Lower Duwamish Waterway

Inventory of Lower Duwamish Waterway Slivers

Prepared for

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Acronyms and Abbreviations

AET	Apparent Effect Threshold
BDC	Boeing Developmental Center
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and xylenes
cPAH	carcinogenic polycyclic aromatic hydrocarbon
CSCSL	Confirmed and Suspected Contaminated Sites List
CSO	combined sewer overflow
CWD	Commercial Waterway District
DOT	Department of Transportation
DSOA	Duwamish Sediment Other Area
DW	dry weight
Ecology	Washington State Department of Ecology
EF	exceedance factor
EIM	Environmental Information Management
EOF	emergency overflow
EPA	United States Environmental Protection Agency
FSID	Ecology Facility/Site Database Identification
GIS	Geographic Information Systems
HPAH	high molecular weight polycyclic aromatic hydrocarbon
ISGP	Industrial Stormwater General Permit
KCIA	King County International Airport
LAET	lowest apparent effects threshold
LDW	Lower Duwamish Waterway
LDWG	Lower Duwamish Waterway Group
LiDAR	Light Detection and Ranging
LPAH	low molecular weight polycyclic aromatic hydrocarbon
LUST	leaking underground storage tank
MHHW	mean higher high water
MLLW	mean lower low water
MTCA	Model Toxics Control Act
NFA	No Further Action
NTCRA	Non-Time Critical Removal Action
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PCUL	preliminary cleanup level
RAL	Remedial Action Level
RCRA	Resource Conservation and Recovery Act
RI	remedial investigation
RM	river mile
ROD	Record of Decision
SCAP	Source Control Action Plan
SCO	Sediment Cleanup Objective
SD	storm drain

Acronyms and Abbreviations (cont'd)

SMS	Sediment Management Standards
SPU	Seattle Public Utilities
sq ft	square feet
SVOC	semi-volatile organic compound
TEQ	toxic equivalence quotient
TPH	total petroleum hydrocarbons
UST	underground storage tank
VCP	Voluntary Cleanup Program
VOC	volatile organic compound
WAC	Washington Administrative Code

1.0 Introduction

1.1 Background

The Lower Duwamish Waterway (LDW) Superfund Site was added to the United States Environmental Protection Agency (EPA) National Priorities List in September 2001 due to the presence of chemical contaminants in sediment. The Site is approximately 5 miles long, and flows into the East Waterway and West Waterway and then into Elliott Bay in Seattle, Washington. It extends from the southern tip of Harbor Island to just south of the turning basin near S 102nd Street in Tukwila, which is slightly beyond the boundaries of the original Commercial Waterway District (CWD) right-of-way. The Washington State Department of Ecology (Ecology) is the lead agency for source control in the LDW, as defined in the USEPA LDW Record of Decision (ROD; USEPA 2014).

A group of potentially responsible parties known as the Lower Duwamish Waterway Group (LDWG), comprised of the Port of Seattle, city of Seattle, King County, and The Boeing Company, has been working with EPA to facilitate the investigation and cleanup of the LDW Site. In addition, Ecology has identified and is working with other potentially liable parties to investigate and remediate upland properties under the state Model Toxics Control Act (MTCA).

1.1.1 Commercial Waterway District No. 1 of King County

In 1889, by virtue of becoming a state, Washington received ownership over the bed and banks of all navigable waters in the state under the equal footing doctrine.[1] Beginning in 1909, the state legislature passed a series of laws that enabled local governments to create "waterway districts" for the economic development of the State. These waterway districts were intended to promote the public purpose of commerce and navigation, create access to and use of commercial waterways, and widen and straighten waterbodies as needed to achieve these goals.[2]

In 1911, the King County Board of Commissioners created CWD No. 1 of King County, and approved a plan for the CWD to straighten, widen, and deepen the lower portion of the Duwamish River, and to acquire a 500-foot right of way along its lower five miles.[3] This work began in 1913, and the construction of the LDW as it is known today was completed in 1915. The river was diverted into the new, straightened channel, and its former meanders were filled in.

The CWD originally dredged the LDW to its full 500-foot width, but only maintained the center 250 feet for navigation. This generally left an area of about 125 feet on either side of the center channel undredged and subject to sedimentation. There were also a few "slivers" of dry land that were either filled in intentionally by adjoining landowners, or were for some reason never excavated out to the full 500-foot width of the waterway.

The U.S. Army Corps of Engineers took over dredging and maintenance of the center channel in 1942, and the CWD was eventually dissolved in 1964. The Corps issued and still issues permits for adjoining landowners that wish to dredge or construct docks or bulkheads in the LDW to

[1] 43 U.S.C. §§ 1301-1315; Wash. Const. art. XVII, § 1
[2] Laws of 1909, Ex. Sess., Ch. 8
[3] *Commercial Waterway District No. 1 of King County v. Permanente Cement Co.*, 61 Wn.2d 509, 511, 522 (1963)

access the channel. Over the following decades, many docks and wharves were built in the LDW pursuant to such permits, and some areas of the shoreline were filled to expand or create additional strips of dry land within the 500-foot right of way.

1.1.2 Current Conditions

Beyond the navigation channel, the banks of the LDW are comprised of sloped subtidal embankments, shallow subtidal and intertidal areas (including five slips along the eastern shoreline and three embayments along the western shoreline), and Kellogg Island near the downstream end. The shoreline consists primarily of hardened surfaces, including riprap, aprons for piers, and sheet-pile walls, with some beaches and intertidal habitat remaining in isolated patches (Windward 2010).

The water elevation in the LDW is primarily controlled by tidal effects. Tides occurring in the Puget Sound Basin, including the LDW, are classified as "mixed tides." Mixed tides fluctuate in cycles consisting of two unequally high and low tides within a 24.8-hour period. The mean lower low water (MLLW) level is defined as 0.0 feet, and the mean higher high water (MHHW) level is 11.3 feet, per the LDW ROD (USEPA 2014). The highest annual tides occur in December or January, and the lowest annual tides occur in June or July. Tidal effects on the LDW have been observed in Renton, 13 miles upstream from the river mouth (Weston 2004).

1.2 Purpose of this Report

The purpose of this *Inventory of Lower Duwamish Waterway Slivers* (referred to as the Slivers Report) is to identify slivers of upland property along the LDW where ownership may be unknown, undetermined, or different from the ownership of the adjacent upland parcel, and to summarize readily available information about these slivers.

For purposes of this report, "slivers" are defined as any contiguous area of land that is (a) within the LDW Superfund Site; (b) above the MHHW level; and (c) not within the boundaries of a King County tax parcel. In some cases, slivers may be upland areas "left behind" by the original CWD dredging of the waterway in 1911; in other cases, slivers may have been created by upland landowners placing fill that encroached into the 500-foot waterway boundary. Although background information about certain slivers is provided where available, drawing any conclusions regarding the ownership or other rights or liabilities associated with particular slivers is beyond the scope of this report.

The objectives of this Slivers Report are to:

- Identify and map each of the slivers;
- Describe each of the identified slivers;
- Gather existing information on use of the properties adjacent to the slivers;
- Gather existing soil, groundwater, and sediment data collected within and/or in the vicinity of the slivers; and
- Identify data gaps, if any, related to potential sources of recontamination to LDW sediment.

1.3 Report Organization

Section 1 presents background information and identifies the purpose and objectives of this study. Section 2 describes how the slivers were identified, and describes which slivers were selected for more detailed evaluation in this report. Sections 3 and 4 provide available information about LDW slivers on the east and west sides of the LDW, respectively. References are listed in Section 5.

Appendix A provides a copy of the survey maps developed as part of the Port of Seattle's 2005 survey effort (David Evans 2005). Appendix B provides a map and summary of information for each of the 158 potential slivers initially identified during this project. Appendix C contains shoreline aerial photographs showing each of the 31 LDW slivers that are larger than 1,000 square feet (sq ft) in area; these photographs are from the Washington State Coastal Atlas and were taken in August 2016.[4]

[4] Available on Ecology's website at: https://fortress.wa.gov/ecy/shorephotoviewer/

2.0 Identification of LDW Slivers

As noted in Section 1.2, a sliver is defined as any contiguous area of land that is (a) within the LDW Superfund Site; (b) above the MHHW level; and (c) not within the boundaries of a King County tax parcel.

In 2005, the Port of Seattle commissioned a survey for the purpose of retracing centerline alignment and right of way margins of the CWD as originally platted in 1911/1912, from approximately SW Dakota Street on the north to Turning Basin No. 3 on the south, and to provide a basis for future topographic mapping of adjoining privately owned uplands within the CWD (David Evans 2005). A copy of the survey maps is provided in Appendix A.

In 2017, Ecology asked Leidos to prepare this Slivers Report. King County's Parcel Viewer website was used to identify tax parcel boundaries along the LDW.[5] LiDAR (Light Detection and Ranging) data[6] from the Puget Sound LiDAR Consortium (Quantum Spatial 2016) were used to create the MHHW level line which in turn was used to identify potential LDW slivers using the tools within ESRI Arc Geographic Information Systems (ArcGIS) software. It should be noted that there are limitations associated with the use of LiDAR data to identify slivers. LiDAR measures elevations by illuminating a target with laser light, and it requires unobstructed line of sight. Therefore, objects in the environment may interfere with the LiDAR measurements.

Based on the resolution of the available data, units of approximately 9 sq ft were identified; contiguous units were combined and identified as potential slivers. These potential slivers, which ranged from 18 sq ft to 111,294 sq ft in size, were numbered sequentially from north to south within the LDW, with the letter "E" or "W" indicating whether the sliver is located on the east or west bank of the LDW. For example, sliver 11E would be the 11th sliver initially identified on the east side of the LDW. Most of the slivers are small, with areas less than 100 sq ft., as shown below:

Sliver Area (sq ft)	% of Slivers
<100	54%
100-500	15%
500-1,000	7%
1,000-5,000	14%
5,000-10,000	4%
>10,000	6%
Total	100%

In some cases, based on professional judgment and a review of available aerial photographs, it was determined that a "sliver" was actually a dock, vegetation, or other obstacle, and it was eliminated from further consideration in this report. These cases are identified in Appendix B, which provides a map and information about the 158 potential slivers that were initially identified.

[5] https://www.kingcounty.gov/services/gis/Maps/parcel-viewer.aspx
[6] http://pugetsoundlidar.ess.washington.edu/

2.1 Slivers Selected for Further Evaluation

Slivers that are larger than 1,000 sq ft were selected for more detailed evaluation (Figures 1 through 11). These include 11 slivers on the east side of the LDW and 20 slivers on the west side, for a total of 31 slivers over 1,000 sq ft. Sections 3 and 4 provide more detailed information about these 31 larger slivers. Table 1 presents a summary of information about the 31 selected slivers, including the following:

- Sliver grouping: Slivers that were very close together and/or associated with the same adjacent property were grouped for ease of discussion. Each group was assigned a name based on the adjacent property.
- Sliver ID: As described above, slivers were assigned a code consisting of a number assigned sequentially from north to south within the LDW, and the letter "E" or "W" indicating whether the sliver is located on the east or west bank of the LDW. Sliver IDs are based on the initial set of potential slivers identified during the screening process.
- Sliver area: The area of each sliver, in sq ft; ArcGIS software was used as a measuring tool.
- Approximate river mile (RM), as measured from the southern tip of Harbor Island.
- A list of outfalls located within 100 feet of the sliver.
- Source control area in which the sliver is located.
- Adjacent property name and number: The property name and property number as listed in Ecology's LDW Source Control Database.
- Facility/Site ID: The Ecology Facility/Site ID (FSID) of the adjacent property, as listed in Ecology's Facility/Site Database.[7]
- Current site use, if known.
- Adjacent parcel number and abbreviation. Parcel number is from King County's Parcel Viewer website,[8] and the abbreviation is the last four digits of the parcel number. The parcel number abbreviation is shown on figures.
- Adjacent parcel name and taxpayer, from King County's Parcel Viewer.
- Current facility operator of the adjacent property, if known.
- Adjacent parcel address, from King County's Parcel Viewer.

2.2 Data Comparisons

Available soil, groundwater and sediment data associated with each of the selected slivers and adjacent properties are discussed in Sections 3 and 4.

The Sediment Management Standards (SMS), Washington Administrative Code (WAC) Chapter 173-204, provide marine Sediment Cleanup Objective (SCO) values. The SCO values correspond to a sediment quality level that will result in no adverse effects on biological resources and no significant human health risk. The SCO values are based on the Lowest

[7] http://www.ecy.wa.gov/fs/
[8] http://www.kingcounty.gov/services/gis/Maps/parcel-viewer.aspx

Apparent Effects Threshold (LAET); Apparent Effects Threshold (AET) values are the concentrations of specific chemicals in sediment above which a significant adverse biological effect is observed. Sediment sampling data collected near the slivers were compared to the higher of the benthic SCO/LAET (dry weight) values and the remedial action level (RAL) from the LDW ROD; these screening levels are listed in Table 2.

The primary source of sediment sampling data was the Sherlock database maintained by Leidos. The distance of the surface sediment samples nearest to each of the slivers was measured using ArcGIS software tools. Surface sediment samples collected between 2000 and 2012 and within 100 feet of a sliver were included. Samples collected prior to 2000 were not considered to be representative of current conditions. More recent sediment data may have been collected near the LDW slivers which could affect the findings and conclusions of this report. Where readily available, these newer data were included in this report.

Soil and groundwater data collected on the slivers or from adjacent properties were compared to the LDW preliminary cleanup levels (PCULs) from Ecology's Preliminary Cleanup Level Workbook dated December 1, 2017, using the sediment screening levels in Table 2 as "target" sediment concentrations. Groundwater results were compared to the groundwater PCULs for protection of sediment; soil results were compared to the soil PCULs for protection of sediment via bank erosion. These screening levels are also listed in Table 2.

It should be noted that the LDW PCUL for total or trivalent chromium in groundwater is highly conservative, and comparisons should be treated cautiously. It is based on the groundwater-to-sediment transport pathway, a target sediment concentration of 260 mg/kg, and a distribution coefficient (corresponding to a sediment pH of 8.0 and organic carbon fraction of 1.9 percent) of 4.3E+06 L/kg. These assumptions result in a groundwater PCUL for protection of sediment (0.06 µg/L) that is much lower than the chromium groundwater PCULs for protection of drinking water (100 µg/L) and protection of surface water (27 µg/L). While significant screening level exceedances for chromium in groundwater are observed at several of the slivers described in this report (Sections 3 and 4), none of these are accompanied by corresponding screening level exceedances for chromium in nearby sediments.

The primary sources of soil and groundwater data were the Source Control Action Plans (SCAPs) and Data Gaps reports prepared for each source control area by Ecology and its contractors. Additional information was obtained from Ecology and EPA websites, and other available sources. Specific documents are referenced as appropriate in Sections 3 and 4.

Summaries of detected concentrations that exceed the screening levels in surface sediment, soil, and groundwater are presented in Tables 3, 4, and 5, respectively. All solids data are reported as dry weight (DW) concentrations.

Only chemicals listed in Table 2 were evaluated in this report. Other contaminants may be present in sediments, soil, or groundwater at or near the slivers at concentrations with potential human health or environmental impacts, including pesticides, tributyltin, and various additional semivolatile organic compounds (SVOCs).

3.0 Slivers on East Side of LDW

Eleven slivers over 1,000 sq ft in area were identified on the east side of the LDW. These are discussed in Sections 3.1 through 3.9 below, grouped by adjacent upland property or use.

- Sliver 11E (Certainteed Gypsum)
- Sliver 14E (Duwamish Marine Center)
- Sliver 15E (1st Avenue S Bridge)
- Sliver 16E (Dawn Foods)
- Sliver 26E (CleanScapes)
- Sliver 28E (Gateway Park North)
- Slivers 29E, 30E, and 31E (Boeing Plant 2)
- Sliver 35E (Jorgensen Forge/Boeing Isaacson-Thompson)
- Sliver 37E (Boeing Developmental Center)

Aerial photographs of each sliver are provided in Appendix C.

3.1 Sliver 11E (Certainteed Gypsum)

3.1.1 Location and Description

Sliver 11E is located at approximately RM 1.5 on the east side of the LDW, within the RM 1.2-1.7 East (St. Gobain to Glacier Northwest) source control area (Figure 2, Figure C-1). It is adjacent to the northern half of the Certainteed Gypsum property (FSID 2253), and is 2,088 sq ft in size.

The shoreline in this area is highly developed, composed primarily of riprap, miscellaneous fill materials (such as metal debris and brick piles), and concrete and sheetpile bulkheads (Weston 2006).

One private storm drain outfall (outfall 2017) discharges within the sliver, and another (outfall 2014) is within 100 feet. Both outfalls are covered under the industrial stormwater general permit (ISGP), permit number WAR000056.

3.1.2 Adjacent Property Use

The Certainteed Gypsum property is adjacent to sliver 11E. According to the SCAP for the RM 1.2-1.7 East (St. Gobain to Glacier Northwest) source control area, Certainteed Gypsum manufactures and recycles wallboard (Ecology 2009a). Gypsum products have been manufactured at this property since 1954, under various names (Kaiser Gypsum, JHG). From 1954 to 1988, an acre of the west-central portion of the property was used to store off-specification wallboard, lumber, metal scrap, and plastic wrap. The facility entered into Ecology's Voluntary Cleanup Program (VCP) in 2004. Soil, subsurface wallboard, and groundwater samples associated with the wallboard recycle pile were collected and analyzed for metals including arsenic, lead, cadmium, chromium, and mercury. Ecology issued a no further action (NFA) determination in February 2006.

3.1.3 Summary of Analytical Data

Sliver 11E

No sampling of soil or groundwater has been conducted within this sliver.

Adjacent Property

Soil and groundwater samples were collected in and near the former wallboard recycle pile in 1987 and were analyzed for metals; mercury exceeded the soil screening level in one sample; chromium and lead exceeded groundwater screening levels. Soil samples were again collected from the recycle pile in 1991 (Weston 2004). Mercury concentrations ranged from 0.19 to 13 mg/kg; most samples exceeded the 0.41 mg/kg soil screening level for inorganic mercury. Arsenic was not detected in any of the samples; however, reporting limits ranged from 99 to 197 mg/kg, above the soil screening level of 57 mg/kg for protection of sediment via bank erosion.

As part of a remedial investigation (RI) for the former wallboard recycle pile, Weston conducted quarterly groundwater sampling for six consecutive quarters between July 2004 and October 2005. Sampling locations are shown in Figure 3; samples were analyzed for arsenic, cadmium, chromium, lead, and mercury (Weston 2006). Chromium concentrations ranged from 0.60 to 6.8 µg/L, well above the groundwater screening level for protection of sediment (0.060 µg/L). Arsenic, cadmium, lead, and mercury did not exceed the screening levels. Screening level exceedances for the most recent sampling round are shown in Table 5.

Soil samples were also collected above the water table during well installation; soil samples were analyzed for mercury only. Concentrations did not exceed the soil screening level for protection of sediment via bank erosion.

To comply with their stormwater permit, Certainteed Gypsum collected a grab sample of solids from the facility's storm drain system on September 30, 2016. The sample was analyzed for metals, polychlorinated biphenyls (PCBs), and total petroleum hydrocarbons (TPH)-diesel. Results are listed in Ecology's PARIS database; these were compared to the sediment screening levels listed in Table 2. All analytes were either not detected, or were at concentrations below their respective sediment screening level.

LDW Sediments

Between 2000 and 2005, five surface sediment samples were collected within 100 feet of sliver 11E. Although three of these samples appear to be located above the MHHW line (Figure 3), the LDW Feasibility Study identifies these as surface sediment samples (AECOM 2012). Samples were analyzed for metals, PCBs, and semivolatile organic compounds (SVOCs). Total PCBs, zinc, chrysene and fluoranthene exceeded the sediment screening levels (Table 3).

Summary of Screening Level Exceedances

Screening level exceedances associated with sliver 11E are summarized in Table 6. There are minor exceedances of PCBs, zinc, and polycyclic aromatic hydrocarbons (PAHs) in surface sediment within 100 feet of sliver 11E. No environmental samples have been collected within the sliver, and limited sampling of soil and groundwater has been conducted on the adjacent Certainteed Gypsum property.

Chemical Group	Screening Level Exceedances		
	LDW Sediment	Sliver	Adjacent Property
PCBs		ns	ns
Metals		ns	
PAHs (HPAHs)		ns	ns

ns = not sampled; shading indicates that the maximum detected concentration is above the relevant screening level.

Chromium (groundwater) and mercury (soil) exceedances have been observed in the past at Certainteed Gypsum, at concentrations above screening levels. In addition, soil samples collected in 1991 had very high detection limits for arsenic, which were above the screening level for protection of sediment. Arsenic was not present above screening levels in nearby sediment, however.

3.1.4 Data Gaps

No samples have been collected from sliver 11E, and no recent sediment samples have been collected within 100 feet of the sliver. PCBs and PAHs were present at concentrations above screening levels in surface sediment samples collected in 2000 and/or 2005; the absence of analytical data for PCBs and PAHs on the sliver or adjacent property represents a potential data gap.

While exceedances of zinc were observed in sediments, zinc did not exceed screening levels in soil or groundwater on the adjacent property. Mercury and chromium have historically been present on the adjacent property, but these metals do not exceed screening levels in sediment.

Although all of the available data associated with sliver 11E are more than 10 years old, no specific data gaps requiring further action were identified.

3.2 Sliver 14E (Duwamish Marine Center)

3.2.1 Location and Description

Sliver 14E is located at approximately RM 1.8 to 1.95 on the east side of the LDW, within the RM 1.7-2.0 East (Slip 2 to Slip 3) source control area (Figure 3, Figure C-2). The area of the sliver is 22,986 sq ft. The top of the sliver is partially covered with concrete; vegetation covers the remainder of the top of the sliver. The bank is protected by riprap, and by a wooden retaining wall at the southern end. Abandoned docks/piers and pilings are present, as well as active docks (described below).

Sliver 14E is adjacent to the Duwamish Marine Center property, which is comprised of six tax parcels (four of which are adjacent to the sliver). The Duwamish Marine Center is also referred to as the Gilmur/Hale Trust Property. Two private stormwater outfalls, 2022 and DuwMetalFab,

are present on the sliver (Figure 4). Outfall 2022 is covered under ISGP number WAR011484 (Samson Tug & Barge); outfall DuwMetalFab is covered under ISGP number WAR125423 (Duwamish Metal Fabrication).

In addition, outfall 2502 (King County's Michigan combined sewer overflow [CSO]) discharges to the LDW at the south end of the sliver. The Michigan CSO basin covers approximately 1,900 acres, spanning west to east from the LDW to Beacon Avenue S and north to south from S Bradford Street to S Norfolk Street. Parts of the Michigan CSO basin overlap with the Brandon CSO and East Marginal CSO. The Michigan CSO has historically discharged approximately seven times per year, with an average volume of 17.6 million gallons per year.[9] One other outfall in this general location (2501) has been identified as "unknown" and may be the same as outfall 2502.

3.2.2 Adjacent Property Use

The Duwamish Marine Center is adjacent to sliver 14E. Duwamish Marine Center and its tenants perform the following activities:

- Duwamish Marine Center – loading and unloading of barges with a variety of cargo;
- Duwamish Metal Fabrication – contract metal fabrication; and
- Samson Tug and Barge – barging operations between Seattle and Alaska, which involves temporary storage of equipment, containers, construction materials and lubricants.

Chemicals and petroleum products are stored temporarily at the Duwamish Marine Center (SoundEarth 2013a).

Operations at Duwamish Marine Center are carried out on and over sliver 14E. Two barge docks are present, at the northern and central portions of the sliver. Dock ramps extend over the sliver to wooden docks from the central portion and southern corner of the sliver. Containers, cranes, and a stormwater treatment system are present on the sliver. A portion of the Duwamish Metal Fabrication building is constructed on the southern end of the sliver.

3.2.3 Summary of Analytical Data

Several environmental investigations have been conducted at the Duwamish Marine Center. The first investigation was performed in 1991, and five additional investigations were performed between 2000 and 2008 (SAIC 2009b, SoundEarth 2013a).

The Duwamish Marine Center is currently under Agreed Order with Ecology (Agreed Order DE-8072) to complete an RI that delineates the nature and extent of contamination associated with historical and current operations at the facility. The RI extends to the sliver as it is part of the formal Site under MTCA. As part of the RI, two investigations were performed in 2015 and 2016.

[9] King County is currently constructing the Georgetown Wet Weather Treatment Station, which is designed to reduce overflows from the Michigan CSO to less than one per year (http://www.kingcounty.gov/depts/dnrp/wtd/capital-projects/active/georgetown.aspx).

Sliver 14E

Analytical results are available for soil samples collected from 11 locations (Figure 4) within the sliver as part of the 2015/2016 RI: B14, GLB01, GLB07, GLB10, MW14, RB-06-01, RB-06-02, RB-07-01, RB-07-02, RB-08-01, and RB-1. One groundwater monitoring well, MW-14, is present on sliver 14E. Screening level exceedances in soil and groundwater are summarized in Tables 4 and 5, respectively.

In soil, PCBs, metals, PAHs, phthalates, and pentachlorophenol have been detected at concentrations exceeding the soil screening level for protection of sediment via bank erosion. The highest exceedance factor (EF) was for total PCBs, which were detected in sample RB06-02 at 17 mg/kg DW (EF=130).

In groundwater, chromium, lead, and indeno(1,2,3-cd)pyrene were detected at concentrations above the groundwater screening level for protection of sediment. Chromium was detected at concentrations up to 13 µg/L in well MW-14 (EF=220).

Further description of the environmental investigations performed at Duwamish Marine Center is provided below.

Adjacent Property

In 1991, a 4,000-gallon leaded-gasoline underground storage tank (UST) was decommissioned at Burgess Enterprises' (former tenant) facility in March 1991. Sidewall and bottom samples were collected from the tank excavation. The samples were analyzed for petroleum hydrocarbons and benzene, toluene, ethylbenzene, and xylenes (BTEX); no analytes were detected in the samples (Environmental Associates 2000, as cited in SAIC 2009b).

In 2000, four test pits and four soil borings were completed at the Duwamish Marine Center site. Soil samples were collected from the test pits and borings, and grab groundwater samples were collected from two of the borings. The soil samples were analyzed for TPH, PCBs, PAHs, priority pollutant and leachable metals, and pentachlorophenol. The groundwater samples were analyzed for TPH, BTEX, and dissolved metals (The Riley Group, Inc. 2000, as cited in SAIC 2009b).

In 2002, soil and groundwater samples were collected to define the nature and extent of contamination at the Duwamish Marine Center site (Farallon 2002d, as cited in SAIC 2009b).

Data collected during the recent RI activities are available in Ecology's Environmental Information Management (EIM) database,[10] however the RI report is pending completion. Figure 4 shows sampling locations at the adjacent Duwamish Marine Center property.

Sampling results were compiled for the four parcels adjacent to sliver 14E: 5367204565 [4565], 5367203415 [3415], 5367203447 [3447], and 5367203635 [3635]. In soil, PCBs, metals, PAHs, phthalates, and phenols have been detected at concentrations above soil screening levels for protection of sediment at these four parcels. The highest exceedances were identified for total PCBs (34 mg/kg DW at location B-7, EF=270, and 16 mg/kg DW at location MW-5, EF=120), butyl benzyl phthalate (41 mg/kg DW at location MW-5, EF=660), and pentachlorophenol (235 mg/kg DW at location MW-6, EF=650).

[10] Data for Duwamish Marine Center Site downloaded from EIM on September 29, 2016.

Groundwater monitoring was performed at the site between 2000 and 2004, in 2008, and in 2015-2016. Metals, PAHs, PCBs, and phenols have been detected in groundwater samples at concentrations above the groundwater screening levels for protection of sediment. Chromium was detected at 140 µg/L (EF=2,300) in 2002; more recent concentrations are lower but still significantly exceed the screening level. For example, in December 2015, chromium was detected at MW-12 at a concentration of 11 µg/L (EF=180). Cadmium, lead, and copper significantly exceeded screening levels in 2002; samples collected in 2015 have lower EFs (<10). Individual high molecular weight PAHs (HPAHs) also had substantial screening level exceedances in 2002; for example, indeno(1,2,3-cd)pyrene was detected at 6.8 µg/L (EF=750). Samples collected in 2015/2016 had lower screening level exceedances for HPAHs (EF <10). Total carcinogenic PAHs (cPAHs) were detected at 17 µg/L (EF=320) in 2002; samples collected in 2015/2016 are lower but still exceed the screening level (0.33 µg/L, EF=6.1).

Individual low molecular weight PAHs (LPAHs) had substantial screening level exceedances in 2002, and some concentrations remained high in 2015. For example, acenaphthene, fluorene, and naphthalene all had EFs>10 in samples collected during 2015/2016.

To comply with their stormwater permit, Samson Tug & Barge collected a grab sample of solids from the facility's storm drain system on August 24, 2016. The sample was analyzed for metals, PCBs, and TPH-diesel. Results are listed in Ecology's PARIS database; these were compared to the sediment screening levels listed in Table 2. All analytes were either not detected, or were at concentrations below their respective sediment screening level.

LDW Sediments

Between 2005 and 2011, five surface sediment samples were collected within 100 feet of sliver 14E (Figure 4). In addition, four samples that were identified as soil samples (RB09-01, RB09-02, RB-2, and RB08-02) are actually located below the MHHW line and therefore have been recategorized as sediment samples.

Total PCBs, mercury, 2,4-dimethylphenol, butyl benzyl phthalate, and benzyl alcohol were detected in surface sediments at concentrations above the sediment screening levels. The highest screening level exceedances were for PCBs, with a 2015 sample at RB09-02 at 3.0 mg/kg DW (EF=23).

Summary of Screening Level Exceedances

Screening level exceedances associated with sliver 14E are summarized in Table 6. Based on the data reviewed for this report, several chemicals present in sediment at concentrations above screening levels are also present in soil and/or groundwater on sliver 14E and the adjacent property. These include PCBs, mercury, butyl benzyl phthalate, and phenols. Contaminants associated with sliver 14E may therefore represent a source of contaminants to LDW sediment.

Chemical Group	Screening Level Exceedances		
	LDW Sediment	Sliver	Adjacent Property
PCBs			
Metals			
PAHs			
Phthalates			
Phenols			
Other SVOCs			

ns = not sampled; shading indicates that the maximum detected concentration is above the relevant screening level.

3.2.4 Data Gaps

Environmental investigations performed at the Duwamish Marine Center have adequately defined the nature and extent of contamination present within sliver 14E. Collection of additional soil, groundwater, or sediment samples does not appear to be needed at this time.

Under the Duwamish Marine Center Agreed Order, the potentially liable persons for the Site (Gilmur Trustees) are required to prepare an RI, a Feasibility Study, and a draft Cleanup Action Plan. The Site boundaries as defined in the Agreed Order include sliver 14E. Ongoing transport of contaminants to LDW sediments, if any, will be addressed as part of the site cleanup activities.

3.3 Sliver 15E (1st Avenue S Bridge)

3.3.1 Location and Description

Sliver 15E is adjacent to 1st Avenue S, located south of the Seattle Department of Transportation (DOT) parcel (5367202410 [2410]) and under the 1st Avenue S bridge (Figures 3 and 4, Figure C-2). The sliver is 1,530 sq ft in size. The Michigan CSO (outfall 2502) is located approximately 100 feet downstream of the sliver.

3.3.2 Adjacent Property Use

The Seattle DOT parcel consists of an unpaved, vegetated area, partially covered by the 1st Avenue S bridge. Outfall 2503 discharges to this parcel; it drains an area of about 16 acres, including city-owned collection systems on approximately 1,500 feet of 1st Avenue S, S Michigan Street, and S Front Street between the Washington State DOT and former Frank's Used Cars properties; and the 1st Avenue S northbound off-ramp. Drainage ditches beneath the 1st Avenue S bridge are also connected to this storm drain. Stormwater passes through the Seattle DOT parcel and sliver 15E, which serves as a biofiltration swale, before discharging to the LDW.

Areas under the bridge are reportedly used by transients and truckers to park vehicles (SAIC 2009b).

3.3.3 Summary of Analytical Data

Sliver 15E

No soil or groundwater samples have been collected within the sliver.

Adjacent Property

No soil or groundwater data were identified for the adjacent Seattle DOT parcel.

LDW Sediments

In 2011, one surface sediment sample (SS2503-A) was collected within 100 feet of sliver 15E (Figure 4). The sample was analyzed for metals and SVOCs. Concentrations were below sediment screening levels.

3.3.4 Data Gaps

A sediment sample collected in 2011 near sliver 15E did not exceed screening levels, but was not analyzed for PCBs. No sampling data were identified for sliver 15E or the adjacent property.

No information on environmental releases in this area has been identified. Based on available information about the parcel adjacent to sliver 15E and sediment within 100 feet of the sliver, no specific data gaps were identified and collection of additional environmental samples does not appear to be warranted at this time.

3.4 Sliver 16E (Dawn Foods)

3.4.1 Location and Description

Sliver 16E is located at approximately RM 2.2 to 2.3 on the east side of the LDW, within the RM 2.3-2.8 East (Seattle Boiler Works to Slip 4) source control area (Figures 5 and C-3). It is adjacent to the Dawn Foods property (FSID 57331171), and is 3,195 sq ft in size. The Dawn Foods property has also been referred to as Bunge Foods and Guimont Parcel.

It is a long, narrow strip of exposed rip-rap consisting of pieces of concrete and asphalt and contains a very limited vegetated zone (SAIC 2008b). The sliver is not fenced off from the Dawn Foods property.

One private storm drain outfall discharges just upstream of sliver 16E. This outfall is covered under the Dawn Foods ISGP, number WAR011560.

3.4.2 Adjacent Property Use

The Dawn Foods property contains one 128,800-sq foot building, a distribution warehouse for food service customers (SAIC 2008b), and a parking lot. The site is paved.

3.4.3 Summary of Analytical Data

Sliver 16E

No soil or groundwater samples have been collected within the boundaries of sliver 16E.

Adjacent Property

No records of environmental investigations or cleanups for the Dawn Foods property were found in the files reviewed (SAIC 2008b; Ecology 2008). No soil or groundwater data have been identified for this property.

To comply with their stormwater permit, Dawn Foods collected a grab sample of solids from the facility's storm drain system on September 16, 2016. The sample was analyzed for metals, PCBs, and TPH-diesel. Results are listed in Ecology's PARIS database; these were compared to the sediment screening levels listed in Table 2. Zinc was detected in the storm drain solids sample at 1,050 mg/kg (EF=2.6). All other analytes were either not detected, or were at concentrations below their respective sediment screening level.

LDW Sediments

Between 2004 and 2005, two surface sediment samples were collected within 100 feet and downstream of the sliver (Table 3). Samples were analyzed for metals, PCBs, SVOCs, and pesticides. Total PCBs exceeded the sediment screening level (0.42 mg/kg, EF=3.2).

3.4.4 Data Gaps

Screening level exceedances associated with sliver 16E are summarized in Table 6. PCB concentrations exceeded the sediment screening level in both sediment samples collected within 100 feet of sliver 16E; these samples were collected in 2004/2005, over 12 years ago. No sampling has been conducted on the sliver or the adjacent property.

No information on historical releases at this property has been identified. Based on current activities at the Dawn Foods property, there are no active potential contaminant sources. Therefore, no specific data gaps were identified and collection of environmental samples does not appear to be warranted.

3.5 Sliver 26E (CleanScapes)

3.5.1 Location and Description

Sliver 26E is located at approximately RM 2.7 on the east side of the LDW, within the RM 2.3-2.8 East (Seattle Boiler Works to Slip 4) source control area (Figure 6, Figure C-4). It is adjacent to the CleanScapes property (FSID 41684823). This facility is also known as Recology CleanScapes and former Puget Sound Truck Lines. The facility occupies two adjacent parcels; sliver 26E is adjacent to the southern parcel, number 2136200670 [0670].

The sliver is 5,796 sq ft in size. The bank consists of engineered riprap with exposed riparian areas, covered with vegetation. The sliver is not fenced off from the CleanScapes facility.

There are two outfalls (2040 and CleanScapes B) located within 100 feet of the sliver; outfall CleanScapes B is just upstream of the sliver 26E, and outfall 2040 (CleanScapes A) is just downstream of the sliver. Both outfalls are covered under the CleanScapes ISGP, number WAR000949.

3.5.2 Adjacent Property Use

CleanScapes provides municipal solid waste collection, recycling, and street maintenance services. The site is currently used to store fleet vehicles and dumpsters (Hart Crowser 2011). Industrial activities at the facility include loading/unloading and outdoor storage of recyclable materials; and vehicle maintenance, washing, and fueling.

In the past, the site was occupied by Puget Sound Truck Lines (truck maintenance and repair) and Phil's Finishing Touch (auto body repair). Seattle Concrete Pipe Company likely occupied parcel 0670 from the late 1940s through the late 1960s. A dip kettle may have been used historically to galvanize corrugated pipe (Hart Crowser 2011).

3.5.3 Summary of Analytical Data

Sliver 26E

In 2011, 11 bank samples were collected from seven locations near the CleanScapes property, along the vertical bank face at depths of approximately 1 to 10 cm (Hart Crowser 2012). Of these 11 samples, six were collected from sliver 26E. Four bank soil samples were collected within 100 feet of sliver 26E and are discussed in the Adjacent Property section below.

Bank material generally consisted of dry sandy gravel and gravelly sand. Cemented fill material was observed along the bank, and other debris including metal, brick, and concrete was observed adjacent to sampling locations within the cemented material. Arsenic exceeded the soil screening level in two of the six samples, with concentrations ranging from 17 to 82 mg/kg (EF=1.4).

Adjacent Property

According to Ecology's Leaking Underground Storage Tank (LUST) list, soil cleanup activities were completed at this facility in September 1995. An NFA determination was issued by Ecology in January 2012 (Ecology 2012a).

Four bank samples were collected in 2011 at the CleanScapes property outside of the sliver boundaries, but within 100 feet (Hart Crowser 2012). Two samples were located upstream of sliver 26E and two samples were downstream. Arsenic was detected in one sample at a concentration of 69 mg/kg, slightly above the screening level for protection of sediment via bank erosion. No other records of environmental investigations or cleanups for this property were identified (SAIC 2008b, Hart Crowser 2011).

To comply with their stormwater permit, CleanScapes collected two grab samples of solids from the facility's storm drain system on April 27, 2016. The samples were analyzed for metals, PCBs, and TPH-diesel. Results are listed in Ecology's PARIS database; these were compared to the sediment screening levels listed in Table 2. Zinc was detected in the storm drain solids sample associated with outfall CleanScapes B at 984 mg/kg (EF=2.4). All other analytes were either not detected, or were at concentrations below their respective sediment screening level.

LDW Sediments

In 2011, two surface sediment samples were collected within 100 feet of sliver 26E, in the vicinity of stormwater outfall 2040 (Figure 6). The samples were analyzed for PCBs, dioxins/furans, metals, and SVOCs. No exceedances of sediment screening levels were identified.

3.5.4 Data Gaps

Screening level exceedances associated with sliver 26E are summarized in Table 6. Sediment samples collected near sliver 26E did not contain any contaminants at concentrations above the sediment screening levels. Bank soil samples collected within and near sliver 26E at the CleanScapes facility contained arsenic at concentrations above the screening level. No other sampling data were identified for the CleanScapes property.

Although arsenic was detected at concentrations above screening levels in bank soils at this facility, no screening level exceedances were identified in nearby sediment. Therefore, no specific data gaps associated with sliver 26E were identified.

3.6 Sliver 28E (Gateway Park North)

3.6.1 Location and Description

Sliver 28E is located at approximately RM 2.8 on the east side of the LDW, within the RM 2.3-2.8 East (Seattle Boiler Works to Slip 4) source control area (Figures 6 and C-4). It is adjacent to Gateway Park North at the terminus of 8th Avenue S. The sliver is 1,377 sq ft in size. It consists of riprap with exposed riparian areas, covered with vegetation (SAIC 2008b). Stormwater outfall 2042 is located within 100 feet of the sliver.

3.6.2 Adjacent Property Use

Gateway Park North is located at 7699 8th Avenue S. It is a small park with trees and other vegetation and a bench for viewing the LDW. To the north is the former water intake structure for the Georgetown Steam Plant; to the south is the former Crowley Marine Services site.

3.6.3 Summary of Analytical Data

Sliver 28E

No soil or groundwater data have been collected within the sliver boundaries.

Adjacent Property

No records of environmental investigations or cleanups for the Gateway Park North area were identified in the files reviewed.

LDW Sediments

One surface sediment sample was collected within 100 feet of sliver 28E (Figure 6). The sample was analyzed for metals, PCBs, and SVOCs. All analytes were either not detected or present at concentrations below their respective sediment screening levels.

3.6.4 Data Gaps

Based on available information on the current and historical use of the adjacent property, no data gaps were identified for sliver 28E.

3.7 Slivers 29E, 30E, and 31E (Boeing Plant 2)

3.7.1 Location and Description

Slivers 29E, 30E, and 31E are located between RM 2.9 and 3.6 on the east side of the LDW, within the RM 2.8-3.7 East (EAA4: Boeing Plant 2/Jorgensen Forge) source control area (Figures 6 through 8 and C-5 to C-7).

- Sliver 29E is 19,836 sq ft in size, and is adjacent to the north shoreline area of Boeing Plant 2 (King County parcel 0022000005a [0005a]) at RM 2.9-3.0.
- Sliver 30E is 1,656 sq ft in size, and is adjacent to Boeing Plant 2 just north of the 16th Avenue S bridge (parcel number 2185000005b [0005b]) at RM 3.2-3.3.
- Sliver 31E is 7,659 sq ft in size, and is adjacent to the south shoreline area of Boeing Plant 2 (parcel number 0001600020 [0020]) at RM 3.5-3.6.

Between September 2012 and March 2015, the Duwamish Sediment Other Area (DSOA) and Southwest Bank Corrective Measure were conducted along the Boeing Plant 2 shoreline; remediation activities are summarized in Section 3.7.2 below.

As part of the remediation activities, an embayment for habitat protection was created along the north shoreline (sliver 29E); after excavation, this area was backfilled with approximately 2 feet of clean material to provide a suitable substrate for shoreline restoration. The area was vegetated with marsh and riparian plantings, and creates off-channel and riparian habitat (Figure C-5).

Near sliver 30E, dredging of sediments was conducted as described below; no habitat restoration was performed in this area (Figure C-6).

In the south shoreline area (sliver 31E), all over-water buildings and associated pilings, riprap foundations, and bulkheaded areas were removed. Some piling clusters were left in place as necessary to preserve stability of the soils. After excavation, the south shoreline area was backfilled with clean material to provide stable slopes and suitable substrates for shoreline restoration. A portion of the shoreline area was vegetated with marsh and riparian plantings, and large woody debris was placed along the shoreline (Figure C-7).

The storm drain system was reconfigured in conjunction with the remediation of Boeing Plant 2. Currently, there are no outfalls within 100 feet of sliver 29E. Outfall 3032 (Tukwila's 16th Avenue S SD) is located within sliver 30E, and the newly constructed South Basin outfall and reconstructed outfall 2056 (also referred to as Outfall Z) are located within 100 feet of sliver 31E. Boeing Plant 2 is covered under the ISGP, permit number WAR000482.

3.7.2 Adjacent Property Use

Boeing Plant 2 is located on the east bank of the LDW in the cities of Seattle and Tukwila. Historically, Plant 2 specialized in manufacturing aluminum alloy, steel alloy, and titanium alloy parts for airplanes. This facility was built on farmland in the late 1930s, and became a significant manufacturing facility during World War II. Since 1936, Boeing has manufactured airplane parts at Plant 2, using a wide range of hazardous chemicals including heavy metals (chrome, zinc, copper, cadmium, and silver); cyanide; mineral acids and bases; petroleum products; PCBs; and chlorinated solvents, such as trichloroethylene. In recent years, activities at the facility shifted toward research and administration (Ecology 2007b).

Boeing recently completed Resource Conservation and Recovery Act (RCRA) corrective actions under an Administrative Order on Consent issued to Boeing in 1994 by EPA. This included corrective actions for both the upland area and the sediment/bank areas.

In 2011, EPA issued its final decision and response to comments for Plant 2 sediments, containing the final remedy for the DSOA and Southwest Bank area. Dredging and shoreline excavation were completed over three construction seasons between September 2012 and March 2015. A brief summary of activities completed during each of the seasons is provided below (AMEC 2016):

- Between January 2012 and March 2013, the first season of dredging was conducted and included shoreline excavation at the North Shoreline Area for habitat restoration purposes. This work was the interim grading for the creation of an embayment. Excavation of soils back of the shoreline was completed to an intermediate elevation of approximately 12 to 13 feet MLLW (AMEC 2013).
- Between September 2012 and October 2013, shoreline excavation and backfilling of the South Shoreline Area and Southwest Bank, and the North Shoreline habitat construction were completed.[11]
- Between January and March 2014, the second season of dredging was conducted.[12]
- Between August 2014 and March 2015, the third and final dredging construction season was completed and included Southwest Bank shoreline excavation and backfilling, in-water construction, construction of permanent outfalls, and sediment dredging (AMEC 2016).

[11] These activities are summarized in Shoreline Completion Report, Duwamish Sediment Other Area and Southwest Bank Corrective Measure and Habitat Project, Boeing Plant 2, Seattle/Tukwila, Washington. Prepared for The Boeing Company, Seattle, Washington. AMEC Environment & Infrastructure, Inc. and Floyd|Snider, Inc. May 2014. Report was not available for review.

[12] These activities are summarized in Dredging Construction Season 2 (January to March 2014) Completion Report, Duwamish Sediment Other Area and Southwest Bank Corrective Measure and Habitat Project, Boeing Plant 2, Seattle/Tukwila, Washington. Prepared for The Boeing Company, Seattle, Washington. Dalton, Olmsted & Fuglevand, Inc., AMEC Environment & Infrastructure, Inc., and Floyd|Snider, Inc. November 2014. Report was not available for review.

3.7.3 Summary of Analytical Data

Slivers and Adjacent Property

In response to the 1994 Administrative Order on Consent, Boeing collected and analyzed thousands of soil and groundwater samples at Boeing Plant 2. Chemicals detected in soil and groundwater included volatile organic compounds (VOCs), SVOCs, PCBs, petroleum hydrocarbons, and metals. Because of the extensive remediation conducted at this property, soil and groundwater data have not been compiled. No data collected after completion of the remedial action were available for review.

The Boeing Plant 2 storm drain system, which contained high concentrations of PCBs, was remediated and reconfigured as part of the cleanup at the facility. To comply with their stormwater permit, Boeing is required to collect grab samples of solids from the facility's storm drain system. At the time this report was prepared, no solids sampling results were available in Ecology's PARIS database.

LDW Sediments

Year 0 sediment quality monitoring was conducted immediately after construction of the DSOA and Southwest Bank Corrective Measure and Habitat Project (AMEC 2016). Sediment samples were collected for chemical analysis from 36 sampling locations on the post construction surface. All samples were analyzed for the SMS analytes, which include metals, SVOCs, and PCBs. Selected samples were also analyzed for dioxin/furans (AMEC 2016). Concentrations in all samples collected within 100 feet of slivers 29E, 30E, and 31E were below sediment screening levels.

3.7.4 Data Gaps

Based on the completion of corrective measures at Boeing Plant 2, no data gaps were identified for slivers 29E, 30E, and 31E.

3.8 Sliver 35E (Jorgensen Forge/Boeing Isaacson-Thompson)

3.8.1 Location and Description

Sliver 35E is located at RM 3.6 to 3.8 on the east side of the LDW, within both the RM 2.8-3.7 East (EAA-4: Boeing Plant 2/Jorgensen Forge) and RM 3.7-3.9 East (EAA-6: Boeing Isaacson/Central KCIA) source control areas. It is 39,330 sq ft in size, and is adjacent to the Jorgensen Forge and Boeing Isaacson/Thompson properties (Figure 8 and C-8).

The northern part of sliver 35E, adjacent to the Jorgensen Forge property, was reconfigured in 2014. The 2014 sediment removal activities and bank reconfiguration activities are discussed below.

The southern part of sliver 35E is adjacent to the Boeing Isaacson/Thompson property. The sliver is separated from the Boeing Isaacson/Thompson property by a fence and from the river by a wooden bulkhead. Most of the area of the sliver is covered with vegetation (SAIC 2008c).

There are five stormwater outfalls (2065, 2064, 2072, 2062, and 2061) located within 100 feet of sliver 35E. Outfalls 2064, 2065, and 2072 are covered under the ISGP for Jorgensen Forge, number WAR003231. Outfall 2061 is covered under the ISGP for Boeing Thompson, number WAR000148. Outfall 2062 is King County's KCIA SD#2, which drains approximately 237 acres of the central portion of King County International Airport (KCIA), including portions of the flightline, airport and tenant deicing operations, and tenant fueling operations. It also serves as an emergency overflow (EOF) for Seattle Pump Station 78. It is covered under the KCIA ISGP, number WAR000343.

3.8.2 Adjacent Property Use

Jorgensen Forge

Jorgensen Forge manufactures precision-machined forgings from material grades, including carbon and low-alloy steels, duplex stainless grades, aluminum alloys, titanium alloys, and nickel-base alloys for the commercial aircraft, aerospace, energy (i.e., oil exploration), power generation, automotive, and shipbuilding industries (Ecology 2007b). Smelting activities did not and do not occur at the Jorgensen Forge site. Plant operations are housed in one large building, which contains melting, forging, heat-treating, and machining operations (Farallon 2006).

Under a 2007 Agreed Order with Ecology (DE-4127), Jorgensen Forge conducted a source control evaluation to determine if the site is an ongoing source of contamination to LDW sediments. The evaluation documented PCBs and metals in upland soil at concentrations above criteria in two areas of the site. An amendment to the Agreed Order required Jorgensen Forge to excavate and remove PCB-contaminated soils from the two upland areas.

In 2013, under an Administrative Settlement Agreement and Order on Consent with EPA, the Earle M. Jorgensen Company (former owner and operator at the site) agreed to remove contaminated sediments and associated bank soils in a portion of the LDW adjacent to the property. The remedy also included excavation of the shoreline bank to remove affected bank materials and overlying debris, followed by the placement of overlying clean fill, armor, and habitat-friendly materials (SoundEarth 2013b).

A Non-Time Critical Removal Action (NTCRA) was completed in September 2014. This included the removal and offsite disposal of contaminated sediments and associated shoreline bank soils, and placement of clean backfill and shoreline containment. Dredging was performed within the sheetpile wall containment barrier and within the remainder of the remedial action area outside of the barrier. Approximately 570 linear feet of shoreline bank was excavated, extending from the downriver side of the sheetpile wall to approximately the Jorgensen Forge/Boeing Plant 2 property line (Anchor 2015b).

Following shoreline bank excavation, a 1.5-foot layer of filter material amended with 0.5 percent granular activated carbon was placed on top of the reconfigured shoreline bank to prevent migration of fine soil particles, distribute the weight of the overlying armor material, provide more uniform settlement, and permit relief of hydrostatic pressure within the underlying soils and sediments. In addition, 2.5 feet of armor material was placed on top of the filter material to resist erosive forces (e.g., vessel-generated waves and river currents). Approximately 6 inches of rounded habitat material was placed on top of the armor material to help fill the armor material interstitial spaces and promote better habitat quality. The purpose of the shoreline slope

containment was to contain the underlying reconfigured shoreline bank soils and sediments and stabilize the bank from erosion.

In-water backfill material was placed to return the in-water elevations within the remedial action boundary to approximate pre-construction elevations, with the exception of the area bordering the eastern navigation channel, where less material was placed to minimize filling of the channel above the authorized navigation elevation.

Because the post-construction sampling data indicated that concentrations exceed the cleanup goals, EPA is requiring the Earle M. Jorgensen Company to evaluate additional cleanup work to address the sediment contamination (USEPA 2017).

Boeing Isaacson-Thompson

The Boeing Isaacson/Thompson property consists of two adjacent properties owned by the Boeing Company: the Isaacson property (parcel 0014) on the north, and the Thompson property (parcel 0033) on the south (Figure 8). This area was a former tidal marsh area that was eliminated when the Duwamish River was channelized in the early 1900s. A portion of the former river channel formed Slip 5, located between the two parcels, which was later filled between the 1930s and the mid-1960s. The former Isaacson property (adjacent to sliver 35E) is currently vacant. It is occasionally used by Boeing for temporary trailer and container storage and vehicle parking. Boeing is currently evaluating options for industrial uses of the Isaacson property (Ecology 2009b). Boeing ceased active operations at the Thompson property in December 2008 and the property was used only for storage for several years. Boeing's P-8 program operates at the Thompson property, and building modifications to expand operations were conducted in 2011 and 2012 (Landau 2014).

A Remedial Investigation was completed at the Boeing Isaacson-Thompson property in 2014 under Agreed Order DE-7088 between Boeing and Ecology (Landau 2014).

3.8.3 Summary of Analytical Data

Sliver 35E – Northern Portion

An environmental investigation was performed at the Jorgensen Forge site in 2004/2005. Samples were collected both within the sliver and on the adjacent property. Samples were analyzed for PCBs and metals. Fill samples were collected from seven direct-push soil borings (SB1 through SB7) located along the top of the bank (Figure 9). Borings SB3, SB4, SB6, and SB7 are located within sliver 35E; SB2 and SB5 are on the Jorgensen Forge property. In addition, eight fill samples (SS1 through SS8) were collected from the face of the shoreline bank along the LDW; SS1 through SS6 are located on sliver 35E. The samples were collected from locations approximately midway between the MHHW elevation of the LDW and the elevation of the top of the slope east of each sample location. Six grab samples were also collected from each of the two debris piles located at the toe of the bank (Farallon 2006).

The highest exceedances of screening levels were found in samples collected at SB3 and SB4; the areas around these two borings were excavated in 2013, and additional remediation in this area was performed in 2013 (see below). Data from areas around SB3 and SB4 that were

excavated in 2013 are not included in Table 4.[13] PCBs, arsenic, cadmium, chromium, copper, lead, mercury, nickel, and zinc exceeded the soil screening levels in one or more soil samples collected on the northern portion of sliver 35E in 2004. The highest exceedances in the northern sliver 35E soil samples were for total PCBs (4.5 mg/kg, EF=35), lead (5,010 mg/kg, EF=11), chromium (3,200 mg/kg, EF=12), and zinc (2,700 mg/kg, EF=6.6).

Based on results of the 2004/2005 investigation, an upland interim action was conducted at the Jorgensen Forge site in 2013; as described above, the purpose of the interim action was to remove PCB-contaminated soils from two upland areas of the site (near 2005 soil borings SB3 and SB4). These excavation areas straddle the boundary between the sliver and the adjacent property. Side wall and base samples were collected from both areas after excavation. Total PCBs and chromium exceeded screening levels in at least one sample (Table 4; SoundEarth 2013). The highest exceedances were for PCBs (4.9 mg/kg, EF=38).

During the 2014 NTCRA, seven z-layer surface soil samples were collected after excavation and prior to shoreline bank armor placement. Samples were analyzed for PCBs, metals, and SVOCs. Three of these samples (PEB-4, PEB-5, and PEB-6) are located within sliver 35E. PCBs, chromium, and lead exceeded the soil screening level. The highest exceedances were for total PCBs (11 mg/kg, EF=85) and lead (6,600 mg/kg, EF=15).

Sliver 35E – Southern Portion

As part of the RI for the Boeing Isaacson-Thompson Site (Landau 2014), four soil borings (PS-SB-1 through PS-SB-4) were advanced to depths of approximately 20 feet below ground surface (bgs) along the eastern portion of sliver 35E in August 2012 (Figure 9). Four soil samples were collected from each of the borings and groundwater samples were collected from temporary wells. The soil samples were analyzed for metals, and groundwater samples were analyzed for total and dissolved metals (Landau 2014). Arsenic, cadmium, chromium, lead, mercury, and zinc exceeded soil screening levels in one or more soil samples (Table 4). The highest exceedances were observed for chromium (1,810 mg/kg, EF=7.0), zinc (2,650 mg/kg, EF=6.5), and arsenic (262 mg/kg, EF=4.6).

In groundwater, arsenic, chromium, copper, and lead exceeded the groundwater screening levels (Table 5). The highest exceedance was for chromium (40 µg/L, EF=670). Soil borings PS-SB-1, PS-SB-3, and PS-SB-4 were advanced to the west (downgradient) of monitoring wells MW-20, MW-19, and PZ-7, respectively, located on the Boeing Isaacson-Thompson site. Groundwater sampling results from 2011 and 2012 (not tabulated) are consistent with the August 2012 groundwater sampling results in Table 5 (Landau 2014).

In May 2015, Ecology conducted a soil investigation on the southern portion of sliver 35E (Kennedy/Jenks 2015). Ten soil borings (SDP-01 through SDP-10) were advanced to maximum depths of 25 feet bgs (Figure 9); 20 of the soil samples were analyzed for PAHs, metals, PCBs, and TPH; a subset of samples was analyzed for VOCs. Metals, PAHs, and PCBs were detected at concentrations exceeding the soil screening levels. The highest exceedances were for zinc (2,650 mg/kg, EF=6.5). Groundwater samples were not collected from the 2015 borings.

[13] Other relevant data collected in 2004 and confirmation samples from the 2013 excavation are included in Table 4. Some of these sampling locations may be within the Removal Action Boundary of the 2014 NTCRA, however the extent of overlap could not be determined without additional geographic information system (GIS) analysis.

Seep samples were collected at location SEEP-1 (Figure 9) in 2012. Chromium, mercury, and PAHs were detected at concentrations above groundwater screening levels. The highest exceedances were for chromium (4.3 µg/L, EF=72) and indeno(1,2,3-cd)pyrene (0.061 µg/L, EF=6.7).

Adjacent Property

As described above, soil samples were collected on the Jorgensen Forge property adjacent to the northern portion of sliver 35E in 2004 and in 2013, following an upland interim action (Figure 9). Samples with screening level exceedances are listed in Table 4. PCBs and chromium exceeded the soil screening levels in these samples; the highest exceedances were for total PCBs (0.67 mg/kg, EF=5.1). In addition, one z-layer sample collected in 2014 (PEB-3) is adjacent to the sliver; chromium was detected at 629 mg/kg in this sample, above the soil screening level of 260 mg/kg.

To comply with their stormwater permit, Jorgensen Forge collected a grab sample of solids from the facility's storm drain system on March 30, 2016. The sample was analyzed for metals, PCBs, total PAHs, and TPH-diesel. Cadmium, chromium, copper, lead, mercury, and zinc exceeded the sediment screening levels; the highest exceedances were for zinc (7,400 mg/kg, EF=18) and chromium (4,010 mg/kg, EF=15). In addition, total PAHs exceeded both the HPAH and LPAH sediment screening levels.

Soil and groundwater samples were collected on the Boeing Isaacson-Thompson property near the southern portion of sliver 35E as part of the 2014 Remedial Investigation (Tables 4 and 5). In soil, arsenic, cadmium, chromium, lead, and zinc were detected at concentrations above screening levels; the highest exceedances were for zinc (2,350 mg/kg, EF=5.7). In groundwater, arsenic, chromium, copper, mercury, PAHs, and PCBs exceeded the screening levels; the highest exceedances in groundwater were for chromium (15 µg/L, EF=242) and mercury (13 µg/L, EF=6.4).

Boeing collected a grab storm drain solids sample in the portion of the facility's storm drain system that discharges to outfall 2061 on August 9, 2016. Cadmium, zinc, and total PCBs exceeded the sediment screening levels.

King County collected a grab sample in a portion of the KCIA storm drain system that discharges to outfall 2062 on April 28, 2015. The sample was analyzed for metals, PCBs, and TPH-diesel. None of these analytes exceeded the sediment screening levels.

LDW Sediments

The sediments near the northern part of sliver 35E were remediated as part of the NTCRA performed by Jorgensen Forge. Six z-layer sediment samples were collected in this area (PDS-1 through PDS-6); PCBs (0.96 mg/kg, EF=7.4) exceeded the sediment screening level.

Sediment samples were collected within 100 feet of the southern portion of sliver 35E, near the Boeing Isaacson-Thompson property, between 2004 and 2012 (Figure 9). Dioxins, PCBs, PAHs, phthalates, arsenic, and zinc were detected at concentrations above screening levels. The highest exceedances, measured in 2003 to 2005, were for total PCBs (110 mg/kg, EF=850) and arsenic (1,100 mg/kg, EF=19). More recent samples, collected in 2012, found somewhat lower concentrations (PCBs to 0.50 mg/kg, EF=3.8, and arsenic to 680 mg/kg, EF=12).

Summary of Screening Level Exceedances

Screening level exceedances associated with sliver 35E are summarized in Table 6. Based on the data reviewed for this report, several chemicals present in sediment within 100 feet of sliver 35E at concentrations above screening levels are also present in soil and/or groundwater on sliver 35E and the adjacent properties. These include PCBs, arsenic, zinc, various HPAHs, and total cPAH toxic equivalence quotient (TEQ). Contaminants associated with sliver 35E may therefore represent a source of contaminants to LDW sediment.

Chemical Group	Screening Level Exceedances		
	LDW Sediment	Sliver	Adjacent Property
PCBs			
Dioxins/furans		ns	ns
Metals			
PAHs			
Phthalates			

ns = not sampled; shading indicates that the maximum detected concentration is above the relevant screening level.

3.8.4 Data Gaps

Dioxins/furans are present in sediment near sliver 35E at a concentration above the screening level; no soil or groundwater samples on sliver 35E or the adjacent properties (within 100 feet of the sliver) have been analyzed for dioxins/furans.

Both Jorgensen Forge and Boeing Isaacson-Thompson are active cleanup sites with investigations and/or remediation in process. Therefore, no additional data gaps are currently identified for sliver 35E.

3.9 Sliver 37E (Boeing Developmental Center)

3.9.1 Location and Description

Sliver 37E is located at about RM 4.4 to 4.6 on the east side of the LDW, within the RM 4.3-4.9 East (Boeing Developmental Center) source control area (Figures 10, C-9, and C-10). The sliver is adjacent to the central portion of the Boeing Developmental Center (BDC) property (FSID 2101), parcels 5624200990 [0990] and 0003400018 [0018]. The northernmost portion of the sliver is adjacent to parcel 5624200992 [0992], which is a Seattle City Light right-of-way that runs through the BDC property.

The sliver is 36,540 sq ft in size and is riprapped with up to 12 vertical feet of rock. There is a narrow strip of vegetation along most of the shoreline in this area (SAIC 2010). The sliver is fenced off from the BDC property. There are four 36-inch concrete private outfalls located within 100 feet of the sliver (2085, 2087, 2088, and 2090) and one stormwater outfall (BDC-1) of unknown size.

3.9.2 Adjacent Property Use

Historical and current commercial and industrial operations in the vicinity of BDC include a commercial airport, chemical manufacturing, a military flight center, a museum, and an auto

wrecking storage yard. The BDC is primarily an aircraft and aerospace research and development complex. Operations include manufacturing of airplanes and missiles, which involves machining of metal aircraft hardware, electroplating, chemical milling, conversion coating, painting, parts cleaning, and assembly (SAIC 2010).

An Agreed Order (Docket No. 15600) was issued to The Boeing Company on January 9, 2018, which requires Boeing to conduct additional monitoring of stormwater and storm drain solids for PCBs and diesel-range petroleum hydrocarbons and to accelerate consideration of advanced stormwater treatment at the BDC site if benchmark exceedances meet the "trigger" conditions specified in the Order (Ecology 2018a). In March 2018, Ecology issued a preliminary determination of liability to Boeing for release of hazardous substances under MTCA related to chlorinated VOCs and arsenic in groundwater and PCBs in storm drain solids at the BDC property (Ecology 2018b).

3.9.3 Summary of Analytical Data

Sliver 37E

No soil or groundwater samples have been collected within the boundaries of sliver 37E.

Adjacent Property

No soil or groundwater samples have been collected in close proximity to the sliver on the BDC property.

To comply with their stormwater permit (ISGP WAR000146), Boeing collected grab samples of solids from the portions of the facility's storm drain system that drains to Outfall 2088 (DC12) and 2090 (DC9) on June 21, 2016. The samples were analyzed for metals, PCBs, total PAHs, and TPH-diesel. Both samples exceeded the sediment screening level for PCBs.

LDW Sediments

Between 2004 and 2011, seven surface sediment samples were collected within 100 feet of sliver 37E (Figure 10). PCBs and benzyl alcohol were present at concentrations above the sediment screening level (Table 3). The highest exceedances were for benzyl alcohol (0.36 mg/kg, EF=6.3).

3.9.4 Data Gaps

Screening level exceedances associated with sliver 37E are summarized in Table 6. PCBs and benzyl alcohol are present in surface sediment near sliver 37E at concentrations above screening levels. No soil or groundwater samples have been collected on the sliver or on the adjacent BDC property within 100 feet of the sliver. This represents a potential data gap. Collection of bank soil samples in this area is recommended, if feasible, to assess whether sliver 37E or the adjacent BDC property are contributing to LDW sediment contamination via bank erosion. In addition, soil/groundwater sampling on the BDC property may be warranted.

Ecology recently issued a preliminary determination of liability for releases of hazardous substances at the BDC property and an Agreed Order related to the BDC storm drain system;

additional relevant data will likely be collected at this property in the near future. Therefore, no specific data gaps are identified at this time.

4.0 Slivers on West Side of LDW

Slivers on the west side of the LDW that are over 1,000 sq ft in area were grouped as follows:

- Sliver 2W (Terminal 103)
- Slivers 41W and 42W (Alaska Marine Lines)
- Slivers 44W and 45W (Duwamish Shipyard)
- Slivers 84W and 86W (Terminal 115 - Seafreeze)
- Slivers 91W and 93W (Boyer Towing)
- Slivers 95W, 96W, 99W, 100W (Riverside Drive – Central)
- Sliver 102W (Riverside Drive – South)
- Sliver 103W (South Park Bridge)
- Sliver 104W (South Park Marina/Terminal 117/Boeing South Park)
- Slivers 108W and 109W (Turning Basin 3)
- Slivers 112W and 117W (Boeing Parking Lot)

These are discussed in Sections 4.1 through 4.14 below.

4.1 Sliver 2W (Terminal 103)

4.1.1 Location and Description

Sliver 2W is located at approximately RM 0 on the west side of the LDW, within the RM 0.0-1.0 West (Spokane Street to Kellogg Island) source control area (Figure 1 and C-11). It is adjacent to Port of Seattle Terminal 103, parcel 7666703440 [3440]. The current operator at this property is CalPortland Seattle Aggregate Yard (FSID 7754458).

Sliver 2W has a small dock structure but also appears to have a small extension of land under and adjacent to this dock. This is particularly apparent in the Washington State Coastal Atlas shoreline photo from September 2000.[14] This sliver is 2,115 sq ft in size; it is adjacent to a 50-foot long loading ramp which is used to upload bulk construction materials, such as sand and gravel, from barges. There is no fence between the upland property and sliver 2W. Six dolphins are available at the shoreline of the Terminal 103 property for barge moorage. According to the Spokane Street to Kellogg Island SCAP, the shoreline in this area is constructed with metal sheetwall (Ecology 2013).

A drainage ditch, located on the north side of the rock conveyer at sliver 2W, discharges to the LDW via outfall 8134 (Figure 1). Stormwater flows through a French drain channel to a metal sheetwall and weir at the eastern end of the channel, which provides detention/retention (CalPortland 2009). The outfall is constructed of armor rock. The Seattle Aggregate Yard is covered under the ISGP, permit number WAR002227 (Glacier Northwest).

[14] https://fortress.wa.gov/ecy/gisresources/shoreline_photos/yr2000/fullsize/000925_130520_lg.jpg

4.1.2 Adjacent Property Use

The Terminal 103 property was developed around 1920, and has been used for the storage and maintenance of construction-related equipment since 1936 (SAIC 2012a).

The CalPortland Seattle Aggregate Yard is also known as Northwest Aggregates. Aggregate is stockpiled at the yard and stored in bins after it is unloaded from barges moored at the terminal. Front end loaders are used to transport aggregate from the barges to the conveyer system and to load purchased aggregate into trucks. Small quantities of lubricating oils and grease are stored at the facility. Equipment maintenance and fueling operations are performed by outside contractors. A vehicle wheel wash is used at the entrance to the facility (SAIC 2012a).

4.1.3 Summary of Analytical Data

Sliver 2W

No soil or groundwater samples have been collected within the sliver boundaries.

Adjacent Property

Soil samples were collected in 1996 at several locations at the Seattle Aggregate Yard as part of a Phase 2 Environmental Site Assessment (GeoEngineers 1997, as cited in SAIC 2012a). Samples were analyzed for metals and petroleum hydrocarbons. None of the detected analytes exceeded soil screening levels. No groundwater samples have been identified at the adjacent property.

To comply with their stormwater permit, CalPortland collected a grab sample of solids from the facility's storm drain system on July 21, 2016. The sample was analyzed for metals, PCBs, and TPH-diesel. Results are listed in Ecology's PARIS database; these were compared to the sediment screening levels in Table 2. All analytes were either not detected, or were at concentrations below their respective sediment screening level.

LDW Sediments

No surface sediment samples have been collected since the year 2000 within 100 feet of sliver 2W.

4.1.4 Data Gaps

No soil, groundwater, or surface sediment samples have been collected at or near sliver 2W since before the year 2000. A metal sheetwall is present at the sliver shoreline, protecting bank soil from erosion and leaching. There is insufficient information to assess whether contamination may be present at the sliver; however, the sliver is quite small (2,115 sq ft) and the sheetwall minimizes the potential for bank erosion. No specific data gaps were identified.

4.2 Slivers 41W and 42W (Alaska Marine Lines)

4.2.1 Location and Description

Slivers 41W and 42W are located at approximately RM 1.2 to 1.3 on the west side of the LDW, within the RM 1.3-1.6 West (Glacier Bay) source control area (Figure 2 and Figure C-12). These slivers are adjacent to the Alaska Marine Lines property (parcel 1924049026 [9026], FSID 88255195).

Sliver 41W is 1,395 sq ft in size, and sliver 42W is 6,849 sq ft in size. The slivers are under permanent wharfs that are used for site operations. Four outfalls (5003, 5004, 5005, and 2137) are located within 100 feet of sliver 41W.

4.2.2 Adjacent Property Use

The main operations at the Alaska Marine Lines property include loading of barges and transportation/storage of containerized freight cargo. Additionally, site facilities include an onsite fueling station, truck scales, vehicle washing and steam cleaning area, and dry and liquid cargo storage, including storage of dangerous and hazardous wastes. The entire surface of the site is sealed with an impervious surface (SAIC 2007a).

4.2.3 Summary of Analytical Data

Slivers 41W and 42W

No samples have been collected within the sliver boundaries.

Adjacent Property

An independent remedial action to remove petroleum-contaminated soils was conducted at the Alaska Marine Lines property in 1993 (Hart Crowser 1994). Confirmation soil samples were collected after the excavation of approximately 650 cubic yards of petroleum-contaminated soil. Two confirmation soil samples contained PAHs above the soil screening levels for protection of sediment via bank erosion.

Additional site assessment activities were subsequently conducted in 1994, included the installation of three soil borings, collection of eight soil samples, and conversion of one soil boring to a groundwater monitoring well. Groundwater sampling was conducted twice. Samples were analyzed for petroleum hydrocarbons and PAHs. Soil sample B1-S2 (collected at 7 to 8.5 feet bgs) contained eight individual PAH compounds at concentrations above the soil screening levels; total cPAH TEQ was 8.4 mg/kg (EF=8.4). Soil sample MW5, at a depth of 5 to 6.5 feet bgs, contained cPAHs at a concentration of 1.6 mg/kg TEQ (EF=1.6). A groundwater sample collected from well MW-4 contained fluorene at a concentration of 4.8 µg/L (EF=9). No information about samples collected since 2000, if any, was available at the time this report was prepared.

Outfall 5003 is covered under Chemithon's ISGP, number WAR000033. Chemithon is located just to the north of the Alaska Marine Lines property. To comply with their stormwater permit, Chemithon collected a grab sample of solids from the facility's storm drain system on September 8, 2016. The sample was analyzed for metals, PCBs, and TPH-diesel. Results are listed in

Ecology's PARIS database; these were compared to the sediment screening levels listed in Table 2. All analytes were at concentrations below their respective screening level.

