DEPARTMENT OF ECOLOGY
State of Washington

Lower Duwamish Waterway
RM 3.8 to 4.2 West
(Sea King Industrial Park)

Source Control Action Plan

August 2013

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Toxics Cleanup Program
Phone: 360-407-7170

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Lower Duwamish Waterway
RM 3.8 to 4.2 West
(Sea King Industrial Park)

Source Control Action Plan

Produced by

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

and

Science Applications International Corporation
18912 North Creek Parkway, Suite 101
Bothell, WA 98011

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Executive Summary

The purpose of this Source Control Action Plan (SCAP) is to describe potential sources of contaminants to sediments along the Lower Duwamish Waterway (LDW) River Mile (RM) 3.8 to 4.2 West, and to identify actions necessary to minimize recontamination of sediment after cleanup. This SCAP is based on a thorough review of information pertinent to sediment recontamination, as documented in *Lower Duwamish Waterway, RM 3.8 to 4.2 West (Sea King Industrial Park), Summary of Existing Information and Identification of Data Gaps* (SAIC 2013).

The LDW, located in Seattle, Washington, was added to the National Priorities List by the U.S. Environmental Protection Agency (EPA or USEPA) on September 13, 2001. Chemicals of concern (COCs) found in waterway sediments include polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), dioxins/furans, arsenic and other metals, and phthalates. These COCs may pose threats to people, fish, and wildlife.

In December 2000, EPA and the Washington State Department of Ecology (Ecology) entered into an order with King County, the Port of Seattle, the City of Seattle, and The Boeing Company to perform a Remedial Investigation (RI) and Feasibility Study (FS) of sediment contamination in the waterway. EPA is the lead agency for the RI/FS. Ecology is the lead agency for controlling current sources of pollution to the site, in cooperation with the City of Seattle, King County, the Port of Seattle, the City of Tukwila, and EPA.

Phase 1 of the RI/FS (Windward 2003b) used existing data to identify potential human health and ecological risks, information needs, and high priority areas for cleanup. Seven candidate early action areas were identified (Windward 2003a). Ecology's *Lower Duwamish Waterway Source Control Status Report, 2003 to June 2007* (Ecology 2007d) and *Lower Duwamish Waterway Source Control Status Report, July 2007 to March 2008* (Ecology 2008e) identified another 16 areas where source control actions may be necessary. The Sea King Industrial Park source control area was identified as one of these areas. One additional source control area was added by Ecology in 2010, for a total of 24 source control areas.

As part of source control efforts in the LDW, Ecology works with other members of the Source Control Work Group (SCWG) to develop SCAPs for areas of sediment contamination that will or may require cleanup. The SCAP for each of these sediment areas describes potential sources of sediment contaminants and the actions needed to control them, and evaluates whether ongoing sources are present that could recontaminate sediments after cleanup. In addition, the SCAPs describe source control actions that are planned or currently underway, and sampling and monitoring activities that will be conducted to identify additional sources.

Sections 1 and 2 of this SCAP provide background information about the LDW site and the sediments near the Sea King Industrial Park source control area. Arsenic, mercury, zinc, PCBs, PAHs, butyl benzyl phthalate, benzyl alcohol, pesticides, and dioxins/furans are considered to be the major COCs in sediments near the source control area. While this SCAP focuses on these COCs, other chemicals that could result in sediment recontamination will be addressed as sources are identified.

Section 3 contains the following: a description of potential sources of contamination that may affect sediments near the Sea King Industrial Park source control area, including outfalls, spills to the waterway, and releases from adjacent properties or upland properties within the S 96th Street storm drain (SD) basin; an evaluation of the significance of these potential sources; and a listing of the actions that are planned or underway to control potential contaminant sources. Section 4 discusses monitoring activities that will be conducted to identify additional sources and assess progress, and Section 5 describes how source control efforts will be tracked and reported. Section 6 lists documents reviewed during preparation of this SCAP.

Table ES-1 lists the source control actions that have been identified for the Sea King Industrial Park source control area. This table includes a brief description of the potential contaminant sources for each property, source control activities to be conducted, parties involved in source control actions for each property or task, and milestone/target dates for completion of the identified action items. The milestones and targets are best-case scenarios based on consultation with the identified agencies or facilities. They reflect reasonably achievable schedules, and include the time required for planning, contracting, field work, laboratory analysis, and activities dependent on weather.

A removal action for sediment near the Sea King Industrial Park source control area was not scheduled at the time this SCAP was prepared.

Table ES-1. Source Control Actions – Sea King Industrial Park Source Control Area

Potential Sources	Action Items	Priority	Responsible Party(ies)	Status	Target Date
S 96th Street SD Basin					
Soil, groundwater, storm drain solids, and surface water within the S 96th Street SD basin are contaminated by metals, PAHs and other SVOCs, PCBs, petroleum hydrocarbons, and VOCs. Groundwater discharge contributes year-round base flow in the S 96th Street storm drain system.	Perform further environmental investigations and cleanup activities in the S 96th Street SD basin to address sources of contaminants to the LDW.	High	Ecology, King County	Planned	TBD
	Request a current map of the S 96th Street SD basin from King County in order to verify conveyance and drainage features.	Medium	Ecology	Planned	TBD
	Provide Ecology with updated information regarding the proposed drainage basin upgrades to divert the north and middle forks of Hamm Creek around the S 96th Street industrial area in order to discharge directly to the LDW via Hamm Creek.	Medium	King County	Planned	TBD
Sea King Industrial Park (1600 & 1620 S 92nd Place 98108)					
Little information was available to determine whether two outfalls of unresolved origin (S Director Street Outfall and Outfall 2101) on the property are abandoned or active. Active outfalls with undocumented drainage have the potential to transport contaminants present in stormwater (if any) to LDW sediments near the Sea King Industrial Park source control area.	Conduct an inspection during a storm event to determine if the S Director Street Outfall and Outfall 2101 are operational or have been abandoned. If discharge from these outfalls is observed, request that the property owners conduct dye testing to determine if storm drain lines are connected to the unresolved outfalls and delineate the associated drainage areas.	Medium	Ecology	Planned	TBD
	Request clarification from King County regarding the owner and operator status for the S Director Street Outfall and Outfall 2101.	Medium	Ecology	Planned	TBD
Concentrations of zinc, phthalates, and phenols have exceeded the storm drain screening values in storm drain solids samples collected on or near Sea King Industrial Park. Sea King Industrial Park and its current tenants have complied with corrective actions identified by Ecology during environmental compliance inspections.	Request information from the property owner regarding stormwater drainage features at the property to evaluate the potential for contaminant transport to the LDW via stormwater discharge. Information should include the storm drain system at parcel 0001600058 (Aerospace Machinists Union) if it is connected to the storm drain system at Sea King Industrial Park.	Medium	Ecology	Planned	TBD
	Perform a follow-up inspection at Diamond Painting to verify compliance the recommendations made during the August 2008 inspection.	Low	Ecology	Planned	TBD

Table ES-1. Source Control Actions – Sea King Industrial Park Source Control Area

Potential Sources	Action Items	Priority	Responsible Party(ies)	Status	Target Date
Given the historical industrial operations, there is potential for soil and groundwater contamination. Chemical concentrations in the bank soil samples did not exceed SMS. Concentrations of arsenic, total cPAHs, PCBs, and dioxin/furan TEQ exceeded LDW natural background concentrations, but did not exceed the LDW Remedial Action Levels.	Request information from the property owner regarding historical tenant operations to determine the potential for soil and/or groundwater contamination beneath the property and to evaluate the potential for sediment recontamination via the groundwater discharge pathway.	Low	Ecology	Planned	TBD
KRS Marine (1621 S 92nd Place 98108)					
Stormwater and surface runoff from this property discharges directly to the LDW. Contaminants in stormwater/surface runoff at the facility, if any, could be transported to LDW sediments. KRS Marine performs barge loading and unloading operations, where spills to the dock area have the potential to enter the LDW. Spills from loading and unloading activities are a potential pathway for sediment recontamination.	Perform a source control inspection at KRS Marine to verify compliance with applicable regulations and BMPs to prevent the release of contaminants to the LDW.	Low	Ecology	Planned	TBD
Duwamish Yacht Club (1801 S 93rd Street 98108)					
Stormwater and surface runoff from this property discharges directly to the LDW. Overwater activities are performed at the Duwamish Yacht Club. Spills from boat repairs and maintenance conducted by Duwamish Yacht Club members are a potential source of sediment COCs. CKD is suspected to be present and, given the historical junkyard operations at the property, there is potential for soil and groundwater contamination at the facility.	Perform a source control inspection at the Duwamish Yacht Club to verify compliance with applicable regulations and BMPs to prevent the release of contaminants to the LDW. During the inspection, determine if fueling operations and/or boat maintenance and repair operations are conducted at the facility.	Medium	Ecology	Planned	TBD
	Request that the Desimone Trust (property owner) collect soil and groundwater data in order to determine the potential for sediment recontamination via the groundwater discharge pathway.	Medium	Ecology	Planned	TBD

Table ES-1. Source Control Actions – Sea King Industrial Park Source Control Area

Potential Sources	Action Items	Priority	Responsible Party(ies)	Status	Target Date
Delta Marine Industries (1608 S 96th Street 98108)					
Little information was available to determine whether two outfalls of unresolved origin (Outfall 2100(B) and the Delta Marine Outfall) are abandoned or active. Active outfalls with undocumented drainage have the potential to transport contaminants present in stormwater (if any) to LDW sediments near the Sea King Industrial Park source control area.	Conduct an inspection during a storm event to determine if Outfall 2100(B) and the Delta Marine Outfall are operational or have been abandoned. If discharge from these outfalls is observed, request that the property owners conduct dye testing to determine if storm drain lines are connected to the unresolved outfalls and delineate the associated drainage areas.	Medium	Ecology	Planned	TBD
Stormwater and surface runoff from the majority of Delta Marine is conveyed to the S 96th Street SD system prior to discharge to the LDW; stormwater and surface runoff from some areas may be conveyed to Outfall 2100(B) or the Delta Marine Outfall. Potential for sediment recontamination via the stormwater pathway is low provided the improvements and source control BMPs are maintained. CKD is suspected to be present at the property and, given the historical junkyard operations and container maintenance operations conducted on unpaved areas, there is potential for soil and groundwater contamination at the facility. The potential for sediment recontamination via groundwater discharge is unknown.	Request that the property owner collect soil and groundwater data in order to determine the potential for sediment recontamination via the groundwater discharge pathway.	Medium	Ecology	Planned	TBD
	Request an updated facility map from Delta Marine that includes details of the stormwater drainage systems associated with the treatment system, wash pad near the large boat lift, Outfall 2100(B), Delta Marine Outfall, and parcels 0029 and 0062 in order to assess the stormwater pathway at the facility.	Medium	Ecology	Planned	TBD
PSF Mechanical (9322 14th Avenue S 98108)					
Zinc concentrations in stormwater at PSF Mechanical have consistently exceeded benchmarks established in the facility's ISGP. The company planned to research and install a stormwater treatment system in April 2012.	Perform inspections at PSF Mechanical to monitor compliance with the Administrative Order, which directed the facility to implement all applicable operational and structural source control BMPs and to collect and analyze at least one stormwater discharge sample each quarter from October 1, 2011, through June 30, 2012.	Low	Ecology	Planned	TBD
	Request information from PSF Mechanical regarding the status of the proposed stormwater treatment system.	Low	Ecology	Planned	TBD

Table ES-1. Source Control Actions – Sea King Industrial Park Source Control Area

Potential Sources	Action Items	Priority	Responsible Party(ies)	Status	Target Date
Industrial Automation Inc. (1421 S 93rd Street 98108)					
Industrial Automation covered raw materials and metals in the outside storage lot to limit exposure to stormwater. The facility completed a SWPPP and hired a monthly sweeping service to reduce dust and sediment transport to the storm drain system.	Review inspection reports from the January 24 and June 6, 2012, inspections to verify continued compliance with source control BMPs and corrective actions.	Low	Ecology	Planned	TBD
Absolute German/Former All City Auto Wrecking (9510 & 9525 14th Avenue S 98108)					
During a February 2012 stormwater compliance inspection, Ecology issued corrective actions for leaky equipment exposed to stormwater, lack of BMPs for source control, and failure to submit DMRs. Arsenic in the groundwater samples from wells at both east and west parcels exceeded the MTCA Method A cleanup level. Cadmium in well MW-3 also exceeded screening levels. Groundwater has the potential to discharge to a drainage ditch located at the southern boundary. The drainage ditch is part of the S 96th Street SD basin.	Collect a solids sample from the drainage ditch at the southern boundary of the property. The sample will be analyzed for arsenic and cadmium to assess the potential for sediment recontamination via the groundwater discharge pathway.	Medium	Ecology	Planned	TBD
	Perform a follow-up inspection at Absolute German to verify compliance with corrective actions identified during Ecology's February 2012 stormwater inspection.	Low	Ecology	Planned	TBD
Carey Limousine Service (1237 S Director Street 98108)					
Stormwater is conveyed to a drainage ditch at the south end of the facility via sheet flow. Historical activities at the facility resulted in the release of TPH, BTEX, and metals to soil and groundwater. In 2011, Ecology determined that the groundwater plume from the former Precision Engineering property may be commingled with the groundwater plume associated with this property.	Request that the property owner provide data to define the contaminant plume associated with the property and to verify that contaminants associated with the property are not reaching the LDW.	Medium	Ecology	Planned	TBD
	Perform a follow-up inspection at Carey Limousine to verify compliance with corrective actions identified during Ecology's August 2011 inspection.	Low	Ecology	Planned	TBD

Table ES-1. Source Control Actions – Sea King Industrial Park Source Control Area

Potential Sources	Action Items	Priority	Responsible Party(ies)	Status	Target Date
Former Precision Engineering/Pacific Industrial Supply (1231 S Director Street 98108)					
Previous environmental investigations have determined that soil and groundwater beneath the property is contaminated by metals (including hexavalent chromium) and petroleum hydrocarbons. In groundwater, PAHs are also present. In 2011, Ecology determined the extent of the contaminant plume had not been defined and may be commingled with the contaminant plume associated with the Carey Limousine Services property.	Request that the property owner provide data to define the contaminant plume associated with the property and to verify that contaminants associated with the former Precision Engineering property are not reaching the LDW.	Medium	Ecology	Planned	TBD
Gary Merlino Construction Company (9125 10th Avenue S 98108)					
Merlino Construction did not address corrective actions issued after a July 2011 Ecology follow-up inspection. Corrective actions included properly storing waste, removing grease-stained soil under leaking equipment, and implementing good housekeeping practices. The facility has repeatedly exceeded benchmarks for zinc and copper during quarterly monitoring events.	Perform a follow-up inspection to verify that Merlino Construction has complied with the corrective actions and recommendations identified by Ecology during the July 2011 inspection.	Low	Ecology	Planned	TBD
Wooldridge Boats (1303 S 96th Street 98108)					
Pacific Utility, a previous operator at the property, indicated that oil and water contaminated with PCBs and methylene chloride was discharged to the underground sump in the maintenance yard. PCBs and methylene chloride had the potential to infiltrate soil and groundwater through cracks in the sump or in the drainage lines between the shop floor drains and the sump.	Assess the need for an environmental investigation to determine if soil and groundwater were contaminated by PCBs and methylene chloride due to the disposal of contaminated oil and water in an underground sump in 1992. An investigation may be needed to determine the potential for sediment recontamination via groundwater discharge.	Medium	Ecology	Planned	TBD

Table ES-1. Source Control Actions – Sea King Industrial Park Source Control Area

Potential Sources	Action Items	Priority	Responsible Party(ies)	Status	Target Date
ICON Materials (1115 S 96th Street 98108)					
Following stormwater compliance inspections in 2012, Ecology required the facility to control sediment track out and to prepare and submit a source control plan.	Confirm that ICON Materials has complied with the corrective actions to control track out and prepare a source control plan. This action includes performing a follow-up inspection to verify that the source control plan has been implemented at the facility.	Low	Ecology	Planned	TBD
Western Ports Transportation (9600 8th Avenue S 98108)					
Information was not available to determine if Western Ports vacated the property and/or a new company began operating at the facility.	Perform an inspection to verify that current activities performed at the property are in compliance with applicable source control regulations and BMPs.	Low	Ecology	Planned	TBD
Western United Fish Company (9411 8th Avenue S 98108)					
Western United Fish was fined for discharge of fish products and Styrofoam to the stormwater system in 2007. Western United Fish has not been inspected since 2007. KCIW granted the facility a waste discharge permit in 2008. Information was not available to determine if all discharge goes to the sanitary sewer or the S 96th Street SD system.	Perform a facility inspection to determine compliance with applicable regulations and BMPs for stormwater and hazardous waste management practices.	Low	Ecology	Planned	TBD

Table ES-1. Source Control Actions – Sea King Industrial Park Source Control Area

Potential Sources	Action Items	Priority	Responsible Party(ies)	Status	Target Date
Former Advance Electroplating (9585 8th Avenue S 98108)					
Operations at Show Quality Metal Finishing (current operator) may have the potential for sediment recontamination via the stormwater pathway. Advance Electroplating (historical operator) discharged industrial wastewater to a drainage ditch at the southeast corner of the property from the start of operations in 1964 until the facility was tied into the sanitary sewer in 1981. Concentrations of 1,1,1-trichloroethane, TCE, arsenic, cadmium, chromium, and zinc in groundwater exceeded MTCA Method A cleanup levels. Groundwater discharge in this area of the S 96th Street SD basin contributes year-round to base flow within the storm drain system.	Provide to Ecology the environmental data and sample location maps from the 1995 remedial actions and related investigations performed at the property. Ecology will review the information to determine if metals are present in soil and groundwater at concentrations exceeding current MTCA cleanup levels and to determine the potential for sediment recontamination via the groundwater discharge pathway.	High	EPA, Ecology	Planned	TBD
	Perform a facility inspection at Show Quality Metal Finishing to determine compliance with applicable source controls regulations and BMPs.	Medium	Ecology	Planned	TBD
Former Penberthy Electromelt/ToxGon (9619 8th Avenue S and 631 S 96th Street 98108)					
Soil investigations at the property and adjacent drainage ditch found that arsenic and dioxin/furan concentrations exceeded MTCA Method B cleanup levels and LDW background concentrations. Groundwater samples have not been collected. Groundwater discharge in this area of the S 96th Street SD basin contributes year-round to base flow within the storm drain system.	Request that the property owner collect additional solids samples from the drainage ditch and groundwater samples in order to determine the potential for sediment recontamination via the groundwater discharge pathway.	Medium	Ecology	Planned	TBD

Table ES-1. Source Control Actions – Sea King Industrial Park Source Control Area

Potential Sources	Action Items	Priority	Responsible Party(ies)	Status	Target Date
Old Dominion Freight Lines (600 S 96th Street 98108)					
Groundwater monitoring data from the early 1990s indicates that benzene, cadmium, and zinc were present in concentrations that exceeded MTCA cleanup levels. Cadmium and zinc concentrations exceeded the draft groundwater-to-sediment screening level. Groundwater discharge in this area of the S 96th Street SD basin contributes year-round to base flow within the storm drain system	Request that the property owner collect additional groundwater samples in order to determine the potential for sediment recontamination via the groundwater discharge pathway.	Medium	Ecology	Planned	TBD
Selland Auto Transport (615 S 96th Street 98108)					
The facility exceeded benchmarks for copper and zinc in all four quarters 2011 and the first three quarters of 2012. Zinc concentrations have exceeded the storm drain screening values in storm drain solids near the property.	Perform a follow-up business inspection at Selland Auto to verify compliance with Ecology's recommendations, applicable regulations, and BMPs to prevent the release of contaminants to the LDW.	Low	Ecology	Planned	TBD
Ace Galvanizing (429 S 96th Street 98108)					
Although Ace Galvanizing has made many efforts to improve housekeeping and reduce pollutants, the most recent inspections in 2012 indicate that housekeeping is a continual problem for the facility. Zinc concentrations in groundwater at the property exceeded 1,000,000 µg/L. Groundwater discharge in this area of the S 96th Street SD basin contributes year-round to base flow within the storm drain system EPA sampled storm drain solids from the drainage ditch next to the facility in November 2011; zinc concentrations were over 100 times greater than the CSL-based storm drain screening level.	Request that the property owner collect additional groundwater samples to assess current concentrations of zinc in groundwater at the property and to evaluate whether additional source control actions are needed to minimize the potential for sediment recontamination via the groundwater discharge pathway.	High	Ecology	Planned	TBD
	Review DMRs from third and fourth quarters of 2012 and the beginning of 2013 to assess the water quality of stormwater being conveyed to the S 96th Street SD system from Ace Galvanizing.	Medium	Ecology	Planned	TBD
	Perform a follow-up inspection to determine if Ace Galvanizing is in compliance with corrective actions identified during the May 2012 inspection.	Low	Ecology	Planned	TBD

Table ES-1. Source Control Actions – Sea King Industrial Park Source Control Area

Potential Sources	Action Items	Priority	Responsible Party(ies)	Status	Target Date
RMC (10766 Myers Way S 98108)					
Copper and zinc concentrations in stormwater at the facility exceeded benchmarks in three quarters during 2011.	Perform an inspection to determine if RMC has completed corrective actions to reduce copper and zinc concentrations in stormwater discharge.	Low	Ecology	Planned	TBD
Other Upland Properties					
Facility inspections have not been performed by Ecology, SPU, or King County at the following properties, or new activities have been introduced since the facility was last inspected.	Perform initial inspections at the former Emerald City Machine property, McKinstry Co. S Barton, Mason Dixon Intermodal Inc., and Sound Delivery Service to verify that the facilities are in compliance with applicable source control regulations and BMPs.	Low	Ecology, King County, or SPU	Planned	TBD
Emerald City Machine – 160 S 108th Street 98108 Mason Dixon Intermodal Inc. – 9515 10th Avenue S 98108 McKinstry Co S Barton – 855 S Barton Street 98108 Sound Delivery Service – 9999 8th Avenue S 98108	Contact representatives of Rasmussen Wire Rope (former operator at Sound Delivery Service) to determine if contaminated soil was removed from the property.	Low	Ecology	Planned	TBD

Priority:

High priority action item – to be completed prior to sediment cleanup
Medium priority action item – to be completed prior to or concurrent with sediment cleanup
Low priority action item – ongoing actions or actions to be completed as resources become available

Acronyms/Abbreviations

BMP	best management practice
BTEX	benzene, toluene, ethylbenzene, and xylenes
CKD	cement kiln dust
COC	chemical of concern
cPAH	carcinogenic polycyclic aromatic hydrocarbon
DMR	Discharge Monitoring Report
ISGP	Industrial Stormwater General Permit
KCIW	King County Industrial Waste
LDW	Lower Duwamish Waterway
µg/L	micrograms per liter
MTCA	Model Toxics Control Act
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
SD	storm drain
SMS	Sediment Management Standards
SPU	Seattle Public Utilities
SVOC	semivolatile organic compound
SWPPP	Stormwater Pollution Prevention Plan
TBD	to be determined
TCE	trichloroethene
TEQ	toxic equivalency
TPH	total petroleum hydrocarbons
VOC	volatile organic compound

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Dan Cargill, Source Control Project Manager, Washington State Department of Ecology, Toxics Cleanup Program

Rebecca Chu, Remedial Project Manager for Sediment Source Control, Region 10, U.S. EPA Environmental Cleanup Office

Cynthia Hickey, Senior Engineer, King County Stormwater Services Division

Beth Schmoyer, Senior Engineer, Seattle Public Utilities, City of Seattle

Despina Strong, Industrial Waste Program Manager, King County Wastewater Treatment Division

Richard Thomas, Source Control Specialist, Washington State Department of Ecology, Toxics Cleanup Program

Bruce Tiffany, Water Quality Engineer, King County Wastewater Treatment Division

Bob Wright, Urban Waters Inspector, Washington State Department of Ecology, Water Quality Program

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Acronyms/Abbreviations

µg/L	micrograms per liter
2LAET	second lowest apparent effects threshold
AET	apparent effects threshold
AST	aboveground storage tank
BEHP	bis(2-ethylhexyl)phthalate
bgs	below ground surface
BMP	best management practice
BTEX	benzene, toluene, ethylbenzene, and xylenes
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CKD	cement kiln dust
CNE	Certificate of No Exposure
COC	chemical of concern
cPAH	carcinogenic polycyclic aromatic hydrocarbon
CRI	Concrete Restoration Inc.
CSCSL	Confirmed and Suspected Contaminated Sites List
CSL	Cleanup Screening Level
CSO	combined sewer overflow
DMR	Discharge Monitoring Report
DW	dry weight
EAA	Early Action Area
Ecology	Washington State Department of Ecology
EOF	emergency overflow
EPA	United States Environmental Protection Agency
FS	Feasibility Study
FSID	Facility Site Identification
HPAH	high molecular weight polycyclic aromatic hydrocarbon
HWTR	Hazardous Waste and Toxics Reduction
ID	identification
ISGP	Industrial Stormwater General Permit
ISIS	Integrated Site Information System
KCIW	King County Industrial Waste
LAET	lowest apparent effects threshold
LDW	Lower Duwamish Waterway
LDWG	Lower Duwamish Waterway Group
LPAH	low molecular weight polycyclic aromatic hydrocarbon
LQG	Large Quantity Generator
LUST	leaking underground storage tank
MEK	methyl ethyl ketone
METRO	Municipality of Metropolitan Seattle
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MTCA	Model Toxics Control Act
NFA	No Further Action
ng/kg	nanograms per kilogram
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent

Acronyms/Abbreviations (continued)

NPDES	National Pollutant Discharge Elimination System
OC	organic carbon
PAH	polycyclic aromatic hydrocarbon
PBT	persistent bioaccumulative toxin
PCB	polychlorinated biphenyl
PCE	tetrachloroethene
PEI	Penberthy Electromelt International
PPA	Prospective Purchaser Agreement
PSCAA	Puget Sound Clean Air Agency
PVC	polyvinyl chloride
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
RM	river mile
ROD	Record of Decision
SAIC	Science Applications International Corporation
SCAP	Source Control Action Plan
SCS	Security Contractor Services Inc.
SCWG	Source Control Work Group
SD	storm drain
SKCDPH	Seattle/King County Department of Public Health
SMS	Sediment Management Standards
SPIP	South Park Industrial Properties, LLC
SPU	Seattle Public Utilities
SQS	Sediment Quality Standard
SR	State Route
SVOC	semivolatile organic compound
SWPPP	Stormwater Pollution Prevention Plan
TBD	to be determined
TBT	tributyltin
TCE	trichloroethene
TEQ	toxic equivalency
TOC	total organic carbon
TPH	total petroleum hydrocarbons
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
UST	underground storage tank
VCP	Voluntary Cleanup Program
VOC	volatile organic compound
WAC	Washington Administrative Code
WDOH	Washington Department of Health
WQS	water quality standards
WPCC	Water Pollution Control Commission

1.0 Introduction

This Source Control Action Plan (SCAP) describes potential sources of contamination that may affect sediments in and adjacent to the River Mile (RM) 3.8 to 4.2 West[1] (Sea King Industrial Park) source control area of the Lower Duwamish Waterway (LDW). The purpose of this plan is to evaluate the significance of these sources and to determine if actions are needed to minimize the potential for recontamination of sediment near the Sea King Industrial Park source control area after cleanup. In addition, this SCAP describes:

- Source control actions/programs that are planned or currently underway,
- Sampling and monitoring activities that will be conducted to identify additional sources and assess progress, and
- How these source control efforts will be tracked and reported.

