young RE Investments c/o STAKKESTAD SHARON	5627 BEACH DR SW	SEATTLE WA	98136	Sanderson	beige painted concrete and metal siding and concrete block (moderate/poor)	Big windows with caulk	470	CB111
7666203135	1960	2709 AIRPORT WAY S	98134	MOTTER A G LLC	2709 AIRPORT WAY S	SEATTLE WA	98134	MacDonald Meat	white painted concrete with red trim and red sign (moderate)	few doors, no windows	181	RCB126
7666203150	1958	2755 Airport Way	98134	RD Associates LLC	2755 Airport Way S	Seattle, WA	98134	High Rise Cabinets	grey/blue painted concrete (moderate/good)	doors and windows	200	CB110

Parcel Information				Property Owner Information				Current Occupant/Tenant	Paint - Condition/Type	Potential Caulk Locations	Closest Stormwater Solids Sample Concentrations	
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7666203825	1955	600 S SPOKANE ST	98134	C/O CONSOLIDATED PRESS	600 S SPOKANE ST	SEATTLE WA	98134	Consolidated Press	red painted accent and trim, white and brown painted concrete (moderate)	caulk around windows and doors	6,200	MH232
7666203827	1960	640 S SPOKANE ST	98134	SETAY L L C	PO BOX 24886	SEATTLE WA	98124	Multiple tenants including: DelcoRemy International; Blanchard Auto Electric; ISI Auto Plus; and AC Delco	beige painted concrete (moderate)	possible caulk on doors and windows	6,200	MH232
7666204121	1958	3412 4th Ave S	98134	3412 FOURTH LLC	PO Box 24687	Seattle, WA	98124	Western Bridge	Grey paint (moderate)	windowns and doors	1,600	CB1
7666204125	1952	3414 4TH AVE S	98134	3414 FOURTH LLC	PO BOX 24687	SEATTLE WA	98124	Commercial Plastics	beige painted concrete, yellow painted bollards (moderate)	windows and doors	1,600	CB1
7666204130	1952	3434 4TH AVE S	98134	Bottleworks III LLC	3434 4th Ave S	Seattle, WA	98134	Specialty Bottle	beige painted concrete, yellow painted bollards (moderate)	windows and doors	1,600	CB1
7666204140	1974	3454 4TH AVE S	98134	Seven P LLC	13657 SE 1st Street	BELLEVUE WA	98005	Interior Environments	beige painted concrete, yellow painted bollards (moderate)	windows and doors	1,600	CB1
7666207525	1974	4300 COLORADO AVE S	98134	UNION PACIFIC RAILROAD CO	1400 DOUGLAS STOP 1640	OMAHA NE	68179	Union Pacific Railroad Yard (multiple buildings)	painted yellow siding (poor)	possible caulk on doors and windows	460	MH210
7666700390	1952	44 S Nevada Street	98134	Port of Seattle	PO Box 1209	Seattle, WA	98111	Seattle Port Terminal 106	painted masonry (moderate)	some windows and a door	2,010	MH206
7666700465	1969	4501 EAST MARGINAL WAY S	98134	KING COUNTY	500 4TH AVE	SEATTLE WA	98104	King County Waste Management (three small buildings)	some yellow paint on metal siding (moderate), but mostly unpainted siding	No caulk observed	3,930	ST1
7886100045	1969	4021 6TH AVE S	98108	DAVIS NANCY L, TR	4568 E MERCER WAY	MERCER ISLAND WA	98040-3830	Applied Industrial Bearing Technologies	Freshly painted concrete walls (good)	caulk around windows and doors	1,030	ST7
7886100115	1970	620 S INDUSTRIAL WAY	98108	5621 LLC	15682 PT MONROE DR NE	BAINBRIDGE ISLAND WA	98110	Moeller	unpainted pebble siding with painting metal siding and concrete (moderate)	No caulk observed	83,000	CB121
7886100290	1973	3801 7TH AVE S	98108	TEAM B LLC	3801 7TH AVE S	SEATTLE WA	98108	International Truck Leasing and Rental	wood siding with painted red wood trim; beige painted concrete (moderate)	possible caulk on doors and windows	580	CB33
7886100730	1954	3707 AIRPORT WAY S	98134	R C PATRNERSHIP, c/o Wester Peterbilt Inc	PO BOX 24065	SEATTLE WA	98124	Exxon/Mobil Quick Lube and Peterbilt Display Area	white painted concrete block (moderate/poor); red painted wood trim on steel siding building in back (moderate)	caulk around windows and doors	1,100	ST2
7886101010	1963	820 S CHARLESTOWN ST	98134	SJL Legacy Properties LLC	202 NW 48th St	SEATTLE WA	98107	Washington State Department of Transportation	gray/white/green painted steel siding (moderate/poor); peeling white paint in back (poor)	No windows, little caulk	1,280	CB31
8850000730	1953	1529 RAINIER AVE S	98144	GRIBBLE VANCE R+JUDY	1529 RAINIER AVE S	SEATTLE WA	98144	Residence (1-story)	peach-painted wood (poor)	some windows and a door	230	RCB100
8111100170	1971	2600 S Holgate St	98144	Holgate Church of Christ	P.O. Box 18318	Seattle, Wa	98118	Holgate Church of Christ	brown painted wood (good)	some windows and a door	20U	RCB7