Outfall 5005 is covered under the Alaska Marine Lines ISGP, number WAR001365. No storm drain solids sampling data for this permit was available at the time this report was prepared.

LDW Sediments

Four surface sediment samples were collected within 100 feet of sliver 41W, and three additional surface sediment samples were collected within 100 feet of sliver 42W between 2005 and 2011. One or more samples exceeded the sediment screening levels for PCBs, metals (arsenic, copper, and zinc), HPAHs, total cPAHs, benzyl alcohol, and bis(2-ethylhexyl) phthalate (Table 3).

The highest exceedances were for total PCBs (0.75 mg/kg, EF=5.8).

4.2.4 Data Gaps

Screening level exceedances associated with slivers 41W and 42W are summarized in Table 6. Given the locations of these slivers (under permanent piers), and some question regarding whether there is actually land under the piers, no specific data gaps were identified. Sampling of these slivers would not be possible in any case. Sediments in this area contain a variety of chemicals at concentrations moderately above screening levels (EFs<10). The source of these contaminants is unclear based on the review presented above.

4.3 Slivers 44W and 45W (Duwamish Shipyard)

4.3.1 Location and Description

Slivers 44W and 45W are located at approximately RM 1.3 to 1.4 on the west side of the LDW, within the RM 1.3-1.6 West (Glacier Bay) source control area (Figure 2 and Figure C-13). These slivers are adjacent to the former Duwamish Shipyard property (parcel 1924049028 [9028], FSID 2071); the northern portion of sliver 44W is adjacent to the Alaska Marine Lines property (parcel 1924049026 [9026], FSID 88255195).

Sliver 44W is 4,374 sq ft in size; it is located under a permanent wooden wharf. Sliver 45W is 2,547 sq ft in size, and is located under a permanent timber dock. Two active outfalls (AML-DP2 and AML-DP3) are located within 100 feet of sliver 44W.

The shoreline along the Duwamish Shipyard site has been modified with construction of bulkhead structures. Armoring has been placed along other portions of the shoreline in the northern and southern areas of the property. In-water and overwater structures are located along the shoreline of the waterway, including the shipyard pier, several mooring dolphins, and a float (Anchor 2015a).

4.3.2 Adjacent Property Use

The Duwamish Shipyard facility specialized in repair and maintenance of floating vessels and equipment. Services included machine and electrical work, carpentry, steel fabrication, pipe fitting, sandblasting, pressure washing, and painting. The facility included two dry docks and a graving dock; these have not been used since early 2007 (Ecology 2007a). The property is

currently being used for container storage and truck access by Alaska Marine Lines. The berthing areas are currently being used by Alaska Marine Lines for barge moorage and vessel layup to support vessel loading and unloading operations conducted at the Alaska Marine Lines property (Anchor 2015a).

4.3.3 Summary of Analytical Data

Sliver

Sampling has been conducted within the boundaries of slivers 44W and 45W during the Phase 2 Supplemental RI at the Duwamish Shipyard site, under Agreed Order DE-6735.

Soil samples were collected at two locations, DSI-GP-12 (July 2009) and DSIP2-08 (November 2013), within the sliver 44W boundary (Figure 2). Two samples were collected from location DSI-GP-12 at depths between 1-3.5 feet bgs and 5-10 feet bgs. Metals (lead and mercury) and hexachlorobenzene were detected at concentrations above the soil screening levels (Table 4). Four samples were collected from location DSIP2-08 at depths of 1-3 feet bgs, 3.5-5.5 feet bgs, 6-8 feet bgs, and 8.5-10.5 feet bgs. Metals (lead and zinc), PAHs (fluoranthene, pyrene, total cPAH TEQ), and n-nitrosodiphenylamine were detected at concentrations above the soil screening levels in these samples. The highest screening level exceedances in soil were for lead (6,760 mg/kg, EF=15) and hexachlorobenzene (0.30 mg/kg, EF=14).

Groundwater samples were collected from location DSIP2-08 during four sampling events, between January 2014 and January 2015. Chromium (total and dissolved) was detected above the groundwater screening level at concentrations ranging between 17 and 25 µg/L (EF = 283 to 417) in all groundwater samples (Table 5).

A reconnaissance survey was performed during low tide conditions in July 2013 to check for seeps along the eastern shoreline areas of the Duwamish Shipyard site. Several seeps were identified during the low tide inspection and appeared suitable for seep water sampling. Three seep samples (DSIP2-SP-01 and DSIP2-SP-02 in sliver 44W, and DSIP2-SP-03 in sliver 45W) were collected and analyzed for total and dissolved metals, VOCs, PAHs, other SVOCs, PCB Aroclors, TPH, dioxins/furans, tributyltin, hexavalent chromium, and pesticides. Sample DSIP2-SP-03, which is in sliver 45W, contained total chromium (4.0 µg/L, EF=67) at a concentration above the groundwater screening level.

Adjacent Property

Soil samples DSI-GP-13 (July 2016) and DSI-09 (September 2006) were collected in close proximity to sliver 44W on the adjacent property. Two samples were collected from location DSI-GP-13 at depths between 1-3.5 feet bgs and 5-7.5 feet bgs. Metals (cadmium, copper, lead, zinc), and PAHs (2-methylnaphthalene and fluorene) exceeded the soil screening levels (Table 4). The highest exceedances were for zinc (5,840 mg/kg, EF=14) and lead (4,940 mg/kg, EF=11).

One groundwater sample was collected from location DSI-09, adjacent to sliver 44W, in September 2006. Copper (34 µg/L, EF=2.5) and lead (19 µg/L, EF=2.9) were present at concentrations above the groundwater screening level (Table 5).

Soil sample DSI-GP-16 (July 2016) was collected in close proximity to sliver 45W. No chemicals were detected at concentrations above the soil screening level in this sample.

Outfalls AML-DP3 and AML-DP2 are covered under the Alaska Marine Lines ISGP, number WAR001365. No storm drain solids sampling data for this permit were available at the time this report was prepared.

Sediments

Six surface sediment samples were collected within 100 feet of sliver 44W. One or more samples exceeded the sediment screening levels for PCBs, metals (arsenic, copper, lead, mercury, zinc), benzyl alcohol, PAHs (chrysene, fluoranthene, phenanthrene, total cPAHs), phenols (2,4-dimethylphenol), and phthalates (butyl benzyl phthalate) (Table 3). The highest exceedances were for arsenic (810 mg/kg, EF=14) and zinc (2,800 mg/kg, EF=6.9).

Three surface sediment samples were collected within 100 feet of sliver 45W. One or more samples exceeded the sediment screening levels for metals (arsenic, copper, and zinc), benzyl alcohol, and total PCBs. The highest exceedances were observed for benzyl alcohol (0.29 mg/kg, EF=5.1).

Summary of Screening Level Exceedances

Screening level exceedances associated with slivers 44W and 45W are summarized in Table 6. Soil samples have been collected from two locations and groundwater samples from one location on sliver 44W; in addition seep samples have been collected at three locations at slivers 44W and 45W.

Chemical Group	Screening Level Exceedances		
	LDW Sediment	Sliver	Adjacent Property
PCBs	■		
Metals	■	■	■
PAHs	■	■	
Phenols	■		
Phthalates	■		
Other SVOCs	■	■	

Note: shading indicates that the maximum detected concentration is above the relevant screening level.

Copper, lead, and zinc have been detected at concentrations above screening levels in sediments near slivers 44W and 45W, and in soil and/or groundwater on the sliver and the adjacent Duwamish Shipyard property. In addition, PAHs and several other SVOCs have been detected at concentrations above screening levels in sediment and sliver samples.

4.3.4 Data Gaps

Duwamish Shipyard is under an Agreed Order with Ecology for cleanup of the site, which includes slivers 44W and 45W. Ongoing transport of contaminants to LDW sediments, if any, will be addressed as part of the site cleanup activities. Therefore no additional data gaps were identified for this sliver group.

4.4 Slivers 84W and 86W (Terminal 115 – Seafreeze)

4.4.1 Location and Description

Slivers 84W and 86W are located at approximately RM 1.85 to 2.0 on the west side of the LDW, within the RM 1.6-2.1 West (Terminal 115) source control area (Figures 3 and C-14). These slivers are adjacent to the southern portion of the Port of Seattle Terminal 115 property, near the Lineage Seafreeze facility (parcel 5367202505 [2505], FSID 82536515). Lineage Seafreeze leases the site from the Port of Seattle.

Sliver 84W is 15,678 sq ft in size. The sliver consists of a steep, exposed riparian area with limited vegetation cover. The northern part of the sliver is adjacent to the Northland Services facility, while the central and southern parts are adjacent to the Seafreeze cold storage facility. There is a loading dock located in the southern portion of the sliver. Four stormwater outfalls (2125, 2124, 2123, and 2122) are located within or near the sliver. Outfall 2125 is the West Highland Park Way SW storm drain.

Sliver 86W is 5,616 sq ft in size; it is located adjacent to the Lineage Seafreeze facility, with the southern portion adjacent to a Seattle DOT parcel (5367202518 [2518]). The sliver is just northwest of the 1st Avenue S Bridge, and north of SW Michigan Street (Figure C-15). The sliver is in a steep riparian area with fair vegetation coverage. There is no fencing between the sliver and the adjacent properties. There is one stormwater outfall, the West Michigan CSO (outfall 2506), located about 25 feet upstream of the sliver.

Ecology is currently negotiating an Agreed Order for investigation and cleanup of the Terminal 115 property, including the Seafreeze facility, with the Port of Seattle and Boeing. The investigation is anticipated to begin in 2019.

4.4.2 Adjacent Property Use

Northland Services

Northland Services supports marine activities including receipt and shipment of bulk cargo; barge cargo operations; repair and maintenance of cargo shipping containers; cargo warehouse activities; storage of metal and wood construction materials; and vessel outfitting, equipment washing, fueling, painting, and maintenance and repair. A hazardous material storage area is located adjacent to the northern portion of sliver 84W (Anchor 2010).

Lineage Seafreeze

Lineage Seafreeze leases the portion of Terminal 115 adjacent to slivers 84W and 86W. Seafreeze operates a frozen food warehouse and distribution facility. Fresh fish is delivered by truck or vessel, then processed and packaged for wholesale or retail sale by subtenants (Northwest Seafood Processors). Seafreeze provides offloading, storage, and loading services.

Based on a review of aerial photographs and King County tax assessor records, parcel 5367202518 [2518] is Seaview Park.

4.4.3 Summary of Analytical Data

Sliver

No soil or groundwater data have been collected at slivers 84W or 86W.

Adjacent Property

No soil or groundwater samples have been collected on the adjacent property in the vicinity of the slivers.

Outfalls associated with sliver 84W are covered under the Northland Services ISGP, number WAR000471, and the Lineage Seafreeze ISGP, number WAR127040. No storm drain solids sampling data for these permits were available at the time this report was prepared.

During the Port's cleanout of the Terminal 115 storm drain system in April 2015, sediment trap samples were collected at locations within the storm drain lines that discharge to the four outfalls at or near sliver 84W (Port of Seattle 2015):

- CB632 is on the storm drain line that discharges to outfall 2125
- MH682 is on the storm drain line that discharges to outfall 2124
- CB608 is on the storm drain line that discharges to outfall 2123
- CB637 is on the storm drain line that discharges to outfall 2122

Samples were analyzed for metals, SVOCs, and PCBs.

- In CB632, metals (mercury, zinc) and phthalates were detected at concentrations above sediment screening levels. The highest exceedances were for butyl benzyl phthalate (0.88 mg/kg, EF=14), bis(2-ethylhexyl)phthalate (10 mg/kg, EF=7.7), and zinc (3,200 mg/kg, EF=7.8).
- In MH682, metals (chromium and zinc), phthalates, and PAHs were detected at concentrations above sediment screening levels. The highest exceedances were for bis(2-ethylhexyl)phthalate (14 mg/kg, EF=11).
- In CB608, metals (mercury and zinc), phthalates, PAHs, and phenols were detected at concentrations above sediment screening levels. The highest exceedances were for butyl benzyl phthalate (1.5 mg/kg, EF=24), bis(2-ethylhexyl) phthalate (21 mg/kg, EF=16), (3+4)-methylphenol (4.8 mg/kg, EF=7.2), and zinc (2,900 mg/kg, EF=7.1).
- In CB637, metals (copper and zinc), phthalates, and phenols were detected at concentrations above sediment screening levels. The highest exceedances were for (3+4)-methylphenol (35 mg/kg, EF=52) and bis(2-ethylhexyl) phthalate (37 mg/kg, EF=28).

Sediments

Between 2005 and 2011, 10 surface sediment samples were collected within 100 feet of sliver 84W, and three surface sediment samples were collected within 100 feet of sliver 86W (Figure 3).

Samples collected near sliver 84W exceeded the sediment screening levels for PCBs, PAHs, phthalates, and benzyl alcohol. The highest exceedances were for benzyl alcohol (0.36 mg/kg, EF=6.3) and phenanthrene (9.2 mg/kg, EF=6.1).

In samples collected near sliver 86W, phthalates and benzyl alcohol exceeded the sediment screening levels. The highest exceedance factor was for bis(2-ethylhexyl) phthalate (4.9 mg/kg, EF=3.8).

4.4.4 Data Gaps

Screening level exceedances associated with slivers 84W and 86W are summarized in Table 6. Several chemicals have been found in storm drain solids at concentrations above sediment screening levels; storm drain solids provide information on contaminants that may be present at a given site. PAHs and phthalates have been detected above screening levels in both storm drain solids and LDW sediments. However, soil and groundwater samples have not been collected in the vicinity of or within the slivers, and therefore it is not possible to determine whether surface sediment contamination in this area may be associated with contaminants, if any, present at slivers 84W and 86W and the adjacent upland property.

Chemical Group	Screening Level Exceedances		
	LDW Sediment	Sliver	Adjacent Property (Storm Drains)
PCBs	■	ns	
Metals		ns	■
PAHs	■	ns	■
Phenols		ns	■
Phthalates	■	ns	■
Benzyl alcohol	■	ns	

ns = not sampled; shading indicates that the maximum detected concentration is above the relevant screening level.

Environmental samples will be collected as part of a MTCA investigation under the pending Agreed Order, and therefore no specific data gaps have been identified at this time. However, collection of bank soil samples in this area would provide useful information on the potential for sediment contamination associated with slivers 84W and 86W.

4.5 Slivers 91W and 93W (Boyer Towing)

4.5.1 Location and Description

Slivers 91W and 93W are located at approximately RM 2.3 to 2.6 on the west side of the LDW, mostly within the RM 2.1-2.2 West (EAA-2: Trotsky Inlet) source control area; the southern portion of sliver 93W is in the RM 2.2-3.4 West (Riverside Drive) source control area (Figures 5, 6, C-16, and C-17).

Sliver 91W is adjacent to three parcels owned by Boyer Towing: 6871200045 [0045], 6871200620 [0620], and 6871200350 [0350]. Sliver 91W is 9,963 sq ft in size and consists of exposed soil and limited vegetation. There is a narrow wooden dock adjacent to parcel 0350 (formerly known as River View Marina). There are three stormwater outfalls (2117, 2116, and Boyer-1) located within 100 feet of this sliver. Outfalls 2117 and 2116 have been observed

during outfall surveys in 2003 and 2011, but it is not known whether these outfalls are currently active. Boyer-1 is an active outfall, and is covered under the ISGP (WAR005598).

Sliver 93W is 43,056 sq ft in size and is adjacent to parcels owned by Boyer Towing (6871200210 [0210], 6871200100 [0100], and 7327906685 [6685]) and two properties formerly owned by Hurlen Construction (parcel 7327906645 [6645], now owned by Cascade Barge & Equipment, and parcel 7327906755 [6755], now owned by Brackish Properties, LLC). Two single family residences are adjacent to the south end of sliver 93W (Figure C-18). The portions of sliver 93W adjacent to Boyer parcels consist of exposed soil and limited vegetation. There is a loading dock (approximately 100 feet wide and 90 feet long) adjacent to parcel 0100.

The southern portion of sliver 93W is lined with exposed soil, riprap, and vegetation. Ecology blocks line the boundary between the pavement and the sliver. One wharf extends from the northern portion of the sliver, and another wharf extends from the southern portion of the sliver. Barges and marine construction equipment are moored along the wharfs. There are five stormwater outfalls (Boyer-2, 2115, 2114, 5th Ave S, and 2113) located within 100 feet of this sliver. Outfalls Boyer-2, 2115, and 2114 are covered under the ISGP (WAR005598). The 5th Ave S outfall is a ditch that discharges at the street end; its current status is unknown. Outfall 2113 (also known as the S Webster Street SD) is located at the end of S Webster Street; it serves one catch basin on Riverside Drive S.

4.5.2 Adjacent Property Use

Boyer Towing

Boyer Towing operates tugboats and barges along the Pacific Northwest coast; in addition, the company's Boyer Logistics business unit provides stevedoring and freight operations for barge cargo at the LDW location. Most cargo is transported in shipping containers or is construction equipment that is too large for containers. The site has been used for these or similar operations for approximately 40 years (SAIC 2009a).

Hurlen Construction

Hurlen Construction previously provided specialty marine and upland construction services, including steel pile driving and auger cast piles (SAIC 2009a). Cascade Barge & Equipment is the current taxpayer for parcel 6645, which is listed as "vacant (industrial)" in King County's Parcel Viewer.[15] A recent Seattle Public Utilities (SPU) inspection at this location (523 S Riverside Drive) identified the current operator as Pacific Pile & Marine.

Pacific Pile & Marine is also the current operator on the Brackish Properties parcel [6755]. This company specializes in marine and heavy civil construction services such as pile driving, dredging, bridge construction, and foundation projects (SAIC 2012b).

[15] http://blue.kingcounty.com/Assessor/eRealProperty/Dashboard.aspx?ParcelNbr=7327906645

4.5.3 Summary of Analytical Data

Sliver

Four bank soil samples were collected at sliver 91W in May 2011 at the street end at 2nd Avenue S and S Orchard Street, between the Boyer Towing and Industrial Container Services properties (Hart Crowser 2012). Dioxins/furans, PCBs, and butyl benzyl phthalate exceeded the soil screening levels in one or more of these samples (Table 4). The highest exceedances were for total PCBs (0.56 mg/kg, EF=4.3).

No other soil or groundwater data have been collected from slivers 91W or 93W.

Adjacent Property

No soil or groundwater samples have been collected in the vicinity of the slivers.

Outfalls associated with slivers 91W and 93W are covered under the Boyer Logistics ISGP, number WAR005598. To comply with their stormwater permit, Boyer collected a grab sample of solids from the facility's storm drain system on October 12, 2016. The sample was analyzed for metals, PCBs, and TPH-diesel. Results are listed in Ecology's PARIS database; these were compared to the sediment screening levels listed in Table 2. Mercury and zinc exceeded the sediment screening levels in this sample.

SPU collected a sample of solids from the outside of a catch basin near the S Fontanelle Street and 5th Avenue S street end on December 29, 2016. Sample SPU-ODS45 did not exceed the soil screening levels for any parameters.

Sediments

Between 2004 and 2012, eight surface sediment samples were collected within 100 feet of sliver 91W, and 10 surface sediment samples were collected within 100 feet of sliver 93W (Figure 5).

Near sliver 91W, PCBs were detected at concentrations above the sediment screening level (0.63 mg/kg, EF=4.8). Samples collected near sliver 93W slightly exceeded the sediment screening levels for zinc, PCBs, and benzyl alcohol (Table 3).

Summary of Screening Level Exceedances

Screening level exceedances associated with slivers 91W and 93W are summarized in Table 6. PCBs exceeded the screening levels in both sediment and bank soil samples collected at the north end of sliver 91W. This indicates that there may be a pathway for PCBs from the adjacent properties to LDW sediments. No soil or

Chemical Group	Screening Level Exceedances		
	LDW Sediment	Sliver	Adjacent Property
PCBs	■	■	ns
Dioxins/furans		■	ns
Metals	■		ns
Phthalates		■	ns
Benzyl alcohol	■		ns

ns = not sampled; shading indicates that the maximum detected concentration is above the relevant screening level.

groundwater samples have been collected on the adjacent Boyer Towing property near slivers 91W or 93W.

4.5.4 Data Gaps

While the sliver bank samples collected in 2011 provide adequate characterization of the north end of sliver 91W, no data exist for the remainder of sliver 91W or for sliver 93W. Additional sampling of bank soils in this area may be warranted. The LDWG plans to sample the bank at sliver 93W during the summer of 2018 (Windward 2018). The southern portion of the bank at sliver 91W was evaluated as a potential sampling location, but it was determined to be unsampleable due to the presence of a dock and vertical bulkhead.

4.6 Sliver 95W, 96W, 99W, and 100W (Riverside Drive – Central)

4.6.1 Location and Description

Multiple slivers are located along the central portion of the RM 2.2-3.4 West (Riverside Drive) source control area, between RM 2.7 and 3.0 West (Figures 6 and C-19 through C-21). The slivers within this area are composed of riprap, vegetation, and exposed soil. Multiple structures supporting commercial activities are located within the slivers.

Sliver 95W is 15,120 sq ft in size, and is a mix of exposed soil, riprap, piers, wharfs, and bulkhead. It is adjacent to parcels 7327905350 [5350] and 7327905280 [5280]. Parcel 5350 is the former Hurlen Construction Company (FSID 42127616); it is currently in operation as the Pacific Pile & Marine Main Yard. Parcel 5280 is a small vacant industrial property owned by Cassell Point LLC. There is a barge removal ramp, constructed of fill material, which extends from the shoreline. The fill materials appear to consist primarily of soil mixed with rocks, pieces of wood and vegetation, and possibly pieces of metal and rebar (SAIC 2012b). Outfall 2112 (7th Avenue S SD) is located just to the north of this sliver.

Sliver 96W is 20,763 sq ft in size and consists of exposed soil, vegetation, and a wooden bulkhead. It is adjacent to three parcels:

- Parcel 7327904100 [4100] is a vacant property owned by Cassell Point LLC; Lucas Machine (FSID 39232961) formerly operated on this parcel.
- Parcel 7327904049 [4049] is King County Municipality of Metropolitan Seattle (METRO) pump station.
- Parcel 7327903645 [3645] is owned by Silver Bay Logging, and is the location of the former Independent Metals Plant 2 facility. The parcel is currently vacant.

The street end at 8th Avenue S is known as 8th Avenue S Park. There are three outfalls located within this sliver; outfall 2107 is the 8th Avenue CSO. Outfalls 2106 and 2108 are located near the end of S Portland Street; it is not known whether these outfalls are currently active.

Sliver 99W is a small 1,728-sq foot sliver adjacent to the former Independent Metals facility (parcel 7327902520 [2520]). This parcel is owned by Silver Bay Logging. The sliver consists of exposed soil and vegetation. Two outfalls (2109 and 2110) are located within 100 feet of this sliver. Outfall 2110 was the discharge location for Independent Metals Plant 2 (WAR009725);

outfall 2109 is located near the end of S Chicago Street. No information on the current status of these outfalls was available.

Sliver 100W is adjacent to parcel 7327902395 [2395] and the S Kenyon Street end. Parcel 2395 is a single-family residence. The sliver is 3,015 sq ft in size; it consists of vegetation and riprap. No outfalls are located within 100 feet of this sliver.

4.6.2 Adjacent Property Use

Pacific Pile & Marine operates its main yard at 700 S Riverside Drive, adjacent to sliver 95W. Pacific Pile & Marine specializes in marine and heavy civil construction services such as pile driving, dredging, bridge construction, and foundation projects (SAIC 2012b). No additional information on specific activities at this property was available.

Independent Metals Plant 2 (FSID 861945) operated on parcels 3645 and 2520. These parcels are owned by Silver Bay Logging; current activities at these parcels are unknown.

4.6.3 Summary of Analytical Data

Sliver

No soil or groundwater data have been collected at these slivers.

Adjacent Property

Soil and groundwater samples were collected along S Holden Street, adjacent to parcel 5350 (Pacific Pile & Marine), as background samples during construction of the South Park Pump Station/Water Quality Facility at 640 S Riverside Drive. Soil samples were analyzed for VOCs only; groundwater samples were analyzed for VOCs, arsenic, and lead; there were no exceedances of the screening levels for protection of sediment.

No other soil or groundwater data associated with the properties adjacent to slivers 95W, 96W, 99W, or 100W were identified.

Pacific Pile & Marine, which operates under the ISGP (WAR301516) discharges stormwater to the ground. No solids sampling has been conducted for this permit, as of the time this report was prepared.

Two storm drain solids samples were collected by Ecology from the former Independent Metals facility in April 2013. Metals (cadmium, copper, lead, mercury, and zinc), PAHs, phthalates, phenols, PCBs, and dioxins/furans exceeded the sediment screening levels in at least one of these samples. The highest exceedances were observed for butyl benzyl phthalate (7.2 mg/kg, EF=110), total PCBs (8.5 mg/kg, EF=65), bis(2-ethylhexyl) phthalate (45 mg/kg, EF=35), and 2-methylnaphthalene (12 mg/kg, EF=18) (Leidos 2015).

Sediments

Between 2004 and 2011, seven surface sediment samples were collected within 100 feet of sliver 95W, eight surface sediment samples were collected within 100 feet of sliver 96W, and one sample was collected near sliver 100W (Figure 6). In 2017, the Port of Seattle sampled intertidal

sediments in the vicinity of a slag pile north of Duwamish Waterway Park, near sliver 100W.[16] Ten intertidal sediment samples were analyzed for metals; all were reportedly below the sediment screening levels. These data were not available for review at the time this reports was prepared, and are not shown on Figure 6.

Near sliver 95W, dioxins/furans, mercury, PAHs, PCBs, phenols, phthalates, and other SVOCs (benzyl alcohol, benzoic acid, hexachlorobenzene) were detected at concentrations above sediment screening levels (Table 3). The highest exceedances were observed for total mercury (6.5 mg/kg, EF=16), phenanthrene (22 mg/kg, EF=15), fluorene (6.8 mg/kg, EF=13), anthracene (10 mg/kg, EF=10), fluoranthene (17 mg/kg, EF=10), and total PCBs (0.86 mg/kg, EF=6.6).

Near sliver 96W, PCBs benzyl alcohol, and 1,4-dichlorobenzene were detected at concentrations above the sediment screening levels (Table 3). The highest exceedances were for benzyl alcohol (0.6 mg/kg, EF=11) and total PCBs (1.2 mg/kg, EF=9.2). There were no screening level exceedances in the sample collected near sliver 100W.

Summary of Screening Level Exceedances

Screening level exceedances are summarized in Table 6.

Chemical Group	Screening Level Exceedances			
	LDW Sediment	Sliver	Adjacent Property (Soil/ Groundwater)	Adjacent Property (Storm Drains)
PCBs		ns	ns	
Dioxins/furans		ns	ns	
Metals		ns		
PAHs		ns	ns	
Phthalates		ns	ns	
Phenols		ns	ns	
Other SVOCs		ns	ns	

ns = not sampled; shading indicates that the maximum detected concentration is above the relevant screening level.

Sliver 95W: No samples have been collected from this sliver. Surface sediment samples collected between 2005 and 2011 contained PCBs, dioxins/furans, mercury, various PAHs (both HPAH and LPAH), total cPAH TEQ, phthalates, 2,4-dimethylphenol, and other SVOCs (benzoic acid, benzyl alcohol) at concentrations above sediment screening levels.

Sliver 96W: No samples have been collected from this sliver. Surface sediment samples within 100 feet of this sliver contained PCBs, benzyl alcohol, and 1,4-dichlorobenzene at concentrations above the sediment screening levels. Storm drain solids samples collected in 2013 from the adjacent property (Independent Metals) contained metals (cadmium, copper, lead, mercury, and zinc), PAHs, phthalates, phenols, PCBs, and dioxins/furans at concentrations above the sediment screening levels in at least one of these samples.

Sliver 99W: No samples have been collected from this sliver or the adjacent property. No sediment samples have been collected within 100 feet of this sliver, however the nearest sediment sample (LDW-SS98), located just over 100 feet downstream of sliver 99W, had no screening level exceedances.

[16] As reported by the Port of Seattle in their review comments to the draft version of this report.

Sliver 100W: No samples have been collected from this sliver or the adjacent property. No screening level exceedances were observed in the sediment samples collected within 100 feet of this sliver. (It should be noted that 10 of these samples were analyzed for metals only.)

4.6.4 Data Gaps

There is insufficient information to assess whether contaminants may be present on slivers 95W and 96W, and if so, whether these are related to screening level exceedances in nearby sediments. Bank soil sampling in this area is recommended. The LDWG plans to sample bank soils at sliver 95W during the summer of 2018 (Windward 2018).

No specific data gaps were identified for slivers 99W or 100W.

4.7 Sliver 102W (Riverside Drive – South)

4.7.1 Location and Description

Sliver 102W is a very long and narrow sliver extending from RM 3.05 to 3.3 on the west side of the LDW, within the RM 2.2-3.4 West (Riverside Drive) source control area (Figures 7 and C-22). Adjacent parcels include parcel 7327902355 [2355] (Duwamish Waterway Park), parcel 7327901215 [1215] (Unity Electric, former Long Painting), and a series of residential parcels between RM 3.1 and 3.3.

Sliver 102W is 34,128 sq ft in size; near Duwamish Waterway Park, the sliver is vegetation and riprap. Adjacent to parcel 1215, it is steep, reinforced with riprap, densely vegetated, and fenced off from the parcel. Near the residential lots, the slivers are covered with riprap and/or vegetation.

Outfall 3037 discharges to the LDW within this sliver; it is located at the end of S Southern Street. It is an active King County storm drain outfall. In addition, based on aerial photos (Figures C-21 and C-22), there may be two outfall pipes discharging to the LDW at around RM 3.1, adjacent to residential parcel 3224049004 [9004].

4.7.2 Adjacent Property Use

The summary information in this section is from the RM 2.2-3.4 West (Riverside Drive) Data Gaps Report (SAIC 2012b) and SCAP (Ecology 2012b).

Unity Electric (Long Painting 10th Ave)

Unity Electric operates on parcel 1215. The company is an electrical and design services contractor; operations at this parcel began sometime after 2003. No additional information regarding Unity Electric's current operations was available.

Long Painting operated on this parcel, as well as the three adjacent residential parcels (9003, 9004, and 9037) from 1970 to 2002. Painting, sandblasting, and vehicle and equipment maintenance were performed at the facility. Prior to development by Long Painting, the property was primarily used for agriculture. Residences in the footprint of the facility were acquired by the company for its employees.

Long Painting was a large quantity generator of RCRA-regulated materials including paints, resins, acids, flammable solvents, spent solvents, solvent-contaminated water, and ignitable, expired chemicals. Liquid wastes were generally recycled, while solid wastes were generally disposed of off-property. Parcel 1215 included a holding facility with containment for hazardous materials and a recycling still. Paints and solvents were stored on this parcel.

In March 1996, a spill of diesel fuel occurred at the portion of the facility adjacent to the LDW, when a 250-gallon fuel tank fell from a forklift. The fuel spill was cleaned up and approximately 21,000 pounds of contaminated soil associated with the spill was excavated and removed from the property. A Phase I Environmental Site Assessment and a Limited Phase II Assessment were completed in 1997.

In 1999, Ecology added Long Painting to its Confirmed and Suspected Contaminated Sites List (CSCSL) due to chlorinated solvent and diesel-range hydrocarbon contamination at the facility. A Site Investigation was conducted in 2000, and the Department of Health collected surface soil samples on residential and park properties near Long Painting in 2001. In 2002 and 2003, Long Painting conducted UST and contaminated soil excavations. A Cleanup Action Report was submitted to Ecology in 2002, and UST removal compliance sampling results were provided in 2003. Additional groundwater sampling results were submitted to Ecology in 2003. In February 2003, Ecology determined that no further actions were necessary with regard to trichloroethylene, tetrachloroethylene, and diesel-range hydrocarbon contamination at the facility, and removed Long Painting from the CSCSL.

4.7.3 Summary of Analytical Data

Sliver

Four bank soil samples from two locations were collected in May 2011 at the street end at S Rose Street, at the very southern end of sliver 102W (Hart Crowser 2012). Samples were analyzed for PCBs, dioxins/furans, metals, and SVOCs. No exceedances of the soil screening levels for protection of sediment via bank erosion were observed.

No other soil or groundwater samples have been collected at sliver 102W.

Adjacent Property

In July 2000, 16 soil borings were advanced in areas of the property that were suspected to be contaminated based on industrial operations. Soil samples closest to sliver 102W were collected from locations SB-4, SB-5, SB-6, and SS-2 in July 2000 (Figure 7). In addition, groundwater samples were collected at that time, including from well MW-5, located about 50 feet from the sliver. Soil and groundwater samples were analyzed for one or more of the following contaminants: priority pollutant metals, chlorinated and petroleum-based solvents and petroleum hydrocarbons, and herbicides and organochlorines (SAIC 2012b).

No analytes exceeded screening levels in the soil samples; however, concentrations of lead and chromium in groundwater exceeded the screening levels in monitoring well MW-5 (Table 5). Highest exceedances were for chromium in groundwater (36 µg/L, EF=600).

Outfall 3037 is a King County outfall located at the end of S Southern Street. It drains a small residential area. No storm drain system samples associated with this outfall have been collected.

Sediments

Between 2004 and 2011, 11 surface sediment samples were collected within 100 feet of sliver 102W. This includes five samples between RM 3.0 and 3.1 (LDW-SSB7a, B7a, LDW-SS101, LDW-SS102, and LDW-SS103), one sample between RM 3.1 and 3.2 (LDW-SS104), and five samples between RM 3.2 and 3.3 (SS3037-A, SS3037-D, SS3037-U, LDW-SS105, and LDW-SS106). Hexachlorobenzene exceeded the sediment screening level in the RM 3.0-3.1 area (near Unity Electric); PCBs exceeded the sediment screening levels in the RM 3.2-3.3 area (near outfall 3037) (Table 3).

Summary of Screening Level Exceedances

Screening level exceedances associated with sliver 102W are summarized in Table 6. Bank soil samples collected at sliver 102W did not exceed screening levels. While lead and chromium exceeded screening levels in groundwater, these metals did not exceed screening levels in nearby surface sediments or in bank soil.

Chemical Group	Screening Level Exceedances		
	LDW Sediment	Sliver	Adjacent Property
PCBs			ns
Lead, chromium			
Hexachlorobenzene			ns

ns = not sampled; shading indicates that the maximum detected concentration is above the relevant screening level.

4.7.4 Data Gaps

Although most of sliver 102W has not been characterized, based on current land use adjacent to sliver 102W and the relatively low EFs in LDW sediments in this area, no specific data gaps were identified.

4.8 Sliver 103W (South Park Bridge)

4.8.1 Location and Description

Sliver 103W is located at approximately RM 3.35 on the west side of the LDW, within the RM 3.4-3.8 West (EAA-5: Terminal 117) source control area (Figures 7 and C-23). It is adjacent to the South Park Bridge and to the northern portion of South Park Marina (parcel 2185600070 [0070]).

This sliver is 2,250 sq ft in size; there is one public outfall (2215), known as the 16th Avenue S Bridge (west) outfall, located within 100 feet of sliver 103W.

4.8.2 Adjacent Property Use

Sliver 103W is adjacent to the South Park Bridge, which was rebuilt between 2010 and 2014. This includes a strip of land to the southeast of the bridge (within the footprint of the former South Park Bridge) which has been converted into a pocket park and rain garden, providing access to the river and filtering runoff from the south half of the bridge and surrounding streets.

The sliver is also adjacent to parcel 2185600070 [0070], identified as Rick's Master Marine and part of the South Park Marina property. Based on aerial photos, this part of the sliver appears to be used as a boat launch.

4.8.3 Summary of Analytical Data

Sliver

No soil or groundwater samples have been collected at sliver 103W.

Adjacent Property

No soil or groundwater samples have been collected on adjacent properties in the vicinity of the sliver.

A right-of-way catch basin sample (RCB210) was collected near this outfall by SPU in May 2009. Zinc, PCBs, phthalates (bis[2-ethylhexyl] phthalate, butyl benzyl phthalate, and dimethyl phthalate), and benzyl alcohol exceeded the sediment screening levels in the catch basin solids sample. The highest exceedances were for benzyl alcohol (0.62 mg/kg, EF=11) and butyl benzyl phthalate (0.42 mg/kg, EF=6.7).

Sediments

One surface sediment sample (LDW-SS107) was collected within 100 feet of sliver 103W (Figure 7). The sample was collected in 2005; none of the analytes exceeded screening levels.

4.8.4 Data Gaps

Only one sediment sample has been collected within 100 feet of sliver 103W; this sample was collected about 12 years ago (prior to construction of the new bridge) so may not be representative of current conditions, however no screening level exceedances were identified. The catch basin sample collected near this sliver was collected prior to installation of the rain garden, which was intended to filter runoff in this area. Based on current land use near sliver 103W, no specific data gaps were identified.

4.9 Sliver 104W (South Park Marina/Terminal 117/Boeing South Park)

4.9.1 Location and Description

Sliver 104W is a large sliver (111,294 sq ft in size) located at approximately RM 3.4 to 3.9 on the west side of the LDW, within the RM 3.4-3.8 West (EAA-5: Terminal 117) and RM 3.8-4.2 West (Sea King Industrial Park) source control areas (Figure 8 and Figures C-24 through C-26).

Sliver 104W is adjacent to the following parcels:

- South Park Marina: 2185600070 [0070], 2185600025 [0025], and 0001600001 [0001]
- Port of Seattle Terminal 117: 0001600044 [0044]
- Boeing South Park: 7883608601, 7883608603 [8603]

The sliver is a very narrow strip along the South Park Marina property, and is significantly wider along the Terminal 117 and Boeing South Park properties.

Along Terminal 117, the sliver is characterized by gently sloping intertidal mudflat habitat, a steep vegetated riprap bank, and a relatively flat adjacent upland area. Near Boeing South Park, the sliver consists of exposed soil, vegetation, and riprap. The area of the Boeing South Park site that is immediately adjacent to the sliver is vegetated and not used for industrial operations. Overwater operations do not occur at the Boeing South Park site (SAIC 2013a).

There are eight active outfalls discharging to the LDW within sliver 104W, including two outfalls at South Park Marina (2214 and South Park Marina); one active outfall at Terminal 117; and five outfalls at Boeing South Park. The city of Seattle's Terminal 117 outfall was constructed near the northern boundary of the Terminal 117 property during the removal action at this site (described below); outfall coordinates were not available at the time this report was prepared and therefore it is not shown on Figure 8.[17]

In addition, five seeps have been identified within 100 feet of sliver 104W; three of these seeps were sampled during the Terminal 117 cleanup investigation, and one of the seeps (adjacent to Boeing South Park) is planned to be sampled by LDW during the summer of 2018.[18]

4.9.2 Adjacent Property Use

South Park Marina

The South Park Marina site is a small boat marina and do-it-yourself boat maintenance and repair facility. Since 1970, marina activities have included offices, boat repair, cleaning facilities, upland boat storage, boat haul-out services, a boat-launch ramp, and moorage slips in the LDW (SAIC 2007b). The Marina operates a closed-loop boat pressure wash system in the southeast portion of the property near the Terminal 117 Upland Study Area (SAIC 2007b).

Terminal 117

The Terminal 117 property was selected for early action in 2003 as part of the LDW Superfund process to reduce PCB contamination in sediment. Much of the PCB contamination at the site is associated with historical industrial activities that involved asphalt manufacturing in the Terminal 117 Upland Study Area. Asphalt manufacturing operations included the use of recycled oils, some of which contained PCBs and were released to the surrounding environment. Currently, the Terminal 117 Upland Study Area is fenced, secured, and vacant.

The Port of Seattle and city of Seattle (City) have completed a comprehensive investigation to characterize environmental conditions, identify the removal boundary, and design and implement a removal action, both in the upland soil and adjacent LDW sediments. These investigations primarily focused on PCB contamination and concluded with an EPA-led removal action across the entire site. Investigations and final removal actions that have been conducted throughout the Terminal 117 property occurred between 1999 and 2014.

[17] Outfalls 2209, 2212, and 2213 shown on Figure 8 are believed to be inactive.
[18] Information provided by Port of Seattle in their review comments to the draft version of this report.

The final remedy included the excavation and dredging of PCB-contaminated soil and sediments that were hauled offsite to a licensed waste landfill.

Terminal 117 has been restored to meet removal action levels per the Construction Report (Integral 2017). The site has been backfilled and compacted with clean, imported soil to an elevation that prevents the site from flooding during high river tides. A new debris barrier has been installed in the river for the South Park Marina. The sheet pile wall was left in place and will be used in future habitat restoration project at the terminal.

The Adjacent Streets & Yards phase of the Terminal 117 early action cleanup was completed in August 2016 with the removal of 28,300 tons of soil, installation of 1,500 feet of new storm drain pipes, planting of trees and installation of nine rain gardens and four Filterra® tree boxes.[19]

Boeing South Park

The Boeing South Park property has housed various training, information technology, and research functions since it was constructed in the early 1950s (Ecology 2005). Currently, Boeing South Park consists of a training facility and research and calibration laboratories. Approximately 80 percent of the ground surface is impervious. The facility ships and receives hazardous and non-hazardous materials. All materials are stored indoors. Manufacturing does not take place outdoors. The facility has a metal processing shop, wood processing shop, and a trash compactor that have the potential to generate dust or particulates. Boeing South Park stores diesel, propane, and liquid nitrogen in storage tanks ranging in volume from 50 gallons to 10,000 gallons. Building 15-05, located at the center of the facility, was demolished in 2013 and permeable sand with a stabilizing net for erosion control was installed (SAIC 2013a).

4.9.3 Summary of Analytical Data

Sliver

South Park Marina

In October 2007, bank soil samples were collected at the South Park Marina property by SAIC; these were part of a set of transects perpendicular to the shoreline, each of which included a soil sample immediately above the top of the retaining wall, and another just below the base of the wall (SAIC 2008a). An intertidal sediment sample was collected from a few inches below the water surface at low tide. The bank soil samples (i.e., below the base of the retaining wall) are considered sliver samples for purposes of this analysis. The samples above the top of the retaining wall are considered on-site soil samples (see Adjacent Property section below).

In the two bank soil samples collected at the base of the South Park Marina retaining wall, PCBs and phthalates exceeded the soil screening levels protective of sediment via bank erosion (Table 4). The highest exceedances were for dimethyl phthalate (0.62 mg/kg, EF=8.7).

[19] http://t117.com/update1.aspx

Terminal 117

Soil samples were collected at Terminal 117 as part of the cleanup removal action at this site. Cleanup of Terminal 117 was recently completed; data collected prior to the cleanup is not considered pertinent to current conditions in this area.

Boeing South Park

No soil or groundwater samples have been collected on the Boeing South Park portion of sliver 104W.

Adjacent Property

South Park Marina

Two surface soil samples were collected at the top of the retaining wall in 2007. In addition, soil samples were collected from 12 soil borings located within 100 feet of sliver 104W. Sample depths ranged from 1 to 11 feet bgs. Soil borings were located in the southeast corner of the property, near the former location of a disposal pond associated with A&B Barrel Company operations (SAIC 2008a).

Metals (cadmium, chromium, copper, lead mercury, zinc), PAHs (2-methylnaphthalene, anthracene, fluorene, phenanthrene), PCBs, phthalates (bis[2-ethylhexyl]phthalate, butyl benzyl phthalate, dimethyl phthalate), phenols (pentachlorophenol), and other SVOCs (benzoic acid, benzyl alcohol, dibenzofuran, 1,2-dichlorobenzene) exceeded soil screening levels for protection of sediment via bank erosion.

The highest exceedances were for total PCBs (36 mg/kg, EF=280), mercury (30 mg/kg, EF=72), butyl benzyl phthalate (2.2 mg/kg, EF=35), dimethyl phthalate (3.7 mg/kg, EF=19), and benzyl alcohol (0.94 mg/kg, EF=16).

In October 2007, three groundwater monitoring wells were installed on the South Park Marina property to depths between 20 and 21 feet bgs, in close proximity to sliver 104W (SAIC 2008a). The wells were resampled in March 2008. Chromium was detected at concentrations above the screening levels (40 µg/L, EF=670).

South Park Marina is covered under the Boatyard General Permit (WAG030045); stormwater discharges to the LDW from this property via outfall 2214. No storm drain samples associated with this outfall were identified.

Terminal 117

Environmental samples were collected at Terminal 117 as part of the EPA removal action at this site. Cleanup of Terminal 117 was completed in 2014; data collected prior to the cleanup is not considered pertinent to current conditions in this area.

Stormwater runoff from the streets of Terminal 117 has historically discharged to the LDW. In 2004, a temporary stormwater collection system was installed as part of the city of Seattle's independent cleanup actions; at that time, stormwater was rerouted to the combined sewer system. As part of the final remedial action construction, a new outfall was constructed from this area at the north end of Terminal 117 (near the property boundary with South Park Marina) (Integral 2017). No samples collected in this new storm drain line were identified.

Boeing South Park

No soil or groundwater samples have been collected in close proximity to sliver 104W on the Boeing South Park property.

Boeing South Park is covered under the ISGP (WAR001009); five outfalls to the LDW are present at this property: 2102, SP2, SP3, 2103, and SP5. To comply with their stormwater permit, Boeing collected a grab sample of solids from the facility's storm drain system on October 22, 2015. The sample was analyzed for metals, PCBs, TPH-diesel, and total PAHs. Results are listed in Ecology's PARIS database; these were compared to the sediment screening levels in Table 2. Mercury, zinc, and total PCBs exceeded the sediment screening levels in this sample.

Sediments

Between 2003 and 2011, 40 surface sediment samples were collected within 100 feet of sliver 104W but outside of the Terminal 117 Cleanup Area (Figure 8). Zinc, PCBs, phenols (4-methylphenol, phenol), butyl benzyl phthalate, and benzyl alcohol have been detected in surface sediment samples at concentrations above screening levels in one or more samples (Table 3). The highest exceedances were observed for benzyl alcohol (0.28 mg/kg, EF=4.9)

Within the Terminal 117 Cleanup Area, 10 surface sediment samples were collected after remediation, as part of the pre-operational phase of the new outfall. Samples were analyzed for PCB Aroclors. Data in EIM (EIM Study ID LDWT117OFPreOpSed) indicate that all concentrations were below sediment screening levels.

Summary of Screening Level Exceedances

Screening level exceedances associated with sliver 104W are summarized in Table 6. The South Park Marina property, including soils in the near vicinity of sliver 104W, had high screening level exceedances of PCBs, mercury, phthalates, and other SVOCs in soil, and chromium in groundwater. Surface sediments near South Park Marina exceeded screening levels for PCBs, phenols, and benzyl alcohol.

	Screening Level Exceedances		
Chemical Group	**LDW Sediment**	**Sliver (South Park Marina)**	**Adjacent Property (South Park Marina)**
PCBs			
Metals			
PAHs			
Phthalates			
Phenols			
Benzyl alcohol			

Note: shading indicates that the maximum detected concentration is above the relevant screening level.

Near Boeing South Park, surface sediments in the vicinity of sliver 104W contained zinc, PCBs, butyl benzyl phthalate, and benzyl alcohol at concentrations above screening levels. No sampling data are available from sliver 104W in this area, or from the Boeing South Park property in the vicinity of the sliver.

4.9.4 Data Gaps

Two soil samples from sliver 104W have been collected at South Park Marina; characterization of the sliver is sufficient to indicate the need for additional investigation and cleanup of the South Park Marina site.

A remedial action has recently been completed at Terminal 117, and therefore there are currently no data gaps associated with sliver 104W in this area.

Sediment samples near Boeing South Park have exceeded screening levels, but no soil samples at sliver 104W (or near sliver 104W on the Boeing South Park property) have been collected. The Port of Seattle plans to conduct a habitat restoration project at Terminal 117 that will include the entire Boeing South Park bank. As part of this project, bank sampling will be conducted prior to implementing the habitat restoration project.[20]

4.10 Slivers 108W and 109W (Turning Basin 3)

4.10.1 Location and Description

Slivers 108W and 109W are located at approximately RM 4.75 on the west side of the LDW, within Turning Basin 3 in the RM 4.2-5.8 West (Restoration Areas) source control area (Figures 11 and C-27).

Sliver 108W is adjacent to the Turning Basin 3 Restoration Area (Parcel 0423049187 [9187]), owned by the Port of Seattle. Sliver 108W is 6,120 sq ft in size; it is sloped and covered with vegetation and patches of exposed soil.

Sliver 109W is 4,914 sq ft in size. It is located adjacent to the Fremont property, and is owned by the Mellon Desimone Trust. The Fremont property consists of two parcels: 0423049073 [9073], identified in King County's property tax records as Pamco Construction, and 0423049001 [9001], identified as AIF Trailer Leasing. According to the RM 4.2-4.8 West (Restoration Areas) data gaps report (SAIC 2013b), J&H Express is the current tenant at this property. Dick's Towing also appears to be operating in this area.

There is one public stormwater outfall (Ditch #1) located within 100 feet of slivers 108W and 109W (Figure 11).

4.10.2 Adjacent Property Use

Turning Basin 3 Restoration Area

Restoration activities performed through the Coastal America Program in 1994 included removal of fill material and construction of an upland riparian buffer with a small intertidal basin. The Port of Seattle purchased the property from the Desimone family in 1996. The Port of Seattle completed approximately 1.3 acres of aquatic restoration at Turning Basin 3 to compensate for pier construction at Terminal 5. In 1998 a derelict ferry was removed, and in 1999 the Port of Seattle restored an additional 2 acres (SAIC 2013b).

[20] Information provided by the Port of Seattle in their review comments on the draft version of this report.

Fremont Property

The Fremont property has been used for equipment and trailer storage by various trucking and construction equipment companies since at least 1985. J&H Express, a trucking company, is the current operator at the property (SAIC 2013b).

4.10.3 Summary of Analytical Data

Sliver

No soil or groundwater samples have been collected within the sliver boundaries.

Adjacent Property

No soil or groundwater samples have been collected in close proximity to the slivers on the Turning Basin 3 or Fremont properties.

In 2011, EPA collected a storm drain solids sample from a right-of-way catch basin (TUK-06) near the head of the inlet at the Turning Basin 3 Restoration Area. The samples were analyzed for PCBs, metals, and SVOCs. None of the analytes exceeded the sediment screening levels in this sample.

Sediments

Between 2005 and 2006, three surface sediment samples were collected within 100 feet of sliver 109W (Figure 11). Phenol was present at a concentration above the sediment screening levels in one sample (1.1 mg/kg, EF=2.6).

4.10.4 Data Gaps

Screening level exceedances associated with sliver 109W are summarized in Table 6. Based on the current and historical use of the properties, no data gaps were identified for slivers 108W and 109W.

4.11 Slivers 112W and 117W (Boeing Parking Lot)

4.11.1 Location and Description

Slivers 112W and 117W are located at approximately RM 4.8 to 5.0 on the west side of the LDW, within the RM 4.2-5.8 West (Restoration Areas) source control area (Figures 11, C-27, and C-28). They are adjacent to the Boeing Parking Lot property (parcel 0423049150 [9150]). Sliver 112W is adjacent to the north end of the parcel, and sliver 117W is adjacent to the southeast end of the parcel.

Sliver 112W is 1,683 sq ft and sliver 117W is 4,266 sq ft in size. The slivers along the Boeing Parking Lot property do not appear to be reinforced and include areas of vegetated and exposed soil. One stormwater outfall (Ditch #2) is located within 100 feet and just north of sliver 117W. A dirt walking trail is present between the paved area of the property and the slivers (SAIC 2013b).

4.11.2 Adjacent Property Use

The 34.6-acre Boeing Parking Lot property was paved in the late 1970s, and is used for parking by Boeing employees. In recent aerial photographs, some storage of equipment is observed. According to the Washington State Corporation website, the building has been used for a variety of Boeing employee clubs such as the Autosports Club, Computing Society, Prospectors Society, Whitewater Touring Club, and Windsurfing Club (SAIC 2013b).

4.11.3 Summary of Analytical Data

Sliver

No soil or groundwater samples have been collected within the sliver boundaries.

Adjacent Property

No soil or groundwater samples have been collected in close proximity to the slivers on the Boeing Parking Lot property. No storm drain solids samples have been collected in the vicinity of slivers 112W or 117W.

Sediments

Two surface sediment samples were collected near sliver 112W in 2005-2006 (Figure 11). Samples were analyzed for metals, PCBs, and SVOCs. All analyte concentrations were below the sediment screening levels.

4.11.4 Data Gaps

Based on the current property use and the lack of previous environmental contamination issues in this area, no data gaps were identified for slivers 112W and 117W.

5.0 Summary of Potential Data Gaps

Based on the review presented in Sections 1 through 4 above, data gaps related to the LDW slivers are summarized below and in Table 7.

Sliver	Data Gaps	Planned Actions
37E (Boeing Developmental Center)	PCBs and benzyl alcohol in sediment. Sliver not characterized.	If an Agreed Order is negotiated for this site, this data gap will likely be filled as part of the subsequent investigation.
41W, 42W (Alaska Marine Lines)	Metals, PCBs, PAHs, phthalates, benzyl alcohol in sediment. Sliver not characterized.	Sampling of sliver may not be possible due to its location under permanent piers.
84W, 86W (T115 – Seafreeze)	PAHs, phthalates, other SVOCs in sediment. Sliver not characterized.	Ecology is negotiating an Agreed Order for this site, which will include investigation and cleanup and will likely fill this data gap.
91W, 93W (Boyer Towing)	Zinc, PCBs, benzyl alcohol in sediment. Sliver 91W partially characterized; 93W not characterized.	Sliver 91W is considered unsampleable due to the presence of a dock and vertical bulkhead. Bank soil sampling at 93W will be conducted by LDWG during summer 2018.
95W, 96W (Riverside Drive – Central)	Mercury, PCBs, dioxins/furans, PAHs, phthalates, phenols, and other SVOCs in sediment. Slivers not characterized.	LDWG is planning to collect bank soil samples near sliver 95W during summer 2018, which will partially fill this data gap.
104W (South Park Marina/T117/Boeing South Park)	Zinc, PCBs, PAHs, phthalates, phenols, and other SVOCs in sediment. Sliver near Boeing South Park not characterized.	Habitat restoration project for Terminal 117 will include sampling and soil removal at Boeing South Park, which will likely fill this data gap.

6.0 References

AECOM. 2012. Final Feasibility Study, Lower Duwamish Waterway, Seattle, Washington. Prepared for the Lower Duwamish Waterway Group. October 31, 2012.

AMEC (AMEC Foster Wheeler Environmental & Infrastructure, Inc.). 2013. 2012-2013 Construction Season Completion Report. Duwamish Sediment Other Area and Southwest Bank Corrective Measure and Habitat Project Boeing Plant 2 Seattle/Tukwila, Washington. October 2013.

AMEC. 2016. Corrective Measure Implementation Report. Duwamish Sediment Other Area and Southwest Bank Corrective Measure Boeing Plant 2 Seattle/Tukwila, Washington. June 2016.

Anchor (Anchor QEA, LLC). 2010. Stormwater Pollution Prevention Plan, Stormwater Baseline General Permit, Permit Number WA-000471. Prepared for Northland Services, Inc. December 2010.

Anchor. 2015a. Draft Remedial Investigation Report Duwamish Shipyard, Inc. Site Seattle, Washington. August 2015.

Anchor. 2015b. Jorgensen Forge Early Action Area Removal Action – Second Revised Pre-final Certification Inspection Letter Report. U.S. EPA Docket No. CERCLA-10-2013-0032. May 4, 2015.

CalPortland. 2009. Stormwater and Process Water Monitoring Plan. Seattle Aggregate Yard, Sand and Gravel General Permit. Revised December 21, 2009.

David Evans. 2005. Record of Survey for Port of Seattle Commercial Waterway No. 1, Seattle Washington. Prepared by David Evans and Associates, Inc. for Port of Seattle. December 2005.

Ecology (Washington State Department of Ecology). 2005. Lower Duwamish Waterway Source Control Action Plan for the Terminal 117 Early Action Area. July 2005.

Ecology. 2007a. Lower Duwamish Waterway Source Control Action Plan for Glacier Bay Source Control Area. November 2007.

Ecology. 2007b. Lower Duwamish Waterway Source Control Action Plan for Early Action Area 4. Publication No. 07-09-004. December 2007.

Ecology. 2008. Lower Duwamish Waterway RM 2.0-2.3 East (Slip 3 to Seattle Boiler Works) Source Control Area. Summary of Existing Information and Identification of Data Gaps. Final Report. June 2008.

Ecology. 2009a. Lower Duwamish Waterway RM 1.2-1.7 East (Saint Gobain to Glacier Northwest) Source Control Action Plan. June 2009.

Ecology. 2009b. Lower Duwamish Waterway RM 3.7-3.9 East (Early Action Area 6). Source Control Action Plan. March 2009.

Ecology. 2012a. Letter from Russell E. Olson, Ecology, to Property Owner, Puget Sound Truck Lines, Re: No Further Action (NFA) Determination associated with Leaking Underground Storage Tank (LUST) Site; Facility/Site No. 41684823, LUST ID 2352. January 12, 2012.

Ecology. 2012b. Lower Duwamish Waterway RM 2.2 to 3.4 West (Riverside Drive). Source Control Action Plan. August 2012.

Ecology. 2013. Lower Duwamish Waterway, RM 0.0 to 1.0 West (Spokane Street to Kellogg Island), Source Control Action Plan. Publication No. 12-09-137. February 2013.

Ecology. 2018a. Agreed Order Docket #15600, in the Matter of an Administrative Order Against: The Boeing Company, 725 E. Marginal Way S, Seattle, WA 98108. January 9, 2018.

Ecology. 2018b. Letter from Raman Iyer (Ecology) to Steve Shestag (The Boeing Company) Re: Preliminary Determination of Liability for Release of Hazardous Substances at the Following Contaminated Site: Boeing Developmental Center, 9725 East Marginal Way South. March 20, 2018.

Farallon (Farallon Consulting). 2006. Final Investigation Data Summary Report. Jorgensen Forge Facility, 8531 East Marginal Way South, Seattle, Washington, U.S. EPA Docket No. CERCLA 10-2003-0111. February 13, 2006.

Hart Crowser. 1994. Independent Remedial Action Report, Alaska Marine Lines Parcel, Duwamish Shipyards, Seattle, Washington. June 29, 1994.

Hart Crowser. 2011. Summary of Existing Information Report. Puget Sound Truck Lines Site. Prepared for Washington State Department of Ecology. February 15, 2011. [7674]

Hart Crowser. 2012. Lower Duwamish Waterway Bank Sampling Summary Report. Seattle, Washington. Prepared for Washington State Department of Ecology. March 13, 2012.

Integral. 2017. Removal Action Construction and Completion Report, Phase 2: Adjacent Streets and Residential Yards Study Area, Part 2: Adjacent Streets and Stormwater. Lower Duwamish Waterway Superfund Site, Terminal 117 Early Action Area. Prepared for City of Seattle. March 10, 2017.

Kennedy/Jenks. 2015. Boeing Isaacson-Thompson Site, Port of Seattle Sliver. Data Summary Report. Prepared by Kennedy/Jenks Consultants for Washington State Department of Ecology. November 12, 2015.

Landau (Landau Associates). 2014. Final Remedial Investigation Report, Boeing Isaacson-Thompson Site, Tukwila, Washington. April 21, 2014.

Leidos. 2015. Lower Duwamish Waterway NPDES Inspection Sampling Report. Technical Memorandum. Prepared for Washington Department of Ecology. January 2015.

Port of Seattle. 2015. Stormwater Line Cleaning Report for Port of Seattle Terminals 102, 103, 104, 106, 108, and 115. IAA No. C1400216. Prepared by Port of Seattle and EA Engineering, Science, and Technology, Inc., PBC, for Washington State Department of Ecology. December 2015.

Quantum Spatial. 2016. PSLC King County Delivery 1 LiDAR. Technical Data Report. Prepared by Puget Sound LiDAR Consortium and Quantum Spatial. May 27, 2016.

SAIC (Science Applications International Corporation). 2007a. Lower Duwamish Waterway Glacier Bay Source Control Area. Summary of Existing Information and Identification of Data Gaps. June 2007.

SAIC. 2007b. Lower Duwamish Waterway South Park Marina. Summary of Existing Information and Identification of Data Gaps. June 2007.

SAIC. 2008a. South Park Marina Seattle, Washington. Additional Site Characterization Activities Data Report. June 2008.

SAIC. 2008b. Lower Duwamish Waterway RM 2.3-2.8 East. Seattle Boiler Works to Slip 4. Summary of Existing Information and Identification of Data Gaps. May 2008.

SAIC. 2008c. Lower Duwamish Waterway RM 3.7-3.9 East, Early Action Area 6. Summary of Existing Information and Identification of Data Gaps. May 2008.

SAIC. 2009a. Lower Duwamish Waterway Early Action Area 2. Supplemental Data Gaps Report, Boyer Towing Property. June 2009.

SAIC. 2009b. Lower Duwamish Waterway RM1.7 to 20. East (Slip 2 to Slip 3). Summary of Existing Information and Identification of Data Gaps. February 2009.

SAIC. 2010. Lower Duwamish Waterway RM 4.3 to 4.9 East (Boeing Developmental Center). Summary of Existing Information and Identification of Data Gaps. September 2010.

SAIC. 2012a. Lower Duwamish Waterway, RM 0.0 to 1.0 West (Spokane Street to Kellogg Island). Summary of Existing Information and Identification of Data Gaps. Prepared for Washington State Department of Ecology. September 2012.

SAIC. 2012b. Lower Duwamish Waterway RM 2.2 to 3.4 West (Riverside Drive). Summary of Existing Information and Identification of Data Gaps. April 2012.

SAIC. 2013a. Lower Duwamish Waterway RM 3.8 to 4.2 West: Sea King Industrial Park. Summary of Existing Information and Identification of Data Gaps. May 2013.

SAIC. 2013b. Lower Duwamish Waterway RM 4.2 to 5.8 West (Restoration Areas). Summary of Existing Information and Identification of Data Gaps. July 2013.

SoundEarth. 2013a. Remedial Investigation/Feasibility Study Work Plan. Duwamish Marine Center. May 13, 2013

SoundEarth. 2013b. Interim Action Report. SB3/SB4 Upland Interim Action, Jorgensen Forge Corporation, 8531 East Marginal Way South, Seattle, Washington, First Amendment to Agreed Order No. DE 4127. December 10, 2013.

USEPA (United States Environmental Protection Agency). 2014. Record of Decision, Lower Duwamish Waterway Superfund Site. November 2014.

USEPA. 2017. Next Steps: Jorgensen Forge Sediment Cleanup. Fact Sheet. August 2017.

Weston (Weston Solutions, Inc.). 2004. Voluntary Cleanup Program Work Plan. Groundwater Quality Assessment, Former Wallboard Recycle Pile. Prepared for BPB Gypsum, Inc. July 9, 2004.

Weston. 2006. Groundwater Quality Assessment, Wallboard Recycle Pile, Final Report. Prepared by Weston Solutions, Inc. for BPB Gypsum, Inc. February 2006.

Windward (Windward Environmental, LLC). 2010. Lower Duwamish Waterway Remedial Investigation. Remedial Investigation Report Final. July 9, 2010.

Windward. 2018. Lower Duwamish Waterway Baseline Surface Sediment Collection and Chemical Analyses – Quality Assurance Project Plan. Draft Final. Prepared for the Lower Duwamish Waterway Group. May 11, 2018.