The information in this document was obtained from a variety of sources, including the following documents[2]:

- *Lower Duwamish Waterway, RM 3.8 to 4.2 West (Sea King Industrial Park) – Summary of Existing Information and Identification of Data Gaps* (Data Gaps Report), Science Applications International Corporation (SAIC), May 2013, located on Ecology's website: http://www.ecy.wa.gov/programs/tcp/sites_brochure/lower_duwamish/sites/RM_38_42_W_Sea_King/RM_38_42_W_Sea_King.html
- *Lower Duwamish Waterway Source Control Strategy*, Washington State Department of Ecology (Ecology), January 2004, located on Ecology's website: http://www.ecy.wa.gov/biblio/0409043.html
- *Lower Duwamish Waterway Remedial Investigation*, Windward Environmental LLC (Windward), July 9, 2010, located on Lower Duwamish Waterway Group's website: http://www.ldwg.org/assets/phase2_ri/final%20ri/Final_LDW_RI.pdf
- *Lower Duwamish Waterway Final Feasibility Study*, AECOM , October 31, 2012, located on Lower Duwamish Waterway Group's website: http://www.ldwg.org/rifs_docs9.htm#final2012

1.1 Organization of Document

Section 1 of this SCAP describes the LDW site, the strategy for source control, and the responsibilities of the public agencies involved in source control for the LDW. Section 2 provides background information on the Sea King Industrial Park source control area, including a description of the chemicals of concern (COCs) for sediments. Section 3 provides an overview of potential sources of contaminants that may affect sediments near the Sea King Industrial Park source control area, including outfalls, spills, properties adjacent to the LDW, and upland

[1] River miles as defined in this report are measured from the southern tip of Harbor Island.
[2] This SCAP incorporates data published through April 30, 2013. Section 5, Tracking and Reporting of Source Control Activities, describes how newer data will be disseminated.

properties within the S 96th Street storm drain (SD) basin. Section 3 also describes actions planned or currently underway to control potential sources of contaminants. Sections 4 and 5 describe monitoring and tracking/reporting activities, respectively. References are listed in Section 6, and figures and tables are presented at the end of the document.

As new information about the facilities and potential sources discussed in this document becomes available and as source control progress is made, Ecology will update the information in this SCAP as needed. The status of source control actions is summarized in the LDW Source Control Status Reports (Ecology 2007d, 2008e, 2008k, 2009d, 2011f, 2012g, 2013 and as updated).

1.2 Lower Duwamish Waterway Site

The LDW is the downstream portion of the Duwamish River, extending from the southern tip of Harbor Island to just south of the Norfolk combined sewer overflow (CSO) (Figure 1). It is a major shipping route for bulk and containerized cargo. Most of the upland areas adjacent to the LDW have been developed for industrial and commercial operations. These include cargo handling and storage, marine construction, boat manufacturing, marina operations, concrete manufacturing, paper and metals fabrication, food processing, and aerospace manufacturing. In addition to industry, the river is used for fishing, recreation, and wildlife habitat. Residential areas near the waterway include the South Park and Georgetown neighborhoods.

Beginning in 1913, this portion of the Duwamish River was dredged and straightened to promote navigation and industrial development, resulting in the river's current form. Shoreline features within the waterway include constructed bulkheads, piers, wharves, buildings extending over the water, and steeply sloped banks armored with riprap or other fill materials (Weston 1999). This development left intertidal habitats dispersed in relatively small patches, with the exception of Kellogg Island, which is the largest contiguous area of intertidal habitat remaining in the Duwamish River (Tanner 1991). Over the past 20 years, public agencies and volunteer organizations have worked to restore intertidal and subtidal habitat to the river. Some of the largest restoration projects are at Herring's House Park/Terminal 107, Turning Basin 3, Hamm Creek, and Terminal 105. The Hamm Creek Restoration Area is immediately south of the Sea King Industrial Park source control area.

The presence of chemical contamination in the LDW has been recognized since the 1970s (Windward 2003b). In 1988, the United States Environmental Protection Agency (EPA or USEPA) investigated sediments in the LDW as part of the Elliott Bay Action Program. Problem chemicals identified by the EPA study included metals, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), phthalates, and other organic compounds. In 1999, EPA completed a study of approximately 6 miles of the waterway, from the southern tip of Harbor Island to just south of the turning basin near the Norfolk CSO (Weston 1999). This study confirmed the presence of PCBs, PAHs, phthalates, mercury, and other metals. These contaminants pose threats to people, fish, and wildlife.

In December 2000, EPA and Ecology signed an agreement with King County, the Port of Seattle, the City of Seattle, and The Boeing Company, collectively known as the Lower Duwamish Waterway Group (LDWG). Under the agreement, the LDWG is conducting a Remedial Investigation (RI) and Feasibility Study (FS) of the LDW to assess risks to human health and the

environment and to evaluate cleanup alternatives. The RI for the site was completed in two phases. Results of Phase 1 were published in July 2003 (Windward 2003b). The Phase 1 RI used existing data to characterize the nature and extent of chemical contamination in LDW sediments, develop preliminary risk estimates, and identify candidate sites for early cleanup action. The Phase 2 RI was published in July 2010, and presents the results of investigations conducted for the LDW study area between 2003 and 2009, including studies to assess sediment dynamics, the nature and extent of contamination in the LDW, preliminary background concentrations, ecological and human health risks, and potential chemical sources (Windward 2010b). No additional early cleanup areas were identified. The final FS, which addresses cleanup options for contaminated sediments in the LDW, was completed in October 2012. A Proposed Plan for cleanup of the LDW was completed in February 2013 and was available for public review through June 13, 2013. Currently, EPA is reviewing comments on the Proposed Plan.

On September 13, 2001, EPA added the LDW to its National Priorities List. This is EPA's list of hazardous waste sites that warrant further investigation and cleanup under Superfund. Ecology added the site to the Washington State Hazardous Sites List on February 26, 2002.

An interagency Memorandum of Understanding, signed by EPA and Ecology in April 2002 and updated in April 2004, divides responsibilities for the site (EPA and Ecology 2002, 2004). EPA is the lead agency for the RI/FS, while Ecology is the lead agency for source control issues.

In June 2003, the *Technical Memorandum: Data Analysis and Candidate Site Identification* was issued. Seven candidate sites for early action were recommended. The sites, as listed in the Technical Memorandum (Windward 2003a), are:

- Area 1: Area near Duwamish/Diagonal CSO/SD, on the east side of the LDW (RM 0.4 to 0.6);
- Area 2: Located at approximately RM 2.2, on the west side of the LDW, just south of the 1st Avenue S Bridge;
- Area 3: Slip 4 (RM 2.8);
- Area 4: Located south of Slip 4, on the east side of the LDW, just offshore of the Boeing Plant 2 and Jorgensen Forge properties (RM 2.9 to 3.7);
- Area 5: Located at approximately RM 3.6, on the west side of the LDW;
- Area 6: Located at approximately RM 3.8, on the east side of the LDW; and
- Area 7: Area near Norfolk CSO (RM 4.9-5.0), on the east side of the LDW.

Ecology and EPA refined the boundaries of the candidate early action areas (EAAs), generally based on storm drain basin boundaries. The seven candidate EAAs are shown on Figure 1.

Of the seven candidate EAAs, five either had sponsors to begin investigations or were already under investigation by a member or group of members of the LDWG. These five sites are: Slip 4, Terminal 117, Boeing Plant 2, Duwamish/Diagonal CSO/SD, and Norfolk CSO/SD.[3] EPA is the lead agency for managing cleanup at Terminal 117 and Slip 4. The other three early action

[3] These five sites are identified as EAAs in the Final FS for the Lower Duwamish Waterway, published on October 31, 2012 (AECOM 2012). The two candidate EAAs without sponsors are identified in the Final FS as Areas of Potential Concern.

cleanup projects were begun before the current LDW RI/FS was initiated. Cleanup at Boeing Plant 2, under the Resource Conservation and Recovery Act (RCRA), with oversight by EPA, is currently in progress. The Duwamish/Diagonal CSO/SD and Norfolk CSO/SD cleanups are under King County management as part of the Elliott Bay-Duwamish Restoration Program. Cleanup at Duwamish/Diagonal was partially completed in March 2004; a partial sediment cleanup was conducted at Norfolk CSO/SD in 1999. Additional sediment removal actions were completed by Boeing inshore of the Norfolk CSO/SD area in September 2003 and by the City of Seattle in Slip 4 in February 2012. Early action cleanups may involve members of the LDWG or other parties as appropriate. Planning and implementation of early action cleanups is being conducted concurrently with the RI/FS.

In 2007, Ecology, in consultation with EPA, identified eight additional source control areas based on available sediment data, size of the upland basin draining to the source control area, and general knowledge about facilities operating in the basin. In February 2008, Ecology identified the areas of the LDW not covered by a SCAP or planned SCAP. Using the same criteria as in 2007, eight additional potential source control areas were added to the list (Ecology 2008e). The Sea King Industrial Park source control area was identified as one of these areas. One additional source control area was added by Ecology in 2010, for a total of 24 source control areas. Ecology and EPA redefined the boundaries of the source control areas, generally defined by stormwater drainage basins. The seven candidate EAAs and 17 additional source control areas are shown in Figure 1. Stormwater drainage basins located in the vicinity of the Sea King Industrial Park source control area are shown on Figure 2.

Further information about the LDW can be found at:
http://yosemite.epa.gov/r10/cleanup.nsf/sites/lduwamish and
http://www.ecy.wa.gov/programs/tcp/sites_brochure/lower_duwamish/lower_duwamish_hp.html

1.3 LDW Source Control Strategy

The LDW Source Control Strategy (Ecology 2004) describes the process for identifying source control issues and implementing effective source controls for the LDW. The plan is to identify and manage sources of potential contamination and recontamination in coordination with sediment cleanups. The goal of the strategy is to minimize the potential for recontamination of sediments to levels exceeding the LDW sediment cleanup goals and the Washington State Sediment Management Standards (SMS).[4] Existing administrative and legal authorities will be used to perform inspections and require necessary source control actions. Ecology revised the LDW Source Control Strategy in December 2012. The draft final strategy will be published in 2013 (Ecology 2012i).

The strategy is being implemented through the development of a series of detailed, area-specific SCAPs that will be coordinated with sediment cleanups, beginning with the candidate EAAs. Each SCAP will document what is known about the area, the potential sources of recontamination, actions taken to address them, and how to determine when adequate source control is achieved for an area. Because the scope of source control for each area will vary, it is necessary to adapt each

[4] Washington Administrative Code (WAC) 173-204

plan to the specific situation at that area. The success of this strategy depends on the coordination and cooperation of all public agencies with responsibility for source control in the LDW area, as well as prompt compliance by the businesses that must make necessary changes to control releases from their properties.

The source control strategy focuses on controlling contamination that affects LDW sediments. It is based on the principles of source control for sediment sites described in EPA's *Principles for Managing Contaminated Sediment Risks at Hazardous Waste Sites; February 12, 2002* (USEPA 2002), and Ecology's SMS. The first principle is to control sources early, starting with identifying all ongoing sources of contaminants to the site. EPA's Record of Decision (ROD) for the site will require that sources of sediment contamination to the entire site be evaluated, investigated, and controlled as necessary. Dividing source control work into specific SCAPs and prioritizing those plans to coordinate with sediment cleanups will address the guidance and regulations and will be consistent with the selected remedial actions in the EPA ROD.

Source control priorities are divided into four tiers. Tier 1 consists of source control actions associated with candidate EAA sediment cleanups. Tier 2 consists of source control actions associated with cleanup areas identified in the RI/FS and EPA's ROD. Tier 3 consists of source control necessary to minimize future sediment contamination from basins that may not drain directly to an identified sediment cleanup area. Tier 4 consists of source control necessary to address any recontamination identified by post-cleanup sediment monitoring (Ecology 2008e). This document is a SCAP for a Tier 3 Source Control Area.

Further information about the LDW Source Control Strategy can be found at:
http://www.ecy.wa.gov/biblio/0409052.html and
http://www.ecy.wa.gov/programs/tcp/sites_brochure/lower_duwamish/lower_duwamish_hp.html

1.4 Source Control Work Group

The primary public agencies responsible for source control for the LDW are Ecology, the City of Seattle, King County, the Port of Seattle, the City of Tukwila, and EPA. All of these agencies, except the Port of Seattle and the City of Tukwila, are involved in the source control activities for the Sea King Industrial Park source control area.

In order to coordinate among these agencies, Ecology formed the Source Control Work Group (SCWG) in January 2002. The purpose of the SCWG is to share information, discuss strategy, actively participate in developing SCAPs, jointly implement source control measures, and share progress reports on source control activities for the LDW area. The monthly SCWG meetings are chaired by Ecology. All final decisions on source control actions and completeness will be made by Ecology, in consultation with EPA, as outlined in the April 2004 Ecology/EPA LDW Memorandum of Understanding (EPA and Ecology 2004).

Other public agencies with relevant source control responsibilities include the Washington State Department of Transportation, Puget Sound Clean Air Agency (PSCAA), and the Seattle/King County Department of Public Health (SKCDPH). These agencies are invited to participate in source control with the SCWG as appropriate (Ecology 2004).

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2.0 River Mile 3.8 to 4.2 West (Sea King Industrial Park)

The Sea King Industrial Park source control area is located along the western side of the LDW Superfund Site between RM 3.8 and 4.2 (Figure 1). Elevated concentrations of chemicals have been measured in sediments near the source control area, including arsenic, mercury, zinc, PCBs, PAHs, butyl benzyl phthalate, benzyl alcohol, pesticides, and dioxins/furans. These may be a result of historical and/or ongoing sources within the source control area.[5] Chemicals may have entered the LDW through direct discharges, spills, bank erosion, groundwater discharge, surface water runoff, atmospheric deposition, or other non-point source discharges.

RM 3.8 to 4.2 West extends from the Boeing South Park facility to the Delta Marine facility (Figure 3). The source control area includes the S 96th Street SD basin (Figure 4). Properties located directly adjacent or within close proximity to the waterway between RM 3.8 and 4.2 West include:

- Boeing South Park
- Sea King Industrial Park
- KRS Marine
- Duwamish Yacht Club
- Delta Marine

Ninety (90) upland facilities that could potentially affect sediments near the Sea King Industrial Park source control area were identified. These facilities are listed in Table 1. The adjacent and upland facilities are shown on Figures 5 through 11. The tax parcels associated with these facilities are identified on Figure 12. On Figure 12 and throughout this SCAP, most tax parcels are identified by the last four digits of the parcel identification number. The 10-digit parcel number is used if there are two or more parcels where the last four digits of the identification number are identical.

2.1 Chemicals of Concern in Sediment

Sediments near the Sea King Industrial Park source control area generally consist of approximately 40 to greater than 80 percent fines. Total organic carbon (TOC) in this area ranges from 0.39 to 3.39 percent (Windward 2010b).

[5] Historical sources of PCBs include electrical equipment spills and leakage, residential trash burning, and building sealant (caulk) volatilization and abrasion. Sources of phthalates include polymer (primarily PVC) off-gassing, industrial and commercial air emissions, and leaching of roofing materials (Ecology and King County 2011).

Several environmental investigations have included the collection of sediment near the Sea King Industrial Park source control area. Sampling locations are listed in Table 2 and are shown in Figures 13a through 13c.

- Five surface sediment samples collected during the Duwamish Yacht Club Sediment Characterization in 1989 (Herrera 1994);
- One surface sediment sample collected for the South 96th Street Water Quality Engineering Report in 1993 (Herrera 1994);
- Eight surface sediment samples collected during the Boeing Site Characterization in 1997 (Exponent 1998);
- Twelve surface sediment samples collected as part of a National Oceanic and Atmospheric Administration (NOAA) sediment characterization of the Duwamish River in 1997 (NOAA 1998);
- Ten surface sediment samples collected during an EPA Site Inspection in 1998 (Weston 1999);
- Six surface sediment samples collected to characterize dredge material at the Duwamish Yacht Club in 1999 (Windward 2003b);
- One surface sediment sample collected as part of a benthic invertebrate and clam tissues study in 2004 (Windward 2005a);
- Nine surface sediment and two subsurface sediment samples from one coring location collected during the LDW Phase 2 RI from 2005 to 2006 (Windward 2005a, 2005b, 2005c, 2007);
- One surface sediment and one beach sediment composite sample collected during the LDW RI Dioxin Sampling in 2010 (Windward 2010a); and
- Nine surface sediment samples collected as part of outfall sampling in 2011 (SAIC 2011).

Sediment data near the Sea King Industrial Park source control area are detailed in the Sea King Industrial Park Data Gaps Report (SAIC 2013). Chemical data were compared to the SMS, which include both the Sediment Quality Standards (SQS) and Cleanup Screening Levels (CSLs) (WAC 173-204). Sediments that meet the SQS criteria have a low likelihood of adverse effects on sediment-dwelling biological resources. However, an exceedance of the SQS numerical criteria does not necessarily indicate adverse effects or toxicity, and the degree of SQS exceedance does not correspond to the level of sediment toxicity. The CSL is greater than or equal to the SQS and represents a higher level of risk to benthic organisms than SQS levels. The SQS and CSL values provide a basis for identifying sediments that may pose a risk to some ecological receptors. The SMS for most organic chemicals are based on total organic carbon (OC)-normalized concentrations. The results of this comparison are provided in Table 3.

COCs were identified based on the results of sediment sampling in the vicinity of the Sea King Industrial Park source control area, as identified above. Chemicals that exceeded the SQS in at least one surface or subsurface sediment sample are considered COCs for the Sea King Industrial Park source control area. In general, chemicals were present in sediment samples at

concentrations only slightly above the SQS values; the greatest exceedances were observed for zinc and benzyl alcohol near Outfall SP3 and PCBs near Outfall SP1. The exceedance factors for these chemicals were between 3 and 3.5 (Figure 13b, Table 3). The highest concentrations of dioxins/furans were detected at location LDW-SS131, which was collected near Outfall 2100(A) (Figure 13c). No SQS or CSL exceedances were observed in subsurface sediment samples. Additional information on SQS/CSL exceedances is provided in the Sea King Industrial Park Data Gaps Report (SAIC 2013).

The following chemicals were detected in sediments near the Sea King Industrial Park source control area at concentrations above the SQS/CSL, and are considered sediment COCs.

Chemicals Detected at Concentrations Above the SQS/CSL	Surface Sediment	
	> SQS	> CSL
Metals		
Mercury	●	
Zinc	●	●
PAHs		
Benzo(g,h,i)perylene	●	
Dibenzo(a,h)anthracene	●	
Phthalates		
Butyl benzyl phthalate	●	
Other SVOCs		
Benzyl alcohol	●	
PCBs		
PCBs (total)	●	

Exceedance factors, which are a measure of the degree to which maximum detected concentrations exceed the SQS/CSL values, are listed in Table 3.

Although no SQS have been promulgated, pesticides are considered potential COCs for the Sea King Industrial Park source control area. Concentrations of pesticides including dichloro-diphenyldichloroethane (DDD), dichlorodiphenyltrichloroethane (DDT), dichlorodiphenyldichloroethylene (DDE), hexachlorobenzene,[6] and methoxychlor were detected in nine surface sediment samples. Concentrations of pesticides were detected most frequently at surface sample location DR284 (Figure 13c).

Organotin compounds are persistent bioaccumulative toxins (PBTs) and are generally considered COCs for LDW sediments. Tributyltin (TBT) is used as the indicator chemical for organotin compounds. The mean concentration of TBT in the LDW is 90 milligrams per kilogram (mg/kg) dry weight (DW) (AECOM 2012). Between 1998 and 2005, organotin compounds were detected

[6] Hexachlorobenzene concentrations did not exceed the SQS (0.38 mg/kg OC) or CSL (2 mg/kg OC) in sediment samples collected near the Sea King Industrial Park source control area (SAIC 2013).

in eight samples collected near the Sea King Industrial Park source control area. TBT was detected in all eight samples with concentrations ranging from 0.0023 to 0.053 mg/kg DW (LDW-SS131, Figure 13c). Since the maximum TBT concentration in sediments near the Sea King Industrial Park source control area is more than three orders of magnitude below the mean TBT concentration in LDW sediment, organotin compounds are not considered COCs for the sediments near the Sea King Industrial Park source control area.

Dioxins and furans are considered potential COCs within the Sea King Industrial Park source control area. These compounds were detected in four sediment samples at concentrations that exceed the LDW background TEQ for dioxins and furans as described in *Lower Duwamish Waterway Remedial Investigation Report* (Windward 2010b). Dioxin/furan TEQs ranged from 1.3 nanograms per kilogram (ng/kg) DW to 22.7 ng/kg DW (LDW-SS131, Figure 13c).

2.2 Potential Pathways to Sediment

Transport pathways that could potentially contribute to sediment contamination near the Sea King Industrial Park source control area include direct discharges via storm drain outfalls, surface runoff (sheet flow), groundwater discharge, bank erosion, atmospheric deposition, and spills directly to the LDW. Relevant pathways are described briefly below, and are discussed in more detail in the Sea King Industrial Park Data Gaps Report (SAIC 2013). Specific contaminant sources and transport pathways are discussed in Section 3.

2.2.1 Direct Discharges from Outfalls

The LDW area is served by a combination of separated storm drain and sanitary sewers, and combined sewer systems. Storm drains convey stormwater runoff collected from streets, parking lots, roof drains, and residential, commercial, and industrial properties to the waterway. In the LDW, there are both public and private storm drain systems. Most of the waterfront properties along the LDW are served by privately owned systems that discharge directly to the waterway. The other upland areas are served by a combination of privately and publicly owned systems. The storm drain systems in the Sea King Industrial Park source control area are publicly owned by the City of Seattle and King County. Privately owned storm drain systems are operated by Boeing and Delta Marine.

Storm drains entering the LDW carry runoff generated by rain and snow. A wide range of chemicals may become dissolved or suspended in runoff as rainwater flows over the land. Urban areas may accumulate particulates, dust, oil, asphalt, rust, rubber, metals, pesticides, detergents, or other materials as a result of urban activities. These can be flushed into storm drains during wet weather. Storm drains can also convey materials from businesses with permitted discharges (i.e., National Pollutant Discharge Elimination System [NPDES] industrial or individual stormwater permits), vehicle washing, runoff from landscaped areas, erosion of contaminated soil, groundwater infiltration, and materials illegally dumped into the system.

Some areas of the LDW are served by combined sewer systems, which carry both stormwater and municipal/industrial wastewater in a single pipe. These systems were generally constructed before about 1970 because it was less expensive to install a single pipe rather than separate storm

and sanitary systems. Under normal rainfall conditions, wastewater and stormwater are conveyed through this combined sewer pipe to a wastewater treatment facility. During large storm events, however, the total volume of wastewater and stormwater can sometimes exceed the conveyance and treatment capacity of the combined sewer system. When this occurs, the combined sewer system is designed to overflow through relief points, called CSOs. The CSOs prevent the combined sewer system from backing up and creating flooding problems. The 8th Avenue S CSO basin covers much of the Sea King Industrial Park source control area (Figure 4); the outfall for the CSO basin is located within the Riverside Drive source control area.

Additional information on public storm drains is presented in the Sea King Industrial Park Data Gaps Report (SAIC 2013). The S 96th Street SD basin is composed of five sub-basins. Stormwater within each sub-basin is ultimately discharged to the LDW through the S 96th Street Outfall. In four of the five sub-basins, stormwater is first conveyed to a series of wetlands. There is one public outfall (S 96th Street SD Outfall), five private outfalls, and four unresolved outfalls within the Sea King Industrial Park source control area. The outfalls and the S 96th Street SD basin are discussed in more detail in Section 3. Emergency overflows (EOFs) are not present within the Sea King Industrial Park source control area (Figure 4).

2.2.2 Surface Runoff (Sheet Flow)

In areas lacking collection systems, spills or leaks on properties adjacent to the LDW could flow directly over impervious surfaces or through creeks and ditches to the waterway. Current operational practices at adjacent properties may contribute to the movement of contaminants to the LDW via runoff.

2.2.3 Spills to the LDW

Near-water and overwater activities have the potential to impact adjacent sediment from spills of material containing COCs directly to the LDW. Commercial and industrial properties adjacent to the LDW within the Sea King Industrial Park source control area conduct overwater activities. Accidental spills during loading/unloading operations may result in transport of contaminants to sediment. Facilities that conduct overwater activities include KRS Marine, Duwamish Yacht Club, and Delta Marine.