residental buildings
commercial buildings (including schools, churches, apartment buildings, and park buildings)
industrial buildings

Need a solids sample (or a more accurate solids sample) at downgradient storm drain

Appendix B
Building Sampling Maps

Appendix C
Directions to ARI from Diagonal Avenue S

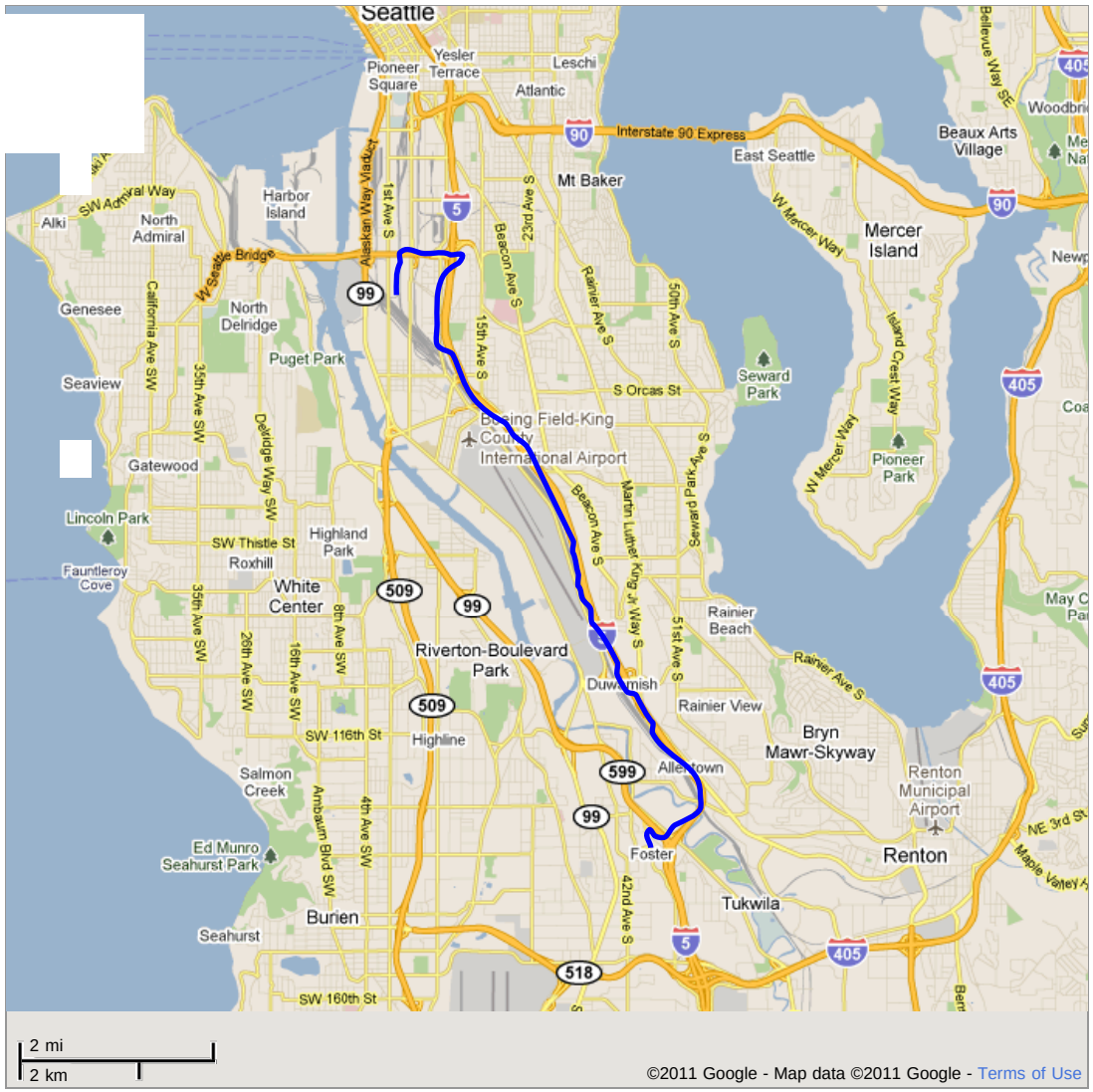
Show for all steps: Text only | Maps | Street View ☑ Include large map Print