Figures

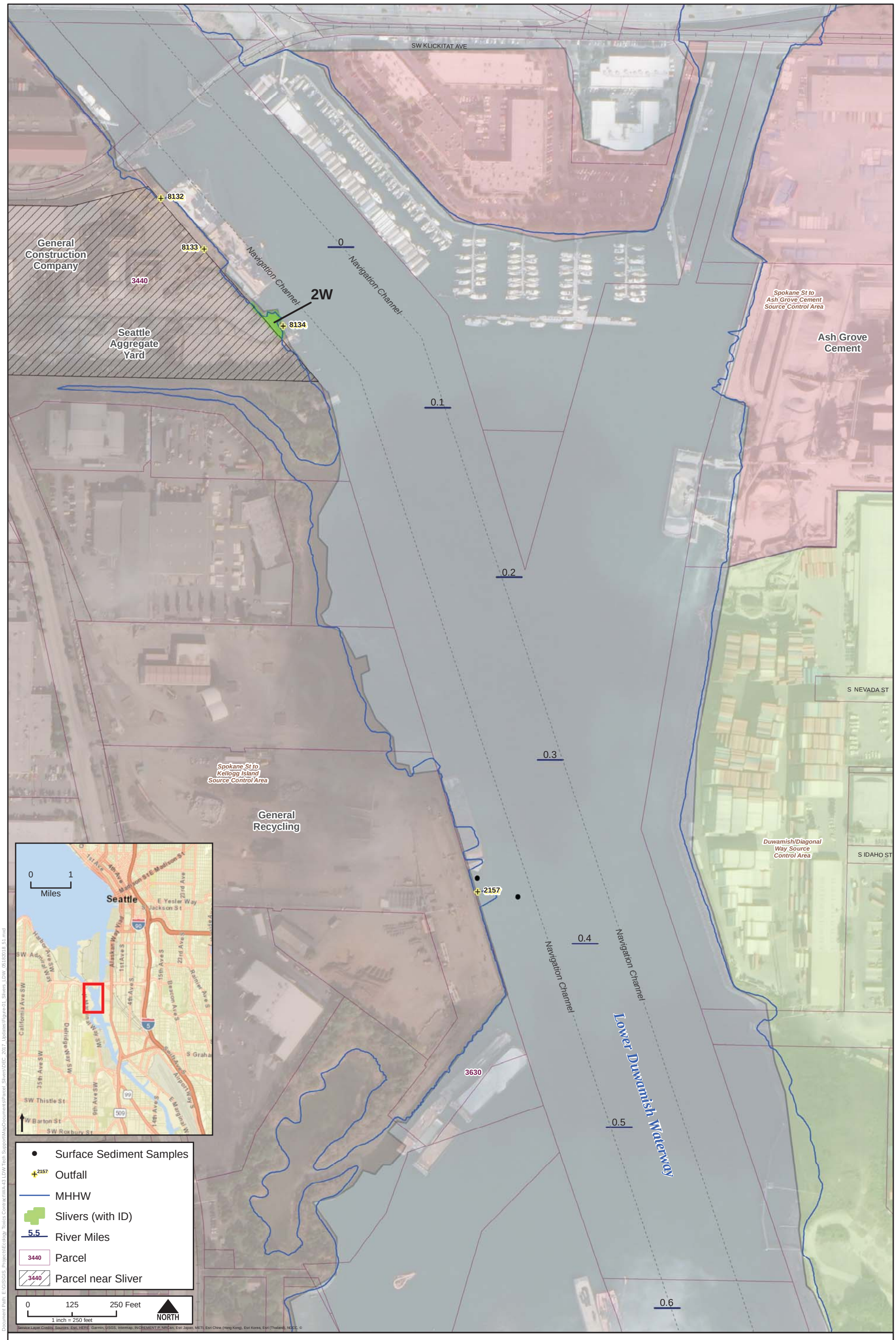

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Figure 1. Lower Duwamish Waterway Sliver Locations (RM 0.0 to 0.5)

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Spokane St to Kellogg Island Source Control Area
Slip 1 Source Control Area
COLORADO AVE S
S DAWSON ST
1
Cadman Seattle
United Western Supply
KC Lease Parcels Source Control Area
1.1
EAST MARGINAL WAY S
S BRANDON ST
OHIO AVE S
Kellogg Island to Lafarge Source Control Area
Navigation Channel
Navigation Channel
J.A. Jack & Sons
S LUCILE ST
1.2
5004
5003
2137
5005
41W
42W
Ardagh Glass (Saint Gobain)
Alaska Marine Lines
1.3
9026
44W
inset
AML-DP3
AML-DP2
St Gobain to Glacier NW Source Control Area
Duwamish Shipyard
45W
Glacier Bay Source Control Area
1.4
S FIDALGO ST
9028
Glacier Northwest
1.5
Navigation Channel
9092
2017
Certainteed Gypsum
11E
2014
1.6
6146
68W
Slip 2 to Slip 3 Source Control Area
74W
1.7
0 1 Miles
Seattle
E Yesler Way
S Jackson St
SW Thistle St
SW Barton St
SW Roxbury St
inset
AML-DP3
AML-DP2
9026
44W
DSI-09
DSI-GP-12
DSIP2-08
DSIP2-SP-01
9028
DSIP2-SP-02
DSI-GP-13
Glacier Bay Source Control Area
DSIP2-SP-03
45W
DSI-GP-16
0 50 100 Feet
Soil Sample Location
Surface Sediment Samples
Outfall 2157
MHHW
Slivers (with ID)
5.5 River Miles
3440 Parcel
3440 Parcel Near Sliver
0 125 250 Feet
1 inch = 250 feet
NORTH
Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, ©
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Figure 2. Lower Duwamish Waterway Sliver Locations (RM 1.0 to 1.5)

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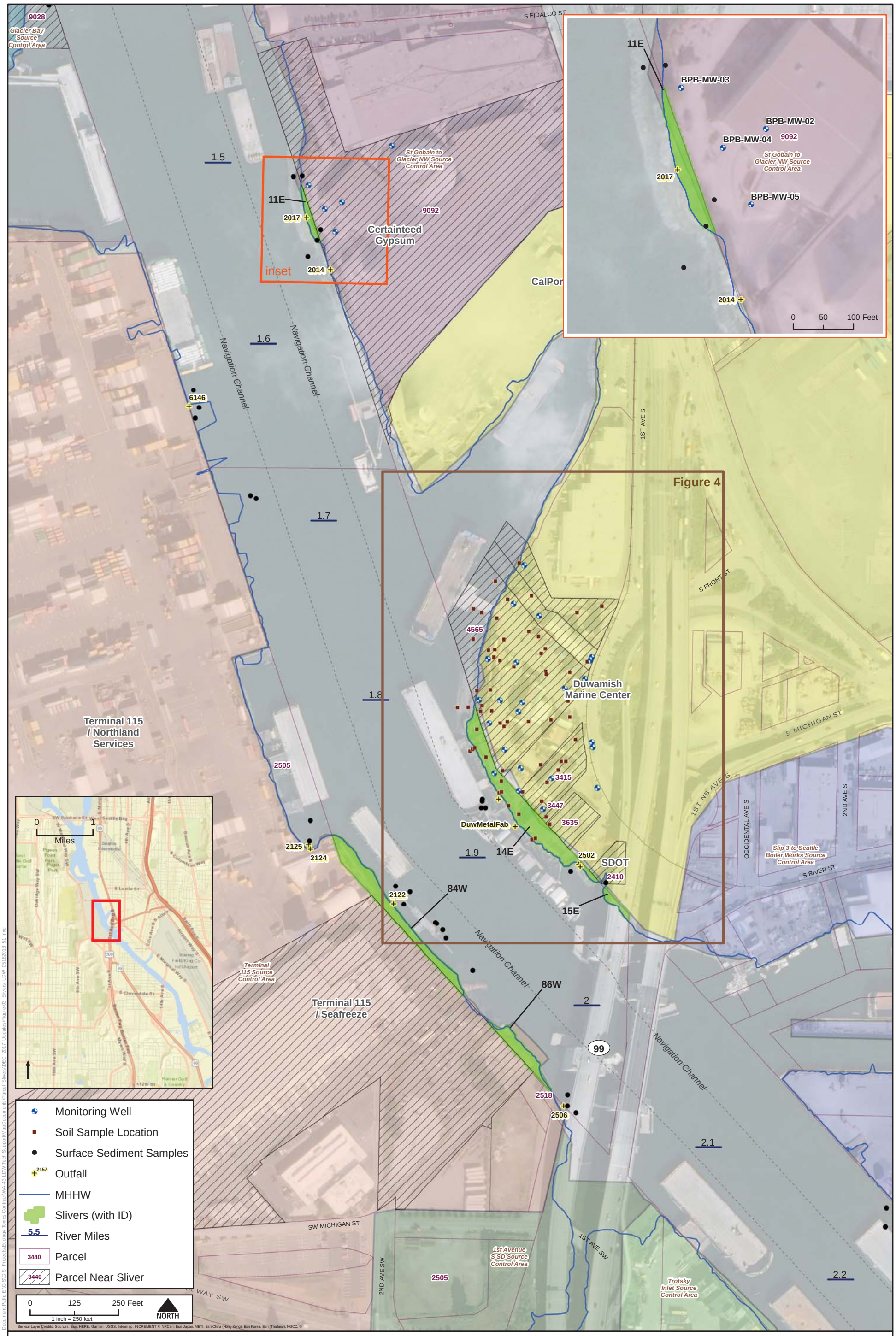

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Figure 3. Lower Duwamish Waterway Sliver Locations (RM 1.5 to 2.0)

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Figure 4. Lower Duwamish Waterway Sliver 14E Locations

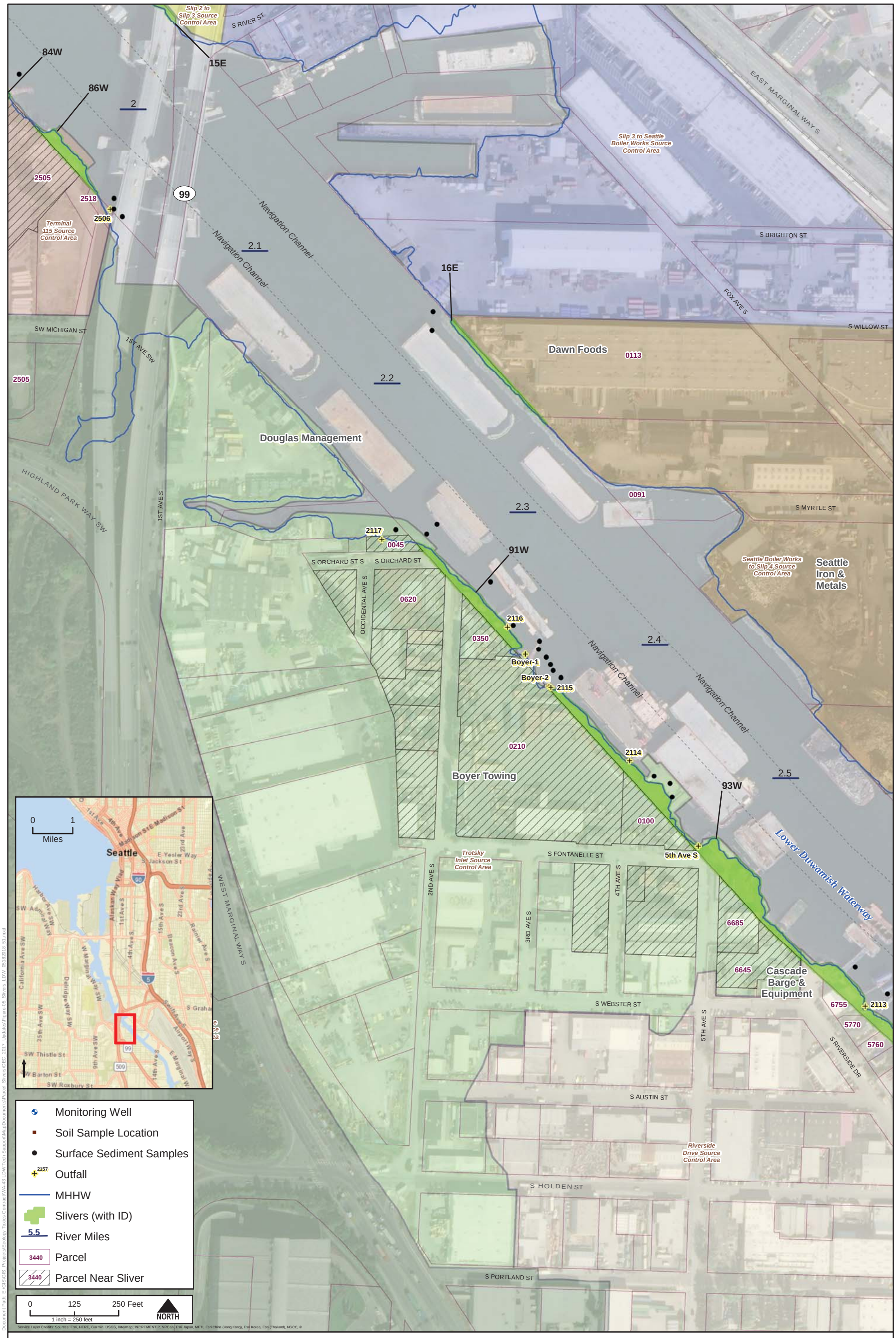

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Figure 5. Lower Duwamish Waterway Sliver Locations (RM 2.0 to 2.5)

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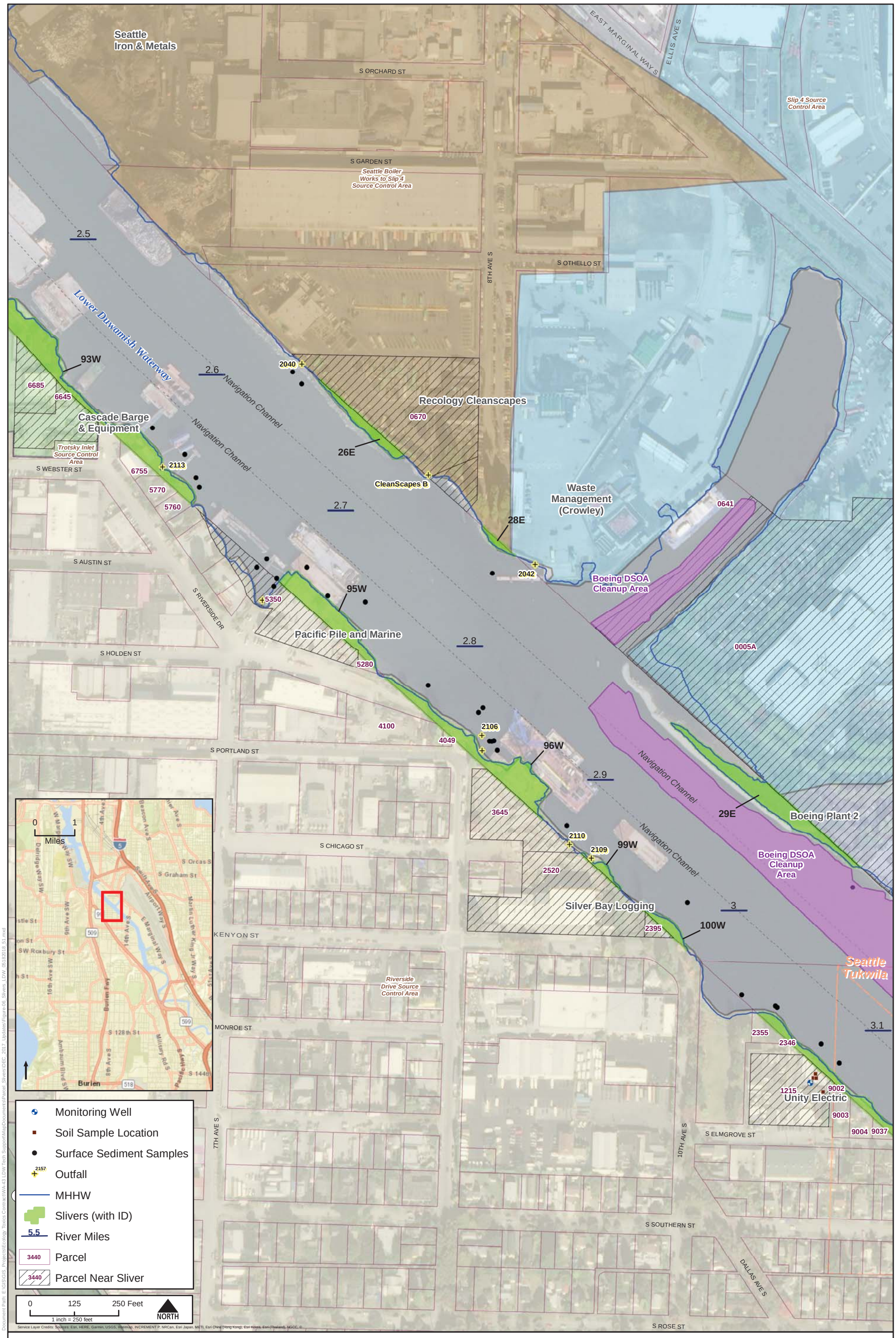

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Figure 6. Lower Duwamish Waterway Sliver Locations (RM 2.5 to 3.0)

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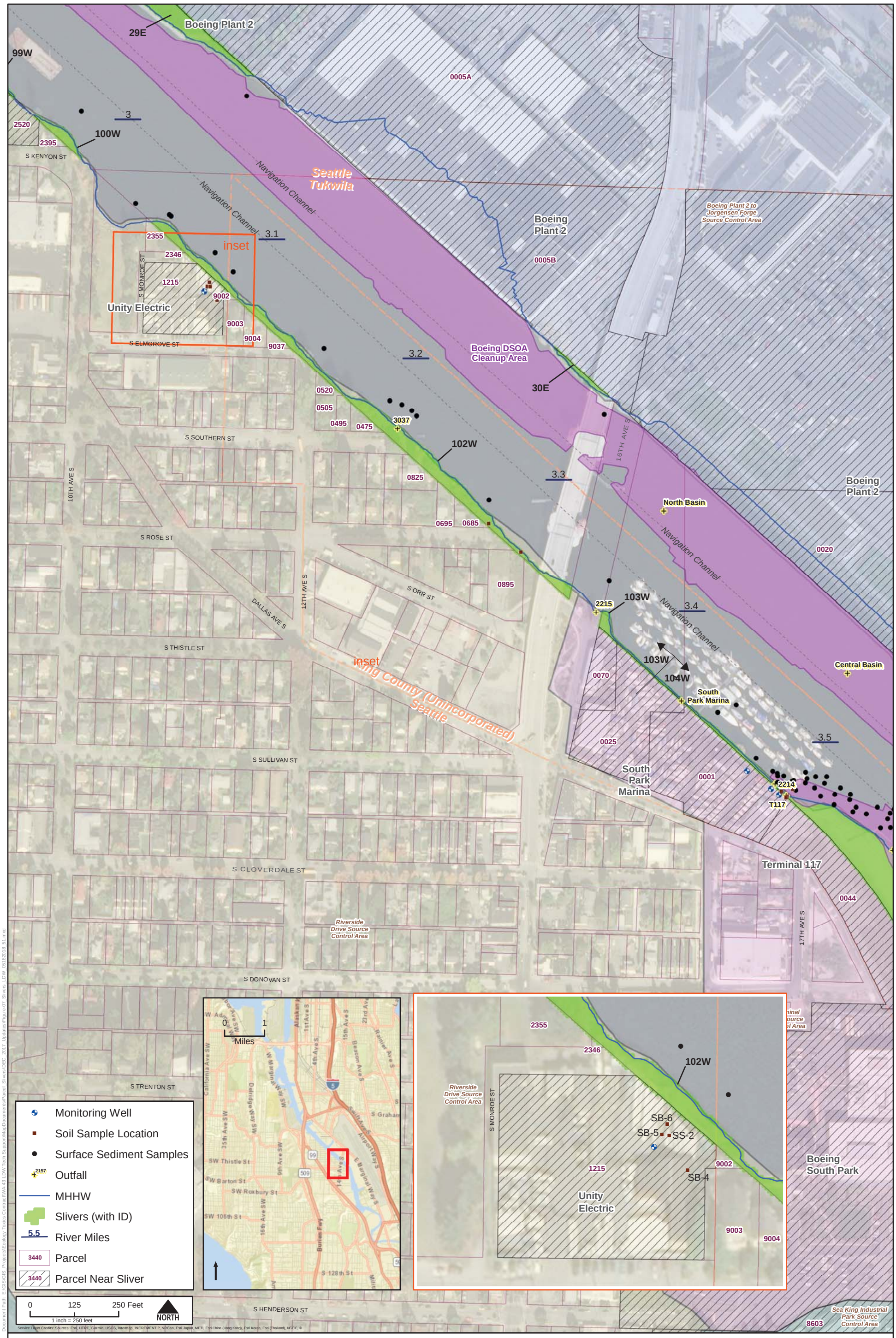

Figure 7. Lower Duwamish Waterway Sliver Locations (RM 3.0 to 3.5)

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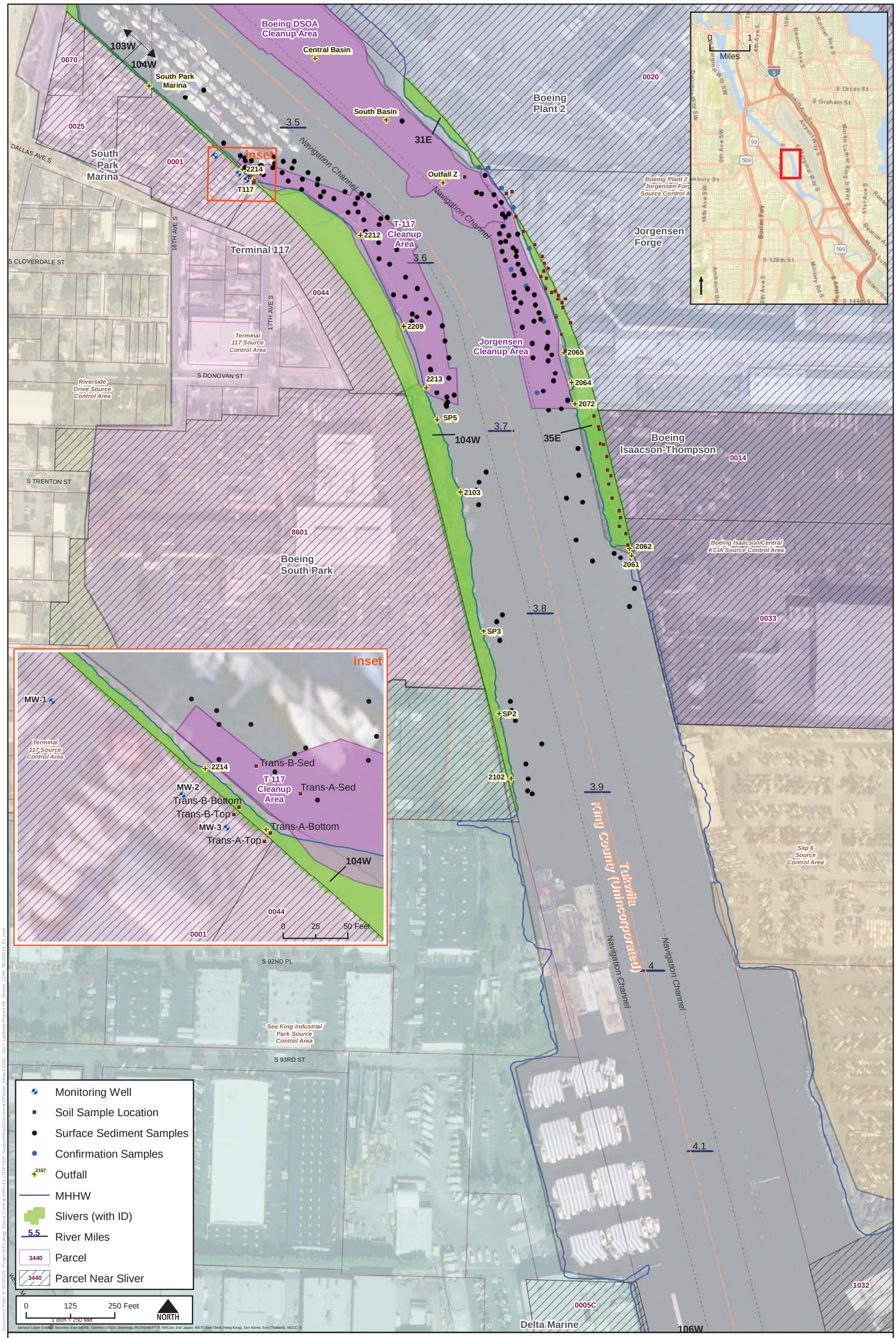

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Figure 8. Lower Duwamish Waterway Sliver Locations (RM 3.5 to 4.0)

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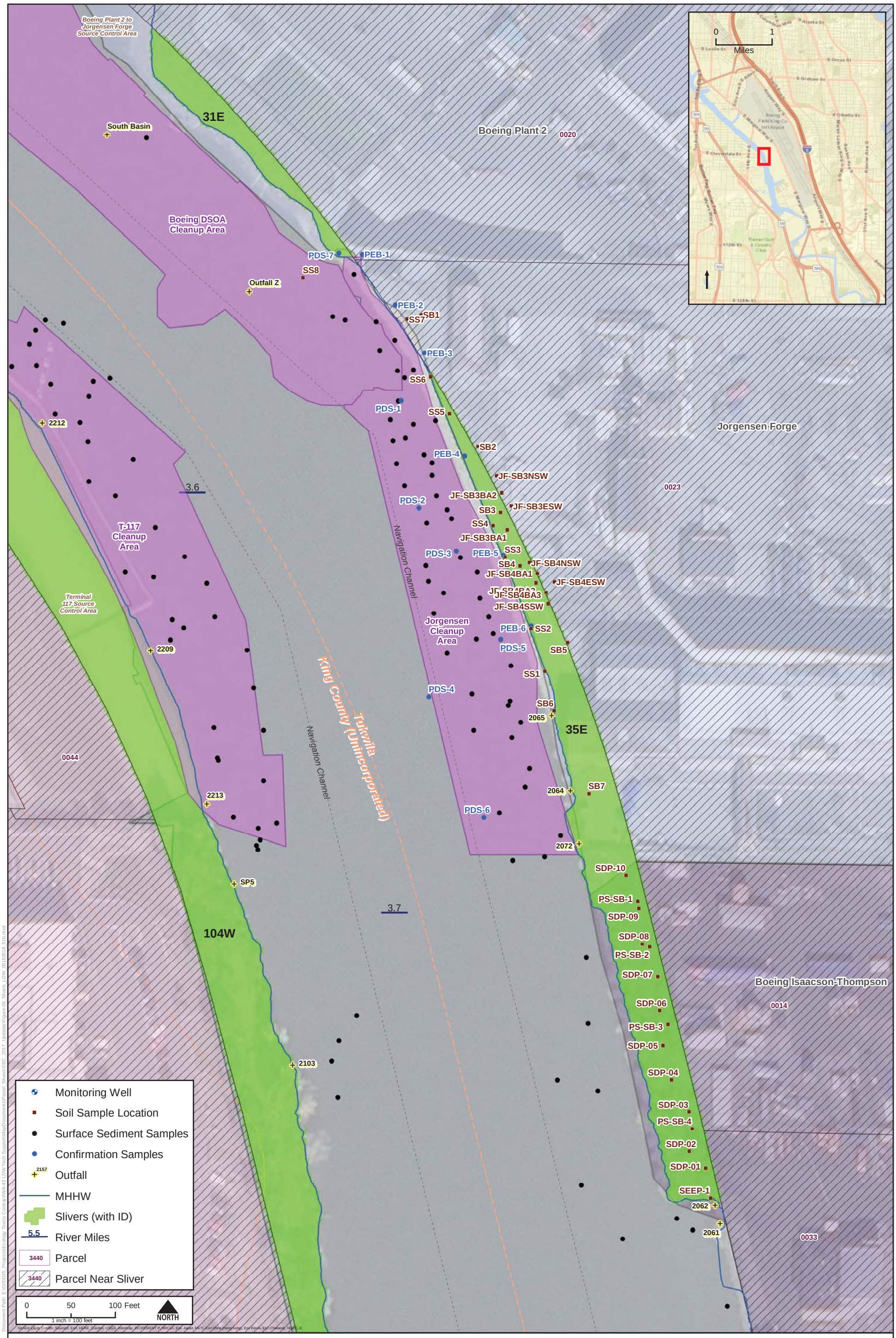

Figure 9. Lower Duwamish Waterway Slivers 35E and 36E Sampling Locations

Figure 10. Lower Duwamish Waterway Sliver Locations (RM 4.0 to 4.5)

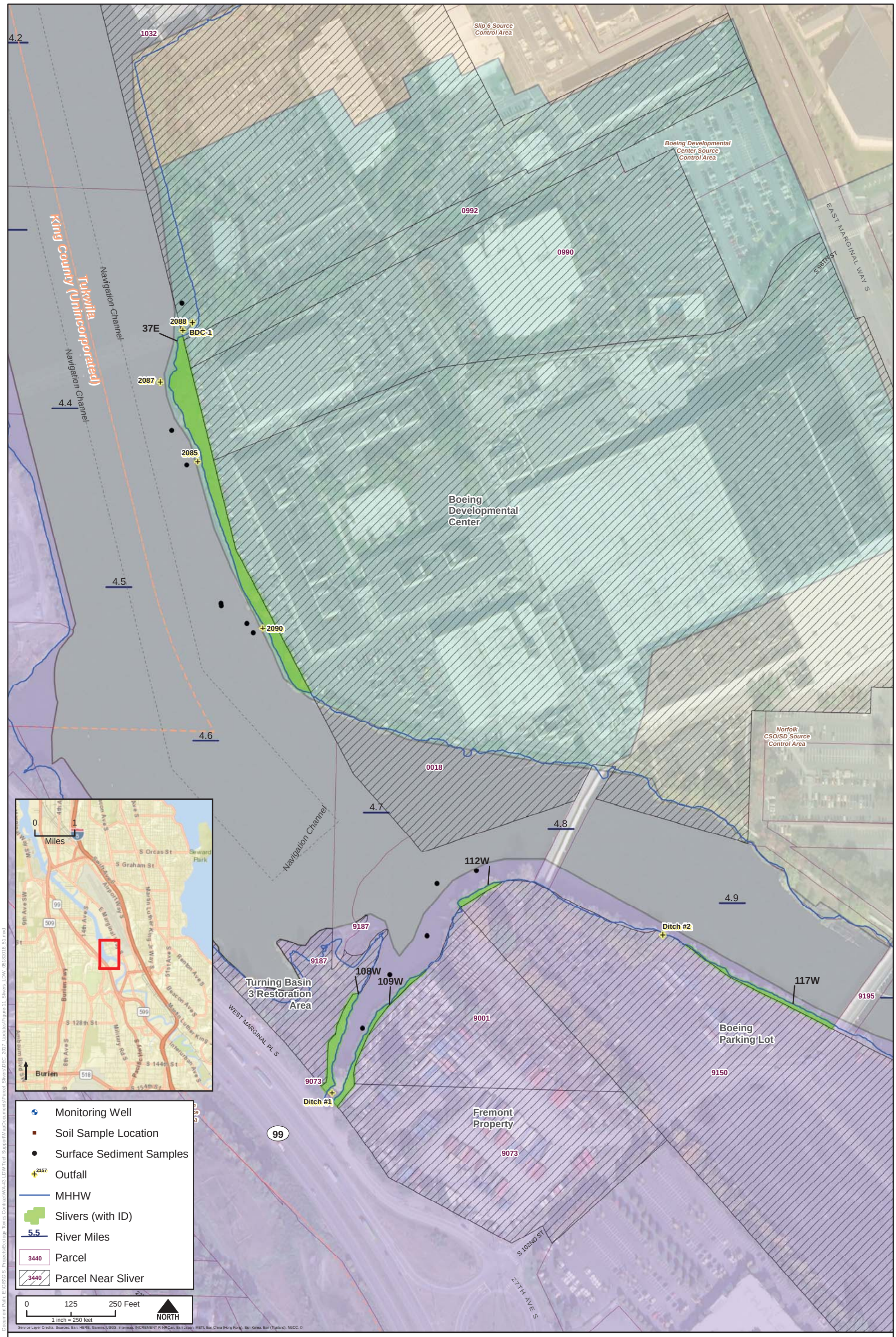

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Figure 11. Lower Duwamish Waterway Sliver Locations (RM 4.5 to 5.0)

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Tables

Table 1
Summary of Information for Slivers Larger than 1,000 Square Feet

Sliver Group Name	Sliver ID	Sliver Area (sq ft)	River Mile	Outfalls Located within 100 feet of Sliver	Source Control Area	Adjacent Property No.	Adjacent Property Name	Facility/ Site ID	Current Site Use	Adjacent Parcel No.	Parcel No. Abbreviation	Adjacent Parcel Name	Adjacent Parcel Taxpayer	Current Facility Operator	Adjacent Parcel Address
Certainteed Gypsum	11E	2,088	1.5 to 1.6	2014, 2017	RM 1.2-1.7 East (St. Gobain to Glacier Northwest)	05001	Certainteed Gypsum	2253	manufacturing, storing, and recycling of wallboard	1924049092	9092	Certainteed Gypsum	BPB Gypsum Inc	Certainteed Gypsum	5931 East Marginal Way S
Duwamish Marine Center	14E	22,986	1.8 to 2.0	2022, DuwMetalFab, 2502, 2501	RM 1.7-2.0 East (Slip 2 to Slip 3)	06003	Duwamish Marine Center	21945598	loading and unloading barges with a variety of cargo and barging operations	5367203447	3447	Duwamish Marine Center	Gilmur James D + Jacqueline H	Duwamish Marine Center	16 S Michigan Street
								8985	metal parts fabrication	5367203635	3635	Duwamish Marine Center	Gilmur James D + Jacqueline H	Duwamish Marine Center	16 S Michigan Street
								5386	unknown	5367203415	3415	Hale's Construction	Gilmur James D + Jacqueline H	vacant	6365 1st Avenue S
								65697348	loading and unloading barges with a variety of cargo and barging operations	5367204565	4565	Hale's Construction	Gilmur James D + Jacqueline H	Vacant	6365 1st Avenue S
1st Avenue S Bridge	15E	1,530	1.9 to 2.0	None	RM 1.7-2.0 East (Slip 2 to Slip 3)	06008	Seattle City SDOT 1st Ave S	5386	unpaved, vegetated area, partially covered by the 1st Ave S Bridge	5367202410	2410	Vacant	Seattle City of SDOT	Seattle DOT	31 S Michigan Street
Dawn Foods	16E	3,195	2.1 to 2.3	None	RM 2.3-2.8 East (Seattle Boiler Works to Slip 4)	08001	Bunge Foods	3505	warehouse	0001800113	0113	Bunge Foods	Guimont Gemo/William P	Bunge Foods	6901 Fox Avenue S
CleanScapes	26E	5,796	2.5 to 2.7	2040, CleanScapes B	RM 2.3-2.8 East (Seattle Boiler Works to Slip 4)	08007	Puget Sound Truck Lines	26468911	municipal solid waste collection, recycling, and street maintenance services.	2136200670	0670	Puget Sound Truck Lines (Leased Property)	CleanScapes	CleanScapes	7401 8th Avenue S
Gateway Park North	28E	1,377	2.7 to 2.8	2042	RM 2.3-2.8 East (Seattle Boiler Works to Slip 4)	NA	Gateway Park North	NA	park	NA	NA	NA	NA	NA	NA
Boeing Plant 2	29E	19,836	2.9 to 3.1	None	RM 2.8-3.7 East (EAA-4: Boeing Plant 2/Jorgensen Forge)	10002	Boeing Plant 2	2100		0022000005	0005A	Boeing Plant 2	The Boeing Company	Boeing Plant 2	1135 S Webster Street
	30E	1,656	3.2 to 3.3							2185000005	0005B	Boeing Plant 2 Parking	The Boeing Company	Boeing Plant 2	1135 S Webster Street
	31E	7,659	3.5 to 3.6							0001600020	0020	Boeing Plant 2	The Boeing Company		7755 East Marginal Way S
Jorgensen Forge/Boeing Issacson-Thompson	35E	39,330	3.5 to 3.7	2065, 2064, 2072, 2062	RM 2.8-3.7 East (EAA-4: Boeing Plant 2/Jorgensen Forge)	10003	Jorgensen Forge	2382, 36575469	manufactures precision-machined forgings from material grades	0001600023	0023	Jorgensen Forge Corp	Star Forge LLC	Jorgensen Forge	8531 East Marginal Way S
					RM 3.7-3.9 East (EAA-6: Boeing Isaacson/Central KCIA)	11001	Boeing Isaacson/Thompson	2218	temporary trailer and container storage and vehicle parking	0001600014	0014	Boeing Vacant Land	The Boeing Company	Boeing Company	8625 East Marginal Way S
						11001	Boeing Isaacson/Thompson			0007400033	0033	Boeing Thompson Site	The Boeing Company		8811 East Marginal Way S
Boeing Developmental Center	37E	36,540	4.4 to 4.7	2088, BDC-1, 2087, 2085, 2090	RM 4.3-4.9 East (Boeing Developmental Center)	13001	Boeing Developmental Center - Central	2101	aircraft and aerospace research and development complex	5624200990	0990	Boeing Developmental Center	Desiimone Trust Boeing	Boeing Developmental Center	9725 East Marginal Way S
										0003400018	0018	Boeing Developmental Center	The Boeing Company		9905 East Marginal Way S
									right-of-way	5624200992	0992	Seattle City Light Power ROW	City of Seattle SCL		9401 East Marginal Way S
Terminal 103	2W	2,115	0.0 to 0.1		RM 0.0-1.0 West (Spokane Street to Kellogg Island)	15025	Terminal 103	94648691 7754458	storage and maintenance of marine construction equipment; storage of aggregate	7666703440	3440	Gen Const/Wright Schuchart	Port of Seattle	CalPortland Seattle Aggregate Yard	3838 West Marginal Way SW
Alaska Marine Lines	41W	1,395	1.2 to 1.3	5003, 5004, 5005, 2137	RM 0.0-1.0 West (Spokane Street to Kellogg Island)	17001	Alaska Marine Lines	17126, 88255195	loading of barges and transportation/storage of containerized freight cargo	1924049026	9026	Alaska Marine Lines	5600 W Marginal Way SW SEAT	Alaska Marine Lines	5610 West Marginal Way SW
	42W	6,849	1.2 to 1.3							1924049026	9026	Alaska Marine Lines	5600 W Marginal Way SW SEAT	Alaska Marine Lines	5610 West Marginal Way SW
Duwamish Shipyard	44W	4,374	1.3 to 1.4	AML-DP3, AML-DP2	RM 0.0-1.0 West (Spokane Street to Kellogg Island)	17003	Duwamish Shipyard	2071	repair and maintenance of floating vessels and equipment	1924049028	9028	Duwamish Shipyards	Duwamish Shipyard Inc	Duwamish Shipyard	NA
	45W	2,547	1.3 to 1.4							1924049028	9028	Duwamish Shipyards	Duwamish Shipyard Inc	Duwamish Shipyard	NA
Terminal 115	84W	15,678	1.8 to 2.0	2125, 2124, 2122	RM 1.6-2.1 West (Terminal 115)	18014	Terminal 115	4040072	frozen food warehouse and distribution facility	5367202505	2505	Port Terminal 115/Seafreeze	Port of Seattle	Port Terminal 115	6000 West Marginal Way SW
	86W	5,616	1.9 to 2.1	2506						5367202505	2505	Port Terminal 115/Seafreeze	Port of Seattle	Port Terminal 115	6000 West Marginal Way SW
						18012	Seattle City Eng Dept Penn Yard	NA	park	5367202518	2518	City of Seattle - Seaview Park	Seattle City of SDOT	Seattle DOT	NA
Boyer Towing	91W	9,963	2.2 to 2.4	2117, 2116, Boyer-1	RM 2.1-2.2 West (EAA-2: Trotsky Inlet)	20002	Boyer Towing	NA	unknown	6871200045	0045	Boyer Towing	NA	vacant	NA
						20002	Boyer Towing	NA	marine / commercial fishing terminal	6871200620	0620	Boyer Towing	Boyer Towing Inc	Boyer Towing	7201 2nd Avenue S
						20017	River View Marina	NA	operation of tugboats to transport barges	6871200350	0350	River View Marina	Boyer Towing Inc	River View Marina	7200 2nd Avenue S
	93W	43,056	2.4 to 2.7	Boyer-2, 2115, 2114, 5th Ave		20002	Boyer Towing	37926748	deep sea domestic transport of freight	6871200210	0210	Boyer Alaska Barge Line	Boyer Towing	Boyer Alaska Barge Lines	7318 4th Avenue S
						20002	Boyer Towing	15947	marine / commercial fishing terminal	6871200100	0100	Boyer Towing	Halvorsen Boyer Jr+Kirsten+	Boyer Towing	7318 4th Avenue S
						20002	Boyer Towing	NA	operation of tugboats to transport barges	7327906685	6685	Alki Construction Co	Boyer Towing Inc	Alki Construction Co	7410 5th Avenue S

Table 1
Summary of Information for Slivers Larger than 1,000 Square Feet

Sliver Group Name	Sliver ID	Sliver Area (sq ft)	River Mile	Outfalls Located within 100 feet of Sliver	Source Control Area	Adjacent Property No.	Adjacent Property Name	Facility/ Site ID	Current Site Use	Adjacent Parcel No.	Parcel No. Abbreviation	Adjacent Parcel Name	Adjacent Parcel Taxpayer	Current Facility Operator	Adjacent Parcel Address
	93W	43,050	2.4 to 2.7	2114, 5th Ave S, 2113	RM 2.2-3.4 West (Riverside Drive)	21051	Pacific Pile and Marine	56779778	marine and heavy construction services	7327906755	6755	Machine Shop	Brackish Properties LLC	Pacific Pile and Marine	582 S Riverside Drive
						21029	Hurlen Construction	NA	vacant	7327906645	6645	Hurlen Construction	Cascade Barge & Equipment	Cascade Barge & Equipment	523 S Riverside Drive
						NA	NA	NA	Residential	7327905770	5770	Residential	Residential	NA	604 Riverside Drive
						NA	NA	NA	Residential	7327905760	5760	Residential	Residential	NA	608 S Riverside Drive
Riverside Drive - Central	95W	15,120	2.6 to 2.7	2112	RM 2.2-3.4 West (Riverside Drive)	NA	NA	NA	NA	7327905280	5280	Vacant Land	Cassell Point LLC	Vacant	740 S Holden Street
						21029	Hurlen Construction	42127616	used for storage	7327905350	5350	Hurlen Const	Hurlen Logistics LLC		700 S Riverside Drive
	96W	20,763	2.7 to 2.9	2106, 2107, 2108		21037	Lucas Machine	39232961	milling, tuning, assembly, repairs, fabrications, and tooling operations	7327904100	4100	Vacant Land	Cassell Point LLC		707 S Riverside Drive
						NA	NA	NA	METRO pump station	7327904049	4049	Metro Pump Station	King County Wastewater	King County pump station	NA
						21032	Independent Metals Plant 2	861945	vacant	7327903645	3645	Silver Bay Logging	Silver Bay Logging Inc	Vacant	7760 8th Avenue S
	99W	1,728	2.9 to 3.0	2110, 2109		21032	Independent Metals Plant 2	95749157	produced a variety of industrial boats, including fishing boats, police and fire boats, oil-spill cleanup boats, and Coast Guard tenders	7327902520	2520	Work Boats North West	Silver Bay Logging Inc		7814 8th Avenue S
	100W	3,015	2.9 to 3.0	None		NA	NA	16139	Residential	7327902395	2395	Residential	Residential	NA	850 S Kenyon Street
Riverside Drive - South	102W	34,128	3.0 to 3.4	3037	RM 2.2-3.4 West (Riverside Drive)	NA	NA	NA	Residential	7327902355	2355	Vacant Land	Seattle City of DPR	Vacant	1022 S Monroe Street
						NA	NA	NA	Residential	7327902346	2346	Vacant	Port of Seattle	Vacant	1040 S Monroe Street
						21036	Long Painting 10th Ave	NA	electrical and design services contractor	7327901215	1215	Unity Electric	Brian Hicks	Unity Electric	1024 S Elmgrove Street
						21036	Long Painting 10th Ave	16838	Residential	3224049002	9002	Vacant Multi-family	Elm Grove LLC	Residential	NA
						21036	Long Painting 10th Ave	NA	Residential	3224049003	9003	Residential	Residential	Residential	1040 S Elmgrove Street
						21036	Long Painting 10th Ave	NA	Residential	3224049037	9037	Residential	Seattle City of SPU-DWU	Residential	1054 S Elmgrove Street
						21036	Long Painting 10th Ave	NA	Residential	3224049004	9004	Residential	Residential	Residential	1046 S Elmgrove Street
						NA	NA	NA	Residential	2185000520	0520	Residential	Residential	Residential	8103 12th Avenue S
						NA	NA	NA	Residential	2185000505	0505	Residential	Residential	Residential	1202 S Southern Street
						NA	NA	NA	Residential	2185000495	0495	Residential	Residential	Residential	1206 S Southern Street
						NA	NA	NA	Residential	2185000475	0475	Residential	Residential	Residential	1212 S Southern Street
						NA	NA	NA	Residential	2185000825	0825	Residential	Residential	Residential	1225 S Southern Street
						NA	NA	NA	Residential	2185000695	0695	Residential	HMH LLC	Residential	1236 S Rose Street
						NA	NA	NA	Residential	2185000685	0685	Residential	Residential	Residential	1240 S Rose Street
						NA	NA	NA	Residential	2185000895	0895	Residential	King County-Roads	Residential	1239 S Rose Street
South Park Bridge	103W	2,250	3.3 to 3.4	2215	RM 3.4-3.8 West (EAA-5: Terminal 117)	22003	South Park Marina	66136556		2185600070	0070	Ricks Master Marine	South Park Marine LTD Partn	South Park Marina	8500 Dallas Avenue S
South Park Marina/ Terminal 117/ Boeing South Park	104W	111,294	3.4 to 4.0	South Park Marina, 2214, T117, 2212, 2209, 2213, SP5, 2103, SP3, SP2, 2102	RM 3.4-3.8 West (EAA-5: Terminal 117)	22003	South Park Marina	44653368	a small boat marina and do-it-yourself boat maintenance and repair facility	2185600025	0025	Tire Factory	South Park Marine LTD Part	South Park Marina	8510 Dallas Avenue S
						22003				0001600001	0001	South Park Marina	South Park Marine LTD	South Park Marina	8604 Dallas Avenue S
						22004	Terminal 117	2202	restoration area	0001600044	0044	NA	Port of Seattle	Port of Seattle	8700 Dallas Avenue S
						22002	Boeing South Park - Terminal 117	60381981	a training facility and research and calibration laboratories	7883608601	8601	Boeing South Park	The Boeing Company	Boeing South Park	1420 S Trenton Street
					RM 3.8-4.2 West (Sea King Industrial Park)	23053	Boeing South Park - Sea King			7883608603	8603	Boeing South Park	The Boeing Company		1420 S Trenton Street
Turning Basin 3 Restoration Area	108W	6,120	4.7 to 4.8	Ditch #1	RM 4.2-5.8 West (Restoration Areas)	24024	Turning Basin 3 Restoration Area	96665547	restoration area	0423049187	9189	NA	Port of Seattle	Port of Seattle	10108 West Marginal Place S
	109W	4,914	4.7 to 4.8	Ditch #1		24007	Fremont Property	22587	used for equipment and trailer storage by a tracking company	0423049001	9001	AIF Trailer Leasing	Mellon Desimone	Vacant	NA
										0423049073	9073	PAMCO Construction	Mellon Desimone	vacant	10180 West Marginal Place S
Boeing Parking Lot	112W	1,683	4.7 to 4.8	None	RM 4.2-5.8 West (Restoration Areas)	24004	Boeing Parking Lot Property	NA	parking and storage	0423049150	9150	Boeing Employees Activity Center	Desimone Trus Oxbow 2601	Boeing Employees Activity Center	2601 S 102nd Street
	117W	4,266	4.9 to 5.0	Ditch #2											

Table 2
Soil, Groundwater, and Sediment Screening Levels

Chemical	CAS No.	Soil PCUL for Protection of Sediment via Bank Erosion (mg/kg)	Groundwater PCUL for Protection of Sediment (ug/L)	Target Sediment Concentration (mg/kg DW)[1]
PCBs				
Total PCBs	1336-36-3	0.13	0.022	0.13
Dioxins/Furans				
Total dioxin/furan TEQ	--	0.000025	NA	0.000025
Metals				
Arsenic	7440-38-2	57	1,800	57
Cadmium	7440-43-9	5.1	1.2	5.1
Chromium	7440-47-3	260	0.06	260
Copper	7440-50-8	390	14	390
Lead	7439-92-1	450	19	450
Mercury, inorganic	7439-97-6	0.41	2	0.41
Silver	7440-22-4	6.1	55	6.1
Zinc	7440-66-6	410	770	410
SVOCs - Polycyclic Aromatic Hydrocarbons				
Acenaphthene	83-32-9	0.5	5.3	0.50
Acenaphthylene	208-96-8	1.3	NA	1.3
Anthracene	120-12-7	0.96	2.1	0.96
Benzo(a)anthracene	56-55-3	1.3	0.19	1.3
Total benzofluoranthenes	--	3.2	NA	3.2
Benzo(g,h,i)perylene	191-24-2	0.67	NA	0.67
Benzo(a)pyrene	50-32-8	1.6	0.087	1.6
Chrysene	218-01-9	1.4	0.19	1.4
Dibenz(a,h)anthracene	53-70-3	0.23	0.0068	0.23
Fluoranthene	206-44-0	1.7	1.8	1.7
Fluorene	86-73-7	0.54	3.7	0.54
Indeno(1,2,3-cd)pyrene	193-39-5	0.60	0.0091	0.60
2-Methylnaphthalene	91-57-6	0.67	NA	0.67
Naphthalene	91-20-3	2.1	90	2.1
Phenanthrene	85-01-8	1.5	NA	1.5
Pyrene	129-00-0	2.6	2	2.6
Total LPAHs	--	5.2	NA	5.2
Total HPAHs	--	12	NA	12
Total cPAH TEQ	--	1.0	0.054	1.0
Other SVOCs				
Benzoic acid	65-85-0	0.65	590	0.65
Benzyl alcohol	100-51-6	0.057	NA	0.057
Bis(2-ethylhexyl) phthalate	117-81-7	1.3	0.62	1.3
Butyl benzyl phthalate	85-68-7	0.063	0.24	0.063
Dibenzofuran	132-64-9	0.54	NA	0.54
Dibutyl phthalate	84-74-2	1.4	46	1.4
1,2-Dichlorobenzene	95-50-1	0.035	4.5	0.035
1,4-Dichlorobenzene	106-46-7	0.11	8.9	0.11
Diethyl phthalate	84-66-2	0.20	93	0.20
Dimethyl phthalate	131-11-3	0.071	NA	0.071
2,4-Dimethylphenol	105-67-9	0.029	6.3	0.029
Di-n-octyl phthalate	117-84-0	6.2	0.0039	6.2
Hexachlorobenzene	118-74-1	0.022	0.014	0.022
Hexachlorobutadiene	87-68-3	0.011	0.011	0.011
2-Methylphenol (o-Cresol)	95-48-7	0.063	27	0.063
4-Methylphenol (p-Cresol)	106-44-5	0.67	NA	0.67

Table 2
Soil, Groundwater, and Sediment Screening Levels

Chemical	CAS No.	Soil PCUL for Protection of Sediment via Bank Erosion (mg/kg)	Groundwater PCUL for Protection of Sediment (ug/L)	Target Sediment Concentration (mg/kg DW)[1]
n-Nitrosodiphenylamine	86-30-6	0.028	1.1	0.028
Pentachlorophenol	87-86-5	0.36	0.88	0.36
Phenol	108-95-2	0.42	370	0.42
1,2,4-Trichlorobenzene	120-82-1	0.031	0.96	0.031

1 - Target sediment concentration = Higher of SMS benthic SCO or LDW RAL (ROD Tables 20 and 22). Carbon-normalized SCOs are presented as their dry weight equivalent LAET values (see Table 8-1 in Ecology's SCUM II guidance).

CAS - Chemical Abstracts Service
cPAH - carcinogenic polycyclic aromatic hydrocarbon
DW - dry weight
HPAH - high molecular weight polycyclic aromatic hydrocarbon
LDW - Lower Duwamish Waterway
LPAH - low molecular weight polycyclic aromatic hydrocarbon
na - not applicable; no PCUL value
PCB - polychlorinated biphenyl
PCUL - preliminary cleanup level
RAL - Remedial Action Level
ROD - Record of Decision
SCO - Sediment Cleanup Objective
SMS - Sediment Management Standards
SVOC - semivolatile organic compound
TEQ - toxic equivalence quotient

Table 3
Exceedances of Surface Sediment Screening Levels Within 100 Feet of Slivers

Sliver ID	Sample Location ID	River Mile	Channel Location	Sample Date	Chemical Group	Chemical	Concentration	Units	Detect	Screening Level	Exceedance Factor
11E	JHGSA-SD1-32-0010	1.5 to 1.6	East	7/3/2000	Metal	Zinc	1.5E+03	mg/kg	Y	4.1E+02	3.7
11E	JHGSA-SD1-02-0010	1.5 to 1.6	East	7/3/2000	PAH	Chrysene	4.1E+00	mg/kg	Y	1.4E+00	2.9
11E	JHGSA-SD1-02-0010	1.5 to 1.6	East	7/3/2000	PAH	Fluoranthene	2.2E+00	mg/kg	Y	1.7E+00	1.3
11E	LDW-SS60	1.5 to 1.6	East	1/19/2005	PCB	Total PCBs	2.5E-01	mg/kg	Y	1.3E-01	1.9
14E	RB09-01	1.8 to 1.9	East	2/23/2015	Metal	Mercury	1.5E+00	mg/kg	Y	4.1E-01	3.7
14E	SS2022-A	1.8 to 1.9	East	3/24/2011	Other SVOC	Benzyl alcohol	4.2E-01	mg/kg	Y	5.7E-02	7.4
14E	SS2022-D	1.8 to 1.9	East	3/24/2011	Other SVOC	Benzyl alcohol	2.4E-01	mg/kg	Y	5.7E-02	4.2
14E	RB09-02	1.8 to 1.9	East	2/23/2015	PCB	Total PCBs	3.0E+00	mg/kg	Y	1.3E-01	23
14E	TRI-069T	1.8 to 1.9	East	8/10/2006	PCB	Total PCBs	6.7E-01	mg/kg	Y	1.3E-01	5.2
14E	LDW-SS71	1.9 to 2.0	East	3/15/2005	PCB	Total PCBs	4.6E-01	mg/kg	Y	1.3E-01	3.5
14E	SS2022-D	1.8 to 1.9	East	3/24/2011	PCB	Total PCBs	3.7E-01	mg/kg	Y	1.3E-01	2.8
14E	LDW-SS69b	1.8 to 1.9	East	3/16/2005	PCB	Total PCBs	3.4E-01	mg/kg	Y	1.3E-01	2.6
14E	RB09-01	1.8 to 1.9	East	2/23/2015	PCB	Total PCBs	2.2E-01	mg/kg	Y	1.3E-01	1.7
14E	RB-2	1.8 to 1.9	East	5/29/2008	PCB	Total PCBs	1.4E-01	mg/kg	Y	1.3E-01	1.1
14E	TRI-069T	1.8 to 1.9	East	8/10/2006	Phenol	2,4-Dimethylphenol	4.9E-02	mg/kg	Y	2.9E-02	1.7
14E	RB-2	1.8 to 1.9	East	5/29/2008	Phthalate	Butyl benzyl phthalate	7.5E-02	mg/kg	Y	6.3E-02	1.2
14E	TRI-069T	1.8 to 1.9	East	8/10/2006	Phthalate	Butyl benzyl phthalate	7.2E-02	mg/kg	Y	6.3E-02	1.1
16E	B6b	2.1 to 2.2	East	9/18/2004	PCB	Total PCBs	4.2E-01	mg/kg	Y	1.3E-01	3.2
16E	LDW-SS81	2.2 to 2.3	East	3/8/2005	PCB	Total PCBs	2.1E-01	mg/kg	Y	1.3E-01	1.6
35E	LDW-SS109	3.5 to 3.6	East	1/25/2005	Dioxin/Furan	Dioxin/Furan (TEQ, NDx0.5)	1.0E-04	mg/kg	Y	2.5E-05	4.0
35E	LDW-SS114	3.7 to 3.8	East	1/20/2005	Metal	Arsenic	1.1E+03	mg/kg	Y	5.7E+01	19
35E	SD-504G	3.7 to 3.8	East	2/6/2012	Metal	Arsenic	6.8E+02	mg/kg	Y	5.7E+01	12
35E	LDW-SS112	3.7 to 3.8	East	1/19/2005	Metal	Arsenic	4.8E+02	mg/kg	Y	5.7E+01	8.4
35E	SD-506G	3.7 to 3.8	East	2/7/2012	Metal	Arsenic	4.0E+02	mg/kg	Y	5.7E+01	6.9
35E	LDW-SS109	3.5 to 3.6	East	1/25/2005	Metal	Zinc	1.7E+03	mg/kg	Y	4.1E+02	4.1
35E	SD-307-S	3.5 to 3.6	East	8/16/2004	Metal	Zinc	1.4E+03	mg/kg	Y	4.1E+02	3.4
35E	SD-307-S	3.5 to 3.6	East	8/16/2004	PAH	Anthracene	4.4E+00	mg/kg	Y	9.6E-01	4.6
35E	SD-307-S	3.5 to 3.6	East	8/16/2004	PAH	Benzo(a)anthracene	4.7E+00	mg/kg	Y	1.3E+00	3.6
35E	LDW-SS115	3.7 to 3.8	East	1/25/2005	PAH	Benzo(a)anthracene	1.5E+00	mg/kg	Y	1.3E+00	1.2
35E	SD-307-S	3.5 to 3.6	East	8/16/2004	PAH	Benzo(a)pyrene	2.0E+00	mg/kg	Y	1.6E+00	1.3
35E	LDW-SS115	3.7 to 3.8	East	1/25/2005	PAH	Benzo(a)pyrene	1.7E+00	mg/kg	Y	1.6E+00	1.1
35E	SD-307-S	3.5 to 3.6	East	8/16/2004	PAH	Benzofluoranthenes, total	7.0E+00	mg/kg	Y	3.2E+00	2.2
35E	LDW-SS115	3.7 to 3.8	East	1/25/2005	PAH	Benzofluoranthenes, total	3.6E+00	mg/kg	Y	3.2E+00	1.1
35E	SD-307-S	3.5 to 3.6	East	8/16/2004	PAH	Chrysene	6.6E+00	mg/kg	Y	1.4E+00	4.7
35E	LDW-SS115	3.7 to 3.8	East	1/25/2005	PAH	Chrysene	2.5E+00	mg/kg	Y	1.4E+00	1.8
35E	LDW-SS114	3.7 to 3.8	East	1/20/2005	PAH	Chrysene	1.9E+00	mg/kg	Y	1.4E+00	1.4

Table 3
Exceedances of Surface Sediment Screening Levels Within 100 Feet of Slivers

Sliver ID	Sample Location ID	River Mile	Channel Location	Sample Date	Chemical Group	Chemical	Concentration	Units	Detect	Screening Level	Exceedance Factor
35E	LDW-SS112	3.7 to 3.8	East	1/19/2005	PAH	Chrysene	1.6E+00	mg/kg	Y	1.4E+00	1.1
35E	SD-307-S	3.5 to 3.6	East	8/16/2004	PAH	Fluoranthene	1.0E+01	mg/kg	Y	1.7E+00	5.9
35E	LDW-SS115	3.7 to 3.8	East	1/25/2005	PAH	Fluoranthene	5.2E+00	mg/kg	Y	1.7E+00	3.1
35E	LDW-SS112	3.7 to 3.8	East	1/19/2005	PAH	Fluoranthene	3.4E+00	mg/kg	Y	1.7E+00	2.0
35E	LDW-SS114	3.7 to 3.8	East	1/20/2005	PAH	Fluoranthene	3.1E+00	mg/kg	Y	1.7E+00	1.8
35E	SD-307-S	3.5 to 3.6	East	8/16/2004	PAH	Fluorene	1.5E+00	mg/kg	Y	5.4E-01	2.8
35E	SD-307-S	3.5 to 3.6	East	8/16/2004	PAH	Phenanthrene	4.9E+00	mg/kg	Y	1.5E+00	3.3
35E	LDW-SS115	3.7 to 3.8	East	1/25/2005	PAH	Phenanthrene	2.4E+00	mg/kg	Y	1.5E+00	1.6
35E	LDW-SS114	3.7 to 3.8	East	1/20/2005	PAH	Phenanthrene	1.6E+00	mg/kg	Y	1.5E+00	1.1
35E	SD-307-S	3.5 to 3.6	East	8/16/2004	PAH	Pyrene	3.9E+00	mg/kg	Y	2.6E+00	1.5
35E	LDW-SS115	3.7 to 3.8	East	1/25/2005	PAH	Pyrene	3.2E+00	mg/kg	Y	2.6E+00	1.2
35E	SD-307-S	3.5 to 3.6	East	8/16/2004	PAH	Total cPAH (TEQ, NDx0.5)	3.3E+00	mg/kg	Y	1.0E+00	3.3
35E	LDW-SS115	3.7 to 3.8	East	1/25/2005	PAH	Total cPAH (TEQ, NDx0.5)	2.3E+00	mg/kg	Y	1.0E+00	2.3
35E	LDW-SS114	3.7 to 3.8	East	1/20/2005	PAH	Total cPAH (TEQ, NDx0.5)	1.7E+00	mg/kg	Y	1.0E+00	1.7
35E	SD-506G	3.7 to 3.8	East	2/7/2012	PAH	Total cPAH (TEQ, NDx0.5)	1.7E+00	mg/kg	Y	1.0E+00	1.7
35E	LDW-SS112	3.7 to 3.8	East	1/19/2005	PAH	Total cPAH (TEQ, NDx0.5)	1.5E+00	mg/kg	Y	1.0E+00	1.5
35E	SD-307-S	3.5 to 3.6	East	8/16/2004	PAH	Total HPAH	3.5E+01	mg/kg	Y	1.2E+01	2.9
35E	LDW-SS115	3.7 to 3.8	East	1/25/2005	PAH	Total HPAH	1.9E+01	mg/kg	Y	1.2E+01	1.6
35E	LDW-SS114	3.7 to 3.8	East	1/20/2005	PAH	Total HPAH	1.4E+01	mg/kg	Y	1.2E+01	1.1
35E	SD-307-S	3.5 to 3.6	East	8/16/2004	PAH	Total LPAH	1.1E+01	mg/kg	Y	5.2E+00	2.1
35E	LDW-SS109	3.5 to 3.6	East	1/25/2005	PCB	Total PCBs	1.1E+02	mg/kg	Y	1.3E-01	846
35E	SD-DUW161	3.5 to 3.6	East	8/20/2003	PCB	Total PCBs	1.3E+01	mg/kg	Y	1.3E-01	99
35E	SD-344-S	3.5 to 3.6	East	8/26/2004	PCB	Total PCBs	1.1E+01	mg/kg	Y	1.3E-01	85
35E	SD-307-S	3.5 to 3.6	East	8/16/2004	PCB	Total PCBs	2.6E+00	mg/kg	Y	1.3E-01	20
35E	LDW-SS114	3.7 to 3.8	East	1/20/2005	PCB	Total PCBs	8.2E-01	mg/kg	Y	1.3E-01	6.3
35E	SD-506G	3.7 to 3.8	East	2/7/2012	PCB	Total PCBs	5.0E-01	mg/kg	Y	1.3E-01	3.8
35E	LDW-SS112	3.7 to 3.8	East	1/19/2005	PCB	Total PCBs	4.7E-01	mg/kg	Y	1.3E-01	3.6
35E	SD-502G	3.7 to 3.8	East	2/6/2012	PCB	Total PCBs	4.1E-01	mg/kg	Y	1.3E-01	3.2
35E	SD-504G	3.7 to 3.8	East	2/6/2012	PCB	Total PCBs	4.0E-01	mg/kg	Y	1.3E-01	3.1
35E	LDW-SS158	3.7 to 3.8	East	3/16/2005	PCB	Total PCBs	3.9E-01	mg/kg	Y	1.3E-01	3.0
35E	SD-507-0100	3.7 to 3.8	East	2/1/2012	PCB	Total PCBs	3.4E-01	mg/kg	Y	1.3E-01	2.6
35E	SD-217-S	3.7 to 3.8	East	8/27/2004	PCB	Total PCBs	2.9E-01	mg/kg	Y	1.3E-01	2.3
35E	SD-336-S	3.7 to 3.8	East	8/27/2004	PCB	Total PCBs	2.5E-01	mg/kg	Y	1.3E-01	1.9
35E	LDW-SS115	3.7 to 3.8	East	1/25/2005	PCB	Total PCBs	2.2E-01	mg/kg	Y	1.3E-01	1.7
35E	SD-516-0100	3.7 to 3.8	East	2/2/2012	PCB	Total PCBs	2.0E-01	mg/kg	Y	1.3E-01	1.6
35E	SD-345-S	3.7 to 3.8	East	8/26/2004	PCB	Total PCBs	1.8E-01	mg/kg	Y	1.3E-01	1.4

Table 3
Exceedances of Surface Sediment Screening Levels Within 100 Feet of Slivers

Sliver ID	Sample Location ID	River Mile	Channel Location	Sample Date	Chemical Group	Chemical	Concentration	Units	Detect	Screening Level	Exceedance Factor
35E	LDW-SS112	3.7 to 3.8	East	1/19/2005	Phthalate	Butyl benzyl phthalate	2.2E-01	mg/kg	Y	6.3E-02	3.5
35E	LDW-SS158	3.7 to 3.8	East	3/16/2005	Phthalate	Butyl benzyl phthalate	7.8E-02	mg/kg	Y	6.3E-02	1.2
37E	SS2085-A	4.4 to 4.5	East	3/17/2011	Other SVOC	Benzyl alcohol	3.6E-01	mg/kg	Y	5.7E-02	6.3
37E	SS2090-D	4.5 to 4.6	East	3/17/2011	Other SVOC	Benzyl alcohol	1.5E-01	mg/kg	Y	5.7E-02	2.6
37E	SS2090-A	4.5 to 4.6	East	3/17/2011	Other SVOC	Benzyl alcohol	1.3E-01	mg/kg	Y	5.7E-02	2.3
37E	B9a	4.5 to 4.6	East	8/27/2004	PCB	Total PCBs	2.7E-01	mg/kg	Y	1.3E-01	2.0
41W	SS5002-A	1.2 to 1.3	West	3/24/2011	Metal	Arsenic	8.6E+01	mg/kg	Y	5.7E+01	1.5
41W	SS5003-A	1.2 to 1.3	West	3/24/2011	Metal	Arsenic	6.7E+01	mg/kg	Y	5.7E+01	1.2
41W	SS5003-A	1.2 to 1.3	West	3/24/2011	Other SVOC	Benzyl alcohol	1.1E-01	mg/kg	Y	5.7E-02	1.9
41W	SS5005-A	1.2 to 1.3	West	3/24/2011	Other SVOC	Benzyl alcohol	1.1E-01	mg/kg	Y	5.7E-02	1.9
41W	SS5002-A	1.2 to 1.3	West	3/24/2011	Other SVOC	Benzyl alcohol	6.9E-02	mg/kg	Y	5.7E-02	1.2
41W	SS5003-A	1.2 to 1.3	West	3/24/2011	PCB	Total PCBs	7.5E-01	mg/kg	Y	1.3E-01	5.8
41W	SS5002-A	1.2 to 1.3	West	3/24/2011	PCB	Total PCBs	6.8E-01	mg/kg	Y	1.3E-01	5.2
42W	LDW-SS46	1.3 to 1.4	West	3/10/2005	Metal	Arsenic	7.1E+01	mg/kg	Y	5.7E+01	1.2
42W	LDW-SS46	1.3 to 1.4	West	3/10/2005	Metal	Copper	1.2E+03	mg/kg	Y	3.9E+02	3.2
42W	LDW-SS46	1.3 to 1.4	West	3/10/2005	Metal	Zinc	7.9E+02	mg/kg	Y	4.1E+02	1.9
42W	DSI-SS-07	1.2 to 1.3	West	3/8/2011	Other SVOC	Benzyl alcohol	6.5E-02	mg/kg	Y	5.7E-02	1.1
42W	LDW-SS46	1.3 to 1.4	West	3/10/2005	PAH	Fluoranthene	1.9E+00	mg/kg	Y	1.7E+00	1.1
42W	LDW-SS46	1.3 to 1.4	West	3/10/2005	PAH	Indeno(1,2,3-cd)pyrene	6.8E-01	mg/kg	Y	6.0E-01	1.1
42W	LDW-SS46	1.3 to 1.4	West	3/10/2005	PAH	Total cPAH (TEQ, NDx0.5)	1.6E+00	mg/kg	Y	1.0E+00	1.6
42W	DSI-SS-07	1.2 to 1.3	West	3/8/2011	PCB	Total PCBs	2.5E-01	mg/kg	Y	1.3E-01	2.0
42W	LDW-SS46	1.3 to 1.4	West	3/10/2005	PCB	Total PCBs	2.4E-01	mg/kg	Y	1.3E-01	1.8
42W	LDW-SS46	1.3 to 1.4	West	3/10/2005	Phthalate	Bis(2-ethylhexyl) phthalate	1.6E+00	mg/kg	Y	1.3E+00	1.2
44W	LDW-SS48	1.3 to 1.4	West	1/18/2005	Metal	Arsenic	8.1E+02	mg/kg	Y	5.7E+01	14
44W	LDW-SS47	1.3 to 1.4	West	3/10/2005	Metal	Arsenic	1.6E+02	mg/kg	Y	5.7E+01	2.8
44W	LDW-SS48	1.3 to 1.4	West	1/18/2005	Metal	Copper	1.4E+03	mg/kg	Y	3.9E+02	3.6
44W	LDW-SS47	1.3 to 1.4	West	3/10/2005	Metal	Copper	1.3E+03	mg/kg	Y	3.9E+02	3.4
44W	LDW-SS48	1.3 to 1.4	West	1/18/2005	Metal	Lead	7.8E+02	mg/kg	Y	4.5E+02	1.7
44W	LDW-SS48	1.3 to 1.4	West	1/18/2005	Metal	Mercury	7.9E-01	mg/kg	Y	4.1E-01	1.9
44W	LDW-SS48	1.3 to 1.4	West	1/18/2005	Metal	Zinc	2.8E+03	mg/kg	Y	4.1E+02	6.9
44W	LDW-SS47	1.3 to 1.4	West	3/10/2005	Metal	Zinc	8.8E+02	mg/kg	Y	4.1E+02	2.1
44W	DSI-SS-05	1.3 to 1.4	West	3/7/2011	Other SVOC	Benzyl alcohol	2.5E-01	mg/kg	Y	5.7E-02	4.4
44W	DSI-SS-06	1.3 to 1.4	West	3/7/2011	Other SVOC	Benzyl alcohol	2.4E-01	mg/kg	Y	5.7E-02	4.2
44W	LDW-SS48	1.3 to 1.4	West	1/18/2005	PAH	Chrysene	1.9E+00	mg/kg	Y	1.4E+00	1.4
44W	LDW-SS48	1.3 to 1.4	West	1/18/2005	PAH	Fluoranthene	2.9E+00	mg/kg	Y	1.7E+00	1.7
44W	LDW-SS48	1.3 to 1.4	West	1/18/2005	PAH	Phenanthrene	1.7E+00	mg/kg	Y	1.5E+00	1.1

Table 3
Exceedances of Surface Sediment Screening Levels Within 100 Feet of Slivers

Sliver ID	Sample Location ID	River Mile	Channel Location	Sample Date	Chemical Group	Chemical	Concentration	Units	Detect	Screening Level	Exceedance Factor
44W	LDW-SS48	1.3 to 1.4	West	1/18/2005	PAH	Total cPAH (TEQ, NDx0.5)	1.4E+00	mg/kg	Y	1.0E+00	1.4
44W	TRI-047T	1.3 to 1.4	West	8/9/2006	PCB	Total PCBs	2.8E-01	mg/kg	Y	1.3E-01	2.2
44W	DSI-SS-06	1.3 to 1.4	West	3/7/2011	PCB	Total PCBs	1.9E-01	mg/kg	Y	1.3E-01	1.5
44W	TRI-048T	1.3 to 1.4	West	8/9/2006	PCB	Total PCBs	1.7E-01	mg/kg	Y	1.3E-01	1.3
44W	TRI-047T	1.3 to 1.4	West	8/9/2006	Phenol	2,4-Dimethylphenol	5.2E-02	mg/kg	Y	2.9E-02	1.8
44W	TRI-048T	1.3 to 1.4	West	8/9/2006	Phenol	2,4-Dimethylphenol	4.9E-02	mg/kg	Y	2.9E-02	1.7
44W	TRI-048T	1.3 to 1.4	West	8/9/2006	Phthalate	Butyl benzyl phthalate	1.1E-01	mg/kg	Y	6.3E-02	1.8
44W	LDW-SS48	1.3 to 1.4	West	1/18/2005	Phthalate	Butyl benzyl phthalate	7.1E-02	mg/kg	Y	6.3E-02	1.1
45W	LDW-SS49	1.3 to 1.4	West	1/26/2005	Metal	Arsenic	1.7E+02	mg/kg	Y	5.7E+01	3.0
45W	LDW-SS49	1.3 to 1.4	West	1/26/2005	Metal	Copper	6.1E+02	mg/kg	Y	3.9E+02	1.6
45W	LDW-SS49	1.3 to 1.4	West	1/26/2005	Metal	Zinc	7.7E+02	mg/kg	Y	4.1E+02	1.9
45W	DSI-SS-04	1.3 to 1.4	West	3/7/2011	Other SVOC	Benzyl alcohol	2.9E-01	mg/kg	Y	5.7E-02	5.1
45W	LDW-SS53	1.3 to 1.4	West	2/2/2005	PCB	Total PCBs	2.2E-01	mg/kg	Y	1.3E-01	1.7
84W	SS2122-A	1.9 to 2.0	West	3/8/2011	Other SVOC	Benzyl alcohol	3.6E-01	mg/kg	Y	5.7E-02	6.3
84W	SS2122-U	1.9 to 2.0	West	3/8/2011	Other SVOC	Benzyl alcohol	3.2E-01	mg/kg	Y	5.7E-02	5.6
84W	SS2122-D	1.9 to 2.9	West	3/8/2011	Other SVOC	Benzyl alcohol	2.1E-01	mg/kg	Y	5.7E-02	3.7
84W	SSPSF-D	1.9 to 2.0	West	3/7/2011	Other SVOC	Benzyl alcohol	1.7E-01	mg/kg	Y	5.7E-02	3.0
84W	SSPSF-A	1.9 to 2.0	West	3/7/2011	Other SVOC	Benzyl alcohol	1.5E-01	mg/kg	Y	5.7E-02	2.6
84W	SSPSF-U	1.9 to 2.0	West	3/7/2011	Other SVOC	Benzyl alcohol	1.5E-01	mg/kg	Y	5.7E-02	2.6
84W	SSPSF-U	1.9 to 2.0	West	3/7/2011	Other SVOC	Dibenzofuran	1.2E+00	mg/kg	Y	5.4E-01	2.2
84W	SSPSF-U	1.9 to 2.0	West	3/7/2011	PAH	Acenaphthene	9.4E-01	mg/kg	Y	5.0E-01	1.9
84W	SSPSF-U	1.9 to 2.0	West	3/7/2011	PAH	Chrysene	1.8E+00	mg/kg	Y	1.4E+00	1.3
84W	SSPSF-U	1.9 to 2.0	West	3/7/2011	PAH	Fluoranthene	6.4E+00	mg/kg	Y	1.7E+00	3.8
84W	SS2122-D	1.9 to 2.9	West	3/8/2011	PAH	Fluoranthene	2.4E+00	mg/kg	Y	1.7E+00	1.4
84W	SSPSF-U	1.9 to 2.0	West	3/7/2011	PAH	Fluorene	1.1E+00	mg/kg	Y	5.4E-01	2.0
84W	SSPSF-U	1.9 to 2.0	West	3/7/2011	PAH	Phenanthrene	9.2E+00	mg/kg	Y	1.5E+00	6.1
84W	SSPSF-U	1.9 to 2.0	West	3/7/2011	PAH	Pyrene	4.8E+00	mg/kg	Y	2.6E+00	1.8
84W	SSPSF-U	1.9 to 2.0	West	3/7/2011	PAH	Total LPAH	1.0E+01	mg/kg	Y	5.2E+00	2.0
84W	LDW-SS75	1.9 to 2.0	West	1/21/2005	PCB	Total PCBs	5.2E-01	mg/kg	Y	1.3E-01	4.0
84W	SSPSF-U	1.9 to 2.0	West	3/7/2011	PCB	Total PCBs	1.6E-01	mg/kg	Y	1.3E-01	1.2
84W	LDW-SS70	1.8 to 1.9	West	1/21/2005	Phthalate	Bis(2-ethylhexyl) phthalate	1.7E+00	mg/kg	Y	1.3E+00	1.3
84W	SS2122-U	1.9 to 2.0	West	3/8/2011	Phthalate	Butyl benzyl phthalate	9.6E-02	mg/kg	Y	6.3E-02	1.5
86W	SS2506-A	2.0 to 2.1	West	3/7/2011	Other SVOC	Benzyl alcohol	1.2E-01	mg/kg	Y	5.7E-02	2.1
86W	SS2506-D	2.0 to 2.1	West	3/7/2011	Phthalate	Bis(2-ethylhexyl) phthalate	4.9E+00	mg/kg	Y	1.3E+00	3.8
86W	SS2506-A	2.0 to 2.1	West	3/7/2011	Phthalate	Bis(2-ethylhexyl) phthalate	2.5E+00	mg/kg	Y	1.3E+00	1.9
86W	SS2506-A	2.0 to 2.1	West	3/7/2011	Phthalate	Butyl benzyl phthalate	1.4E-01	mg/kg	Y	6.3E-02	2.2

Table 3
Exceedances of Surface Sediment Screening Levels Within 100 Feet of Slivers