2.2.4 Groundwater Discharges

Contaminants in soil resulting from spills and releases to adjacent and upland properties may be transported to groundwater and subsequently released to the LDW and the Sea King Industrial Park source control area. Groundwater discharge/infiltration into the S 96th Street storm drain basin contributes year-round base flow to the sub-basins in the drainage system (Herrera 1994).

Soil and groundwater contamination has been documented at several properties within the Sea King Industrial Park source control area (SAIC 2013).

Facility	Contaminated Soil	Contaminated Groundwater	Potential for Sediment Recontamination[a]
Absolute German	●	●	Low to medium
Ace Galvanizing	●	●	Low
Former Advance Electroplating	●	●	Unknown
Carey Limousine Service	●	●	Low
Gary Merlino Construction	●	●	Low
KRS Marine	●		Low
ICON Materials Asphalt Plant	●		Low
Norman Property	●		Low
Old Dominion Freight Line	●	●	Unknown
Former Penberthy Electromelt	●		Unknown
Former Precision Engineering	●	●	Unknown
Puget Sound Coatings	●	●	Unknown
Selland Auto Transport	●	●	Low
Simplex Grinnell/Sherwin Williams/ NRC Environmental (former Markey Property)	●	●	Low
Terex Utilities (former Fruehauf Trailer Services)	●	●	Low

a – As determined in the Sea King Industrial Park Data Gaps Report (SAIC 2013).

Concentrations of chemicals in soil and groundwater were compared to draft soil-to-sediment or groundwater-to-sediment screening levels (SAIC 2006). These screening levels were initially developed to assist in the identification of upland properties that may pose a potential risk of recontamination of sediments at Slip 4. The screening levels incorporate a number of conservative assumptions, including the absence of contaminant dilution and ample time for contaminant concentrations in soil, sediment, and groundwater to achieve equilibrium. In addition, the screening levels do not address issues of contaminant mass flux from upland media to sediments, nor do they address the area or volume of sediment that might be affected by upland contaminants. Because of these assumptions and uncertainties, these screening levels are most appropriately used for one-sided comparisons. If contaminant concentrations in upland soil or groundwater are below these screening levels, then it is unlikely that they will lead to exceedances of the SMS. However, upland concentrations that exceed these screening levels *may or may not* pose a threat to marine sediments; additional property-specific information must be considered in order to make such an assessment. While not currently considered COCs in sediment, these chemicals may warrant further investigation, depending on property-specific conditions, to evaluate the likelihood that they will lead to exceedances of the SMS.

Soil and groundwater contaminated by petroleum hydrocarbons have been identified at several properties within the Sea King Industrial Park source control area. Where these contaminants are present in the subsurface, naturally occurring arsenic in soil can be mobilized and migrate into groundwater (Harter and Rollins 2008). Arsenic was identified as a COC for the sediments near the Sea King Industrial Park source control area.

No source control actions related to the groundwater discharge pathway were identified for facilities where the potential for sediment recontamination was determined to be low (with the exceptions of Carey Limousine Service, Section 3.3.4 and Ace Galvanizing, Section 3.3.15). Groundwater contamination at Puget Sound Coatings appears to be the result of contaminant migration from the former Advance Electroplating property; additional information is provided in Section 3.3.11.

Five seep locations were identified during the 2004 seep reconnaissance survey conducted by the LDWG. The Sea King Industrial Park source control area was identified as an area with higher general seepage levels, with the exception of the area around RM 4.1 West, where Hamm Creek discharges to the LDW (Windward 2004). Seep 41 and Seep 39 were selected for chemical analysis (Figures 13b and 13c). Copper was detected in Seep 39 at a concentration 3 times the Marine Chronic Water Quality Standard of 3.1 micrograms per liter (µg/L).

2.2.5 Bank Erosion

The banks of the LDW shoreline are susceptible to erosion by wind and surface water, particularly in areas where banks are steep. Shoreline armoring and the presence of vegetation reduce the potential for bank erosion. Contaminants in soils along the banks of the LDW could be released directly to sediments via erosion. Concentrations of petroleum hydrocarbons in soil were below Model Toxics Control Act (MTCA) cleanup levels. Soil contamination has not been documented at the other adjacent properties within the Sea King Industrial Park source control area (SAIC 2013).

In May 2011, six bank soil samples were collected near the Sea King Industrial Park property (Figure 13b). Soil samples were analyzed for metals, PCBs, PAHs, other semi-volatile organic compounds (SVOCs), total petroleum hydrocarbons (TPH), TBT, polybrominated diethyl ethers, pesticides, and dioxins/furans. Chemical concentrations in the bank soil samples did not exceed SMS. Concentrations of arsenic, total carcinogenic PAHs (cPAHs), PCBs and dioxin/furan TEQ exceeded LDW natural background concentrations (Hart Crowser 2012), but did not exceed the LDW Remedial Action Levels (SAIC 2013).

2.2.6 Atmospheric Deposition

Atmospheric deposition occurs when air pollutants enter the LDW directly or through stormwater. Air pollutants may be generated from point or non-point sources. Point sources include industrial facilities, and air pollutants may be generated from painting, sandblasting, loading/unloading of raw materials, and other activities, or through industrial smokestacks. Non-point sources include dispersed sources such as vehicle emissions, aircraft exhaust, and off-gassing from common materials such as plastics. Air pollutants may be transported over long distances by wind, and can be deposited to land and water surfaces by precipitation or particle deposition.

Several properties within the Sea King Industrial Park source control area are currently regulated as a point source of air emissions. These properties are listed below:

Facility	PSCAA Facility Registration No.
Ace Galvanizing Inc.	11695
Aero-Lac Inc.	10436
Allied Body Works Inc.	10071
Container Care International	10438
Delta Marine Industries Inc.	28365
Gary Merlino Construction Co.	13270G
ICON Materials	21300
Industrial Automation Inc.	18101
Puget Sound Coatings Machinists DSR	11860
Repair Technology Inc.	10029
RMC Inc.	29297
T & H Autobody	17303
Top Hat Mini Mart	10555G

Contaminants originating from nearby properties and streets may be transported through the air and deposited at RM 3.8 to 4.2 West or in areas that drain to the LDW. Although chemical deposition from air directly to the LDW probably occurs, this mechanism is not likely to result in sediment concentrations above local background levels. Secondary impacts of air sources on the stormwater pathway to receiving waters and sediment are not well understood; additional information is needed. Recent and ongoing atmospheric deposition studies in the LDW area are summarized in the LDW Source Control Status Report (Ecology 2007d and subsequent updates). Ecology is currently conducting an air deposition scoping study to inventory known point sources and make recommendations on how to address air deposition for source control.

3.0 Potential Sources of Sediment Recontamination

Potential sources of sediment recontamination are described in detail in the Sea King Industrial Park Data Gaps Report (SAIC 2013). This section summarizes the information on outfalls (Section 3.1), adjacent properties (Section 3.2), and upland properties (Section 3.3).

3.1 Outfalls

Storm drains convey stormwater runoff collected from streets, parking lots, roof drains, and residential, commercial, and industrial properties to the LDW. Storm drains entering the LDW carry runoff generated by rain and snow. A wide range of chemicals may become dissolved or suspended in runoff as rainwater flows over the land. Urban areas generally accumulate particulates, dust, oil, asphalt, rust, rubber, metals, pesticides, detergents, or other materials as a result of human activities throughout the drainage basin.

Human activities include landscaping, spills, illegal dumping, vehicle maintenance (fueling, washing), and vehicle use (wear on roads, tires, brakes, fluid leaks, and emissions). These materials can be flushed into storm drains during wet weather and are then conveyed to the waterway, mainly through the storm drain system. In addition, contaminants in soil or groundwater could enter the system through cracks or gaps in the stormwater piping.

Within the Sea King Industrial Park source control area, ten outfalls discharge to the LDW. One outfall is public and five outfalls are private. The sources and contributions to four outfalls are unresolved (Figure 4).

3.1.1 Public Storm Drain Outfalls

Outfall No.	Outfall Name	Location	Pipe Diameter/Material	Outfall Type
2100(A)	S 96th Street SD	4.2 W	72-inch corrugated metal pipe	King County SD

Source: LDW Phase 2 RI Final (Windward 2010b, Appendix H)

Lateral storm drain lines, open ditches, culverts, and wetlands connect several of the surrounding facilities to the main line of the S 96th Street SD basin. The S 96th Street SD basin discharges to the LDW via Outfall 2100(A) (Windward 2010b).

Seattle Public Utilities (SPU) and EPA collected storm drain solids samples from the storm drain structures associated with the S 96th Street SD basin between March 2008 and April 2012. The SCWG compares analytical results from these samples to the SQS, apparent effects threshold (AET), and MTCA Method A cleanup standards. Although these regulatory standards are not applicable to storm drain solids, the SCWG uses these values as a benchmark to describe storm drain solids quality (SPU 2010d). In this document, values described above (SQS/CSL, lowest AET [LAET]/second lowest AET [2LAET], and MTCA Method A) that are used for comparison to storm drain solids data are referred to as “storm drain screening values.” It should be emphasized that none of these values are applied as cleanup levels to storm drain or combined sewer solids. It is important to note that any comparison of this kind is most likely conservative

given that sediments discharged from storm drains are highly dispersed in the receiving environment and mixed with the natural sedimentation taking place in the system.

S 96th Street SD Basin (Outfall 2100(A))

Historical documents reviewed for Sea King Industrial Park Data Gaps Report referred to the drainage basin discharging to the LDW at Outfall 2100(A) as both the Hamm Creek Watershed and S 96th Street drainage system. For the purpose of this SCAP, the drainage basin will be described as the S 96th Street SD basin to remain consistent with previous data gaps reports, SCAPs, and LDW Source Control Status Reports.

The S 96th Street SD basin is composed of two major drainage and conveyance systems known as the S 95th Street and S 96th Street systems. The conveyance and drainage system is composed of open ditches, culverts, wetlands, and piped storm drains. The drainage and conveyance systems merge at S 95th Street, east of State Route (SR) 99. Flow is conveyed 500 feet eastward and discharges to the LDW via Outfall 2100(A) (Herrera 1994). The drainage and conveyance systems are divided into the following sub basins:

Sub Basin	Drainage and Conveyance System	Area	Land Use
1	S 95th Street	584 acres	60% residential, 25% commercial/industrial, 15% open space
2	S 96th Street	114 acres	60% residential, 25% commercial/industrial, 15% open space
3	S 95th Street	230 acres	60% residential, 20% commercial/industrial, 20% open space
4	S 95th Street	119 acres	93% residential, 5% commercial/industrial, 2% open space
5	S 95th Street	60 acres	30% residential, 25% commercial/industrial, 45% open space

The S 95th Street drainage and conveyance system collects flows from sub-basins 1, 2, 4, and 5 (Figure 14). The sub-basins converge at 8th Avenue S and S 96th Street. Flow is conveyed eastward along S 96th Street via culverts and open ditches to the S 95th Street Wetland (Figures 4 and 15a). The S 95th Street Wetland is seasonally flooded and saturated by overflows from the S 95th Street ditch and the seasonally high groundwater table. Flows are then piped via two 48-inch pipelines to the SR 99 Cloverleaf Wetland (Figures 4 and 15a). The Cloverleaf Wetland is located at the cloverleaf formed by on ramps and off ramps serving SR 99 at 14th Avenue S. The Cloverleaf Wetland also receives runoff from approximately 1,600 linear feet of SR 99 north of the wetland. Stormwater runoff and shallow groundwater contribute to the seasonally flooded and saturated hydrology of the Cloverleaf Wetland. The Cloverleaf Wetland is piped eastward under SR 99 via two 48-inch drainpipes. A drainage pipe from the South 93rd Business Park connects to the 48-inch drainpipes. The 48-inch drainpipes connect to a 72-inch pipeline and discharge to the LDW via Outfall 2100(A) (Figure 15a). Groundwater discharge contributes year-round base flow to the sub-basins in the S 95th Street drainage system (Herrera 1994).

The S 96th Street drainage and conveyance system collects flows from sub-basin 2 and conveys the flow eastward under SR 99 via a 36-inch pipeline. After crossing SR 99, the flow is conveyed via a 60-inch pipeline under the Delta Marine property and discharges to the LDW via Outfall 2100(A) (Figure 15a) (Herrera 1994).

The 1994 S 96th Street Water Quality Engineering Report compared groundwater level measurements with reported elevations of the storm drainage system. Groundwater in the drainage basin would be expected to discharge into existing drains throughout the drainage area beginning several hundred feet east of SR 509. The rate and direction of groundwater flow into the drainage system in this area is likely to be highly variable (Herrera 1994).

The 1994 engineering report included a discussion about nonpoint source pollution control alternatives. Phase I included a basin-wide source control plan and water quality and sediment monitoring plan. Phase II included installation of a pipeline along S 96th Street to divert high flows from the Hamm Creek north and middle forks around the industrial areas. Phase III included completion of a regional stormwater treatment system (Herrera 1994). Phase I was completed in February 1999. The map included with a 2012 report documenting storm drain solids sampling (KTA 2012b) appears to indicate that Phase II has been implemented, with the north and middle forks now discharging to the LDW near Outfall 2100(A). Additional information about whether or not Phases II and III have been implemented was not available for review.

There are 90 facilities within the S 96th Street SD basin, including adjacent and upland facilities (Table 1). Facilities are presented on Figures 5 through 11:

- 46 of these facilities have an active EPA ID number.
- 11 facilities are listed on Ecology's Confirmed and Suspected Contaminated Sites List (CSCSL) (5 of these facilities have received a No Further Action [NFA] determination from Ecology).
- 27 facilities are covered under a NPDES Permit.
- 3 facilities have received a King County Industrial Waste discharge authorization or permit.
- 19 facilities are listed on Ecology's UST and/or LUST lists.

Additionally, an unknown number of undocumented industrial operations may take place within the S 96th Street SD basin. Undocumented industrial activities may be an ongoing source of contaminants to sediments adjacent to the Sea King Industrial Park source control area.

In 1995, the King County Water and Land Resources Division implemented the Phase I recommendation of the 1994 water quality engineering report. King County initiated a three-year project in the S 96th Street SD basin to work with businesses and residents on implementing pollution prevention practices. King County inspected 114 businesses to assist in compliance with the County's water quality code and implement best management practices (BMPs). King County also conducted educational outreach for residents within the drainage basin (King County 1999).

Environmental Investigations (1986 to 1998)

Several environmental investigations were performed for the S 96th Street SD basin between 1986 and 1998. Sample locations are presented on Figures 15a through 15c. A summary of chemicals that exceeded soil, groundwater, storm drain, and freshwater screening levels are

presented in Tables 4 through 7. Additional information regarding these environmental investigations is available in the Sea King Industrial Park Data Gaps Report (SAIC 2013).

Environmental investigations are summarized below:

- **Removal of oil-contaminated soil from the S 96th Street drainage ditch between Des Moines Way and 10th Avenue S (1986 to 1987) (E&E 1987a)**
    - Further evaluation of the drainage ditch soil indicated PAH concentrations above MTCA cleanup levels. PCB and PAH concentrations exceeded the draft soil-to-sediment screening levels.
- **Soil and groundwater quality assessments along S 96th Street (1991 to 1995) (Hong West 1995).**
    - Between 1991 and 1995, 38 soil borings and 11 monitoring wells were completed and sampled along S 96th Street, as presented in Figure 15b. Thirty-four drainage ditch soil samples were collected from the drainage ditch along S 96th Street, as presented in Figure 15c.
    - In soil, arsenic, cadmium, lead, mercury, PCB, benzene and petroleum hydrocarbon concentrations exceeded MTCA cleanup levels. Cadmium, copper, lead, mercury, PCB, and phenanthrene concentrations exceeded the draft soil-to-sediment screening levels
    - In groundwater, arsenic, chromium, hexavalent chromium, lead, methylene chloride, trichloroethene (TCE) and tetrachloroethene (PCE) concentrations exceeded MTCA cleanup levels. Cadmium, chromium, copper, mercury, and zinc concentrations exceeded the draft groundwater-to-sediment screening levels.
- **Water, storm drain solids, and soil quality monitoring throughout the S 96th Street SD basin (1993) (Herrera 1994)**
    - Seven water quality monitoring stations were established to collect base flow and stormwater grab samples. Cadmium, chromium, copper, lead, zinc and TPH were detected in base flow and stormwater samples.
    - Groundwater was collected at a spring located near the S 96th Street drainage ditch south of Selland Auto Transport. TPH, cadmium, chromium, copper, lead, mercury, and zinc were detected in the sample.
    - Storm drain solids samples were collected from six storm drain structures within the S 96th Street SD basin. Cadmium, copper, lead, zinc, PAHs, and TPH concentrations exceeded the storm drain screening values.
    - Soil samples were collected from four drainage ditches within the S 96th Street SD basin. Arsenic, cadmium and TPH concentrations exceeded MTCA cleanup levels. Cadmium, copper, lead, silver, zinc and PAH concentrations exceeded the draft soil-to-sediment screening levels.
    - One sediment sampling station, 96-8, was located offshore of Outfall 2100(A) (Figures 13b and 15a). Zinc, benzo(g,h,i)perylene, and dibenzo(a,h)anthracene concentrations exceeded SQS.

- **S 96th Street Source Control Project (1996 to 1998) (King County 1999)**
    - King County installed five flow gauge sample sites and eight water quality and sediment grab sample sites. The monitoring results did not demonstrate an improvement in the stormwater quality from 1996 to 1998. No general trends were identified at any of the monitoring sites. According to the project summary, monitoring analysis was made difficult by construction activities, landslides, historical contamination, and contribution of roadway drainage. Sampling data were not available for review.

A summary of chemicals detected at concentrations above screening levels in environmental media is presented below.

Chemical	Soil	Groundwater	Storm Drain Solids	Base Flow & Stormwater	Sediment COC?
Metals					
Arsenic	●	●			✓
Cadmium	●♦	♦	▲	■	
Chromium		●♦			
Copper	♦	♦	▲	■	
Lead	●♦	●♦	▲	■	
Mercury	●♦	♦			✓
Silver	♦				
Zinc	♦	♦	▲	■	✓
PAHs					
Acenaphthene	♦		▲		
Acenaphthylene	♦				
Benzo(a)anthracene	●♦		▲		
Benzo(a)pyrene	●♦		▲		
Benzo(g,h,i)perylene			▲		✓
Chrysene	♦		▲		
Dibenzo(a,h)anthracene	♦		▲		✓
Fluoranthene			▲		
Fluorene			▲		
Indeno(1,2,3-cd)pyrene	●♦		▲		
Naphthalene	♦				
Phenanthrene	♦		▲		
Pyrene	♦				
cPAHs, total	●				
HPAHs, total			▲		
LPAHs, total			▲		
Phthalates					
BEHP	●♦				
PCBs					
Aroclor 1254	♦				✓
Total PCBs	●♦		▲		✓

Chemical	Soil	Groundwater	Storm Drain Solids	Base Flow & Stormwater	Sediment COC?
Petroleum Hydrocarbons					
Diesel-range	●		▲		
Gasoline-range	●				
Heavy-oil range	●		▲		
TPH	●		▲		
VOCs					
Benzene	●				
PCE		●			
TCE		●			

● Detected concentrations exceeded MTCA Method A or B cleanup level

♦ Detected concentrations exceeded the draft soil-to-sediment or groundwater-to-sediment screening level

▲ Detected concentrations exceeded the SQS

Detected concentrations exceeded the CSL

■ Detected concentrations exceeded the chronic surface fresh water quality standard

✓ COC exceeds SQS in LDW sediment adjacent to the source control area.

All chemicals listed in the table are sediment COCs for the LDW Superfund Site, with the exception of petroleum hydrocarbons and VOCs.
Individual chemical concentrations are provided in Tables 4 through 7.
BEHP = bis(2-ethylhexyl)phthalate; HPAH = high molecular weight polycyclic aromatic hydrocarbon; LPAH = low molecular weight polycyclic aromatic hydrocarbon; VOC = volatile organic compound

SPU and EPA Storm Drain Sampling (2008–2012)

SPU has collected storm drain solids samples from storm drain structures within the S 96th Street SD basin between March 2008 and May 2011 (Figure 4). The samples were analyzed for PCBs, metals and mercury, PAHs, phthalates, and other SVOCs (SPU 2010d).

EPA collected storm drain solids from the storm drain structures associated with the S 96th Street SD basin in November 2011 and April 2012 (Figure 4). The samples were analyzed for metals, PCBs, SVOCs, and petroleum hydrocarbons (KTA 2012a, 2012b).

Several sediment COCs were detected in the samples at concentrations exceeding the storm drain screening values; these COCs are listed below. The chemical concentrations are listed in Table 8.

Chemical	Sediment Trap >Storm Drain Screening Value	Inline Grab >Storm Drain Screening Value	Catch Basin >Storm Drain Screening Value	Sediment COC?
Metals				
Copper		▲		
Lead		▲		
Zinc	▲	▲	▲	✓
PAHs				
Benzo(g,h,i)perylene	▲	▲	▲	✓
Chrysene		▲		

Chemical	Sediment Trap >Storm Drain Screening Value	Inline Grab >Storm Drain Screening Value	Catch Basin >Storm Drain Screening Value	Sediment COC?
Dibenzo(a,h)anthracene		▲		✓
Fluoranthene	▲	▲		
Indeno(1,2,3-cd)pyrene		▲		
Phenanthrene	▲			
Pyrene	▲			
HPAHs, total	▲			
Phthalates				
BEHP	▲	▲	▲	
Butyl benzyl phthalate	▲	▲	▲	✓
Dimethyl phthalate	▲	▲		
Phenols				
2-Methylphenol			▲	
4-Methylphenol	▲	▲	▲	
Pentachlorophenol		▲		
Phenol		▲	▲	
Other SVOCs				
Benzoic acid		▲	▲	
Benzyl alcohol	▲	▲	▲	✓
N-Nitrosodiphenylamine		▲		
PCBs				
PCBs, total		▲		✓
Dioxins/Furans				
Dioxins/furans TEQ		▲	▲	✓
Petroleum Hydrocarbons				
Diesel-range		▲	▲	
Heavy oil-range	▲	▲	▲	

▲ Detected concentrations exceeded the SQS

Detected concentrations exceeded the CSL

✓ COC exceeds SQS in LDW sediment adjacent to the source control area

Dioxin/furan TEQ was compared to the LDW natural background concentration (2 ng TEQ/kg). Concentrations did not exceed the LDW Remedial Action Level (25 ng TEQ/kg [USEPA 2013]).
All chemicals listed in the table are sediment COCs for the LDW Superfund Site.
Individual chemical concentrations are provided in Table 8.

Potential for Future Releases to LDW Sediments

Environmental investigations conducted during the 1990s indicate that soil, groundwater, storm drain solids, and surface water within the S 96th Street SD basin are contaminated by metals, PAHs and other SVOCs, PCBs, petroleum hydrocarbons, and volatile organic compounds (VOCs). Groundwater discharge contributes year-round base flow in the S 96th Street storm drain system (Herrera 1994).

Sediment trap, in-line, and catch basin storm drain solids samples collected in the S 96th Street SD basin between 2008 and 2012 had concentrations of sediment COCs exceeding storm drain screening values. These COCs may be discharged to the LDW through the S 96th Street SD outfall, Outfall 2100(A), and may represent a source of contaminants to the sediments adjacent to the Sea King Industrial Park source control area.

Zinc, PCB, PAH, and phthalate concentrations that exceed screening levels are present in recent LDW sediment samples near Outfall 2100(A) (Figure 13c) and in storm drain solids samples collected from the S 96th Street SD system.

Source Control Actions

Ecology will continue to perform facility inspections to determine if undocumented industrial operations are occurring within the S 96th Street SD basin that may be an ongoing source of sediment recontamination. SPU plans to inspect high-risk businesses throughout the LDW storm drain basins every two years. High-risk businesses perform operations that represent a high potential for sediment recontamination.

Information needed to assess the potential for sediment recontamination associated with the public storm drain outfalls was summarized in the Sea King Industrial Park Data Gaps Report (SAIC 2013). The following source control actions will be conducted to fill the identified data gaps and reduce the potential for recontamination of sediments near the Sea King Industrial Park source control area:

- Ecology and King County will perform further investigations and cleanup activities in the S 96th Street SD basin to address sources of contaminants to the LDW.
- Ecology will request a current map of the S 96th Street SD basin from King County in order to verify conveyance and drainage features.
- King County will provide Ecology with updated information regarding the proposed drainage basin upgrades to divert the north and middle forks of Hamm Creek around the S 96th Street industrial area in order to discharge directly to the LDW via Hamm Creek.

3.1.2 Private Outfalls and Unresolved Outfalls

Outfalls SP1 through SP5 are owned and operated by Boeing South Park and covered under an NPDES industrial stormwater general permit (ISGP). The outfalls are located between RM 3.8 and 3.9 West (Figures 4 through 6). Four outfalls of unresolved origin (S Director Street Outfall, Outfall 2101, 2100B, and Delta Marine Outfall) are also present in the Sea King Industrial Park source control area (Figures 4 through 6).

Outfall No.	Secondary ID	Location	Pipe Diameter/Material	Type/Owner
SP5	NA	3.7 W	6-inch steel	Boeing South Park
SP4	2103	3.7 W	12-inch concrete	Boeing South park
SP3	NA	3.8 W	Unknown	Boeing South Park
SP2	NA	3.9 W	Unknown	Boeing South Park

Outfall No.	Secondary ID	Location	Pipe Diameter/Material	Type/Owner
SP1	2102	3.9 W	12-inch concrete	Boeing South Park
S Director Street	None	3.9 W	Unknown	Unresolved channel/ditch
2101	374W	4.0 W	18-inch concrete	Unresolved SD
2100(B)	376W	4.2 W	6-inch PVC	Unresolved SD
Delta Marine	None	4.2 W	Unknown	Delta Marine

Source: LDW RI Report (Windward 2010b, Appendix H)

Boeing South Park Outfalls

Stormwater from Boeing South Park discharges to the LDW from five outfalls. Outfalls SP5 and SP4 discharge stormwater to sediments north of the Sea King Industrial Park source control area; however, Outfalls SP5 and SP4 were not discussed in previous Data Gaps Reports or SCAPs. The southern portion of Boeing South Park is located within the Sea King Industrial Park source control area. Outfalls SP1, SP2, and SP3 are located on the southern portion of Boeing South Park. Stormwater is conveyed through a vegetated area prior to discharge to the LDW via Outfalls SP1, SP2, and SP3 (Boeing 2011).