Roll over the directions to customize each step.

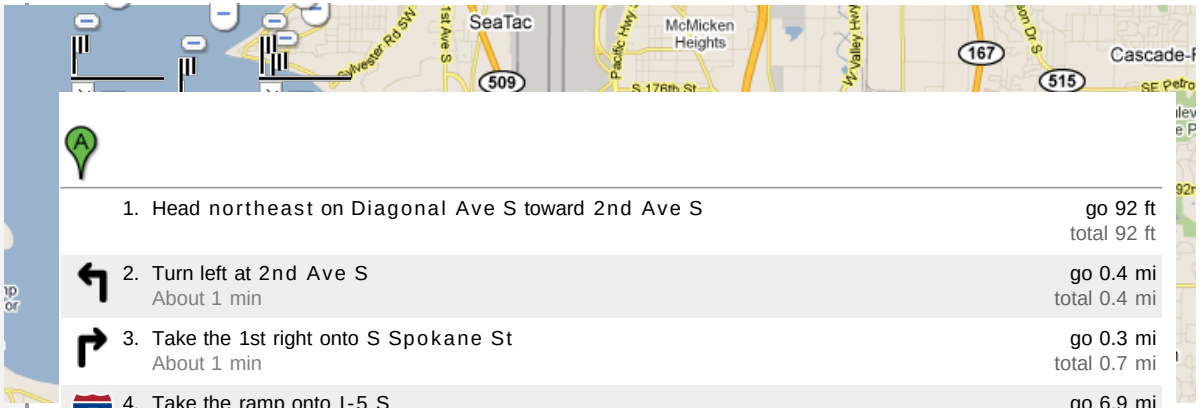
Google maps

Directions to Analytical Resources Inc
4611 S 134th Pl # 100, Tukwila, WA 98168-3212 - (206) 695-6200
8.3 mi – about 13 mins

You can enter notes here.



Diagonal Ave S, Seattle, WA 98134



	1. Head northeast on Diagonal Ave S toward 2nd Ave S	go 92 ft total 92 ft
	2. Turn left at 2nd Ave S About 1 min	go 0.4 mi total 0.4 mi
	3. Take the 1st right onto S Spokane St About 1 min	go 0.3 mi total 0.7 mi
	4. Take the ramp onto I-5 S About 7 mins	go 6.9 mi total 7.6 mi
	5. Take exit 156 for Interurban Ave toward Tukwila	go 0.2 mi total 7.8 mi
	6. Turn right at Interurban Ave S	go 0.2 mi total 8.1 mi
	7. Take the 1st left onto S 133rd St About 1 min	go 0.1 mi total 8.2 mi
	8. Turn left at S 134th Pl Destination will be on the right	go 0.1 mi total 8.3 mi

Analytical Resources Inc
4611 S 134th Pl # 100, Tukwila, WA 98168-3212 - (206) 695-6200

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

Directions weren't right? Please find your route on maps.google.com and click "Report a problem" at the bottom left.