Sliver ID	Sample Location ID	River Mile	Channel Location	Sample Date	Chemical Group	Chemical	Concentration	Units	Detect	Screening Level	Exceedance Factor
91W	LDW-SS85	2.3 to 2.4	West	3/7/2005	PCB	Total PCBs	6.3E-01	mg/kg	Y	1.3E-01	4.8
91W	LDW-SS526	2.3 to 2.4	West	12/16/2009	PCB	Total PCBs	3.6E-01	mg/kg	Y	1.3E-01	2.8
93W	WRC-SS-B3	2.4 to 2.5	West	5/8/2004	Metal	Zinc	4.8E+02	mg/kg	Y	4.1E+02	1.2
93W	SS2113-A	2.6 to 2.7	West	3/7/2011	Other SVOC	Benzyl alcohol	1.2E-01	mg/kg	Y	5.7E-02	2.1
93W	SS2115-D	2.3 to 2.4	West	4/15/2011	Other SVOC	Benzyl alcohol	6.1E-02	mg/kg	Y	5.7E-02	1.1
93W	LDW-SS91	2.6 to 2.7	West	3/7/2005	PCB	Total PCBs	1.7E-01	mg/kg	Y	1.3E-01	1.3
95W	LDW-SS530	2.6 to 2.7	West	12/15/2009	Dioxin/Furan	Dioxin/Furan (TEQ, NDx0.5)	3.6E-05	mg/kg	Y	2.5E-05	1.4
95W	SS2112-A	2.7 to 2.8	West	4/8/2011	Metal	Mercury	6.5E+00	mg/kg	Y	4.1E-01	16
95W	LDW-SS336	2.7 to 2.8	West	10/3/2006	Other SVOC	Benzoic acid	1.6E+00	mg/kg	Y	6.5E-01	2.5
95W	LDW-SS336	2.7 to 2.8	West	10/3/2006	Other SVOC	Benzyl alcohol	5.4E-01	mg/kg	Y	5.7E-02	9.5
95W	SS2112-A	2.7 to 2.8	West	4/8/2011	Other SVOC	Benzyl alcohol	5.4E-01	mg/kg	Y	5.7E-02	9.5
95W	TRI-095T	2.7 to 2.8	West	8/11/2006	Other SVOC	Benzyl alcohol	7.1E-02	mg/kg	Y	5.7E-02	1.2
95W	LDW-SS95	2.7 to 2.8	West	3/9/2005	Other SVOC	Dibenzofuran	4.0E+00	mg/kg	Y	5.4E-01	7.4
95W	SS2112-A	2.7 to 2.8	West	4/8/2011	Other SVOC	Hexachlorobenzene	2.4E-02	mg/kg	Y	2.2E-02	1.1
95W	LDW-SS95	2.7 to 2.8	West	3/9/2005	PAH	2-Methylnaphthalene	7.7E-01	mg/kg	Y	6.7E-01	1.1
95W	LDW-SS95	2.7 to 2.8	West	3/9/2005	PAH	Acenaphthene	4.6E+00	mg/kg	Y	5.0E-01	9.2
95W	LDW-SS530	2.6 to 2.7	West	12/15/2009	PAH	Acenaphthene	9.7E-01	mg/kg	Y	5.0E-01	1.9
95W	LDW-SS95	2.7 to 2.8	West	3/9/2005	PAH	Anthracene	1.0E+01	mg/kg	Y	9.6E-01	10
95W	LDW-SS530	2.6 to 2.7	West	12/15/2009	PAH	Anthracene	1.8E+00	mg/kg	Y	9.6E-01	1.9
95W	LDW-SS335	2.7 to 2.8	West	10/4/2006	PAH	Anthracene	1.2E+00	mg/kg	Y	9.6E-01	1.3
95W	LDW-SS95	2.7 to 2.8	West	3/9/2005	PAH	Benzo(a)anthracene	4.0E+00	mg/kg	Y	1.3E+00	3.1
95W	LDW-SS530	2.6 to 2.7	West	12/15/2009	PAH	Benzo(a)anthracene	3.1E+00	mg/kg	Y	1.3E+00	2.4
95W	LDW-SS335	2.7 to 2.8	West	10/4/2006	PAH	Benzo(a)anthracene	1.6E+00	mg/kg	Y	1.3E+00	1.2
95W	LDW-SS530	2.6 to 2.7	West	12/15/2009	PAH	Benzo(a)pyrene	3.2E+00	mg/kg	Y	1.6E+00	2.0
95W	LDW-SS95	2.7 to 2.8	West	3/9/2005	PAH	Benzo(a)pyrene	2.0E+00	mg/kg	Y	1.6E+00	1.3
95W	LDW-SS530	2.6 to 2.7	West	12/15/2009	PAH	Benzo(g,h,i)perylene	2.3E+00	mg/kg	Y	6.7E-01	3.4
95W	LDW-SS95	2.7 to 2.8	West	3/9/2005	PAH	Benzo(g,h,i)perylene	7.9E-01	mg/kg	Y	6.7E-01	1.2
95W	LDW-SS95	2.7 to 2.8	West	3/9/2005	PAH	Benzofluoranthenes, total	5.2E+00	mg/kg	Y	3.2E+00	1.6
95W	LDW-SS530	2.6 to 2.7	West	12/15/2009	PAH	Benzofluoranthenes, total	4.4E+00	mg/kg	Y	3.2E+00	1.4
95W	LDW-SS95	2.7 to 2.8	West	3/9/2005	PAH	Chrysene	5.7E+00	mg/kg	Y	1.4E+00	4.1
95W	LDW-SS530	2.6 to 2.7	West	12/15/2009	PAH	Chrysene	3.8E+00	mg/kg	Y	1.4E+00	2.7
95W	LDW-SS335	2.7 to 2.8	West	10/4/2006	PAH	Chrysene	2.4E+00	mg/kg	Y	1.4E+00	1.7
95W	LDW-SS530	2.6 to 2.7	West	12/15/2009	PAH	Dibenz(a,h)anthracene	5.8E-01	mg/kg	Y	2.3E-01	2.5
95W	LDW-SS95	2.7 to 2.8	West	3/9/2005	PAH	Fluoranthene	1.7E+01	mg/kg	Y	1.7E+00	10
95W	LDW-SS530	2.6 to 2.7	West	12/15/2009	PAH	Fluoranthene	8.1E+00	mg/kg	Y	1.7E+00	4.8
95W	LDW-SS335	2.7 to 2.8	West	10/4/2006	PAH	Fluoranthene	7.5E+00	mg/kg	Y	1.7E+00	4.4

Table 3
Exceedances of Surface Sediment Screening Levels Within 100 Feet of Slivers

Sliver ID	Sample Location ID	River Mile	Channel Location	Sample Date	Chemical Group	Chemical	Concentration	Units	Detect	Screening Level	Exceedance Factor
95W	LDW-SS93	2.6 to 2.7	West	3/15/2005	PAH	Fluoranthene	2.7E+00	mg/kg	Y	1.7E+00	1.6
95W	LDW-SS95	2.7 to 2.8	West	3/9/2005	PAH	Fluorene	6.8E+00	mg/kg	Y	5.4E-01	13
95W	LDW-SS530	2.6 to 2.7	West	12/15/2009	PAH	Fluorene	8.2E-01	mg/kg	Y	5.4E-01	1.5
95W	LDW-SS530	2.6 to 2.7	West	12/15/2009	PAH	Indeno(1,2,3-cd)pyrene	1.6E+00	mg/kg	Y	6.0E-01	2.7
95W	LDW-SS95	2.7 to 2.8	West	3/9/2005	PAH	Indeno(1,2,3-cd)pyrene	9.7E-01	mg/kg	Y	6.0E-01	1.6
95W	LDW-SS95	2.7 to 2.8	West	3/9/2005	PAH	Phenanthrene	2.2E+01	mg/kg	Y	1.5E+00	15
95W	LDW-SS530	2.6 to 2.7	West	12/15/2009	PAH	Phenanthrene	7.1E+00	mg/kg	Y	1.5E+00	4.7
95W	LDW-SS335	2.7 to 2.8	West	10/4/2006	PAH	Phenanthrene	2.8E+00	mg/kg	Y	1.5E+00	1.9
95W	LDW-SS95	2.7 to 2.8	West	3/9/2005	PAH	Pyrene	1.2E+01	mg/kg	Y	2.6E+00	4.6
95W	LDW-SS530	2.6 to 2.7	West	12/15/2009	PAH	Pyrene	7.4E+00	mg/kg	Y	2.6E+00	2.8
95W	LDW-SS335	2.7 to 2.8	West	10/4/2006	PAH	Pyrene	4.0E+00	mg/kg	Y	2.6E+00	1.5
95W	LDW-SS530	2.6 to 2.7	West	12/15/2009	PAH	Total cPAH (TEQ, NDx0.5)	4.2E+00	mg/kg	Y	1.0E+00	4.2
95W	LDW-SS95	2.7 to 2.8	West	3/9/2005	PAH	Total cPAH (TEQ, NDx0.5)	3.1E+00	mg/kg	Y	1.0E+00	3.1
95W	LDW-SS335	2.7 to 2.8	West	10/4/2006	PAH	Total cPAH (TEQ, NDx0.5)	1.7E+00	mg/kg	Y	1.0E+00	1.7
95W	LDW-SS95	2.7 to 2.8	West	3/9/2005	PAH	Total HPAH	4.8E+01	mg/kg	Y	1.2E+01	4.0
95W	LDW-SS530	2.6 to 2.7	West	12/15/2009	PAH	Total HPAH	3.4E+01	mg/kg	Y	1.2E+01	2.9
95W	LDW-SS335	2.7 to 2.8	West	10/4/2006	PAH	Total HPAH	2.0E+01	mg/kg	Y	1.2E+01	1.7
95W	LDW-SS95	2.7 to 2.8	West	3/9/2005	PAH	Total LPAH	4.4E+01	mg/kg	Y	5.2E+00	8.5
95W	LDW-SS530	2.6 to 2.7	West	12/15/2009	PAH	Total LPAH	1.2E+01	mg/kg	Y	5.2E+00	2.3
95W	LDW-SS530	2.6 to 2.7	West	12/15/2009	PCB	Total PCBs	8.6E-01	mg/kg	Y	1.3E-01	6.6
95W	LDW-SS335	2.7 to 2.8	West	10/4/2006	PCB	Total PCBs	3.0E-01	mg/kg	Y	1.3E-01	2.3
95W	LDW-SS95	2.7 to 2.8	West	3/9/2005	PCB	Total PCBs	2.0E-01	mg/kg	Y	1.3E-01	1.5
95W	SS2112-A	2.7 to 2.8	West	4/8/2011	PCB	Total PCBs	2.0E-01	mg/kg	Y	1.3E-01	1.5
95W	LDW-SS336	2.7 to 2.8	West	10/3/2006	PCB	Total PCBs	1.9E-01	mg/kg	Y	1.3E-01	1.5
95W	TRI-095T	2.7 to 2.8	West	8/11/2006	Phenol	2,4-Dimethylphenol	6.4E-02	mg/kg	Y	2.9E-02	2.2
95W	LDW-SS335	2.7 to 2.8	West	10/4/2006	Phthalate	Bis(2-ethylhexyl) phthalate	2.6E+00	mg/kg	Y	1.3E+00	2.0
95W	SS2112-A	2.7 to 2.8	West	4/8/2011	Phthalate	Bis(2-ethylhexyl) phthalate	1.6E+00	mg/kg	Y	1.3E+00	1.2
95W	LDW-SS335	2.7 to 2.8	West	10/4/2006	Phthalate	Butyl benzyl phthalate	2.0E-01	mg/kg	Y	6.3E-02	3.2
95W	SS2112-A	2.7 to 2.8	West	4/8/2011	Phthalate	Butyl benzyl phthalate	1.1E-01	mg/kg	Y	6.3E-02	1.7
96W	SS2106-D	2.8 to 2.9	West	3/4/2011	Other SVOC	1,4-Dichlorobenzene	1.5E-01	mg/kg	Y	1.1E-01	1.4
96W	SS2106-U	2.8 to 2.9	West	3/7/2011	Other SVOC	Benzyl alcohol	6.5E-01	mg/kg	Y	5.7E-02	11
96W	SS2106-A	2.8 to 2.9	West	3/4/2011	Other SVOC	Benzyl alcohol	3.5E-01	mg/kg	Y	5.7E-02	6.1
96W	SS2108-U	2.8 to 2.9	West	3/7/2011	Other SVOC	Benzyl alcohol	3.3E-01	mg/kg	Y	5.7E-02	5.8
96W	SS2106-D	2.8 to 2.9	West	3/4/2011	Other SVOC	Benzyl alcohol	2.1E-01	mg/kg	Y	5.7E-02	3.7
96W	SS2108-A	2.8 to 2.9	West	3/7/2011	Other SVOC	Benzyl alcohol	1.7E-01	mg/kg	Y	5.7E-02	3.0
96W	SS2106-A	2.8 to 2.9	West	3/4/2011	PCB	Total PCBs	1.2E+00	mg/kg	Y	1.3E-01	9.2

Table 3
Exceedances of Surface Sediment Screening Levels Within 100 Feet of Slivers

Sliver ID	Sample Location ID	River Mile	Channel Location	Sample Date	Chemical Group	Chemical	Concentration	Units	Detect	Screening Level	Exceedance Factor
96W	SS2106-U	2.8 to 2.9	West	3/7/2011	PCB	Total PCBs	2.0E-01	mg/kg	Y	1.3E-01	1.5
96W	SS2106-D	2.8 to 2.9	West	3/4/2011	PCB	Total PCBs	1.4E-01	mg/kg	Y	1.3E-01	1.1
102W	B7a	3.0 to 3.1	West	8/30/2004	Other SVOC	Hexachlorobenzene	6.3E-02	mg/kg	Y	2.2E-02	2.9
102W	LDW-SS106	3.2 to 3.3	West	3/8/2005	PCB	Total PCBs	2.1E-01	mg/kg	Y	1.3E-01	1.6
104W	SSSP3-A	3.8 to 3.9	West	3/24/2011	Metal	Zinc	1.4E+03	mg/kg	Y	4.1E+02	3.5
104W	SS2214-A	3.4 to 3.5	West	3/7/2011	Other SVOC	Benzyl alcohol	2.8E-01	mg/kg	Y	5.7E-02	4.9
104W	SS2214-D	3.4 to 3.5	West	3/7/2011	Other SVOC	Benzyl alcohol	2.8E-01	mg/kg	Y	5.7E-02	4.9
104W	SS2214-U	3.5 to 3.6	West	3/7/2011	Other SVOC	Benzyl alcohol	1.9E-01	mg/kg	Y	5.7E-02	3.3
104W	SSSP3-A	3.8 to 3.9	West	3/24/2011	Other SVOC	Benzyl alcohol	1.8E-01	mg/kg	Y	5.7E-02	3.2
104W	SS2103-D	3.7 to 3.8	West	3/4/2011	Other SVOC	Benzyl alcohol	1.1E-01	mg/kg	Y	5.7E-02	1.9
104W	101-G	3.5 to 3.6	West	8/29/2008	PCB	Total PCBs	5.7E-01	mg/kg	Y	1.3E-01	4.4
104W	SS2214-U	3.5 to 3.6	West	3/7/2011	PCB	Total PCBs	4.1E-01	mg/kg	Y	1.3E-01	3.2
104W	LDW-SS122	3.9 to 4.0	West	3/8/2005	PCB	Total PCBs	3.7E-01	mg/kg	Y	1.3E-01	2.9
104W	SS2214-D	3.4 to 3.5	West	3/7/2011	PCB	Total PCBs	3.1E-01	mg/kg	Y	1.3E-01	2.4
104W	SS2214-A	3.4 to 3.5	West	3/7/2011	PCB	Total PCBs	2.9E-01	mg/kg	Y	1.3E-01	2.2
104W	T117-SE-73-G	3.4 to 3.5	West	3/16/2004	PCB	Total PCBs	2.6E-01	mg/kg	Y	1.3E-01	2.0
104W	102-G	3.5 to 3.6	West	8/29/2008	PCB	Total PCBs	2.1E-01	mg/kg	Y	1.3E-01	1.6
104W	T117-SE-93-G	3.5 to 3.6	West	9/14/2004	PCB	Total PCBs	2.0E-01	mg/kg	Y	1.3E-01	1.6
104W	SSSP1-U	3.8 to 3.9	West	3/24/2011	PCB	Total PCBs	2.0E-01	mg/kg	Y	1.3E-01	1.5
104W	T117-SE-79-G	3.5 to 3.6	West	6/4/2004	PCB	Total PCBs	1.5E-01	mg/kg	Y	1.3E-01	1.2
104W	SS2214-U	3.5 to 3.6	West	3/7/2011	Phenol	4-Methylphenol	4.9E+00	mg/kg	Y	6.7E-01	7.3
104W	SS2214-U	3.5 to 3.6	West	3/7/2011	Phenol	Phenol	4.8E-01	mg/kg	Y	4.2E-01	1.1
104W	SSSP3-A	3.8 to 3.9	West	3/24/2011	Phthalate	Butyl benzyl phthalate	7.1E-02	mg/kg	Y	6.3E-02	1.1
109W	B10a	4.8 to 4.9	West	8/30/2004	Phenol	Phenol	1.1E+00	mg/kg	Y	4.2E-01	2.6

Notes:

Table shows exceedances for detected results only.

Shading indicates an exceedance factor of 10 or greater.

Samples collected prior to the year 2000 were not believed to be representative of current conditions and are therefore not included in this table.

Table 4
Exceedances of Soil Screening Levels at Slivers and Adjacent Properties

Sliver ID	Sample Category	Property Name	Sample Location ID	Sample Date	Upper Depth (ft)	Lower Depth (ft)	Chemical Group	Chemical	Conc'n	Units	Screening Level	Exceedance Factor
14E	Sliver	NA	RB06-02	2/24/2015	0.5	0.5	Metal	Arsenic	66	mg/kg	57	1.2
14E	Sliver	NA	MW-14	10/21/2015	13	13	Metal	Cadmium	12	mg/kg	5.1	2.3
14E	Sliver	NA	GLB01	3/29/2016	14	14	Metal	Cadmium	7.7	mg/kg	5.1	1.5
14E	Sliver	NA	RB06-02	2/24/2015	0.5	0.5	Metal	Chromium	436	mg/kg	260	1.7
14E	Sliver	NA	GLB07	3/28/2016	8	8	Metal	Chromium	342	mg/kg	260	1.3
14E	Sliver	NA	GLB10	3/29/2016	8	8	Metal	Chromium	338	mg/kg	260	1.3
14E	Sliver	NA	RB07-02	2/24/2015	0.5	0.5	Metal	Chromium	293	mg/kg	260	1.1
14E	Sliver	NA	GLB07	3/28/2016	8	8	Metal	Copper	2240	mg/kg	390	5.7
14E	Sliver	NA	RB07-02	2/24/2015	0.5	0.5	Metal	Copper	1010	mg/kg	390	2.6
14E	Sliver	NA	RB06-02	2/24/2015	0.5	0.5	Metal	Copper	770	mg/kg	390	2.0
14E	Sliver	NA	RB06-02	2/24/2015	0.5	0.5	Metal	Mercury	0.56	mg/kg	0.41	1.4
14E	Sliver	NA	GLB10	3/29/2016	4	4	Metal	Mercury	0.44	mg/kg	0.41	1.1
14E	Sliver	NA	MW-14	10/21/2015	13	13	Metal	Silver	7.5	mg/kg	6.1	1.2
14E	Sliver	NA	GLB01	3/29/2016	7	7	PAH	Acenaphthene	2.1	mg/kg	0.50	4.2
14E	Sliver	NA	MW-14	10/21/2015	13	13	PAH	Acenaphthene	1.6 J	mg/kg	0.50	3.1
14E	Sliver	NA	GLB01	3/29/2016	7	7	PAH	Anthracene	4.1	mg/kg	0.96	4.3
14E	Sliver	NA	GLB01	3/29/2016	7	7	PAH	Benzo(a)anthracene	2.9	mg/kg	1.3	2.2
14E	Sliver	NA	GLB01	3/29/2016	7	7	PAH	Benzo(a)pyrene	2.6	mg/kg	1.6	1.7
14E	Sliver	NA	MW-14	10/21/2015	13	13	PAH	Benzo(a)pyrene	2.1	mg/kg	1.6	1.3
14E	Sliver	NA	GLB01	3/29/2016	7	7	PAH	Benzo(g,h,i)perylene	1.1	mg/kg	0.67	1.6
14E	Sliver	NA	GLB01	3/29/2016	7	7	PAH	Chrysene	3.2	mg/kg	1.4	2.3
14E	Sliver	NA	GLB01	3/29/2016	7	7	PAH	Dibenz(a,h)anthracene	0.49	mg/kg	0.23	2.1
14E	Sliver	NA	MW-14	10/21/2015	13	13	PAH	Dibenz(a,h)anthracene	0.41 J	mg/kg	0.23	1.8
14E	Sliver	NA	GLB01	3/29/2016	7	7	PAH	Fluoranthene	9.8	mg/kg	1.7	5.8
14E	Sliver	NA	GLB01	3/29/2016	7	7	PAH	Fluorene	1.9	mg/kg	0.54	3.6
14E	Sliver	NA	GLB01	3/29/2016	7	7	PAH	Indeno(1,2,3-cd)pyrene	1.1	mg/kg	0.60	1.8
14E	Sliver	NA	GLB01	3/29/2016	7	7	PAH	Phenanthrene	6.0	mg/kg	1.5	4.0
14E	Sliver	NA	GLB01	3/29/2016	7	7	PAH	Pyrene	8.9	mg/kg	2.6	3.4
14E	Sliver	NA	GLB01	3/29/2016	7	7	PAH	Total benzofluoranthenes	9.1	mg/kg	3.2	2.8
14E	Sliver	NA	GLB01	3/29/2016	7	7	PAH	Total cPAH TEQ (NDx0.5)	4.0	mg/kg	1.0	4.0
14E	Sliver	NA	MW-14	10/21/2015	13	13	PAH	Total cPAH TEQ (NDx0.5)	2.4 J	mg/kg	1.0	2.4
14E	Sliver	NA	GLB01	3/29/2016	7	7	PAH	Total HPAHs	39	mg/kg	12	3.3
14E	Sliver	NA	GLB01	3/29/2016	7	7	PAH	Total LPAHs	14	mg/kg	5.2	2.8
14E	Sliver	NA	RB06-02	2/24/2015	0.5	0.5	PCB	Total PCBs	17	mg/kg	0.13	129
14E	Sliver	NA	RB06-01	2/24/2015	0.5	0.5	PCB	Total PCBs	0.28 E	mg/kg	0.13	2.2
14E	Sliver	NA	RB07-02	2/24/2015	0.5	0.5	PCB	Total PCBs	0.16	mg/kg	0.13	1.2
14E	Sliver	NA	MW-14	10/21/2015	13	13	Phenol	Pentachlorophenol	0.87	mg/kg	0.36	2.4
14E	Sliver	NA	GLB10	3/29/2016	4	4	Phthalate	Bis(2-ethylhexyl) phthalate	2.2 B	mg/kg	1.3	1.7
14E	Sliver	NA	GLB10	3/29/2016	8	8	Phthalate	Bis(2-ethylhexyl) phthalate	2.1 B	mg/kg	1.3	1.6
14E	Sliver	NA	GLB01	3/29/2016	14	14	Phthalate	Bis(2-ethylhexyl) phthalate	2.1 B	mg/kg	1.3	1.6
14E	Sliver	NA	GLB01	3/29/2016	7	7	Phthalate	Bis(2-ethylhexyl) phthalate	1.9 B	mg/kg	1.3	1.4

Table 4
Exceedances of Soil Screening Levels at Slivers and Adjacent Properties

Sliver ID	Sample Category	Property Name	Sample Location ID	Sample Date	Upper Depth (ft)	Lower Depth (ft)	Chemical Group	Chemical	Conc'n	Units	Screening Level	Exceedance Factor
14E	Sliver	NA	GLB01	3/29/2016	20	20	Phthalate	Bis(2-ethylhexyl) phthalate	1.7 B	mg/kg	1.3	1.3
14E	Sliver	NA	GLB07	3/28/2016	15	15	Phthalate	Bis(2-ethylhexyl) phthalate	1.6 B	mg/kg	1.3	1.2
14E	Sliver	NA	MW-14	10/21/2015	13	13	Phthalate	Butyl benzyl phthalate	0.33 J	mg/kg	0.063	5.2
14E	Sliver	NA	GLB01	3/29/2016	7	7	Phthalate	Butyl benzyl phthalate	0.083	mg/kg	0.063	1.3
14E	Adjacent	Duwamish Marine Center	MW-2D	6/2/2008	6	6.5	Metal	Arsenic	140	mg/kg	57	2.5
14E	Adjacent	Duwamish Marine Center	GLB04	3/28/2016	7	7	Metal	Arsenic	84	mg/kg	57	1.5
14E	Adjacent	Duwamish Marine Center	B-3 (R)	8/3/2000	3	3	Metal	Cadmium	43	mg/kg	5.1	8.4
14E	Adjacent	Duwamish Marine Center	MW-5	10/19/2015	6	6	Metal	Cadmium	23	mg/kg	5.1	4.6
14E	Adjacent	Duwamish Marine Center	TP-1(R)	7/17/2000	1.5	1.5	Metal	Cadmium	7.1	mg/kg	5.1	1.4
14E	Adjacent	Duwamish Marine Center	MW-2D	6/2/2008	6	6.5	Metal	Cadmium	6.4	mg/kg	5.1	1.3
14E	Adjacent	Duwamish Marine Center	B4	3/13/2002	0	3	Metal	Chromium	2700	mg/kg	260	10
14E	Adjacent	Duwamish Marine Center	B3	3/13/2002	0	3	Metal	Chromium	400	mg/kg	260	1.5
14E	Adjacent	Duwamish Marine Center	GLB02	3/28/2016	8	8	Metal	Copper	14200	mg/kg	390	36
14E	Adjacent	Duwamish Marine Center	MW-12	10/20/2015	6	6	Metal	Copper	8950	mg/kg	390	23
14E	Adjacent	Duwamish Marine Center	B-3 (R)	8/3/2000	3	3	Metal	Copper	7400	mg/kg	390	19
14E	Adjacent	Duwamish Marine Center	B7	3/13/2002	2	4	Metal	Copper	6900	mg/kg	390	18
14E	Adjacent	Duwamish Marine Center	GLB02	3/28/2016	17	17	Metal	Copper	2470	mg/kg	390	6.3
14E	Adjacent	Duwamish Marine Center	B3	3/13/2002	0	3	Metal	Copper	530	mg/kg	390	1.4
14E	Adjacent	Duwamish Marine Center	GLB05	3/28/2016	4	4	Metal	Copper	437	mg/kg	390	1.1
14E	Adjacent	Duwamish Marine Center	B-3 (R)	8/3/2000	3	3	Metal	Lead	12000	mg/kg	450	27
14E	Adjacent	Duwamish Marine Center	GLB04	3/28/2016	7	7	Metal	Lead	4700	mg/kg	450	10
14E	Adjacent	Duwamish Marine Center	MW-1D	6/2/2008	5	6	Metal	Lead	2000	mg/kg	450	4.4
14E	Adjacent	Duwamish Marine Center	GLB11	3/28/2016	6	6	Metal	Lead	1890	mg/kg	450	4.2
14E	Adjacent	Duwamish Marine Center	TP-3(R)	7/17/2000	5.5	5.5	Metal	Lead	1400	mg/kg	450	3.1
14E	Adjacent	Duwamish Marine Center	MW-5	10/19/2015	6	6	Metal	Lead	1360	mg/kg	450	3.0
14E	Adjacent	Duwamish Marine Center	GLB05	3/28/2016	4	4	Metal	Lead	1260	mg/kg	450	2.8
14E	Adjacent	Duwamish Marine Center	B7	3/13/2002	2	4	Metal	Lead	850	mg/kg	450	1.9
14E	Adjacent	Duwamish Marine Center	MW-12	10/20/2015	6	6	Metal	Lead	755	mg/kg	450	1.7
14E	Adjacent	Duwamish Marine Center	B5	3/13/2002	3	4	Metal	Lead	670	mg/kg	450	1.5
14E	Adjacent	Duwamish Marine Center	MW-2D	6/2/2008	6	6.5	Metal	Lead	560	mg/kg	450	1.2
14E	Adjacent	Duwamish Marine Center	B18	3/13/2002	0	3	Metal	Lead	540	mg/kg	450	1.2
14E	Adjacent	Duwamish Marine Center	MW-5	10/19/2015	10	10	Metal	Lead	477	mg/kg	450	1.1
14E	Adjacent	Duwamish Marine Center	B-3 (R)	8/3/2000	3	3	Metal	Mercury	1.5	mg/kg	0.41	3.7
14E	Adjacent	Duwamish Marine Center	B18	3/13/2002	0	3	Metal	Mercury	1.1	mg/kg	0.41	2.7
14E	Adjacent	Duwamish Marine Center	MW-16	10/19/2015	15	15	Metal	Mercury	1.1	mg/kg	0.41	2.6
14E	Adjacent	Duwamish Marine Center	TP-1(R)	7/17/2000	1.5	1.5	Metal	Mercury	0.90	mg/kg	0.41	2.2
14E	Adjacent	Duwamish Marine Center	MW-7	10/20/2015	4	4	Metal	Mercury	0.74	mg/kg	0.41	1.8
14E	Adjacent	Duwamish Marine Center	MW-12	10/20/2015	6	6	Metal	Mercury	0.66	mg/kg	0.41	1.6
14E	Adjacent	Duwamish Marine Center	MW-5	10/19/2015	6	6	Metal	Mercury	0.52	mg/kg	0.41	1.3
14E	Adjacent	Duwamish Marine Center	B5	3/13/2002	3	4	Metal	Mercury	0.50	mg/kg	0.41	1.2
14E	Adjacent	Duwamish Marine Center	TP-2(R)	7/17/2000	4.5	4.5	Metal	Mercury	0.50	mg/kg	0.41	1.2

Table 4
Exceedances of Soil Screening Levels at Slivers and Adjacent Properties

Sliver ID	Sample Category	Property Name	Sample Location ID	Sample Date	Upper Depth (ft)	Lower Depth (ft)	Chemical Group	Chemical	Conc'n	Units	Screening Level	Exceedance Factor
14E	Adjacent	Duwamish Marine Center	B-3 (R)	8/3/2000	3	3	Metal	Zinc	31000	mg/kg	410	76
14E	Adjacent	Duwamish Marine Center	MW-12	10/20/2015	6	6	Metal	Zinc	6460	mg/kg	410	16
14E	Adjacent	Duwamish Marine Center	GLB02	3/28/2016	20	20	Metal	Zinc	3560	mg/kg	410	8.7
14E	Adjacent	Duwamish Marine Center	GLB02	3/28/2016	8	8	Metal	Zinc	3040	mg/kg	410	7.4
14E	Adjacent	Duwamish Marine Center	B-1 (R)	8/3/2000	6	6	Metal	Zinc	2100	mg/kg	410	5.1
14E	Adjacent	Duwamish Marine Center	TP-3(R)	7/17/2000	5.5	5.5	Metal	Zinc	1700	mg/kg	410	4.1
14E	Adjacent	Duwamish Marine Center	MW-5	10/19/2015	6	6	Metal	Zinc	1580	mg/kg	410	3.9
14E	Adjacent	Duwamish Marine Center	B4	3/13/2002	0	3	Metal	Zinc	1400	mg/kg	410	3.4
14E	Adjacent	Duwamish Marine Center	MW-2D	6/2/2008	6	6.5	Metal	Zinc	1300	mg/kg	410	3.2
14E	Adjacent	Duwamish Marine Center	GLB04	3/28/2016	7	7	Metal	Zinc	925	mg/kg	410	2.3
14E	Adjacent	Duwamish Marine Center	B5	3/13/2002	3	4	Metal	Zinc	860	mg/kg	410	2.1
14E	Adjacent	Duwamish Marine Center	MW-12	10/20/2015	11	11	Metal	Zinc	833	mg/kg	410	2.0
14E	Adjacent	Duwamish Marine Center	GLB02	3/28/2016	17	17	Metal	Zinc	601	mg/kg	410	1.5
14E	Adjacent	Duwamish Marine Center	MW-5	10/19/2015	10	10	Metal	Zinc	496	mg/kg	410	1.2
14E	Adjacent	Duwamish Marine Center	B7	3/13/2002	2	4	Metal	Zinc	480	mg/kg	410	1.2
14E	Adjacent	Duwamish Marine Center	GLB03	3/28/2016	8	8	PAH	Acenaphthene	7.0	mg/kg	0.50	14
14E	Adjacent	Duwamish Marine Center	GLB04	3/28/2016	7	7	PAH	Acenaphthene	4.8	mg/kg	0.50	10
14E	Adjacent	Duwamish Marine Center	MW-12	10/20/2015	11	11	PAH	Acenaphthene	2.9 J	mg/kg	0.50	5.8
14E	Adjacent	Duwamish Marine Center	B1	1/8/2004	0	3	PAH	Acenaphthene	0.68	mg/kg	0.50	1.4
14E	Adjacent	Duwamish Marine Center	MW-16	10/19/2015	13	13	PAH	Acenaphthylene	1.5	mg/kg	1.3	1.1
14E	Adjacent	Duwamish Marine Center	GLB03	3/28/2016	8	8	PAH	Anthracene	10	mg/kg	0.96	11
14E	Adjacent	Duwamish Marine Center	MW-16	10/19/2015	13	13	PAH	Anthracene	4.8	mg/kg	0.96	5.0
14E	Adjacent	Duwamish Marine Center	GLB04	3/28/2016	7	7	PAH	Anthracene	2.0	mg/kg	0.96	2.1
14E	Adjacent	Duwamish Marine Center	MW-12	10/20/2015	6	6	PAH	Anthracene	1.8	mg/kg	0.96	1.9
14E	Adjacent	Duwamish Marine Center	GLB03	3/28/2016	8	8	PAH	Benzo(a)anthracene	24	mg/kg	1.3	19
14E	Adjacent	Duwamish Marine Center	MW-16	10/19/2015	15	15	PAH	Benzo(a)anthracene	2.1	mg/kg	1.3	1.6
14E	Adjacent	Duwamish Marine Center	GLB04	3/28/2016	7	7	PAH	Benzo(a)anthracene	1.6	mg/kg	1.3	1.2
14E	Adjacent	Duwamish Marine Center	GLB03	3/28/2016	8	8	PAH	Benzo(a)pyrene	21	mg/kg	1.6	13
14E	Adjacent	Duwamish Marine Center	GLB03	3/28/2016	8	8	PAH	Benzo(g,h,i)perylene	7.1	mg/kg	0.67	11
14E	Adjacent	Duwamish Marine Center	GLB03	3/28/2016	8	8	PAH	Chrysene	22	mg/kg	1.4	16
14E	Adjacent	Duwamish Marine Center	MW-16	10/19/2015	15	15	PAH	Chrysene	2.2	mg/kg	1.4	1.6
14E	Adjacent	Duwamish Marine Center	GLB03	3/28/2016	8	8	PAH	Fluoranthene	43	mg/kg	1.7	26
14E	Adjacent	Duwamish Marine Center	MW-16	10/19/2015	13	13	PAH	Fluoranthene	5.1	mg/kg	1.7	3.0
14E	Adjacent	Duwamish Marine Center	GLB04	3/28/2016	7	7	PAH	Fluoranthene	4.0	mg/kg	1.7	2.4
14E	Adjacent	Duwamish Marine Center	MW-16	10/19/2015	15	15	PAH	Fluoranthene	3.7	mg/kg	1.7	2.1
14E	Adjacent	Duwamish Marine Center	MW-12	10/20/2015	6	6	PAH	Fluoranthene	3.6	mg/kg	1.7	2.1
14E	Adjacent	Duwamish Marine Center	MW-16	10/19/2015	13	13	PAH	Fluorene	13	mg/kg	0.54	25
14E	Adjacent	Duwamish Marine Center	MW-16	10/19/2015	15	15	PAH	Fluorene	8.3	mg/kg	0.54	15
14E	Adjacent	Duwamish Marine Center	GLB03	3/28/2016	8	8	PAH	Fluorene	6.8	mg/kg	0.54	13
14E	Adjacent	Duwamish Marine Center	GLB04	3/28/2016	7	7	PAH	Fluorene	4.4	mg/kg	0.54	8.2
14E	Adjacent	Duwamish Marine Center	MW-12	10/20/2015	6	6	PAH	Fluorene	3.9	mg/kg	0.54	7.2

Table 4
Exceedances of Soil Screening Levels at Slivers and Adjacent Properties

Sliver ID	Sample Category	Property Name	Sample Location ID	Sample Date	Upper Depth (ft)	Lower Depth (ft)	Chemical Group	Chemical	Conc'n	Units	Screening Level	Exceedance Factor
14E	Adjacent	Duwamish Marine Center	MW-5	10/19/2015	6	6	PAH	Fluorene	1.4	mg/kg	0.54	2.7
14E	Adjacent	Duwamish Marine Center	MW-12	10/20/2015	11	11	PAH	Fluorene	1.4 J	mg/kg	0.54	2.6
14E	Adjacent	Duwamish Marine Center	B1	1/8/2004	0	3	PAH	Fluorene	0.63	mg/kg	0.54	1.2
14E	Adjacent	Duwamish Marine Center	B8	1/8/2004	2	3	PAH	Fluorene	0.63	mg/kg	0.54	1.2
14E	Adjacent	Duwamish Marine Center	GLB03	3/28/2016	8	8	PAH	Indeno(1,2,3-cd)pyrene	9.2	mg/kg	0.60	15
14E	Adjacent	Duwamish Marine Center	MW-16	10/19/2015	13	13	PAH	Naphthalene	11	mg/kg	2.1	5.0
14E	Adjacent	Duwamish Marine Center	GLB04	3/28/2016	7	7	PAH	Naphthalene	6.3	mg/kg	2.1	3.0
14E	Adjacent	Duwamish Marine Center	GLB03	3/28/2016	8	8	PAH	Naphthalene	5.5	mg/kg	2.1	2.6
14E	Adjacent	Duwamish Marine Center	MW-12	10/20/2015	6	6	PAH	Naphthalene	4.6	mg/kg	2.1	2.2
14E	Adjacent	Duwamish Marine Center	B1	1/8/2004	0	3	PAH	Naphthalene	3.4	mg/kg	2.1	1.6
14E	Adjacent	Duwamish Marine Center	GLB03	3/28/2016	8	8	PAH	Phenanthrene	40	mg/kg	1.5	27
14E	Adjacent	Duwamish Marine Center	MW-16	10/19/2015	13	13	PAH	Phenanthrene	36	mg/kg	1.5	24
14E	Adjacent	Duwamish Marine Center	MW-12	10/20/2015	6	6	PAH	Phenanthrene	14	mg/kg	1.5	9.1
14E	Adjacent	Duwamish Marine Center	MW-16	10/19/2015	15	15	PAH	Phenanthrene	12	mg/kg	1.5	8.0
14E	Adjacent	Duwamish Marine Center	GLB04	3/28/2016	7	7	PAH	Phenanthrene	9.6	mg/kg	1.5	6.4
14E	Adjacent	Duwamish Marine Center	MW-12	10/20/2015	11	11	PAH	Phenanthrene	3.7 J	mg/kg	1.5	2.5
14E	Adjacent	Duwamish Marine Center	MW-5	10/19/2015	6	6	PAH	Phenanthrene	3.4	mg/kg	1.5	2.3
14E	Adjacent	Duwamish Marine Center	B1	1/8/2004	0	3	PAH	Phenanthrene	1.6	mg/kg	1.5	1.1
14E	Adjacent	Duwamish Marine Center	GLB03	3/28/2016	8	8	PAH	Pyrene	45	mg/kg	2.6	17
14E	Adjacent	Duwamish Marine Center	MW-16	10/19/2015	15	15	PAH	Pyrene	4.5	mg/kg	2.6	1.7
14E	Adjacent	Duwamish Marine Center	GLB04	3/28/2016	7	7	PAH	Pyrene	3.6	mg/kg	2.6	1.4
14E	Adjacent	Duwamish Marine Center	MW-16	10/19/2015	13	13	PAH	Pyrene	3.2	mg/kg	2.6	1.2
14E	Adjacent	Duwamish Marine Center	MW-12	10/20/2015	6	6	PAH	Pyrene	2.8	mg/kg	2.6	1.1
14E	Adjacent	Duwamish Marine Center	GLB03	3/28/2016	8	8	PAH	Total benzofluoranthenes	41	mg/kg	3.2	13
14E	Adjacent	Duwamish Marine Center	GLB04	3/28/2016	7	7	PAH	Total benzofluoranthenes	3.6	mg/kg	3.2	1.1
14E	Adjacent	Duwamish Marine Center	GLB03	3/28/2016	8	8	PAH	Total cPAH TEQ (NDx0.5)	28	mg/kg	1.0	28
14E	Adjacent	Duwamish Marine Center	MW-16	10/19/2015	15	15	PAH	Total cPAH TEQ (NDx0.5)	2.04	mg/kg	1.0	2.0
14E	Adjacent	Duwamish Marine Center	GLB04	3/28/2016	7	7	PAH	Total cPAH TEQ (NDx0.5)	1.46	mg/kg	1.0	1.5
14E	Adjacent	Duwamish Marine Center	MW-12	10/20/2015	6	6	PAH	Total cPAH TEQ (NDx0.5)	1.45	mg/kg	1.0	1.4
14E	Adjacent	Duwamish Marine Center	GLB11	3/28/2016	6	6	PAH	Total cPAH TEQ (NDx0.5)	1.29	mg/kg	1.0	1.3
14E	Adjacent	Duwamish Marine Center	GLB03	3/28/2016	8	8	PAH	Total HPAHs	212	mg/kg	12	18
14E	Adjacent	Duwamish Marine Center	MW-16	10/19/2015	15	15	PAH	Total HPAHs	18	mg/kg	12	1.5
14E	Adjacent	Duwamish Marine Center	GLB04	3/28/2016	7	7	PAH	Total HPAHs	16	mg/kg	12	1.3
14E	Adjacent	Duwamish Marine Center	MW-12	10/20/2015	6	6	PAH	Total HPAHs	13	mg/kg	12	1.1
14E	Adjacent	Duwamish Marine Center	GLB03	3/28/2016	8	8	PAH	Total LPAHs	70	mg/kg	5.2	13
14E	Adjacent	Duwamish Marine Center	GLB04	3/28/2016	7	7	PAH	Total LPAHs	27	mg/kg	5.2	5.3
14E	Adjacent	Duwamish Marine Center	B1	1/8/2004	0	3	PAH	Total LPAHs	6.8	mg/kg	5.2	1.3
14E	Adjacent	Duwamish Marine Center	MW-16	10/19/2015	10	10	PAH	Total LPAHs	6.1	mg/kg	5.2	1.2
14E	Adjacent	Duwamish Marine Center	B7	3/13/2002	2	4	PCB	Total PCBs	34	mg/kg	0.13	266
14E	Adjacent	Duwamish Marine Center	MW-5	10/19/2015	6	6	PCB	Total PCBs	16	mg/kg	0.13	124
14E	Adjacent	Duwamish Marine Center	B-3 (R)	8/3/2000	3	3	PCB	Total PCBs	9.8	mg/kg	0.13	77

Table 4
Exceedances of Soil Screening Levels at Slivers and Adjacent Properties

Sliver ID	Sample Category	Property Name	Sample Location ID	Sample Date	Upper Depth (ft)	Lower Depth (ft)	Chemical Group	Chemical	Conc'n	Units	Screening Level	Exceedance Factor
14E	Adjacent	Duwamish Marine Center	B4	3/13/2002	0	3	PCB	Total PCBs	8.5	mg/kg	0.13	66
14E	Adjacent	Duwamish Marine Center	B6	3/13/2002	0	3	PCB	Total PCBs	8.3	mg/kg	0.13	65
14E	Adjacent	Duwamish Marine Center	B1	3/13/2002	0	3	PCB	Total PCBs	5.9	mg/kg	0.13	46
14E	Adjacent	Duwamish Marine Center	B2	3/13/2002	0	3	PCB	Total PCBs	5.9	mg/kg	0.13	46
14E	Adjacent	Duwamish Marine Center	B5	3/13/2002	3	4	PCB	Total PCBs	5.4	mg/kg	0.13	42
14E	Adjacent	Duwamish Marine Center	TP-3(R)	7/17/2000	5.5	5.5	PCB	Total PCBs	2.3	mg/kg	0.13	18
14E	Adjacent	Duwamish Marine Center	TP-4(R)	7/17/2000	2	2	PCB	Total PCBs	2.1	mg/kg	0.13	17
14E	Adjacent	Duwamish Marine Center	B3	3/13/2002	0	3	PCB	Total PCBs	1.9	mg/kg	0.13	15
14E	Adjacent	Duwamish Marine Center	B-2 (R)	8/3/2000	1	1	PCB	Total PCBs	1.5	mg/kg	0.13	12
14E	Adjacent	Duwamish Marine Center	B8	3/13/2002	2	3	PCB	Total PCBs	0.98	mg/kg	0.13	7.7
14E	Adjacent	Duwamish Marine Center	GLB04	3/28/2016	7	7	PCB	Total PCBs	0.77	mg/kg	0.13	6.0
14E	Adjacent	Duwamish Marine Center	MW-2D	6/2/2008	6	6.5	PCB	Total PCBs	0.67	mg/kg	0.13	5.2
14E	Adjacent	Duwamish Marine Center	GLB05	3/28/2016	4	4	PCB	Total PCBs	0.63	mg/kg	0.13	4.9
14E	Adjacent	Duwamish Marine Center	B7	3/13/2002	6	7.5	PCB	Total PCBs	0.54	mg/kg	0.13	4.2
14E	Adjacent	Duwamish Marine Center	GLB02	3/28/2016	20	20	PCB	Total PCBs	0.45	mg/kg	0.13	3.5
14E	Adjacent	Duwamish Marine Center	B16	3/13/2002	0	1.5	PCB	Total PCBs	0.40	mg/kg	0.13	3.1
14E	Adjacent	Duwamish Marine Center	GLB02	3/28/2016	17	17	PCB	Total PCBs	0.33	mg/kg	0.13	2.6
14E	Adjacent	Duwamish Marine Center	MW-15	10/21/2015	6	6	PCB	Total PCBs	0.28	mg/kg	0.13	2.2
14E	Adjacent	Duwamish Marine Center	TP-2(R)	7/17/2000	4.5	4.5	PCB	Total PCBs	0.18	mg/kg	0.13	1.4
14E	Adjacent	Duwamish Marine Center	TP-1(R)	7/17/2000	1.5	1.5	PCB	Total PCBs	0.16	mg/kg	0.13	1.3
14E	Adjacent	Duwamish Marine Center	B-1 (R)	8/3/2000	6	6	PCB	Total PCBs	0.15	mg/kg	0.13	1.2
14E	Adjacent	Duwamish Marine Center	B19	3/13/2002	1.5	3	PCB	Total PCBs	0.14	mg/kg	0.13	1.1
14E	Adjacent	Duwamish Marine Center	MW-6	10/21/2015	6	6	Phenol	Pentachlorophenol	235	mg/kg	0.36	653
14E	Adjacent	Duwamish Marine Center	MW-15	10/21/2015	6	6	Phenol	Pentachlorophenol	0.62	mg/kg	0.36	1.7
14E	Adjacent	Duwamish Marine Center	GLB04	3/28/2016	7	7	Phenol	Pentachlorophenol	0.41	mg/kg	0.36	1.2
14E	Adjacent	Duwamish Marine Center	MW-5	10/19/2015	6	6	Phthalate	Bis(2-ethylhexyl) phthalate	33	mg/kg	1.3	26
14E	Adjacent	Duwamish Marine Center	GLB04	3/28/2016	7	7	Phthalate	Bis(2-ethylhexyl) phthalate	5.0 B	mg/kg	1.3	3.9
14E	Adjacent	Duwamish Marine Center	GLB02	3/28/2016	20	20	Phthalate	Bis(2-ethylhexyl) phthalate	3.8 B	mg/kg	1.3	2.9
14E	Adjacent	Duwamish Marine Center	GLB02	3/28/2016	17	17	Phthalate	Bis(2-ethylhexyl) phthalate	3.2 B	mg/kg	1.3	2.4
14E	Adjacent	Duwamish Marine Center	GLB05	3/28/2016	4	4	Phthalate	Bis(2-ethylhexyl) phthalate	3.1 B	mg/kg	1.3	2.4
14E	Adjacent	Duwamish Marine Center	GLB03	3/28/2016	8	8	Phthalate	Bis(2-ethylhexyl) phthalate	2.9 B	mg/kg	1.3	2.3
14E	Adjacent	Duwamish Marine Center	GLB04	3/28/2016	12	12	Phthalate	Bis(2-ethylhexyl) phthalate	2.6 B	mg/kg	1.3	2.0
14E	Adjacent	Duwamish Marine Center	GLB02	3/28/2016	8	8	Phthalate	Bis(2-ethylhexyl) phthalate	2.5 B	mg/kg	1.3	1.9
14E	Adjacent	Duwamish Marine Center	GLB11	3/28/2016	6	6	Phthalate	Bis(2-ethylhexyl) phthalate	2.2 B	mg/kg	1.3	1.7
14E	Adjacent	Duwamish Marine Center	GLB03	3/28/2016	17	17	Phthalate	Bis(2-ethylhexyl) phthalate	2.1 B	mg/kg	1.3	1.6
14E	Adjacent	Duwamish Marine Center	GLB03	3/28/2016	20	20	Phthalate	Bis(2-ethylhexyl) phthalate	1.9 B	mg/kg	1.3	1.5
14E	Adjacent	Duwamish Marine Center	GLB04	3/28/2016	16	16	Phthalate	Bis(2-ethylhexyl) phthalate	1.8 B	mg/kg	1.3	1.4
14E	Adjacent	Duwamish Marine Center	MW-12	10/20/2015	6	6	Phthalate	Bis(2-ethylhexyl) phthalate	1.8	mg/kg	1.3	1.4
14E	Adjacent	Duwamish Marine Center	GLB13	3/28/2016	12	12	Phthalate	Bis(2-ethylhexyl) phthalate	1.8 B	mg/kg	1.3	1.4
14E	Adjacent	Duwamish Marine Center	GLB14	3/29/2016	2	2	Phthalate	Bis(2-ethylhexyl) phthalate	1.8 B	mg/kg	1.3	1.3
14E	Adjacent	Duwamish Marine Center	GLB02	3/28/2016	3	3	Phthalate	Bis(2-ethylhexyl) phthalate	1.7 B	mg/kg	1.3	1.3

Table 4
Exceedances of Soil Screening Levels at Slivers and Adjacent Properties

Sliver ID	Sample Category	Property Name	Sample Location ID	Sample Date	Upper Depth (ft)	Lower Depth (ft)	Chemical Group	Chemical	Conc'n	Units	Screening Level	Exceedance Factor
14E	Adjacent	Duwamish Marine Center	GLB11	3/28/2016	15	15	Phthalate	Bis(2-ethylhexyl) phthalate	1.6 B	mg/kg	1.3	1.2
14E	Adjacent	Duwamish Marine Center	GLB12	3/29/2016	20	20	Phthalate	Bis(2-ethylhexyl) phthalate	1.6 B	mg/kg	1.3	1.2
14E	Adjacent	Duwamish Marine Center	GLB13	3/28/2016	4	4	Phthalate	Bis(2-ethylhexyl) phthalate	1.6 B	mg/kg	1.3	1.2
14E	Adjacent	Duwamish Marine Center	GLB12	3/29/2016	4	4	Phthalate	Bis(2-ethylhexyl) phthalate	1.5 B	mg/kg	1.3	1.2
14E	Adjacent	Duwamish Marine Center	GLB13	3/28/2016	1	1	Phthalate	Bis(2-ethylhexyl) phthalate	1.5 B	mg/kg	1.3	1.1
14E	Adjacent	Duwamish Marine Center	GLB12	3/29/2016	14	14	Phthalate	Bis(2-ethylhexyl) phthalate	1.5 B	mg/kg	1.3	1.1
14E	Adjacent	Duwamish Marine Center	MW-5	10/19/2015	6	6	Phthalate	Butyl benzyl phthalate	41	mg/kg	0.063	657
14E	Adjacent	Duwamish Marine Center	GLB04	3/28/2016	7	7	Phthalate	Butyl benzyl phthalate	0.37	mg/kg	0.063	5.8
14E	Adjacent	Duwamish Marine Center	GLB05	3/28/2016	4	4	Phthalate	Butyl benzyl phthalate	0.37	mg/kg	0.063	5.8
14E	Adjacent	Duwamish Marine Center	GLB02	3/28/2016	20	20	Phthalate	Butyl benzyl phthalate	0.20	mg/kg	0.063	3.2
14E	Adjacent	Duwamish Marine Center	GLB03	3/28/2016	8	8	Phthalate	Butyl benzyl phthalate	0.19	mg/kg	0.063	3.0
14E	Adjacent	Duwamish Marine Center	MW-12	10/20/2015	6	6	Phthalate	Butyl benzyl phthalate	0.17	mg/kg	0.063	2.6
14E	Adjacent	Duwamish Marine Center	GLB02	3/28/2016	8	8	Phthalate	Butyl benzyl phthalate	0.10	mg/kg	0.063	1.6
14E	Adjacent	Duwamish Marine Center	MW-2D	6/2/2008	6	6.5	Phthalate	Butyl benzyl phthalate	0.099	mg/kg	0.063	1.6
26E	Sliver	NA	PSTL-BS-3	5/11/2011	0	0.3	Metal	Arsenic	82	mg/kg	57	1.4
26E	Sliver	NA	PSTL-BS-2	5/11/2011	0	0.3	Metal	Arsenic	75	mg/kg	57	1.3
26E	Adjacent	CleanScapes	PSTL-BS-6a	5/11/2011	0	0.3	Metal	Arsenic	69	mg/kg	57	1.2
35E	Sliver	NA	PS-SB2	8/27/2012	5	6	Metal	Arsenic	262	mg/kg	57	4.6
35E	Sliver	NA	PS-SB1	8/27/2012	7	8	Metal	Arsenic	201	mg/kg	57	3.5
35E	Sliver	NA	PS-SB2	8/27/2012	16	17	Metal	Arsenic	95	mg/kg	57	1.7
35E	Sliver	NA	PS-SB4	8/27/2012	2	3	Metal	Arsenic	85	mg/kg	57	1.5
35E	Sliver	NA	PS-SB1a	8/27/2012	16	17	Metal	Arsenic	83	mg/kg	57	1.4
35E	Sliver	NA	SDP-02	5/14/2015	22	23.5	Metal	Arsenic	75	mg/kg	57	1.3
35E	Sliver	NA	SS1	8/31/2004	0	2	Metal	Cadmium	6.7 B2	mg/kg	5.1	1.3
35E	Sliver	NA	SS2	8/31/2004	0	2	Metal	Cadmium	6.7 B2	mg/kg	5.1	1.3
35E	Sliver	NA	SDP-07	5/13/2015	1.5	3	Metal	Cadmium	6.0	mg/kg	5.1	1.2
35E	Sliver	NA	PS-SB2	8/27/2012	2	3	Metal	Cadmium	5.9	mg/kg	5.1	1.2
35E	Sliver	NA	PS-SB4	8/27/2012	5	6	Metal	Cadmium	5.6	mg/kg	5.1	1.1
35E	Sliver	NA	SB7	8/27/2004	0	2	Metal	Chromium	3200	mg/kg	260	12
35E	Sliver	NA	SB7	8/27/2004	4	6	Metal	Chromium	1950 B2	mg/kg	260	7.5
35E	Sliver	NA	PS-SB2	8/27/2012	2	3	Metal	Chromium	1810	mg/kg	260	7.0
35E	Sliver	NA	SB6	8/27/2004	4	6	Metal	Chromium	1550 B2	mg/kg	260	6.0
35E	Sliver	NA	PS-SB1	8/27/2012	2	3	Metal	Chromium	1430 J	mg/kg	260	5.5
35E	Sliver	NA	SB6	8/27/2004	2	4	Metal	Chromium	1170	mg/kg	260	4.5
35E	Sliver	NA	PEB-6	8/25/2014	0	1	Metal	Chromium	1130	mg/kg	260	4.3
35E	Sliver	NA	SB7	8/27/2004	6	8	Metal	Chromium	1000 B2	mg/kg	260	3.8
35E	Sliver	NA	SDP-07	5/13/2015	1.5	3	Metal	Chromium	782 J	mg/kg	260	3.0
35E	Sliver	NA	PS-SB3	8/27/2012	2	3	Metal	Chromium	760	mg/kg	260	2.9
35E	Sliver	NA	PS-SB1	8/27/2012	5	6	Metal	Chromium	754	mg/kg	260	2.9
35E	Sliver	NA	SDP-01	5/14/2015	8	9	Metal	Chromium	686 J	mg/kg	260	2.6
35E	Sliver	NA	PS-SB4	8/27/2012	16	17	Metal	Chromium	686	mg/kg	260	2.6

Table 4
Exceedances of Soil Screening Levels at Slivers and Adjacent Properties

Sliver ID	Sample Category	Property Name	Sample Location ID	Sample Date	Upper Depth (ft)	Lower Depth (ft)	Chemical Group	Chemical	Conc'n	Units	Screening Level	Exceedance Factor
35E	Sliver	NA	SDP-04	5/14/2015	10.5	12	Metal	Chromium	682 J	mg/kg	260	2.6
35E	Sliver	NA	SB6	8/27/2004	6	8	Metal	Chromium	606 B2	mg/kg	260	2.3
35E	Sliver	NA	SB6	8/27/2004	0	2	Metal	Chromium	593	mg/kg	260	2.3
35E	Sliver	NA	SDP-09	5/13/2015	2.5	4	Metal	Chromium	563 J	mg/kg	260	2.2
35E	Sliver	NA	SDP-03	5/14/2015	6.5	8	Metal	Chromium	542 J	mg/kg	260	2.1
35E	Sliver	NA	PEB-4	8/25/2014	0	1	Metal	Chromium	481	mg/kg	260	1.9
35E	Sliver	NA	SDP-10	5/13/2015	13.5	15	Metal	Chromium	449 J	mg/kg	260	1.7
35E	Sliver	NA	SB7	8/27/2004	2	4	Metal	Chromium	410	mg/kg	260	1.6
35E	Sliver	NA	SS4	8/31/2004	0	2	Metal	Chromium	386	mg/kg	260	1.5
35E	Sliver	NA	SDP-10	5/13/2015	15.5	16.5	Metal	Chromium	379 J	mg/kg	260	1.5
35E	Sliver	NA	SDP-04	5/14/2015	1.5	3	Metal	Chromium	351 J	mg/kg	260	1.4
35E	Sliver	NA	SS1	8/31/2004	0	2	Metal	Chromium	350	mg/kg	260	1.3
35E	Sliver	NA	North debris pile	8/27/2004	0	2	Metal	Chromium	309	mg/kg	260	1.2
35E	Sliver	NA	PS-SB3	8/27/2012	5	6	Metal	Chromium	299	mg/kg	260	1.2
35E	Sliver	NA	JF-SB4SSW	9/9/2013	4	4	Metal	Chromium	298	mg/kg	260	1.1
35E	Sliver	NA	South debris pile	8/31/2004	0	2	Metal	Copper	1100 B2	mg/kg	390	2.8
35E	Sliver	NA	SB6	8/27/2004	2	4	Metal	Copper	955 B2	mg/kg	390	2.4
35E	Sliver	NA	SB6	8/27/2004	4	6	Metal	Copper	717	mg/kg	390	1.8
35E	Sliver	NA	PS-SB2	8/27/2012	2	3	Metal	Copper	549	mg/kg	390	1.4
35E	Sliver	NA	North debris pile	8/31/2004	0	2	Metal	Copper	484 B2	mg/kg	390	1.2
35E	Sliver	NA	North debris pile	8/31/2004	0	2	Metal	Lead	9180	mg/kg	450	20
35E	Sliver	NA	PEB-6	8/25/2014	0	1	Metal	Lead	6600 J	mg/kg	450	15
35E	Sliver	NA	SS2	8/31/2004	0	2	Metal	Lead	5010	mg/kg	450	11
35E	Sliver	NA	SS6	8/31/2004	0	2	Metal	Lead	4210	mg/kg	450	9.4
35E	Sliver	NA	SDP-04	5/14/2015	10.5	12	Metal	Lead	2120	mg/kg	450	4.7
35E	Sliver	NA	SB7	8/27/2004	4	6	Metal	Lead	1460	mg/kg	450	3.2
35E	Sliver	NA	South debris pile	8/31/2004	0	2	Metal	Lead	1040	mg/kg	450	2.3
35E	Sliver	NA	SS1	8/31/2004	0	2	Metal	Lead	1010	mg/kg	450	2.2
35E	Sliver	NA	PEB-4	8/25/2014	0	1	Metal	Lead	806 J	mg/kg	450	1.8
35E	Sliver	NA	SB7	8/27/2004	6	8	Metal	Lead	657	mg/kg	450	1.5
35E	Sliver	NA	SDP-01	5/14/2015	8	9	Metal	Lead	594	mg/kg	450	1.3
35E	Sliver	NA	SDP-07	5/13/2015	1.5	3	Metal	Lead	549	mg/kg	450	1.2
35E	Sliver	NA	SB7	8/27/2004	2	4	Metal	Lead	543 B2	mg/kg	450	1.2
35E	Sliver	NA	PS-SB1	8/27/2012	2	3	Metal	Lead	528 J	mg/kg	450	1.2
35E	Sliver	NA	PS-SB4	8/27/2012	5	6	Metal	Lead	526	mg/kg	450	1.2
35E	Sliver	NA	PS-SB2	8/27/2012	2	3	Metal	Lead	488	mg/kg	450	1.1
35E	Sliver	NA	SS2	8/31/2004	0	2	Metal	Mercury	0.96	mg/kg	0.41	2.3
35E	Sliver	NA	PS-SB4	8/27/2012	5	6	Metal	Mercury	0.59	mg/kg	0.41	1.4
35E	Sliver	NA	SS2	8/31/2004	0	2	Metal	Zinc	2700 B2	mg/kg	410	6.6
35E	Sliver	NA	SDP-07	5/13/2015	1.5	3	Metal	Zinc	2650	mg/kg	410	6.5
35E	Sliver	NA	PS-SB2	8/27/2012	2	3	Metal	Zinc	2450	mg/kg	410	6.0

Table 4
Exceedances of Soil Screening Levels at Slivers and Adjacent Properties

Sliver ID	Sample Category	Property Name	Sample Location ID	Sample Date	Upper Depth (ft)	Lower Depth (ft)	Chemical Group	Chemical	Conc'n	Units	Screening Level	Exceedance Factor
35E	Sliver	NA	SS6	8/31/2004	0	2	Metal	Zinc	2350 B2	mg/kg	410	5.7
35E	Sliver	NA	North debris pile	8/31/2004	0	2	Metal	Zinc	2140 B2	mg/kg	410	5.2
35E	Sliver	NA	SDP-04	5/14/2015	10.5	12	Metal	Zinc	1910	mg/kg	410	4.7
35E	Sliver	NA	PS-SB3	8/27/2012	2	3	Metal	Zinc	1820	mg/kg	410	4.4
35E	Sliver	NA	PS-SB1	8/27/2012	2	3	Metal	Zinc	1700	mg/kg	410	4.1
35E	Sliver	NA	SB7	8/27/2004	4	6	Metal	Zinc	1380 B2	mg/kg	410	3.4
35E	Sliver	NA	SDP-04	5/14/2015	1.5	3	Metal	Zinc	1110	mg/kg	410	2.7
35E	Sliver	NA	SS1	8/31/2004	0	2	Metal	Zinc	986 B2	mg/kg	410	2.4
35E	Sliver	NA	PS-SB1	8/27/2012	5	6	Metal	Zinc	956	mg/kg	410	2.3
35E	Sliver	NA	PS-SB4	8/27/2012	2	3	Metal	Zinc	906	mg/kg	410	2.2
35E	Sliver	NA	PS-SB4	8/27/2012	5	6	Metal	Zinc	880	mg/kg	410	2.1
35E	Sliver	NA	SDP-09	5/13/2015	2.5	4	Metal	Zinc	680	mg/kg	410	1.7
35E	Sliver	NA	PS-SB3	8/27/2012	5	6	Metal	Zinc	535	mg/kg	410	1.3
35E	Sliver	NA	SDP-01	5/14/2015	8	9	Metal	Zinc	520	mg/kg	410	1.3
35E	Sliver	NA	SB7	8/27/2004	2	4	Metal	Zinc	507 B2	mg/kg	410	1.2
35E	Sliver	NA	SB7	8/27/2004	6	8	Metal	Zinc	414 B2	mg/kg	410	1.0
35E	Sliver	NA	PEB-4	8/25/2014	0	1	PCB	Total PCBs	11	mg/kg	0.13	85
35E	Sliver	NA	JF-SB3BA1	9/6/2013	2.5	2.5	PCB	Total PCBs	4.9	mg/kg	0.13	38
35E	Sliver	NA	SS6	8/30/2004	0	2	PCB	Total PCBs	4.5	mg/kg	0.13	35
35E	Sliver	NA	JF-SB4NSW	9/9/2013	4	4	PCB	Total PCBs	4.5	mg/kg	0.13	35
35E	Sliver	NA	SS2	8/31/2004	0	2	PCB	Total PCBs	4.1	mg/kg	0.13	32
35E	Sliver	NA	North debris pile	8/31/2004	0	2	PCB	Total PCBs	2.3	mg/kg	0.13	18
35E	Sliver	NA	South debris pile	8/31/2004	0	2	PCB	Total PCBs	2.1	mg/kg	0.13	16
35E	Sliver	NA	SB7	8/27/2004	4	6	PCB	Total PCBs	1.6	mg/kg	0.13	12
35E	Sliver	NA	PEB-6	8/25/2014	0	1	PCB	Total PCBs	1.60 J	mg/kg	0.13	12
35E	Sliver	NA	SS3	8/30/2004	0	2	PCB	Total PCBs	1.4	mg/kg	0.13	11
35E	Sliver	NA	SB7	8/27/2004	14	16	PCB	Total PCBs	0.63	mg/kg	0.13	4.8
35E	Sliver	NA	SDP-01	5/14/2015	8	9	PCB	Total PCBs	0.59	mg/kg	0.13	4.6
35E	Sliver	NA	SDP-04	5/14/2015	10.5	12	PCB	Total PCBs	0.48	mg/kg	0.13	3.7
35E	Sliver	NA	SB7	8/27/2004	8	10	PCB	Total PCBs	0.42	mg/kg	0.13	3.2
35E	Sliver	NA	SB7	8/27/2004	12	14	PCB	Total PCBs	0.38	mg/kg	0.13	2.9
35E	Sliver	NA	SDP-01	5/14/2015	3	4	PCB	Total PCBs	0.37	mg/kg	0.13	2.8
35E	Sliver	NA	SB7	8/27/2004	6	8	PCB	Total PCBs	0.37	mg/kg	0.13	2.8
35E	Sliver	NA	SB7	8/27/2004	2	4	PCB	Total PCBs	0.35	mg/kg	0.13	2.7
35E	Sliver	NA	JF-SB4BA2	9/9/2013	6	6	PCB	Total PCBs	0.35	mg/kg	0.13	2.7
35E	Sliver	NA	SS1	8/31/2004	0	2	PCB	Total PCBs	0.32	mg/kg	0.13	2.5
35E	Sliver	NA	SB7	8/27/2004	10	12	PCB	Total PCBs	0.30	mg/kg	0.13	2.3
35E	Sliver	NA	SDP-07	5/13/2015	1.5	3	PCB	Total PCBs	0.29	mg/kg	0.13	2.2
35E	Sliver	NA	SB6	8/27/2004	10	12	PCB	Total PCBs	0.27	mg/kg	0.13	2.0
35E	Sliver	NA	PEB-5	8/25/2014	0	1	PCB	Total PCBs	0.26	mg/kg	0.13	2.0
35E	Sliver	NA	SDP-03	5/14/2015	6.5	8	PCB	Total PCBs	0.25	mg/kg	0.13	1.9

Table 4
Exceedances of Soil Screening Levels at Slivers and Adjacent Properties

Sliver ID	Sample Category	Property Name	Sample Location ID	Sample Date	Upper Depth (ft)	Lower Depth (ft)	Chemical Group	Chemical	Conc'n	Units	Screening Level	Exceedance Factor
35E	Sliver	NA	SB6	8/27/2004	8	10	PCB	Total PCBs	0.21	mg/kg	0.13	1.6
35E	Sliver	NA	SB6	8/27/2004	6	8	PCB	Total PCBs	0.20	mg/kg	0.13	1.6
35E	Sliver	NA	SDP-04	5/14/2015	1.5	3	PCB	Total PCBs	0.20	mg/kg	0.13	1.6
35E	Sliver	NA	SS5	8/30/2004	0	2	PCB	Total PCBs	0.20	mg/kg	0.13	1.5
35E	Sliver	NA	SB6	8/27/2004	12	14	PCB	Total PCBs	0.19	mg/kg	0.13	1.4
35E	Sliver	NA	SB6	8/27/2004	4	6	PCB	Total PCBs	0.18	mg/kg	0.13	1.4
35E	Sliver	NA	SB6	8/27/2004	2	4	PCB	Total PCBs	0.16	mg/kg	0.13	1.2
35E	Sliver	NA	SDP-07	5/13/2015	8.5	9.5	PCB	Total PCBs	0.15	mg/kg	0.13	1.1
35E	Sliver	NA	SB6	8/27/2004	0	2	PCB	Total PCBs	0.14	mg/kg	0.13	1.1
35E	Adjacent	Boeing Isaacson-Thompson	IT-MW-20	11/9/2011	5	6.5	Metal	Arsenic	139	mg/kg	57	2.4
35E	Adjacent	Boeing Isaacson-Thompson	IT-MW-20	11/9/2011	2	3.5	Metal	Cadmium	14	mg/kg	5.1	2.6
35E	Adjacent	Boeing Isaacson-Thompson	IT-MW-20	11/9/2011	2	3.5	Metal	Chromium	594	mg/kg	260	2.3
35E	Adjacent	Boeing Isaacson-Thompson	IT-MW-20	11/9/2011	2	3.5	Metal	Lead	684	mg/kg	450	1.5
35E	Adjacent	Boeing Isaacson-Thompson	IT-MW-20	11/9/2011	2	3.5	Metal	Zinc	2350	mg/kg	410	5.7
35E	Adjacent	Jorgensen Forge	SB5	8/26/2004	2	4	Metal	Chromium	961	mg/kg	260	3.7
35E	Adjacent	Jorgensen Forge	SB5	8/26/2004	6	8	Metal	Chromium	889 B2	mg/kg	260	3.4
35E	Adjacent	Jorgensen Forge	SB2	8/26/2004	0	2	Metal	Chromium	829	mg/kg	260	3.2
35E	Adjacent	Jorgensen Forge	SB5	8/26/2004	4	6	Metal	Chromium	799 B2	mg/kg	260	3.1
35E	Adjacent	Jorgensen Forge	SB2	8/26/2004	2	4	Metal	Chromium	707	mg/kg	260	2.7
35E	Adjacent	Jorgensen Forge	PEB-3	8/25/2014	0	1	Metal	Chromium	629	mg/kg	260	2.4
35E	Adjacent	Jorgensen Forge	SB2	8/26/2004	6	8	Metal	Chromium	618 B2	mg/kg	260	2.4
35E	Adjacent	Jorgensen Forge	SB2	8/26/2004	4	6	Metal	Chromium	588 B2	mg/kg	260	2.3
35E	Adjacent	Jorgensen Forge	JF-SB3NSW	9/6/2013	1	1	Metal	Chromium	561	mg/kg	260	2.2
35E	Adjacent	Jorgensen Forge	SB5	8/26/2004	0	2	Metal	Chromium	560	mg/kg	260	2.2
35E	Adjacent	Jorgensen Forge	SB2	8/26/2004	10	12	PCB	Total PCBs	0.67	mg/kg	0.13	5.1
35E	Adjacent	Jorgensen Forge	SB2	8/26/2004	0	2	PCB	Total PCBs	0.40	mg/kg	0.13	3.0
35E	Adjacent	Jorgensen Forge	JF-SB3NSW	9/6/2013	1	1	PCB	Total PCBs	0.21	mg/kg	0.13	1.6
35E	Adjacent	Jorgensen Forge	SB5	8/26/2004	8	10	PCB	Total PCBs	0.18	mg/kg	0.13	1.4
35E	Adjacent	Jorgensen Forge	SB5	8/26/2004	14	16	PCB	Total PCBs	0.17	mg/kg	0.13	1.3
44W	Sliver	NA	DSIP2-08	11/26/2013	3.5	5.5	Metal	Lead	6760	mg/kg	450	15
44W	Sliver	NA	DSI-GP-12	7/14/2009	1	3.5	Metal	Lead	492 J	mg/kg	450	1.1
44W	Sliver	NA	DSI-GP-12	7/14/2009	1	3.5	Metal	Mercury	0.59	mg/kg	0.41	1.4
44W	Sliver	NA	DSIP2-08	11/26/2013	3.5	5.5	Metal	Zinc	880	mg/kg	410	2.1
44W	Sliver	NA	DSI-GP-12	7/14/2009	1	3.5	Other SVOC	Hexachlorobenzene	0.30	mg/kg	0.022	14
44W	Sliver	NA	DSIP2-08	11/26/2013	3.5	5.5	Other SVOC	N-Nitrosodiphenylamine	0.04	mg/kg	0.028	1.4
44W	Sliver	NA	DSIP2-08	11/26/2013	3.5	5.5	PAH	Fluoranthene	2.4	mg/kg	1.7	1.4
44W	Sliver	NA	DSIP2-08	11/26/2013	3.5	5.5	PAH	Pyrene	2.8	mg/kg	2.6	1.1
44W	Sliver	NA	DSIP2-08	11/26/2013	3.5	5.5	PAH	Total cPAH TEQ (NDx0.5)	1.1 J	mg/kg	1.0	1.1
44W	Adjacent	Duwamish Shipyard	DSI-09	9/28/2006	3	5	Metal	Cadmium	8.5	mg/kg	5.1	1.7
44W	Adjacent	Duwamish Shipyard	DSI-09	9/28/2006	3	5	Metal	Copper	3310	mg/kg	390	8.5
44W	Adjacent	Duwamish Shipyard	DSI-09	9/28/2006	3	5	Metal	Lead	4940	mg/kg	450	11