S Director Street Outfall and Outfall 2101

The S Director Street Outfall and Outfall 2101 are located adjacent to the Sea King Industrial Park facility and may be inactive. It is not clear if the S Director Street Outfall is on S Director Street or on the Sea King Industrial Park property. Information included in King County's drainage investigation file for Sea King Industrial Park (King County 1994) includes the following information:

- King County indicated that Sea King Industrial Park LLC is responsible for cleaning the storm drain line upstream of the S Director Street Outfall,
- King County requested an as-built of the storm drain system at Sea King Industrial Park,
- Maps included in the drainage investigation file show that the only contributions to the S Director Street Outfall are from the Sea King Industrial Park property and from a property that was previously owned by Sea King Industrial Park LLC.

Outfall 2101 appears to be located on the Sea King Industrial Park property, but may be owned and operated by King County. Stormwater near Buildings 1 and 2 on the property (closest to the LDW) flows to catch basins and is then conveyed to a series of three settling ponds. Outfall 2101 is connected to the third, northernmost settling pond. The storm drain structures and settling ponds associated with Outfall 2101 are not included on the maps in King County's drainage investigation file for the Sea King Industrial Park; indicating that Sea King Industrial Park LLC may not be responsible for the maintenance of the system; a photograph in the drainage investigation file shows that there is a King County sign posted by the settling ponds (King County 1994).

The storm drain solids sampling report prepared for EPA in 2012 indicates that the storm drain structures associated with the S Director Street Outfall and Outfall 2101 are owned and operated by King County (KTA 2012b).

In 2012, EPA contractors collected storm drain solids samples from the structures upstream of the S Director Street Outfall and upstream of Outfall 2101 (Figure 4). Concentrations of phthalates, phenols, and zinc exceeded the storm drain screening values in the samples collected upstream of the S Director Street Outfall (Table 8). Concentrations of phthalates exceeded the storm drain screening values in the sample collected upstream of Outfall 2101 (Table 8) (KTA 2012b).

Outfall 2100(B) and Delta Marine Outfall

Outfall 2100(B) is located adjacent to the Duwamish Yacht Club and may be inactive. Additional information regarding stormwater discharge from the Duwamish Yacht Club is discussed in Section 3.2.3. The Delta Marine Outfall is visible on the Delta Marine Industries' Stormwater Pollution Prevention Plan (SWPPP) but has not been identified during LDW outfall surveys. Additional information regarding stormwater discharge from Delta Marine Industries is discussed in Section 3.2.4.

Potential for Future Releases to LDW Sediments

Little information was available to determine whether four outfalls of unresolved origin are abandoned or active. Active outfalls with undocumented drainage have the potential to transport contaminants present in stormwater (if any) to LDW sediments near the Sea King Industrial Park source control area.

Source Control Actions

Information needed to assess the potential for sediment recontamination associated with the unresolved outfalls was summarized in the Sea King Industrial Park Data Gaps Report (SAIC 2013). The following source control actions will be conducted to fill the identified data gaps and reduce the potential for recontamination of sediments near the Sea King Industrial Park source control area:

- Ecology will conduct an inspection during a storm event to determine if the four unresolved outfalls (S Director Street Outfall, Outfall 2101, 2100(B), and Delta Marine Outfall) are operational or have been abandoned.
    - If discharge from these outfalls is observed, Ecology will request that the property owners conduct dye testing to determine if storm drain lines are connected to the unresolved outfalls and delineate the associated drainage areas. This action is needed in order to determine the potential for sediment recontamination associated with discharges (if any) from the unresolved outfalls.
- Ecology will request clarification from King County regarding the owner and operator status for the S Director Street Outfall and Outfall 2101.

No source control actions were identified for Outfalls SP1 through SP5.

3.2 Adjacent Properties

Several facilities are located adjacent to the LDW in the Sea King Industrial Park source control area; information about these facilities relevant to recontamination of LDW sediments was presented in the Sea King Industrial Park Data Gaps Report (SAIC 2013). Facilities and properties that were identified as potential sources of sediment recontamination or for which insufficient information was available to assess the potential for sediment recontamination are listed below.

Facility/Property	Address	Potential Contaminant Pathways
Sea King Industrial Park	1600 & 1620 S 92nd Place 98108	Stormwater, surface runoff, spills, groundwater discharge
KRS Marine	1621 S 92nd Place 98108	Stormwater, surface runoff, spills, groundwater discharge
Duwamish Yacht Club	1801 S 93rd Street 98108	Stormwater, surface runoff, spills, groundwater discharge
Delta Marine Industries	1608 S 96th Street 98108	Stormwater, surface runoff, spills, groundwater discharge, bank erosion

These facilities are discussed in more detail in Sections 3.2.1 through 3.2.4. The following sections summarize historical operations, current operations, regulatory history, environmental investigations, the potential for sediment recontamination, and source control actions to be implemented for the facilities adjacent to the LDW.

3.2.1 Sea King Industrial Park

Current Operations	Warehouse rental facility, EPA emergency response warehouse, bindery, digital production, mailing operations, repair and maintenance of propeller systems, paints and coatings distribution
Historical Operations	Farmland, residential facilities
Tax Parcel No.	0001600060, 7619000000
Address	1600 & 1620 S 92nd Place 98108
Facility/Site ID	9037205: USEPA Warehouse 4401006: Ultrapak Printing Inc. (former tenant) 67478551: Progressive Medical Corp 42882451: International Paint Warehouse 21209: Diamond Painting 2544945: Diamond Painting LLC 1601 4154808: International Paint LLC 5776: Sound Propeller Systems Inc. 4210684: Protective Coating Consultants Inc.
Chemicals of Concern	Zinc, phthalates, phenols
Media Affected	Storm drain solids

The Sea King Industrial Park facility is located on parcels 0060 and 7619000000 (Figure 12). The facility is bordered by the LDW to the east, S Director Street to the north, South 93rd Business Park to the south, and Aerospace Machinists Union to the west (Figure 5).

Historical Operations

Historical aerial photographs were reviewed for the Sea King Industrial Park Data Gaps Report. Based on the review, this property was farmland in the late 1930s/early 1940s (SAIC 2013). In 1945, South Park Courts, a housing project for World War II workers, was developed at the property. The housing project was demolished in 1978 (Zahler et al. 2006). Sea King Industrial Park was developed in 1982 (SAIC 2013).

Sea King Industrial Park historically included parcel 0001600058. The parcel was sold to Aero Nautical Machinists Inc. in 1987; Aerospace Machinists Union now operates an office building at the property. Storm drain structures at the property appear to be connected to the S Director Street Outfall.

Historical information regarding companies operating at Sea King Industrial Park was not available for review.

Current Operations

Sea King Industrial Park

Sea King Industrial Park is an industrial warehouse rental facility, owned by Sea King Industrial Park LLC. The facility has a variety of manufacturing and distribution tenants. The property consists primarily of buildings and paved areas. Small vegetated strips are scattered throughout the property. The bank adjacent to the LDW is composed of riprap and vegetation. Overwater operations do not occur at the facility.

The Sea King Industrial Park facility is not located within the S 96th Street SD basin. A 1994 King County drainage map indicates that stormwater from the majority of the facility discharges to the LDW via the S Director Street Outfall at approximately RM 3.9 West (Figures 5 and 16). The S Director Street Outfall appears to be an open channel or drainage ditch. Stormwater inputs to the S Director Street Outfall appear to be limited to runoff from the Sea King Industrial Park and Aerospace Machinists Union properties. The outfall was not previously identified or sampled during a 2004 SPU outfall inventory or 2011 LDW outfall sediment sampling event. Stormwater from the eastern portion of the property appears to discharge to the LDW via Outfall 2101 (Figure 4). Outfall 2101 was identified during SPU's 2004 outfall inventory.

Ecology has not assigned the Sea King Industrial Park facility a Facility Site Identification (FSID) number. Limited information regarding tenant operations was available for review. Tenants conduct the majority of operations indoors. Current tenants with Ecology FSIDs are discussed below.

USEPA Warehouse

The EPA currently operates an emergency response warehouse at Sea King Industrial Park. It is assumed that the EPA stores and maintains emergency response equipment at the warehouse. In Ecology's FSID database, the facility was listed as a hazardous waste generator from November 2007 to December 2008 and performed hazardous waste management activities, such as transporting waste, during 2009.

Colorgraphics/Former Ultrapak Printing Inc.

According to Ecology's Facility/Site database, Ultrapak Printing Inc. was a former tenant at Sea King Industrial Park. The facility held a Washington State business license from February 1995 until November 2005. It is not known when Colorgraphics acquired Ultrapak Printing Inc. and began operations at Sea King Industrial Park. Colorgraphics conducts bindery, digital production, and mailing operations at the facility (Marketing NW 2010).

Sound Propeller Systems Inc.

Sound Propeller Systems currently operates at Sea King Industrial Park. According to the company's website, the facility conducts repair and maintenance of propeller systems, bow-thrusters, shaft seals, and water jets. Additional activities at the facility include general machining, fabrication, and milling. The facility operates a solvent tank (Sound Propeller 2012).

International Paints LLC

International Paints LLC (International Paints) is a paint distribution center, which occasionally adds coloring to base paints. The facility distributes paints and coatings for marine applications. The facility does not manufacture any paint on site. An Ecology inspection determined the facility does not generate any hazardous waste (Ecology 2005b).

Diamond Painting LLC

Diamond Painting LLC (Diamond Painting) is a mobile marine paint service company that provides custom marine, auto, and aviation paint restorations (Diamond Painting 2012). An Urban Waters Environmental Compliance inspection by Ecology in 2008 indicated that the facility conducts vehicle steam cleaning operations at the property. Washwater from the vehicle wash area is conveyed to an oil/water separator (Ecology 2008h).

The company also operates at the Delta Marine facility. It is assumed that the Diamond Painting location at the Sea King Industrial Park is used for paint and equipment storage. Additional information was not available for review. Information about Diamond Painting operations on site at Delta Marine is provided in Section 3.2.4.

Protective Coating Consultants Inc.

Protective Coating Consultants Inc. currently operates at Sea King Industrial Park. Additional information regarding current operations at the facility was not available for review. According

to Ecology's Facility/Site database, the facility was listed as a hazardous waste generator from June 2007 until December 2007.

Regulatory History

Information regarding the most recent inspections of tenants at the Sea King Industrial Park are summarized below. Additional information for these tenants is provided in the Sea King Industrial Park Data Gaps Report (SAIC 2013).

In 2012, EPA contractors collected storm drain solids samples near the property from storm drain structures upstream of the S Director Street Outfall (KC-02 through KC-04) and on the property upstream of Outfall 2101 (KC-01) (Figure 4). Concentrations of phthalates, phenols, and zinc exceeded the storm drain screening values in the samples collected upstream of the S Director Street Outfall (Table 8). Concentrations of phthalates exceeded the storm drain screening values in the sample collected upstream of Outfall 2101 (Table 8) (KTA 2012b).

Colorgraphics

Ecology inspected Colorgraphics on September 9, 2008. Inspectors identified corrective actions related to spill response procedures, waste disposal, and container labeling. In addition, Ecology recommended that the facility evaluate the need for coverage under the Industrial Stormwater General Permit (ISGP) (Ecology 2008j). Ecology conducted a follow-up inspection on November 25, 2008. Colorgraphics completed requested corrective actions. Ecology granted the facility a Certificate of No Exposure (CNE) on December 11, 2008 (Ecology 2008j).

International Paints

Ecology conducted a site visit on September 18, 2007. International Paints indicated the facility would have a one-time shipment of paint and paint-related waste following a clean out at the facility. Ecology notified International Paints that the facility would be regulated as a Large Quantity Generator (LQG) and would be required to submit a pollution prevention plan if the facility generated more than 2,640 pounds of hazardous waste two years in a row (Ecology 2007g). According to EPA's Facility Registry System, the facility is currently regulated as an LQG.

Diamond Painting

On July 8, 2008, Ecology conducted an Urban Waters Environmental Compliance inspection at Diamond Painting. Ecology identified corrective actions related to washing practices, spill response procedures, waste disposal, container storage and labeling, and improving maintenance of an oil/water separator (Ecology 2008h). Ecology determined that the facility was in compliance during a follow-up inspection on August 13, 2008, but made the following recommendations (Ecology 2008i):

- Clear paint booth filters for solid waste disposal through the King County Waste Characterization program.
- Wash all vehicles inside the building in the designated wash bay.

- Store material that could contaminate stormwater away from the storm drains.
- Keep waste drums closed and properly marked as dangerous waste.
- Transport any dangerous waste to a permitted treatment or disposal facility.

Additional information regarding compliance with follow-up recommendations was not available for review.

Sound Propeller Systems Inc.

Ecology conducted an Urban Waters Environmental Compliance inspection at Sound Propeller Systems on December 10, 2008. Ecology did not identify any compliance issues during the inspection (Jeffers 2009).

CERCLA Section 104(e) Requests

EPA sent a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 104(e) Request for Information Letter to Sea King Industrial Park on July 17, 2008 (USEPA 2008d). The information request included parcel 0060. The response to the request was not available for review during the preparation of this SCAP. When the response to the request is available, relevant information from the response will be provided in a Source Control Status Report.

Potential for Sediment Recontamination

The potential for sediment recontamination via this property is summarized below. Sediment samples have not been collected in the LDW adjacent to or downstream of the property. The quality of the sediment in this area is unknown.

- Concentrations of zinc, phthalates and phenols have exceeded the storm drain screening values in storm drain solids samples collected on or near Sea King Industrial Park (Table 8). Sea King Industrial Park and its current tenants have complied with corrective actions identified by Ecology during environmental compliance inspections. The potential for sediment recontamination associated with stormwater discharge from this facility is low provided that the property management company and tenants maintain appropriate source control BMPs.
- The area of the property that is immediately adjacent to the LDW is vegetated and not used for industrial operations. Overwater operations do not occur at the facility. The potential for sediment recontamination associated with this property via the spills pathway is low.
- There is no information available to determine if soil or groundwater contamination is present at this property; however, given the historical industrial operations, there is potential for soil and groundwater contamination.
- The bank adjacent to the facility consists of exposed soil, vegetation, and riprap. Contaminants in bank soils (if any) could be released directly to sediments via erosion. Four bank soil samples were collected near the Sea King Industrial Park property in May 2011. Chemical concentrations in the bank soil samples did not exceed SMS.

Concentrations of arsenic, total cPAHs, PCBs and dioxin/furan TEQ exceeded LDW natural background concentrations (Hart Crowser 2012), but did not exceed the LDW Remedial Action Levels (USEPA 2013).The potential for sediment recontamination via bank erosion/leaching is low.

Source Control Actions

- Ecology will request information from the property owner regarding stormwater drainage features at the property to evaluate the potential for contaminant transport to the LDW via stormwater discharge. Information should include the storm drain system at parcel 0001600058 (Aerospace Machinists Union) if it is connected to the storm drain system at Sea King Industrial Park.
- Ecology will conduct an inspection during a storm event to determine if the two unresolved outfalls (S Director Street Outfall and Outfall 2101) are operational or have been abandoned.
    - If discharge from these outfalls is observed, Ecology will request that the property owners conduct dye testing to determine if storm drain lines are connected to the unresolved outfalls and delineate the associated drainage areas. This action is needed in order to determine the potential for sediment recontamination associated with discharges (if any) from the unresolved outfalls.
- Ecology will request information from the property owner regarding historical tenant operations to determine the potential for soil and/or groundwater contamination beneath the property and to evaluate the potential for sediment recontamination via the groundwater discharge pathway.
- Ecology will perform a follow-up inspection at Diamond Painting to verify compliance the recommendations made during the August 2008 inspection.

3.2.2 KRS Marine

Current Operations	Barge fleet operations
Historical Operations	Residential facilities
Tax Parcel No.	0001600060
Address	1621 S 92nd Place 98108
Facility/Site ID	90355185
Chemicals of Concern	Petroleum hydrocarbons
Media Affected	Soil

KRS Marine leases a portion of parcel 0060 from Sea King Industrial Park (Figure 5). The facility is located adjacent to the LDW at RM 4.0 West, and is bordered by the Duwamish Yacht Club to the south and Sea King Industrial Park to the west and north. There are no buildings located at the KRS Marine facility.

Historical and Current Operations

KRS Marine moors a fleet of barges at parcel 0060. KRS Marine conducts overwater activities with the potential for spills. The facility also stores construction materials, operating equipment, and containers on an unpaved storage yard adjacent to the LDW. The property has a gradient of approximately 4 feet sloping west to east towards the LDW (Hurley 2000). The bank at the facility likely consists of exposed soil, vegetation, and a bulkhead wharf. No additional information regarding current operations was available for review. Information on historical operations at Sea King Industrial Park was not available for review.

Regulatory History

KRS Marine submitted an independent remedial action report to Ecology on May 23, 2000 (Hurley 2000). The report summarized a petroleum-contaminated soil excavation at the facility. Ecology reviewed the report and determined no further remedial action was necessary (Ecology 2000). Additional details regarding contaminated soil cleanup are provided below. Ecology issued an NFA determination following review of the independent remedial action report (Ecology 2000).

Environmental Investigations and Cleanups

Oil-contaminated soil was identified at three locations in the gravel-covered storage yard on the west side of the property. The source of contamination was attributed to hydraulic oil that had leaked from equipment in the storage yard. In February 2000, KRS Marine excavated approximately 233 tons of petroleum-contaminated soil from the storage yard. Soil excavations were completed to approximately 3 feet below ground surface (bgs). At the conclusion of removal activities, oil concentrations in soil remaining in the bottom and sides of the excavated areas were below MTCA Method A cleanup levels for TPH (2,000 mg/kg DW) (Hurley 2000).

In May 2011, two bank soil samples were collected near the facility (Figure 13b). Chemical concentrations in the bank soil samples did not exceed SMS. Concentrations of arsenic, total cPAHs, PCBs and dioxin/furan TEQ exceeded LDW natural background concentrations, but did not exceed the LDW Remedial Action Levels (Hart Crowser 2012).

Potential for Sediment Recontamination

The potential for sediment recontamination via this property is summarized below. No SMS exceedances have been observed in LDW sediment samples collected offshore of the KRS Marine facility (Figure 13b). The potential for sediment recontamination associated with this facility is summarized below.

- According to a 2000 site assessment report, the facility slopes towards the LDW (Hurley 2000). Stormwater and surface runoff from this property discharges directly to the LDW. Contaminants in stormwater/surface runoff at the facility, if any, could be transported to LDW sediments.

- KRS Marine performs barge loading and unloading operations, where spills to the dock area have the potential to enter the LDW. Spills from loading and unloading activities are a potential pathway for sediment recontamination.
- KRS Marine removed petroleum-contaminated soil from the property in February 2000. The facility received an NFA in 2000. Given the continued storage of equipment and heavy machinery at the property, there is potential for soil and groundwater contamination. Petroleum hydrocarbons are not COCs for LDW sediments. No SMS exceedances were observed in two bank soil samples collected near the facility in 2011. The potential for sediment recontamination via groundwater discharge and/or bank erosion is low.

Source Control Actions

- Ecology will perform a source control inspection at KRS Marine to verify compliance with applicable regulations and BMPs to prevent the release of contaminants to the LDW.

3.2.3 Duwamish Yacht Club

Current Operations	Marina
Historical Operations	Unknown
Tax Parcel No.	0001600061
Address	1801 S 93rd Street 98108
Facility/Site ID	None
Chemicals of Concern	Copper, zinc, phthalates
Media Affected	Surface water, sediment

The Duwamish Yacht Club operates on parcel 0061 (Figure 12). The Desimone Trust owns the property. The facility is bordered by Delta Marine to the south, the LDW to the east, the South 93rd Business Park to the west, and KRS Marine to the north (Figure 6).

Historical and Current Operations

In the mid-1960s, cement kiln dust (CKD) was deposited on the property by San Juan Concrete Products Company. The concrete products company leased the adjacent property to the west (currently Delta Marine) at the time the CKD was deposited. The CKD was capped and dredged material from the LDW was used as fill on the property (Greenleaf 2007).

Between 1965 and 1974, parcel 0061 was used as a junkyard (along with parcels 0029 and 0062 [Section 3.2.4]). Heavy machinery, iron barrels, tanks, and debris were present. The large junkyard may have extended west to West Marginal Way S (Duwamish Marina 1977; Seattle Deposition Reporters 1994).

Duwamish Marina and Industrial Park began leasing this property, along with portions of the current Delta Marine facility (parcels 0029 and 0062), from the Desimone Trust in 1974. The property was unimproved at the time the lease agreement was made. The marina was constructed

by Duwamish Marina and Industrial Park (BNY Mellon 2009). The Duwamish Yacht Club began operating at the current location in 1978. The yacht club consists of four docks with 28 boat slips. Some slips are used for live aboard moorage. According to the yacht club's website, Delta Marine Industries provides haul-out and maintenance and repair operations for boats moored at the facility. It is not known if the Duwamish Yacht Club conducts fueling operations. There is a paved parking lot and a small office building located at the facility. The LDW banks are composed of vegetation and riprap.

Stormwater Discharges

King County drainage maps indicate stormwater in the facility's parking lot is collected in catch basins and conveyed to the S 96th Street SD system. The S 96th Street SD system discharges to the LDW via Outfall 2100(A), located at the southeast corner of the facility.

According to the LDW RI, Outfall 2100(B) (Figure 6) is located at the Duwamish Yacht Club facility (Windward 2010b). Outfall 2100(B) is a 6-inch PVC pipe of unresolved origin or use.

Regulatory History

Ecology has not assigned the Duwamish Yacht Club an FSID. Additional information regarding regulatory history was not available for review.

EPA sent a CERCLA Section 104(e) Request for Information Letter to the Duwamish Yacht Club on July 17, 2008 (USEPA 2008c). The information request included parcel 0061. The response to the request was not available for review during the preparation of this SCAP. When the response to the request is available, relevant information from the response will be provided in a Source Control Status Report.

EPA sent a CERCLA Section 104(e) Request for Information Letter to the Desimone Trust in April 2009 (USEPA 2009a). The information request included parcel 0061. Relevant information from the Desimone Trust's response to the request is included in this SCAP.

Environmental Investigations and Cleanups

Marina Maintenance Dredging

In October 1982, the Duwamish Yacht Club received permits to conduct maintenance dredging of sediment located adjacent to the facility (Ecology 1982a). The facility disposed of dredge spoils at the Seattle City Light power station located south of S 96th Street and east of West Marginal Way S (Ecology 1982b). On June 26, 1985, a composite soil sample was collected from the area where the dredge spoils were deposited on the Seattle City Light property. The sample was analyzed for PCBs, halogenated hydrocarbons, and metals. PCBs, halogenated hydrocarbons, and metals were either not detected or detected below MTCA regulatory criteria (Laucks 1985). SKCDPH and Ecology reviewed the sample results and classified the dredge spoils as an acceptable fill material (SKCDPH 1985).

In 1989, sediment samples were collected from five locations within the Duwamish Yacht Club marina. The results indicated that sediments in the southwestern corner of the marina, near

Outfall 2100(A), were unsuitable for in-water disposal. Concentrations of copper, lead, nickel, zinc, high molecular weight polycyclic aromatic hydrocarbons (HPAHs), low molecular weight polycyclic aromatic hydrocarbons (LPAHs), dimethyl phthalate, and benzoic acid all exceeded in-water disposal criteria. Based on grain size distribution analysis, the characterization report concluded that the most likely source of contaminated sediments accumulated in the marina was runoff from the industrialized area within the S 96th Street SD system (Herrera 1994).

Six sediment samples were collected adjacent to the Duwamish Yacht Club in March 1999. The samples were analyzed for PCBs, SVOCs, metals, pesticides, and TBT. Metals, PAHs, phthalates, phenols, benzoic acid, and benzyl alcohol were detected at concentrations below the SQS and CSL (Windward 2003b). The marina was dredged in 1999 (Windward 2010b).

Analytical results for the 1999 sediment samples are provided in Table 3. The sample location is shown on Figures 13c and 15a. Chemical data and sample locations for the 1985 and 1989 samples were not available for review.

Phase I Environmental Assessment

A Phase I Environmental Assessment was performed at the property in 2004. No environmental concerns were identified (Property Solutions 2004).

Potential for Sediment Recontamination

Concentrations of zinc, total LPAHs, benzo(a)pyrene, pyrene, benzo(g,h,i)perylene and indeno(1,2,3-c,d)pyrene in an LDW sediment sample collected offshore of the Duwamish Yacht Club property exceeded SMS or LAET/2LAET. The COCs in sediments might be attributed to discharge from the S 96th Street Outfall as opposed to operations at the Duwamish Yacht Club. Aging fiberglass and boat coatings may be a source of phthalates. Anti-fouling paints (commonly used on boats) may leach copper and zinc to the LDW. Zinc anodes installed on boats, if used by the marina tenants, may also be a source of zinc to the LDW. The potential for sediment recontamination associated with this property is summarized below.

- Stormwater and surface runoff from this property discharges directly to the LDW. COC exceedances in sediments adjacent to the facility may be attributed to discharge from the S 96th Street SD Basin via Outfall 2100(A) or direct discharge from the Duwamish Yacht Club. Contaminants in stormwater/surface runoff at the facility, if any, could recontaminate LDW sediments.
- Overwater activities are performed at the Duwamish Yacht Club. Spills from boat repairs and maintenance conducted by Duwamish Yacht Club members are a potential source of sediment COCs. Fueling operations at the dock area, if any, have the potential to spill to the LDW. Spills from fueling operations are harmful to the environment; however, petroleum hydrocarbons have not been identified as COCs for the LDW. The potential for sediment recontamination via spills is unknown.
- Soil and groundwater contamination has not been identified at the property. However, CKD is suspected to be present and, given the historical junkyard operations at the

property, there is potential for soil and groundwater contamination at the facility. The potential for sediment recontamination via groundwater discharge is unknown.