Appendix D
Sample Composite Form

Sample Composite Form

Project: LDW Survey of Potential PCB-Containing Building Material Sources

Matrix: (*circle one*) **paint *or* caulk** **Composite Sample ID:** _____

Sampled By: _____ **Date:** _____

Discrete Sample 1	**Building:** (circle one) **A, B, C, or D**	**Time:** _____	**Comments:**		
Color	***Condition***	***Substrate / Location***	***Building Type***	***Building Age***	***Side of Building***
light dark bright	slightly	brick	Industrial	1950s	North
beige brown tan	very	concrete	Commercial	1960s	South
black	new / fresh	metal siding	Residential	1970s	East
blue	chipping	wood	*Other:*	undated	West
green	peeling	*Other:* _____	_____	*Other*:	*Other:*
gray	good	window		_____	_____
red	moderate	door			
white	poor	*Other:* _____			
Discrete Sample 2	**Building:** (circle one) **A, B, C, or D**	**Time:** _____	**Comments:**		
Color	***Condition***	***Substrate / Location***	***Building Type***	***Building Age***	***Side of Building***
light dark bright	slightly	brick	Industrial	1950s	North
beige brown tan	very	concrete	Commercial	1960s	South
black	new / fresh	metal siding	Residential	1970s	East
blue	chipping	wood	*Other:*	undated	West
green	peeling	*Other:* _____	_____	*Other*:	*Other:*
gray	good	window		_____	_____
red	moderate	door			
white	poor	*Other:* _____			
Discrete Sample 3 **N/A ☐**	**Building:** (circle one) **A, B, C, or D**	**Time:** _____	**Comments:**		
Color	***Condition***	***Substrate / Location***	***Building Type***	***Building Age***	***Side of Building***
light dark bright	slightly	brick	Industrial	1950s	North
beige brown tan	very	concrete	Commercial	1960s	South
black	new / fresh	metal siding	Residential	1970s	East
blue	chipping	wood	*Other:*	undated	West
green	peeling	*Other:* _____	_____	*Other*:	*Other:*
gray	good	window		_____	_____
red	moderate	door			
white	poor	*Other:* _____			
Discrete Sample 4 **N/A ☐**	**Building:** (circle one) **A, B, C, or D**	**Time:** _____	**Comments:**		
Color	***Condition***	***Substrate / Location***	***Building Type***	***Building Age***	***Side of Building***
light dark bright	slightly	brick	Industrial	1950s	North
beige brown tan	very	concrete	Commercial	1960s	South
black	new / fresh	metal siding	Residential	1970s	East
blue	chipping	wood	*Other:*	undated	West
green	peeling	*Other:* _____	_____	*Other*:	*Other:*
gray	good	window		_____	_____
red	moderate	door			
white	poor	*Other:* _____			

Circle all sample descriptors above that are applicable to the associated sample.
Note: commercial buildings include schools, churches, apartment buildings, and park buildings

Recorded By/Date:_____ **Reviewed By/Date:** _____

Appendix E
Chain-of-Custody Form

SAIC®
From Science to Solutions

18912 North Creek Parkway, Suite 101
Bothell, Washington 98011
TEL: 425.485.5800 • FAX: 425.485.5566

CHAIN OF CUSTODY RECORD

Project No.: _____ Project Mgr: _____
Project Name: _____
Project Location: _____
Sample Collectors: _____
Client Name: _____

Sample ID	Depth	Matrix	Date	Time	# of Containers	Analyses / Tests	Comments

Shipping Information

Number of Shipping Containers:

Date Shipped:

Carrier:

Waybill No.:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: _____	Signature: _____	Signature: _____	Signature: _____
Date/Time: _____	Date/Time: _____	Date/Time: _____	Date/Time: _____
Affiliation: _____	Affiliation: _____	Affiliation: _____	Affiliation: _____

• White: Lab Returns to Originator Upon Receipt of Samples • Canary: Lab Retains • Pink: Lab Returns to Project Manager with Final Report • Goldenrod: Retained by Sampler

Appendix F
Electronic Data Deliverable Specifications

Appendix F
Electronic Data Deliverable Format

Laboratory electronic data deliverables (EDDs) will be submitted as tab delimited text or csv files and will conform to the specifications listed below. This format provides all data required for data submittal to Ecology's Environmental Information Management (EIM) database. Information for entering environmental data into EIM database can be found on Ecology's website: http://www.ecy.wa.gov/eim/. EIM valid values must be used for reporting CAS_RN, ANALYTE, PREPMETHOD, ANLMETHOD, and MATTYPE.