Table 4
Exceedances of Soil Screening Levels at Slivers and Adjacent Properties

Sliver ID	Sample Category	Property Name	Sample Location ID	Sample Date	Upper Depth (ft)	Lower Depth (ft)	Chemical Group	Chemical	Conc'n	Units	Screening Level	Exceedance Factor
44W	Adjacent	Duwamish Shipyard	DSI-09	9/28/2006	3	5	Metal	Zinc	5840	mg/kg	410	14
44W	Adjacent	Duwamish Shipyard	DSI-GP-13	7/13/2009	1	3.5	PAH	2-Methylnaphthalene	0.74	mg/kg	0.67	1.1
44W	Adjacent	Duwamish Shipyard	DSI-GP-13	7/13/2009	1	3.5	PAH	Fluorene	0.61	mg/kg	0.54	1.1
91W	Sliver	NA	LDWBS-BT-BS-4	5/12/2011	0	1	Dioxin/furan	Total dioxin/furan TEQ (NDx0.5)	4.9E-05	mg/kg	2.5E-05	2.0
91W	Sliver	NA	LDWBS-BT-BS-2	5/12/2011	0	1	Dioxin/furan	Total dioxin/furan TEQ (NDx0.5)	4.6E-05	mg/kg	2.5E-05	1.8
91W	Sliver	NA	LDWBS-BT-BS-2	5/12/2011	0	1	PCB	Total PCBs	0.56	mg/kg	0.13	4.3
91W	Sliver	NA	LDWBS-BT-BS-4	5/12/2011	0	1	PCB	Total PCBs	0.193	mg/kg	0.13	1.5
91W	Sliver	NA	LDWBS-BT-BS-2	5/12/2011	0	1	Phthalate	Butyl benzyl phthalate	0.13	mg/kg	0.063	2.1
104W	Sliver	NA	Transect A Bottom	10/8/2007	0	0.3	PCB	Total PCBs	0.17	mg/kg	0.13	1.3
104W	Sliver	NA	Transect A Bottom	10/8/2007	0	0.3	Phthalate	Butyl benzyl phthalate	0.14	mg/kg	0.063	2.2
104W	Sliver	NA	Transect A Bottom	10/8/2007	0	0.3	Phthalate	Dimethyl phthalate	0.62	mg/kg	0.071	8.7
104W	Sliver	NA	Transect B Bottom	10/8/2007	0	0.3	Phthalate	Dimethyl phthalate	0.08	mg/kg	0.071	1.1
104W	Adjacent	South Park Marina	SB-11-2.5	9/28/2007	2.4	2.6	Metal	Cadmium	31	mg/kg	5.1	6.2
104W	Adjacent	South Park Marina	SB-16-3.5	10/1/2007	3.5	3.8	Metal	Cadmium	24	mg/kg	5.1	4.6
104W	Adjacent	South Park Marina	SB-12-1.5	9/28/2007	1.3	1.5	Metal	Cadmium	15	mg/kg	5.1	2.9
104W	Adjacent	South Park Marina	SB-11-2.5	9/28/2007	2.4	2.6	Metal	Chromium	465	mg/kg	260	1.8
104W	Adjacent	South Park Marina	SB-16-3.5	10/1/2007	3.5	3.8	Metal	Chromium	415	mg/kg	260	1.6
104W	Adjacent	South Park Marina	Transect B Top	10/8/2007	0	0.3	Metal	Copper	1020	mg/kg	390	2.6
104W	Adjacent	South Park Marina	SB-16-3.5	10/1/2007	3.5	3.8	Metal	Lead	3180	mg/kg	450	7.1
104W	Adjacent	South Park Marina	SB-11-2.5	9/28/2007	2.4	2.6	Metal	Lead	3100 J	mg/kg	450	6.9
104W	Adjacent	South Park Marina	SB-15-3.5	10/1/2007	3.5	3.8	Metal	Lead	1030	mg/kg	450	2.3
104W	Adjacent	South Park Marina	SB-12-1.5	9/28/2007	1.3	1.5	Metal	Lead	1000 J	mg/kg	450	2.2
104W	Adjacent	South Park Marina	SB-11-2.5	9/28/2007	2.4	2.6	Metal	Mercury	30	mg/kg	0.41	72
104W	Adjacent	South Park Marina	SB-16-3.5	10/1/2007	3.5	3.8	Metal	Mercury	25	mg/kg	0.41	61
104W	Adjacent	South Park Marina	SB-15-3.5	10/1/2007	3.5	3.8	Metal	Mercury	5.8	mg/kg	0.41	14
104W	Adjacent	South Park Marina	SB-12-1.5	9/28/2007	1.3	1.5	Metal	Mercury	4.0	mg/kg	0.41	9.7
104W	Adjacent	South Park Marina	SB-16-3.5	10/1/2007	3.5	3.8	Metal	Zinc	1510	mg/kg	410	3.7
104W	Adjacent	South Park Marina	SB-11-2.5	9/28/2007	2.4	2.6	Metal	Zinc	1480	mg/kg	410	3.6
104W	Adjacent	South Park Marina	SB-12-1.5	9/28/2007	1.3	1.5	Metal	Zinc	649	mg/kg	410	1.6
104W	Adjacent	South Park Marina	Transect B Top	10/8/2007	0	0.3	Metal	Zinc	528	mg/kg	410	1.3
104W	Adjacent	South Park Marina	SB-15-3.5	10/1/2007	3.5	3.8	Metal	Zinc	515	mg/kg	410	1.3
104W	Adjacent	South Park Marina	SB-11-2.5	9/28/2007	2.4	2.6	Other SVOC	1,2-Dichlorobenzene	0.110	mg/kg	0.035	3.1
104W	Adjacent	South Park Marina	Transect B Top	10/8/2007	0	0.3	Other SVOC	Benzoic acid	0.72	mg/kg	0.65	1.1
104W	Adjacent	South Park Marina	Transect B Top	10/8/2007	0	0.3	Other SVOC	Benzyl alcohol	0.94	mg/kg	0.057	16
104W	Adjacent	South Park Marina	SB-14-7.5	10/1/2007	7.5	7.8	Other SVOC	Dibenzofuran	0.60	mg/kg	0.54	1.1
104W	Adjacent	South Park Marina	SB-14-7.5	10/1/2007	7.5	7.8	PAH	2-Methylnaphthalene	4.5	mg/kg	0.67	6.7
104W	Adjacent	South Park Marina	SB-16-3.5	10/1/2007	3.5	3.8	PAH	2-Methylnaphthalene	3.0	mg/kg	0.67	4.5
104W	Adjacent	South Park Marina	SB-15-3.5	10/1/2007	3.5	3.8	PAH	2-Methylnaphthalene	1.1	mg/kg	0.67	1.6
104W	Adjacent	South Park Marina	SB-14-7.5	10/1/2007	7.5	7.8	PAH	Anthracene	1.2	mg/kg	0.96	1.3
104W	Adjacent	South Park Marina	SB-14-7.5	10/1/2007	7.5	7.8	PAH	Fluorene	1.0	mg/kg	0.54	1.9
104W	Adjacent	South Park Marina	SB-16-3.5	10/1/2007	3.5	3.8	PAH	Fluorene	0.67	mg/kg	0.54	1.2

Table 4
Exceedances of Soil Screening Levels at Slivers and Adjacent Properties

Sliver ID	Sample Category	Property Name	Sample Location ID	Sample Date	Upper Depth (ft)	Lower Depth (ft)	Chemical Group	Chemical	Conc'n	Units	Screening Level	Exceedance Factor
104W	Adjacent	South Park Marina	SB-14-7.5	10/1/2007	7.5	7.8	PAH	Phenanthrene	2.4	mg/kg	1.5	1.6
104W	Adjacent	South Park Marina	SB-16-3.5	10/1/2007	3.5	3.8	PCB	Total PCBs	36	mg/kg	0.13	277
104W	Adjacent	South Park Marina	SB-11-2.5	9/28/2007	2.4	2.6	PCB	Total PCBs	29	mg/kg	0.13	223
104W	Adjacent	South Park Marina	SB-13-7	10/1/2007	7	7.3	PCB	Total PCBs	13	mg/kg	0.13	100
104W	Adjacent	South Park Marina	SB-15-3.5	10/1/2007	3.5	3.8	PCB	Total PCBs	12	mg/kg	0.13	92
104W	Adjacent	South Park Marina	SB-14-7.5	10/1/2007	7.5	7.8	PCB	Total PCBs	12	mg/kg	0.13	92
104W	Adjacent	South Park Marina	SB-12-1.5	9/28/2007	1.3	1.5	PCB	Total PCBs	4.9	mg/kg	0.13	38
104W	Adjacent	South Park Marina	Transect B Top	10/8/2007	0	0.3	PCB	Total PCBs	0.32	mg/kg	0.13	2.5
104W	Adjacent	South Park Marina	SB-3-7	9/27/2007	7	9	PCB	Total PCBs	0.18	mg/kg	0.13	1.4
104W	Adjacent	South Park Marina	SB-12-1.5	9/28/2007	1.3	1.5	Phenol	Pentachlorophenol	2.8	mg/kg	0.36	7.8
104W	Adjacent	South Park Marina	SB-11-2.5	9/28/2007	2.4	2.6	Phenol	Pentachlorophenol	2.3	mg/kg	0.36	6.4
104W	Adjacent	South Park Marina	SB-16-3.5	10/1/2007	3.5	3.8	Phthalate	Bis(2-ethylhexyl) phthalate	7.0	mg/kg	1.3	5.4
104W	Adjacent	South Park Marina	Transect B Top	10/8/2007	0	0.3	Phthalate	Bis(2-ethylhexyl) phthalate	2.3	mg/kg	1.3	1.8
104W	Adjacent	South Park Marina	SB-14-7.5	10/1/2007	7.5	7.8	Phthalate	Bis(2-ethylhexyl) phthalate	2.0	mg/kg	1.3	1.5
104W	Adjacent	South Park Marina	SB-11-2.5	9/28/2007	2.4	2.6	Phthalate	Butyl benzyl phthalate	2.2	mg/kg	0.063	35
104W	Adjacent	South Park Marina	Transect B Top	10/8/2007	0	0.3	Phthalate	Butyl benzyl phthalate	0.41	mg/kg	0.063	6.5
104W	Adjacent	South Park Marina	Transect A Top	10/8/2007	0	0.3	Phthalate	Butyl benzyl phthalate	0.26	mg/kg	0.063	4.1
104W	Adjacent	South Park Marina	Transect B Top	10/8/2007	0	0.3	Phthalate	Dimethyl phthalate	3.7	mg/kg	0.2	19
104W	Adjacent	South Park Marina	Transect A Top	10/8/2007	0	0.3	Phthalate	Dimethyl phthalate	0.74	mg/kg	0.071	10
104W	Adjacent	South Park Marina	SB-12-1.5	9/28/2007	1.3	1.5	Phthalate	Dimethyl phthalate	0.23	mg/kg	0.071	3.2

Notes:

Table shows exceedances for detected results only.

Shading indicates an exceedance factor of 10 or greater.

Samples collected prior to the year 2000 were not believed to be representative of current conditions and are therefore not included in this table.

Table 5
Exceedances of Groundwater Screening Levels at Slivers and Adjacent Properties

Sliver ID	Sample Category	Property Name	Sample Location ID	Sample Date	Chemical Group	Chemical[1]	Conc'n	Units	Screening Level	Exceedance Factor
11E	Adjacent	Certainteed Gypsum	BPB-MW-04	10/18/2005	Metal	Chromium	5.7	ug/L	0.060	95
11E	Adjacent	Certainteed Gypsum	BPB-MW-03	10/18/2005	Metal	Chromium	5.2	ug/L	0.060	87
11E	Adjacent	Certainteed Gypsum	BPB-MW-05	10/18/2005	Metal	Chromium	4.8	ug/L	0.060	80
11E	Adjacent	Certainteed Gypsum	BPB-MW-01	10/18/2005	Metal	Chromium	3.0	ug/L	0.060	50
11E	Adjacent	Certainteed Gypsum	BPB-MW-02	10/18/2005	Metal	Chromium	1.5 J	ug/L	0.060	25
14E	Sliver	NA	MW-14	12/21/2015	Metal	Chromium	13	ug/L	0.060	217
14E	Sliver	NA	MW-14	4/21/2016	Metal	Chromium	12	ug/L	0.060	200
14E	Sliver	NA	MW-14	12/21/2015	Metal	Chromium	1.2	ug/L	0.060	20
14E	Sliver	NA	MW-14	4/21/2016	Metal	Chromium	1.2	ug/L	0.060	20
14E	Sliver	NA	MW-14	12/21/2015	Metal	Lead	52	ug/L	19	2.7
14E	Sliver	NA	MW-14	4/21/2016	Metal	Lead	31	ug/L	19	1.6
14E	Sliver	NA	MW-14	4/21/2016	PAH	Indeno(1,2,3-cd)pyrene	0.010 J	ug/L	0.0091	1.1
14E	Adjacent	Duwamish Marine Center	MW-2	3/27/2002	Metal	Cadmium	12	ug/L	1.2	10
14E	Adjacent	Duwamish Marine Center	MW-2	3/27/2002	Metal	Chromium	140	ug/L	0.060	2,333
14E	Adjacent	Duwamish Marine Center	MW-3	6/9/2008	Metal	Chromium	21	ug/L	0.060	350
14E	Adjacent	Duwamish Marine Center	MW-3	6/9/2008	Metal	Chromium	21	ug/L	0.060	350
14E	Adjacent	Duwamish Marine Center	MW-4	6/4/2008	Metal	Chromium	18	ug/L	0.060	300
14E	Adjacent	Duwamish Marine Center	MW-4	6/4/2008	Metal	Chromium	17	ug/L	0.060	283
14E	Adjacent	Duwamish Marine Center	MW-12	12/17/2015	Metal	Chromium	11	ug/L	0.060	180
14E	Adjacent	Duwamish Marine Center	MW-16	12/21/2015	Metal	Chromium	2.7	ug/L	0.060	45
14E	Adjacent	Duwamish Marine Center	MW-12D	4/20/2016	Metal	Chromium	2.6	ug/L	0.060	43
14E	Adjacent	Duwamish Marine Center	MW-9	12/17/2015	Metal	Chromium	2.1	ug/L	0.060	35
14E	Adjacent	Duwamish Marine Center	MW-16	4/21/2016	Metal	Chromium	2.0	ug/L	0.060	33
14E	Adjacent	Duwamish Marine Center	MW-9D	12/17/2015	Metal	Chromium	1.9	ug/L	0.060	32
14E	Adjacent	Duwamish Marine Center	MW-13	12/21/2015	Metal	Chromium	1.7	ug/L	0.060	29
14E	Adjacent	Duwamish Marine Center	MW-7	12/17/2015	Metal	Chromium	1.7	ug/L	0.060	28
14E	Adjacent	Duwamish Marine Center	MW-12D	12/17/2015	Metal	Chromium	1.6	ug/L	0.060	27
14E	Adjacent	Duwamish Marine Center	MW-13	4/21/2016	Metal	Chromium	1.6	ug/L	0.060	27
14E	Adjacent	Duwamish Marine Center	MW-12	4/20/2016	Metal	Chromium	1.3	ug/L	0.060	22
14E	Adjacent	Duwamish Marine Center	MW-9	4/21/2016	Metal	Chromium	1.2	ug/L	0.060	20
14E	Adjacent	Duwamish Marine Center	MW-5	4/20/2016	Metal	Chromium	1.2	ug/L	0.060	19
14E	Adjacent	Duwamish Marine Center	MW-6	12/17/2015	Metal	Chromium	1.1	ug/L	0.060	19
14E	Adjacent	Duwamish Marine Center	MW-16	12/21/2015	Metal	Chromium	1.0 J	ug/L	0.060	17
14E	Adjacent	Duwamish Marine Center	MW-9D	4/21/2016	Metal	Chromium	0.92	ug/L	0.060	15
14E	Adjacent	Duwamish Marine Center	MW-7	4/21/2016	Metal	Chromium	0.85	ug/L	0.060	14
14E	Adjacent	Duwamish Marine Center	MW-16	4/21/2016	Metal	Chromium	0.83	ug/L	0.060	14
14E	Adjacent	Duwamish Marine Center	MW-7	4/21/2016	Metal	Chromium	0.76	ug/L	0.060	13
14E	Adjacent	Duwamish Marine Center	MW-9	12/17/2015	Metal	Chromium	0.65	ug/L	0.060	11
14E	Adjacent	Duwamish Marine Center	MW-15	4/20/2016	Metal	Chromium	0.64	ug/L	0.060	11
14E	Adjacent	Duwamish Marine Center	MW-13	4/21/2016	Metal	Chromium	0.62	ug/L	0.060	10

Table 5
Exceedances of Groundwater Screening Levels at Slivers and Adjacent Properties

Sliver ID	Sample Category	Property Name	Sample Location ID	Sample Date	Chemical Group	Chemical[1]	Conc'n	Units	Screening Level	Exceedance Factor
14E	Adjacent	Duwamish Marine Center	MW-6	4/21/2016	Metal	Chromium	0.62	ug/L	0.060	10
14E	Adjacent	Duwamish Marine Center	MW-15	4/20/2016	Metal	Chromium	0.60	ug/L	0.060	10
14E	Adjacent	Duwamish Marine Center	MW-12D	12/17/2015	Metal	Chromium	0.59	ug/L	0.060	9.8
14E	Adjacent	Duwamish Marine Center	MW-13	12/21/2015	Metal	Chromium	0.57	ug/L	0.060	9.6
14E	Adjacent	Duwamish Marine Center	MW-9D	12/17/2015	Metal	Chromium	0.53	ug/L	0.060	8.8
14E	Adjacent	Duwamish Marine Center	MW-12	4/20/2016	Metal	Chromium	0.50	ug/L	0.060	8.3
14E	Adjacent	Duwamish Marine Center	MW-2	3/27/2002	Metal	Copper	810	ug/L	14	58
14E	Adjacent	Duwamish Marine Center	MW-12	12/17/2015	Metal	Copper	36	ug/L	14	2.6
14E	Adjacent	Duwamish Marine Center	MW-2	3/27/2002	Metal	Lead	2100	ug/L	19	111
14E	Adjacent	Duwamish Marine Center	MW-12	12/17/2015	Metal	Lead	41	ug/L	19	2.1
14E	Adjacent	Duwamish Marine Center	MW-16	12/21/2015	Metal	Lead	30	ug/L	19	1.6
14E	Adjacent	Duwamish Marine Center	MW-2	3/27/2002	Metal	Zinc	2000	ug/L	770	2.6
14E	Adjacent	Duwamish Marine Center	MW-16	12/21/2015	PAH	Acenaphthene	135	ug/L	5.3	25
14E	Adjacent	Duwamish Marine Center	MW-3D	6/4/2008	PAH	Acenaphthene	60	ug/L	5.3	11
14E	Adjacent	Duwamish Marine Center	MW-16	4/21/2016	PAH	Acenaphthene	59	ug/L	5.3	11
14E	Adjacent	Duwamish Marine Center	MW-2D	6/4/2008	PAH	Acenaphthene	18	ug/L	5.3	3.4
14E	Adjacent	Duwamish Marine Center	MW-9D	12/17/2015	PAH	Acenaphthene	14	ug/L	5.3	2.6
14E	Adjacent	Duwamish Marine Center	MW-2	3/27/2002	PAH	Acenaphthene	13	ug/L	5.3	2.5
14E	Adjacent	Duwamish Marine Center	MW-9D	4/21/2016	PAH	Acenaphthene	9.8	ug/L	5.3	1.9
14E	Adjacent	Duwamish Marine Center	MW-2	3/27/2002	PAH	Anthracene	5.7	ug/L	2.1	2.7
14E	Adjacent	Duwamish Marine Center	MW-16	12/21/2015	PAH	Anthracene	4.9	ug/L	2.1	2.3
14E	Adjacent	Duwamish Marine Center	MW-3D	6/4/2008	PAH	Anthracene	3.1	ug/L	2.1	1.5
14E	Adjacent	Duwamish Marine Center	MW-16	4/21/2016	PAH	Anthracene	2.5	ug/L	2.1	1.2
14E	Adjacent	Duwamish Marine Center	MW-2	3/27/2002	PAH	Benzo(a)anthracene	11	ug/L	0.19	58
14E	Adjacent	Duwamish Marine Center	MW-3D	6/4/2008	PAH	Benzo(a)anthracene	0.24	ug/L	0.19	1.3
14E	Adjacent	Duwamish Marine Center	MW-2D	6/4/2008	PAH	Benzo(a)anthracene	0.22	ug/L	0.19	1.2
14E	Adjacent	Duwamish Marine Center	MW-2	3/27/2002	PAH	Benzo(a)pyrene	13	ug/L	0.087	149
14E	Adjacent	Duwamish Marine Center	MW-2	3/27/2002	PAH	Chrysene	15	ug/L	0.19	79
14E	Adjacent	Duwamish Marine Center	MW-2D	6/4/2008	PAH	Chrysene	0.22	ug/L	0.19	1.2
14E	Adjacent	Duwamish Marine Center	MW-2	3/27/2002	PAH	Dibenz(a,h)anthracene	0.68	ug/L	0.0068	100
14E	Adjacent	Duwamish Marine Center	MW-2D	6/4/2008	PAH	Dibenz(a,h)anthracene	0.015	ug/L	0.0068	2.2
14E	Adjacent	Duwamish Marine Center	MW-2	3/27/2002	PAH	Fluoranthene	24	ug/L	1.8	13
14E	Adjacent	Duwamish Marine Center	MW-3D	6/4/2008	PAH	Fluoranthene	13	ug/L	1.8	7.2
14E	Adjacent	Duwamish Marine Center	MW-16	12/21/2015	PAH	Fluoranthene	6.3	ug/L	1.8	3.5
14E	Adjacent	Duwamish Marine Center	MW-16	4/21/2016	PAH	Fluoranthene	4.7	ug/L	1.8	2.6
14E	Adjacent	Duwamish Marine Center	MW-2D	6/4/2008	PAH	Fluoranthene	4.6	ug/L	1.8	2.6
14E	Adjacent	Duwamish Marine Center	MW-16	12/21/2015	PAH	Fluorene	66	ug/L	3.7	18
14E	Adjacent	Duwamish Marine Center	MW-3D	6/4/2008	PAH	Fluorene	34	ug/L	3.7	9.2
14E	Adjacent	Duwamish Marine Center	MW-16	4/21/2016	PAH	Fluorene	28	ug/L	3.7	7.5
14E	Adjacent	Duwamish Marine Center	MW-2D	6/4/2008	PAH	Fluorene	10	ug/L	3.7	2.7

Table 5
Exceedances of Groundwater Screening Levels at Slivers and Adjacent Properties

Sliver ID	Sample Category	Property Name	Sample Location ID	Sample Date	Chemical Group	Chemical[1]	Conc'n	Units	Screening Level	Exceedance Factor
14E	Adjacent	Duwamish Marine Center	MW-2	3/27/2002	PAH	Fluorene	9.7	ug/L	3.7	2.6
14E	Adjacent	Duwamish Marine Center	MW-2	3/27/2002	PAH	Indeno(1,2,3-cd)pyrene	6.8	ug/L	0.0091	747
14E	Adjacent	Duwamish Marine Center	MW-2D	6/4/2008	PAH	Indeno(1,2,3-cd)pyrene	0.033	ug/L	0.0091	3.6
14E	Adjacent	Duwamish Marine Center	MW-16	4/21/2016	PAH	Indeno(1,2,3-cd)pyrene	0.010 J	ug/L	0.0091	1.1
14E	Adjacent	Duwamish Marine Center	MW-16	12/21/2015	PAH	Naphthalene	1890	ug/L	90	21
14E	Adjacent	Duwamish Marine Center	MW-16	12/21/2015	PAH	Naphthalene	1120	ug/L	90	12
14E	Adjacent	Duwamish Marine Center	MW-3D	6/4/2008	PAH	Naphthalene	360	ug/L	90	4.0
14E	Adjacent	Duwamish Marine Center	MW-16	4/21/2016	PAH	Naphthalene	319	ug/L	90	3.5
14E	Adjacent	Duwamish Marine Center	MW-3D	6/4/2008	PAH	Naphthalene	280	ug/L	90	3.1
14E	Adjacent	Duwamish Marine Center	MW-16	4/21/2016	PAH	Naphthalene	259	ug/L	90	2.9
14E	Adjacent	Duwamish Marine Center	MW-2	3/27/2002	PAH	Naphthalene	140	ug/L	90	1.6
14E	Adjacent	Duwamish Marine Center	MW-2	3/27/2002	PAH	Pyrene	24	ug/L	2.0	12
14E	Adjacent	Duwamish Marine Center	MW-3D	6/4/2008	PAH	Pyrene	7.2	ug/L	2.0	3.6
14E	Adjacent	Duwamish Marine Center	MW-16	12/21/2015	PAH	Pyrene	3.1	ug/L	2.0	1.5
14E	Adjacent	Duwamish Marine Center	MW-2D	6/4/2008	PAH	Pyrene	3.0	ug/L	2.0	1.5
14E	Adjacent	Duwamish Marine Center	MW-16	4/21/2016	PAH	Pyrene	2.3	ug/L	2.0	1.2
14E	Adjacent	Duwamish Marine Center	MW-2	3/27/2002	PAH	Total cPAH TEQ	17	ug/L	0.054	320
14E	Adjacent	Duwamish Marine Center	MW-16	12/21/2015	PAH	Total cPAH TEQ	0.33 J	ug/L	0.054	6.1
14E	Adjacent	Duwamish Marine Center	MW-2D	6/4/2008	PAH	Total cPAH TEQ	0.13	ug/L	0.054	2.5
14E	Adjacent	Duwamish Marine Center	MW-2	3/27/2002	PCB	Total PCBs	0.28	ug/L	0.022	13
14E	Adjacent	Duwamish Marine Center	MW-16	12/21/2015	Phenol	2,4-Dimethylphenol	13	ug/L	6.3	2.0
14E	Adjacent	Duwamish Marine Center	MW-6	12/17/2015	Phenol	Pentachlorophenol	3.7	ug/L	0.88	4.2
35E	Sliver (Seep)	NA	SEEP-1	9/25/2012	Metal	Chromium (dissolved)	4.3 J1	ug/L	0.060	72
35E	Sliver (Seep)	NA	SEEP-1	6/20/2012	Metal	Chromium (dissolved)	2.1	ug/L	0.060	35
35E	Sliver (Seep)	NA	SEEP-1	3/15/2012	Metal	Chromium (dissolved)	1.9 J1	ug/L	0.060	32
35E	Sliver (Seep)	NA	SEEP-1	9/25/2012	Metal	Chromium (total)	5.0	ug/L	0.060	83
35E	Sliver (Seep)	NA	SEEP-1	6/20/2012	Metal	Chromium (total)	2.3	ug/L	0.060	38
35E	Sliver (Seep)	NA	SEEP-1	3/15/2012	Metal	Chromium (total)	2.1	ug/L	0.060	35
35E	Sliver (Seep)	NA	SEEP-1	9/25/2012	Metal	Mercury (dissolved)	2.4 J1	ug/L	2.0	1.2
35E	Sliver (Seep)	NA	SEEP-1	3/15/2012	Metal	Mercury (dissolved)	2.2 J1	ug/L	2.0	1.1
35E	Sliver (Seep)	NA	SEEP-1	3/15/2012	Metal	Mercury (total)	2.9 J1	ug/L	2.0	1.4
35E	Sliver (Seep)	NA	SEEP-1	9/25/2012	PAH	Benzo(a)pyrene	0.11	ug/L	0.087	1.3
35E	Sliver (Seep)	NA	SEEP-1	9/25/2012	PAH	Dibenz(a,h)anthracene	0.020	ug/L	0.0068	2.9
35E	Sliver (Seep)	NA	SEEP-1	9/25/2012	PAH	Indeno(1,2,3-cd)pyrene	0.061	ug/L	0.0091	6.7
35E	Sliver (Seep)	NA	SEEP-1	9/25/2012	PAH	Total cPAH TEQ	0.15	ug/L	0.054	2.8
35E	Sliver	NA	PS-SB2-GW	8/27/2012	Metal	Arsenic (dissolved)	5090	ug/L	1,800	2.8
35E	Sliver	NA	PS-SB2-GW	8/27/2012	Metal	Arsenic (total)	4770	ug/L	1800	2.7
35E	Sliver	NA	PS-SB3-GW	8/27/2012	Metal	Chromium (dissolved)	1.2 J1	ug/L	0.060	20
35E	Sliver	NA	PS-SB4-GW	8/27/2012	Metal	Chromium (dissolved)	0.88 J1	ug/L	0.060	15
35E	Sliver	NA	PS-SB1a-GW	8/27/2012	Metal	Chromium (dissolved)	0.56 J1	ug/L	0.060	9.3

Table 5
Exceedances of Groundwater Screening Levels at Slivers and Adjacent Properties

Sliver ID	Sample Category	Property Name	Sample Location ID	Sample Date	Chemical Group	Chemical[1]	Conc'n	Units	Screening Level	Exceedance Factor
35E	Sliver	NA	PS-SB4-GW	8/27/2012	Metal	Chromium (total)	40 J	ug/L	0.060	670
35E	Sliver	NA	PS-SB3-GW	8/27/2012	Metal	Chromium (total)	3.4	ug/L	0.060	57
35E	Sliver	NA	PS-SB1a-GW	8/27/2012	Metal	Chromium (total)	2.9	ug/L	0.060	48
35E	Sliver	NA	PS-SB2-GW	8/27/2012	Metal	Chromium (total)	0.73 J1	ug/L	0.060	12
35E	Sliver	NA	PS-SB4-GW	8/27/2012	Metal	Copper (total)	37 J	ug/L	14	2.7
35E	Sliver	NA	PS-SB4-GW	8/27/2012	Metal	Lead (total)	83 J	ug/L	19	4.4
35E	Adjacent	Boeing Isaacson-Thompson	IT-I-104	12/8/2011	Metal	Arsenic (dissolved)	2460	ug/L	1800	1.4
35E	Adjacent	Boeing Isaacson-Thompson	IT-I-104	3/13/2012	Metal	Arsenic (dissolved)	2280	ug/L	1800	1.3
35E	Adjacent	Boeing Isaacson-Thompson	IT-I-104	9/12/2012	Metal	Arsenic (total)	1210	ug/L	220	5.5
35E	Adjacent	Boeing Isaacson-Thompson	IT-I-104	6/14/2012	Metal	Arsenic (total)	1140	ug/L	220	5.2
35E	Adjacent	Boeing Isaacson-Thompson	IT-MW-20	3/13/2012	Metal	Arsenic (total)	518	ug/L	220	2.4
35E	Adjacent	Boeing Isaacson-Thompson	IT-I-104	3/13/2012	Metal	Arsenic (total)	2900 J	ug/L	1800	1.6
35E	Adjacent	Boeing Isaacson-Thompson	IT-I-104	12/8/2011	Metal	Arsenic (total)	2310	ug/L	1800	1.3
35E	Adjacent	Boeing Isaacson-Thompson	IT-I-104	3/13/2012	Metal	Chromium (dissolved)	3.4	ug/L	0.060	57
35E	Adjacent	Boeing Isaacson-Thompson	IT-I-104	6/14/2012	Metal	Chromium (dissolved)	3.1	ug/L	0.060	52
35E	Adjacent	Boeing Isaacson-Thompson	IT-I-104	12/8/2011	Metal	Chromium (dissolved)	3.0	ug/L	0.060	50
35E	Adjacent	Boeing Isaacson-Thompson	IT-MW-20	6/14/2012	Metal	Chromium (dissolved)	2.3	ug/L	0.060	38
35E	Adjacent	Boeing Isaacson-Thompson	IT-I-104	9/12/2012	Metal	Chromium (dissolved)	2.0	ug/L	0.060	33
35E	Adjacent	Boeing Isaacson-Thompson	IT-MW-20	3/13/2012	Metal	Chromium (dissolved)	0.94 J1	ug/L	0.060	16
35E	Adjacent	Boeing Isaacson-Thompson	IT-MW-19	12/7/2011	Metal	Chromium (dissolved)	0.80	ug/L	0.060	13
35E	Adjacent	Boeing Isaacson-Thompson	IT-MW-19	9/12/2012	Metal	Chromium (dissolved)	0.72 J1	ug/L	0.060	12
35E	Adjacent	Boeing Isaacson-Thompson	IT-PZ-7	12/7/2011	Metal	Chromium (dissolved)	0.70	ug/L	0.060	12
35E	Adjacent	Boeing Isaacson-Thompson	IT-MW-19	6/14/2012	Metal	Chromium (dissolved)	0.21 J1	ug/L	0.060	3.5
35E	Adjacent	Boeing Isaacson-Thompson	IT-PZ-7	6/14/2012	Metal	Chromium (dissolved)	0.14 J1	ug/L	0.060	2.3
35E	Adjacent	Boeing Isaacson-Thompson	IT-PZ-7	3/13/2012	Metal	Chromium (total)	15	ug/L	0.060	242
35E	Adjacent	Boeing Isaacson-Thompson	IT-I-104	3/13/2012	Metal	Chromium (total)	5.5 J	ug/L	0.060	92
35E	Adjacent	Boeing Isaacson-Thompson	IT-I-104	6/14/2012	Metal	Chromium (total)	3.8	ug/L	0.060	63
35E	Adjacent	Boeing Isaacson-Thompson	IT-I-104	9/12/2012	Metal	Chromium (total)	2.7	ug/L	0.060	45
35E	Adjacent	Boeing Isaacson-Thompson	IT-I-104	12/8/2011	Metal	Chromium (total)	2.6	ug/L	0.060	43
35E	Adjacent	Boeing Isaacson-Thompson	IT-MW-20	6/14/2012	Metal	Chromium (total)	2.2	ug/L	0.060	37
35E	Adjacent	Boeing Isaacson-Thompson	IT-PZ-7	6/14/2012	Metal	Chromium (total)	1.5 J1	ug/L	0.060	25
35E	Adjacent	Boeing Isaacson-Thompson	IT-MW-20	3/13/2012	Metal	Chromium (total)	1.0 J1	ug/L	0.060	17
35E	Adjacent	Boeing Isaacson-Thompson	IT-MW-19	9/12/2012	Metal	Chromium (total)	0.90 J1	ug/L	0.060	15
35E	Adjacent	Boeing Isaacson-Thompson	IT-MW-20	12/8/2011	Metal	Chromium (total)	0.50	ug/L	0.060	8.3
35E	Adjacent	Boeing Isaacson-Thompson	IT-PZ-7	12/7/2011	Metal	Chromium (total)	0.50 J1	ug/L	0.060	8.3
35E	Adjacent	Boeing Isaacson-Thompson	IT-I-104	12/8/2011	Metal	Copper	19	ug/L	14	1.3
35E	Adjacent	Boeing Isaacson-Thompson	IT-MW-19	9/12/2012	Metal	Mercury (dissolved)	3.2 J1	ug/L	2.0	1.6
35E	Adjacent	Boeing Isaacson-Thompson	IT-I-104	6/14/2012	Metal	Mercury (total)	13	ug/L	2.0	6.4
35E	Adjacent	Boeing Isaacson-Thompson	IT-I-104	9/12/2012	Metal	Mercury (total)	8.6	ug/L	2.0	4.3
35E	Adjacent	Boeing Isaacson-Thompson	IT-MW-20	3/13/2012	Metal	Mercury (total)	8.2	ug/L	2.0	4.1

Table 5
Exceedances of Groundwater Screening Levels at Slivers and Adjacent Properties

Sliver ID	Sample Category	Property Name	Sample Location ID	Sample Date	Chemical Group	Chemical[1]	Conc'n	Units	Screening Level	Exceedance Factor
35E	Adjacent	Boeing Isaacson-Thompson	IT-I-104	3/13/2012	Metal	Mercury (total)	8.1 J	ug/L	2.0	4.0
35E	Adjacent	Boeing Isaacson-Thompson	IT-MW-20	3/13/2012	Metal	Mercury (total)	4.3	ug/L	2.0	2.2
35E	Adjacent	Boeing Isaacson-Thompson	IT-I-104	6/14/2012	Metal	Mercury (total)	3.3 J1	ug/L	2.0	1.6
35E	Adjacent	Boeing Isaacson-Thompson	IT-I-104	3/13/2012	Metal	Mercury (total)	3.0 J1	ug/L	2.0	1.5
35E	Adjacent	Boeing Isaacson-Thompson	IT-MW-19	9/12/2012	Metal	Mercury (total)	2.7	ug/L	2.0	1.4
35E	Adjacent	Boeing Isaacson-Thompson	IT-MW-20	6/14/2012	Metal	Mercury (total)	2.7 J1	ug/L	2.0	1.3
35E	Adjacent	Boeing Isaacson-Thompson	IT-I-203	3/15/2012	Metal	Mercury (total)	2.5 J1	ug/L	2.0	1.2
35E	Adjacent	Boeing Isaacson-Thompson	IT-PZ-7	9/12/2012	PAH	Dibenz(a,h)anthracene	0.0090	ug/L	0.0068	1.3
35E	Adjacent	Boeing Isaacson-Thompson	IT-I-203	6/15/2012	PCB	Total PCBs	0.024	ug/L	0.022	1.1
44W	Sliver	NA	DSIP2-08	1/8/2014	Metal	Chromium (dissolved)	21	ug/L	0.060	350
44W	Sliver	NA	DSIP2-08	1/8/2014	Metal	Chromium (dissolved)	21	ug/L	0.060	350
44W	Sliver	NA	DSIP2-08	4/16/2014	Metal	Chromium (dissolved)	21	ug/L	0.060	350
44W	Sliver	NA	DSIP2-08	1/28/2015	Metal	Chromium (dissolved)	21	ug/L	0.060	350
44W	Sliver	NA	DSIP2-08	7/10/2014	Metal	Chromium (dissolved)	17	ug/L	0.060	283
44W	Sliver	NA	DSIP2-08	1/8/2014	Metal	Chromium (total)	25	ug/L	0.060	417
44W	Sliver	NA	DSIP2-08	1/8/2014	Metal	Chromium (total)	25	ug/L	0.060	417
44W	Sliver	NA	DSIP2-08	1/28/2015	Metal	Chromium (total)	23	ug/L	0.060	383
44W	Sliver	NA	DSIP2-08	4/16/2014	Metal	Chromium (total)	23	ug/L	0.060	383
44W	Sliver	NA	DSIP2-08	7/10/2014	Metal	Chromium (total)	21	ug/L	0.060	350
44W	Adjacent	Duwamish Shipyard	DSI-09	9/28/2006	Metal	Copper (total)	34.4	ug/L	14	2.5
44W	Adjacent	Duwamish Shipyard	DSI-09	9/28/2006	Metal	Lead (total)	55	ug/L	19	2.9
45W	Sliver (Seep)	NA	DSIP2-SP-03	7/22/2013	Metal	Chromium (total)	4.0	ug/L	0.060	67
102W	Adjacent	Former Long Painting	MW-5	7/19/2000	Metal	Chromium	36	ug/L	0.060	600
102W	Adjacent	Former Long Painting	MW-5	7/19/2000	Metal	Lead	45	ug/L	19	2.4
104W	Adjacent	South Park Marina	MW-2	10/8/2007	Metal	Chromium	40	ug/L	0.060	673
104W	Adjacent	South Park Marina	MW-1	3/12/2008	Metal	Chromium	27	ug/L	0.060	455
104W	Adjacent	South Park Marina	MW-3	3/12/2008	Metal	Chromium	19	ug/L	0.060	323
104W	Adjacent	South Park Marina	MW-2	3/12/2008	Metal	Chromium	16	ug/L	0.060	262
104W	Adjacent	South Park Marina	MW-1	10/8/2007	Metal	Chromium	2.0	ug/L	0.060	34
104W	Adjacent	South Park Marina	MW-3	10/8/2007	Metal	Chromium	1.5	ug/L	0.060	25

1 - A large proportion of the screening level exceedances in groundwater are for chromium. The screening level for chromium from Ecology's December 2017 PCUL workbook, which is based on the groundwater to sediment transport pathway, is highly conservative. In most cases where chromium exceeds groundwater screening levels (even by a factor of 100 or more), no corresponding screening level exceedances of chromium in sediment are observed. Therefore, the groundwater-to-sediment screening level comparison for chromium represents a high degree of uncertainty.

Table shows exceedances for detected results only.
Shading indicates an exceedance factor of 10 or greater.
Samples collected prior to the year 2000 were not believed to be representative of current conditions and are therefore not included in this table.

Table 6
Summary of Screening Level Exceedances by Sliver

Sliver ID	Chemical Group	Chemical	Maximum EF - Surface Sediment	Maximum EF (Sliver - Soil)	Maximum EF (Adjacent Property - Soil)	Maximum EF (Sliver - Groundwater)[1]	Maximum EF (Adjacent Property - Groundwater)[1]
11E	Metal	Chromium	<1	ns	ns	ns	95
11E	Metal	Zinc	3.7	ns	ns	ns	<1
11E	PAH	Chrysene	2.9	ns	ns	ns	ns
11E	PAH	Fluoranthene	1.3	ns	ns	ns	ns
11E	PCB	Total PCBs	1.9	ns	ns	ns	ns
14E	Metal	Arsenic	<1	1.2	2.5	<1	<1
14E	Metal	Cadmium	<1	2.3	8.4	<1	10
14E	Metal	Chromium	<1	1.7	10	220	2300
14E	Metal	Copper	<1	5.7	36	<1	58
14E	Metal	Lead	<1	<1	27	2.7	110
14E	Metal	Mercury	3.7	1.4	3.7	<1	<1
14E	Metal	Silver	<1	1.2	<1	<1	<1
14E	Metal	Zinc	<1	<1	76	<1	2.6
14E	PAH	Acenaphthene	<1	4.2	14	<1	25
14E	PAH	Acenaphthylene	<1	<1	1.1	<1	<1
14E	PAH	Anthracene	<1	4.3	11	<1	2.7
14E	PAH	Benzo(a)anthracene	<1	2.2	19	<1	58
14E	PAH	Benzo(a)pyrene	<1	1.7	13	<1	150
14E	PAH	Benzo(g,h,i)perylene	<1	1.6	11	<1	<1
14E	PAH	Chrysene	<1	2.3	16	<1	79
14E	PAH	Dibenz(a,h)anthracene	<1	2.1	<1	<1	100
14E	PAH	Fluoranthene	<1	5.8	26	<1	13
14E	PAH	Fluorene	<1	3.6	25	<1	18
14E	PAH	Indeno(1,2,3-cd)pyrene	<1	1.8	15	1.1	750
14E	PAH	Naphthalene	<1	<1	5.0	<1	21
14E	PAH	Phenanthrene	<1	4.0	27	<1	<1
14E	PAH	Pyrene	<1	3.4	17	<1	12
14E	PAH	Total benzofluoranthenes	<1	2.8	13	<1	<1
14E	PAH	Total cPAH TEQ (NDx0.5)	<1	4.0	28	<1	320
14E	PAH	Total HPAHs	<1	3.3	18	<1	<1
14E	PAH	Total LPAHs	<1	2.8	13	<1	<1
14E	PCB	Total PCBs	23	130	270	<1	13
14E	Phenol	2,4-Dimethylphenol	1.7	<1	<1	<1	2.0
14E	Phenol	Pentachlorophenol	<1	2.4	650	<1	4.2

Table 6
Summary of Screening Level Exceedances by Sliver

Sliver ID	Chemical Group	Chemical	Maximum EF - Surface Sediment	Maximum EF (Sliver - Soil)	Maximum EF (Adjacent Property - Soil)	Maximum EF (Sliver - Groundwater)[1]	Maximum EF (Adjacent Property - Groundwater)[1]
14E	Phthalate	Bis(2-ethylhexyl) phthalate	<1	1.7	26	<1	<1
14E	Phthalate	Butyl benzyl phthalate	1.2	5.2	660	<1	<1
14E	Other SVOC	Benzyl alcohol	7.4	<1	<1	<1	<1
16E	PCB	Total PCBs	3.2	ns	ns	ns	ns
26E	Metal	Arsenic	<1	1.4	1.2	ns	ns
35E	Dioxin/Furan	Dioxin/Furan (TEQ, NDx0.5)	4.0	ns	ns	ns	ns
35E	Metal	Arsenic	19	4.6	2.4	2.8	5.5
35E	Metal	Cadmium	<1	1.3	2.6	<1	<1
35E	Metal	Chromium	<1	12	3.7	670	242
35E	Metal	Copper	<1	2.8	<1	2.7	1.3
35E	Metal	Lead	<1	20	1.5	4.4	<1
35E	Metal	Mercury	<1	2.3	<1	1.2	6.4
35E	Metal	Zinc	4.1	6.6	5.7	<1	<1
35E	PAH	Anthracene	4.6	<1	<1	<1	<1
35E	PAH	Benzo(a)anthracene	3.6	<1	<1	<1	<1
35E	PAH	Benzo(a)pyrene	1.3	<1	<1	1.3	<1
35E	PAH	Benzofluoranthenes, total	2.2	<1	<1	<1	<1
35E	PAH	Chrysene	4.7	<1	<1	<1	<1
35E	PAH	Dibenz(a,h)anthracene	<1	<1	<1	2.9	1.3
35E	PAH	Fluoranthene	5.9	<1	<1	<1	<1
35E	PAH	Fluorene	2.8	<1	<1	<1	<1
35E	PAH	Indeno(1,2,3-cd)pyrene	<1	<1	<1	6.7	<1
35E	PAH	Pyrene	1.5	<1	<1	<1	<1
35E	PAH	Total cPAH (TEQ, NDx0.5)	3.3	<1	<1	2.8	<1
35E	PAH	Total HPAH	2.9	<1	<1	<1	<1
35E	PAH	Total LPAH	2.1	<1	<1	<1	<1
35E	PCB	Total PCBs	850	85	5.1	<1	1.1
35E	Phthalate	Butyl benzyl phthalate	3.5	<1	<1	<1	<1
37E	Other SVOC	Benzyl alcohol	6.3	ns	ns	ns	ns
37E	PCB	Total PCBs	2.0	ns	ns	ns	ns
41W	Metal	Arsenic	1.5	ns	ns	ns	ns
41W	Other SVOC	Benzyl alcohol	1.9	ns	ns	ns	ns
41W	PCB	Total PCBs	5.8	ns	ns	ns	ns
42W	Metal	Arsenic	1.2	ns	ns	ns	ns

Table 6
Summary of Screening Level Exceedances by Sliver

Sliver ID	Chemical Group	Chemical	Maximum EF - Surface Sediment	Maximum EF (Sliver - Soil)	Maximum EF (Adjacent Property - Soil)	Maximum EF (Sliver - Groundwater)[1]	Maximum EF (Adjacent Property - Groundwater)[1]
42W	Metal	Copper	3.2	ns	ns	ns	ns
42W	Metal	Zinc	1.9	ns	ns	ns	ns
42W	Other SVOC	Benzyl alcohol	1.1	ns	ns	ns	ns
42W	PAH	Fluoranthene	1.1	ns	ns	ns	ns
42W	PAH	Indeno(1,2,3-cd)pyrene	1.1	ns	ns	ns	ns
42W	PAH	Total cPAH (TEQ, NDx0.5)	1.6	ns	ns	ns	ns
42W	PCB	Total PCBs	2.0	ns	ns	ns	ns
42W	Phthalate	Bis(2-ethylhexyl) phthalate	1.2	ns	ns	ns	ns
44W	Metal	Arsenic	14	<1	<1	<1	<1
44W	Metal	Cadmium	<1	<1	1.7	<1	<1
44W	Metal	Chromium	<1	<1	<1	417	<1
44W	Metal	Copper	3.6	<1	8.5	<1	2.5
44W	Metal	Lead	1.7	15	11	<1	2.9
44W	Metal	Mercury	1.9	1.4	<1	<1	<1
44W	Metal	Zinc	6.9	2.1	14	<1	<1
44W	Other SVOC	Benzyl alcohol	4.4	<1	<1	<1	<1
44W	Other SVOC	Hexachlorobenzene	<1	14	<1	<1	<1
44W	Other SVOC	N-Nitrosodiphenylamine	<1	1.4	<1	<1	<1
44W	PAH	Chrysene	1.4	<1	<1	<1	<1
44W	PAH	Fluoranthene	1.7	1.4	<1	<1	<1
44W	PAH	Fluorene	<1	<1	1.1	<1	<1
44W	PAH	2-Methylnaphthalene	<1	<1	1.1	<1	<1
44W	PAH	Phenanthrene	1.1	<1	<1	<1	<1
44W	PAH	Pyrene	<1	1.1	<1	<1	<1
44W	PAH	Total cPAH (TEQ, NDx0.5)	1.4	1.1	<1	<1	<1
44W	PCB	Total PCBs	2.2	<1	<1	<1	<1
44W	Phenol	2,4-Dimethylphenol	1.8	<1	<1	<1	<1
44W	Phthalate	Butyl benzyl phthalate	1.8	<1	<1	<1	<1
45W	Metal	Arsenic	3.0	<1	<1	<1	<1
45W	Metal	Chromium	<1	<1	<1	67	<1
45W	Metal	Copper	1.6	<1	<1	<1	<1
45W	Metal	Zinc	1.9	<1	<1	<1	<1
45W	Other SVOC	Benzyl alcohol	5.1	<1	<1	<1	<1
45W	PCB	Total PCBs	1.7	<1	<1	<1	<1

Table 6
Summary of Screening Level Exceedances by Sliver

Sliver ID	Chemical Group	Chemical	Maximum EF - Surface Sediment	Maximum EF (Sliver - Soil)	Maximum EF (Adjacent Property - Soil)	Maximum EF (Sliver - Groundwater)[1]	Maximum EF (Adjacent Property - Groundwater)[1]
84W	Other SVOC	Benzyl alcohol	6.3	ns	ns	ns	ns
84W	Other SVOC	Dibenzofuran	2.2	ns	ns	ns	ns
84W	PAH	Acenaphthene	1.9	ns	ns	ns	ns
84W	PAH	Chrysene	1.3	ns	ns	ns	ns
84W	PAH	Fluoranthene	3.8	ns	ns	ns	ns
84W	PAH	Fluorene	2.0	ns	ns	ns	ns
84W	PAH	Phenanthrene	6.1	ns	ns	ns	ns
84W	PAH	Pyrene	1.8	ns	ns	ns	ns
84W	PAH	Total LPAH	2.0	ns	ns	ns	ns
84W	PCB	Total PCBs	4.0	ns	ns	ns	ns
84W	Phthalate	Bis(2-ethylhexyl) phthalate	1.3	ns	ns	ns	ns
84W	Phthalate	Butyl benzyl phthalate	1.5	ns	ns	ns	ns
86W	Other SVOC	Benzyl alcohol	2.1	ns	ns	ns	ns
86W	Phthalate	Bis(2-ethylhexyl) phthalate	3.8	ns	ns	ns	ns
86W	Phthalate	Butyl benzyl phthalate	2.2	ns	ns	ns	ns
91W	Dioxin/Furan	Dioxin/furan TEQ (NDx0.5)	<1	2.0	ns	ns	ns
91W	PCB	Total PCBs	4.8	4.3	ns	ns	ns
91W	Phthalate	Butyl benzyl phthalate	<1	2.1	ns	ns	ns
93W	Metal	Zinc	1.2	ns	ns	ns	ns
93W	Other SVOC	Benzyl alcohol	2.1	ns	ns	ns	ns
93W	PCB	Total PCBs	1.3	ns	ns	ns	ns
95W	Dioxin/Furan	Dioxin/Furan (TEQ, NDx0.5)	1.4	ns	ns	ns	ns
95W	Metal	Mercury	16	ns	ns	ns	ns
95W	Other SVOC	Benzoic acid	2.5	ns	ns	ns	ns
95W	Other SVOC	Benzyl alcohol	9.5	ns	ns	ns	ns
95W	Other SVOC	Dibenzofuran	7.4	ns	ns	ns	ns
95W	Other SVOC	Hexachlorobenzene	1.1	ns	ns	ns	ns
95W	PAH	2-Methylnaphthalene	1.1	ns	ns	ns	ns
95W	PAH	Acenaphthene	9.2	ns	ns	ns	ns
95W	PAH	Anthracene	10	ns	ns	ns	ns
95W	PAH	Benzo(a)anthracene	3.1	ns	ns	ns	ns
95W	PAH	Benzo(a)pyrene	2.0	ns	ns	ns	ns
95W	PAH	Benzo(g,h,i)perylene	3.4	ns	ns	ns	ns
95W	PAH	Benzofluoranthenes, total	1.6	ns	ns	ns	ns
95W	PAH	Chrysene	4.1	ns	ns	ns	ns

Table 6
Summary of Screening Level Exceedances by Sliver

Sliver ID	Chemical Group	Chemical	Maximum EF - Surface Sediment	Maximum EF (Sliver - Soil)	Maximum EF (Adjacent Property - Soil)	Maximum EF (Sliver - Groundwater)[1]	Maximum EF (Adjacent Property - Groundwater)[1]
95W	PAH	Dibenz(a,h)anthracene	2.5	ns	ns	ns	ns
95W	PAH	Fluoranthene	10	ns	ns	ns	ns
95W	PAH	Fluorene	13	ns	ns	ns	ns
95W	PAH	Indeno(1,2,3-cd)pyrene	2.7	ns	ns	ns	ns
95W	PAH	Phenanthrene	15	ns	ns	ns	ns
95W	PAH	Pyrene	4.6	ns	ns	ns	ns
95W	PAH	Total cPAH (TEQ, NDx0.5)	4.2	ns	ns	ns	ns
95W	PAH	Total HPAH	4.0	ns	ns	ns	ns
95W	PAH	Total LPAH	8.5	ns	ns	ns	ns
95W	PCB	Total PCBs	6.6	ns	ns	ns	ns
95W	Phenol	2,4-Dimethylphenol	2.2	ns	ns	ns	ns
95W	Phthalate	Bis(2-ethylhexyl) phthalate	2.0	ns	ns	ns	ns
95W	Phthalate	Butyl benzyl phthalate	3.2	ns	ns	ns	ns
96W	Other SVOC	1,4-Dichlorobenzene	1.4	ns	ns	ns	ns
96W	Other SVOC	Benzyl alcohol	11	ns	ns	ns	ns
96W	PCB	Total PCBs	9.2	ns	ns	ns	ns
102W	Metal	Arsenic	<1	<1	1.4	ns	<1
102W	Metal	Chromium	<1	<1	<1	ns	600
102W	Metal	Lead	<1	<1	<1	ns	2.4
102W	Other SVOC	Hexachlorobenzene	2.9	<1	ns	ns	ns
102W	PCB	Total PCBs	1.6	<1	ns	ns	ns
104W	Metal	Cadmium	<1	<1	6.2	ns	<1
104W	Metal	Chromium	<1	<1	<1	ns	670
104W	Metal	Copper	<1	<1	2.6	ns	<1
104W	Metal	Lead	<1	<1	7.1	ns	<1
104W	Metal	Mercury	<1	<1	72	ns	<1
104W	Metal	Zinc	3.5	<1	3.7	ns	<1
104W	Other SVOC	1,2-Dichlorobenzene	<1	<1	3.1	ns	<1
104W	Other SVOC	Benzoic acid	<1	<1	1.1	ns	<1
104W	Other SVOC	Benzyl alcohol	4.9	<1	16	ns	<1
104W	Other SVOC	Dibenzofuran	<1	<1	1.1	ns	<1
104W	PAH	2-Methylnaphthalene	<1	<1	6.7	ns	<1
104W	PAH	Anthracene	<1	<1	1.3	ns	<1
104W	PAH	Fluorene	<1	<1	1.9	ns	<1

Table 6
Summary of Screening Level Exceedances by Sliver

Sliver ID	Chemical Group	Chemical	Maximum EF - Surface Sediment	Maximum EF (Sliver - Soil)	Maximum EF (Adjacent Property - Soil)	Maximum EF (Sliver - Groundwater)[1]	Maximum EF (Adjacent Property - Groundwater)[1]
104W	PAH	Phenanthrene	<1	<1	1.6	ns	<1
104W	PCB	Total PCBs	4.4	1.3	280	ns	<1
104W	Phenol	4-Methylphenol	7.3	<1	<1	ns	<1
104W	Phenol	Pentachlorophenol	<1	<1	7.8	ns	<1
104W	Phenol	Phenol	1.1	<1	<1	ns	<1
104W	Phthalate	Bis(2-ethylhexyl) phthalate	<1	<1	5.4	ns	<1
104W	Phthalate	Butyl benzyl phthalate	1.1	2.2	35	ns	<1
104W	Phthalate	Dimethyl phthalate	<1	8.7	19	ns	<1
109W	Phenol	Phenol	2.6	ns	ns	ns	ns

Notes:

Table shows exceedances for detected results only.

Table does not include sample data collected prior to 2000.

Shading indicates maximum exceedance factor (EF) as follows:

- EF <1
- EF 1 to <10
- EF 10 to <100
- EF 100 to <1,000
- EF > 1,000
- not sampled

EF - exceedance factor

cPAH - carcinogenic PAH

HPAH - high molecular weight PAH

LPAH - low molecular weight PAH

ND - non-detect

PAH - polycyclic aromatic hydrocarbon

PCB - polychlorinated biphenyl

SVOC - semivolatile organic compound

TEQ - toxic equivalence quotient

1 - A large proportion of the screening level exceedances in groundwater are for chromium. The screening level for chromium from Ecology's December 2017 PCUL workbook, which is based on the groundwater to sediment transport pathway, is highly conservative. In most cases where chromium exceeds groundwater screening levels (even by a factor of 100 or more), no corresponding screening level exceedances of chromium in sediment are observed. Therefore, the groundwater-to-sediment screening level comparison for chromium represents a high degree of uncertainty.

Table 7
Summary of Potential Data Gaps

Sliver	Sediment Samples within 100 feet?	Screening Level Exceedances in Sediment?	Sliver Characterized?	Screening Level Exceedances on Sliver?	Potential Data Gaps
11E (Certainteed Gypsum)	Yes	Yes (zinc, PCBs, PAHs)	No	Unknown	None identified.
14E (Duwamish Marine Center)	Yes	Yes (mercury, PCBs, phthalates, phenols, other SVOCs)	Yes	Yes (metals, PCBs, PAHs, phthalates, phenols)	Sliver characterized; Investigation/cleanup in progress. No additional data gaps identified.
15E (1st Avenue S Bridge)	Yes	No	No	Unknown	None identified.
16E (Dawn Foods)	Yes	Yes (PCBs)	No	Unknown	None identified based on current activities on the adjacent property.
26E (CleanScapes)	Yes	No	Yes	Yes (arsenic)	None identified.
28E (Gateway Park North)	Yes	No	No	Unknown	None identified.
29E, 30E, 31E (Boeing Plant 2)	Yes	No (post-cleanup samples)	Yes	No (post-cleanup samples)	Cleanup is complete. No additional data gaps identified.
35E (Jorgensen Forge/Boeing Isaacson-Thompson)	Yes	Yes (PCBs, dioxins/furans, arsenic, PAHs, phthalates)	Yes	Yes (PCBs, metals, PAHs)	Investigation/cleanup in progress. No additional data gaps identified.
37E (Boeing Developmental Center)	Yes	Yes (PCBs, benzyl alchohol)	No	Unknown	Sliver not characterized; bank soil sampling is recommended. If an Agreed Order is negotiated for this site, this data gap will be filled.
2W (Terminal 103)	No	Unknown	No	Unknown	None identified.
41W, 42W (Alaska Marine Lines)	Yes	Yes (metals, PCBs, PAHs, phthalates, benzyl alcohol)	No	Unknown	Sliver not characterized, but sampling of sliver may not be possible due to its location under permanent piers.
44W (Duwamish Shipyard)	Yes	Yes (metals, PCBs, PAHs, phthalates, phenols, other SVOCs)	Yes	Yes (metals, PAHs, other SVOCs)	Investigation and cleanup in progress. No additional data gaps identified.
45W (Duwamish Shipyard)	Yes	Yes (metals, PCBs, benzyl alchol)	Yes	Yes (chromium)	Investigation and cleanup in progress. No additional data gaps identified.
84W, 86W (T115 - Seafreeze)	Yes	Yes (PAHs, phthalates, other SVOCs)	No	Unknown	Sliver not characterized. Ecology is negotiating an Agreed Order for this site, which will include investigation and cleanup and will fill this data gap.
91W (Boyer Towing)	Yes	Yes (PCBs)	Partially	Yes (PCBs, dioxins/furans, phthalates)	Central/southern end of 91W isnot sufficiently characterized. However this area is considered unsampleable due to the presence of a dock and vertical bulkhead.

Table 7
Summary of Potential Data Gaps

Sliver	Sediment Samples within 100 feet?	Screening Level Exceedances in Sediment?	Sliver Characterized?	Screening Level Exceedances on Sliver?	Potential Data Gaps
93W (Boyer Towing)	Yes	Yes (zinc, PCBs, benzyl alcohol)	No	Unknown	Sliver not characterized. Bank soil sampling at sliver 93W will be conducted by LDWG during summer 2018, which will fill this data gap.
95W, 96W (Riverside Drive - Central)	Yes	Yes (mercury, PCBs, dioxins/furans, PAHs, phthalates, phenols, other SVOCs)	No	Unknown	Sliver not characterized. Bank sampling is recommended to characterize soil concentrations at slivers 95W and 96W. The LDWG is planning to collect bank soil samples near sliver 95W during summer 2018,which will partially fill this data gap.
99W, 100W (Riverside Drive - Central)	Partial	No	No	Unknown	None identified.
102W (Riverside Drive - South)	Yes	Yes (PCBs, hexachlorobenzene)	Yes	No	None identified.
103W (South Park Bridge)	Yes	No	No	Unknown	None identified.
104W (South Park Marina/T117/Boeing South Park)	Yes	Yes (zinc, PCBs, PAHs, phthalates, phenols, other SVOCs)	Partially	Yes (PCBs,phthalates)	Area near South Park Marina has been characterized. T117 site has been remediated. Sliver near Boeing South Park not characterized. Habitat restoration project will include sampling and soil removal at Boeing South Park, which will fill this data gap.
108W, 109W (Turning Basin 3)	Yes	Yes (phenol)	No	Unknown	None identified.
112W, 117W (Boeing Parking Lot)	Yes	No	No	Unknown	None identified.

Appendix A

2005 Commercial Waterway District Record of Survey

200512199000 13 196/276

PORTIONS OF SECTIONS 18, 19, 30, 29, 32, AND 33, TOWNSHIP 24 NORTH, RANGE 4 EAST, AND A PORTION OF SECTION 4, TOWNSHIP 23 NORTH, RANGE 4 EAST, W.M.

SURVEY NARRATIVE AND RECORD OF SURVEY DESCRIPTION

THIS SURVEY WAS PERFORMED AT THE REQUEST OF THE PORT OF SEATTLE FOR THE PURPOSE OF RETRACING CENTERLINE ALIGNMENT AND RIGHT OF WAY MARGINS (500 FEET WITH 250 FEET ON EACH SIDE OF THE CENTERLINE ALIGNMENT) OF THE COMMERCIAL WATERWAY NO. 1 (HEREINAFTER REFERRED TO AS THE "WATERWAY"), FROM APPROXIMATELY SW DAKOTA STREET, ON THE NORTH, AND SITUATED IN THE SOUTHWEST QUARTER OF SECTION 18, TOWNSHIP 24 NORTH, RANGE 4 EAST, TO TURNING BASIN NO. 3, ON THE SOUTH, AND SITUATED IN THE NORTH HALF OF SECTION 4, TOWNSHIP 4 NORTH, RANGE 4 EAST, W.M.

THE INTENT OF SAID SURVEY IS AS FOLLOWS: 1) FOR PUBLIC NOTICE TO SUBSEQUENT PARTIES REGARDING RELIANCE OF RETRACEMENT OF THE WATERWAY CENTERLINE AND RIGHT OF WAY MARGINS ALIGNMENT AND POSITION, AS ORIGINALLY SURVEYED AND PLATTED BY J. M. CLAPP, CONSULTING ENGINEER, 1911 AND 1912, 2) TO PROVIDE THE PORT OF SEATTLE A BASE FOR FUTURE PLANNING AND DEVELOPMENT ASSOCIATED WITH SAID WATERWAY AND 3) AS A BASE FOR FUTURE TOPOGRAPHIC MAPPING OF ADJOINING PRIVATELY OWNED UPLANDS WITHIN SAID WATERWAY RIGHTS OF WAY.

HISTORY: THE COMMERCIAL WATERWAY DISTRICT NO. 1, PURSUANT TO THE LAWS OF 1911, CHAPTER 11, UNDERTOOK TO STRAIGHTEN, DEEPEN AND WIDEN THE DUWAMISH RIVER FROM ELLIOT BAY UPSTREAM FOR A DISTANCE OF APPROXIMATELY 5 MILES. SAID WATERWAY DISTRICT, IN THE YEARS 1911 AND 1912, ACQUIRED, BY PURCHASE AND CONDEMNATION, A RIGHT OF WAY ABOUT 5 MILES LONG AND 500 FEET WIDE ACROSS THE SEATTLE TIDE FLATS, THIS RIGHT OF WAY CHANNEL WAS DREDGED ITS FULL WIDTH BY SAID DISTRICT IN 1915, AND THE DUWAMISH RIVER WAS THEN DIVERTED INTO ITS NEW CHANNEL, WHICH FROM THAT DATE HAS CONSTITUTED THE DUWAMISH WATERWAY. THE WATERWAY IS, AND AT ALL TIMES SINCE THEN, HAS BEEN OPEN TO USE BY THE PUBLIC FOR ALL PURPOSES OF NAVIGATION WITHOUT TOLL OR OTHER CHARGES, (61 WN.2D 509, COMMERCIAL WATERWAY DISTRICT NO. 1 OF KING COUNTY, APPELLANT, V. PERMANENTE CEMENT COMPANY, RESPONDENT AND CROSS-APPELLANT)

MONUMENTS WERE NOT SET IN CONJUNCTION WITH THE ORIGINAL PLATTING OF SAID WATERWAY. THIS SURVEY RESEARCHED AND OBTAINED RECORDED AND UNRECORDED SURVEY RECORDS FOR PROPERTIES ADJOINING SAID WATERWAY. SAID RESEARCH ENTAILED SEARCH THROUGH THE PUBLIC RECORDS, THE CITY OF SEATTLE, THE DEPARTMENT OF NATURAL RESOURCES AND AT PRIVATE LAND SURVEY FIRMS STORING HISTORICAL RECORDS OF FORMER LAND SURVEY FIRMS. THIS SURVEY CONCLUDES THAT THERE HAS NOT BEEN ANY TYPE OF CONSISTENCY BETWEEN SURVEYS THAT DELINEATE AND RETRACE SAID WATERWAY, NOR HAVE MANY OF THE RESEARCHED SURVEYS PROVIDED SUFFICIENT INFORMATION ON HOW THE POSITION OF SAID WATERWAY IS DELINEATED UPON THE SURVEY.

THIS SURVEY "VIEWED" SAID WATERWAY AS A WHOLE", NOT JUST AS INDIVIDUAL SECTIONS WHERE THE WATERWAY MARGIN ADJOINS A PRIVATELY OWNED UPLANDS PARCEL. IN RETRACING SAID WATERWAY, THIS SURVEY HOLDS THE INTENT OF THE ORIGINAL PLAT AS FOLLOWS: SIMILAR TO THE RETRACEMENT OF STATE OF WASHINGTON INTERSTATE HIGHWAYS, THIS SURVEY HOLDS THE STRONGEST INTENT TO POSITION OF SAID WATERWAY CENTERLINE, TO BE DISTANCE "TIES" AS SHOWN ON SAID PLAT BETWEEN SAID CENTERLINE AND GOVERNMENT LAND OFFICE (GLO) CORNERS LYING ON EITHER SIDE OF SAID CENTERLINE WHETHER BEING SECTION, QUARTER OR DONATION LAND CORNERS. THIS SURVEY LOCATED GLO MONUMENTS OR COMPUTED CORNER POSITION IN ORDER TO SITUATE SAID CENTERLINE PER THE DISTANCE "TIES" ALONG ALIQUOT LINES AS DELINEATED ON SAID PLAT. THE FOLLOWING LINES WERE HELD:

- THE NORTH LINE OF THE NORTHWEST QUARTER, SECTION 19, TOWNSHIP 24 NORTH, RANGE 4 EAST,
- THE NORTH LINE OF THE NORTHEAST QUARTER, SECTION 32,
- THE EAST LINE OF THE NORTHEAST QUARTER, SECTION 32,
- THE NORTH LINE OF THE NORTHWEST QUARTER, SECTION 4, TOWNSHIP 23 NORTH, RANGE 4 EAST.

WHEN HOLDING DISTANCE TIES ALONG THE ABOVE DESCRIBED LINES, DISTANCE "TIES" ALONG THE FOLLOWING LINES ARE AS FOLLOWS:

- ALONG THE NORTH-SOUTH CENTERLINE, SECTION 19, PLAT=713.16 FEET, CALC=713.15 FEET,
- ALONG THE EAST-WEST CENTERLINE, SECTION 19, PLAT=724.41 FEET, CALC=724.37 FEET,
- ALONG THE NORTH LINE OF THE NORTHEAST QUARTER, SECTION 30, PLAT=2586.15 FEET, CALC=2585.92 FEET
- ALONG THE EAST-WEST CENTERLINE, SECTION 33, PLAT=1074.18 FEET, CALC=1074.23 FEET.

CENTERLINE OF SAID WATERWAY AS DELINEATED ON SAID PLAT IS HELD THROUGHOUT. THIS SURVEY HELD ANGULAR RELATIONSHIP BETWEEN SAID CENTERLINE AND THE DISTANCE "TIE" ALIQUOT LINE IS AT THE FOLLOWING INTERSECTIONS WITH SAID CENTERLINE:

- THE NORTH LINE OF THE NORTHEAST QUARTER, SECTION 32,
- THE EAST LINE OF THE NORTHEAST QUARTER, SECTION 32,
- THE NORTH LINE OF THE NORTHWEST QUARTER, SECTION 4, TOWNSHIP 23 NORTH, RANGE 4 EAST.

WHEN HOLDING ANGULAR RELATIONSHIPS DESCRIBED ABOVE, ANGULAR RELATIONSHIP BETWEEN SAID CENTERLINE AND REMAINING "TIE" LINES ARE AS FOLLOWS:

- THE NORTH LINE OF THE NORTHWEST QUARTER, SECTION 19, TOWNSHIP 24 NORTH, RANGE 4 EAST, PLAT=70°27'31", CALC=70°28'02",
- ALONG THE NORTH-SOUTH CENTERLINE, SECTION 19, PLAT=19°56'30", CALC=19°56'33",
- ALONG THE EAST-WEST CENTERLINE, SECTION 19, PLAT=70°44'13", CALC=70°44'10",
- ALONG THE NORTH LINE OF THE NORTHEAST QUARTER, SECTION 30, PLAT=71°01'05", CALC=71°01'01",
- ALONG THE EAST-WEST CENTERLINE, SECTION 33, PLAT=73°31'06", CALC=73°31'06"

WHERE A GLO CORNER IS NOTED AS "CALCULATED" CORNER POSITION IS DETERMINED BY SECTION BREAKDOWN INFORMATION AS SHOWN ON SAID PLAT, UNLESS SHOWN OR NOTED OTHERWISE. IN THESE INCIDENTS, CORNER POSITION IS ESTABLISHED BY CITY OF SEATTLE ENGINEERING DEPARTMENT DISTANCE "TIES" FROM EXISTING STREET MONUMENTS. THIS SURVEY CONDUCTED A THOROUGH SEARCH FOR GLO CORNER MONUMENTS RELEVANT TO THIS SURVEY.