- The bank adjacent to the facility consists of exposed soil, vegetation, and riprap. Contaminants in bank soils (if any) could be released directly to sediments via erosion. The potential for sediment recontamination via bank erosion/leaching is unknown.

Source Control Actions

- Ecology will perform a source control inspection at the Duwamish Yacht Club to verify compliance with applicable regulations and BMPs to prevent the release of contaminants to the LDW. During the inspection, Ecology will determine if fueling operations and/or boat maintenance and repair operations are conducted at the facility.
- Ecology will request that the Desimone Trust (property owner) collect soil and groundwater data in order to determine the potential for sediment recontamination via the groundwater discharge pathway.

3.2.4 Delta Marine Industries

Current Operations	Yacht construction and vessel repairs; marine paint restoration
Historical Operations	Container storage and repair
Tax Parcel No.	0001600029, 0001600062, 5624200005, 5624200006, 5624200021
Address	1608 S 96th Street 98108
Facility/Site ID	86343865: Former Global Intermodal Systems 6915930: Delta Marine Industries 22978975: Delta Marine Industries Inc.
Chemicals of Concern	Arsenic
Media Affected	Groundwater

Delta Marine Industries (Delta Marine) operates on parcels 0029, 0062, 0005, 0021, and 5624200006 (Figure 12). The facility is bordered by Hamm Creek to the south, West Marginal Place S and the South 93rd Business Park to the west, Sea King Industrial Park, the Duwamish Yacht Club and the South 93rd Business Park to the north, and the LDW to the east (Figure 6).

Historical Operations

Delta Marine has operated on parcels 0005, 5624200006, and 0021 since at least 1974 (Seattle Deposition Reporters 1994).

San Juan Concrete Products Company leased parcel 0029 between January 1963 and August 1965 (Rainier Bank 1978). The company deposited CKD on the property. The CKD was capped and dredged material from the LDW was used as fill on the property (Greenleaf 2007). Between 1965 and 1974, parcels 0029 and 0062 (along with parcel 0061 [Section 3.2.3]) were used as a junkyard. Heavy machinery, iron barrels, tanks, and debris were present. The large junkyard may

have extended west to West Marginal Way S (Duwamish Marina 1977; Seattle Deposition Reporters 1994).

The Duwamish Marina and Industrial Park began leasing parcels 0029 and 0062, along with the Duwamish Yacht Club property (parcel 0061), from the Desimone Trust in 1974. The property was unimproved at the time the lease agreement was made (BNY Mellon 2009).

ITEL Terminals began operating a ship container facility on parcels 0029 and 0062 in the late 1970s or early 1980s (Seattle Deposition Reporters 1994). In September 1992, Global Intermodal Systems (formerly known as ITEL Terminals) began operations as a container storage and repair facility. Activities included container washing and repair, generator maintenance and repair, and fueling operations. Facility operations were conducted at covered and uncovered locations, and on paved and unpaved areas. A SWPPP completed in 1996 lists petroleum products as primary pollutants of concern. Materials with the potential to be exposed to runoff included diesel fuel, hydraulic oil, work debris, used engine filters, and engine oil (Global Intermodal 1996).

The storm drains on the western portion of the facility conveyed stormwater to the S 96th Street SD system and storm drains on the eastern portion of the facility conveyed stormwater to the LDW (Figure 17a) (Global Intermodal 1996). It is not known if the outfall depicted in Figure 17a is Outfall 2100(A), Outfall 2100(B), or a previously unknown outfall.

On March 28, 2005, Global Intermodal Systems notified Ecology that the facility ceased operations at the property (Ecology 2005a). Additional information regarding historical operations is provided in the Sea King Industrial Park Data Gaps Report (SAIC 2013).

Current Operations

Delta Marine

The Delta Marine facility consists of buildings and paved areas with a small area of vegetation along West Marginal Place S. The company builds luxury yachts and performs vessel repairs (Delta Marine 2012c). The facility has three large assembly buildings, dry storage capabilities, and 560 feet of dockage. Vessels are removed from the LDW with a 400-ton Marine Travelift or 100-ton crane. The banks adjacent to the LDW consist primarily of bulkhead, with a small vegetated area at the southern property boundary.

Delta Marine builds boats using polyester resins and fiber-reinforced plastic. Boat construction also uses solvents and polyurethane coatings. Leftover or unusable paint is catalyzed, dried, and disposed of as solid waste. The facility uses solvent parts washers for maintenance operations. The solvents include ethyl acetate, toluene, diacetone alcohol, dibasic ester, xylene, and paint thinner. Spent solvents from resin cleanup, parts washing, and paint cleanup are recycled at the facility. The facility uses a waste management company to dispose of waste oils, pressure washing residues, and antifreeze and coolants (Ecology 1995).

Delta Marine's 2012 SWPPP identified pressure wash debris, garbage dumps, resin dumps and tanks, still room use, and vehicle leaks as potential sources of stormwater contamination. The facility sweeps work areas daily, covers the main dumpster, and pressure washes only in approved areas. Preventative maintenance programs include daily vehicle and resin pump station

inspections, spill kit checks, and inspection of pressure wash collection sumps (Delta Marine 2012b).

A large majority of boat construction is conducted under cover in self-contained buildings. The pressure wash pad conveys washwater to a treatment system located indoors. Stormwater grates have fabric socks in place to help control sediment and solids from entering the drainage system (Ecology 2001a). The facility map provided in the SWPPP indicates that stormwater drains to catch basins throughout the facility and is conveyed to the S 96th Street SD system. The SWPPP indicates stormwater from the southeastern portion of the facility near the boat ramp discharges to the Delta Marine Outfall (Figure 17b) (Delta Marine 2012b).

Diamond Painting

According to a January 2007 Ecology inspection, Diamond Painting LLC (Diamond Painting) is located on site at the Delta Marine facility. Diamond Painting is as a mobile marine service company that provides custom marine, auto, and aviation paint restorations (Diamond Painting 2012). Diamond Painting transports waste to Delta Marine's glass shop where it is recycled with Delta Marine's solvent or disposed of as hazardous waste. The Ecology inspection determined Delta Marine is ultimately responsible for ensuring Diamond Painting properly manages the company's hazardous waste (Ecology 2009b).

Diamond Painting is also located in the Sea King Industrial Park facility. A review of information related to Diamond Painting operations at the warehouse location is described in Section 3.2.1.

Regulatory History

In 2012, USEPA contractors collected storm drain solids samples from storm drain structures on and near the Delta Marine property, upstream of the S 96th Street SD Outfall (KC-05 through KC-08) (Figure 4) (KTA 2012b). Concentrations of metals PCBs, PAHs, phthalates, phenols, other SVOCs, and petroleum hydrocarbons exceeded the storm drain screening values at station KC-05 and/or KC-06. Bis(2-ethylhexyl)phthalate (BEHP) and dimethyl phthalate concentrations at station KC-05 exceeded the CSL-based screening values by factors of 36 and 24, respectively (Table 8). Chemicals were not detected at or above the storm drain screening values in the samples collected at stations KC-07 and KC-08.

Delta Marine

Delta Marine has been covered under a boatyard general NPDES permit since November 1993. The current permit number is WAG030091 (SAIC 2013).

Ecology has performed several hazardous waste and toxics reduction (HWTR) and stormwater compliance inspections at Delta Marine between 1991and 2009. The most recent inspection information is provided below. Additional information regarding inspections at the Delta Marine facility is provided in the Sea King Industrial Park Data Gaps Report (SAIC 2013).

Ecology conducted a boatyard general permit inspection on October 2, 2008. Ecology inspectors issued the following corrective actions (Ecology 2008n):

- Develop a site drainage map.
- Begin stormwater monitoring at the pressure washing area.
- Visually inspect storm drains and catch basins weekly.
- Fix cracks in acetone containment berm.
- Install an impervious berm in the solvent still area.
- Clean up all spilled sandblasting waste and do not allow spent sandblasting waste to be exposed to the elements or surface water.
- Do not allow any process wastewater to enter any storm drains.

Ecology determined all permit compliance concerns were corrected during a boatyard general permit inspection on October 10, 2009. Inspectors identified the following additional corrective actions (Ecology 2009e):

- Update the facility drainage map to include drainage features for the areas around the treatment system, wash pad area near the large boatlift, and small boatyard.
- Begin stormwater monitoring at the pressure washing area near the large boatlift.
- Only wash vessels over the wash pad area, collect and discharge the washwater to the facility's treatment system.

Additional information regarding compliance with corrective actions was not available for review.

On February 24, 2009, Ecology conducted a dangerous waste inspection at the facility. Inspectors identified corrective actions related to hazardous waste labeling and containment, employee training, development of a contingency plan, and recordkeeping. Ecology notified Delta Marine that the facility is ultimately responsible for ensuring Diamond Painting properly manages its hazardous waste (Ecology 2009b). Delta Marine submitted a completed compliance certificate on June 30, 2009 (Giustino 2009).

Diamond Painting

Ecology inspected the Diamond Painting facility located on site at the Delta Marine facility (address 1818 S 93rd Street) on August 13, 2008. Inspectors identified the following issues (Jeffers 2008a):

- Inside floor drains need to be blocked to prevent washwaters from discharging to the storm drain system.
- Waste containers were not properly marked or closed.
- Vehicle washwater was discharged to storm drains.

Ecology determined additional corrective actions were required during a follow-up inspection on October 2, 2008 (Jeffers 2008b). Additional information regarding corrective action completion was not available for review.

CERCLA Section 104(e) Requests

EPA sent a CERCLA Section 104(e) Request for Information Letter to Global Intermodal Systems on May 24, 2011 (USEPA 2011). The information request included parcel 0029; along with Global Intermodal Systems' properties located on the east bank of the LDW. The response to the request was not available for review during the preparation of this SCAP. When the response to the request is available, relevant information from the response will be provided in a Source Control Status Report.

EPA sent CERCLA Section 104(e) Request for Information Letters to Delta Marine and Latitude Forty-Seven LLC in March 2008 and the Desimone Trust in April 2009 (USEPA 2008a, 2008b, 2009a). The information request included parcels 0005, 5624200006, 0062, and 0029. The responses to the requests to Delta Marine and Latitude Forty-Seven LLC were not available for review during the preparation of this SCAP. When the responses to the requests are available, relevant information from the responses will be provided in a Source Control Status Report. Relevant information from the Desimone Trust's response to the request is included in this SCAP.

Environmental Investigations and Cleanups

Limited Environmental Audit

A limited environmental audit was performed at Global Intermodal in 2001. The auditors performed an inspection of the facility and reviewed the facility's SWPPP and BMPs. Some minor housekeeping issues were identified. No environmental concerns that may indicate possible soil or groundwater contamination were identified (LSI Adapt). Global Intermodal implemented corrective actions to address the housekeeping issues (Hart Crowser 2002).

Phase I Environmental Site Assessment

A Phase I ESA was performed at Global Intermodal in 2004. A 10-foot by 6-foot asphalt patch near the shop (Figure 17a) indicated that a UST may be present or may have been removed from the property. The property is not listed as a UST site in Ecology's Facility/Site and ISIS databases (Property Solutions 2004).

Potential for Sediment Recontamination

Concentrations of PCBs in LDW sediment adjacent to the Delta Marine facility have exceeded the SQS (Figure 13c, Table 3). The potential for sediment recontamination associated with this property is summarized below.

- A stormwater drainage map (Figure 17a) for Global Intermodal Systems indicates the eastern portion of parcels 0029 and 0062 discharge directly to the LDW. It is not known if this portion of the facility discharges to Outfall 2100(B) and/or is an ongoing source of pollutants. Contaminants in stormwater and/or surface runoff from parcels 0029 and 0062, if any, could recontaminate LDW sediments.

- Stormwater and surface runoff from the majority of Delta Marine is conveyed to the S 96th Street SD system prior to discharge to the LDW. Stormwater from the southeast portion of the facility is conveyed to the Delta Marine Outfall. Stormwater from the washpad area is collected and diverted to a treatment system. Potential for sediment recontamination via the stormwater pathway is low provided the improvements and source control BMPs are maintained.
- Delta Marine has implemented appropriate spill prevention and response procedures as requested by Ecology. The area of the property that is immediately adjacent to the LDW is paved and used for boat moorage and/or boat removal and deployment. Overwater operations are limited to boat haul out. Therefore, the potential for sediment recontamination via the spills pathway is low.
- Soil and groundwater contamination has not been identified at the property. However, CKD is suspected to be present and, given the historical junkyard operations at the property and container maintenance operations conducted on unpaved areas of parcels 0029 and 0062, there is potential for soil and groundwater contamination at the facility. The potential for sediment recontamination via groundwater discharge is unknown.
- The bank adjacent to the facility consists primarily of bulkhead with a small vegetated area south of the boat lift. Contaminants in bank soils (if any) could be released directly to sediments via erosion. The potential for sediment recontamination via bank erosion/leaching is low.

Source Control Actions

- Ecology will request an updated facility map from Delta Marine that includes details of the stormwater drainage systems associated with the treatment system, wash pad near the large boat lift, Outfall 2100(B), Delta Marine Outfall, and parcels 0029 and 0062 in order to assess the stormwater pathway at the facility.
- Ecology will request that the property owner collect soil and groundwater data in order to determine the potential for sediment recontamination via the groundwater discharge pathway.

3.3 Upland Facilities in the S 96th Street SD Basin

Upland facilities within the S 96th Street SD basin that could potentially affect sediments near the Sea King Industrial Park source control area are listed on Table 1. Relevant information about these facilities was summarized in the Sea King Industrial Park Data Gaps Report (SAIC 2013). Additionally, an unknown number of undocumented industrial operations may take place within the S 96th Street SD basin. Undocumented industrial activities may be an ongoing source of contaminants to sediments adjacent to the Sea King Industrial Park source control area.

The following facilities have been inspected by Ecology, SPU or King County within the past five years (2008 or later) or the potential sediment recontamination pathways associated with the facility are incomplete. During recent inspections, inspectors identified corrective actions for the facilities and verified that the facilities complied with the corrective actions during a re-inspection. For some of these facilities, no corrective actions related to source control were

identified during the inspection. No source control actions have been identified for these facilities. Additional information regarding these facilities is provided in the Sea King Industrial Park Data Gaps Report (SAIC 2013).

Facility or Property Name	Address	Facility/Site ID	King County Tax Parcel
AAAA Mini Storage	1421 S 96th Street 98108	41533396	5624200390
Allied Body Works	625 S 96th Street 98108	5469634	5624200232
Filterfresh Coffee Service Inc.	9243 10th Avenue S 98108	23352	2433700075
Frog Hollow Corporation	1425 S 93rd Street 98108	24384: Frog Hollow Corp 25327412: Former Ahrenius Manufacturing Inc.	0001600042
Halfon Candy Company	9229 10th Avenue S 98108	1557860	2433700076
King Electrical Manufacturing Company[1]	9131 10th Avenue S 98108	2404488	2433700105, 2433700068
MacMillan Piper (former Morgan Trucking)	9228 10th Avenue S 98108	42665774	2433700156, 2433700155, 2433700154, 2433700153, 2433700165
Norman Property	11603 10th Avenue S 98108	2347	3361402095
Old Dominion Freight Line	600 S 96th Street 98108	1878836	3224049034, 5624200213, 5624200211, 562400212
PNP Properties LLC	850 & 860 S Cambridge Street 98108	21231: Avidex Industries, LLC 17553: ATACS Products	2433700074
Progressive Fastening	837 S Director Street 98108	9246491	2433700015
Puget Sound Coatings[2]	9220 & 9400 8th Avenue S 98108	97263627: Puget Sound Coatings Machinists Inc. 13397378: Puget Sound Coatings Inc.	2433200215, 5624200190
Simplex Grinnell, Sherwin Williams, NRC Environmental Services	9520 & 9530 10th Avenue S 98108	2263: Markey Property Parcel 4 19871: NRC Environmental Svcs 2236438: Simplex Grinnell 19959367: Bayside Automotive Storage Inc. 79578412: NRC Environmental Services; Former Teris LLC 39258864: Sherwin Williams Store 4317	5624200150
South 93rd Business Park	9320 15th Avenue S; 1505 S 93rd Street 98108	12901: Koepping & Koepping 12462: Qual-Fab Inc. 12865: Custom Metal Spinning LLC 14839: Northwest Connecting Rod 16677: Atomic Fabrications 7327447: Former United States Seafoods	0001600050

Facility or Property Name	Address	Facility/Site ID	King County Tax Parcel
		29834194: Former Propulsion Controls Engineering 37593895: Professional Coating, Inc. 41379359: Former Duwamish Manor Industrial Park 47625361: Federal Express Corp BFI 75318226: Former Duwamish Manor 89923232: Former DEOX	
South 96th Business Park	410 S 96th Street 98108	2080: Repair Technology Inc. 11972772: Centimark Corp Seattle Office 82395194: Aero Lac Inc. 92548826: 4th Ave Paint	3224049071
Terex Utilities	9426 8th Avenue S 98108	3291: Terex Utilities 27446996: Fruehauf Trailer Services	5624200191

All Facility/Site ID numbers associated with a property are listed in the table.

1. The need for additional information to determine if King Electrical received a discharge authorization from King County Industrial Waste (KCIW) was identified as a data gap in the Sea King Industrial Park Data Gaps Report (SAIC 2013). A discharge authorization has not been issued to the facility because it is the understanding of KCIW that industrial wastewater is not discharged to the sanitary sewer and that all wastes are hauled offsite (Tiffany 2013).
2. The need for a follow-up inspection at Puget Sound Coatings was identified as a data gap in the Sea King Industrial Park Data Gaps Report (SAIC 2013). SPU determined that the facility was in compliance with source control regulations and BMPs by the end of December 2012 (Ecology 2013b).

The upland facilities listed below were identified as potential sediment recontamination sources. Additional information regarding source control actions for these upland properties is provided in Sections 3.3.1 through 3.3.16. The facilities closest to the LDW are discussed first.

Facility	Address	Potential Contaminant Pathways	Figure No.
Absolute German	9510 14th Avenue S	Stormwater	6, 7
Ace Galvanizing	429 S 96th Street 98108	Stormwater, groundwater discharge/infiltration	8
Former Advance Electroplating Inc.	9585 8th Avenue S 98108	Stormwater, groundwater discharge/infiltration	8
Carey Limousine Service	1237 S Director Street 98108	Stormwater	7
Gary Merlino Construction Company	9125 10th Avenue S 98108	Stormwater	7
ICON Materials Asphalt Plant	1115 S 96th Street 98108	Stormwater	7
Industrial Automation Inc.	1421 S 93rd Street	Stormwater	6
Former Penberthy Electromelt/ ToxGon Corp Seattle	631 S 96th Street 98108, 9619 8th Avenue S 98108	Stormwater, groundwater discharge/infiltration	8

Facility	Address	Potential Contaminant Pathways	Figure No.
Former Precision Engineering/ Pacific Industrial Supply	1231 S Director Street 98108	Groundwater discharge/infiltration	7
PSF Mechanical	9322 14th Avenue S 98108	Stormwater	6
RMC Inc.	10766 Myers Way S 98108	Stormwater	10
Selland Auto Transport	615 S 96th Street 98108	Stormwater	8
Western Ports Transportation Inc.	9369 8th Avenue S 98108	Stormwater, groundwater discharge/infiltration	7, 8
Western United Fish Company	9411 8th Avenue S 98108	Stormwater	8
Wooldridge Boats Inc.	1303 S 96th Street 98108	Groundwater discharge/infiltration	7

The Carey Limousine Services and former Precision Engineering/Pacific Industrial Supply properties are not located within the boundaries of the S 96th Street SD basin; however, stormwater runoff may enter a drainage ditch located immediately south of the properties, which is part of the S 96th Street SD storm drain system.

3.3.1 PSF Mechanical

Current Operations	Heating, ventilation and air conditioning system design, fabrication, installation, service and maintenance
Historical Operations	Unknown
Tax Parcel No.	0001600046
Address	9322 14th Avenue S 98108
Facility/Site ID	18451551: PSF Mechanical Inc. 76299717: PSF Industries Inc. Field Yard
Chemicals of Concern	Zinc
Media Affected	Stormwater

PSF Mechanical operates at parcel 0046 (Figure 12), which is bordered by S 95th Street to the south, 14th Avenue S to the east, Industrial Automation and Frog Hollow Corporation to the north, and the South 93rd Business Park to the west (Figure 6). The company uses a small area of parcel 0001600037 for parking (PSF Mechanical 2010).

Historical and Current Operations

PSF Mechanical began operating at the current location over 35 years ago (Ecology 2008b). The company specializes in the design, fabrication, installation, and service and maintenance of heating, ventilation, and air conditioning systems. Fabricated sheet metals include steel, galvanized steel, and copper. All fabrication activities, including grinding and cutting of galvanized material is conducted indoors (PSF Mechanical 2010).

PSF Mechanical operates three forklifts, which are stored indoors overnight. The yard is cleaned daily with a magnet boom to pick up small metal scraps. Scrap metal is recycled at Seattle Iron and Metals. Oils generated at the facility are managed by an offsite recycler. A plasma cutter is used to cut stainless and galvanized sheet metal (Ecology 2008b).

There are numerous mechanical and hydraulic machines in the main shop. A sheet metal glue application generates some water-based glue wastes, which are stored in a 55-gallon drum. The outside storage and loading yard is used to store finished parts and metal stock. Stock is stored in covered areas. The south building is used for shipping and receiving. Glue and chemical products are stored in the south building. The north building is used for storage and sheet metal fabrication (Ecology 2008b).

The majority of the facility is paved and graded to direct stormwater to six catch basins and one sump located on the site. The three catch basins on the north side of the facility convey stormwater east to the facility's property boundary. Two catch basins located at the southwest portion of the facility convey stormwater to the facility's northern storm drain pipes. The sixth catch basin is located at the southeast portion of the facility and conveys stormwater to the facility's drainage system prior to discharge to the S 96th Street SD System (Figure 18) (PSF Mechanical 2010).

Based on the aerial photographs reviewed for the Sea King Industrial Park Data Gaps Report, this property was developed for industrial/commercial use between 1960 and 1969. One of the facility buildings was constructed in 1963 (SAIC 2013). Information regarding industrial operations prior to PSF Mechanical was not available for review.

Regulatory History

On December 28, 1992, Ecology granted PSF Mechanical coverage under the NPDES ISGP (Ecology 1992b). The current permit number is WAR000264.

Ecology and King County performed several stormwater compliance inspections at PSF Mechanical between 1996 and 2012. Detailed information regarding these inspections is provided in the Sea King Industrial Park Data Gaps Report (SAIC 2013).

Between January 2005 and March 2008, PSF Mechanical exceeded the action level for zinc in effluent stormwater six times (Ecology 2008g). PSF Mechanical submitted a Level 2 and 3 Response Report to Ecology on February 13, 2009. The facility updated the SWPPP to include more frequent catch basin cleanouts, new catch basin filters, and biannual sweeping with a vacuum truck. Additional actions include identifying sources of zinc on and off the property and characterizing the plasma cutter emissions (SNR 2009).

PSF Mechanical submitted an ISGP Annual Report on April 29, 2011. Stormwater at the facility exceeded benchmarks for zinc during the first, second, and fourth quarters of 2010. PSF Mechanical implemented BMPs and corrective actions to address the zinc levels. The facility cleaned and repaired the compressor area to prevent leaks, installed catch basin filters, moved waste to an indoor containment area, and added plastic wrapping to enclose finished products temporarily stored in the yard. In addition, the facility changed to covered dumpsters, installed awnings for galvanized product storage, changed gutters to aluminum, and installed filters into

welding exhausts. The facility purchased a plasma table filter to eliminate exhaust from the plasma cutter (PSF Mechanical 2011).

On May 25, 2011, PSF Mechanical requested an extension to complete Level 3 corrective actions associated with the facility's NPDES ISGP. The facility was in the process of installing a plasma cutter filtration system and constructing an awning to increase covered storage for galvanized products. The facility also reviewed options to treat stormwater. On November 23, 2011, Ecology granted an extension and issued Administrative Order No. 8884 for the facility to take the following corrective actions (Ecology 2011h):

- Advise Ecology on the status of complying with the Level 3 Corrective Actions in Annual Reports.
- Implement all applicable operational and structural source control BMPs.
- Collect and analyze at least one stormwater discharge sample each quarter from October 1, 2011, through June 30, 2012.

The facility exceeded zinc benchmarks for all monitoring periods in 2011. In October 2011, PSF Mechanical jetted underground storm lines to clear out accumulated sediment and cleaned the roof after the installation of the plasma table exhaust filter system. PSF Mechanical planned to research and install a stormwater treatment system in April 2012 (PSF Mechanical 2012).

Ecology performed an NPDES ISGP compliance inspection at the facility on January 21, 2012. No additional corrective actions were identified (Ecology 2013b).

In April 2012, EPA contractors collected a solids sample from a storm drain structure near the PSF Mechanical property, upstream of the S 96th Street SD Outfall (KC-07, Figure 4) (KTA 2012b). Chemicals were not detected at or above the storm drain screening values in the sample.

Potential for Sediment Recontamination

The potential for sediment contamination associated with this property is summarized below:

- Zinc concentrations in stormwater at PSF Mechanical have consistently exceeded benchmarks established in the facility's ISGP. In an effort to reduce zinc concentrations, the facility has increased sweeping activities, installed catch basin filters, and installed an exhaust filter system for the plasma cutter. The company planned to research and install a stormwater treatment system in April 2012.
- Information regarding PSF Mechanical's compliance with the Ecology Administrative Order or installation of a stormwater treatment system was not available for review. The potential for sediment recontamination due to current facility operations is low to moderate.