Field	Name	Type[1]	Data Required[2]
1	PROJID	T	Special
2	STUDYID	T	No
3	FIELDID	T	No
4	LABID	T	Yes
5	LABBATCH	T	Yes
6	CAS_RN	T	Special
7	ANALYTE	T	Yes
8	RESULT	N	Yes
9	RESULTSF	N	Yes
10	LABQUAL	T	Special
11	UNITS	T	Yes
12	MDL	N	Special
13	REPLIMIT	N	Yes
14	ANLGROUP	T	No
15	PREPMETHOD	T	No
16	ANLMETHOD	T	Yes
17	MATTYPE	T	Yes
18	BASIS	T	Yes
19	LEACHDATE	D	Special
20	EXTRDATE	D	Special
21	ANLDATE	D	Yes
22	DILFACTOR	N	Yes
23	COLUMN	T	Yes
24	FRACTION	T	Yes
25	LABNAME	T	Yes
26	PARENTID	T	Special
27	SAMPLEQTY	N	No
28	QTYUNITS	T	No
29	MOISTURE	N	No
30	SAMPLETYPE	T	Yes
31	RESULTTYPE	T	Yes
32	SURROGATE	N	Special
33	SPIKE	N	Special
34	RECOVERY	N	No
35	RPD	N	No
36	LOWLIMIT	N	No
37	UPPLIMIT	N	No
38	RPDLIMIT	N	No

Notes:

1. ***Type*** field refers to the following data types:
   - **T** Text, preferably left justified.
   - **N** Numeric, no decimal defined.
   - **D** Date/time, Date must be 8 characters long for the date with the format MM/DD/YY. Time must be 5 or 8 characters long in the format of HH:MM (hours and minutes) or HH:MM:SS (hours, minutes, and seconds). The time must be presented in 24 hour clock (not 12 hour clock).
2. ***Data required*** field indicates the following:
   - **Yes** The field must contain some information and a blank value is not acceptable.
   - **No** The field does not require information and if left blank, is assumed to mean no information was supplied.
   - **Special** A special case where the field may be left blank if appropriate; however, a blank field does not represent a lack of information, rather, it indicates some meaning (*i.e.,* a blank in LABQUAL indicates a detected result).

Field Descriptions:

1. **PROJID:** Project name, provided by the client at the beginning of the work assignment and is also listed on the COC forms, sample labels, and other project documentation. This is required for field samples, not required for lab QC samples.
2. **STUDYID:** Unique 8 character ID to identify the study in the Washington Department of Ecology's EIM database.
3. **FIELDID:** The sample identification number as reported on the COC form and on sample labels, or the laboratory QC sample identification.

   QC samples created by the Laboratory from field samples (e.g., laboratory duplicates) must contain the exact SAMPID of the field sample. Other Laboratory QC samples (e.g., blanks, spikes, duplicates) must have unique sample identifiers which may be identical to the LABID below.

4. **LABID:** The Laboratory internal identification number. The combination of the FIELDID and LABID field should be sufficient to uniquely define either an environmental or QC sample, but may not be sufficient to distinguish reanalyses and dilutions.
5. **LABBATCH:** The laboratory identification number used to associate laboratory generated QC samples.
6. **CAS_RN:** A unique identifying number assigned by the Chemical Abstracts Service (CAS) Division of the American Chemical Society to each distinct chemical substance recorded in the CAS Chemical Registry System. The CAS Number is accepted nationally and internationally as an identifier for specific, definable chemical substances.
7. **ANALYTE:** Analyte or parameter reported. All compounds should be reported in upper case.
8. **RESULT:** Concentration, value, or result of the compound tested, reported to the correct number of significant figures. The reporting limit (RL) will be reported for non-detect values for all methods except high resolution gas chromatography/high resolution mass spectroscopy (HRGC/HRMS) isotope dilution methods. The SAIC project coordinator will

provide project specific instructions for reporting the RESULT for non-detect results generated using HRGC/HRMS methods. Only numbers are acceptable for this field.

In the case of spiked results, the RESULT will be the spiked sample result and will not be adjusted for the original sample results. If spiked compounds are diluted beyond detection, then the reporting limit (RL) shall be reported in the VALUE field and a "U" added with other qualifiers in the LABQUAL field.