THIS SURVEY IS ALSO INTENDED TO SHOW EXISTING STREET RIGHTS OF WAY AND/OR PUBLIC ACCESS AS THEY ADJOIN SAID WATERWAY MARGINS. IN MANY AREAS, FIELD MONUMENTATION IS LACKING. THEREFORE, IN THESE AREAS, POSITION HAS BEEN DERIVED FROM EXISTING RECORDS BASED UPON MONUMENTATION LYING BEYOND THE LIMITS DELINEATED UPON THIS SURVEY.

THIS SURVEY IS NOT INTENDED TO RETRACE ADJOINING TAX LOT PARCELS BOUNDARY SIDELINES OR OCCUPATION AND/OR USAGE OF AREA WITHIN THE WATERWAY RIGHT OF WAY, ALTHOUGH THIS SURVEY IS INTENDED TO SERVE AS A BASE FOR FUTURE OCCUPATION MAPPING.

BASIS OF BEARING

WASHINGTON STATE PLANE COORDINATE SYSTEM, NORTH ZONE, 1983 (1991 ADJUSTMENT)

SURVEY CONTROL ESTABLISHED AND USED FOR THIS SURVEY IS BASED ON AND CONSTRAINED TO THE FOLLOWING:
HORIZONTAL AND VERTICAL: NATIONAL GEODETIC SURVEY (NGS) CONTROL STATIONS HAFF1990, TIDAL 11, AND WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) 5922.
HORIZONTAL ONLY: NGS CONTROL STATION PT B.

STATION	GRID NORTHING (Y)	GRID EASTING (X)	ORTHO HEIGHT (NAVD '88)	SCALE FACTOR	ELLIPSOIDAL HEIGHT
HAFF1990	179737.9476	1308390.959	340.95	1.0000028700	265.373485
PT B	211760.0391	1284004.857	21.15	0.9999874522	-56.1941333
TIDAL 11	223868.8403	1269078.994	16.06	0.9999822595	-61.6271333
WSDOT 5922	193470.834	1269172.783	250.54	0.9999962471	174.2549008

NOTE: X, Y AND ORTHO HEIGHT IN TABLE ARE U.S. SURVEY FOOT.

TO CALCULATE ELEVATION FACTOR (IN NORTH AMERICAN CONTINENT) DIVIDE 20,906,000 BY 20,906,000 + ELLIPSOID ELEVATION.

THE FIELD EQUIPMENT USED INCLUDED TRIMBLE MODELS 5700 AND 4000SSi GPS RECEIVERS, AND A LEICA 1200 GPS RECEIVER. THE FIELD OBSERVATIONS TOOK PLACE IN OCTOBER AND NOVEMBER OF 2005. POST-PROCESSING OF THE FIELD OBSERVATIONS WAS ACCOMPLISHED WITH TRIMBLE GEOMATICS OFFICE SOFTWARE VERSION 1.62 AND MICROSEARCH GEOLAB 2001 VERSION 2001.9.20.0 SOFTWARE. ONE CONTROL STATION WAS HELD FOR AN UNCONSTRAINED ADJUSTMENT. TO VERIFY THE HORIZONTAL AND VERTICAL INTEGRITY OF THE ADJUSTMENT. ONCE THE CHECK WAS PERFORMED AND VERIFIED, A FULLY CONSTRAINED ADJUSTMENT HOLDING THE CONTROL STATIONS WAS PERFORMED.

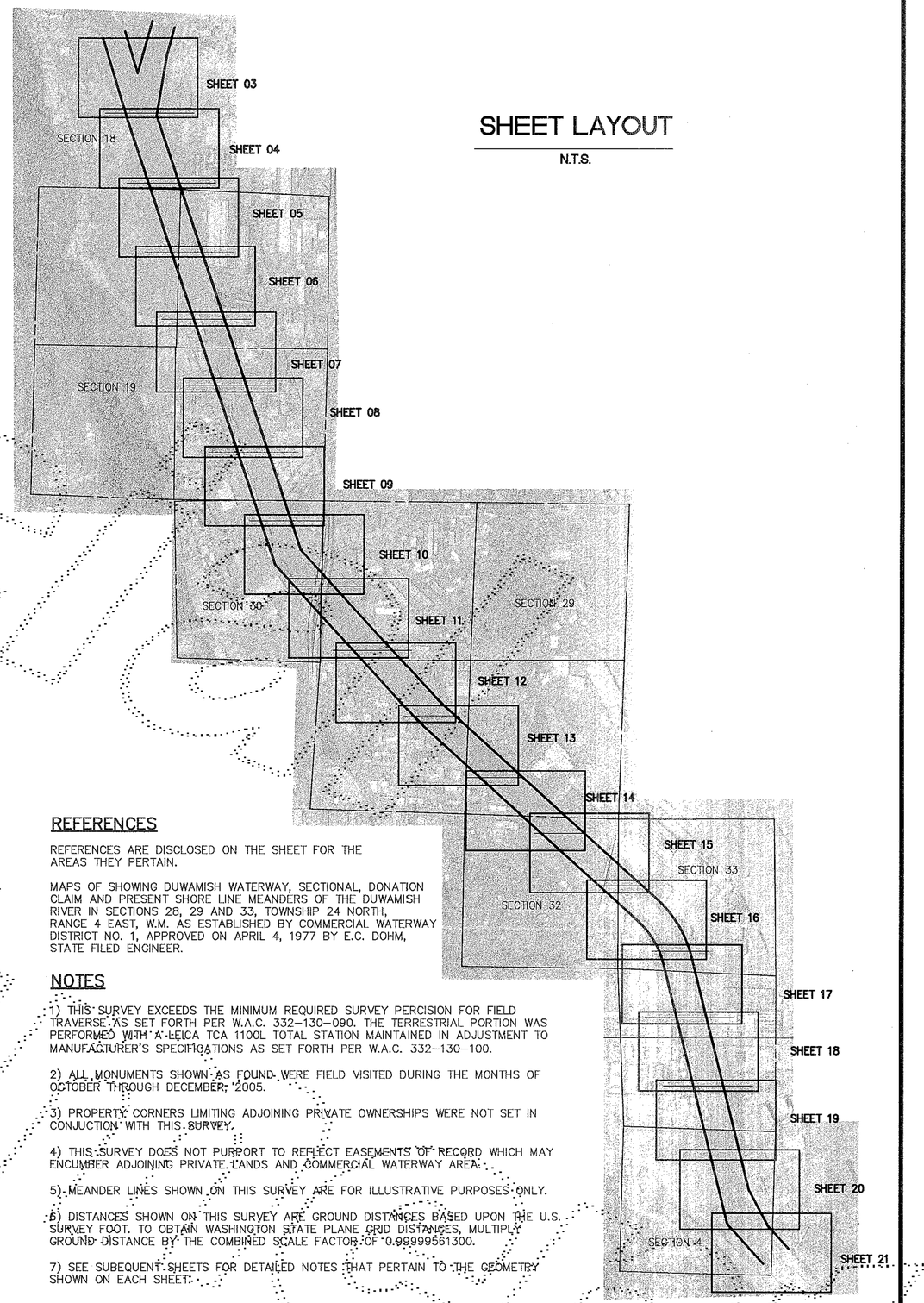
ALL FINAL CONSTRAINED VALUES YIELDED TWO-SIGMA (95%) STATION CONFIDENCE LEVELS OF LESS THAN 0.12 U.S. FEET.

HAFF 1990: A NATIONAL COAST AND GEODETIC SURVEY BRASS DISK STAMPED "HAFF 1990", SET INTO THE TOP OF A CONCRETE MONUMENT, FLUSH WITH GRADE

PT B: A NATIONAL COAST AND GEODETIC SURVEY BRASS DISK STAMPED "PT B, 1962", SET INTO A 1 FOOT DIAMETER CONCRETE PATCH FLUSH WITH TOP OF ASPHALT PARKING LOT. (SAYERS PARK)

TIDAL 11: A NATIONAL COAST AND GEODETIC SURVEY BRASS DISK STAMPED "NO. 11 1917", SET INTO TOP OF SEAWALL, 1" BELOW GRADE UNDER AN ACCESS COVER

WSDOT 5922: A WSDOT BRASS DISC SET FLUSH WITH CONCRETE SIDEWALK



SHEET LAYOUT

N.T.S.

REFERENCES

REFERENCES ARE DISCLOSED ON THE SHEET FOR THE AREAS THEY PERTAIN.

MAPS OF SHOWING DUWAMISH WATERWAY, SECTIONAL, DONATION CLAIM AND PRESENT SHORE LINE MEANDERS OF THE DUWAMISH RIVER IN SECTIONS 28, 29 AND 33, TOWNSHIP 24 NORTH, RANGE 4 EAST, W.M. AS ESTABLISHED BY COMMERCIAL WATERWAY DISTRICT NO. 1, APPROVED ON APRIL 4, 1977 BY E.C. DOHM, STATE FILED ENGINEER.

NOTES

1) THIS SURVEY EXCEEDS THE MINIMUM REQUIRED SURVEY PERCISION FOR FIELD TRAVERSE AS SET FORTH PER W.A.C. 332-130-090. THE TERRESTRIAL PORTION WAS PERFORMED WITH A LEICA TCA 1100L TOTAL STATION MAINTAINED IN ADJUSTMENT TO MANUFACTURER'S SPECIFICATIONS AS SET FORTH PER W.A.C. 332-130-100.

2) ALL MONUMENTS SHOWN AS FOUND WERE FIELD VISITED DURING THE MONTHS OF OCTOBER THROUGH DECEMBER, 2005.

3) PROPERTY CORNERS LIMITING ADJOINING PRIVATE OWNERSHIPS WERE NOT SET IN CONJUCTION WITH THIS SURVEY.

4) THIS SURVEY DOES NOT PURPORT TO REFLECT EASEMENTS OF RECORD WHICH MAY ENCUMBER ADJOINING PRIVATE LANDS AND COMMERCIAL WATERWAY AREA.

5) MEANDER LINES SHOWN ON THIS SURVEY ARE FOR ILLUSTRATIVE PURPOSES ONLY.

6) DISTANCES SHOWN ON THIS SURVEY ARE GROUND DISTANCES BASED UPON THE U.S. SURVEY FOOT. TO OBTAIN WASHINGTON STATE PLANE GRID DISTANCES, MULTIPLY GROUND DISTANCE BY THE COMBINED SCALE FACTOR OF 0.999995561300.

7) SEE SUBEQUENT SHEETS FOR DETAILED NOTES THAT PERTAIN TO THE GEOMETRY SHOWN ON EACH SHEET.

SURVEYOR'S CERTIFICATE

THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION IN CONFORMANCE WITH THE SURVEY RECORDING ACT AT THE REQUEST OF PORT OF SEATTLE ON DECEMBER, 2005

SIGNATURE 12/19/05 DATE

CERTIFICATE NO. 26252

RICHARD A. DICKMAN — STATE OF WASHINGTON — 26252 — REGISTERED PROFESSIONAL LAND SURVEYOR

EXPIRES 5/21/06

RECORDING CERTIFICATE

FILED FOR RECORD THIS 19 DAY OF Dec 2005 AT 11:13 M, IN BOOK 196 OF SURVEYS AT PAGE 276 AT THE REQUEST OF DAVID EVANS AND ASSOCIATES, INC.

DIVISION OF RECORDS & ELECTIONS

MANAGER/AUDITOR

SUPT. OF RECORDS/DEPUTY AUDITOR

RECORDING NO. 200512199000 13

RECORD OF SURVEY
FOR
PORT OF SEATTLE
COMMERCIAL WATERWAY NO. 1
SEATTLE, WASHINGTON

DAVID EVANS AND ASSOCIATES INC.
415 - 118th Avenue SE
Bellevue Washington 98005-3518
Phone: 425.519.6500

SHEET	01 OF 21
SCALE	1"=100'
SURVEYED	MWFR, BMX, RECA, SCW
DATE	DECEMBER 16, 2005
DRAWN	PCT/MAGR
CHECKED	RAD
FILE	PTSE0000--0044

PORTIONS OF SECTIONS 18, 19, 30, 29, 32, AND 33, TOWNSHIP 24 NORTH, RANGE 4 EAST, AND A PORTION OF SECTION 4, TOWNSHIP 23 NORTH, RANGE 4 EAST, W.M.

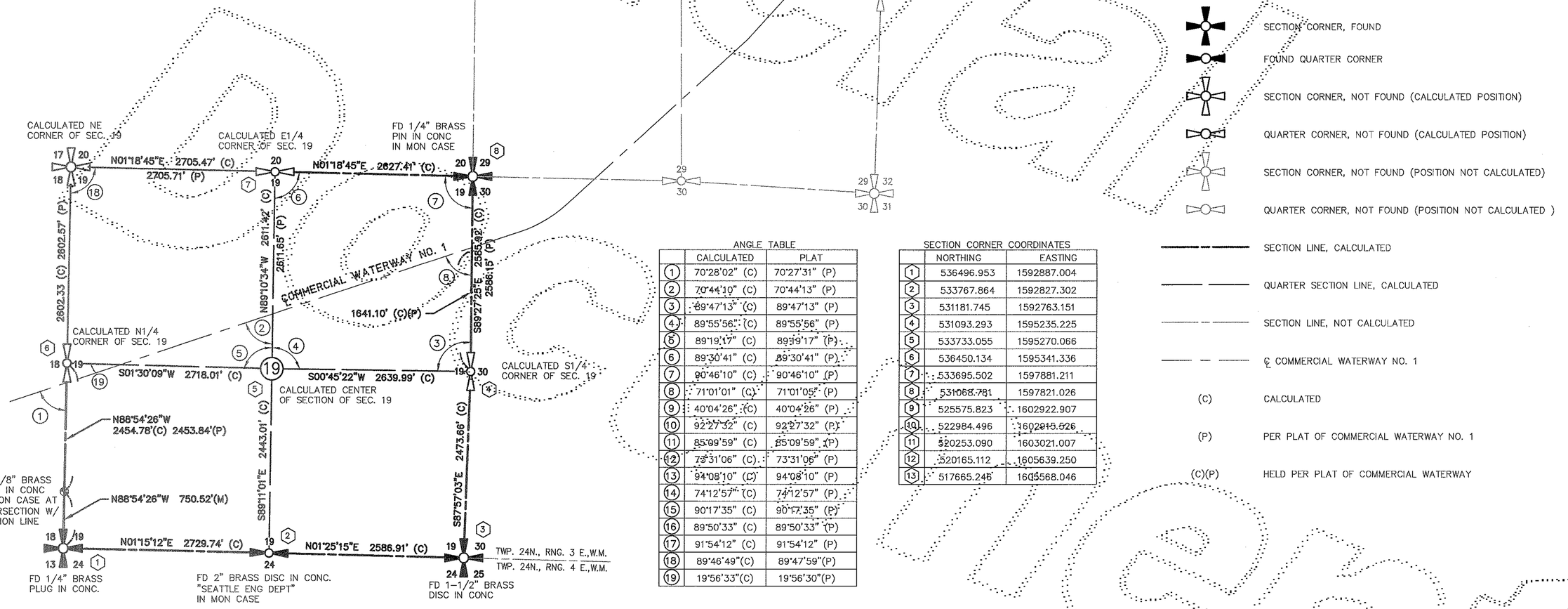
SECTION BREAKDOWNS

BASIS OF BEARING
WA STATE PLANE, NORTH ZONE (NAD 83/91)

0 500 1000 2000 3000
SCALE IN FEET
1" = 1000'

NOTES

1) DISTANCES AND COORDINATES AS SHOWN ON THIS SURVEY ARE GROUND VALUES BASED UPON THE U.S. SURVEY FOOT. SEE SHEET 1 FOR CONVERSION TO GRID.



LEGEND

- SECTION CORNER, FOUND
- FOUND QUARTER CORNER
- SECTION CORNER, NOT FOUND (CALCULATED POSITION)
- QUARTER CORNER, NOT FOUND (CALCULATED POSITION)
- SECTION CORNER, NOT FOUND (POSITION NOT CALCULATED)
- QUARTER CORNER, NOT FOUND (POSITION NOT CALCULATED)
- SECTION LINE, CALCULATED
- QUARTER SECTION LINE, CALCULATED
- SECTION LINE, NOT CALCULATED
- ℄ COMMERCIAL WATERWAY NO. 1
- (C) CALCULATED
- (P) PER PLAT OF COMMERCIAL WATERWAY NO. 1
- (C)(P) HELD PER PLAT OF COMMERCIAL WATERWAY

ANGLE TABLE

	CALCULATED	PLAT
1	70°28'02" (C)	70°27'31" (P)
2	70°44'10" (C)	70°44'13" (P)
3	89°47'13" (C)	89°47'13" (P)
4	89°55'56" (C)	89°55'56" (P)
5	89°19'17" (C)	89°19'17" (P)
6	89°30'41" (C)	89°30'41" (P)
7	90°46'10" (C)	90°46'10" (P)
8	71°01'01" (C)	71°01'05" (P)
9	40°04'26" (C)	40°04'26" (P)
10	92°27'32" (C)	92°27'32" (P)
11	85°09'59" (C)	85°09'59" (P)
12	73°31'06" (C)	73°31'05" (P)
13	94°08'10" (C)	94°08'10" (P)
14	74°12'57" (C)	74°12'57" (P)
15	90°17'35" (C)	90°17'35" (P)
16	89°50'33" (C)	89°50'33" (P)
17	91°54'12" (C)	91°54'12" (P)
18	89°46'49"(C)	89°47'59"(P)
19	19°56'33"(C)	19°56'30"(P)

SECTION CORNER COORDINATES

	NORTHING	EASTING
1	536496.953	1592887.004
2	533767.864	1592827.302
3	531181.745	1592763.151
4	531093.293	1595235.225
5	533733.055	1595270.066
6	536450.134	1595341.336
7	533695.502	1597881.211
8	531068.781	1597821.026
9	525575.823	1602922.907
10	522984.496	1602915.526
11	520253.090	1603021.007
12	520165.112	1605639.250
13	517665.246	1605568.046

SURVEYOR'S CERTIFICATE

THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION IN CONFORMANCE WITH THE SURVEY RECORDING ACT AT THE REQUEST OF PORT OF SEATTLE ON DECEMBER, 2005

SIGNATURE 12/19/05 DATE

CERTIFICATE NO. 26252

RICHARD A. DICKMAN — STATE OF WASHINGTON — 26252 — REGISTERED PROFESSIONAL LAND SURVEYOR

EXPIRES 5/21/06

RECORDING CERTIFICATE

FILED FOR RECORD THIS ____ DAY OF ____ 20__ AT ____ M, IN BOOK ____ OF SURVEYS AT PAGE ____ AT THE REQUEST OF DAVID EVANS AND ASSOCIATES, INC.

DIVISION OF RECORDS & ELECTIONS

MANAGER/AUDITOR

SUPT. OF RECORDS/DEPUTY AUDITOR

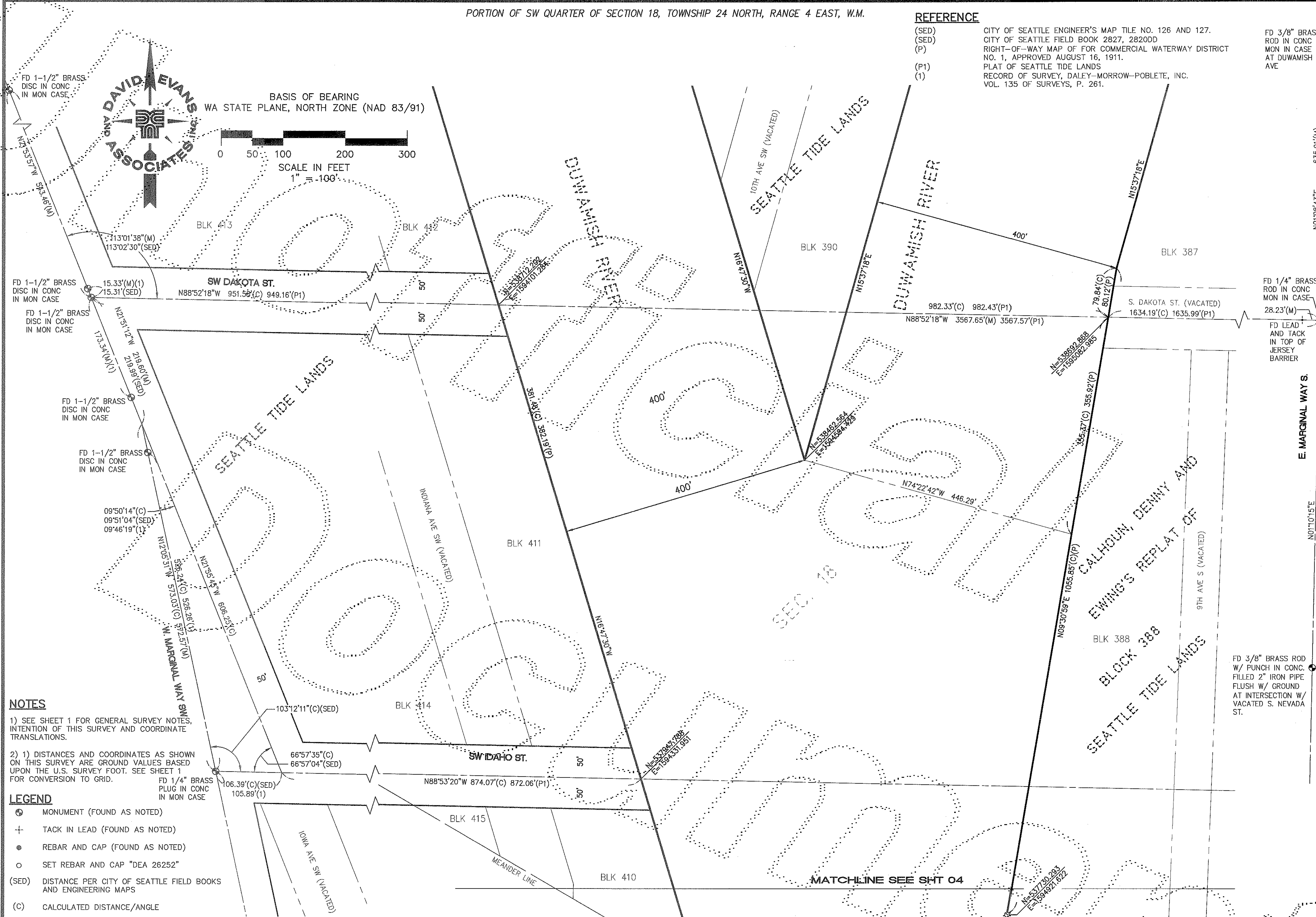
RECORDING NO.

RECORD OF SURVEY
FOR
PORT OF SEATTLE
COMMERCIAL WATERWAY NO. 1
SEATTLE, WASHINGTON

DAVID EVANS AND ASSOCIATES INC.
415 - 118th Avenue SE
Bellevue Washington 98005-3518
Phone: 425.519.6500

SHEET 02 OF 21
SCALE 1"=1000'
SURVEYED MWFR,BMX,RECA,SCW
DATE DECEMBER 16, 2005
DRAWN PCT,MAGR
CHECKED RAD
FILE PTSE0000-0044

20051219900013 196/278



REFERENCE

(SED)	CITY OF SEATTLE ENGINEER'S MAP TILE NO. 126 AND 127.
(SED)	CITY OF SEATTLE FIELD BOOK 2827, 2820DD
(P)	RIGHT-OF-WAY MAP OF FOR COMMERCIAL WATERWAY DISTRICT NO. 1, APPROVED AUGUST 16, 1911.
(P1)	PLAT OF SEATTLE TIDE LANDS
(1)	RECORD OF SURVEY, DALEY-MORROW-POBLETE, INC. VOL. 135 OF SURVEYS, P. 261.

NOTES

1) SEE SHEET 1 FOR GENERAL SURVEY NOTES, INTENTION OF THIS SURVEY AND COORDINATE TRANSLATIONS.

2) 1) DISTANCES AND COORDINATES AS SHOWN ON THIS SURVEY ARE GROUND VALUES BASED UPON THE U.S. SURVEY FOOT. SEE SHEET 1 FOR CONVERSION TO GRID.

LEGEND

- MONUMENT (FOUND AS NOTED)
- TACK IN LEAD (FOUND AS NOTED)
- REBAR AND CAP (FOUND AS NOTED)
- SET REBAR AND CAP "DEA 26252"
- (SED) DISTANCE PER CITY OF SEATTLE FIELD BOOKS AND ENGINEERING MAPS
- (C) CALCULATED DISTANCE/ANGLE
- (M) FIELD MEASUREMENT

SURVEYOR'S CERTIFICATE

THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION IN CONFORMANCE WITH THE SURVEY RECORDING ACT AT THE REQUEST OF PORT OF SEATTLE ON DECEMBER, 2005

SIGNATURE 12/19/05 DATE

CERTIFICATE NO. 26252

RICHARD A. DICKMAN, STATE OF WASHINGTON, 26252 REGISTERED PROFESSIONAL LAND SURVEYOR, EXPIRES 5/21/06

RECORDING CERTIFICATE

FILED FOR RECORD THIS ____ DAY OF ______ 20__ AT ______M, IN BOOK ______ OF SURVEYS AT PAGE ______ AT THE REQUEST OF DAVID EVANS AND ASSOCIATES, INC.

DIVISION OF RECORDS & ELECTIONS

MANAGER/AUDITOR

SUPT. OF RECORDS/DEPUTY AUDITOR

RECORDING NO.

RECORD OF SURVEY FOR PORT OF SEATTLE COMMERCIAL WATERWAY NO. 1

SEATTLE, WASHINGTON

DAVID EVANS AND ASSOCIATES INC.
415 - 118th Avenue SE
Bellevue Washington 98005-3518
Phone: 425.519.6500

SHEET 03 OF 21
SCALE 1"=100'
SURVEYED MWFR,BMX,RECA,SCW
DATE DECEMBER 16, 2005
DRAWN PCT,MAGR
CHECKED RAD
FILE PTSE0000-0044

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PORTION OF SW QUARTER OF SECTION 18, TOWNSHIP 24 NORTH, RANGE 4 EAST, W.M.

REFERENCE

(SED) (P) CITY OF SEATTLE ENGINEER'S MAP TILE NO. 126 AND 127.
RIGHT-OF-WAY MAP FOR COMMERCIAL WATERWAY DISTRICT NO. 1, APPROVED AUGUST 16, 1911.
(P1) PLAT OF INDUSTRIAL ADDITION TO THE CITY OF SEATTLE, VOL. 22 OF PLATS, P. 82.
(P2) SEATTLE TIDE LANDS
(1) PROPERTY SURVEY FOR CHIYODA INT. LTD. (UNRECORDED) PREPARED BY VTN WASHINGTON, NOVEMBER 8, 1974.

NOTES

1) SEE SHEET 1 FOR GENERAL SURVEY NOTES, INTENTION OF THIS SURVEY AND COORDINATE TRANSLATIONS.

2) DISTANCES AND COORDINATES AS SHOWN ON THIS SURVEY ARE GROUND VALUES BASED UPON THE U.S. SURVEY FOOT. SEE SHEET 1 FOR CONVERSION TO GRID.

DAVID EVANS AND ASSOCIATES INC.

BASIS OF BEARING
WA STATE PLANE, NORTH ZONE (NAD 83/91)

0 50 100 200 300
SCALE IN FEET
1" = 100'

FD 3/8" BRASS ROD W/ PUNCH IN CONC. FILLED 2" IRON PIPE FLUSH W/ GROUND AT INTERSECTION W/ VACATED S. NEVADA ST.

MATCHLINE SEE SHT 03

MEANDER LINE

BLK 410

178°21'21"(C)(P)

N=537730.293
E=1594921.622

COMMERCIAL WATERWAY NO. 1

W'LY'N. BLK. 388

81°36'20"(C)(P)

EWING'S REPLAT OF CALHOUN, DENNY AND

BLOCK 388

SEATTLE TIDE LANDS

BLK 388

BLK 384

9TH AVE S (VACATED)

8TH AVE S (VACATED)

GOVERNMENT LOT 8

GOVERNMENT LOT 4

STA. 14+02.72(P)(C)
NORTHERLY END CENTER LINE OF COMMERCIAL WATERWAY AND ORIGIN OF STATIONING SHOWN ON SUBSEQUENT SHEETS
N=537204.354
E=1594833.455

13.96'(C)(P)
265.31'(C)

50'

50'

90°00'00"(C)(P2)

N88°52'41"W 1578.87'(C) 1580.98'(P)

E. MARGINAL WAY S.

SW OREGON ST.

STA. 14+32.14(P)
STA. 14+32.18(C)
N=537176.407
E=1594842.773

15+00

N18°26'09"W 1241.48'(C)(P2)

N01°07'19"E 960.55'(C)

N01°07'19"E 298.83'(C) 299.01'(SED)

250'

250'

N18°26'24"W 789.85'(C) 790.61'(P)

20+00

BLK 389

BLK 383

8TH AVE S (VACATED)

GOVERNMENT LOT 4

124°59'15"(C)
125°07'33"(P1)(1)

N56°08'04"E 408.04'(M) 407.78'(P1)

FD 1/4" TACK IN LEAD AT OHIO AVE S.

FD 1/2" BRASS ROD W/ PUNCH IN CONC. FILLED 3" IRON PIPE

DIAGONAL AVE S.

N56°08'04"E

MEANDER LINE

INDIANA AVE SW (VACATED)

STA. 15+73.67, 799'RT
N=536789.450
E=1594129.551

BLK 410

LEGEND

- MONUMENT (FOUND AS NOTED)
- TACK IN LEAD (FOUND AS NOTED)
- REBAR AND CAP (FOUND AS NOTED)
- SET REBAR AND CAP "DEA 26252"
- (SED) DISTANCE PER CITY OF SEATTLE FIELD BOOKS AND ENGINEERING MAPS
- (C) CALCULATED DISTANCE/ANGLE
- (M) FIELD MEASUREMENT

MATCHLINE SEE SHT 05

SURVEYOR'S CERTIFICATE

THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION IN CONFORMANCE WITH THE SURVEY RECORDING ACT AT THE REQUEST OF PORT OF SEATTLE ON DECEMBER, 2005

SIGNATURE 12/19/05 DATE

CERTIFICATE NO. 26252

RICHARD A. DICKMAN STATE OF WASHINGTON 26252 REGISTERED PROFESSIONAL LAND SURVEYOR

EXPIRES 5/21/06

RECORDING CERTIFICATE

FILED FOR RECORD THIS ____ DAY OF ____ 20__ AT ____ M, IN BOOK ____ OF SURVEYS AT PAGE ____ AT THE REQUEST OF DAVID EVANS AND ASSOCIATES, INC.

DIVISION OF RECORDS & ELECTIONS

MANAGER/AUDITOR

SUPT. OF RECORDS/DEPUTY AUDITOR

RECORDING NO.

RECORD OF SURVEY
FOR
PORT OF SEATTLE
COMMERCIAL WATERWAY NO. 1
SEATTLE, WASHINGTON

DAVID EVANS AND ASSOCIATES INC.
415 - 118th Avenue SE
Bellevue Washington 98005-3518
Phone: 425.519.6500

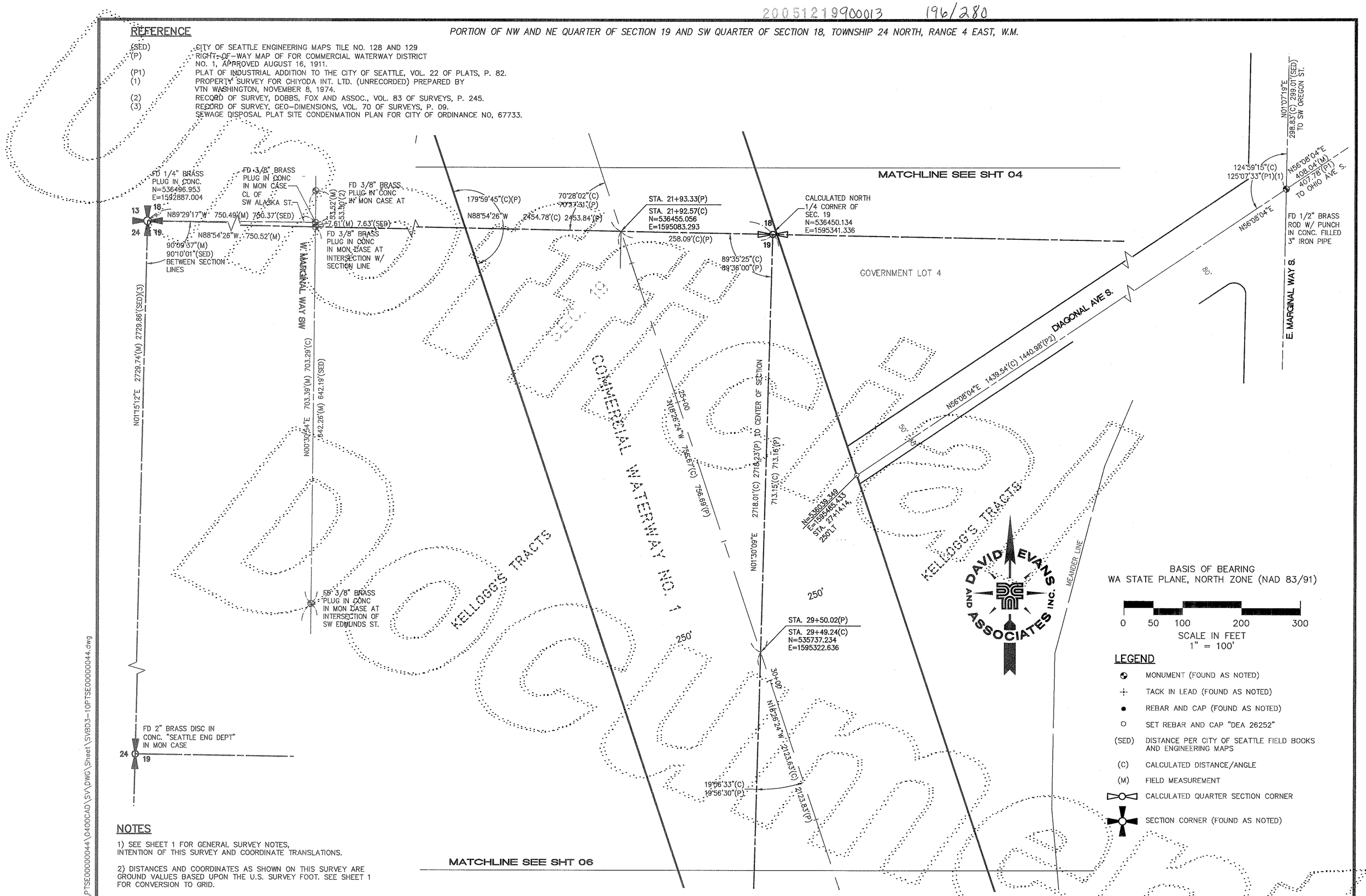
SHEET 04 OF 21
SCALE 1"=100'
SURVEYED MWFR,BMX,RECA,SCW
DATE DECEMBER 16, 2005
DRAWN PGT,MAGR
CHECKED RAD
FILE PTSE0000-0044

Plt: 12/16/05 6:28pm — P:\p\PTSE00000044\0400CAD\SV\DWG\Sheet\SVBD3-10PTSE00000044.dwg

REFERENCE

PORTION OF NW AND NE QUARTER OF SECTION 19 AND SW QUARTER OF SECTION 18, TOWNSHIP 24 NORTH, RANGE 4 EAST, W.M.

(SED) CITY OF SEATTLE ENGINEERING MAPS TILE NO. 128 AND 129
(P) RIGHT-OF-WAY MAP OF FOR COMMERCIAL WATERWAY DISTRICT NO. 1, APPROVED AUGUST 16, 1911.
(P1) PLAT OF INDUSTRIAL ADDITION TO THE CITY OF SEATTLE, VOL. 22 OF PLATS, P. 82.
(1) PROPERTY SURVEY FOR CHIYODA INT. LTD. (UNRECORDED) PREPARED BY VTN WASHINGTON, NOVEMBER 8, 1974.
(2) RECORD OF SURVEY, DOBBS, FOX AND ASSOC., VOL. 83 OF SURVEYS, P. 245.
(3) RECORD OF SURVEY, GEO-DIMENSIONS, VOL. 70 OF SURVEYS, P. 09.
SEWAGE DISPOSAL PLAT SITE CONDENMATION PLAN FOR CITY OF ORDINANCE NO, 67733.



BASIS OF BEARING
WA STATE PLANE, NORTH ZONE (NAD 83/91)

0 50 100 200 300
SCALE IN FEET
1" = 100'

LEGEND

- MONUMENT (FOUND AS NOTED)
- TACK IN LEAD (FOUND AS NOTED)
- REBAR AND CAP (FOUND AS NOTED)
- SET REBAR AND CAP "DEA 26252"
- (SED) DISTANCE PER CITY OF SEATTLE FIELD BOOKS AND ENGINEERING MAPS
- (C) CALCULATED DISTANCE/ANGLE
- (M) FIELD MEASUREMENT
- CALCULATED QUARTER SECTION CORNER
- SECTION CORNER (FOUND AS NOTED)

NOTES

1) SEE SHEET 1 FOR GENERAL SURVEY NOTES, INTENTION OF THIS SURVEY AND COORDINATE TRANSLATIONS.

2) DISTANCES AND COORDINATES AS SHOWN ON THIS SURVEY ARE GROUND VALUES BASED UPON THE U.S. SURVEY FOOT. SEE SHEET 1 FOR CONVERSION TO GRID.

SURVEYOR'S CERTIFICATE

THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION IN CONFORMANCE WITH THE SURVEY RECORDING ACT AT THE REQUEST OF PORT OF SEATTLE ON DECEMBER, 2005

SIGNATURE 12/19/05 DATE

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RICHARD A. DICKMAN STATE OF WASHINGTON 26252 REGISTERED PROFESSIONAL LAND SURVEYOR

EXPIRES 5/21/06

RECORDING CERTIFICATE

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DIVISION OF RECORDS & ELECTIONS

MANAGER/AUDITOR

SUPT. OF RECORDS/DEPUTY AUDITOR

RECORDING NO.

RECORD OF SURVEY
FOR
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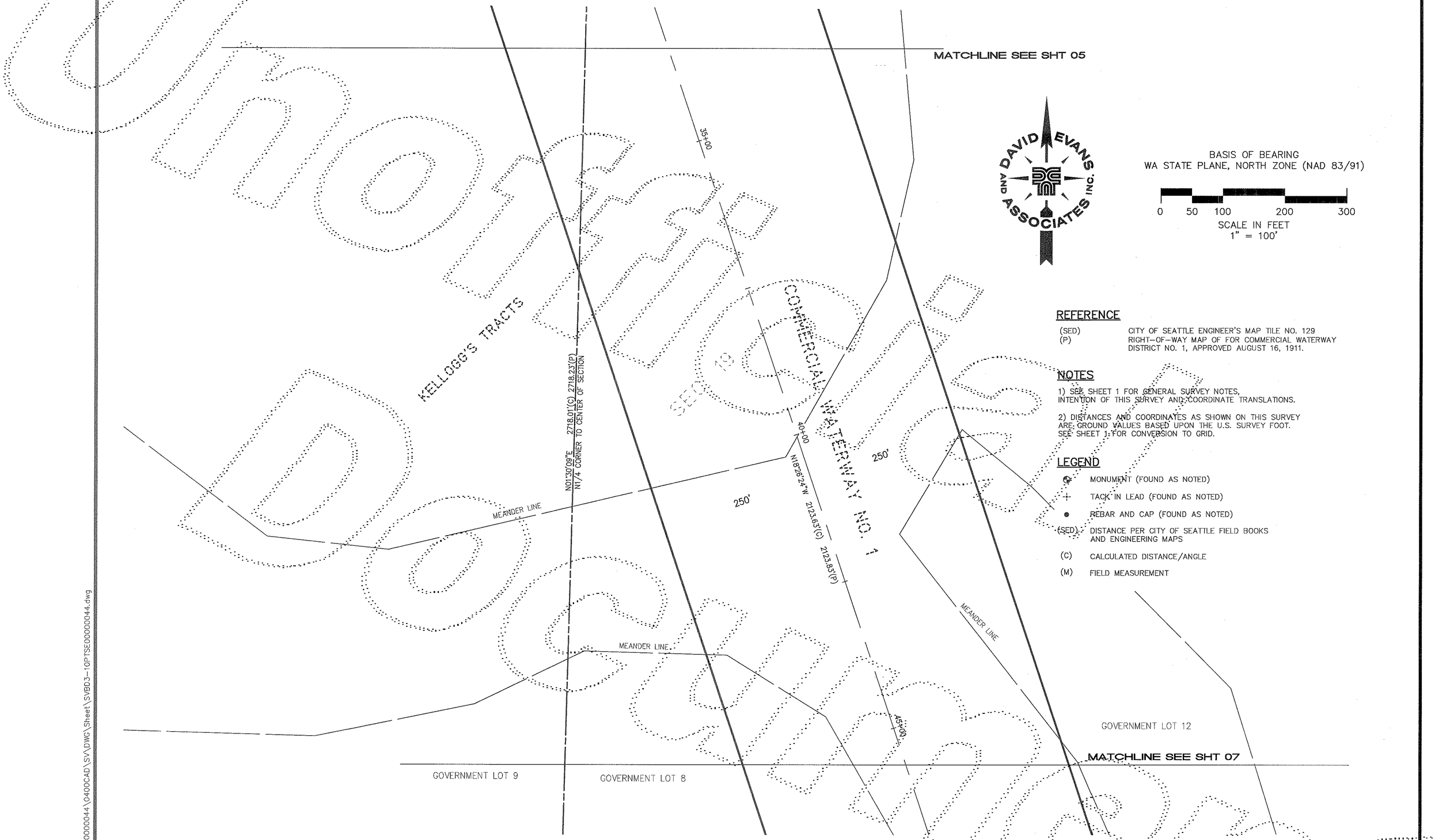
COMMERCIAL WATERWAY NO. 1
SEATTLE, WASHINGTON

DAVID EVANS AND ASSOCIATES INC.
415 - 118th Avenue SE
Bellevue Washington 98005-3518
Phone: 425.519.6500

SHEET 05 OF 21
SCALE 1"=100'
SURVEYED MWFR,BMK,RECA,SCW
DATE DECEMBER 16, 2005
DRAWN PCT,MAGR
CHECKED RAD
FILE PTSE0000-0044

200512190 0 0013 196/281

PORTION OF NW AND NE QUARTER OF SECTION 19, TOWNSHIP 24 NORTH, RANGE 4 EAST, W.M.



DAVID EVANS AND ASSOCIATES INC.

BASIS OF BEARING
WA STATE PLANE, NORTH ZONE (NAD 83/91)

0 50 100 200 300
SCALE IN FEET
1" = 100'

REFERENCE

(SED)	CITY OF SEATTLE ENGINEER'S MAP TILE NO. 129
(P)	RIGHT-OF-WAY MAP OF FOR COMMERCIAL WATERWAY DISTRICT NO. 1, APPROVED AUGUST 16, 1911.

NOTES

1) SEE SHEET 1 FOR GENERAL SURVEY NOTES, INTENTION OF THIS SURVEY AND COORDINATE TRANSLATIONS.

2) DISTANCES AND COORDINATES AS SHOWN ON THIS SURVEY ARE GROUND VALUES BASED UPON THE U.S. SURVEY FOOT. SEE SHEET 1 FOR CONVERSION TO GRID.

LEGEND

- MONUMENT (FOUND AS NOTED)
- TACK IN LEAD (FOUND AS NOTED)
- REBAR AND CAP (FOUND AS NOTED)
- (SED) DISTANCE PER CITY OF SEATTLE FIELD BOOKS AND ENGINEERING MAPS
- (C) CALCULATED DISTANCE/ANGLE
- (M) FIELD MEASUREMENT

SURVEYOR'S CERTIFICATE

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SIGNATURE 12/19/05 DATE

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EXPIRES 5/21/06

RECORDING CERTIFICATE

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DIVISION OF RECORDS & ELECTIONS

MANAGER/AUDITOR

SUPT. OF RECORDS/DEPUTY AUDITOR

RECORDING NO.

RECORD OF SURVEY
FOR
PORT OF SEATTLE
COMMERCIAL WATERWAY NO. 1
SEATTLE, WASHINGTON

DAVID EVANS AND ASSOCIATES INC.
415 - 118th Avenue SE
Bellevue Washington 98005-3518
Phone: 425.519.6500

SHEET 06 OF 21
SCALE 1"=100'
SURVEYED MWFR, BMX, RECA, SCW
DATE DECEMBER 16, 2005
DRAWN PCT, MAGR
CHECKED RAD
FILE PTSE0000-0044

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PORTION OF NE AND SE QUARTER OF SECTION 19, TOWNSHIP 24 NORTH, RANGE 4 EAST, W.M.

GOVERNMENT LOT 9

GOVERNMENT LOT 8

GOVERNMENT LOT 12

MATCHLINE SEE SHT 06

45+00

N01°30'09"E 2718.01'(C) 2718.23'(R) TO N1/4 CORNER

N=533865.035
E=1595653.344
STA. 47+44.54,
250'RT

N15°26'24"W 2123.63'(C) 2123.83'(P)

N=534092.594
E=1596161.881
STA. 47+74.90,
275.94'LT

FD REBAR AND CAP, LS NO. ILLEGIBLE

20' CO. 43273

PUBLIC ALLEY PER A.O. 43273 AND EXTENSION OF PUBLIC ALLEY PLAN, APPROVED MARCH 17, 1922.

MEANDER LINE

GOVERNMENT LOT 12

MEANDER LINE

89°19'17"(C)(P)

N89°11'01"W 2443.01'(C) 2441.70'(SED) TO W1/4 CORNER

19

724.37'(C) 724.41'(P)

70°44'10"(C)
70°44'13"(P)

50+00

STA. 50+73.87(P)
STA. 50+72.68(C)
N=533722.538
E=1595994.363

N89°10'34"W 2611.42'(C) 2611.63'(SED) 2611.65'(P) TO E1/4 CORNER

CALCULATED CENTER OF SEC. 19
N=533733.055
E=1595270.066

89°55'56"(C)(P)
89°55'34"(SED)

250'

MEANDER LINE

COMMERCIAL WATERWAY NO. 1

N15°26'24"W 2788.05'(C) 2788.04'(P)

55+00

SEC. 19

GOVERNMENT LOT 7

N00°45'22"E 2639.99'(C) 2639.85'(SED)(1) 2640.00'(P) TO S1/4 CORNER

MATCHLINE SEE SHT 08

DAVID EVANS AND ASSOCIATES INC.

BASIS OF BEARING
WA STATE PLANE, NORTH ZONE (NAD 83/91)

0 50 100 200 300
SCALE IN FEET
1" = 100'

LEGEND

- MONUMENT (FOUND AS NOTED)
- TACK IN LEAD (FOUND AS NOTED)
- REBAR AND CAP (FOUND AS NOTED)
- SET REBAR AND CAP "DEA 26252"
- (SED) DISTANCE PER CITY OF SEATTLE FIELD BOOKS AND ENGINEERING MAPS
- (C) CALCULATED DISTANCE/ANGLE
- (M) FIELD MEASUREMENT
- AO CITY OF SEATTLE CONDEMNATION ORDINANCE

REFERENCE

- (SED) CITY OF SEATTLE ENGINEERING MAPS TILE NO. 128 AND 130
- (P) RIGHT-OF-WAY MAP OF FOR COMMERCIAL WATERWAY DISTRICT NO. 1, APPROVED AUGUST 16, 1911.
- (1) RECORD OF SURVEY, ESM, VOL. 69 OF SURVEYS, P. 135A.

NOTES

1) SEE SHEET 1 FOR GENERAL SURVEY NOTES, INTENTION OF THIS SURVEY AND COORDINATE TRANSLATIONS.

2) DISTANCES AND COORDINATES AS SHOWN ON THIS SURVEY ARE GROUND VALUES BASED UPON THE U.S. SURVEY FOOT. SEE SHEET 1 FOR CONVERSION TO GRID.

SURVEYOR'S CERTIFICATE

THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION IN CONFORMANCE WITH THE SURVEY RECORDING ACT AT THE REQUEST OF PORT OF SEATTLE ON DECEMBER, 2005

SIGNATURE 12/15/05 DATE

CERTIFICATE NO. 26252

RICHARD A. DICKMAN STATE OF WASHINGTON 26252 REGISTERED PROFESSIONAL LAND SURVEYOR
EXPIRES 5/21/06

RECORDING CERTIFICATE

FILED FOR RECORD THIS ____ DAY OF ____ 20__ AT ____ M, IN BOOK ____ OF SURVEYS AT PAGE ____ AT THE REQUEST OF DAVID EVANS AND ASSOCIATES, INC.
DIVISION OF RECORDS & ELECTIONS

MANAGER/AUDITOR

SUPT. OF RECORDS/DEPUTY AUDITOR

RECORDING NO.

RECORD OF SURVEY
FOR
PORT OF SEATTLE
COMMERCIAL WATERWAY NO. 1
SEATTLE, WASHINGTON

DAVID EVANS AND ASSOCIATES INC.
415 - 118th Avenue SE
Bellevue Washington 98005-3518
Phone: 425.519.6500

SHEET 07 OF 21
SCALE 1"=100'
SURVEYED MWFR,BMX,RECA,SCW
DATE DECEMBER 16, 2005
DRAWN PCT,MAGR
CHECKED RAD
FILE PTSE0000-0044

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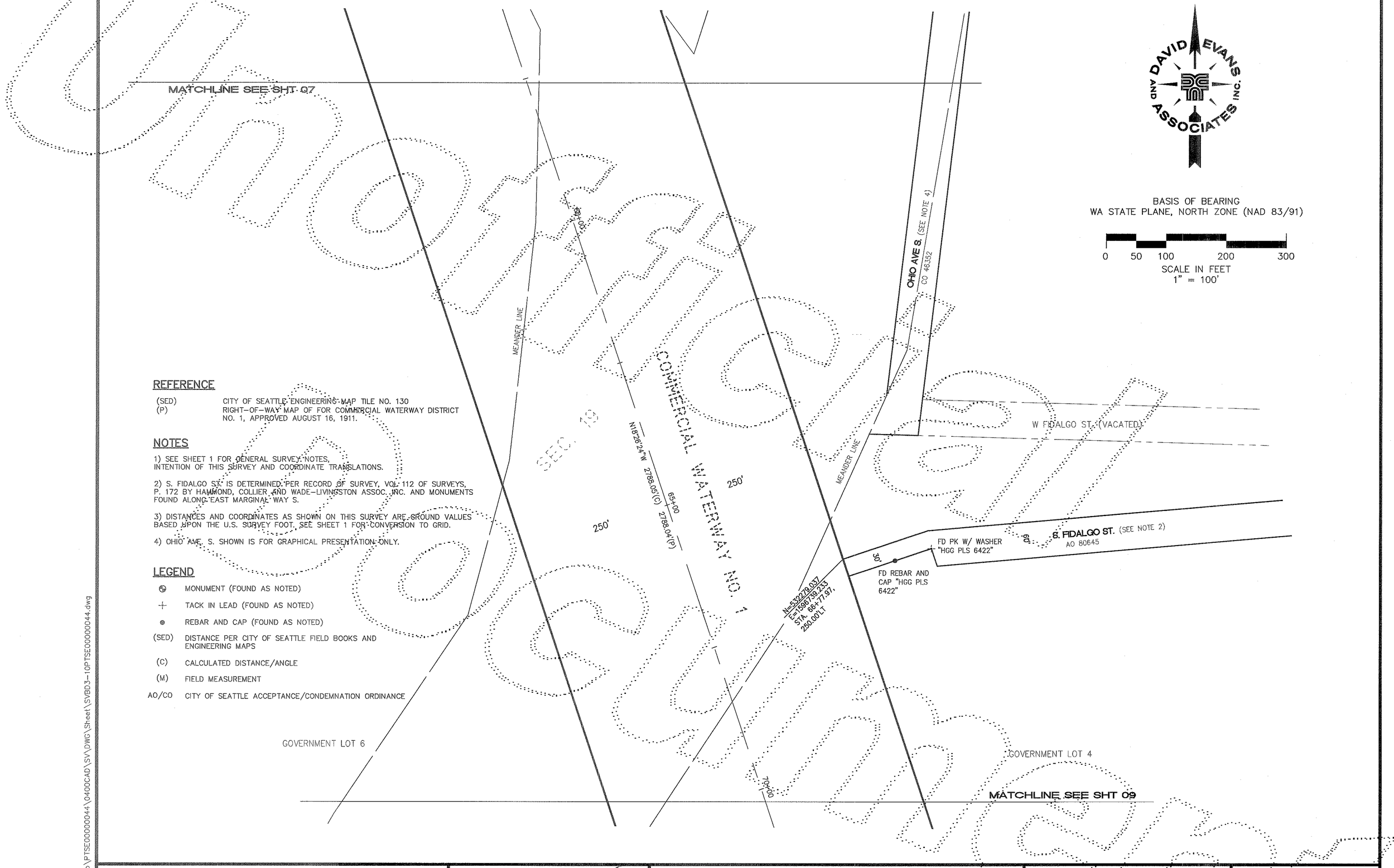
PORTION OF SE QUARTER OF SECTION 19, TOWNSHIP 24 NORTH, RANGE 4 EAST, W.M.



BASIS OF BEARING
WA STATE PLANE, NORTH ZONE (NAD 83/91)

0 50 100 200 300
SCALE IN FEET
1" = 100'

REFERENCE

(SED) CITY OF SEATTLE ENGINEERING MAP TILE NO. 130
(P) RIGHT-OF-WAY MAP OF FOR COMMERCIAL WATERWAY DISTRICT NO. 1, APPROVED AUGUST 16, 1911.

NOTES

1) SEE SHEET 1 FOR GENERAL SURVEY NOTES, INTENTION OF THIS SURVEY AND COORDINATE TRANSLATIONS.

2) S. FIDALGO ST. IS DETERMINED PER RECORD OF SURVEY, VOL. 112 OF SURVEYS, P. 172 BY HAMMOND, COLLIER AND WADE-LIVINGSTON ASSOC. INC. AND MONUMENTS FOUND ALONG EAST MARGINAL WAY S.

3) DISTANCES AND COORDINATES AS SHOWN ON THIS SURVEY ARE GROUND VALUES BASED UPON THE U.S. SURVEY FOOT. SEE SHEET 1 FOR CONVERSION TO GRID.

4) OHIO AVE. S. SHOWN IS FOR GRAPHICAL PRESENTATION ONLY.

LEGEND

- MONUMENT (FOUND AS NOTED)
- TACK IN LEAD (FOUND AS NOTED)
- REBAR AND CAP (FOUND AS NOTED)
- (SED) DISTANCE PER CITY OF SEATTLE FIELD BOOKS AND ENGINEERING MAPS
- (C) CALCULATED DISTANCE/ANGLE
- (M) FIELD MEASUREMENT
- AO/CO CITY OF SEATTLE ACCEPTANCE/CONDEMNATION ORDINANCE

SURVEYOR'S CERTIFICATE

THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION IN CONFORMANCE WITH THE SURVEY RECORDING ACT AT THE REQUEST OF PORT OF SEATTLE
ON DECEMBER, 2005
SIGNATURE 12/19/05 DATE
CERTIFICATE NO. 26252

RICHARD A. DICKMAN 26252 STATE OF WASHINGTON REGISTERED PROFESSIONAL LAND SURVEYOR
EXPIRES 5/21/06

RECORDING CERTIFICATE

FILED FOR RECORD THIS ____ DAY OF ____ 20____ AT ____ M, IN BOOK ____ OF SURVEYS AT PAGE ____ AT THE REQUEST OF DAVID EVANS AND ASSOCIATES, INC.
DIVISION OF RECORDS & ELECTIONS
MANAGER/AUDITOR
SUPT. OF RECORDS/DEPUTY AUDITOR
RECORDING NO.

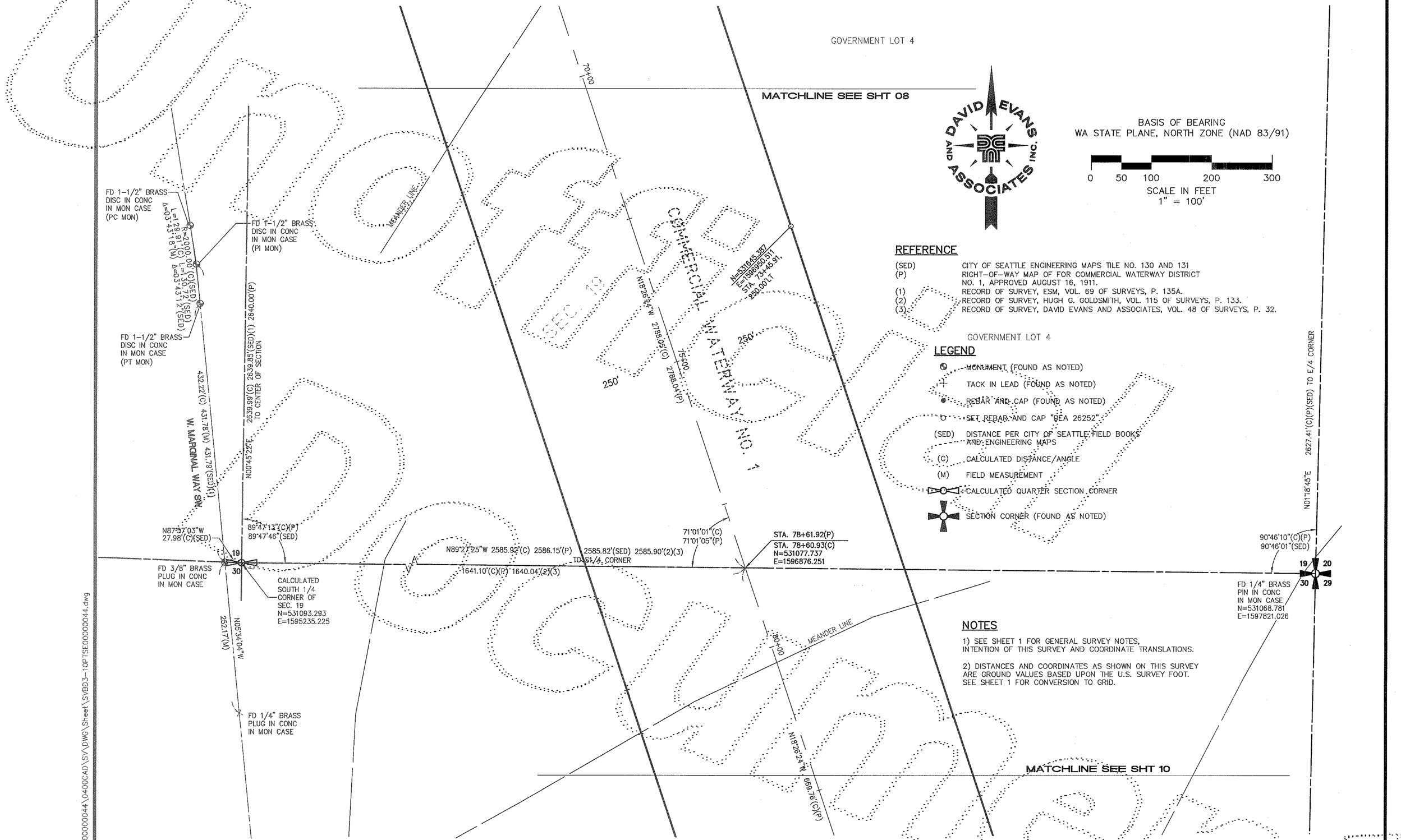
RECORD OF SURVEY
FOR
PORT OF SEATTLE
COMMERCIAL WATERWAY NO. 1
SEATTLE, WASHINGTON

DAVID EVANS AND ASSOCIATES INC.
415 - 118th Avenue SE
Bellevue Washington 98005-3518
Phone: 425.519.6500

SHEET 08 OF 21
SCALE 1"=100'
SURVEYED MWFR,BMX,RECA,SCW
DATE DECEMBER 16, 2005
DRAWN PCJ,MAGR
CHECKED RAD
FILE PTSE0000-0044

Pct 12/16/05 5:20pm - P:\p\PTSE0000044\0400CAD\SV\DWG\Sheet\SVB03-10PTSE0000044.dwg

PORTION OF SE QUARTER OF SECTION 19 AND NE QUARTER OF SECTION 30, TOWNSHIP 23 NORTH, RANGE 4 EAST, W.M.



BASIS OF BEARING
WA STATE PLANE, NORTH ZONE (NAD 83/91)

0 50 100 200 300
SCALE IN FEET
1" = 100'

REFERENCE

(SED) CITY OF SEATTLE ENGINEERING MAPS TILE NO. 130 AND 131
(P) RIGHT-OF-WAY MAP OF FOR COMMERCIAL WATERWAY DISTRICT NO. 1, APPROVED AUGUST 16, 1911.
(1) RECORD OF SURVEY, ESM, VOL. 69 OF SURVEYS, P. 135A.
(2) RECORD OF SURVEY, HUGH G. GOLDSMITH, VOL. 115 OF SURVEYS, P. 133.
(3) RECORD OF SURVEY, DAVID EVANS AND ASSOCIATES, VOL. 48 OF SURVEYS, P. 32.

LEGEND

- MONUMENT (FOUND AS NOTED)
- TACK IN LEAD (FOUND AS NOTED)
- REBAR AND CAP (FOUND AS NOTED)
- SET REBAR AND CAP "DEA 26252"
- (SED) DISTANCE PER CITY OF SEATTLE FIELD BOOKS AND ENGINEERING MAPS
- (C) CALCULATED DISTANCE/ANGLE
- (M) FIELD MEASUREMENT
- CALCULATED QUARTER SECTION CORNER
- SECTION CORNER (FOUND AS NOTED)

NOTES

1) SEE SHEET 1 FOR GENERAL SURVEY NOTES, INTENTION OF THIS SURVEY AND COORDINATE TRANSLATIONS.

2) DISTANCES AND COORDINATES AS SHOWN ON THIS SURVEY ARE GROUND VALUES BASED UPON THE U.S. SURVEY FOOT. SEE SHEET 1 FOR CONVERSION TO GRID.

SURVEYOR'S CERTIFICATE

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SIGNATURE 12/19/05 DATE

CERTIFICATE NO. 26252

RICHARD A. DICKMAN 26252 STATE OF WASHINGTON REGISTERED PROFESSIONAL LAND SURVEYOR
EXPIRES 5/21/06

RECORDING CERTIFICATE

FILED FOR RECORD THIS ____ DAY OF ____ 20__ AT ____ M, IN BOOK ____ OF SURVEYS AT PAGE ____ AT THE REQUEST OF DAVID EVANS AND ASSOCIATES, INC.
DIVISION OF RECORDS & ELECTIONS

MANAGER/AUDITOR

SUPT. OF RECORDS/DEPUTY AUDITOR

RECORDING NO.

RECORD OF SURVEY
FOR
PORT OF SEATTLE
COMMERCIAL WATERWAY NO. 1
SEATTLE, WASHINGTON

DAVID EVANS AND ASSOCIATES INC.
415 - 118th Avenue SE
Bellevue Washington 98005-3518
Phone: 425.519.6500

SHEET 09 OF 21
SCALE 1"=100'
SURVEYED MWFR,BMX,RECA,SCW
DATE DECEMBER 16, 2005
DRAWN PCT,MAGR
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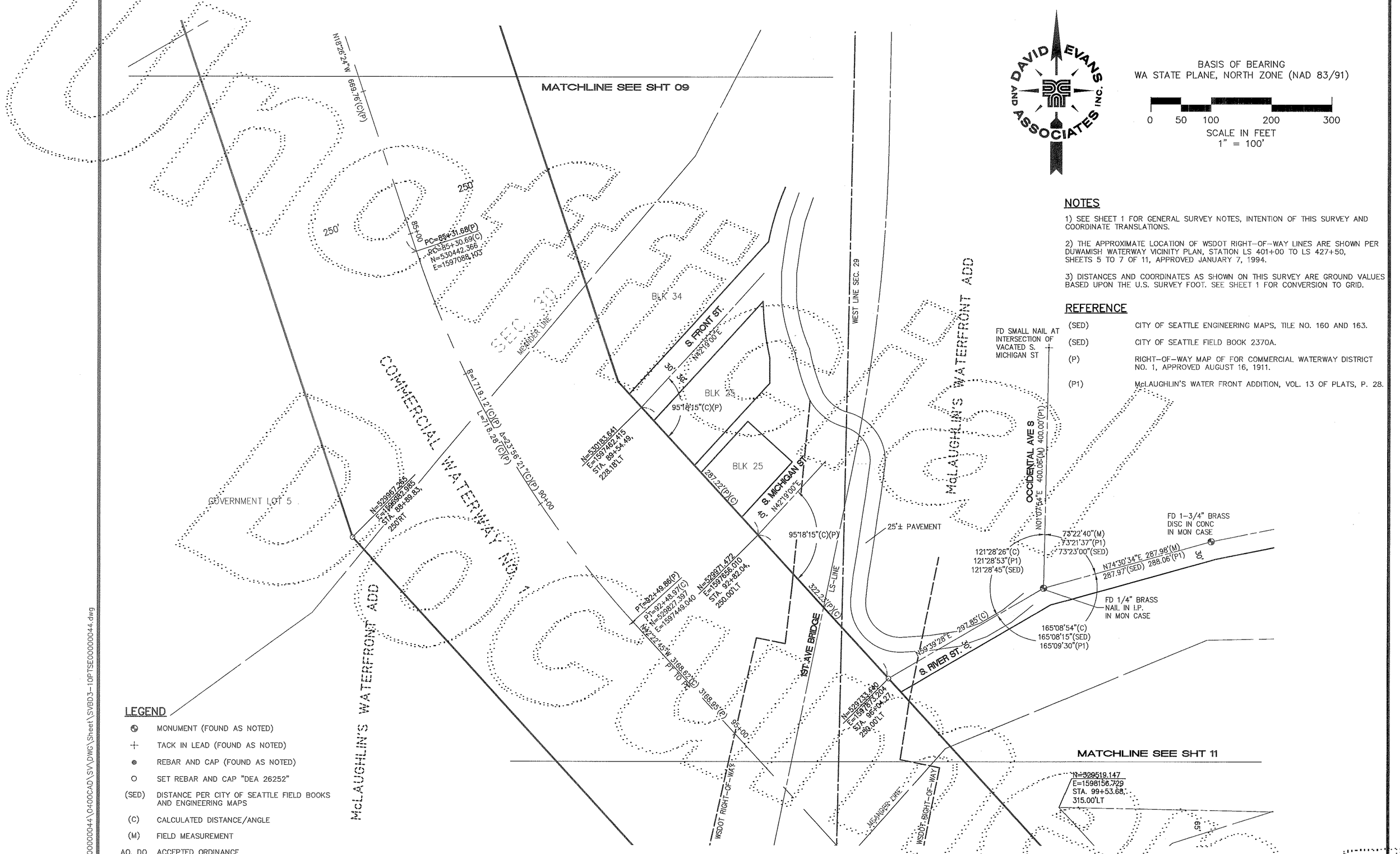
FILE PTSE0000-0044

Plot 12/16/05 5:20pm — P:\p\PTSE00000044\0400CAD\SV\DWG\Sheet\SVBD3-10PTSE00000044.dwg

PORTION OF NW QUARTER OF SECTION 29 AND NE QUARTER OF SECTION 30, TOWNSHIP 24 NORTH, RANGE 4 EAST, W.M.



DAVID EVANS AND ASSOCIATES INC.

BASIS OF BEARING
WA STATE PLANE, NORTH ZONE (NAD 83/91)

0 50 100 200 300
SCALE IN FEET
1" = 100'

NOTES

1) SEE SHEET 1 FOR GENERAL SURVEY NOTES, INTENTION OF THIS SURVEY AND COORDINATE TRANSLATIONS.

2) THE APPROXIMATE LOCATION OF WSDOT RIGHT-OF-WAY LINES ARE SHOWN PER DUWAMISH WATERWAY VICINITY PLAN, STATION LS 401+00 TO LS 427+50, SHEETS 5 TO 7 OF 11, APPROVED JANUARY 7, 1994.

3) DISTANCES AND COORDINATES AS SHOWN ON THIS SURVEY ARE GROUND VALUES BASED UPON THE U.S. SURVEY FOOT. SEE SHEET 1 FOR CONVERSION TO GRID.

REFERENCE

(SED) CITY OF SEATTLE ENGINEERING MAPS, TILE NO. 160 AND 163.

(SED) CITY OF SEATTLE FIELD BOOK 2370A.

(P) RIGHT-OF-WAY MAP OF FOR COMMERCIAL WATERWAY DISTRICT NO. 1, APPROVED AUGUST 16, 1911.

(P1) McLAUGHLIN'S WATER FRONT ADDITION, VOL. 13 OF PLATS, P. 28.

LEGEND

- MONUMENT (FOUND AS NOTED)
- TACK IN LEAD (FOUND AS NOTED)
- REBAR AND CAP (FOUND AS NOTED)
- SET REBAR AND CAP "DEA 26252"
- (SED) DISTANCE PER CITY OF SEATTLE FIELD BOOKS AND ENGINEERING MAPS
- (C) CALCULATED DISTANCE/ANGLE
- (M) FIELD MEASUREMENT
- AO, DO ACCEPTED ORDINANCE

SURVEYOR'S CERTIFICATE

THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION IN CONFORMANCE WITH THE SURVEY RECORDING ACT AT THE REQUEST OF PORT OF SEATTLE ON DECEMBER, 2005

SIGNATURE 12/19/05 DATE

CERTIFICATE NO. 26252

RICHARD A. DICKMAN 26252 STATE OF WASHINGTON REGISTERED PROFESSIONAL LAND SURVEYOR

EXPIRES 5/21/06

RECORDING CERTIFICATE

FILED FOR RECORD THIS ____ DAY OF ____ 20__ AT ____ M, IN BOOK ____ OF SURVEYS AT PAGE ____ AT THE REQUEST OF DAVID EVANS AND ASSOCIATES, INC.

DIVISION OF RECORDS & ELECTIONS

MANAGER/AUDITOR

SUPT. OF RECORDS/DEPUTY AUDITOR

RECORDING NO.