Source Control Actions

Information needed to assess the potential for sediment recontamination associated with current or historical operations at this facility was summarized in the Sea King Industrial Park Data Gaps Report (SAIC 2013). The following source control actions will be conducted to fill the identified data gaps and reduce the potential for recontamination of sediments:

- Ecology will perform inspections at PSF Mechanical to monitor compliance with the Administrative Order, which directed the facility to implement all applicable operational and structural source control BMPs and to collect and analyze at least one stormwater discharge sample each quarter from October 1, 2011 through June 30, 2012.
- Ecology will request information from PSF Mechanical regarding the status of the proposed stormwater treatment system.

3.3.2 Industrial Automation Inc.

Current Operations	Repair and fabrication of tools and parts for the aerospace industry
Historical Operations	Unknown
Tax Parcel No.	0001600042, 0001600037
Address	1421 S 93rd Street 98108
Facility/Site ID	74236527
Chemicals of Concern	Zinc
Media Affected	Stormwater

Industrial Automation Inc. (Industrial Automation) operates at parcels 0042 and 0037 (Figure 12). The facility is bordered by PSF Mechanical to the south, 14th Avenue S to the east, S 93rd Street to the north, and Frog Hollow to the west (Figure 6).

Historical and Current Operations

Industrial Automation has operated at the current location since 1972. The company repairs and fabricates tools and metal parts for the aerospace industry. The majority of manufacturing activities take place indoors. The facility performs parts cleaning, machining, honing, grinding, abrasive blasting, electroless nickel plating, plastisol coating, and painting. The paint booth, sandblast cabinet, and plating bath are located in the western building. The plating tank rinsate is discharged to the sanitary sewer. Paint booth filters, metal turnings and chips, and sandblast dust are disposed of as solid waste. A forklift is maintained and serviced onsite indoors (Ecology 2008a).

The paved lots at the facility are used for metal storage, equipment storage, metal disposal, and shipping and receiving. All metal and production materials stored outdoors are under cover. All 55-gallon drums are stored inside. Dumpsters remain covered. All maintenance work is conducted indoors (Industrial Automation 2012a).

A storm drain located in the central lot is the only storm drain located on the facility's property (Figure 19). The employee parking lot at the facility drains to the street. The east lot at Industrial Automation conveys stormwater to another facility's storm drain (Ecology 2007c).

Information regarding historical operations prior to 1972 was not available for review.

Regulatory History

Ecology performed hazardous waste management inspections at Industrial Automation in 1992, 1999, 2003 and 2008. In 2003, Ecology determined Industrial Automation was no longer required to submit a pollution prevention plan because hazardous waste accumulation at the facility fell below planning threshold levels (Ecology 2003b). Additional information regarding these inspections is available in the Sea King Industrial Park Data Gaps Report (SAIC 2013).

Industrial Automation obtained coverage under the ISGP on August 16, 1994 (Ecology 1994c). The facility's current permit number is WAR001949. Ecology performed stormwater compliance inspections at the facility in 2007 and 2008 and identified corrective actions during these inspections. Industrial Automation complied with the corrective actions (SAIC 2013).

On January 18, 2011, Ecology issued Administrative Order No. 8227 for failure to submit Discharge Monitoring Reports (DMRs) for the first, second, and third quarter of 2010 (Ecology 2011a). Industrial Automation submitted an ISGP Annual report on May 11, 2011. No stormwater samples were collected in 2010. The facility removed all uncovered raw materials from the storage yard and placed the materials under structural coverage during the first quarter of 2011. The company moved waste dumpsters and trained employees on good housekeeping practices to keep areas clean (Industrial Automation 2011).

Industrial Automation exceeded zinc benchmarks for all monitoring periods of 2011. The facility hired a sweeper service to perform monthly lot maintenance (Industrial Automation 2012b). The facility completed a SWPPP in February 2012. According to the SWPPP, all metal and production materials stored outdoors are under cover. All 55-gallon drums are stored inside. Dumpsters remain covered and all maintenance work is conducted indoors (Industrial Automation 2012a).

Ecology performed NPDES ISGP compliance inspections at the facility on January 24 and June 6, 2012 (Ecology 2013b). Detailed information regarding these inspections was not available for review at the time the draft SCAP was prepared.

Potential for Sediment Recontamination

The potential for sediment contamination associated with this property is summarized below:

- Industrial Automation covered raw materials and metals in the outside storage lot to limit exposure to stormwater. The facility completed a SWPPP and hired a monthly sweeping service to reduce dust and sediment transport to the storm drain system. The potential for sediment recontamination via the stormwater and spills pathway is low provided that the company maintains appropriate source control BMPs.

Source Control Actions

Information needed to assess the potential for sediment recontamination associated with current or historical operations at this facility was summarized in the Sea King Industrial Park Data Gaps Report (SAIC 2013). The following source control actions will be conducted to fill the identified data gaps and reduce the potential for recontamination of sediments:

- Industrial Automation appears to maintain appropriate source control BMPs and has complied with corrective actions identified by Ecology. Ecology will review the inspection reports from the January 24 and June 6, 2012 inspections to verify continued compliance with source control BMPs and corrective actions.

3.3.3 Absolute German/Former All City Auto Wrecking

Current Operations	Auto recycling, used vehicle sales, fuel service station
Historical Operations	Auto wrecking, grocery store, tavern
Tax Parcel No.	5624200091, 5624200097
Address	9510 & 9525 14th Avenue S 98108
Facility/Site ID	10207: Absolute German 231954: MKT Southpark LLC 22342251: All City Auto Wrecking & Sales Inc. 27778576: South Park Chevron
Chemicals of Concern	Petroleum hydrocarbons, arsenic, copper, lead, zinc
Media Affected	Stormwater, soil, groundwater

Absolute German operates at parcel 0091 and South Park Chevron operates on parcel 0097 (Figure 12), which are bordered by S 96th Street to the south, 14th Avenue S to the west, and SR 99 to the north and east (Figures 6 and 7).

Historical Operations

All City Auto Wrecking historically operated on parcels 0091 and 0097. Auto wrecking activities began on the parcels in 1975. Prior to auto wrecking activities, parcel 0097 was a grocery store and tavern. Operations on parcel 0097 included parts storage and automobile disassembling. Wrecked cars, motor-cores, and transmission-cores were stored at parcel 0097. Wrecked cars were stored also on parcel 0091 (Floyd Snyder 1999a).

Current Operations

Absolute German currently operates on parcel 0091 (east parcel) (Figures 6 and 7) and uses 9510 14th Avenue S as its operating address. According to the company's website, Absolute German is a full-service auto recycler and used vehicle dealer (Absolute German 2012). According to a February 2012 Ecology inspection, the facility stores oily engines, engine parts, and equipment outside and exposed to stormwater. Oily sheens were observed entering catch basins at the property (Ecology 2012b). The facility's SWPPP indicates there is an oil/water separator located in the northeast area of the property. Stormwater is conveyed from the oil/water separator to a stormwater filter system prior to discharge to the S 96th Street storm drain ditch at the southern boundary of the property (Figure 20) (Absolute German 2010).

The South Park Chevron facility information was not reviewed in the Sea King Industrial Park Data Gaps Report due to SAIC/Chevron organizational conflicts of interest (SAIC 2013).

Regulatory History

On June 24, 1999, Ecology issued an NFA determination for the soil and groundwater contamination associated with All City Auto Wrecking's operations on parcels 0091 and 0097 (see Environmental Investigation and Cleanups, below). A restrictive covenant filed on June 16, 1999, remains a condition of Ecology's NFA determination. The restrictive covenant limited the property to commercial and/or industrial uses only, prevented use of groundwater, and required development and capping of the western parcel. Ownership and leasing activities were also limited at the property (Ecology 1999).

Absolute German

According to Ecology's PARIS database, Ecology issued ISGP WAR125038 to Absolute German on October 21, 2009. Ecology conducted a stormwater compliance inspection on February 1, 2012. Inspectors identified the following corrective actions (Ecology 2012b):

- Clean up spills and leaks to prevent the discharge of pollutants.
- Do not store oily engines, engine parts, or equipment outside exposed to stormwater.
- Ensure monthly inspections are conducted and documented.
- Complete DMRs and send to Ecology.

Absolute German exceeded ISGP benchmarks for copper and turbidity during the first quarter of 2012. Analysis was not conducted for TPH, total lead, or total zinc. Additional information regarding compliance with corrective actions was not available for review.

In November 2011, EPA contractors collected storm drain solids samples from a catch basin on the south side of S 96th Street (Station KCS96H, Figure 4) near Absolute German (KTA 2012a). Butyl benzyl phthalate and BEHP concentrations exceeded storm drain screening values; the BEHP concentration exceeded the CSL-based screening level by a factor of 1.8 (Table 8).

Environmental Investigations and Cleanups

Environmental investigations and remedial excavations have been performed at this property between 1997 and 1999. Information regarding the investigations is presented in the Sea King Industrial Park Data Gaps Report (SAIC 2013). Chemical concentrations exceeding screening levels in soil and groundwater are summarized below.

Chemical	Soil	Groundwater	Sediment COC?
Metals			
Arsenic		●	✓
Cadmium		●♦	
Lead	●♦		
Petroleum Hydrocarbons			
Diesel-range	●	●	
Heavy-oil range	●		

- ● Detected concentrations exceeded MTCA Method A or B cleanup level
- ♦ Detected concentrations exceeded the draft soil-to-sediment or groundwater-to-sediment screening level
- ✓ COC exceeds SQS in LDW sediment adjacent to the source control area.

All chemicals listed in the table are sediment COCs for the LDW Superfund Site, with the exception of petroleum hydrocarbons and VOCs.
Individual chemical concentrations are provided in Tables 9 and 10.

In June 2009, Ecology reviewed post-cleanup site conditions and monitoring data to ensure that human health and the environment are protected at the facility. The review determined cleanup actions at the site appear to be protective of human health and the environment. The site continues to meet requirements of the restrictive covenant. No additional cleanup actions were required (Ecology 2009c). The post-cleanup monitoring data were not available for review during the preparation of this SCAP.

Potential for Sediment Recontamination

The potential for sediment contamination associated with this property is summarized below:

- Ecology completed a stormwater compliance inspection at Absolute German in February 2012. Ecology issued corrective actions for leaky equipment exposed to stormwater, lack of BMPs for source control, and failure to submit DMRs. The potential for sediment recontamination via the stormwater and spills pathway is low to medium.
- Arsenic in the groundwater samples from wells at both east and west parcels exceeded the MTCA Method A cleanup level. Cadmium in well MW-3 also exceeded screening levels. Groundwater has the potential to discharge to a drainage ditch located at the southern boundary. The drainage ditch is part of the S 96th Street SD basin. In 2009, Ecology determined that cleanup actions at the property are protective of human health and the environment.

Source Control Actions

Information needed to assess the potential for sediment recontamination associated with current or historical operations at this facility was summarized in the Sea King Industrial Park Data Gaps Report (SAIC 2013). The following source control actions will be conducted to fill the identified data gaps and reduce the potential for recontamination of sediments:

- Ecology will perform a follow-up inspection at Absolute German to verify compliance with corrective actions identified during Ecology's February 2012 stormwater inspection.
- Ecology will collect a solids sample from the drainage ditch at the southern boundary of the property. The sample will be analyzed for arsenic and cadmium to assess the potential for sediment recontamination via the groundwater discharge pathway.

3.3.4 Carey Limousine Service

Current Operations	Limousine and van service
Historical Operations	Painting company, transmission service, roofing company
Tax Parcel No.	0001600016
Address	1237 S Director Street 98108
Facility/Site ID	2489: Kaspac Chiyoda Property
Alternate Name(s)	Carey Limousine, Cascade Transmission Company, Chiyoda International Corp, Kaspac Chiyoda Property, Kaspac Corp Seattle, Kaspac Corporation, Tukwila Roofing Co
Chemicals of Concern	Petroleum hydrocarbons, arsenic, copper, lead, zinc
Media Affected	Stormwater, soil, groundwater

The Carey Limousine Service (Carey Limousine) operates at parcel 0016 (Figure 12). The facility is bordered by SR 99 to the south, 14th Avenue S to the east, S Director Street to the north, and Pacific Industrial Supply to the west (Figure 7).

Historical Operations

The property was undeveloped prior to 1960 and used for agriculture and the storage of agricultural equipment. Between 1960 and 1972, the facility was a used car lot with an operating gas station on the property. Chiyoda International Corp. purchased the property in 1972. From 1972 to 1988, the property was operated by a road paint striping company, Paint-A-Line, where Chiyoda International Corp. was a part owner. Waste paint from the paint operations was dumped to the ground adjacent to a paint shed. Between 1988 and 1997, the property was leased by several companies, including a transmission repair shop, construction contracting company, and roofing contractor (Chiyoda 1992a).

Cascade Transmission Service operated at 1237 S Director Street in 1994 and Tukwila Roofing operated at 1237 S Director Street in 1996 (King County 1998). Additional information regarding historical operations at Cascade Transmission Service and/or Tukwila Roofing was not available for review.

Current Operations

Carey Limousine currently operates a limousine and van service at 1237 S Director Street. The facility is occupied by buildings and a paved lot used to park vehicles when not in use. Vehicles are washed and maintained in a covered garage and wash bay. The wash bay is connected to the sanitary sewer (King County 2003). Additional information regarding current operations at the facility was not available for review.

Regulatory History

Between 1990 and 1997, Kaspac conducted several soil and groundwater investigations and remedial actions at the property. On February 7, 1997, Ecology determined no further action was

necessary at the site with regard to the release of TPH and toluene to groundwater and/or upland soil. Ecology indicated that confirmation monitoring of permanent wells (MW-9, MW-10, and MW-11) on and adjacent to the southern portion of the property should be conducted for three additional quarters (Ecology 1997). On May 16, 1998, Ecology issued an NFA following completion of confirmation sampling (Ecology 1998b). Additional information regarding the regulatory history for historical operators at the property is summarized in the Sea King Industrial Park Data Gaps Report (SAIC 2013).

Carey Limousine

King County conducted a business visit at Carey Limousine in April 1998. King County issued the following corrective actions (King County 2003):

- Limit vehicle washing to the gravel area of the property until the wash pad is connected to the sanitary sewer system.
- Place spill control kits in maintenance areas.
- Stencil the storm drains at the facility.

King County re-visited the facility in January 2003. King County issued a Notice of Violation to Carey Limousine for failure to connect the vehicle wash pad to the sanitary sewer. During a follow-up inspection in May 2003, King County confirmed that vehicle-washing operations had been moved inside and the wash pad drain was connected to the sanitary sewer (King County 2003).

Ecology conducted an Urban Waters inspection at the facility on August 16, 2011. Ecology identified the following corrective actions (Ecology 2012g):

- Determine need for permit to discharge washwater to the sanitary sewer.
- Improve housekeeping and spill response procedures.
- Improve waste handling and storage.

Environmental Investigations and Cleanups

Between 1989 and 1997, Kaspac conducted several soil and groundwater investigations and remedial actions at the property. Detailed information regarding the investigations and cleanups is presented in the Sea King Industrial Park Data Gaps Report (SAIC 2013). Chemical concentrations exceeding screening levels in soil and groundwater are summarized below.

Chemical	Soil	Groundwater	Sediment COC?
Metals			
Arsenic	●	●	✓
Cadmium		●♦	
Chromium		●♦	
Copper		●♦	
Lead		●♦	
Silver		♦	
Zinc	♦	♦	✓

Chemical	Soil	Groundwater	Sediment COC?
Petroleum Hydrocarbons			
Diesel-range		●	
Gasoline-range	●	●	
Heavy-oil range		●	
TPH		●	
VOCs			
Benzene	●	●	
PCE	●	●	
TCE		●	
Toluene	●	●	
Xylenes, total	●	●	

● Detected concentrations exceeded MTCA Method A or B cleanup level

♦ Detected concentrations exceeded the draft soil-to-sediment or groundwater-to-sediment screening level

✓ COC exceeds SQS in LDW sediment adjacent to the source control area.

All chemicals listed in the table are sediment COCs for the LDW Superfund Site, with the exception of petroleum hydrocarbons and VOCs.
Individual chemical concentrations are provided in Tables 11 and 12.

Potential for Sediment Recontamination

The potential for sediment contamination associated with this property is summarized below:

- According to a 1989 Ecology inspection at the property, stormwater is conveyed to a drainage ditch at the south end of the facility via sheet flow. Additional information regarding facility drainage and current stormwater control practices at the facility was not available for review. The potential for sediment recontamination via stormwater pathway is unknown.
- Historical activities at the facility resulted in the release of TPH, benzene, toluene, ethylbenzene, and xylenes (BTEX), and metals to soil and groundwater. Soil excavations and groundwater monitoring at the facility resulted in an NFA determination from Ecology in 1998. However, in 2011, Ecology determined that the groundwater plume from the upgradient property (former Precision Engineering, Section 3.3.5) may be commingled with the groundwater plume associated with this property. The potential for sediment recontamination due groundwater discharge is unknown.

Source Control Actions

Information needed to assess the potential for sediment recontamination associated with current or historical operations at this facility was summarized in the Sea King Industrial Park Data Gaps Report (SAIC 2013). The following source control actions will be conducted to fill the identified data gaps and reduce the potential for recontamination of sediments:

- Ecology will perform a follow-up inspection at Carey Limousine to verify compliance with corrective actions identified during Ecology's August 2011 inspection.

- Ecology will request that the property owner provide data to define the contaminant plume associated with the property and to verify that contaminants associated with the property are not reaching the LDW.

3.3.5 Former Precision Engineering/Pacific Industrial Supply

Current Operations	Commercial tool, safety equipment, parts, hardware, metal bar stock, fishing line and wire rope supplier, wire rope assembly manufacturing
Historical Operations	Manufacturing and repair of hydraulic cylinders, ship propellers and other marine equipment, including grinding, polishing, honing, milling, welding, hard chrome plating.
Tax Parcel No.	0001600055
Address	1231 S Director Street 98108
Facility/Site ID	1143511: Pacific Industrial Supply 2056: Former Precision Engineering
Former Tenants	Baszile Metals Service, Mayflower
Chemicals of Concern	Arsenic, chromium (hexavalent and trivalent), copper, lead, mercury, zinc, PAHs, petroleum hydrocarbons, VOCs
Media Affected	Soil, groundwater

Pacific Industrial Supply operates at parcel 0001600055 (Figure 12), which is bordered by SR 99 to the south, Carey Limousine to the east, S Director Street to the north, and 12th Avenue S to the west. The property is approximately 1,800 feet west of the LDW (Figure 7).

Historical Operations

Precision Engineering operated at the property from 1966 until March 2005. Precision Engineering manufactured and repaired hydraulic cylinders, ship propellers and other marine equipment, and smaller items such as the blade assembly used by fast food restaurants to cut French fries. The company performed precision grinding and polishing, honing, milling, and welding. Hard chrome plating and flame- and arc-applied metal coatings were applied at the facility (Precision Engineering 1993; MFA 2008). The former facility features are shown on Figure 21.

Six lead-lined chrome plating tanks were maintained at the facility. Four of these tanks were installed in containment vaults, which were recessed into the facility floor. A 24-foot-long, 8-foot-wide, and 16-foot-deep vault was installed in 1980 to contain sodium hydroxide and sodium bicarbonate strip tanks. Temporary aboveground plating tanks were also used at the facility. All of these tanks were removed from the property in 2005. A petroleum UST, which provided fuel to the facility's boiler, was abandoned in place in 1992 (MFA 2008). A tank holding TCE was present at the property, though use of this chemical ceased in the mid-1980s (Precision Engineering 1993).

Chrome plating wastes, waste alkaline stripping solutions, and steam cleaning detergent/ wastewater were discharged to the sanitary sewer until 1986. Precision Engineering rerouted all

floor drains and trenches in the chrome plating shop to a containment vault by July 1986 (SCS Engineers 1986; MFA 2008).

In October 2002, Precision Engineering identified the following processes that generated hazardous waste streams at the facility (Ecology 2003a):

- Stripping and cleaning parts with solvents, hot caustic and strong acid solutions;
- Grinding, machining and rinsing parts;
- Hard chrome plating;
- Lead anode fabrication;
- Wastewater evaporation;
- Draining waste hydraulic oil from equipment; and
- Infiltration of groundwater into coated containment pits.

Groundwater seeping into the containment pits was pumped into an evaporator tank. The resultant sludge was removed from the facility approximately every 18 months. The sludge was handled and disposed of as hazardous waste. This system was equipped with triple containment to contain spills or leaks (Ecology 2003a).

Between approximately 1985 and 2003, Baszile Metals Service leased the west side of the building from Precision Engineering. Baszile Metals distributed aluminum (MFA 2008). Mayflower moving company leased space in the west side of the building in 1987 (Ecology 1988a).

Additional information regarding historical operations by Precision Engineering is provided in the Sea King Industrial Park Data Gaps Report (SAIC 2013).

Current Operations

Pacific Industrial Supply began operating at the 1231 S Director Street property in 2005. The company operates a wholesale and retail store that supplies commercial tools, safety equipment, parts, hardware, metal bar stock, commercial fishing line and wire rope. The company also manufactures wire rope assemblies. A mechanical repair shop for repair and refurbishment of used equipment is present at the facility. The company also has a welding shop for small orders and cutting steel bar (Ecology 2008f). Metal cutting and equipment maintenance/repair are performed inside the building. Dust from metal cutting is suppressed using a vacuum system and the floor of the cutting area is cleaned routinely. No floor drains are present in the building (Eco Compliance 2013).

Waste metal, wood, plastic, and paper; bare, painted, and galvanized metal; mechanical equipment, plastic, and untreated wood are stored outside in a paved storage yard at the rear (south side) and east side of the building. Bare, painted, and galvanized metal may be exposed to stormwater; lead and copper are not stored outdoors. Petroleum products and other metals from equipment and vehicles parked at the property may be exposed to stormwater (Eco Compliance 2013).

Stormwater from the storage yard is conveyed to a single storm drain at the south side of the property. The stormwater catch basin is fitted with absorbent pads and filter fabric. Stormwater

collected in the catch basin is conveyed to an adjacent manhole where solids are allowed to settle out before the stormwater discharges to a drainage ditch directly south of the property. Stormwater is also conveyed to unpaved areas on the western and southern sides of the property and to a combined sewer catch basin at the southwest corner of S Director Street and 14th Avenue S (Eco Compliance 2013).

Regulatory History

Precision Engineering

Precision Engineering discharged chrome plating wastes to the sanitary sewer and held Waste Discharge Permit No. 7052 from approximately 1977 to 1985 (Precision Engineering 1976). In September 1985, the permit was cancelled by the Municipality of Metropolitan Seattle (METRO) after Precision Engineering changed the chrome plating line to a closed-loop system (METRO 1985).

In February 1986, METRO issued a Penalty and Compliance Schedule to Precision Engineering for discharge violations occurring after the cancellation of Permit No. 7052. Precision Engineering discharged industrial waste to the sanitary sewer after receiving Cease Discharge Notices on September 23, 1985, January 6, 1986, and January 21, 1986. The assessed penalty was for these discharge violations and falsification of an engineering report (METRO 1986).

On May 23, 1986, Ecology issued Administrative Order No. DE 86-307 to Precision Engineering. The order required Precision Engineering to comply with the following (Ecology 1986a):

- Evaluate and estimate quantities of regulated chemicals purchased, recycled, and used in products and wastes generated from January 1984 to March 1986.
- Evaluate and characterize all sources of waste and submit a strategy for legal treatment, recycling or disposal of these wastes, including grinding wastes, cooling water, alkaline cleaning, chrome plating, mobile chrome plating, floor washing, and steam cleaning.
- Check all subsurface storage sumps, pits, and trenches and submit a schedule of repair for any cracked, leaking, or uncoated sumps or trenches.
- Develop a spill prevention plan.
- Submit an accurate facility map showing drainage patterns, storm and sanitary sewers, no outlet sumps, and wastewater control structures.
- Apply for an NPDES ISGP.
- Apply to re-open METRO Waste Discharge Permit No. 7052.

In December 1986, Ecology issued an Amendment to Order No. DE 86-307 because Precision Engineering had failed to comply with all but two of the required actions under the Order. In addition, the Amendment required Precision Engineering to characterize the nature and extent of soil and groundwater contamination at the property and the drainage ditch to the south (Ecology 1986b).

In December 1988, the Pollution Control Hearings Board issued PCHB No. 87-13, Stipulated Agreement, which stated that Precision Engineering had successfully complied with Order No. DE 86-307 and the Amendment. In addition, Precision Engineering agreed to perform the

environmental investigations, as required under the Amendment, as proposed in two work plans that had been approved by Ecology (Attorney General 1988).

Ecology issued NPDES ISGP No. SO3-001925 to Precision Engineering in August 1994 (Ecology 1994b). Precision Engineering ceased operations in March 2005. Ecology terminated the facility's coverage under the ISGP on January 9, 2006, at the request of Precision Engineering (Ecology 2006a). In June 2006, Ecology removed the facility from the Pollution Prevention Planning Program (Ecology 2006c).

In March 2006, Ecology performed an HWTR inspection to ensure that the facility was closed in accordance with hazardous waste regulations. Precision Engineering closed the location one year prior to the inspection. Ecology stated that no violations of hazardous waste regulations were observed, but advised Precision Engineering that the facility could not be identified as "clean closed" until the 55-gallon drums of waste were properly disposed (Ecology 2006b).

Additional information regarding the regulatory history for Precision Engineering is provided in the Sea King Industrial Park Data Gaps Report (SAIC 2013).

Pacific Industrial Supply

Ecology and King County performed inspections at Pacific Industrial Supply in 2008 and 2009. The facility complied with corrective actions identified by Ecology in 2008. Information regarding Pacific Industrial Supply's compliance with the corrective actions identified by King County in 2009 was not available for review. Additional information regarding these inspections is provided in the Sea King Industrial Park Data Gaps Report (SAIC 2013).

Ecology conducted an Urban Waters Environmental Compliance inspection at the facility on May 10, 2011. Ecology identified the following corrective actions (Ecology 2011b):

- Properly store product and/or waste.
- Clean storm drain structures.
- Cover galvanized product stored outside.
- Evaluate the need for an ISGP or CNE.