9. **RESULTSF:** The number of significant figures that should be reported for the RESULT field.

10. **LABQUAL:** Lab flags or qualifiers are reported in this field.

    More than one qualifier may be used per record; multiple qualifiers must be concatenated without separator (e.g., "UJ"). The laboratory must include a list of the definitions of the codes with the electronics. The list may be present as a paper copy or an electronic text file.

    All non-detected results shall be reported with a "U" qualifier. The qualification "ND" for non-detected results is unacceptable. Blank values are acceptable and implied to mean a detected result. If a range will be reported (e.g., greater than 50) the symbol ">" shall be reported in this field.

    Non-numeric results (e.g., "TNTC" or "Non-plastic") should be reported in this field.

11. **UNITS:** The units of measure for each record will be reported in this field. Micrograms must be represented with a "u" (not "µ").

12. **MDL:** Used to report the method detection limit (MDL), a value determined by MDL studies performed in accordance with 40 CFR or sample specific estimated detection limits (e.g., 2.5 x signal to noise ratio) for high resolution, isotope dilution test methods. This value is corrected for dilution, percent moisture, or related factors that affect the MDL and/or RL. MDLs are required for all results, as applicable (e.g., not applicable for total solids).

13. **REPLIMIT:** Used to report the reporting limit. Non-detect results reported in the VALUE field should contain the RL corrected for dilution, percent moisture, or related factors that affect the RL.

14. **ANLGROUP:** Field used to group results from various methods. For instance, an entry of 'METALS' may be entered to report results from methods SW-846 6010, SW-846 7041, and SW-846 7470.

15. **PREPMETHOD:** Indicate the extraction or digestion method used (e.g., SW-846 3550B).

16. **ANLMETHOD:** Indicate the analytical method used (e.g., SW-846 8270). Dissolved metals must be clearly identified versus total metals results.

17. **MATTYPE:** Indicate one of the following for the matrix analyzed: SOIL, SEDIMENT, TISSUE, and WATER. If a sample or laboratory QC material does not match one of these, indicate with a code of "X" and explain in the cover letter.

18. **BASIS:** Indicate whether results are reported on a dry weight or wet weight basis, using the terms DRY or WET. If a sample or laboratory QC material does not match one of these, indicate with a code of "X" and explain in the cover letter.

19. **LEACHDATE:** Date the sample was extracted for TCLP or SPLP test methods. If leaching extraction is not applicable, then the field must be left blank.

20. **EXTRDATE:** Date the sample was extracted or prepared. If an extraction or preparation step is not applicable, then the field may be blank.

21. **ANLDATE:** Date the sample was analyzed.

22. **DILFACTOR:** The dilution factor. This should also reflect "effective" dilutions achieved by increasing or decreasing sample or extracting solvent volumes from standard amounts. That is, pre-concentration steps will result in a dilution factor of less than 1; this is OK.

23. **COLUMN:** This field is used to identify the analytical column from which the result was reported, if applicable.

Code	Definition
1	Primary column
2	Secondary column, also known as conformational column
N	Not applicable

24. **FRACTION:** This field identifies when an aqueous sample is filtered prior to analysis to determine the "dissolved" portion of the chemical of interest. Unfiltered aqueous samples are reported as the "total" fraction. This nomenclature is typically used for metals analysis.

Code	Definition
T	Total
D	Dissolved
N	Not applicable

25. **LABNAME**: The full name (and location if appropriate) of or abbreviated name (and location) of the laboratory performing the analysis.

26. **PARENTID**: For duplicate samples only (i.e., laboratory duplicate, MSD, or LCSD). List the parent sample ID.

27. **SAMPLEQTY:** Quantity or weight of the sample aliquot used for analysis.

28. **QTYUNITS:** The units of measure for the quantity or weight of the sample used for analysis.

29. **MOISTURE:** Moisture content of solid samples, expressed as percent moisture.