RECORD OF SURVEY
FOR
PORT OF SEATTLE
COMMERCIAL WATERWAY NO. 1
SEATTLE, WASHINGTON

DAVID EVANS AND ASSOCIATES INC.
415 - 118th Avenue SE
Bellevue Washington 98005-3518
Phone: 425.519.6500

SHEET	10 OF 21
SCALE	1"=100'
SURVEYED	MWFR, BMX, RECA, SCW
DATE	DECEMBER 16, 2005
DRAWN	PCX, MAGR
CHECKED	RAD
FILE	PTSE0000-0044

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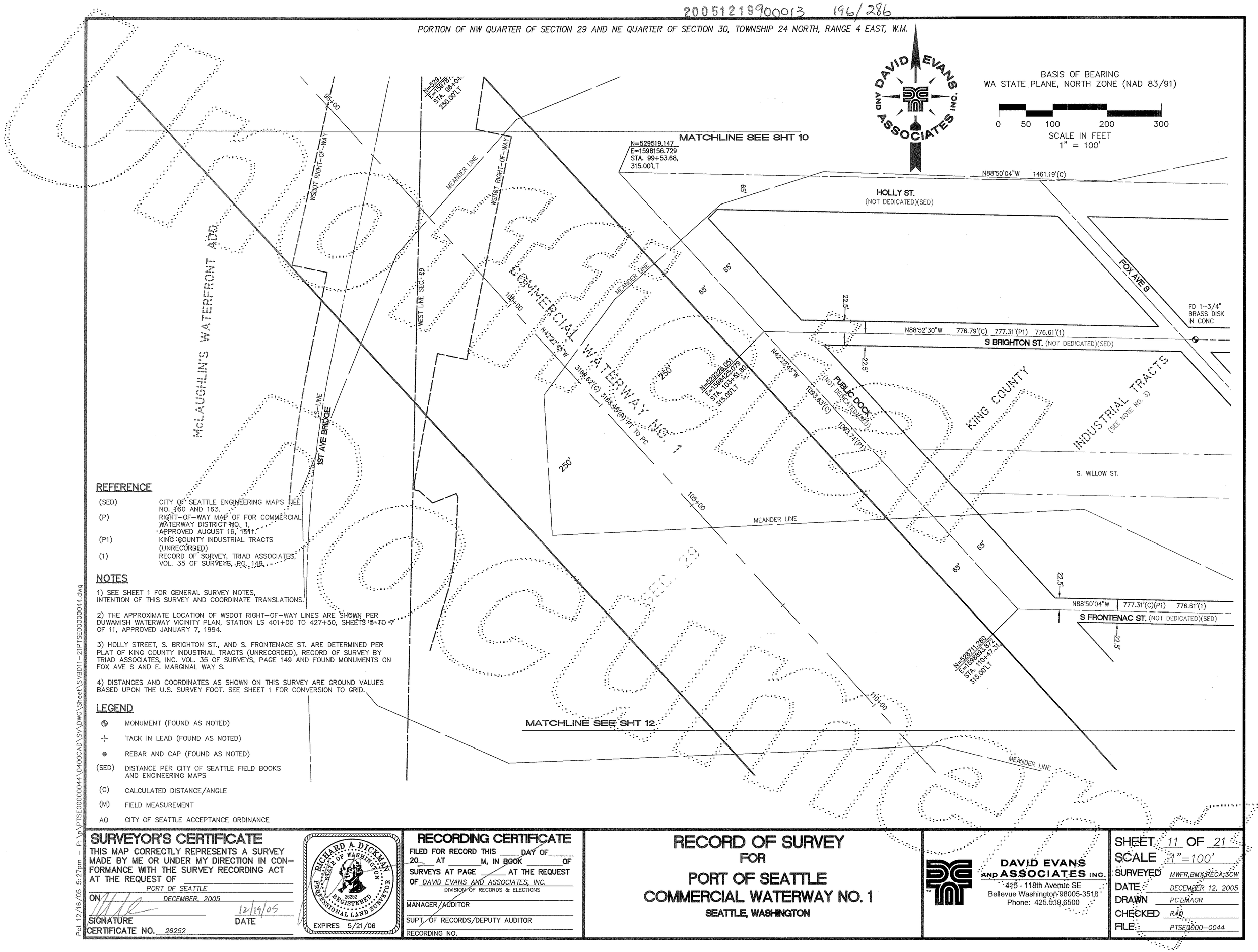
200512199000l3 196/286

PORTION OF NW QUARTER OF SECTION 29 AND NE QUARTER OF SECTION 30, TOWNSHIP 24 NORTH, RANGE 4 EAST, W.M.

DAVID EVANS AND ASSOCIATES INC.

BASIS OF BEARING
WA STATE PLANE, NORTH ZONE (NAD 83/91)

0 50 100 200 300
SCALE IN FEET
1" = 100'



REFERENCE

(SED)	CITY OF SEATTLE ENGINEERING MAPS FILE NO. 160 AND 163.
(P)	RIGHT-OF-WAY MAP OF FOR COMMERCIAL WATERWAY DISTRICT NO. 1, APPROVED AUGUST 16, 1911.
(P1)	KING COUNTY INDUSTRIAL TRACTS (UNRECORDED)
(1)	RECORD OF SURVEY, TRIAD ASSOCIATES, VOL. 35 OF SURVEYS, PG. 149.

NOTES

1) SEE SHEET 1 FOR GENERAL SURVEY NOTES, INTENTION OF THIS SURVEY AND COORDINATE TRANSLATIONS.

2) THE APPROXIMATE LOCATION OF WSDOT RIGHT-OF-WAY LINES ARE SHOWN PER DUWAMISH WATERWAY VICINITY PLAN, STATION LS 401+00 TO 427+50, SHEETS 5 TO 7 OF 11, APPROVED JANUARY 7, 1994.

3) HOLLY STREET, S. BRIGHTON ST., AND S. FRONTENAC ST. ARE DETERMINED PER PLAT OF KING COUNTY INDUSTRIAL TRACTS (UNRECORDED), RECORD OF SURVEY BY TRIAD ASSOCIATES, INC. VOL. 35 OF SURVEYS, PAGE 149 AND FOUND MONUMENTS ON FOX AVE S AND E. MARGINAL WAY S.

4) DISTANCES AND COORDINATES AS SHOWN ON THIS SURVEY ARE GROUND VALUES BASED UPON THE U.S. SURVEY FOOT. SEE SHEET 1 FOR CONVERSION TO GRID.

LEGEND

⊕	MONUMENT (FOUND AS NOTED)
⊹	TACK IN LEAD (FOUND AS NOTED)
●	REBAR AND CAP (FOUND AS NOTED)
(SED)	DISTANCE PER CITY OF SEATTLE FIELD BOOKS AND ENGINEERING MAPS
(C)	CALCULATED DISTANCE/ANGLE
(M)	FIELD MEASUREMENT
AO	CITY OF SEATTLE ACCEPTANCE ORDINANCE

SURVEYOR'S CERTIFICATE

THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION IN CONFORMANCE WITH THE SURVEY RECORDING ACT AT THE REQUEST OF PORT OF SEATTLE ON DECEMBER, 2005

SIGNATURE 12/19/05 DATE

CERTIFICATE NO. 26252

RICHARD A. DICKMAN STATE OF WASHINGTON 26252 REGISTERED PROFESSIONAL LAND SURVEYOR
EXPIRES 5/21/06

RECORDING CERTIFICATE

FILED FOR RECORD THIS ____ DAY OF ____ 20__ AT ____ M, IN BOOK ____ OF SURVEYS AT PAGE ____ AT THE REQUEST OF DAVID EVANS AND ASSOCIATES, INC.
DIVISION OF RECORDS & ELECTIONS

MANAGER/AUDITOR

SUPT. OF RECORDS/DEPUTY AUDITOR

RECORDING NO.

RECORD OF SURVEY
FOR
PORT OF SEATTLE
COMMERCIAL WATERWAY NO. 1
SEATTLE, WASHINGTON

DAVID EVANS AND ASSOCIATES INC.
415 - 118th Avenue SE
Bellevue Washington 98005-3518
Phone: 425.519.6500

SHEET	11 OF 21
SCALE	1"=100'
SURVEYED	MWFR,BMX,RECA,SCW
DATE	DECEMBER 12, 2005
DRAWN	PCT,MAGR
CHECKED	RAD
FILE	PTSE0000-0044

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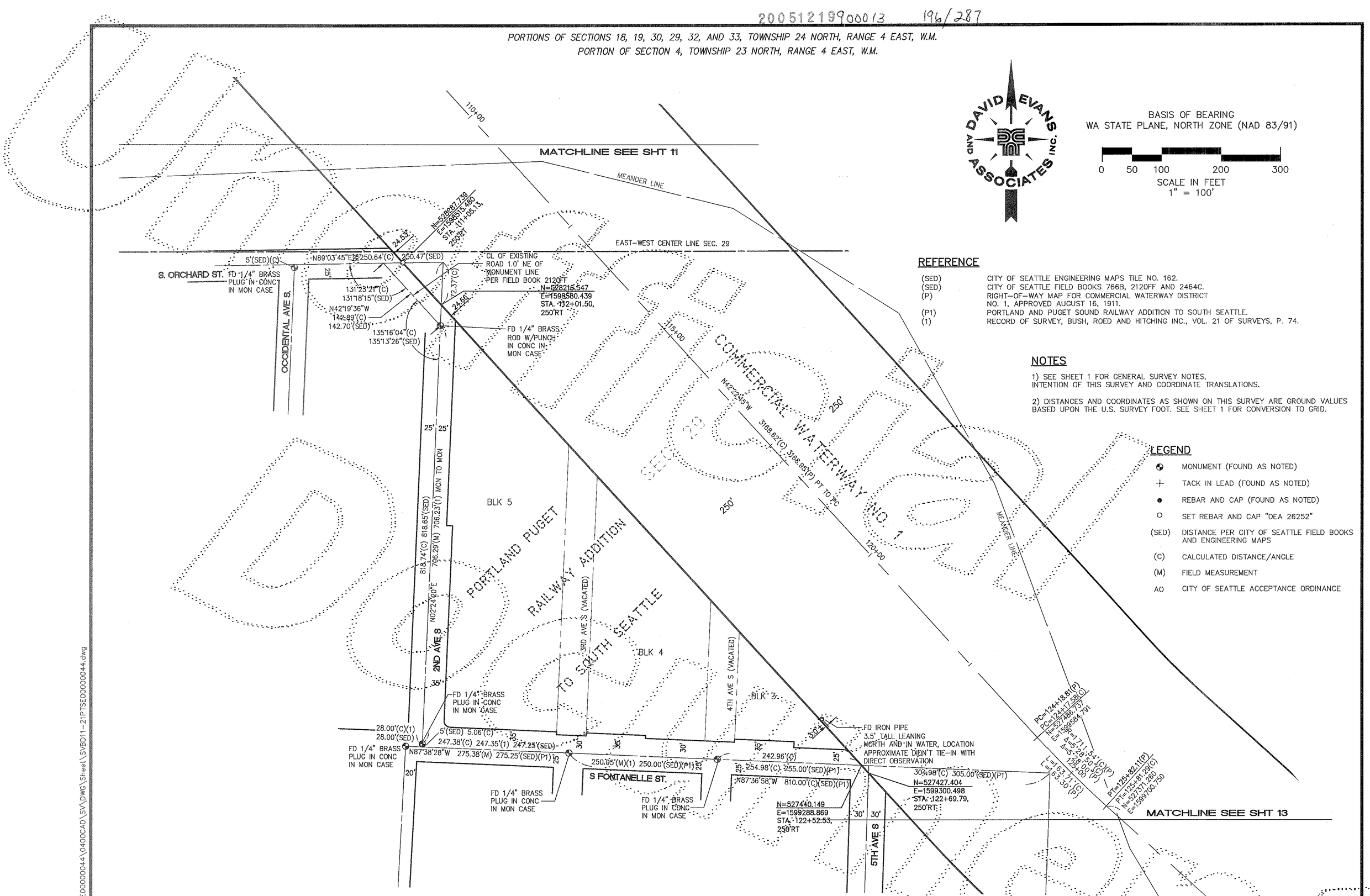
200512199000 13 196/287

PORTIONS OF SECTIONS 18, 19, 30, 29, 32, AND 33, TOWNSHIP 24 NORTH, RANGE 4 EAST, W.M.
PORTION OF SECTION 4, TOWNSHIP 23 NORTH, RANGE 4 EAST, W.M.

DAVID EVANS AND ASSOCIATES INC.

BASIS OF BEARING
WA STATE PLANE, NORTH ZONE (NAD 83/91)

0 50 100 200 300
SCALE IN FEET
1" = 100'



REFERENCE

(SED)	CITY OF SEATTLE ENGINEERING MAPS TILE NO. 162.
(SED)	CITY OF SEATTLE FIELD BOOKS 766B, 2120FF AND 2464C.
(P)	RIGHT-OF-WAY MAP FOR COMMERCIAL WATERWAY DISTRICT NO. 1, APPROVED AUGUST 16, 1911.
(P1)	PORTLAND AND PUGET SOUND RAILWAY ADDITION TO SOUTH SEATTLE.
(1)	RECORD OF SURVEY, BUSH, ROED AND HITCHING INC., VOL. 21 OF SURVEYS, P. 74.

NOTES

1) SEE SHEET 1 FOR GENERAL SURVEY NOTES, INTENTION OF THIS SURVEY AND COORDINATE TRANSLATIONS.

2) DISTANCES AND COORDINATES AS SHOWN ON THIS SURVEY ARE GROUND VALUES BASED UPON THE U.S. SURVEY FOOT. SEE SHEET 1 FOR CONVERSION TO GRID.

LEGEND

⊕	MONUMENT (FOUND AS NOTED)
+	TACK IN LEAD (FOUND AS NOTED)
●	REBAR AND CAP (FOUND AS NOTED)
○	SET REBAR AND CAP "DEA 26252"
(SED)	DISTANCE PER CITY OF SEATTLE FIELD BOOKS AND ENGINEERING MAPS
(C)	CALCULATED DISTANCE/ANGLE
(M)	FIELD MEASUREMENT
AO	CITY OF SEATTLE ACCEPTANCE ORDINANCE

SURVEYOR'S CERTIFICATE

THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION IN CONFORMANCE WITH THE SURVEY RECORDING ACT AT THE REQUEST OF PORT OF SEATTLE ON DECEMBER, 2005

SIGNATURE 12/19/05 DATE

CERTIFICATE NO. 26252

RICHARD A. DICKMAN STATE OF WASHINGTON 26252 REGISTERED PROFESSIONAL LAND SURVEYOR
EXPIRES 5/21/06

RECORDING CERTIFICATE

FILED FOR RECORD THIS ____ DAY OF ____ 20____ AT ____ M, IN BOOK ____ OF SURVEYS AT PAGE ____ AT THE REQUEST OF DAVID EVANS AND ASSOCIATES, INC.

DIVISION OF RECORDS & ELECTIONS

MANAGER/AUDITOR

SUPT. OF RECORDS/DEPUTY AUDITOR

RECORDING NO.

RECORD OF SURVEY
FOR
PORT OF SEATTLE
COMMERCIAL WATERWAY NO. 1
SEATTLE, WASHINGTON

DAVID EVANS AND ASSOCIATES INC.
415 - 118th Avenue SE
Bellevue Washington 98005-3518
Phone: 425.519.6500

SHEET 12 OF 21
SCALE 1"=100'
SURVEYED MWFR,BMX,RECA,SCW
DATE DECEMBER 12, 2005
DRAWN PCT,MAGR
CHECKED RAD
FILE PTSE0000-0044

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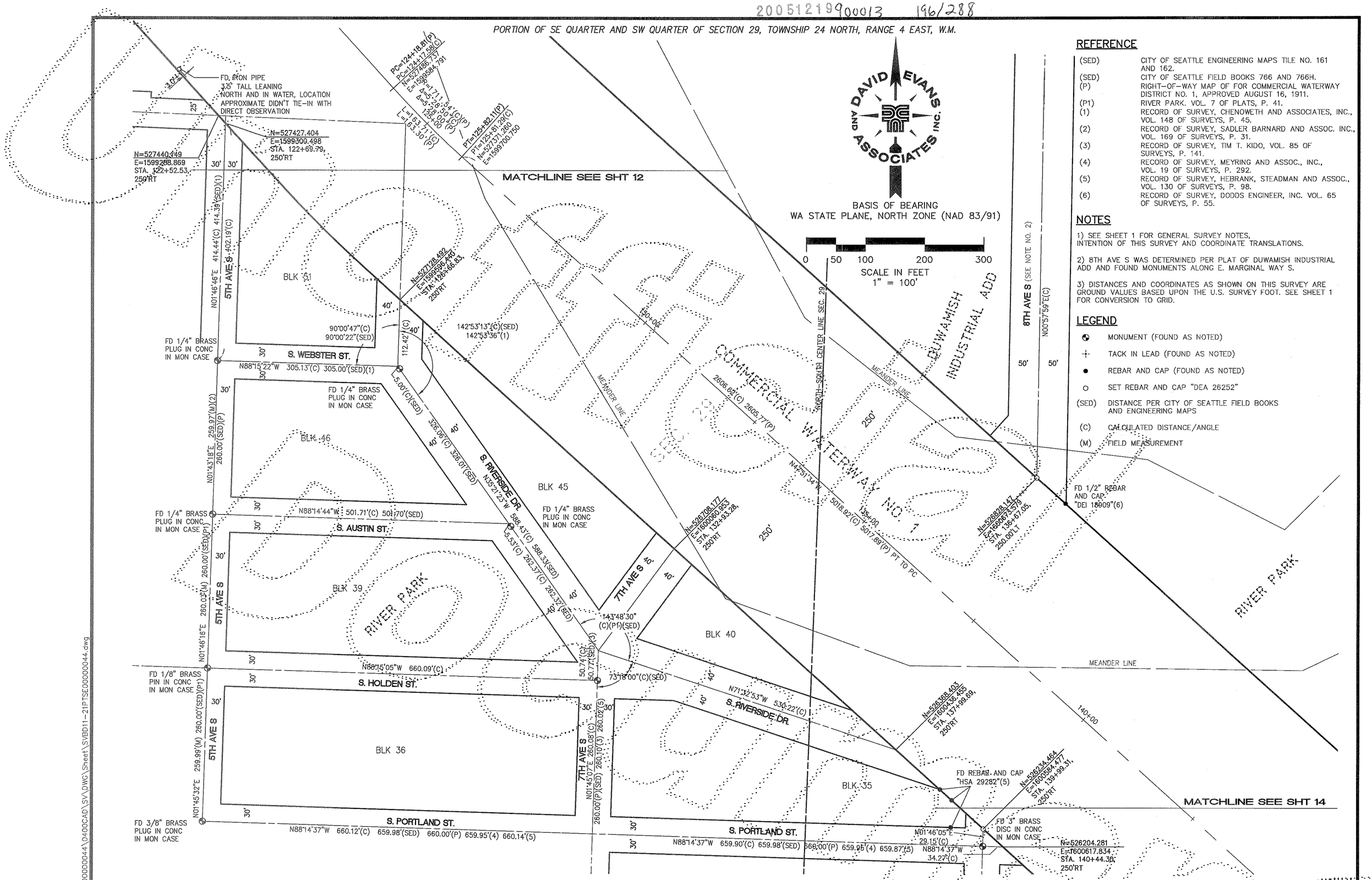
PORTION OF SE QUARTER AND SW QUARTER OF SECTION 29, TOWNSHIP 24 NORTH, RANGE 4 EAST, W.M.



REFERENCE

(SED)	CITY OF SEATTLE ENGINEERING MAPS TILE NO. 161 AND 162.
(SED)	CITY OF SEATTLE FIELD BOOKS 766 AND 766H.
(P)	RIGHT-OF-WAY MAP OF FOR COMMERCIAL WATERWAY DISTRICT NO. 1, APPROVED AUGUST 16, 1911.
(P1)	RIVER PARK. VOL. 7 OF PLATS, P. 41.
(1)	RECORD OF SURVEY, CHENOWETH AND ASSOCIATES, INC., VOL. 148 OF SURVEYS, P. 45.
(2)	RECORD OF SURVEY, SADLER BARNARD AND ASSOC. INC., VOL. 169 OF SURVEYS, P. 31.
(3)	RECORD OF SURVEY, TIM T. KIDO, VOL. 85 OF SURVEYS, P. 141.
(4)	RECORD OF SURVEY, MEYRING AND ASSOC., INC., VOL. 19 OF SURVEYS, P. 292.
(5)	RECORD OF SURVEY, HEBRANK, STEADMAN AND ASSOC., VOL. 130 OF SURVEYS, P. 98.
(6)	RECORD OF SURVEY, DODDS ENGINEER, INC. VOL. 65 OF SURVEYS, P. 55.

NOTES

1) SEE SHEET 1 FOR GENERAL SURVEY NOTES, INTENTION OF THIS SURVEY AND COORDINATE TRANSLATIONS.

2) 8TH AVE S WAS DETERMINED PER PLAT OF DUWAMISH INDUSTRIAL ADD AND FOUND MONUMENTS ALONG E. MARGINAL WAY S.

3) DISTANCES AND COORDINATES AS SHOWN ON THIS SURVEY ARE GROUND VALUES BASED UPON THE U.S. SURVEY FOOT. SEE SHEET 1 FOR CONVERSION TO GRID.

LEGEND

- ◕ MONUMENT (FOUND AS NOTED)
- ⊹ TACK IN LEAD (FOUND AS NOTED)
- ● REBAR AND CAP (FOUND AS NOTED)
- ○ SET REBAR AND CAP "DEA 26252"
- (SED) DISTANCE PER CITY OF SEATTLE FIELD BOOKS AND ENGINEERING MAPS
- (C) CALCULATED DISTANCE/ANGLE
- (M) FIELD MEASUREMENT

SURVEYOR'S CERTIFICATE

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SIGNATURE 12/19/05 DATE

CERTIFICATE NO. 26252

RICHARD A. DICKMAN STATE OF WASHINGTON 26252 REGISTERED PROFESSIONAL LAND SURVEYOR

EXPIRES 5/21/06

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DIVISION OF RECORDS & ELECTIONS

MANAGER/AUDITOR

SUPT. OF RECORDS/DEPUTY AUDITOR

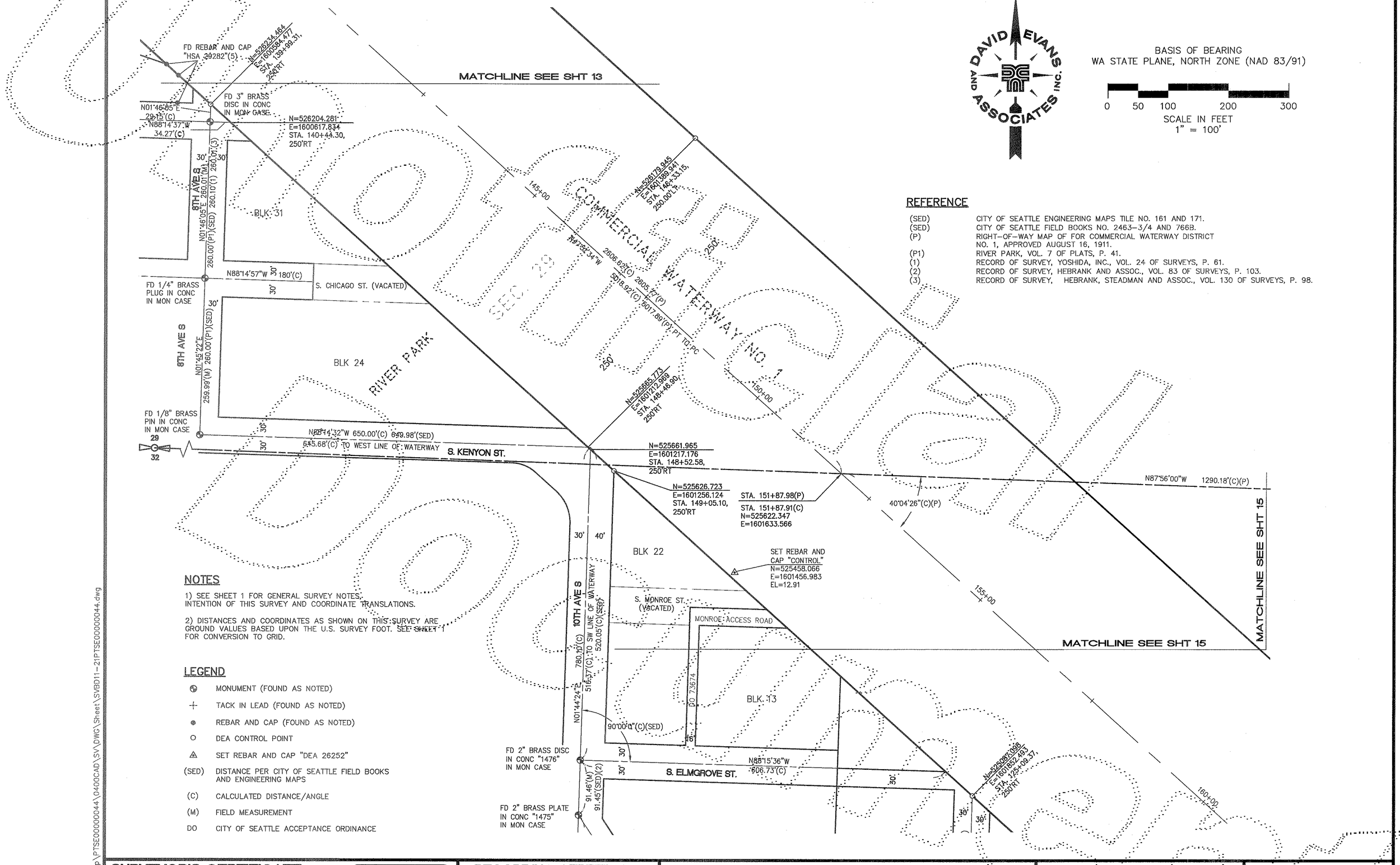
RECORDING NO.

RECORD OF SURVEY
FOR
PORT OF SEATTLE
COMMERCIAL WATERWAY NO. 1
SEATTLE, WASHINGTON

DAVID EVANS AND ASSOCIATES INC.
415 - 118th Avenue SE
Bellevue Washington 98005-3513
Phone: 425.519.6500

SHEET	13 OF 21
SCALE	1"=100'
SURVEYED	MWFR,BMX,RECA,SCW
DATE	DECEMBER 16, 2005
DRAWN	PCT,MAGR
CHECKED	RAD
FILE	PTSE0000-0044

PORTIONS OF SECTIONS 18, 19, 30, 29, 32, AND 33, TOWNSHIP 24 NORTH, RANGE 4 EAST, W.M.
PORTION OF SECTION 4, TOWNSHIP 23 NORTH, RANGE 4 EAST, W.M.



REFERENCE

(SED)	CITY OF SEATTLE ENGINEERING MAPS TILE NO. 161 AND 171.
(SED)	CITY OF SEATTLE FIELD BOOKS NO. 2463–3/4 AND 766B.
(P)	RIGHT–OF–WAY MAP OF FOR COMMERCIAL WATERWAY DISTRICT NO. 1, APPROVED AUGUST 16, 1911.
(P1)	RIVER PARK, VOL. 7 OF PLATS, P. 41.
(1)	RECORD OF SURVEY, YOSHIDA, INC., VOL. 24 OF SURVEYS, P. 61.
(2)	RECORD OF SURVEY, HEBRANK AND ASSOC., VOL. 83 OF SURVEYS, P. 103.
(3)	RECORD OF SURVEY, HEBRANK, STEADMAN AND ASSOC., VOL. 130 OF SURVEYS, P. 98.

DAVID EVANS AND ASSOCIATES INC.

BASIS OF BEARING
WA STATE PLANE, NORTH ZONE (NAD 83/91)

0 50 100 200 300
SCALE IN FEET
1" = 100'

NOTES

1) SEE SHEET 1 FOR GENERAL SURVEY NOTES, INTENTION OF THIS SURVEY AND COORDINATE TRANSLATIONS.

2) DISTANCES AND COORDINATES AS SHOWN ON THIS SURVEY ARE GROUND VALUES BASED UPON THE U.S. SURVEY FOOT. SEE SHEET 1 FOR CONVERSION TO GRID.

LEGEND

⊕	MONUMENT (FOUND AS NOTED)
⊹	TACK IN LEAD (FOUND AS NOTED)
◉	REBAR AND CAP (FOUND AS NOTED)
O	DEA CONTROL POINT
◬	SET REBAR AND CAP "DEA 26252"
(SED)	DISTANCE PER CITY OF SEATTLE FIELD BOOKS AND ENGINEERING MAPS
(C)	CALCULATED DISTANCE/ANGLE
(M)	FIELD MEASUREMENT
DO	CITY OF SEATTLE ACCEPTANCE ORDINANCE

SURVEYOR'S CERTIFICATE

THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION IN CONFORMANCE WITH THE SURVEY RECORDING ACT AT THE REQUEST OF PORT OF SEATTLE ON DECEMBER, 2005

SIGNATURE 12/19/05 DATE

CERTIFICATE NO. 26252

RICHARD A. DICKMAN STATE OF WASHINGTON 26252 REGISTERED PROFESSIONAL LAND SURVEYOR
EXPIRES 5/21/06

RECORDING CERTIFICATE

FILED FOR RECORD THIS ____ DAY OF ____ 20__ AT ____M, IN BOOK ____OF SURVEYS AT PAGE ____ AT THE REQUEST OF DAVID EVANS AND ASSOCIATES, INC.

DIVISION OF RECORDS & ELECTIONS

MANAGER/AUDITOR

SUPT. OF RECORDS/DEPUTY AUDITOR

RECORDING NO.

RECORD OF SURVEY
FOR
PORT OF SEATTLE
COMMERCIAL WATERWAY NO. 1
SEATTLE, WASHINGTON

DAVID EVANS AND ASSOCIATES INC.
415 - 118th Avenue SE
Bellevue Washington 98005-3518
Phone: 425.519.6500

SHEET 14 OF 21
SCALE 1"=100'
SURVEYED MWFR,BMX,RECA,SCW
DATE DECEMBER 16, 2005
DRAWN RCT,MAGR
CHECKED RAD
FILE PTSE0000-0044

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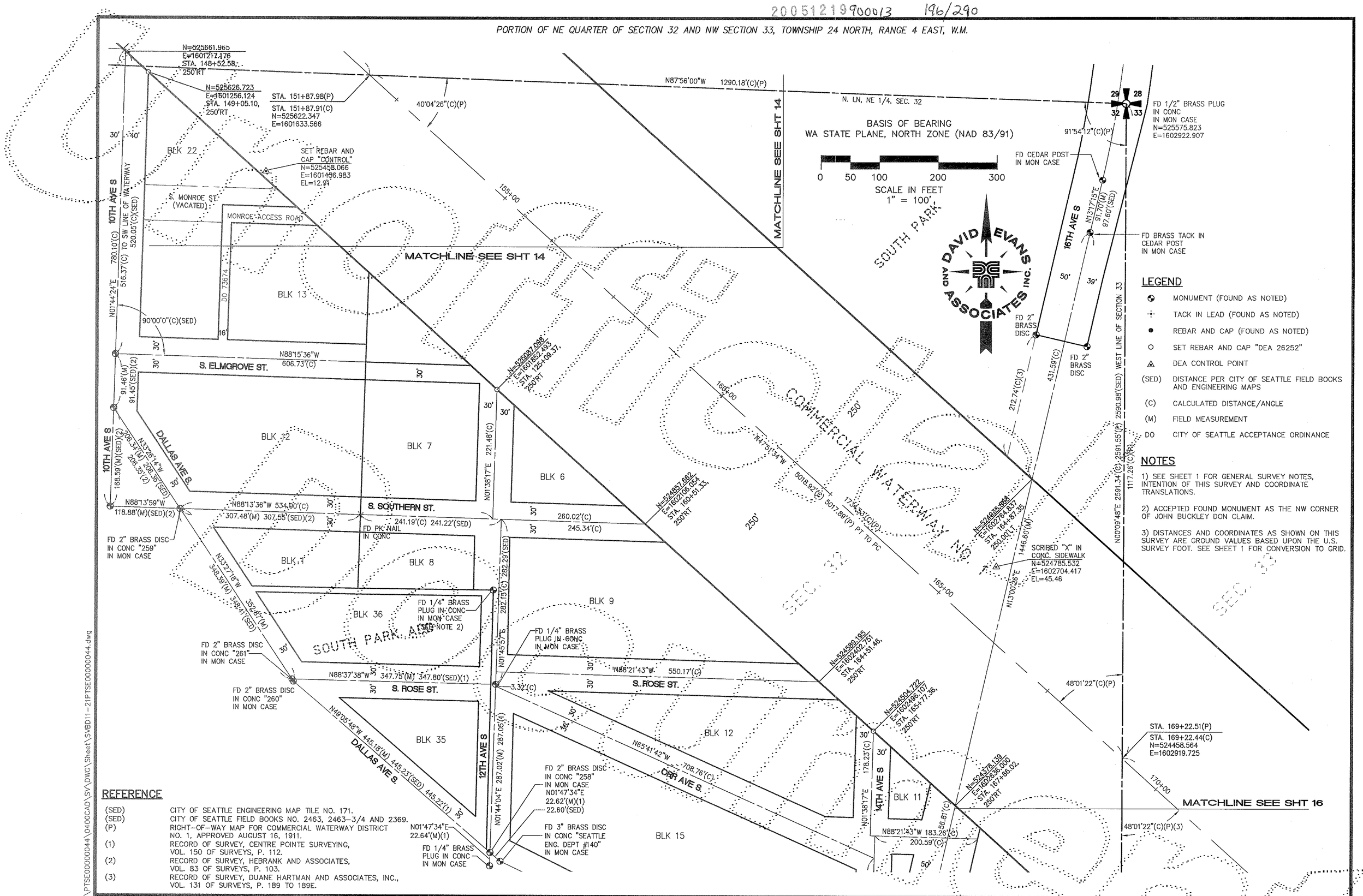
PORTION OF NE QUARTER OF SECTION 32 AND NW SECTION 33, TOWNSHIP 24 NORTH, RANGE 4 EAST, W.M.



LEGEND

- MONUMENT (FOUND AS NOTED)
- TACK IN LEAD (FOUND AS NOTED)
- REBAR AND CAP (FOUND AS NOTED)
- SET REBAR AND CAP "DEA 26252"
- DEA CONTROL POINT
- (SED) DISTANCE PER CITY OF SEATTLE FIELD BOOKS AND ENGINEERING MAPS
- (C) CALCULATED DISTANCE/ANGLE
- (M) FIELD MEASUREMENT
- DO CITY OF SEATTLE ACCEPTANCE ORDINANCE

NOTES

1) SEE SHEET 1 FOR GENERAL SURVEY NOTES, INTENTION OF THIS SURVEY AND COORDINATE TRANSLATIONS.

2) ACCEPTED FOUND MONUMENT AS THE NW CORNER OF JOHN BUCKLEY DON CLAIM.

3) DISTANCES AND COORDINATES AS SHOWN ON THIS SURVEY ARE GROUND VALUES BASED UPON THE U.S. SURVEY FOOT. SEE SHEET 1 FOR CONVERSION TO GRID.

REFERENCE

(SED)	CITY OF SEATTLE ENGINEERING MAP TILE NO. 171.
(SED)	CITY OF SEATTLE FIELD BOOKS NO. 2463, 2463-3/4 AND 2369.
(P)	RIGHT-OF-WAY MAP FOR COMMERCIAL WATERWAY DISTRICT NO. 1, APPROVED AUGUST 16, 1911.
(1)	RECORD OF SURVEY, CENTRE POINTE SURVEYING, VOL. 150 OF SURVEYS, P. 112.
(2)	RECORD OF SURVEY, HEBRANK AND ASSOCIATES, VOL. 83 OF SURVEYS, P. 103.
(3)	RECORD OF SURVEY, DUANE HARTMAN AND ASSOCIATES, INC., VOL. 131 OF SURVEYS, P. 189 TO 189E.

SURVEYOR'S CERTIFICATE

THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION IN CONFORMANCE WITH THE SURVEY RECORDING ACT AT THE REQUEST OF PORT OF SEATTLE ON DECEMBER, 2005

SIGNATURE 12/19/05 DATE

CERTIFICATE NO. 26252

RICHARD A. DICKMAN 26252 STATE OF WASHINGTON REGISTERED PROFESSIONAL LAND SURVEYOR

EXPIRES 5/21/06

RECORDING CERTIFICATE

FILED FOR RECORD THIS ____ DAY OF ____ 20__ AT ____ M, IN BOOK ____ OF SURVEYS AT PAGE ____ AT THE REQUEST OF DAVID EVANS AND ASSOCIATES, INC.

DIVISION OF RECORDS & ELECTIONS

MANAGER/AUDITOR

SUPT. OF RECORDS/DEPUTY AUDITOR

RECORDING NO.

RECORD OF SURVEY
FOR
PORT OF SEATTLE
COMMERCIAL WATERWAY NO. 1
SEATTLE, WASHINGTON

DAVID EVANS AND ASSOCIATES INC.
415 - 118th Avenue SE
Bellevue Washington 98005-3518
Phone: 425.519.6500

SHEET	15 OF 21
SCALE	1"=100'
SURVEYED	MWFR,BMX,RECA,SCW
DATE	DECEMBER 16, 2005
DRAWN	PCT,MAGR
CHECKED	RAD
FILE	PTSE0000-0044

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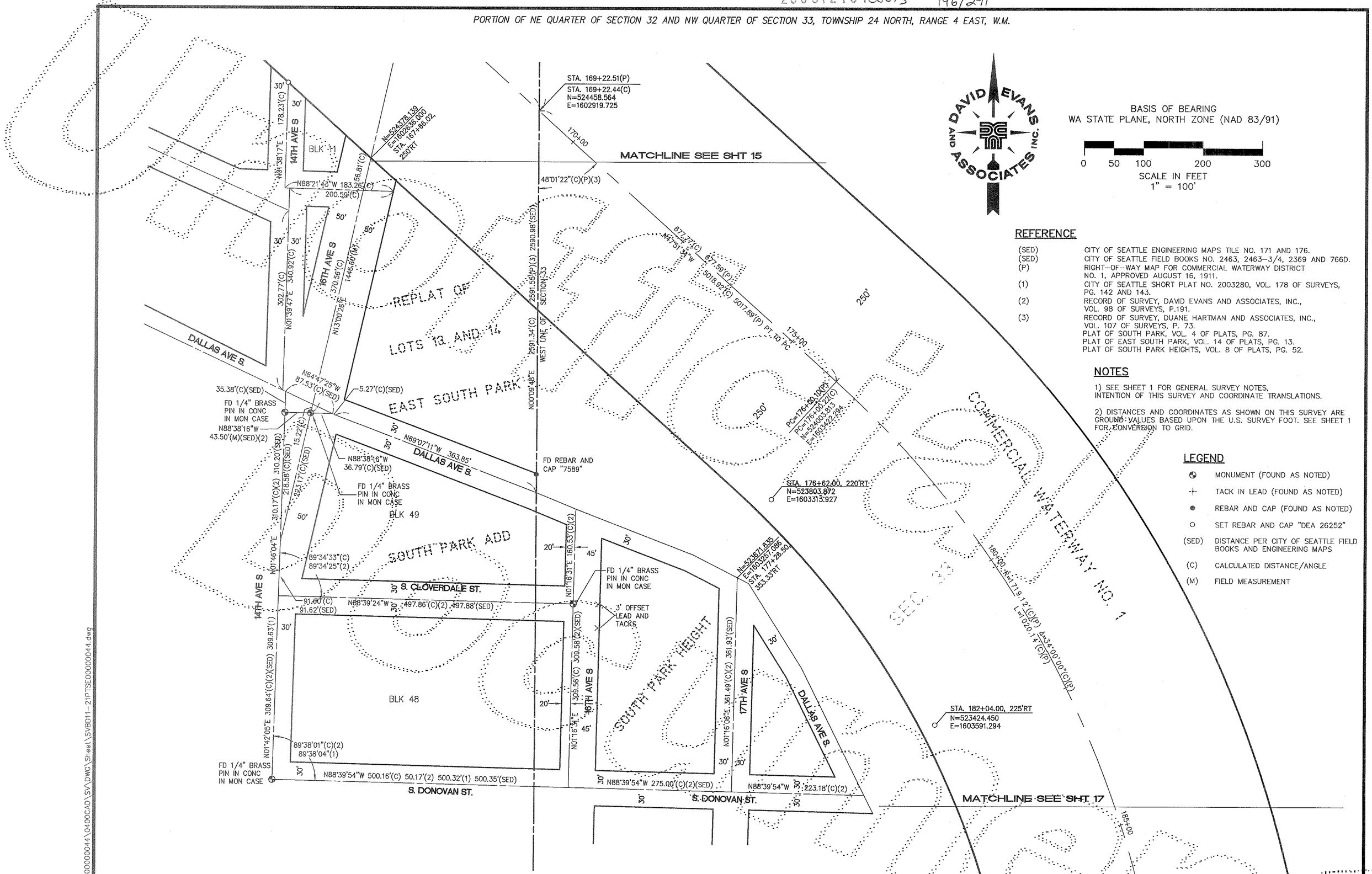
PORTION OF NE QUARTER OF SECTION 32 AND NW QUARTER OF SECTION 33, TOWNSHIP 24 NORTH, RANGE 4 EAST, W.M.



BASIS OF BEARING
WA STATE PLANE, NORTH ZONE (NAD 83/91)

0 50 100 200 300
SCALE IN FEET
1" = 100'

REFERENCE

(SED)	CITY OF SEATTLE ENGINEERING MAPS TILE NO. 171 AND 176.
(SED)	CITY OF SEATTLE FIELD BOOKS NO. 2463, 2463–3/4, 2369 AND 766D.
(P)	RIGHT–OF–WAY MAP FOR COMMERCIAL WATERWAY DISTRICT NO. 1, APPROVED AUGUST 16, 1911.
(1)	CITY OF SEATTLE SHORT PLAT NO. 2003280, VOL. 178 OF SURVEYS, PG. 142 AND 143.
(2)	RECORD OF SURVEY, DAVID EVANS AND ASSOCIATES, INC., VOL. 98 OF SURVEYS, P.191.
(3)	RECORD OF SURVEY, DUANE HARTMAN AND ASSOCIATES, INC., VOL. 107 OF SURVEYS, P. 73.
	PLAT OF SOUTH PARK, VOL. 4 OF PLATS, PG. 87.
	PLAT OF EAST SOUTH PARK, VOL. 14 OF PLATS, PG. 13.
	PLAT OF SOUTH PARK HEIGHTS, VOL. 8 OF PLATS, PG. 52.

NOTES

1) SEE SHEET 1 FOR GENERAL SURVEY NOTES, INTENTION OF THIS SURVEY AND COORDINATE TRANSLATIONS.

2) DISTANCES AND COORDINATES AS SHOWN ON THIS SURVEY ARE GROUND VALUES BASED UPON THE U.S. SURVEY FOOT. SEE SHEET 1 FOR CONVERSION TO GRID.

LEGEND

- MONUMENT (FOUND AS NOTED)
- TACK IN LEAD (FOUND AS NOTED)
- REBAR AND CAP (FOUND AS NOTED)
- SET REBAR AND CAP "DEA 26252"
- (SED) DISTANCE PER CITY OF SEATTLE FIELD BOOKS AND ENGINEERING MAPS
- (C) CALCULATED DISTANCE/ANGLE
- (M) FIELD MEASUREMENT

SURVEYOR'S CERTIFICATE

THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION IN CONFORMANCE WITH THE SURVEY RECORDING ACT AT THE REQUEST OF PORT OF SEATTLE ON DECEMBER, 2005

SIGNATURE 12/19/05 DATE

CERTIFICATE NO. 26252

RICHARD A. DICKMAN — STATE OF WASHINGTON — 26252 — REGISTERED PROFESSIONAL LAND SURVEYOR

EXPIRES 5/21/06

RECORDING CERTIFICATE

FILED FOR RECORD THIS ____ DAY OF ____ 20____ AT ____ M, IN BOOK ____ OF SURVEYS AT PAGE ____ AT THE REQUEST OF DAVID EVANS AND ASSOCIATES, INC.

DIVISION OF RECORDS & ELECTIONS

MANAGER/AUDITOR

SUPT. OF RECORDS/DEPUTY AUDITOR

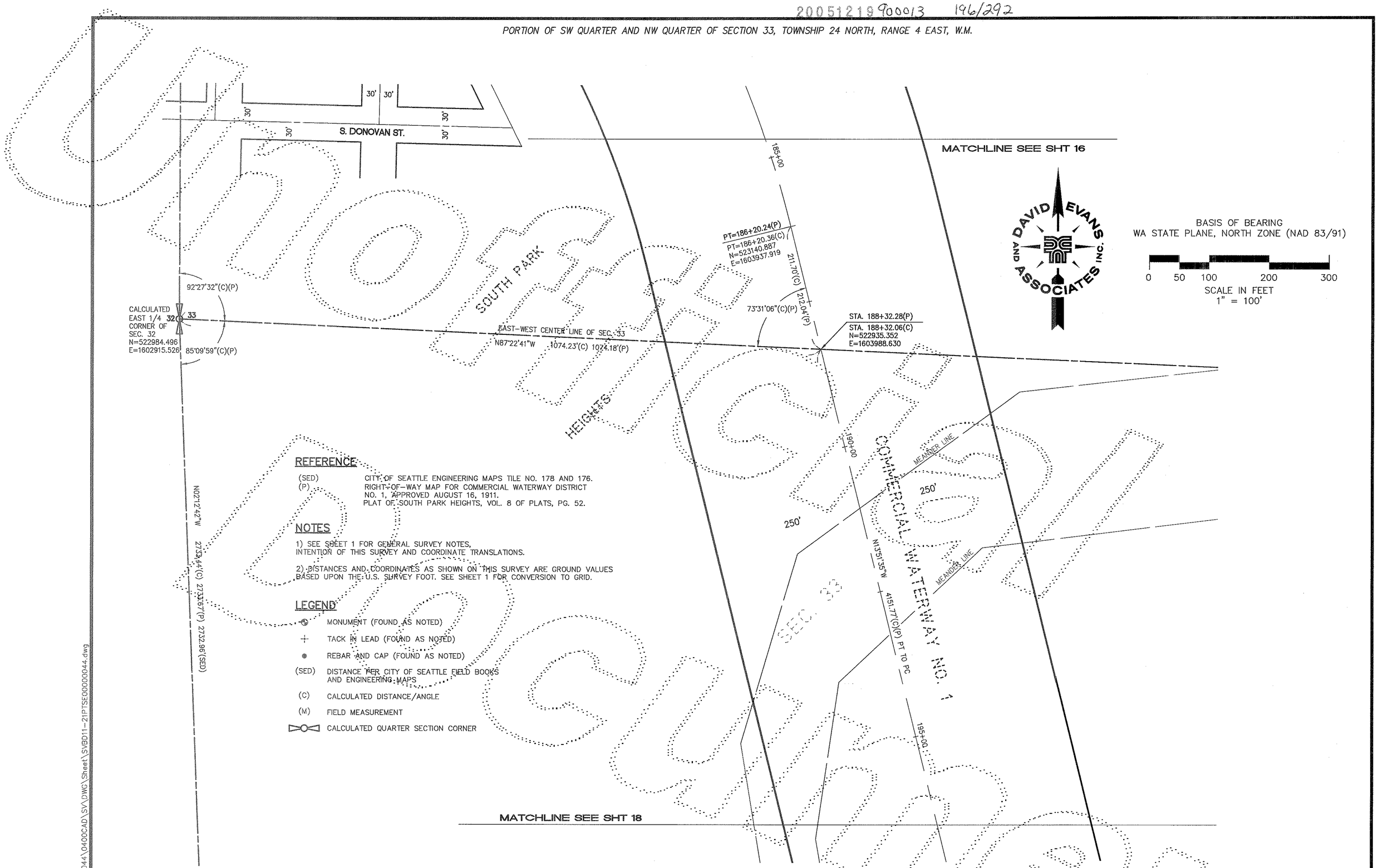
RECORDING NO.

RECORD OF SURVEY
FOR
PORT OF SEATTLE
COMMERCIAL WATERWAY NO. 1
SEATTLE, WASHINGTON

DAVID EVANS AND ASSOCIATES INC.
415 - 118th Avenue SE
Bellevue Washington 98005-3518
Phone: 425.519.6500

SHEET 16 OF 21
SCALE 1"=100'
SURVEYED MWFR,BMX,RECA,SCW
DATE DECEMBER 16, 2005
DRAWN PCT/MAGR
CHECKED RAD
FILE PTSE0000-0044

PORTION OF SW QUARTER AND NW QUARTER OF SECTION 33, TOWNSHIP 24 NORTH, RANGE 4 EAST, W.M.



REFERENCE

(SED) (P) CITY OF SEATTLE ENGINEERING MAPS TILE NO. 178 AND 176.
RIGHT-OF-WAY MAP FOR COMMERCIAL WATERWAY DISTRICT NO. 1, APPROVED AUGUST 16, 1911.
PLAT OF SOUTH PARK HEIGHTS, VOL. 8 OF PLATS, PG. 52.

NOTES

1) SEE SHEET 1 FOR GENERAL SURVEY NOTES, INTENTION OF THIS SURVEY AND COORDINATE TRANSLATIONS.

2) DISTANCES AND COORDINATES AS SHOWN ON THIS SURVEY ARE GROUND VALUES BASED UPON THE U.S. SURVEY FOOT. SEE SHEET 1 FOR CONVERSION TO GRID.

LEGEND

- MONUMENT (FOUND AS NOTED)
- TACK IN LEAD (FOUND AS NOTED)
- REBAR AND CAP (FOUND AS NOTED)
- (SED) DISTANCE PER CITY OF SEATTLE FIELD BOOKS AND ENGINEERING MAPS
- (C) CALCULATED DISTANCE/ANGLE
- (M) FIELD MEASUREMENT
- CALCULATED QUARTER SECTION CORNER

DAVID EVANS AND ASSOCIATES INC.

BASIS OF BEARING
WA STATE PLANE, NORTH ZONE (NAD 83/91)

0 50 100 200 300
SCALE IN FEET
1" = 100'

SURVEYOR'S CERTIFICATE

THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION IN CONFORMANCE WITH THE SURVEY RECORDING ACT AT THE REQUEST OF PORT OF SEATTLE ON DECEMBER, 2005

SIGNATURE 12/19/05 DATE

CERTIFICATE NO. 26252

RICHARD A. DICKMAN 26252 STATE OF WASHINGTON REGISTERED PROFESSIONAL LAND SURVEYOR
EXPIRES 5/21/06

RECORDING CERTIFICATE

FILED FOR RECORD THIS ____ DAY OF ____ 20__ AT ____ M, IN BOOK ____ OF SURVEYS AT PAGE ____ AT THE REQUEST OF DAVID EVANS AND ASSOCIATES, INC.

DIVISION OF RECORDS & ELECTIONS

MANAGER/AUDITOR

SUPT. OF RECORDS/DEPUTY AUDITOR

RECORDING NO.

RECORD OF SURVEY
FOR
PORT OF SEATTLE
COMMERCIAL WATERWAY NO. 1
SEATTLE, WASHINGTON

DAVID EVANS AND ASSOCIATES INC.
415 - 118th Avenue SE
Bellevue Washington 98005-3518
Phone: 425.519.6500

SHEET 17 OF 21
SCALE 1"=100'
SURVEYED MWFR,BMX,RECA,SCW
DATE DECEMBER 16, 2005
DRAWN PCT,MAGR
CHECKED RAD
FILE PTSE0000-0044

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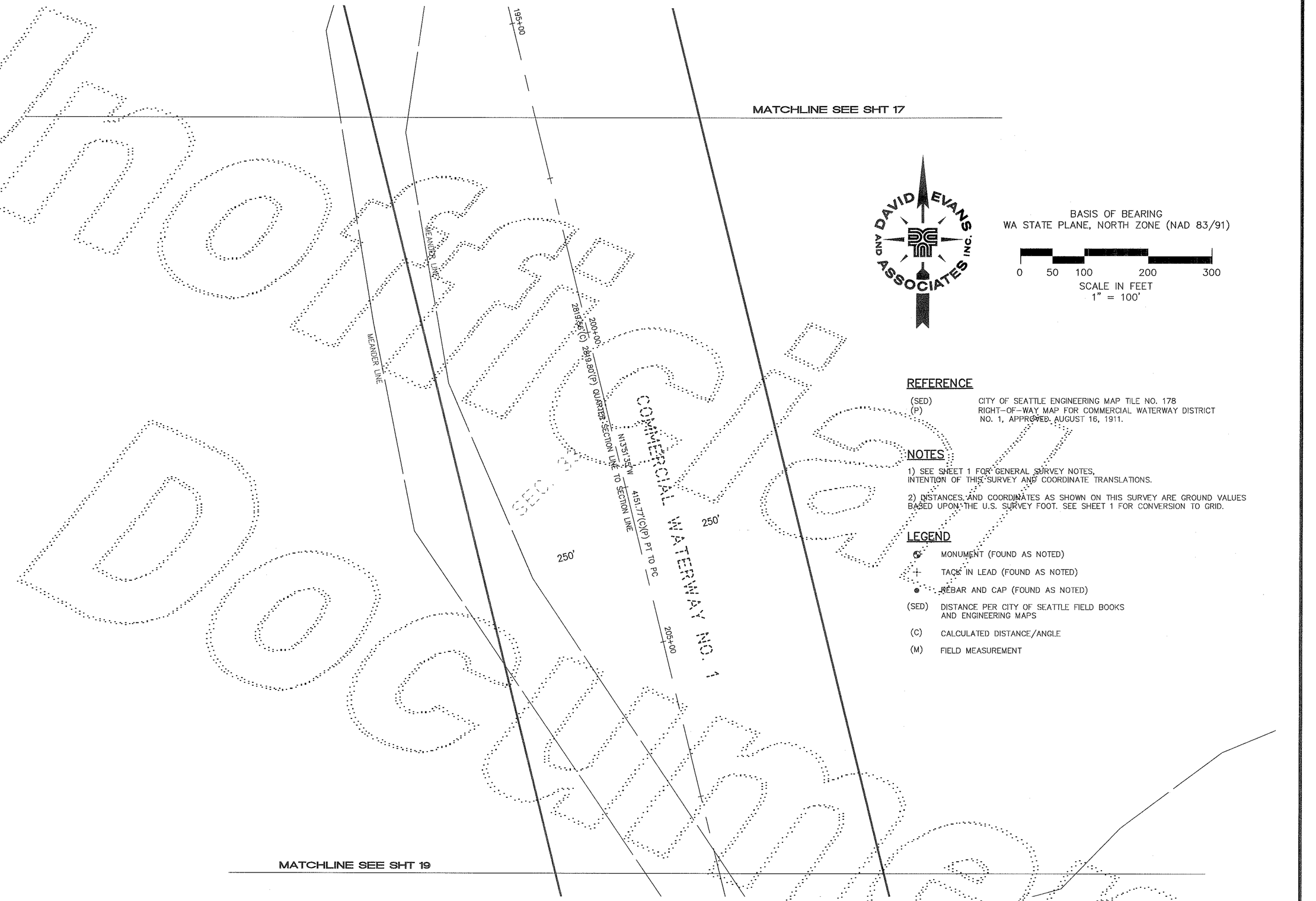
PORTION OF SW QUARTER OF SECTION 33, TOWNSHIP 24 NORTH, RANGE 4 EAST, W.M.



DAVID EVANS AND ASSOCIATES, INC.

BASIS OF BEARING
WA STATE PLANE, NORTH ZONE (NAD 83/91)

0 50 100 200 300
SCALE IN FEET
1" = 100'

REFERENCE

(SED) CITY OF SEATTLE ENGINEERING MAP TILE NO. 178
(P) RIGHT-OF-WAY MAP FOR COMMERCIAL WATERWAY DISTRICT NO. 1, APPROVED AUGUST 16, 1911.

NOTES

1) SEE SHEET 1 FOR GENERAL SURVEY NOTES, INTENTION OF THIS SURVEY AND COORDINATE TRANSLATIONS.

2) DISTANCES AND COORDINATES AS SHOWN ON THIS SURVEY ARE GROUND VALUES BASED UPON THE U.S. SURVEY FOOT. SEE SHEET 1 FOR CONVERSION TO GRID.

LEGEND

- MONUMENT (FOUND AS NOTED)
- TACK IN LEAD (FOUND AS NOTED)
- REBAR AND CAP (FOUND AS NOTED)
- (SED) DISTANCE PER CITY OF SEATTLE FIELD BOOKS AND ENGINEERING MAPS
- (C) CALCULATED DISTANCE/ANGLE
- (M) FIELD MEASUREMENT

SURVEYOR'S CERTIFICATE

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415 - 118th Avenue SE
Bellevue Washington 98005-3516
Phone: 425.519.6500

SHEET 18 OF 21
SCALE 1"=100'
SURVEYED MWFR,BMX,RECA,SCW
DATE DECEMBER 16, 2005
DRAWN PCT,MAGR
CHECKED RAD
FILE PTSE00000-0044

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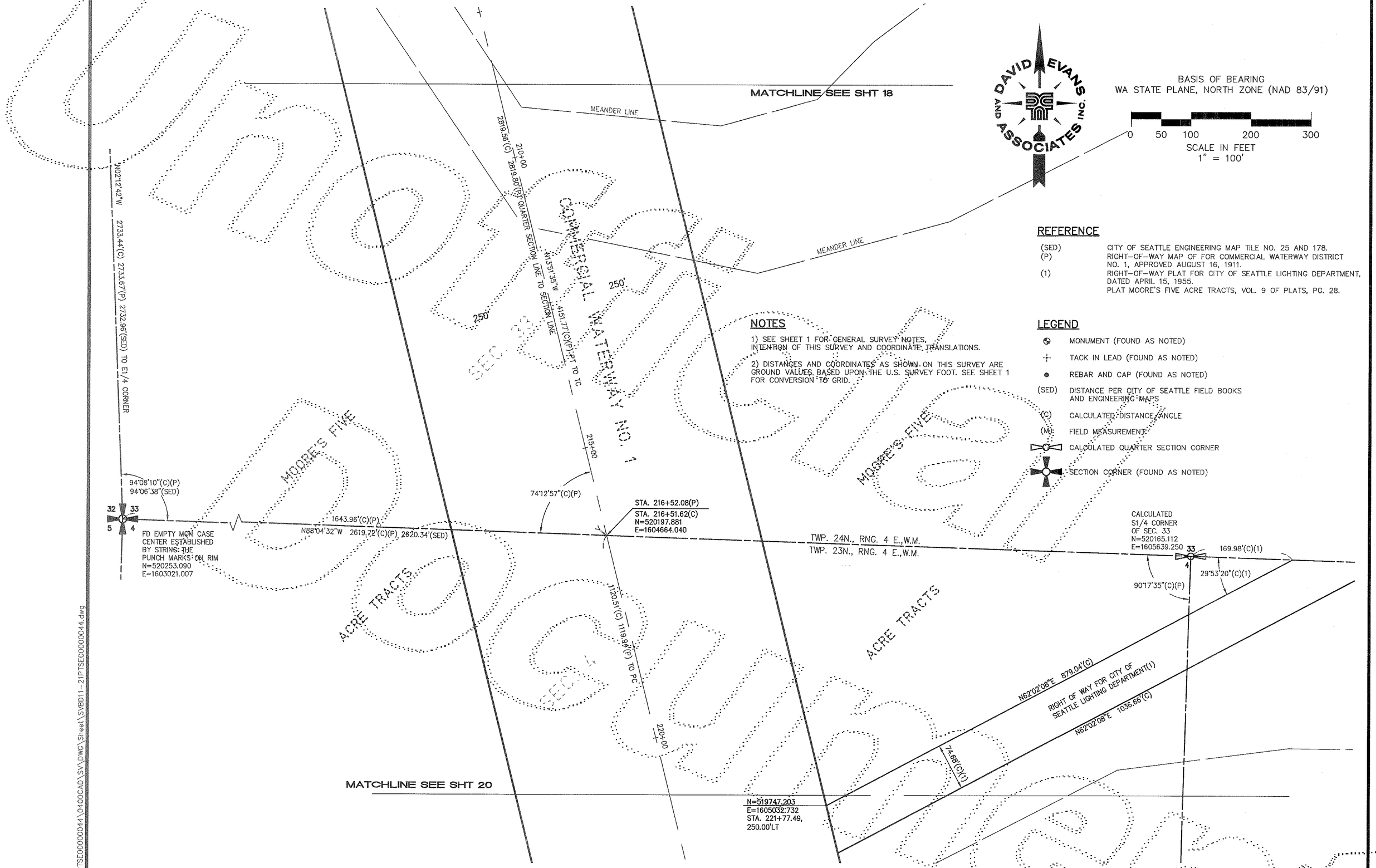
PORTION OF SW QUARTER OF SECTION 33, TOWNSHIP 24 NORTH AND NW QUARTER OF SECTION 4, TOWNSHIP 23 NORTH, RANGE 4 EAST, W.M.



DAVID EVANS AND ASSOCIATES INC.

BASIS OF BEARING
WA STATE PLANE, NORTH ZONE (NAD 83/91)

0 50 100 200 300
SCALE IN FEET
1" = 100'

REFERENCE

(SED)	CITY OF SEATTLE ENGINEERING MAP TILE NO. 25 AND 178.
(P)	RIGHT-OF-WAY MAP OF FOR COMMERCIAL WATERWAY DISTRICT NO. 1, APPROVED AUGUST 16, 1911.
(1)	RIGHT-OF-WAY PLAT FOR CITY OF SEATTLE LIGHTING DEPARTMENT, DATED APRIL 15, 1955. PLAT MOORE'S FIVE ACRE TRACTS, VOL. 9 OF PLATS, PG. 28.

NOTES

1) SEE SHEET 1 FOR GENERAL SURVEY NOTES, INTENTION OF THIS SURVEY AND COORDINATE TRANSLATIONS.

2) DISTANCES AND COORDINATES AS SHOWN ON THIS SURVEY ARE GROUND VALUES BASED UPON THE U.S. SURVEY FOOT. SEE SHEET 1 FOR CONVERSION TO GRID.

LEGEND

- MONUMENT (FOUND AS NOTED)
- TACK IN LEAD (FOUND AS NOTED)
- REBAR AND CAP (FOUND AS NOTED)
- (SED) DISTANCE PER CITY OF SEATTLE FIELD BOOKS AND ENGINEERING MAPS
- (C) CALCULATED DISTANCE/ANGLE
- (M) FIELD MEASUREMENT
- CALCULATED QUARTER SECTION CORNER
- SECTION CORNER (FOUND AS NOTED)

SURVEYOR'S CERTIFICATE

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ON DECEMBER, 2005

SIGNATURE 12/19/05 DATE

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EXPIRES 5/21/06

RECORDING CERTIFICATE

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DIVISION OF RECORDS & ELECTIONS

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SUPT. OF RECORDS/DEPUTY AUDITOR

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SEATTLE, WASHINGTON

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415 - 118th Avenue SE
Bellevue Washington 98005-3518
Phone: 425.519.6500

SHEET	19 OF 21
SCALE	1"=100'
SURVEYED	MWFR,BMX,RECA,SCW
DATE	DECEMBER 16, 2005
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CHECKED	RAD
FILE	PTSE0000-0044

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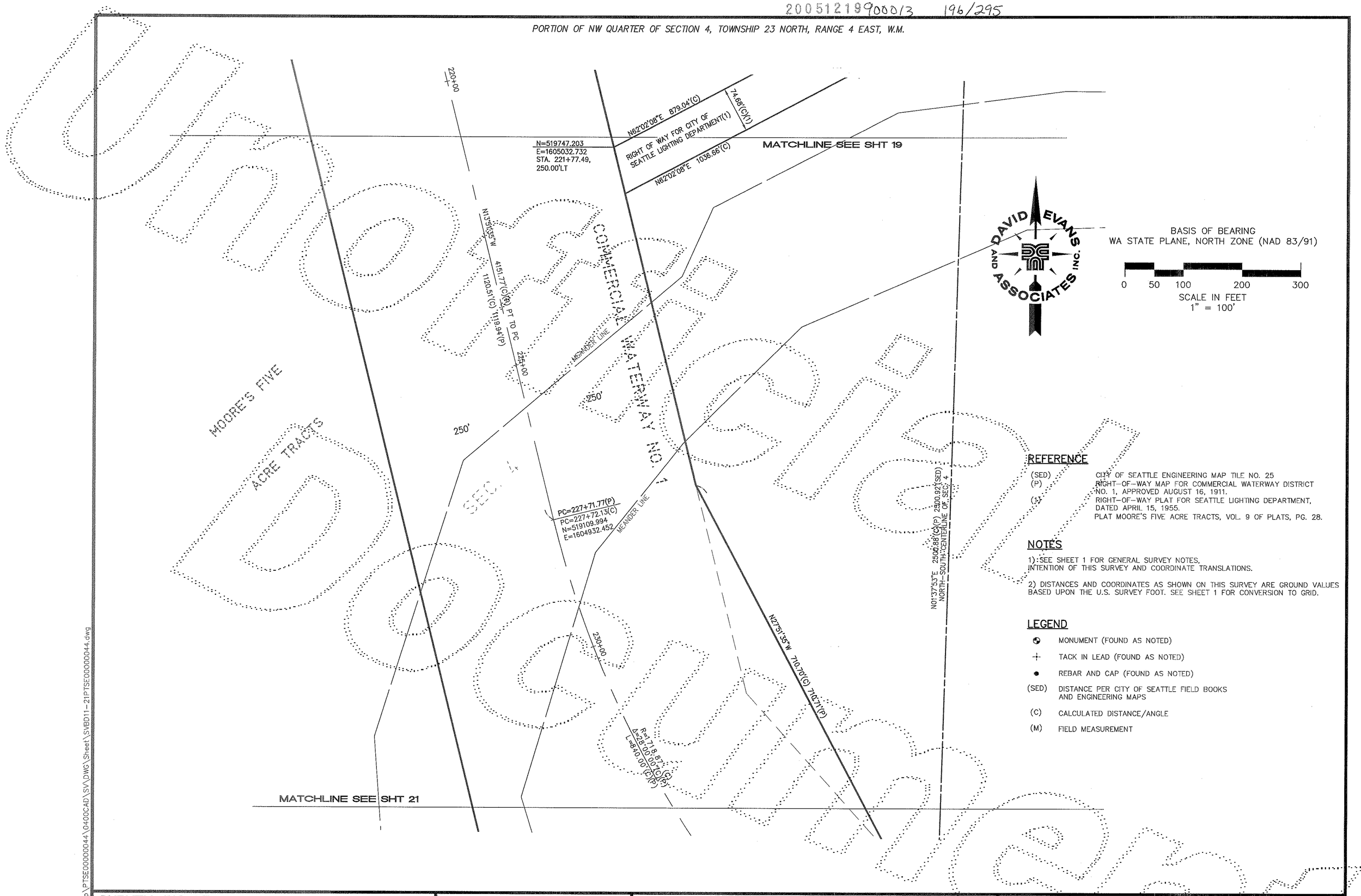
PORTION OF NW QUARTER OF SECTION 4, TOWNSHIP 23 NORTH, RANGE 4 EAST, W.M.



DAVID EVANS AND ASSOCIATES INC.

BASIS OF BEARING
WA STATE PLANE, NORTH ZONE (NAD 83/91)

0 50 100 200 300
SCALE IN FEET
1" = 100'

REFERENCE

(SED) CITY OF SEATTLE ENGINEERING MAP TILE NO. 25
(P) RIGHT-OF-WAY MAP FOR COMMERCIAL WATERWAY DISTRICT NO. 1, APPROVED AUGUST 16, 1911.
(1) RIGHT-OF-WAY PLAT FOR SEATTLE LIGHTING DEPARTMENT, DATED APRIL 15, 1955.
PLAT MOORE'S FIVE ACRE TRACTS, VOL. 9 OF PLATS, PG. 28.

NOTES

1) SEE SHEET 1 FOR GENERAL SURVEY NOTES, INTENTION OF THIS SURVEY AND COORDINATE TRANSLATIONS.

2) DISTANCES AND COORDINATES AS SHOWN ON THIS SURVEY ARE GROUND VALUES BASED UPON THE U.S. SURVEY FOOT. SEE SHEET 1 FOR CONVERSION TO GRID.

LEGEND

- ⊕ MONUMENT (FOUND AS NOTED)
- ⊹ TACK IN LEAD (FOUND AS NOTED)
- ● REBAR AND CAP (FOUND AS NOTED)
- (SED) DISTANCE PER CITY OF SEATTLE FIELD BOOKS AND ENGINEERING MAPS
- (C) CALCULATED DISTANCE/ANGLE
- (M) FIELD MEASUREMENT

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SHEET 20 OF 21
SCALE 1"=100'
SURVEYED MWFR,BMX,RECA,SCW
DATE DECEMBER 16, 2005
DRAWN PCT,MAGR
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FILE PTSE0000-0044

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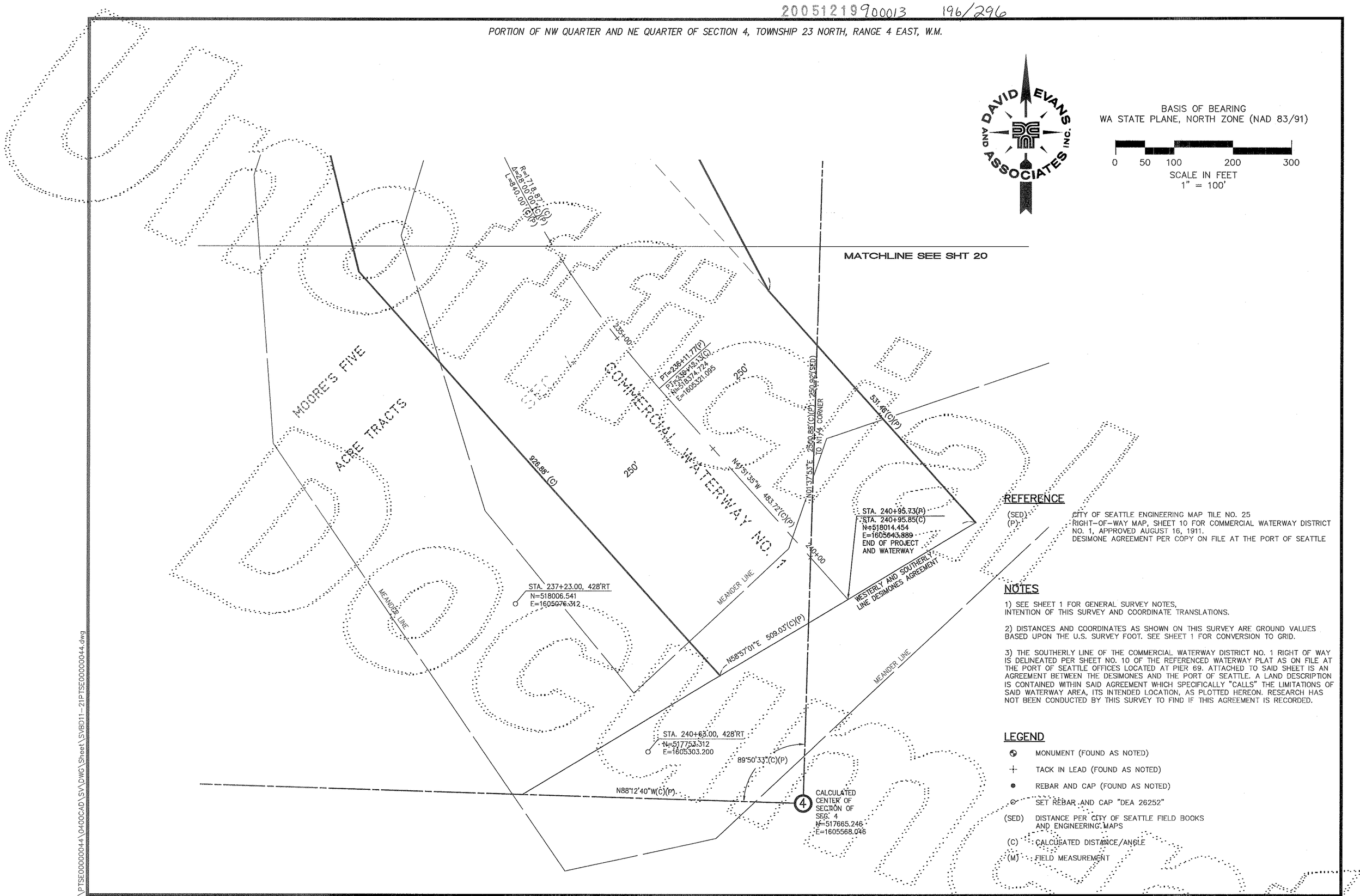
PORTION OF NW QUARTER AND NE QUARTER OF SECTION 4, TOWNSHIP 23 NORTH, RANGE 4 EAST, W.M.



REFERENCE

(SED) (P): CITY OF SEATTLE ENGINEERING MAP TILE NO. 25
RIGHT-OF-WAY MAP, SHEET 10 FOR COMMERCIAL WATERWAY DISTRICT NO. 1, APPROVED AUGUST 16, 1911.
DESIMONE AGREEMENT PER COPY ON FILE AT THE PORT OF SEATTLE

NOTES

1) SEE SHEET 1 FOR GENERAL SURVEY NOTES, INTENTION OF THIS SURVEY AND COORDINATE TRANSLATIONS.

2) DISTANCES AND COORDINATES AS SHOWN ON THIS SURVEY ARE GROUND VALUES BASED UPON THE U.S. SURVEY FOOT. SEE SHEET 1 FOR CONVERSION TO GRID.