Pacific Industrial Supply submitted a completed compliance certificate on August 16, 2011 (Pacific Industrial 2011). Ecology conducted a follow-up inspection and determined the facility was in compliance with previous corrective measures. During the follow-up inspection, Ecology observed two large stains on the asphalt near the catch basin outside of the facility. Ecology issued the facility a compliance letter with the understanding that outside liquid storage and spill response would be improved (Ecology 2011g).

The facility was issued NPDES ISGP No. WAR125474 on October 21, 2009 (Eco Compliance 2013).

Environmental Investigations and Cleanups

Several environmental investigations and remedial actions were performed at the property between 1988 and 2010. Information regarding the investigations and cleanups is presented in

the Sea King Industrial Park Data Gaps Report (SAIC 2013). Chemical concentrations exceeding screening levels in soil and groundwater are summarized below.

Chemical	Soil	Groundwater	Sediment COC?
Metals			
Arsenic	●	●	✓
Chromium	♦	●♦	
Chromium (hexavalent)	●♦	●	
Chromium (trivalent)	●♦		
Copper	♦	♦	
Lead	●♦	●♦	
Mercury	♦	♦	✓
Zinc	♦	♦	✓
PAHs			
Dibenzo(a,h)anthracene		●♦	✓
Indeno(1,2,3-cd)pyrene		♦	
Petroleum Hydrocarbons			
Diesel-range	●	●	
Heavy-oil range	●	●	
VOCs			
Cis-1,2-Dichloroethene		●	
Methylene chloride		●	
TCE	●	●	
Vinyl chloride		●	

● Detected concentrations exceeded MTCA Method A or B cleanup level

♦ Detected concentrations exceeded the draft soil-to-sediment or groundwater-to-sediment screening level

✓ COC exceeds SQS in LDW sediment adjacent to the source control area.

All chemicals listed in the table are sediment COCs for the LDW Superfund Site, with the exception of petroleum hydrocarbons and VOCs.
Individual chemical concentrations are provided in Tables 13 and 14.

Shallow groundwater at the property may seasonally infiltrate the drainage ditch to the south of the property during periods of high groundwater elevation. Groundwater fate and transport modeling indicated that the contaminants in groundwater beneath the property would not reach the LDW. The modeled contaminants included arsenic, copper, hexavalent and trivalent chromium, selenium, and diesel- and heavy oil-range petroleum hydrocarbons (MFA 2008). In 2011, Ecology accepted the model as a general predictor of groundwater conditions. However, Ecology determined that since the extent of the contaminant plume had not been defined (and may be commingled with the contaminant plume associated with the potentially downgradient Carey Limousine property [Section 3.3.4]), additional environmental investigation was necessary to determine the relationship between the contaminant plumes and to verify that contaminants associated with the former Precision Engineering property were not reaching the LDW (Ecology 2011d).

Potential for Sediment Recontamination

The potential for sediment contamination associated with this property is summarized below:

- Pacific Industrial Supply completed the source control corrective actions requested by Ecology in 2008 and 2011 (Ecology 2011g). Potential for sediment recontamination due to current facility operations is low provided that the improvements and source control BMPs are maintained.
- Previous environmental investigations have determined that soil and groundwater beneath the property is contaminated by metals (including hexavalent chromium) and petroleum hydrocarbons. In groundwater, PAHs are also present. In 2011, Ecology determined the extent of the contaminant plume had not been defined and may be commingled with the contaminant plume associated with the Carey Limousine Services property (Section 3.3.3). Ecology stated that additional environmental investigation was necessary to determine the relationship between the contaminant plumes and to verify that contaminants associated with the former Precision Engineering property were not reaching the LDW (Ecology 2011d).

Source Control Actions

Information needed to assess the potential for sediment recontamination associated with current or historical operations at this facility was summarized in the Sea King Industrial Park Data Gaps Report (SAIC 2013). The following source control actions will be conducted to fill the identified data gaps and reduce the potential for recontamination of sediments:

- Ecology will request that the property owner provide data to define the contaminant plume associated with the property and to verify that contaminants associated with the former Precision Engineering property are not reaching the LDW.

3.3.6 Gary Merlino Construction Company

Current Operations	Construction equipment and supplies storage yard
Historical Operations	Truck and farm equipment storage yard
Tax Parcel No.	2433700095, 2433700055, 2433700015, 2433200185
Address	9125 10th Avenue S 98108
Facility/Site ID	7727938: Gary Merlino Construction Company 69951382: Former Thomas Equipment Rental
Alternate Name(s)	Former Thomas Equipment Rental
Current Tenants	Heavy Haul Specialists, Johnson Western Gunite Company, Keithly Electric, Progressive Fastening, Stoneway Concrete
Chemicals of Concern	Copper, zinc
Media Affected	Stormwater

Gary Merlino Construction Company (Merlino Construction) operates on parcels 0095, 2433700055, 0015, and 0185 (Figure 12). The facility is bordered by 8th Avenue S to the west, King Electrical Manufacturing and S Barton Street to the south, a boat storage yard and SR 99 to the east, and by S Director Street to the north (Figure 7).

Historical Operations

Gary Merlino purchased the property in the late 1960s. Prior to this period, the property was used as a truck and farm equipment storage yard (Blue Sage Environmental 1999). According to Ecology's Facility/Site Database, Thomas Equipment Rental operated at 827 S Director Street (parcel 0015). Thomas Equipment Rental was a hazardous waste generator between November 1993 and March 1994. Thomas Equipment Rental vacated the property in April 1994 (METRO 1994). Additional information regarding historical operations at the property was not available for review.

Current Operations

Merlino Constructions is a general construction contractor that began operating at the current location in the late 1960s (Blue Sage Environmental 1999). Construction equipment and supplies are stored at the property. Construction signs, concrete vaults, piping, shoring, large construction vehicles, and trailers are moved around the facility daily (AMEC 2008).

The facility is mostly flat and has two large drainage basins (Figure 22). The entire site is impervious, except for one area in the southwest portion of the property. The Stoneway Concrete Company (Stoneway) operates a small concrete mixer in this area of the property. There is gravel and recycled asphalt over a French drain connected to the storm drain system in the Stoneway area. Basin 1 is located in the northeast portion of the facility and drains to 10th Avenue S. According to a 2008 Ecology inspection, an oil/water separator is located near the entrance gate on 10th Avenue S. Stormwater from Basin 1 flows to the S 96th Street SD system (Ecology 2008l). Basin 1 includes a fueling area, welding shed, and wash rack (which drains to the sanitary sewer). Basin 2 extends south along the western portion of the facility and drains to S Barton Street and then to the S 96th Street SD system. Basin 2 includes most outside storage of concrete, metal parts, and soil piles. Both drainage basins have construction equipment storage, administrative parking, leased storage areas, and leased office space (AMEC 2008).

Heavy Haul Specialists, Johnson Western Gunite Company (Johnson Western), and Keithly Electric operate as tenants at the Merlino Construction property (SPU 2010a, 2010b, 2010c). Progressive Fastening leases warehouse space at the Merlino Construction property, and is discussed in Section 5.8. Ecology has not assigned FSIDs to these facilities. Merlino Construction is ultimately responsible for maintaining appropriate source control BMPs at the facility.

Regulatory History

Merlino Construction

Merlino Construction formerly had a NPDES individual permit. The permit was terminated on May 13, 1997 (Drabek 1997). Merlino Construction applied for a general permit to discharge

stormwater associated with industrial activity in July 1997 (Merlino Construction 1997). Ecology granted the facility coverage under the NPDES ISGP on January 23, 1998 (Ecology 1998a). The current permit number is WAR003120.

Merlino Construction failed to submit stormwater sampling data between 1998 and the second quarter 2007. On August 15, 2007, Ecology issued Administrative Order No. 4604. The Administrative Order required the facility to submit previous stormwater data and collect a stormwater sample for the third quarter 2007 and subsequent monitoring periods (Ecology 2007f).

Ecology performed four inspections at Merlino Construction between 2008 and 2011. Detailed information for each inspection is provided in the Sea King Industrial Park Data Gaps Report (SAIC 2013). Results from the 2011 inspections are summarized below.

- Ecology conducted an Urban Waters Environmental Compliance inspection at the facility on May 18, 2011. Ecology identified corrective actions to properly store products and waste and to check for leaks around dumpsters and equipment (Ecology 2011c).
- Ecology conducted a follow-up inspection on July 14, 2011. Product and waste liquids remained uncovered. The inspector observed old and new oil stains on the dirt and gravel where the facility parked heavy machinery. Dumpsters and scrap metal bins were uncovered. The facility failed to address corrective actions issued during the previous May 2011 inspection (Ecology 2011e).

Merlino Construction's ISGP Annual Reports for 2010 (Merlino Construction 2011) and 2011 (Merlino Construction 2012) and Ecology's PARIS database documented the following permit benchmark exceedances for zinc and copper:

- Zinc – first, second, third, and fourth quarters 2010; first, third, and fourth quarters 2011, first, second, and third quarters 2012, first quarter 2013
- Copper – first quarter 2010, fourth quarter 2011, first quarter 2013

Merlino Construction has implemented the following source control BMPs to reduce copper, zinc and turbidity levels in facility discharges (Merlino Construction 2011, 2012):

- Increased sweeping frequency and catch basin maintenance,
- Installed filter fabric socks, straw bales, and restricted activities around the French drain,
- Installed check dams and secondary containment devices.
- Constructed another storage shed to provide additional cover for chemicals in 5- and 55-gallon containers

In addition, Merlino Construction is installing a filter treatment system to reduce zinc concentrations in stormwater (Merlino Construction 2012). In May 2013, the facility requested an extension until September 30, 2014 to complete structural BMPs and stormwater treatment corrective actions (Merlino Construction 2013).

EPA sent CERCLA Section 104(e) Request for Information Letters to Gary Merlino Construction on July 21, 2009 (USEPA 2009b). The information request included parcels 0095, 0185, 0205, 0015, and 2433700055. The response to the request was not available for review during the preparation of this SCAP. When the response to the request is available, relevant information from the response will be provided in a Source Control Status Report.

Johnson Western

SPU inspected the Johnson Western facility on November 17, 2010. Inspectors identified corrective actions related to spill response procedures and employee education. SPU determined that the facility was in compliance during a follow-up inspection on December 28, 2010 (SPU 2010a).

Environmental Investigations and Cleanups

In July 1999, a 10,000-gallon diesel UST and a 10,000-gallon unleaded gasoline UST and associated pumps and piping were removed from the property. Approximately 200 cubic yards of soil contaminated by petroleum hydrocarbons and BTEX were excavated and removed. One groundwater sample was collected from the excavation; benzene, toluene, xylenes, diesel- and gasoline-range hydrocarbons concentrations in the water sample exceeded MTCA Method A cleanup levels for groundwater. The excavation was filled with clean fill and covered with concrete. No further action was recommended (Blue Sage Environmental 1999). Additional information regarding the investigation is provided in the Sea King Industrial Park Data Gaps Report (SAIC 2013).

Potential for Sediment Recontamination

The potential for sediment contamination associated with this property is summarized below:

- Merlino Construction did not address corrective actions issued after a July 2011 Ecology follow-up inspection. Corrective actions included properly storing waste, removing grease stained soil under leaking equipment, and implementing good housekeeping practices.
- The facility has repeatedly exceeded benchmarks for zinc and copper during quarterly monitoring events. The potential for sediment recontamination associated with the current operations at the facility is low to moderate.
- During inspections at the facility, Ecology observed leaking construction equipment on sand and gravel lots. Previous environmental investigations have indicated that soil and groundwater are contaminated by petroleum hydrocarbons and VOCs. The facility is approximately 2,800 feet west of the LDW; therefore, the potential for sediment recontamination via the groundwater pathway is likely to be low.

Source Control Actions

Information needed to assess the potential for sediment recontamination associated with current or historical operations at this facility was summarized in the Sea King Industrial Park Data Gaps

Report (SAIC 2013). The following source control actions will be conducted to fill the identified data gaps and reduce the potential for recontamination of sediments:

- Ecology will perform a follow-up inspection to verify that Merlino Construction has complied with the corrective actions and recommendations identified by Ecology during the July 2011 inspection.

3.3.7 Wooldridge Boats

Current Operations	Welded-aluminum boat manufacturing
Historical Operations	Equipment supplier to the electric utility, telephone, cable television, municipal and utility contractor industries
Tax Parcel No.	5624200360
Address	1303 S 96th Street 98108
Facility/Site ID	86136757
Alternate Name(s)	Pacific Utility Equipment Co.
Chemicals of Concern	PCBs, methylene chloride
Media Affected	Soil, groundwater

Wooldridge Boats Inc. (Wooldridge) operates at parcel 0360 (Figure 12). The facility is bordered by a Seattle City Light right-of-way to the south, a shopping center to the east, Pacific Material Handling Solutions to the north, and ICON Materials to the west (Figure 7).

Historical Operations

Pacific Utility Equipment Company (Pacific Utility) was a historical operator at the property (Ecology 2007e). The company supplied equipment to the electric utility, telephone, cable television, municipal and utility contractor industries. It is not known when Pacific Utility began operations at the facility. Terex Utilities acquired the Pacific Utility Equipment Company in 2002 (DJC Oregon 2002). Pacific Utilities vacated the property in April 2004 (Ecology 2008c).

In January 1992, approximately 3,160 gallons of oil and water contaminated with PCBs and methylene chloride was discharged to an underground sump in the maintenance yard. Pacific Utility indicated that the facility removed and transported the waste to a treatment facility. The company filled the sump and capped the lines to the sump and shop drains with cement (Pacific Utility 2001). Oil and water contaminated with PCBs and methylene chloride had the potential to infiltrate soil and groundwater through cracks in the sump. Additional information regarding the oil and water contaminated with PCBs and methylene chloride was not available for review.

Current Operations

According to King County tax records, Wooldridge purchased parcel 0360 in January 2004. Wooldridge manufactures welded-aluminum boats at the 1303 S 96th Street location. The majority of manufacturing is conducted indoors. The company also has a showroom at the

facility (Wooldridge 2013). Additional information regarding current operations at the facility was not available for review.

Regulatory History

Information regarding the regulatory history for Pacific Utility is summarized in the Sea King Industrial Park Data Gaps Report (SAIC 2013).

Wooldridge Boats

Ecology conducted an Urban Waters Compliance inspection at Wooldridge boats on December 4, 2008. The inspector identified the following corrective actions (Ecology 2008m):

- Stop disposing of dangerous waste to a non-permitted facility.
- Evaluate the need for an ISGP or CNE.

According to Ecology's PARIS website, Wooldridge submitted a CNE application on December 10, 2008. The facility began disposing of paint wastes through the King County Pilot Program for disposal of small quantity generator wastes. Ecology determined that the facility complied with corrective actions during a follow-up inspection on February 5, 2009 (Ecology 2009a).

In November 2011, EPA contractors collected a storm drain solids sample from a catch basin with an inlet from the Wooldridge Boats parking lot (Station KCS96F, Figure 4) (KTA 2012a). No chemicals were detected at concentrations exceeding storm drain screening values.

Potential for Sediment Recontamination

The potential for sediment contamination associated with this property is summarized below:

- Wooldridge completed the corrective actions required by Ecology in 2008 (Ecology 2008m). Potential for sediment recontamination due to current facility operations is low provided that the improvements and source control BMPs are maintained.
- Pacific Utility indicated that oil and water contaminated with PCBs and methylene chloride was discharged to the underground sump in the maintenance yard. The contaminated material was transported and disposed of at a waste treatment facility; however, PCBs and methylene chloride had the potential to infiltrate soil and groundwater through cracks in the sump or in the drainage lines between the shop floor drains and the sump. The potential for sediment recontamination associated with groundwater discharge is unknown.

Source Control Actions

Information needed to assess the potential for sediment recontamination associated with current or historical operations at this facility was summarized in the Sea King Industrial Park Data Gaps Report (SAIC 2013). The following source control actions will be conducted to fill the identified data gaps and reduce the potential for recontamination of sediments:

- Ecology will assess the need for an environmental investigation to determine if soil and groundwater were contaminated by PCBs and methylene chloride due to the disposal of contaminated oil and water in an underground sump in 1992. An investigation may be needed to determine the potential for sediment recontamination via groundwater discharge.

3.3.8 ICON Materials

Current Operations	Asphalt production
Historical Operations	Asphalt production, construction company
Tax Parcel No.	5624200330, 5624200335, 5624200310, 5624200311
Address	1115 S 96th Street 98108
Facility/Site ID	93252843: Icon Materials Asphalt Plant 48248356: Sunnydale Construction Company Inc.
Alternate Name(s)	Hi-Line Asphalt Paving, Icon Materials Inc. Seattle Asphalt, M.A. Segale Inc. Seattle Plant, M.A. Segale Inc., Seattle Asphalt Plant
Chemicals of Concern	PAHs, petroleum
Media Affected	Stormwater

ICON Materials Asphalt Plant (ICON Materials) operates at parcels 0330, 0335, and 0310 (Figure 12). The facility is bordered by a City of Seattle right-of-way to the south, Western Ports Transportation to the west, S 96th Street to the north, and Wooldridge Boats to the east (Figure 7).

Historical Operations

Hi-Line Asphalt Paving

Hi-Line Asphalt Paving (Hi-Line Asphalt) operated at the property in 1985 (Ecology 1985). It is assumed that Hi-Line Asphalt stopped operating at the facility when M.A. Segale Asphalt (M.A. Segale) began operations at the property.

The facility had a steam cleaning area, truck spraying area, and fueling area located on the central portion of the property. The steam cleaning area was a covered concrete pad used to steam clean equipment and vehicles. In the truck spray area, truck beds were sprayed with a biodegradable liquid to prevent asphalt paving materials from sticking. During freezing temperatures, truck beds were sprayed with diesel oil. All three areas drained to an oil-water separator that conveyed stormwater to the drainage ditch along S 96th Street. Another oil water separator located near the parking lot at the facility conveyed water to the drainage ditch along S 96th Street (Bolster 1985).

M.A. Segale Asphalt

Segale Asphalt was a historical asphalt processor at the property. The asphalt manufacturing plant was located in the center of the property on a paved lot. Piles of crushed rock and sand located at the south end of the facility were fed into the asphalt plant. Processed asphalt was then

dumped into trucks for delivery to construction sites. The company transported waste asphalt to a Segale Asphalt plant in Auburn and recycled the waste into new asphalt (Ecology 1992a).

The facility used a large silo on the northwest corner of the property to store large batches of asphalt. Segale Asphalt operated a large baghouse and diesel aboveground storage tank (AST). Adjacent to the diesel tank were asphalt tanks without secondary containment. The facility had a 2,000-gallon asphalt emulsion AST in secondary containment. Storm drains at the facility conveyed stormwater and washwater to three oil/water separators. The oil/water separators discharged to the drainage ditch on south side of S 96th Street (Ecology 1992a).

Oldcastle Northwest Inc. purchased Segale Asphalt in April 1998 (Seattle Times 1998). The company changed its name to ICON Materials Inc. in June 2000 (ICON Materials 2001).

Sunnydale Construction Co Inc.

According to Ecology's Facility/Site database, Sunnydale Construction Co Inc. (Sunnydale) was a historical operator on parcel 0330. Additional information regarding historical operations at Sunnydale was not available for review.

Current Operations

ICON Materials currently conducts asphalt production, materials stockpiling, and associated activities at the 1115 S 96th Street location. The facility stores fine- to coarse-grained aggregate piles on the southern portion of the property. There is a recycled asphalt pile located southwest of the production plant. Asphalt cement tanks and asphalt tanks are located inside containment on the east side of the production plant. ICON Materials stores asphalt release agent in a tank at the spray rack on the west side of the production plant. The facility stores heat transfer oil, lubricating oil and grease, and waste oil drums in the metal building. Activities exposed to stormwater include asphalt production and equipment maintenance and repairs (ICON Materials 2010).

According to the facility's SWPPP, the site receives a significant amount of stormwater from adjacent parcels to the west and south. Existing drainage structures include an oil/water separator, a detention tank, and retention pond. The oil/water separator and the detention tank discharge to the S 96th Street SD. The retention pond discharges to groundwater and to the S 96th Street SD. The facility has four separate discharge points to surface waters (Ecology 2007h). A facility drainage map is provided in Figure 23.

Regulatory History

In August 1994, Ecology issued Segale Asphalt coverage under NPDES Sand and Gravel General Permit WAG503282. Ecology renewed the permit in 1999, 2005, and 2010. Ecology modified the permit on March 2, 2001, to reflect the company name change to ICON Materials (Ecology 2001b).

On May 21, 1997, Sunnydale notified Ecology that a UST at the facility was leaking petroleum products to soil and groundwater. The facility completed an independent cleanup action. Ecology reviewed cleanup information for the site in April 2012 and issued an NFA determination for the

facility (Ecology 2012e). Additional information about the UST release and/or subsequent investigation and cleanup was not available for review.

Ecology performed NPDES compliance inspections at ICON Materials on September 26 and November 7, 2012 (Ecology 2013b). During the September 26 inspection, Ecology required the facility control track out of sediments onto S 96th Street and to prepare and submit a source control plan to Ecology by October 31, 2012 (Ecology 2012h). Information from the November 7, 2012, inspection was not available for review.

Inspection information regarding regulatory actions with other historical operators and inspections at ICON Materials prior to 2012 is provided in the Sea King Industrial Park Data Gaps Report (SAIC 2013).

Environmental Investigations and Cleanups

Between January 24 and 29, 1991, M.A. Segale removed two 3,500-gallon steel diesel USTs, a 1,000-gallon waste oil UST, a 7,500-gallon diesel UST, a 10,000-gallon diesel UST, and a 5,000-gallon gasoline UST. The service islands and fuel lines were removed at the same time as the tanks. Petroleum-contaminated soil was transported off site. No new USTs or fueling facilities were installed (GeoEngineers 1991).

On February 13, 2012, Ecology determined that no further remedial action was necessary to cleanup contamination associated with the release of BTEX, gas, diesel, and waste oil to soil at the facility (Ecology 2012c).

Additional information regarding this environmental investigation is provided in the Sea King Industrial Park Data Gaps Report (SAIC 2013).

Potential for Sediment Recontamination

The potential for sediment contamination associated with this property is summarized below:

- Ecology conducted stormwater compliance inspections at the facility on September 26 and November 7, 2012. Following the September 26 inspection, Ecology required the facility to control sediment track out and to prepare and submit a source control plan. The facility has previously complied with corrective actions identified by King County and Ecology. The potential for sediment recontamination associated with the facility is low provided ICON Materials maintains appropriate source control BMPs.
- Segale Asphalt excavated six USTs from the property in 1991. Soil samples from the extent of the excavation were analyzed for TPH and BTEX constituents. All petroleum-contaminated soil exceeding MTCA Method A cleanup levels was excavated and removed from the property. The potential for sediment recontamination via groundwater discharge is low.

Source Control Actions

Information needed to assess the potential for sediment recontamination associated with current or historical operations at this facility was summarized in the Sea King Industrial Park Data Gaps Report (SAIC 2013). The following source control actions will be conducted to fill the identified data gaps and reduce the potential for recontamination of sediments:

- Ecology will confirm that ICON Materials has complied with the corrective actions to control track out and prepare a source control plan. This action includes performing a follow-up inspection to verify that the source control plan has been implemented at the facility.

3.3.9 Western Ports Transportation

Current Operations	Shipping container storage and repair
Historical Operations	Shipping container storage and repair
Tax Parcel No.	5624200290, 5624200291, 5624200270, 2433200165
Address	9600 8th Avenue S 98108
Facility/Site ID	67814731: Container Care Puget Sound
Alternate Name(s)	Container Care Puget Sound, Western Ports Containers
Chemicals of Concern	Copper
Media Affected	Stormwater

Western Ports Transportation (Western Ports) operates at parcels 0290, 0291, 0270, and 2433200165 (Figure 12). The facility is bordered by the Seattle City Light right-of-way to the south, 8th Avenue S to the west, S 96th Street to the north, and ICON Materials to the east (Figures 7 and 8).

Historical Operations

Container Care Puget Sound (Container Care) conducted container storage and repair operations at the property. Container Care operated at parcels 0290, 0291, and 0270. Repair operations included welding, painting, and caulking of cargo containers. The facility steam cleaned containers that had residual foods, dirt, and/or oil spots. Washwater was conveyed to the detention pond at the northeast corner of the property. The detention pond discharged to a ditch on S 96th Street. The facility's surface was composed of gravel and dirt (Ecology 1991a).

Additional information to determine when Container Care discontinued operations at the property was not available for review; however, in December 1993 the company notified Ecology that it planned to discontinue operations at this property (Ecology 1994a).

Current Operations

Western Ports leases, repairs, and maintains intermodal shipping containers and equipment. The majority of industrial activity takes place at parcels 0290, 0291, and 0270. The site is used for

stacking and storage of shipping containers and chassis. Western Ports inspects all shipping containers delivered to the site and rejects containers that show signs of potentially hazardous materials. The facility includes a steam cleaning area, maintenance area, office trailer, and parking areas for equipment and employee vehicles. The steam cleaning area is located on impervious pavement. Washwater is conveyed to a sump, pumped through a settling tank, and discharged to the sanitary sewer. Maintenance activities at the facility include patching and repairing steel containers, replacing wood paneled floors inside containers, and changing tires on truck chassis. The facility stores tools, equipment, and materials related to maintenance activities inside three shipping containers that were converted into permanent shop areas. The majority of the facility is fenced, with normal access limited to the site entrance and exit (Blue Environmental 2012).

The site is relatively flat and the majority of the site drains to an infiltration pond at the northeast corner of the property. Overflow from the onsite infiltration pond passes through an additional settling vault prior to discharge to the S 96th Street SD system. A facility drainage map is provided in Figure 24 (Blue Environmental 2012).

According to the facility's 2011 ISGP Annual Report Form, Western Ports planned to cease operations at the property before the end of 2012. The form indicates that the property owner is searching for another tenant (Western Ports 2012).