30. **SAMPLETYPE:** This field is used to identify laboratory QC samples. One of the following codes must be used to identify the laboratory QC sample type:

Code	Definition
N	Normal sample (field sample)
DUP	Duplicate (Laboratory duplicates only; field duplicates will have a unique SAMPID)
LCS	Laboratory control sample (blank spike or ongoing precision and recovery check)
LCSD	Laboratory control sample duplicate
MB	Method blank
MS	Matrix spike
MSD	Matrix spike duplicate samples
OPR	Ongoing precision and recovery check
RM	Reference material
TRIP	Triplicate (Laboratory triplicates only; field triplicates will have a unique SAMPID)

31. **RESULTTYPE:** This field is used to identify analyte types, including tentatively identified compounds (TICs), surrogate compounds, internal standards (IS), and labeled compounds (LC). One of the following codes must be used to identify the analyte type:

Code	Definition
IS	Internal standard
SUR	Surrogate or labeled compound result
TIC	Tentatively identified compound
TRG	Target chemical

32. **SURROGATE:** If added, this refers to the surrogate or labeled compound concentration or amount expected, for example 100 for 100 ug/kg. Units of measure are implied from the UNITS field.

33. **SPIKE:** If added, this refers to the spike concentration or amount expected, for example 100 for 100 ug/kg. Units of measure are implied from the UNITS field.

34. **RECOVERY:** Percent (%) recovery. A blank value is acceptable, indicating a non-spiked, non-reference material result. This field should be filled in for surrogates and labeled compounds as well as spiked QC samples and reference materials.

35. **RPD:** Relative percent difference. This field should be filled in for field and laboratory duplicate, matrix spike duplicates, and laboratory control sample duplicates.

36. **LOWLIMIT:** Lower recovery control limit. This field should be filled in for surrogates, QC samples and reference materials.

37. **UPPLIMIT:** Upper recovery control limit. This field should be filled in for surrogates, QC samples and reference materials.

38. **RPDLIMIT:** Relative percent difference control limit. This field should be filled in for laboratory duplicates and spiked sample duplicates.

The EDD used for data validation will include all of the fields noted above with data populated by the laboratory, and the following additional fields populated by the data validator.

Field	Name	Type[1]	Data Required[2]
39	val_name	T	Yes
40	val_date	D	Yes
41	val_qual	T	Special
42	val_level	T	Yes
43	val_reason	T	Special
44	val_notes	T	No

Notes:

1. ***Type*** field refers to the following data types:

   T Text, preferably left justified.

   D Date/time, Date must be 8 characters long for the date with the format MM/DD/YY. Time must be 6 or 8 characters long in the format of HH:MM (hours and minutes) or HH:MM:SS (hours, minutes, and seconds). The time must be presented in 24 hour clock (not 12 hour clock).

2. ***Data required*** field indicates the following:

   Yes The field must contain some information and a blank value is not acceptable.

   No The field does not require information and if left blank, is assumed to mean no information was supplied.

   Special A special case where the field may be left blank if appropriate; however, a blank field does not represent a lack of information, rather, it indicates some meaning (*i.e.*, a blank in LABQUAL indicates a detected result).

39. **val_name:** The full or abbreviated name of the data validation firm.

40. **val_date:** The date on which data validation was completed.

41. **val_qual:** Any data qualifiers added during data validation.

42. **val_level:** The level of data validation (e.g., full or summary, S2AVEM).

43. **val_reason:** The reason (or reason code) for data qualification. This field is required if validation qualifiers were added.

44. **val_notes:** Any additional notes. If numeric results changed during data validation, it must be noted here.