3) THE SOUTHERLY LINE OF THE COMMERCIAL WATERWAY DISTRICT NO. 1 RIGHT OF WAY IS DELINEATED PER SHEET NO. 10 OF THE REFERENCED WATERWAY PLAT AS ON FILE AT THE PORT OF SEATTLE OFFICES LOCATED AT PIER 69. ATTACHED TO SAID SHEET IS AN AGREEMENT BETWEEN THE DESIMONES AND THE PORT OF SEATTLE. A LAND DESCRIPTION IS CONTAINED WITHIN SAID AGREEMENT WHICH SPECIFICALLY "CALLS" THE LIMITATIONS OF SAID WATERWAY AREA, ITS INTENDED LOCATION, AS PLOTTED HEREON. RESEARCH HAS NOT BEEN CONDUCTED BY THIS SURVEY TO FIND IF THIS AGREEMENT IS RECORDED.

LEGEND

- ⊕ MONUMENT (FOUND AS NOTED)
- ⊣ TACK IN LEAD (FOUND AS NOTED)
- ● REBAR AND CAP (FOUND AS NOTED)
- ○ SET REBAR AND CAP "DEA 26252"
- (SED) DISTANCE PER CITY OF SEATTLE FIELD BOOKS AND ENGINEERING MAPS
- (C) CALCULATED DISTANCE/ANGLE
- (M) FIELD MEASUREMENT

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Appendix B

Summary of Information for Potential Slivers and Adjacent Properties

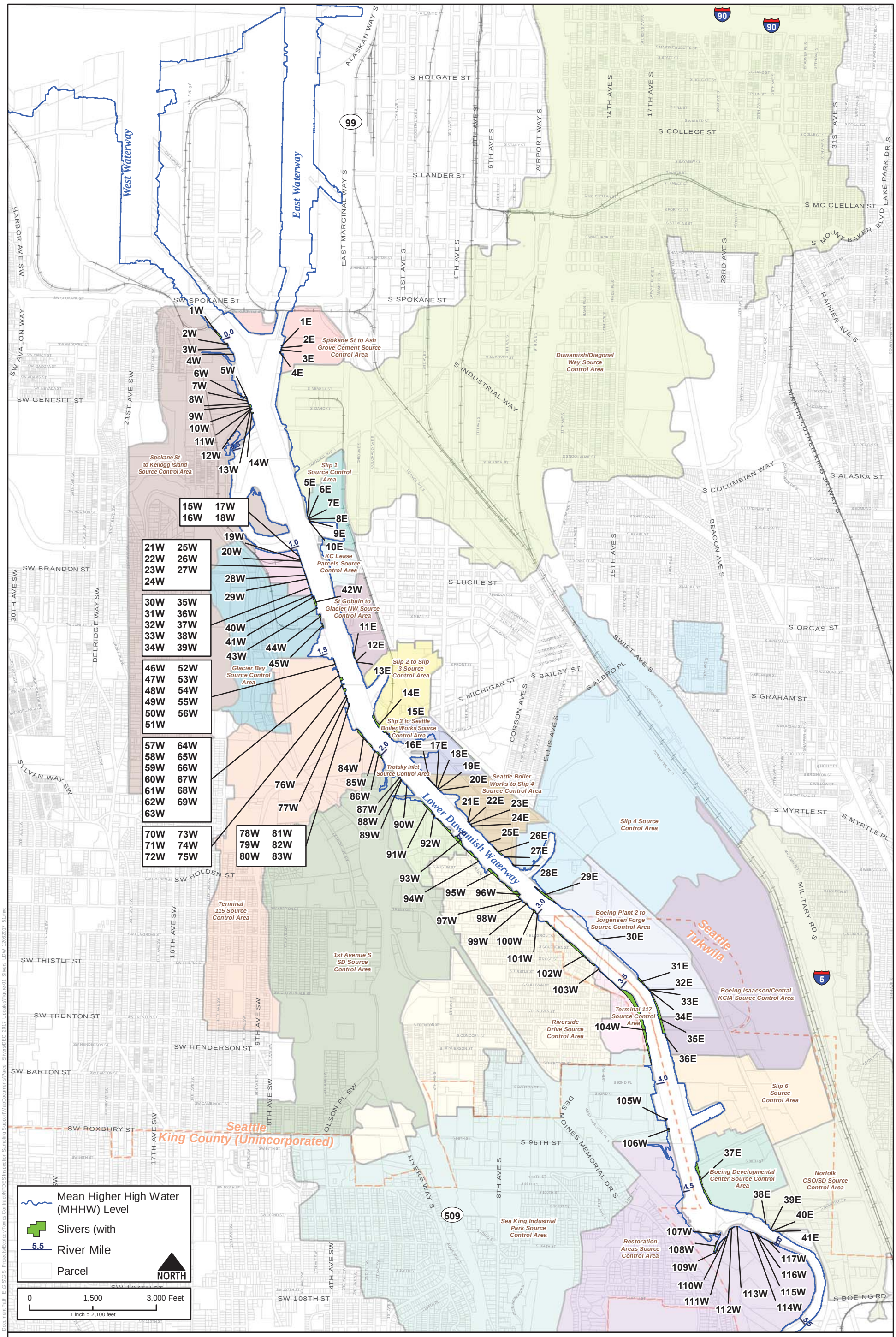

Figure B1. LDW Potential Sliver Locations and IDs

Table B-1
Summary of Information for Slivers and Adjacent Properties

Sliver ID	Sliver Area (sq ft)	River Mile	Outfalls Located within 100 feet of Sliver	Adjacent Property No.	Adjacent Property Name	Facility/ Site ID	Current Site Use	Adjacent Parcel No.	Parcel No. Abbreviation	Adjacent Parcel Name	Adjacent Parcel Taxpayer	Current Facility Operator	Adjacent Parcel Address	Detailed Evaluation?
1E	279	0.0-0.1	None	01001	Ash Grove Cement	2142	cement manufacturer	7666700350	0350	Ash Grove Cement	Ash Grove Cement Co	Ash Grove Cement	3801 East Marginal Way S	No; <1,000 sq ft
2E	306	0.0-0.1	None	01001	Ash Grove Cement	2142	cement manufacturer	7666700350	0350	Ash Grove Cement	Ash Grove Cement Co	Ash Grove Cement	3801 East Marginal Way S	No; <1,000 sq ft
3E	126	0.0-0.1	None	01001	Ash Grove Cement	2142	cement manufacturer	7666700350	0350	Ash Grove Cement	Ash Grove Cement Co	Ash Grove Cement	3801 East Marginal Way S	No; <1,000 sq ft
4E	792	0.0-0.1	None	01001	Ash Grove Cement	2142	cement manufacturer	7666700350	0350	Ash Grove Cement	Ash Grove Cement Co	Ash Grove Cement	3801 East Marginal Way S	No; <1,000 sq ft
5E	288	0.8-0.9	2005, 2246, 2247	03001	Federal Center South	84498157	warehouse, manufacturing	3573200975	0975	Federal Center South	U.S. Federal Government (C/O ACQUISITION MGMT DIV)	Federal Center South	4735 East Marginal Way S	No; <1,000 sq ft
6E	81	0.8-0.9	2005, 2246, 2247	03001	Federal Center South	84498157	warehouse, manufacturing	3573200975	0975	Federal Center South	U.S. Federal Government (C/O ACQUISITION MGMT DIV)	Federal Center South	4735 East Marginal Way S	No; <1,000 sq ft
7E	18	0.8-0.9	2005, 2246, 2247	03001	Federal Center South	84498157	warehouse, manufacturing	3573200975	0975	Federal Center South	U.S. Federal Government (C/O ACQUISITION MGMT DIV)	Federal Center South	4735 East Marginal Way S	No; <1,000 sq ft
8E	18	0.8-0.9	2005, 2246, 2247	03001	Federal Center South	84498157	warehouse, manufacturing	3573200975	0975	Federal Center South	U.S. Federal Government (C/O ACQUISITION MGMT DIV)	Federal Center South	4735 East Marginal Way S	No; <1,000 sq ft
9E	108	0.8-0.9	2005, 2246, 2247	03001	Federal Center South	84498157	warehouse, manufacturing	3573200975	0975	Federal Center South	U.S. Federal Government (C/O ACQUISITION MGMT DIV)	Federal Center South	4735 East Marginal Way S	No; <1,000 sq ft
10E	90	0.8-0.9	2005, 2246, 2247	03001	Federal Center South	84498157	warehouse, manufacturing	3573200975	0975	Federal Center South	U.S. Federal Government (C/O ACQUISITION MGMT DIV)	Federal Center South	4735 East Marginal Way S	No; <1,000 sq ft
11E	2,088	1.5-1.6	2014, 2017	05001	Certainteed Gypsum	2253	manufacturing, storing, and recycling of wallboard	1924049092	9092	Certainteed Gypsum	BPB Gypsum Inc	Certainteed Gypsum	5931 East Marginal Way S	Yes
12E	45	1.5-1.6	2014, 2015, 2016	05001	Certainteed Gypsum	2253	manufacturing, storing, and recycling of wallboard	1924049092	9092	Certainteed Gypsum	BPB Gypsum Inc	Certainteed Gypsum	5931 East Marginal Way S	No; <1,000 sq ft
13E	18	1.5-1.6	2014, 2015, 2016	05001	Certainteed Gypsum	2253	manufacturing, storing, and recycling of wallboard	1924049092	9092	Certainteed Gypsum	BPB Gypsum Inc	Certainteed Gypsum	5931 East Marginal Way S	No; <1,000 sq ft
14E	22,986	1.8-2.0	2022, DuwMetalFab, 2502, 2501	06003	Duwamish Marine Center	21945598	loading and unloading barges with a variety of cargo and barging operations	5367203447	3447	Duwamish Marine Center	Gilmur James D + Jacqueline H	Duwamish Marine Center	16 S Michigan Street	Yes
				06003		8985	metal parts fabrication	5367203635	3635	Duwamish Marine Center	Gilmur James D + Jacqueline H	Duwamish Marine Center	16 S Michigan Street	
				06003		5386	unknown	5367203415	3415	Hale's Construction	Gilmur James D + Jacqueline H	vacant	6365 1st Avenue S	
				06003		21945598	loading and unloading barges with a variety of cargo and barging operations	5367204565	4565	Hale's Construction	Gilmur James D + Jacqueline H	vacant	6365 1st Avenue S	
15E	1,530	1.9-2.0	None	06008	Seattle City SDOT 1st Ave S	5386	unpaved, vegetated area, partially covered by the 1st Ave S Bridge	5367202410	2410	Vacant	Seattle City of SDOT	Seattle DOT	31 S Michigan Street	Yes
16E	3,195	2.1-2.3	None	08001	Bunge Foods	57331171	warehouse	0001800113	0113	Bunge Foods	Guimont Gemo/William P	Bunge Foods	6901 Fox Avenue S	Yes
17E	18	1.9-2.0	Dawn Foods	08008	Seattle Boiler Works	17577864	steel processing	0001800091	0091	Seattle Boiler Works Inc	Hopkins Frederick J Family Trust	Seattle Boiler Works	500 S Myrtle Street	No; <1,000 sq ft
18E	18	1.9-2.0	Dawn Foods	08008	Seattle Boiler Works	17577864	steel processing	0001800091	0091	Seattle Boiler Works Inc	Hopkins Frederick J Family Trust	Seattle Boiler Works	500 S Myrtle Street	No; <1,000 sq ft
19E	18	1.9-2.0	Dawn Foods	08008	Seattle Boiler Works	17577864	steel processing	0001800091	0091	Seattle Boiler Works Inc	Hopkins Frederick J Family Trust	Seattle Boiler Works	500 S Myrtle Street	No; <1,000 sq ft

Table B-1
Summary of Information for Slivers and Adjacent Properties

Sliver ID	Sliver Area (sq ft)	River Mile	Outfalls Located within 100 feet of Sliver	Adjacent Property No.	Adjacent Property Name	Facility/ Site ID	Current Site Use	Adjacent Parcel No.	Parcel No. Abbreviation	Adjacent Parcel Name	Adjacent Parcel Taxpayer	Current Facility Operator	Adjacent Parcel Address	Detailed Evaluation?
20E	63	1.9-2.0	Dawn Foods	08008	Seattle Boiler Works	17577864	steel processing	0001800091	0091	Seattle Boiler Works Inc	Hopkins Frederick J Family Trust	Seattle Boiler Works	500 S Myrtle Street	No; <1,000 sq ft
21E	18	2.4-2.5	2035	08004	Nitze-Stagen/Frye Parcels	22796	metals recycling	2924049089	9089	Seattle Iron & Metals	Shalmar Group	Seattle Iron & Metals	620 S Othello Street	No; <1,000 sq ft
22E	27	2.4-2.5	2035	08004	Nitze-Stagen/Frye Parcels	22796	metals recycling	2924049089	9089	Seattle Iron & Metals	Shalmar Group	Seattle Iron & Metals	620 S Othello Street	No; <1,000 sq ft
23E	18	2.5-2.6	None	08004	Nitze-Stagen/Frye Parcels	22796	metals recycling	2924049089	9089	Seattle Iron & Metals	Shalmar Group	Seattle Iron & Metals	620 S Othello Street	No; <1,000 sq ft
24E	810	2.5-2.6	None	08004	Nitze-Stagen/Frye Parcels	22796	metals recycling	2924049089	9089	Seattle Iron & Metals	Shalmar Group	Seattle Iron & Metals	620 S Othello Street	No; <1,000 sq ft
25E	306	2.6-2.7	2040	08007	Puget Sound Truck Lines	41684823	recycling processing	2136200681	0681	Puget Sound Truck Lines (Leased Property)	CleanScapes	CleanScapes	7308 8th Avenue S	No; <1,000 sq ft
26E	5,796	2.5-2.7	2040, CleanScapes B	8007	Puget Sound Truck Lines	26468911	municipal solid waste collection, recycling, and street maintenance services.	2136200670	0670	Puget Sound Truck Lines (Leased Property)	CleanScapes	CleanScapes	7401 8th Avenue S	Yes
27E	252	2.5-2.7	2040, CleanScapes B	8007	Puget Sound Truck Lines	26468911	municipal solid waste collection, recycling, and street maintenance services.	2136200670	0670	Puget Sound Truck Lines (Leased Property)	CleanScapes	CleanScapes	7401 8th Avenue S	No; <1,000 sq ft
28E	1,377	2.7-2.8	2042	NA	Gateway Park North	NA	park	NA	NA	NA	NA	NA	NA	Yes
29E	19,836	2.9-3.1	None	10002	Boeing Plant 2	2100	office, parking	0022000005	0005A	Boeing Plant 2	The Boeing Company	Boeing Plant 2	1135 S Webster Street	Yes
30E	1,656	3.2-3.3	3028, 3029, 3032, 3035, Boeing 6	10002	Boeing Plant 2	2100	office, parking	2185000005	0005B	Boeing Plant 2 Parking	The Boeing Company	Boeing Plant 2	1135 S Webster Street	Yes
31E	7,659	3.5-3.6	2056	10002	Boeing Plant 2	2100	office, parking	0001600020	0020	Boeing Plant 2	The Boeing Company		7755 East Marginal Way S	Yes
32E	18	3.5-3.6	2056	10003	Jorgensen Forge	2382	manufactures precision-machined forgings from material grades	0001600023	0023	Jorgensen Forge Corp	Star Forge LLC	Jorgensen Forge	8531 East Marginal Way S	No; <1,000 sq ft
33E	18	3.5-3.6	2056	10003	Jorgensen Forge	2382	manufactures precision-machined forgings from material grades	0001600023	0023	Jorgensen Forge Corp	Star Forge LLC	Jorgensen Forge	8531 East Marginal Way S	No; <1,000 sq ft
34E	18	3.5-3.6	2056	10003	Jorgensen Forge	2382	manufactures precision-machined forgings from material grades	0001600023	0023	Jorgensen Forge Corp	Star Forge LLC	Jorgensen Forge	8531 East Marginal Way S	No; <1,000 sq ft
35E	39,330	3.5-3.7	2065, 2064, 2072, 2062	10003	Jorgensen Forge	2382	manufactures precision-machined forgings from material grades	0001600023	0023	Jorgensen Forge Corp	Star Forge LLC	Jorgensen Forge	8531 East Marginal Way S	Yes
				11001	Boeing Isaacson/Thompson	2218	temporary trailer and container storage and vehicle parking	0001600014	0014	Boeing Vacant Land	The Boeing Company	Boeing	8625 East Marginal Way S	
						2218	temporary trailer and container storage and vehicle parking	0007400033	0033	Boeing Thompson Site	The Boeing Company	Boeing	8811 East Marginal Way S	
36E	1,116	3.7-3.8	2061	11001	Boeing Isaacson/Thompson	2218	temporary trailer and container storage and vehicle parking	0007400033	0033	Boeing Thompson Site	The Boeing Company	Boeing	8811 East Marginal Way S	No; LiDAR artifact
37E	36,540	4.4-4.7	2088, BDC-1, 2087, 2085, 2090	13001	Boeing Developmental Center - Central	2101	aircraft and aerospace research and development complex	5624200990	0990	Boeing Developmental Center	Desiimone Trust Boeing	Boeing Developmental Center	9725 East Marginal Way S	Yes
						2101	aircraft and aerospace research and development complex	0003400018	0018	Boeing Developmental Center	The Boeing Company	Boeing Developmental Center	9905 East Marginal Way S	
						2101	right-of-way	5624200992	0992	Seattle City Light Power ROW	City of Seattle SCL	Boeing Developmental Center	9401 East Marginal Way S	
38E	36	4.9-5.0	2093	14004	Boeing Developmental Center - South	4581384	parking with some green space	0423049016	9016	Boeing Vacant Land	The Boeing Company	Boeing Developmental Center	10051 East Marginal Way S	No; <1,000 sq ft
39E	90	4.9-5.0	2095	14004	Boeing Developmental Center - South	4581384	parking with some green space	0423049016	9016	Boeing Vacant Land	The Boeing Company	Boeing Developmental Center	10051 East Marginal Way S	No; <1,000 sq ft
40E	90	4.9-5.0	2095	14004	Boeing Developmental Center - South	4581384	parking with some green space	0423049016	9016	Boeing Vacant Land	The Boeing Company	Boeing Developmental Center	10051 East Marginal Way S	No; <1,000 sq ft

Table B-1
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Sliver ID	Sliver Area (sq ft)	River Mile	Outfalls Located within 100 feet of Sliver	Adjacent Property No.	Adjacent Property Name	Facility/ Site ID	Current Site Use	Adjacent Parcel No.	Parcel No. Abbreviation	Adjacent Parcel Name	Adjacent Parcel Taxpayer	Current Facility Operator	Adjacent Parcel Address	Detailed Evaluation?
41E	18	4.9-5.0	2095	14004	Boeing Developmental Center - South	4581384	parking with some green space	0423049016	9016	Boeing Vacant Land	The Boeing Company	Boeing Developmental Center	10051 East Marginal Way S	No; <1,000 sq ft
1W	7,974	-0.1-0.0	8132, 8133	15025	Terminal 103	94648691 7754458	storage and maintenance of marine construction equipment, storage of aggregate	7666703440	3440	Gen Const/Wright Schuchart	Port of Seattle	General Construction Northwest Aggregates	3838 West Marginal Way SW	No; LiDAR artifact
2W	2,115	0.0-0.1	8134	15025	Terminal 103	94648691 7754458	storage and maintenance of marine construction equipment, storage of aggregate	7666703440	3440	Gen Const/Wright Schuchart	Port of Seattle	General Construction Northwest Aggregates	3838 West Marginal Way SW	Yes
3W	36	0.0-0.1	8134	15025	Terminal 103	94648691 7754458	storage and maintenance of marine construction equipment, storage of aggregate	7666703440	3440	Gen Const/Wright Schuchart	Port of Seattle	General Construction Northwest Aggregates	3838 West Marginal Way SW	No; <1,000 sq ft
4W	81	0.0-0.1	None	15026	Terminal 105	NA	public access park	7666703460	3460	Port	Port of Seattle	Port Terminal 115	4014 West Marginal Way SW	No; <1,000 sq ft
5W	207	0.1-0.2	None	15011	Terminal 105	18553	receipt, storage and shipment of ferrous scrap	7666703630	3630	Port-Terminal 105	General Recycling of Washington LLC	General Recycling	NA	No; <1,000 sq ft
6W	216	0.3-0.4	2157	15011	Terminal 105	18553	receipt, storage and shipment of ferrous scrap	7666703630	3630	Port-Terminal 105	General Recycling of Washington LLC	General Recycling	NA	No; <1,000 sq ft
7W	279	0.3-0.4	2157	15011	Terminal 105	18553	receipt, storage and shipment of ferrous scrap	7666703630	3630	Port-Terminal 105	General Recycling of Washington LLC	General Recycling	NA	No; <1,000 sq ft
8W	225	0.3-0.4	2157	15011	Terminal 105	18553	receipt, storage and shipment of ferrous scrap	7666703630	3630	Port-Terminal 105	General Recycling of Washington LLC	General Recycling	NA	No; <1,000 sq ft
9W	3,348	0.3-0.4	2157	15011	Terminal 105	18553	receipt, storage and shipment of ferrous scrap	7666703630	3630	Port-Terminal 105	General Recycling of Washington LLC	General Recycling	NA	No; LiDAR artifact
10W	18	0.3-0.4	2157	15011	Terminal 105	18553	receipt, storage and shipment of ferrous scrap	7666703630	3630	Port-Terminal 105	General Recycling of Washington LLC	General Recycling	NA	No; <1,000 sq ft
11W	1,053	0.3-0.4	2157	15011	Terminal 105		receipt, storage and shipment of ferrous scrap	7666703630	3630	Port-Terminal 105	General Recycling of Washington LLC	General Recycling	NA	No; LiDAR artifact
12W	18	0.3-0.4	2157	15011	Terminal 105	18553	receipt, storage and shipment of ferrous scrap	7666703630	3630	Port-Terminal 105	General Recycling of Washington LLC	General Recycling	NA	No; <1,000 sq ft
13W	18	0.3-0.4	2157	15011	Terminal 105	18553	receipt, storage and shipment of ferrous scrap	7666703630	3630	Port-Terminal 105	General Recycling of Washington LLC	General Recycling	NA	No; <1,000 sq ft
14W	1,755	0.3-0.4	2157	15011	Terminal 105		receipt, storage and shipment of ferrous scrap	7666703630	3630	Port-Terminal 105	General Recycling of Washington LLC	General Recycling	NA	No; LiDAR artifact
15W	72	1.0-1.1	None	16001	Lafarge	2132	cement manufacturer	1924049003	9003	Lafarge	Lafarge Group	Lafarge	5400 West Marginal Way SW	No; <1,000 sq ft
16W	18	1.0-1.1	None	16001	Lafarge	2132	cement manufacturer	1924049003	9003	Lafarge	Lafarge Group	Lafarge	5400 West Marginal Way SW	No; <1,000 sq ft
17W	18	1.0-1.1	None	16001	Lafarge	2132	cement manufacturer	1924049003	9003	Lafarge	Lafarge Group	Lafarge	5400 West Marginal Way SW	No; <1,000 sq ft
18W	108	1.0-1.1	None	16001	Lafarge	2132	cement manufacturer	1924049003	9003	Lafarge	Lafarge Group	Lafarge	5400 West Marginal Way SW	No; <1,000 sq ft
19W	90	1.0-1.1	None	16001	Lafarge	2132	cement manufacturer	1924049003	9003	Lafarge	Lafarge Group	Lafarge	5400 West Marginal Way SW	No; <1,000 sq ft
20W	63	1.0-1.1	None	16001	Lafarge	2132	cement manufacturer	1924049003	9003	Lafarge	Lafarge Group	Lafarge	5400 West Marginal Way SW	No; <1,000 sq ft
21W	288	1.1-1.2	None	16001	Lafarge	2132	cement manufacturer	1924049003	9003	Lafarge	Lafarge Group	Lafarge	5400 West Marginal Way SW	No; <1,000 sq ft
22W	81	1.1-1.2	None	16001	Lafarge	2132	cement manufacturer	1924049003	9003	Lafarge	Lafarge Group	Lafarge	5400 West Marginal Way SW	No; <1,000 sq ft
23W	54	1.1-1.2	None	16001	Lafarge	2132	cement manufacturer	1924049003	9003	Lafarge	Lafarge Group	Lafarge	5400 West Marginal Way SW	No; <1,000 sq ft
24W	54	1.1-1.2	None	16001	Lafarge	2132	cement manufacturer	1924049003	9003	Lafarge	Lafarge Group	Lafarge	5400 West Marginal Way SW	No; <1,000 sq ft
25W	45	1.1-1.2	None	16001	Lafarge	2132	cement manufacturer	1924049003	9003	Lafarge	Lafarge Group	Lafarge	5400 West Marginal Way SW	No; <1,000 sq ft

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26W	36	1.1-1.2	None	16001	Lafarge	2132	cement manufacturer	1924049003	9003	Lafarge	Lafarge Group	Lafarge	5400 West Marginal Way SW	No; <1,000 sq ft
27W	108	1.1-1.2	None	16001	Lafarge	2132	cement manufacturer	1924049003	9003	Lafarge	Lafarge Group	Lafarge	5400 West Marginal Way SW	No; <1,000 sq ft
28W	765	1.1-1.2	None	16001	Lafarge	2132	cement manufacturer	1924049003	9003	Lafarge	Lafarge Group	Lafarge	5400 West Marginal Way SW	No; <1,000 sq ft
29W	369	1.1-1.2	None	16001	Lafarge	2132	cement manufacturer	1924049003	9003	Lafarge	Lafarge Group	Lafarge	5400 West Marginal Way SW	No; <1,000 sq ft
30W	45	1.1-1.2	None	16001	Lafarge	2132	cement manufacturer	1924049003	9003	Lafarge	Lafarge Group	Lafarge	5400 West Marginal Way SW	No; <1,000 sq ft
31W	18	1.1-1.2	None	16001	Lafarge	2132	cement manufacturer	1924049003	9003	Lafarge	Lafarge Group	Lafarge	5400 West Marginal Way SW	No; <1,000 sq ft
32W	171	1.1-1.2	None	16001	Lafarge	2132	cement manufacturer	1924049003	9003	Lafarge	Lafarge Group	Lafarge	5400 West Marginal Way SW	No; <1,000 sq ft
33W	45	1.1-1.2	None	16001	Lafarge	2132	cement manufacturer	1924049003	9003	Lafarge	Lafarge Group	Lafarge	5400 West Marginal Way SW	No; <1,000 sq ft
34W	45	1.1-1.2	None	16001	Lafarge	2132	cement manufacturer	1924049003	9003	Lafarge	Lafarge Group	Lafarge	5400 West Marginal Way SW	No; <1,000 sq ft
35W	18	1.1-1.2	None	16001	Lafarge	2132	cement manufacturer	1924049003	9003	Lafarge	Lafarge Group	Lafarge	5400 West Marginal Way SW	No; <1,000 sq ft
36W	63	1.1-1.2	None	16001	Lafarge	2132	cement manufacturer	1924049003	9003	Lafarge	Lafarge Group	Lafarge	5400 West Marginal Way SW	No; <1,000 sq ft
37W	135	1.1-1.2	None	16001	Lafarge	2132	cement manufacturer	1924049003	9003	Lafarge	Lafarge Group	Lafarge	5400 West Marginal Way SW	No; <1,000 sq ft
38W	18	1.1-1.2	None	16001	Lafarge	2132	cement manufacturer	1924049003	9003	Lafarge	Lafarge Group	Lafarge	5400 West Marginal Way SW	No; <1,000 sq ft
39W	99	1.1-1.2	None	16001	Lafarge	2132	cement manufacturer	1924049003	9003	Lafarge	Lafarge Group	Lafarge	5400 West Marginal Way SW	No; <1,000 sq ft
40W	36	1.2-1.3	5003, 5004, 5005	16001	Lafarge	2132	cement manufacturer	1924049003	9003	Lafarge	Lafarge Group	Lafarge	5400 West Marginal Way SW	No; <1,000 sq ft
41W	1,395	1.2-1.3	5003, 5004, 5005, 2137	17001	Alaska Marine Lines	88255195	loading of barges and transportation/storage of containerized freight cargo	1924049026	9026	Alaska Marine Lines	5600 W Marginal Way SW SEAT	Alaska Marine Lines	5610 West Marginal Way SW	Yes
42W	6,849	1.2-1.3	5003, 5004, 5005, 2137	17001	Alaska Marine Lines	88255195	loading of barges and transportation/storage of containerized freight cargo	1924049026	9026	Alaska Marine Lines	5600 W Marginal Way SW SEAT	Alaska Marine Lines	5610 West Marginal Way SW	Yes
43W	495	1.2-1.3	AML-DP3, AML-DP2	17001	Alaska Marine Lines	88255195	loading of barges and transportation/storage of containerized freight cargo	1924049026	9026	Alaska Marine Lines	5600 W Marginal Way SW SEAT	Alaska Marine Lines	5610 West Marginal Way SW	No; <1,000 sq ft
44W	4,374	1.3-1.4	AML-DP3, AML-DP2	17003	Duwamish Shipyard	2071	repair and maintenance of floating vessels and equipment	1924049028	9028	Duwamish Shipyards	Duwamish Shipyard Inc	Duwamish Shipyard	NA	Yes
45W	2,547	1.3-1.4	AML-DP3, AML-DP2	17003	Duwamish Shipyard	2071	repair and maintenance of floating vessels and equipment	1924049028	9028	Duwamish Shipyards	Duwamish Shipyard Inc	Duwamish Shipyard	NA	Yes
46W	45	1.5-1.6	None	18014	Terminal 115	4040072	receipt, shipment, repair, maintenance of cargo containers, storage, vessel outfitting, equipment maintenance	5367202505	2505	Port Terminal 115/Seafreeze	Port of Seattle	Port Terminal 115	6000 West Marginal Way SW	No; <1,000 sq ft
47W	54	1.5-1.6	None	18014	Terminal 115	4040072	receipt, shipment, repair, maintenance of cargo containers, storage, vessel outfitting, equipment maintenance	5367202505	2505	Port Terminal 115/Seafreeze	Port of Seattle	Port Terminal 115	6000 West Marginal Way SW	No; <1,000 sq ft
48W	81	1.5-1.6	None	18014	Terminal 115	4040072	receipt, shipment, repair, maintenance of cargo containers, storage, vessel outfitting, equipment maintenance	5367202505	2505	Port Terminal 115/Seafreeze	Port of Seattle	Port Terminal 115	6000 West Marginal Way SW	No; <1,000 sq ft
49W	18	1.5-1.6	None	18014	Terminal 115	4040072	receipt, shipment, repair, maintenance of cargo containers, storage, vessel outfitting, equipment maintenance	5367202505	2505	Port Terminal 115/Seafreeze	Port of Seattle	Port Terminal 115	6000 West Marginal Way SW	No; <1,000 sq ft
50W	36	1.5-1.6	None	18014	Terminal 115	4040072	receipt, shipment, repair, maintenance of cargo containers, storage, vessel outfitting, equipment maintenance	5367202505	2505	Port Terminal 115/Seafreeze	Port of Seattle	Port Terminal 115	6000 West Marginal Way SW	No; <1,000 sq ft

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51W	18	1.5-1.6	None	18014	Terminal 115	4040072	receipt, shipment, repair, maintenance of cargo containers, storage, vessel outfitting, equipment maintenance	5367202505	2505	Port Terminal 115/Seafreeze	Port of Seattle	Port Terminal 115	6000 West Marginal Way SW	No; <1,000 sq ft
52W	54	1.5-1.6	None	18014	Terminal 115	4040072	receipt, shipment, repair, maintenance of cargo containers, storage, vessel outfitting, equipment maintenance	5367202505	2505	Port Terminal 115/Seafreeze	Port of Seattle	Port Terminal 115	6000 West Marginal Way SW	No; <1,000 sq ft
53W	45	1.5-1.6	None	18014	Terminal 115	4040072	receipt, shipment, repair, maintenance of cargo containers, storage, vessel outfitting, equipment maintenance	5367202505	2505	Port Terminal 115/Seafreeze	Port of Seattle	Port Terminal 115	6000 West Marginal Way SW	No; <1,000 sq ft
54W	18	1.5-1.6	None	18014	Terminal 115	4040072	receipt, shipment, repair, maintenance of cargo containers, storage, vessel outfitting, equipment maintenance	5367202505	2505	Port Terminal 115/Seafreeze	Port of Seattle	Port Terminal 115	6000 West Marginal Way SW	No; <1,000 sq ft
55W	36	1.5-1.6	None	18014	Terminal 115	4040072	receipt, shipment, repair, maintenance of cargo containers, storage, vessel outfitting, equipment maintenance	5367202505	2505	Port Terminal 115/Seafreeze	Port of Seattle	Port Terminal 115	6000 West Marginal Way SW	No; <1,000 sq ft
56W	18	1.6-1.7	6146	18014	Terminal 115	4040072	receipt, shipment, repair, maintenance of cargo containers, storage, vessel outfitting, equipment maintenance	5367202505	2505	Port Terminal 115/Seafreeze	Port of Seattle	Port Terminal 115	6000 West Marginal Way SW	No; <1,000 sq ft
57W	54	1.6-1.7	6146	18014	Terminal 115	4040072	receipt, shipment, repair, maintenance of cargo containers, storage, vessel outfitting, equipment maintenance	5367202505	2505	Port Terminal 115/Seafreeze	Port of Seattle	Port Terminal 115	6000 West Marginal Way SW	No; <1,000 sq ft
58W	18	1.6-1.7	6146	18014	Terminal 115	4040072	receipt, shipment, repair, maintenance of cargo containers, storage, vessel outfitting, equipment maintenance	5367202505	2505	Port Terminal 115/Seafreeze	Port of Seattle	Port Terminal 115	6000 West Marginal Way SW	No; <1,000 sq ft
59W	729	1.6-1.7	6146	18014	Terminal 115	4040072	receipt, shipment, repair, maintenance of cargo containers, storage, vessel outfitting, equipment maintenance	5367202505	2505	Port Terminal 115/Seafreeze	Port of Seattle	Port Terminal 115	6000 West Marginal Way SW	No; <1,000 sq ft
60W	45	1.6-1.7	6146	18014	Terminal 115	4040072	receipt, shipment, repair, maintenance of cargo containers, storage, vessel outfitting, equipment maintenance	5367202505	2505	Port Terminal 115/Seafreeze	Port of Seattle	Port Terminal 115	6000 West Marginal Way SW	No; <1,000 sq ft
61W	18	1.6-1.7	6146	18014	Terminal 115	4040072	receipt, shipment, repair, maintenance of cargo containers, storage, vessel outfitting, equipment maintenance	5367202505	2505	Port Terminal 115/Seafreeze	Port of Seattle	Port Terminal 115	6000 West Marginal Way SW	No; <1,000 sq ft
62W	18	1.6-1.7	6146	18014	Terminal 115	4040072	receipt, shipment, repair, maintenance of cargo containers, storage, vessel outfitting, equipment maintenance	5367202505	2505	Port Terminal 115/Seafreeze	Port of Seattle	Port Terminal 115	6000 West Marginal Way SW	No; <1,000 sq ft
63W	18	1.6-1.7	6146	18014	Terminal 115	4040072	receipt, shipment, repair, maintenance of cargo containers, storage, vessel outfitting, equipment maintenance	5367202505	2505	Port Terminal 115/Seafreeze	Port of Seattle	Port Terminal 115	6000 West Marginal Way SW	No; <1,000 sq ft
64W	18	1.6-1.7	6146	18014	Terminal 115	4040072	receipt, shipment, repair, maintenance of cargo containers, storage, vessel outfitting, equipment maintenance	5367202505	2505	Port Terminal 115/Seafreeze	Port of Seattle	Port Terminal 115	6000 West Marginal Way SW	No; <1,000 sq ft
65W	18	1.6-1.7	6146	18014	Terminal 115	4040072	receipt, shipment, repair, maintenance of cargo containers, storage, vessel outfitting, equipment maintenance	5367202505	2505	Port Terminal 115/Seafreeze	Port of Seattle	Port Terminal 115	6000 West Marginal Way SW	No; <1,000 sq ft
66W	45	1.6-1.7	6146	18014	Terminal 115	4040072	receipt, shipment, repair, maintenance of cargo containers, storage, vessel outfitting, equipment maintenance	5367202505	2505	Port Terminal 115/Seafreeze	Port of Seattle	Port Terminal 115	6000 West Marginal Way SW	No; <1,000 sq ft
67W	18	1.6-1.7	6146	18014	Terminal 115	4040072	receipt, shipment, repair, maintenance of cargo containers, storage, vessel outfitting, equipment maintenance	5367202505	2505	Port Terminal 115/Seafreeze	Port of Seattle	Port Terminal 115	6000 West Marginal Way SW	No; <1,000 sq ft
68W	4,455	1.6-1.7	6146	18014	Terminal 115	4040072	receipt, shipment, repair, maintenance of cargo containers, storage, vessel outfitting, equipment maintenance	5367202505	2505	Port Terminal 115/Seafreeze	Port of Seattle	Port Terminal 115	6000 West Marginal Way SW	No; LiDAR artifact

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69W	18	1.6-1.7	6146	18014	Terminal 115	4040072	receipt, shipment, repair, maintenance of cargo containers, storage, vessel outfitting, equipment maintenance	5367202505	2505	Port Terminal 115/Seafreeze	Port of Seattle	Port Terminal 115	6000 West Marginal Way SW	No; <1,000 sq ft
70W	18	1.6-1.7	6146	18014	Terminal 115	4040072	receipt, shipment, repair, maintenance of cargo containers, storage, vessel outfitting, equipment maintenance	5367202505	2505	Port Terminal 115/Seafreeze	Port of Seattle	Port Terminal 115	6000 West Marginal Way SW	No; <1,000 sq ft
71W	693	1.6-1.7	6146	18014	Terminal 115	4040072	receipt, shipment, repair, maintenance of cargo containers, storage, vessel outfitting, equipment maintenance	5367202505	2505	Port Terminal 115/Seafreeze	Port of Seattle	Port Terminal 115	6000 West Marginal Way SW	No; <1,000 sq ft
72W	63	1.6-1.7	6146	18014	Terminal 115	4040072	receipt, shipment, repair, maintenance of cargo containers, storage, vessel outfitting, equipment maintenance	5367202505	2505	Port Terminal 115/Seafreeze	Port of Seattle	Port Terminal 115	6000 West Marginal Way SW	No; <1,000 sq ft
73W	36	1.6-1.7	6146	18014	Terminal 115	4040072	receipt, shipment, repair, maintenance of cargo containers, storage, vessel outfitting, equipment maintenance	5367202505	2505	Port Terminal 115/Seafreeze	Port of Seattle	Port Terminal 115	6000 West Marginal Way SW	No; <1,000 sq ft
74W	4,365	1.6-1.7	6146	18014	Terminal 115	4040072	receipt, shipment, repair, maintenance of cargo containers, storage, vessel outfitting, equipment maintenance	5367202505	2505	Port Terminal 115/Seafreeze	Port of Seattle	Port Terminal 115	6000 West Marginal Way SW	No; LiDAR artifact
75W	243	1.6-1.7	6146	18014	Terminal 115	4040072	receipt, shipment, repair, maintenance of cargo containers, storage, vessel outfitting, equipment maintenance	5367202505	2505	Port Terminal 115/Seafreeze	Port of Seattle	Port Terminal 115	6000 West Marginal Way SW	No; <1,000 sq ft
76W	918	1.7-1.8	None	18014	Terminal 115	4040072	receipt, shipment, repair, maintenance of cargo containers, storage, vessel outfitting, equipment maintenance	5367202505	2505	Port Terminal 115/Seafreeze	Port of Seattle	Port Terminal 115	6000 West Marginal Way SW	No; <1,000 sq ft
77W	531	1.7-1.8	None	18014	Terminal 115	4040072	receipt, shipment, repair, maintenance of cargo containers, storage, vessel outfitting, equipment maintenance	5367202505	2505	Port Terminal 115/Seafreeze	Port of Seattle	Port Terminal 115	6000 West Marginal Way SW	No; <1,000 sq ft
78W	18	1.7-1.8	2220	18014	Terminal 115	4040072	receipt, shipment, repair, maintenance of cargo containers, storage, vessel outfitting, equipment maintenance	5367202505	2505	Port Terminal 115/Seafreeze	Port of Seattle	Port Terminal 115	6000 West Marginal Way SW	No; <1,000 sq ft
79W	18	1.7-1.8	2220	18014	Terminal 115	4040072	receipt, shipment, repair, maintenance of cargo containers, storage, vessel outfitting, equipment maintenance	5367202505	2505	Port Terminal 115/Seafreeze	Port of Seattle	Port Terminal 115	6000 West Marginal Way SW	No; <1,000 sq ft
80W	18	1.7-1.8	2220	18014	Terminal 115	4040072	receipt, shipment, repair, maintenance of cargo containers, storage, vessel outfitting, equipment maintenance	5367202505	2505	Port Terminal 115/Seafreeze	Port of Seattle	Port Terminal 115	6000 West Marginal Way SW	No; <1,000 sq ft
81W	270	1.7-1.8	2220	18014	Terminal 115	4040072	receipt, shipment, repair, maintenance of cargo containers, storage, vessel outfitting, equipment maintenance	5367202505	2505	Port Terminal 115/Seafreeze	Port of Seattle	Port Terminal 115	6000 West Marginal Way SW	No; <1,000 sq ft
82W	45	1.7-1.8	2220	18014	Terminal 115	4040072	receipt, shipment, repair, maintenance of cargo containers, storage, vessel outfitting, equipment maintenance	5367202505	2505	Port Terminal 115/Seafreeze	Port of Seattle	Port Terminal 115	6000 West Marginal Way SW	No; <1,000 sq ft
83W	18	1.7-1.8	2220	18014	Terminal 115	4040072	receipt, shipment, repair, maintenance of cargo containers, storage, vessel outfitting, equipment maintenance	5367202505	2505	Port Terminal 115/Seafreeze	Port of Seattle	Port Terminal 115	6000 West Marginal Way SW	No; <1,000 sq ft
84W	15,678	1.8-2.0	2125, 2124, 2122	18014	Terminal 115	4040072	frozen food warehouse and distribution facility	5367202505	2505	Port Terminal 115/Seafreeze	Port of Seattle	Port Terminal 115	6000 West Marginal Way SW	Yes
85W	81	1.9-2.0	None	18014	Terminal 115	4040072	frozen food warehouse and distribution facility							No; <1,000 sq ft
86W	5,616	1.9-2.1	2506	18014	Terminal 115	4040072	frozen food warehouse and distribution facility	5367202505	2505	Port Terminal 115/Seafreeze	Port of Seattle	Port Terminal 115	6000 West Marginal Way SW	Yes
				18012	Seattle City Eng Dept Penn Yard	NA	park	5367202518	2518	City of Seattle - Seaview Park	Seattle City of SDOT	Seattle DOT	NA	
87W	774	2.1-2.2	None	20006	Douglas Management	97573251	barge operations, container cargo loading/unloading	2924049090	9090	Alaska Marine Lines	7100 1st Ave S Seattle LLC	Alaska Marine Lines	NA	No; <1,000 sq ft
88W	18	2.1-2.2	None	20006	Douglas Management	97573251	barge operations, container cargo loading/unloading	2924049090	9090	Alaska Marine Lines	7100 1st Ave S Seattle LLC	Alaska Marine Lines	NA	No; <1,000 sq ft

Table B-1
Summary of Information for Slivers and Adjacent Properties

Sliver ID	Sliver Area (sq ft)	River Mile	Outfalls Located within 100 feet of Sliver	Adjacent Property No.	Adjacent Property Name	Facility/ Site ID	Current Site Use	Adjacent Parcel No.	Parcel No. Abbreviation	Adjacent Parcel Name	Adjacent Parcel Taxpayer	Current Facility Operator	Adjacent Parcel Address	Detailed Evaluation?
89W	18	2.1-2.2	None	20006	Douglas Management	97573251	barge operations, container cargo loading/unloading	2924049090	9090	Alaska Marine Lines	7100 1st Ave S Seattle LLC	Alaska Marine Lines	NA	No; <1,000 sq ft
90W	45	2.1-2.2	None	20006	Douglas Management	97573251	barge operations, container cargo loading/unloading	2924049090	9090	Alaska Marine Lines	7100 1st Ave S Seattle LLC	Alaska Marine Lines	NA	No; <1,000 sq ft
91W	9,963	2.2-2.4	2117, 2116, Boyer-1	20002	Boyer Towing	NA	unknown	6871200045	0045	Boyer Towing	NA	vacant	NA	Yes
						NA	marine / commercial fishing terminal	6871200620	0620	Boyer Towing	Boyer Towing Inc	Boyer Towing	7201 2nd Avenue S	
				20017	River View Marina	NA	operation of tugboats to transport barges	6871200350	0350	River View Marina	Boyer Towing Inc	River View Marina	7200 2nd Avenue S	
92W	657	2.3-2.4	2115, Boyer-1, Boyer-2	20002	Boyer Towing	37926748	deep sea domestic transport of freight	6871200210	0210	Boyer Alaska Barge Line	Boyer Towing	Boyer Alaska Barge Lines	7318 4th Avenue S	No; <1,000 sq ft
93W	43,056	2.4-2.7	Boyer-2, 2115, 2114, 5th Ave S, 2113	20002	Boyer Towing	37926748	deep sea domestic transport of freight	6871200210	0210	Boyer Alaska Barge Line	Boyer Towing	Boyer Alaska Barge Lines	7318 4th Avenue S	Yes
						15947	marine / commercial fishing terminal	6871200100	0100	Boyer Towing	Halvorsen Boyer Jr+Kirsten+	Boyer Towing	7318 4th Avenue S	
						NA	operation of tugboats to transport barges	7327906685	6685	Alki Construction Co	Boyer Towing Inc	Alki Construction Co	7410 5th Avenue S	
				21051	Pacific Pile and Marine	56779778	marine and heavy civil construction services	7327906755	6755	Machine Shop	Brackish Properties LLC	Pacific Pile and Marine	582 S Riverside Drive	
				21029	Hurlen Construction	NA	vacant	7327906645	6645	Hurlen Construction	Cascade Barge & Equipment	Pacific Pile and Marine	523 S Riverside Drive	
				NA	NA	NA	Residential	7327905770	5770	Residential	Residential	NA	604 Riverside Drive	
				NA	NA	NA	Residential	7327905760	5760	Residential	Residential	NA	608 S Riverside Drive	
94W	441	2.6-2.7	2113	NA	NA	NA	Residential	7327905750	5750	SFR	Six Fourteen South Logistic	NA		No; <1,000 sq ft
95W	15,120	2.6-2.7	2112	NA	NA	NA	NA	7327905280	5280	Vacant Land	Cassell Point LLC	Vacant	740 S Holden Street	Yes
				21029	Hurlen Construction	42127616	storage yard	7327905350	5350	Hurlen Const	Hurlen Logistics LLC	Pacific Pile and Marine	700 S Riverside Drive	
96W	20,763	2.7-2.9	2106, 2107, 2108	21037	Lucas Machine	39232961	milling, tuning, assembly, repairs, fabrications, and tooling operations	7327904100	4100	Vacant Land	Cassell Point LLC		707 S Riverside Drive	Yes
				NA	NA	NA	METRO pump station	7327904049	4049	Metro Pump Station	King County Wastewater	King County pump station	NA	
				21032	Independent Metals Plant 2	861945	vacant	7327903645	3645	Silver Bay Logging	Silver Bay Logging Inc	Vacant	7760 8th Avenue S	
97W	72	2.8-2.9	2109, 2110	21032	Independent Metals Plant 2	861945	vacant	7327903645	3645	Silver Bay Logging	Silver Bay Logging Inc	Vacant	7760 8th Avenue S	No; <1,000 sq ft
98W	18	2.9-3.0	2109, 2110	21032	Independent Metals Plant 2	861945	vacant	7327903645	3645	Silver Bay Logging	Silver Bay Logging Inc	Vacant	7760 8th Avenue S	No; <1,000 sq ft
99W	1,728	2.9-3.0	2110, 2109	21032	Independent Metals Plant 2	95749157	produced a variety of industrial boats, including fishing boats, police and fire boats, oil-spill cleanup boats, and Coast Guard tenders	7327902520	2520	Work Boats North West	Silver Bay Logging Inc		7814 8th Avenue S	Yes
100W	3,015	2.9-3.0	2107	21032	Independent Metals Plant 2	16139	Street ROW, storage	Street ROW	NA	NA	NA	NA	NA	Yes
				NA	NA	NA	Residential	7327902395	2395	Residential	Residential	NA	850 S Kenyon Street	
				21032	Independent Metals Plant 2	95749157	heavy industrial	7327902520	2520	Work Boats North West	Silver Bay Logging Inc		7814 8th Avenue S	
101W	36	3.0-3.1	None	NA	NA street ROW	NA	right-of-way	Street ROW	NA	NA	NA	NA	NA	No; <1,000 sq ft
102W	34,128	3.0-3.4	3037	NA	NA	NA		7327902355	2355	Vacant Land	Seattle City of DPR	Vacant	1022 S Monroe Street	Yes
				NA	NA	NA		7327902346	2346	Vacant	Port of Seattle	Vacant	1040 S Monroe Street	
				21036	Long Painting 10th Ave	NA	electrical and design services contractor	7327901215	1215	Utility Electric	Brian Hicks	Unity Electric	1024 S Elmgrove Street	
						71678662	Painting operated from 1970 to 2002. Painting, sandblasting, and vehicle and equipment maintenance were performed at the facility	3224049002	9002	Vacant Multi-family	Elm Grove LLC	Residential	NA	
						NA	Residential	3224049003	9003	Residential	Residential	Residential	1040 S Elmgrove Street	
						NA	vacant	3224049037	9037	Residential	Seattle City of SPU-DWU	Residential	1054 S Elmgrove Street	
						NA	Residential	3224049004	9004	Residential	Residential	Residential	1046 S Elmgrove Street	

Table B-1
Summary of Information for Slivers and Adjacent Properties

Sliver ID	Sliver Area (sq ft)	River Mile	Outfalls Located within 100 feet of Sliver	Adjacent Property No.	Adjacent Property Name	Facility/ Site ID	Current Site Use	Adjacent Parcel No.	Parcel No. Abbreviation	Adjacent Parcel Name	Adjacent Parcel Taxpayer	Current Facility Operator	Adjacent Parcel Address	Detailed Evaluation?
				NA	NA	NA	Residential	2185000520	0520	Residential	Residential	Residential	8103 12th Avenue S	
				NA	NA	NA	Residential	2185000505	0505	Residential	Residential	Residential	1202 S Southern Street	
				NA	NA	NA	Residential	2185000495	0495	Residential	Residential	Residential	1206 S Southern Street	
				NA	NA	NA	Residential	2185000475	0475	Residential	Residential	Residential	1212 S Southern Street	
				NA	NA	NA	Residential	2185000825	0825	Residential	Residential	Residential	1225 S Southern Street	
				NA	NA	NA	Residential	2185000695	0695	Residential	HMH LLC	Residential	1236 S Rose Street	
				NA	NA	NA	Residential	2185000685	0685	Residential	Residential	Residential	1240 S Rose Street	
				NA	NA	NA	vacant	2185000895	0895	Residential	King County-Roads	Residential	1239 S Rose Street	
103W	2,250	3.3-3.4	2215	22003	South Park Marina	66136556	a small boat marina and do-it-yourself boat maintenance and repair facility	2185600070	0070	Ricks Master Marine	South Park Marine LTD Partn	South Park Marina	8500 Dallas Avenue S	Yes
104W	111,294	3.4-4.0	2214, SP5, 2103, SP3, SP2, 2102	22003	South Park Marina	44653368	marina with parking area	0001600001	0001	South Park Marina	South Park Marine LTD	South Park Marina	8604 Dallas Avenue S	Yes
				22004	Terminal 117	2202	restoration area	0001600044	0044	NA	Port of Seattle	Port of Seattle	8700 Dallas Avenue S	
				22002	Boeing South Park - Terminal 117	60381981	a training facility and research and calibration laboratories	7883608601	8601	Boeing South Park	The Boeing Company	Boeing South Park	1420 S Trenton Street	
				23053	Boeing South Park - Sea King	60381981	a training facility and research and calibration laboratories	7883608603	8603	Boeing South Park	The Boeing Company		1420 S Trenton Street	
105W	909	4.1-4.2	2100A	23011	Delta Marine Industries	6915930	used for building yachts and vessel repairs	5624200005	0005C	Delta Marine Industries	Delta Marine	Delta Marine	1835 S 96th Street	No; <1,000 sq ft
106W	2,079	4.1-4.3	Delta Marine	23011	Delta Marine Industries	6915930	used for building yachts and vessel repairs	5624200005	0005C	Delta Marine Industries	Delta Marine	Delta Marine	1835 S 96th Street	No; LiDAR artifact
107W	27	4.7-4.8	None	24024	Turning Basin 3 Restoration Area	96665547	restoration area	0423049187	9189	NA	Port of Seattle	Port of Seattle	10108 West Marginal Place S	No; <1,000 sq ft
108W	6,120	4.7-4.8	Ditch #1	24024	Turning Basin 3 Restoration Area	96665547	restoration area	0423049187	9189	NA	Port of Seattle	Port of Seattle	10108 West Marginal Place S	Yes
109W	4,914	4.7-4.8	Ditch #1	24007	Fremont Property	22587	used for equipment and trailer storage by a tracking company	0423049001	9001	AIF Trailer Leasing	Mellon Desimone	Vacant	NA	Yes
						22587	used for equipment and trailer storage by a tracking company	0423049073	9073	PAMCO Construction	Mellon Desimone	vacant	10180 West Marginal Place S	
110W	63	4.7-4.8	None	24007	Fremont Property	22587	used for equipment and trailer storage by a tracking company	0423049001	9001	AIF Trailer Leasing	Mellon Desimone	vacant	NA	No; <1,000 sq ft
111W	27	4.7-4.8	None	24007	Fremont Property	22587	used for equipment and trailer storage by a tracking company	0423049001	9001	AIF Trailer Leasing	Mellon Desimone	vacant	NA	No; <1,000 sq ft
112W	1,683	4.7-4.8	None	24004	Boeing Parking Lot Property	NA	parking and storage	0423049150	9150	Boeing Employees Activity Center	Desimone Trus Oxbow 2601	Boeing Employees Activity Center	2601 S 102nd Street	Yes
113W	135	4.7-4.8	None	24004	Boeing Parking Lot Property	NA	parking and storage	0423049150	9150	Boeing Employees Activity Center	Desimone Trus Oxbow 2601	Boeing Employees Activity Center	2601 S 102nd Street	No; <1,000 sq ft
114W	873	4.8-4.9	Ditch #2	24004	Boeing Parking Lot Property	NA	parking and storage	0423049150	9150	Boeing Employees Activity Center	Desimone Trus Oxbow 2601	Boeing Employees Activity Center	2601 S 102nd Street	No; <1,000 sq ft
115W	18	4.9-5.0	Ditch #2	24004	Boeing Parking Lot Property	NA	parking and storage	0423049150	9150	Boeing Employees Activity Center	Desimone Trus Oxbow 2601	Boeing Employees Activity Center	2601 S 102nd Street	No; <1,000 sq ft
116W	18	4.9-5.0	Ditch #2	24004	Boeing Parking Lot Property	NA	parking and storage	0423049150	9150	Boeing Employees Activity Center	Desimone Trus Oxbow 2601	Boeing Employees Activity Center	2601 S 102nd Street	No; <1,000 sq ft
117W	4,266	4.9-5.0	Ditch #2	24004	Boeing Parking Lot Property	NA	parking and storage	0423049150	9150	Boeing Employees Activity Center	Desimone Trus Oxbow 2601	Boeing Employees Activity Center	2601 S 102nd Street	Yes

Appendix C
Shoreline Photos

Source: Washington State Coastal Atlas (Washington Department of Ecology; available at https://fortress.wa.gov/ecy/coastalatlas/tools/ShorePhotos.aspx). Photos dated August 23, 2016.

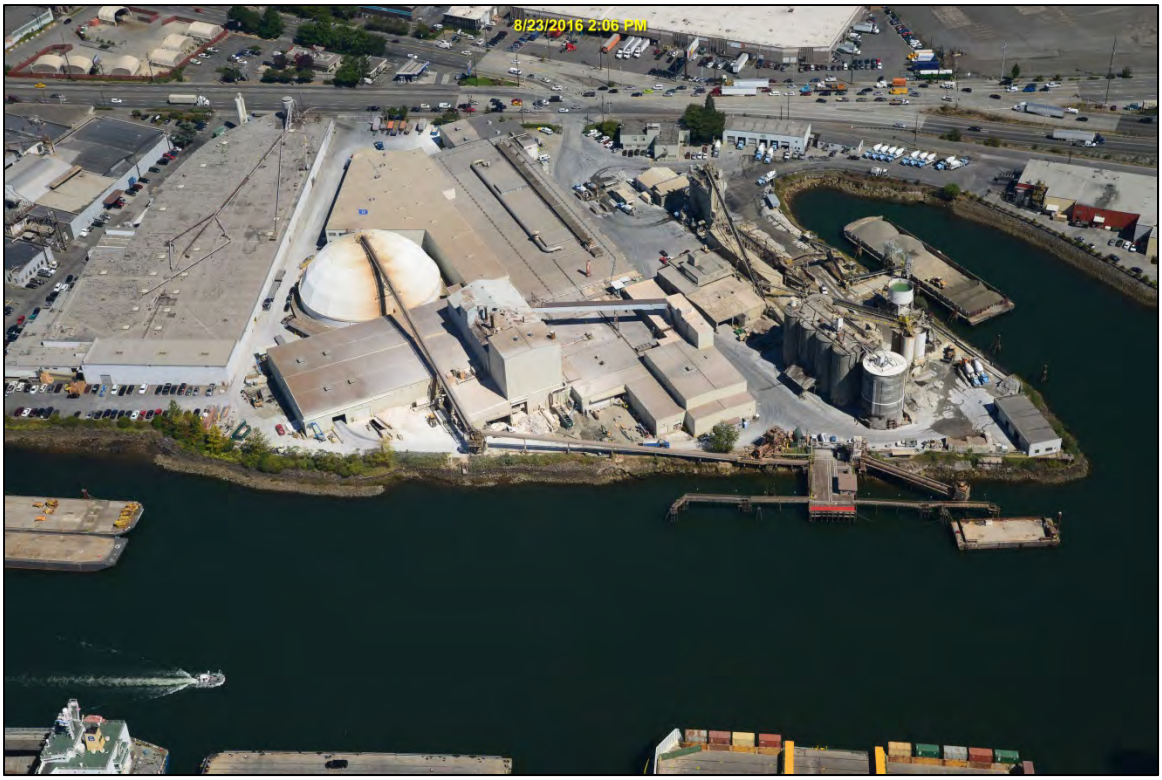

Figure C-1. Sliver 11E (Certainteed Gypsum)

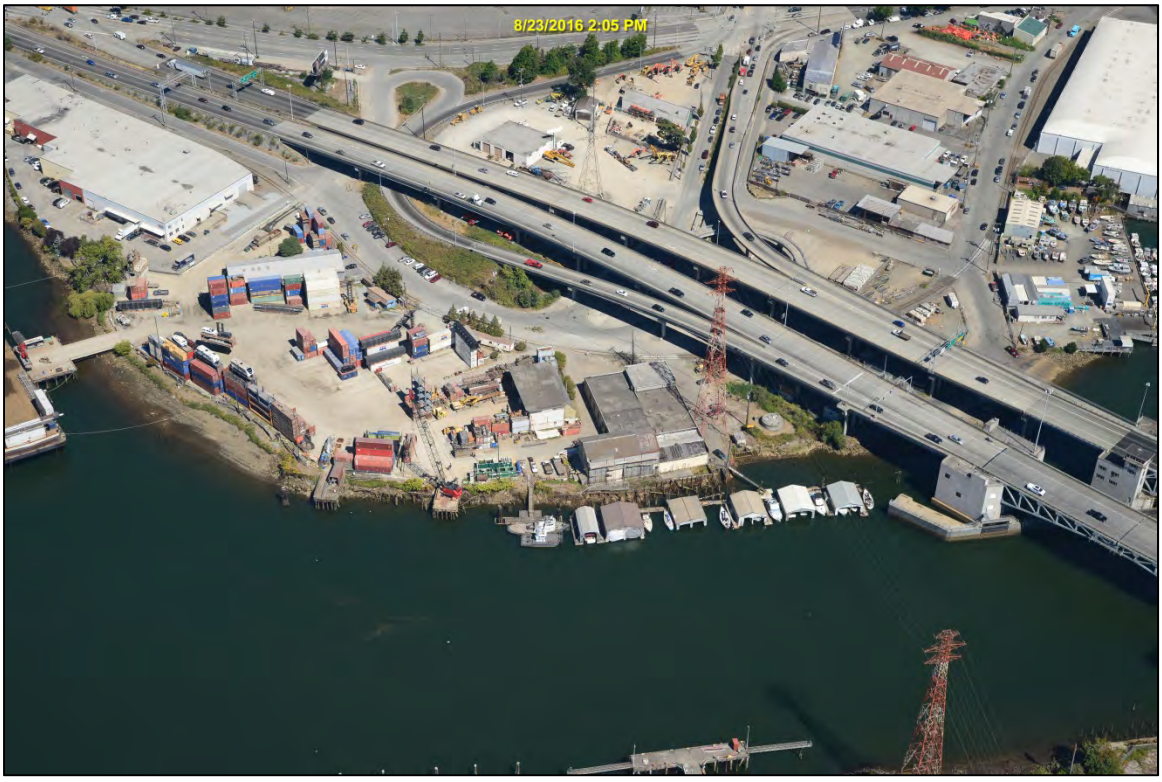

Figure C-2. Sliver 14E (Duwamish Marine Center) and 15E (1st Avenue S Bridge)

Figure C-3. Sliver 16E (Dawn Foods)

Figure C-4. Slivers 26E (CleanScapes) and 28E (Gateway Park North)

Figure C-5. Sliver 29E (Boeing Plant 2)

Figure C-6. Sliver 30E (Boeing Plant 2)

Figure C-7. Sliver 31E (Boeing Plant 2)

Figure C-8. Sliver 35E (Jorgensen Forge/Boeing Isaacson-Thompson)

Figure C-9. Sliver 37E – Northern Portion (Boeing Developmental Center)

Figure C-10. Sliver 37E – Southern Portion (Boeing Developmental Center)

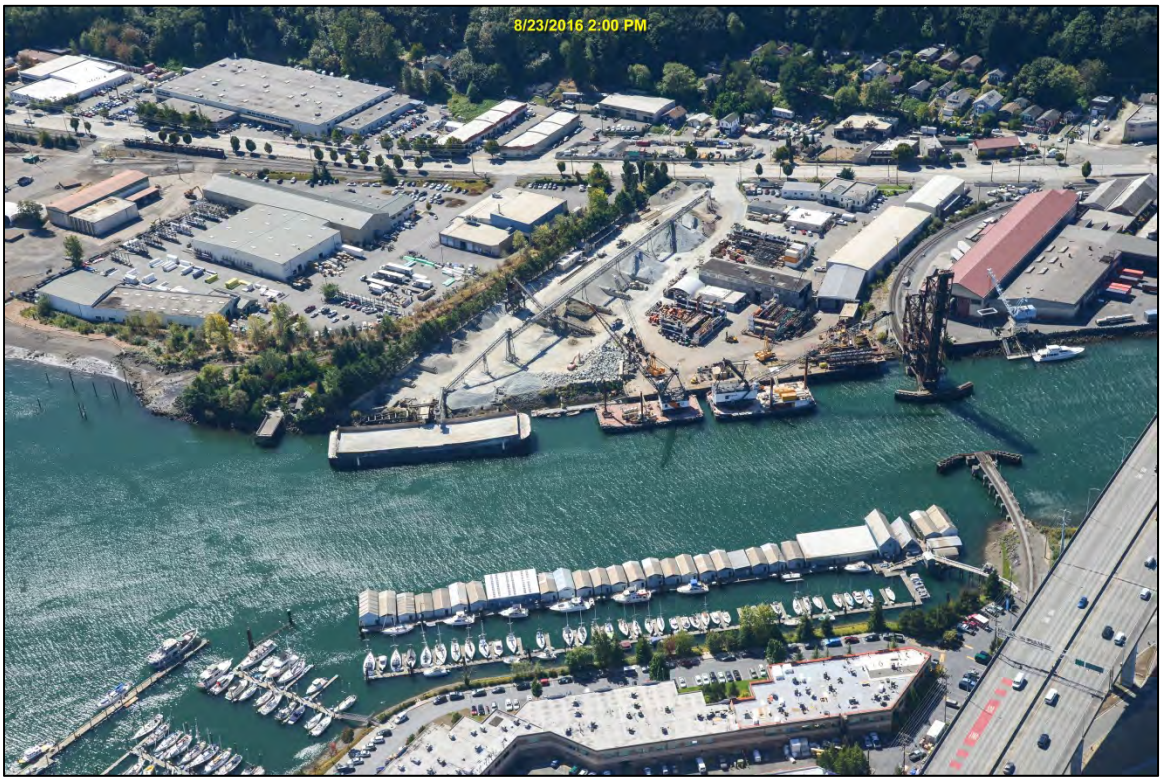

Figure C-11. Sliver 2W (Terminal 103)

Figure C-12. Slivers 41W and 42W (Alaska Marine Lines)

Figure C-13. Slivers 44W and 45W (Duwamish Shipyard)

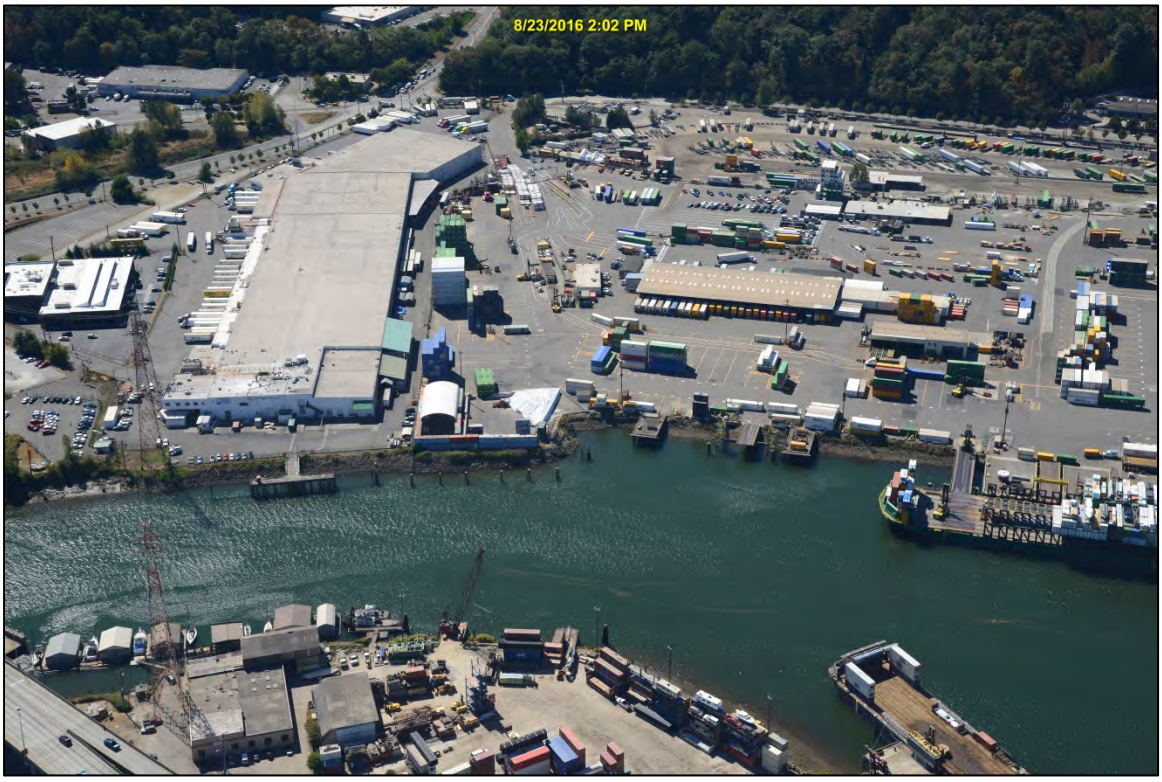

Figure C-14. Slivers 84W and 86W (Terminal 115 – Seafreeze)

Figure C-15. Sliver 86W (Seafreeze)

Figure C-16. Sliver 91W (Boyer Towing)

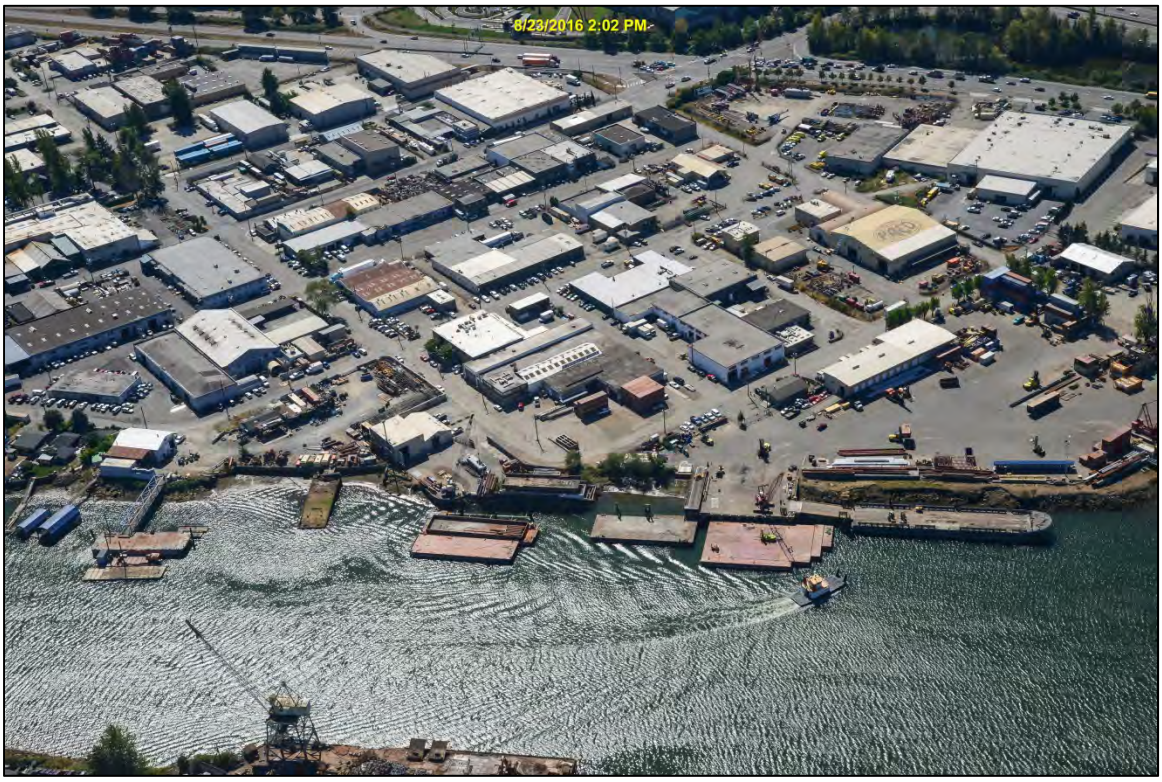

Figure C-17. Sliver 93W – Northern Portion (Boyer Towing)

Figure C-18. Sliver 93W – Southern Portion (Boyer Towing/Riverside Drive)

Figure C-19. Slivers 95W and 96W (Riverside Drive-central)

Figure C-20. Sliver 96W and 99W (Riverside Drive-central)

Figure C-21. Slivers 100W and 102W (Riverside Drive)

Figure C-22. Sliver 102W (Riverside Drive)

Figure C-23. Sliver 103W (South Park Bridge)

Figure C-24. Sliver 104W – Northern Portion (Terminal 117)

Figure C-25. Sliver 104W – Central Portion (Terminal 117/Boeing South Park)

Figure C-26. Sliver 104W – Southern Portion (Boeing South Park)

Figure C-27. Slivers 108W, 109W, and 112W (Turning Basin 3)

Figure C-28. Sliver 117W (Boeing Parking Lot)