Appendix G
Tier 2 Properties

LDW PAINT-SAMPLING DATABASE - Tier 2 Properties						Property Owner Information					Current Occupant/Tenant	
Parcel Number	Year Built	Parcel Address	Parcel City	Parcel State	Zipcode	Taxpayer Name	Taxpayer Address	Taxpayer City	Taxpayer State	Zipcode		Parcel Category
1250200745	1960	525 Martin Luther King Jr Way S	Seattle	WA	98144	Leland L Seese Jr.	525 Martin Luther King Jr Way S	Seattle	WA	98144	Residence	Residential
1250200310	1971	412 25th Avenue S	Seattle	WA	98144	Capitol Hill Housing Improvements	1406 10th Avenue, Suite 101	Seattle	WA	98122	Apartment Building	Commercial
7132300445	1963	900 Rainier Avenue S	Seattle	WA	98144	1130 Rainier LLC	PO BOX 95430	Seattle	WA	98145	Pho 900 Vietnamese Restraunt (Possibly Vacant)	Commercial
7132300435	1964	912 Rainier Avenue S	Seattle	WA	98144	1130 Rainier LLC	PO BOX 95430	Seattle	WA	98145	Possibly Vacant Office	Commercial
567000070	1977	820 Yakima Avenue S	Seattle	WA	98144	William Jackson	820 Yakima Avenue S	Seattle	WA	98144	Residence (2-Story)	Residential
567000660	1977	831 29th Avenue S	Seattle	WA	98144	Kelly Carroll	831 29th Avenue S	Seattle	WA	98144	Residence (2-Story)	Residential
3881900470	1961	2001 Grand Street	Seattle	WA	98144	Nancy L. Davis	4568 E Mercer Way	Mercer Island	WA	98040	Warehouse	Industrial
3881900485	1969	2021 S Grand Street	Seattle	WA	98144	Joseph T Davis Trust	2021 S Grand Street	Seattle	WA	98144	Davis Door Service	Industrial
3881900495	1978	1817 21st Avenue S	Seattle	WA	98144	Joseph T Davis Trust	2024 S Grand Street	Seattle	WA	98144	Warehouse	Industrial
1822300180	1956	1750 22nd Avenue S	Seattle	WA	98144	Snarf LLC	PO BOX 80068	Seattle	WA	98108	Possible Vacant Warehouse	Industrial
1594600175	1957	2329 Rainier Avenue S	Seattle	WA	98144	Linda J Shimizu	11748 SE 60th Place	Bellevue	WA	98006	Galaxy Specialty Company	Commercial
5394600175	1965	2335 Rainier Avenue S	Seattle	WA	98144	Niro Investments LLC	2335 Rainier Avenue S	Seattle	WA	98144	Mutual Fish Company	Commercial
3600043	1976	2921 Martin Luther King Jr Way S	Seattle	WA	98144	Loren & Ruth Chotzen	3109 E Madison Street	Seattle	WA	98112	Starbucks Coffee	Commercial
3600065	1965	2801 Martin Luther King Jr Way S	Seattle	WA	98144	Nova Oil Company	17700 17th Avenue NW	Seattle	WA	98177	76 Gas Station	Commercial
3600078	1970	2802 Rainier Avenue S	Seattle	WA	98144	Asher Group	1124 4th Street	Marysville	WA	98270	Chevron Gas Station	Commercial
7886100365	1959	660 S Andover Street	Seattle	WA	98108	Spear Investments LLC	PO BOX 15714	Seattle	WA	98115	Stusser Electrical Company	Industrial
7886100210	1956	3922 6th Avenue S	Seattle	WA	98108	Schwartz Family Holdings	325 118th Avenue SE #106	Bellevue	WA	98005	Naked Juice	Industrial
7886100650	1959	3922 7th Avenue S	Seattle	WA	98108	Bank of America Tre	Spear Trust - PO BOX 34029	Seattle	WA	98124	Phelps Tire Factory	Industrial
7886100185	1966	600 S Dakota Street	Seattle	WA	98108	Bank of America Tre	Spear Trust - PO BOX 34029	Seattle	WA	98124	Fleet Pride	Industrial
7886100165	1961	601 S Andover Street	Seattle	WA	98108	Zeldow Family LLC	1240 108TH NE	Bellevue	WA	98004	Airgas Specialty Gases	Industrial
5680000840	1970	3820 13th Avenue S	Seattle	WA	98108	Daniel W Lee	3820 13th Avenue S	Seattle	WA	98108	Residence	Residential
7376600250	1961	601 S Nevada Street	Seattle	WA	98108	Levinson Mayo LLC	601 S Nevada Street	Seattle	WA	98108	Superior Farming/Superior Casing Co	Industrial
7376600220	1970	619 S Nevada Street	Seattle	WA	98108	Nevada Properties LLC	619 S Nevada Street	Seattle	WA	98108	Schwartz Brothers Bakery	Industrial
7376600270	1974	4329 7th Avenue S	Seattle	WA	98108	MVI 7th Ave LLC	3007 Webster Point Road NE	Seattle	WA	98105	United Parcel Service	Industrial
3958900125	1970	7th Avenue S and S Industrial Way	Seattle	WA	98108	Key Bank of Washington	C/O First American Tax Valuation - PO BOX 560807	Dallas	TX	75356		Commercial