Regulatory History

Western Ports exceeded benchmarks for copper, zinc, and turbidity during the first quarter and copper and turbidity during the fourth quarter of 2010. The facility reconstructed the retention pond to allow more time for turbid water to settle prior to discharge (Western Ports 2011).

Western Ports exceeded benchmarks for copper during the third quarter and turbidity during the first, third, and fourth quarters 2011. The facility revised the SWPPP and installed fabric catch basins inserts to reduce turbidity (Western Ports 2012).

According to the facility's 2011 NPDES ISGP Annual Report Form, Western Ports is shutting down operations at the property and ending permitted activities before the end of 2012. The form indicates the property owner is searching for another tenant (Western Ports 2012).

Ecology performed an NPDES compliance inspection at the facility on June 6, 2012 (Ecology 2013b).

Inspection information regarding regulatory actions with other historical operators and inspections at Western Ports prior to 2011 is provided in the Sea King Industrial Park Data Gaps Report (SAIC 2013).

In November 2011, USEPA contractors collected a storm drain solids sample from a storm drain structure in S 96th Street adjacent to Western Ports (Station KCS96D1, Figure 4) (KTA 2012a). Butyl benzyl phthalate, BEHP and zinc concentrations exceeded the SQS-based storm drain screening level; benzyl alcohol exceeded the CSL-based storm drain screening level (Table 8).

Potential for Sediment Recontamination

The potential for sediment contamination associated with this property is summarized below:

- Information was not available to determine if Western Ports vacated the property and/or a new company began operating at the facility. The potential for sediment recontamination via the stormwater and spills pathway is unknown.
- The facility is primarily unpaved. Historical container cleaning operations may have had the potential to impact soil and groundwater at the facility. The infiltration pond at the northeast corner of the property appears to be unlined. Contaminants (if any) in stormwater draining to the pond have the potential to infiltrate groundwater at the property. The potential for sediment recontamination via groundwater discharge is unknown.

Source Control Actions

Information needed to assess the potential for sediment recontamination associated with current or historical operations at this facility was summarized in the Sea King Industrial Park Data Gaps Report (SAIC 2013). The following source control actions will be conducted to fill the identified data gaps and reduce the potential for recontamination of sediments:

- Ecology will perform an inspection to verify that current activities performed at the property are in compliance with applicable source control regulations and BMPs.

3.3.10 Western United Fish Company

Current Operations	Seafood processing
Historical Operations	Fluorescent light recycling services
Tax Parcel No.	5624200210
Address	9411 8th Avenue S 98108
Facility/Site ID	2463219: Western United Fish Company 95735434: Ecolights Northwest LLC
Alternate Name(s)	Ecolights Northwest LLC
Chemicals of Concern	Arsenic, chromium (hexavalent and trivalent), copper, lead, mercury, zinc, PAHs, petroleum hydrocarbons, VOCs
Media Affected	Soil, groundwater

The Western United Fish Company (Western United Fish) operates on parcel 0210 (Figure 12) and is bordered by 8th Avenue S to the east, Western Ports Transportation and residential housing to the north, Show Quality Metal Finishing to the south and Old Dominion Freight Lines to the west (Figure 8).

Historical Operations

Ecolights Northwest LLC was a historical operator at the property. According to Ecology's Facility/Site, the facility was a hazardous waste generator between July 2000 and December 2005 and a hazardous waste transfer facility between August 2000 and December 2003.

Additional information regarding historical operations at the property was not available for review.

Current Operations

Western United Fish processes mostly salmon, between 35,000 and 50,000 pounds per day, and some exotic fish, between 5,000 and 7,000 pounds per day. The facility receives whole fish and fillet and re-package into smaller portions for shipping out to vendors. Wastewater is predominantly generated during fish processing and washing down equipment. The facility has trench drains in the fish processing room equipped with non-removable mesh screens. Most solids are trapped prior to entering the fish processing filtration system.

Regulatory History

Ecology conducted three inspections at Western United Fish in 2007. Following an inspection with King County Industrial Waste (KCIW), Ecology fined the facility for allowing fish waste to enter the outside stormwater catch basin. In late 2007, the Valley View Water District observed large amounts of fish products and Styrofoam in a pump station downstream from Western United Fish (King County 2008). Additional details of the inspection and or corrective actions associated with discharge of fish parts to the storm drain system were not available for review.

Western United Fish submitted an Industrial Waste permit application to King County on December 12, 2007. King County issued Waste Discharge Permit No. 7839-01 on September 2, 2008. KCIW planned to conduct sampling twice a year to characterize the waste stream (King County 2008). Additional information regarding KCIW's interactions with Western United Fish was not available for review.

Potential for Sediment Recontamination

The potential for sediment contamination associated with this property is summarized below:

- Western United Fish was fined for discharge of fish products and Styrofoam to the stormwater system in 2007. Western United Fish has not been inspected since 2007. KCIW granted the facility a waste discharge permit in 2008. Information was not available to determine if all discharge goes to the sanitary sewer or the S 96th Street SD system. The potential for sediment recontamination via the stormwater and spills pathway is unknown.
- There is no information available that indicates that soil or groundwater contamination is present at this property.

Source Control Actions

Information needed to assess the potential for sediment recontamination associated with current or historical operations at this property was summarized in the Sea King Industrial Park Data Gaps Report (SAIC 2013). The following source control actions will be conducted to fill the identified data gaps and reduce the potential for recontamination of sediments:

- Ecology will perform a facility inspection to determine compliance with applicable regulations and BMPs for stormwater and hazardous waste management practices.

3.3.11 Former Advance Electroplating

Current Operations	Chrome plating, metal finishing, concrete restoration and repair
Historical Operations	Chrome and zinc plating operations, metal finishing
Tax Parcel No.	5624200208
Address	9585 8th Avenue S 98108
Facility/Site ID	2079: Advance Electroplating 4914795: CB Finishing
Alternate Name(s)	Advance Co Inc., CB Finishing Inc., Concrete Restoration, CRJ Construction Co, Pro Weld, Show Quality Metal Finishing, South Park Industrial Properties LLC
Chemicals of Concern	Arsenic, chromium (hexavalent and trivalent), copper, lead, mercury, zinc, PAHs, petroleum hydrocarbons, VOCs
Media Affected	Soil, groundwater

Show Quality Metal Finishing (Show Quality Metal) and Concrete Restoration Inc. (Concrete Restoration) operate at parcel 0208 (Figure 12). The parcel is bordered by S 96th Street to the south, Old Dominion Freight Lines to the west, 8th Avenue S to the east, and Western United Fish to the north (Figure 8).

Historical Operations

Advance Electroplating

Advance Electroplating conducted chrome and zinc plating operations at parcel 0208 from 1964 to 1992. The plating operations were housed in separate buildings at the facility (Figure 25). The facility used zinc, copper, chromium, nickel, methylene chloride, and TCE in electroplating and metal finishing operations (E&E 1986). In 1969, operations at the facility included plating of truck parts, auto bumpers, aircraft, and miscellaneous parts. Sludges from the treatment tanks were reportedly buried or sent to a disposal facility. From 1972 through 1981, hazardous waste generated at the facility included zinc and copper cyanide wastes, waste chromic acid, and spent nickel strip (Ecology 1990).

The facility's Waste Discharge Permit was replaced by an NPDES permit in the 1970s. Rinse water and paint stripper tanks were allowed to overflow to the storm drain system at this time. A

number of wastewater treatment systems were installed at the site in 1976. Advance Electroplating also installed three underground settling tanks and filters for sludge filtering and drying. The facility eliminated its cadmium plating operation in 1976. Ecology collected effluent samples in 1972, 1974, 1976, 1977, 1978, and 1981. Concentrations of lead, chromium, cadmium, copper, zinc, cyanide, and pH in discharge samples exceeded permit limits (Ecology 1990).

In July 1977, two Advance Electroplating employees notified Ecology of improper waste disposal practices by the company. The employees indicated that waste sludges of cyanide, copper, zinc, chrome, paint, and acidic solvents were placed in 55-gallon drums and buried in a trench on the west side of the facility. Additionally, waste sludges were mixed with sawdust and disposed of in a dumpster. The employees indicated a waste hauler removed the dumpster waste on a regular basis (Ecology 1977).

In 1985, a fire occurred in the new plating building at the facility. Approximately 6,750 gallons of chromic acid wastewaters were generated by the fire-fighting efforts. The wastewaters were disposed of offsite at an unknown location (Ecology 1990).

Two storm drains were located along the east side of the facility and one storm drain was located at the corner of S 96th Street and 8th Avenue S. Waste generated during plating operations included liquids, sludges, and solids that contained varying concentrations of heavy metals. Between 1964 and 1981, Advance Electroplating discharged wastewater to a ditch that ran along S 96th Street and eventually discharged to the LDW. Advance Electroplating backfilled in the drainage ditch and began discharging wastewater to the sanitary sewer in September 1981. Waste handling practices resulted in chlorinated solvents and heavy metals release to soil and groundwater at the facility (E&E 1986).

CB Finishing

CB Finishing operated a small metal grinding, polishing, and buffing shop at the property until 2009. During an inspection in 2008, CB Finishing told Ecology that the shop had operated at the property for 20 years. It is assumed CB Finishing began operation at the facility around the time Advance Electroplating stopped operations. All facility operations were conducted indoors. Floor sumps and trench drains in the building were left over from Advance Electroplating operations. CB Finishing indicated that the sumps and drains were all plugged. A blower system was used to collect two 55-gallon drums of dust per week. At the time of the inspection, CB Finishing disposed of dust collected from sandblast cabinets and floor sweepings as solid waste (Ecology 2008d).

Current Operations

Show Quality Metal Finishing

Show Quality Metal began operating at parcel 0208 in January 2010. The company conducts metal restoration, finishing, and chrome plating (Show Quality Metal 2012). The company formerly operated at 1115 S Elizabeth Street, located on the northern end of King County International Airport in the Slip 4 source control area (Gray 2011).

Concrete Restoration Inc.

Concrete Restoration began operating at parcel 0208 in August 2010. According to Concrete Restoration's website, the company specializes in concrete restoration, repair, rehabilitation, protection, coating, and decorative enhancements for commercial and multi-use structures (Concrete Restoration 2012).

The facility formerly operated at 4025 West Marginal Way SW, located in the Spokane Street to Kellogg Island source control area. Data Gaps pertaining to operations at the former location are discussed in the Spokane Street to Kellogg Island Summary of Existing Information and Identification of Data Gaps (SAIC 2012).

Limited information regarding current operations at either facility was available for review.

Regulatory History

In November 2011, USEPA contractors collected two storm drain solids samples (KCS96C1 and KCS96C2) from storm drain structures in S 96th Street to the south of the former Advance Electroplating property (Figure 4) (KTA 2012a). Concentrations of PCBs, metals, PAHs, phthalates, phenols, other SVOCs and petroleum hydrocarbons exceeded the storm drain screening values. Total PCBs, copper, zinc, butyl benzyl phthalate, BEHP, 4-methylphenol, and benzyl alcohol concentrations exceeded the CSL-based screening level; BEHP and benzyl alcohol exceedance factors were 26 and 40, respectively (Table 8).

Advance Electroplating

On November 18, 1970, Ecology issued a Waste Discharge Permit to Advance Electroplating. Ecology required the company to treat wastewater with neutralization and evaporation prior to discharge. Chemical sludges resulting from neutralization could not be disposed of in state waters. Effluent limits were included in the permit for total cyanide, total chromium, zinc, copper, and nickel. The permit required all wastewater to be discharged to a sanitary sewer when a sanitary sewer system became available within a reasonable distance to the facility (Ecology 1970).

Ecology issued a NPDES Waste Discharge Permit on January 13, 1976 (Ecology 1976). Ecology reissued the permit in 1977 and required Advance Electroplating to discharge pretreated effluent to a municipal sanitary sewer system by July 8, 1980 (Ecology 1979).

On October 10, 1979, Ecology issued NPDES Permit No. WA-000172-4 to Advance Electroplating. Ecology issued Order Docket No. DE 79-521 as an amendment to the permit. The amendment ordered the facility to intercept and discharge contaminated process water to the sanitary sewer by September 1, 1980 (Ecology 1981).

METRO issued an Industrial Waste Discharge Permit in 1981 and allowed the facility to connect to the sanitary sewer system (Ecology 1990). Advance Electroplating disconnected and capped the wastewater discharge line to the storm drain and connected the line to the sanitary sewer on September 24, 1981 (Advance Electroplating 1982).

Numerous inspections and site visits were performed at the facility between 1964 and 1995. Inspections were performed by the Water Pollution Control Commission (WPCC), METRO, Ecology, King County and EPA. Improper waste disposal practices were documented during several of these inspections. Additional information regarding these inspections is provided in the Sea King Industrial Park Data Gaps Report (SAIC 2013).

Between June 1995 and March 1996, approximately 1,725 tons of hazardous waste was containerized and disposed of offsite (USEPA 1995b). In August 1995, the owner of Advance Electroplating was sentenced to four months house arrest and ordered to pay a civil penalty for illegally storing the hazardous waste at the facility (Seattle Times 1995).

In 2003, South Park Industrial Properties, LLC (SPIP) intended to purchase the property and Fruehauf Trailer property (parcel 0191, Figure 12). In October 2003, EPA and SPIP entered into a Prospective Purchaser Agreement (PPA). The PPA stated that concentrations of metals, VOCs, and TPHs in soils did not exceed the State of Washington's limits for direct contact based on industrial use. Concentrations of nickel, cadmium, and VOCs in soil exceeded the State of Washington's limits for protection of groundwater. Concentrations of 1,1,1- trichloroethane, 1,2-dichloroethene, TCE, PCE, cadmium, copper, nickel, and hexavalent chromium in groundwater exceeded State of Washington limits. The full vertical and horizontal extent of the groundwater plume was not determined, but VOCs originating at the Advance Electroplating property appeared to have migrated to the Fruehauf property (Section 5.18.3) (USEPA 2003).

EPA required SPIP to install and maintain three groundwater monitoring wells and two groundwater circulation wells. Groundwater samples were to be analyzed for VOCs. Additional work included vapor intrusion testing at existing buildings to determine the potential occupant exposure to off-gassing of VOCs from the groundwater table. EPA required a low permeability cap and stormwater controls to mitigate surface water infiltration through contaminated soil. SPIP was required to execute and record a restrictive covenant for the property (USEPA 2003). Additional information regarding soil capping and stormwater controls was not available for review.

Show Quality Metal Finishing

Ecology inspected Show Quality Metal on January 26, 2010. Inspectors determined the facility was eligible for a CNE. Ecology did not receive a CNE application and recommended a follow-up inspection (Wright 2010). In early 2011, Ecology and KCIW attempted to inspect Show Quality Metal at the 9858 8th Avenue S. Show Quality Metal denied inspectors access to the facility (Gray 2011).

Concrete Restoration

Ecology inspected the facility on October 27, 2010. Inspectors identified corrective actions related to solvent waste disposal, storm drain clean out, spill response procedures, and housekeeping practices. Ecology determined the facility was in compliance with corrective actions during a follow-up inspection on January 5, 2011 (Ecology 2012g).

Environmental Investigations and Cleanups

Environmental investigations and remediation activities were performed at this property in 1986, 1991, and 1995. Information regarding the investigations and cleanups is presented in the Sea King Industrial Park Data Gaps Report (SAIC 2013). Chemical concentrations exceeding screening levels in soil and groundwater are summarized in the table below. Chemical data from the 1995 Removal Action performed by EPA were not available for review; therefore, these data are not included in the summary.

Chemical	Soil	Groundwater	Sediment COC?
Metals			
Arsenic	●	●	✓
Cadmium		●♦	
Chromium		●♦	
Copper		●♦	
Zinc	●♦	●♦	✓
VOCs			
1,1,1-Trichloroethane		●	
PCE		●	
TCE	●	●	

● Detected concentrations exceeded MTCA Method A or B cleanup level

♦ Detected concentrations exceeded the draft soil-to-sediment or groundwater-to-sediment screening level

✓ COC exceeds SQS in LDW sediment adjacent to the source control area.

All chemicals listed in the table are sediment COCs for the LDW Superfund Site, with the exception of VOCs. Individual chemical concentrations are provided in Tables 15 and 16.

Removal Action (1995)

EPA found over 35,000 gallons of improperly stored hazardous waste and chemicals at the facility during an inspection in March 1995. Hazardous substances identified during the inspection included cyanide, acids, caustics, solvent wastes with high levels of TCE, PCE, MEK, hydrogen peroxide, chromium, lead, and nickel. Hazardous chemicals, solvents, and wastes were stored in bulk tanks, drums, bags, and containers inside the buildings and on the property. EPA found soil contaminated with TCE, PCE, chromium, and other VOCs and heavy metals (USEPA 1995a).

In the summer of 1995, EPA determined that the levels of contaminants at the facility presented an imminent and substantial endangerment to health and the environment. Approximately 105 subsurface soil borings were analyzed for VOCs and heavy metals to delineate the extent of subsurface contamination. Subsurface soil contamination included TCE, PCE, chromium, cadmium, nickel, lead, and copper. Approximately 1,400 tons of soils were excavated and treated with a vapor extraction system to remove TCE and solvents. The treated soil was transported to a hazardous waste landfill. Personal air monitors, high volume air samples, and VOC samples confirmed that contaminants did not impact air quality (USEPA 1995b).

EPA characterized hazardous substances stored in over 550 open vats, drums, bags, and containers in poor and failing condition. Between June 1995 and March 1996, hazardous wastes including cyanides, VOCs, concentrated acids, bases, oxidizers, flammables, poisons, organic peroxides, and heavy metal-contaminated soils and debris were containerized into over 80 truckloads and disposed of offsite. EPA removed approximately 1,725 tons of hazardous waste from the facility (USEPA 1995b, 1996).

Additional information regarding contaminants in soil and groundwater left in place was available for review.

Potential for Sediment Recontamination

The potential for sediment contamination associated with this property is summarized below:

- Show Quality Metal denied Ecology access to inspect the facility in early 2011. Current operations at this facility may have the potential for sediment recontamination via the stormwater pathway.
- Concrete Restoration complied with corrective actions identified by Ecology in October 2010. The potential for sediment recontamination via the stormwater pathway is low provided that the facility maintains appropriate source control BMPs.
- The historical operator, Advance Electroplating, discharged industrial wastewater to a drainage ditch at the southeast corner of the property from the start of operations in 1964 until the facility was tied into the sanitary sewer in 1981. Industrial effluent sampling by WPCC and Ecology in the 1970s detected elevated concentrations of zinc, chromium, copper, and nickel. An SHA conducted in 1991 identified concentrations of arsenic and TCE in soil samples collected from the southeast corner of the property above MTCA Method A cleanup levels. Concentrations of 1,1,1-trichloroethane, TCE, arsenic, cadmium, chromium, and zinc in groundwater exceeded MTCA Method A cleanup levels.
- A PPA signed by EPA and SPIP in 2003 indicated that the full vertical and horizontal extent of the contaminated groundwater plume was not determined. Contaminated groundwater at the facility has the potential to infiltrate the S 96th Street drainage ditch system and migrate to the LDW. Groundwater discharge in this area of the S 96th Street SD basin contributes year-round to base flow within the storm drain system (Herrera 1994). The potential for sediment recontamination via the groundwater pathway is unknown.

Source Control Actions

Information needed to assess the potential for sediment recontamination associated with current or historical operations at this facility was summarized in the Sea King Industrial Park Data Gaps Report (SAIC 2013). The following source control actions will be conducted to fill the identified data gaps and reduce the potential for recontamination of sediments:

- Ecology will perform a facility inspection at Show Quality Metals to determine compliance with applicable source controls regulations and BMPs.

- EPA will provide to Ecology the environmental data and sample location maps from the 1995 remedial actions and related investigations performed at the property. Ecology will review the information to determine if metals are present in soil and groundwater at concentrations exceeding current MTCA cleanup levels and to determine the potential for sediment recontamination via the groundwater discharge pathway.

3.3.12 Former Penberthy Electromelt/ToxGon

Current Operations	Aluminum and tension fabric display structures manufacturing, fence manufacturing and leasing
Historical Operations	Glass-making furnace manufacturing, thermal hazardous waste treatment
Tax Parcel No.	5624200250, 5624200253
Address	9619 8th Avenue S 98108 631 S 96th Street 98108
Facility/Site ID	2329: ToxGon Corp Seattle, Penberthy Electromelt 24029: Warp Corp 16779: Security Contractor Services Inc.
Alternate Name(s)	Penberthy Electromelt, Remedco, Security Contractor Services, Warp Corp
Chemicals of Concern	Arsenic, chromium (hexavalent and trivalent), copper, lead, mercury, zinc, PAHs, petroleum hydrocarbons, VOCs
Media Affected	Soil, groundwater

Penberthy Electromelt International (PEI) and ToxGon Corporation (ToxGon) historically operated at parcels at parcels 0250 and 0253 (Figure 12). The parcels are bordered by Sound Delivery Service to the south, Allied Body Works to the west, S 96th Street to the north, and 8th Avenue S to the east (Figure 8). The middle fork of Hamm Creek is located approximately 320 feet south of the ToxGon main building.

Historical Operations

Penberthy Electromelt

PEI purchased parcel 0253 in 1960. The land was previously used for agriculture. In the 1970s, PEI constructed glass-making furnaces at the facility for use on other sites. In 1979, PEI adapted a glass-making furnace into a Pyro-Converter furnace, also known as a thermal treatment unit (PGG 2002). The process included mixing hazardous and non-hazardous wastes with molten glass. Off-gasses were vented through a scrubber system to the atmosphere (Ecology 1988b).

PSCAA permitted the use of the thermal treatment unit and associated experimental air pollution control technologies. The control technologies included scrubbers, limestone absorbers, and cyclones to remove carbon dioxide, water vapor, and hydrogen chloride from emissions. Water used in the scrubbers was pumped to cooling ponds and then settling tanks where particulates settled and pH was adjusted. PEI discharged the treated water to the sanitary sewer (WDOH 2000).

By 1991, PEI claimed to have processed approximately 1,250 tons of RCRA regulated waste. Processed wastes included creosote and pentachlorophenol sludges, aromatic oils, paint solvents and thinners, paint booth filters, contaminated gravel and soils, oils, waste ink, adhesives, phenol-formaldehyde, and other resins and vehicles. Other materials possibly treated at the site during trial burns included: PCE, TCE, trichlorobenzene, PCBs, dioxin containing waste, spent aluminum potliners, solvents, pesticides, and chromite ores (WDOH 2000).

In March 1991, EPA denied PEI's final hazardous waste treatment operating permit and terminated the facility's interim status. PEI failed to provide EPA with a completed RCRA Part B permit application. The facility retained interim status for the storage of hazardous waste. Additional information regarding the permitting process is described in the regulatory history section below.

PEI did not conduct any operations at the facility between June 1991 and November 1995 (PGG 2002). ToxGon acquired PEI on November 17, 1995 (ToxGon 1996).

ToxGon Corporation

ToxGon took over day-to-day operations of the facility in November 1995 (ToxGon 1996). The facility maintained RCRA interim status for the storage of hazardous waste. In 1998, ToxGon declared Chapter 11 bankruptcy. ToxGon began working with Ecology to investigate surface and subsurface soil and groundwater contamination associated with the thermal treatment unit and other working areas at the facility (WDOH 2000).

Current Operations

Warp Corp currently operates at parcel 0253. The company manufactures aluminum and tension fabric display structures. The company welds and rolls the aluminum inside the facility (Warp Corp 2013).

Security Contractor Services Inc. (SCS) operates at parcel 0250. The company manufactures chain link fences, fabricates custom gates, and rents temporary fencing and video surveillance systems (Security Contractor Services 2013).

Regulatory History

In November 2011, USEPA contractors collected two storm drain solids samples (KCS96C1 and KCS96C2) from storm drain structures in S 96th Street to the north of the former Penberthy Electromelt property (Figure 4) (KTA 2012a). Concentrations of PCBs, metals, PAHs, phthalates, phenols, other SVOCs and petroleum hydrocarbons exceeded the storm drain screening values. Total PCBs, copper, zinc, butyl benzyl phthalate, BEHP, 4-methylphenol, and benzyl alcohol concentrations exceeded the CSL-based screening level; BEHP and benzyl alcohol exceedance factors were 26 and 40, respectively (Table 8).

Penberthy Electromelt

PEI submitted a Notice of Intent (NOI) for coverage under the NPDES ISGP on September 28, 1992 (Penberthy 1992). Ecology granted the facility coverage under NPDES ISGP No. SO3-

000280 on December 28, 1992 (Ecology 1992c). On November 17, 1995, ToxGon acquired PEI and submitted an NOI to change ownership on the facility's permit (ToxGon 1996). The permit was presumably cancelled when ToxGon ceased operations.

Additional information regarding the regulatory history for Penberthy Electromelt is provided in the Sea King Industrial Park Data Gaps Report (SAIC 2013).

ToxGon Corporation

Between 2001 and 2003, ToxGon completed several environmental investigations and excavations as part of RCRA Clean Closure efforts. Ecology determined that no further remedial action was necessary for the main site in August 2002 and for the west drainage ditch in June 2003 (Ecology 2002, 2003c). In August 2003, Ecology terminated the ToxGon RCRA interim status permit for storage of dangerous waste (Ecology 2003d).

Additional information regarding the regulatory history for ToxGon Corporation is provided in the Sea King Industrial Park Data Gaps Report (SAIC 2013).

Warp Corp

Ecology and King County inspected Warp Corp in August 2010. The inspector identified minor housekeeping issues. The facility stored solvent-based inks in small buckets. Ecology determined the facility needed cover under a CNE (Gray 2010; Ecology 2011f). According to Ecology's PARIS database, Warp Corp received a CNE on October 17, 2011.

Security Contractor Services Inc.

On October 26, 2011, Ecology and EPA conducted a stormwater compliance inspection at SCS. Inspectors observed industrial activities were exposed to stormwater and runoff from the facility was conveyed to the S 96th Street SD system. Ecology determined the facility was required to obtain coverage under the NPDES ISGP. Ecology granted SCS NPDES ISGP No. WAR125565 on January 13, 2012 (Ecology 2012g).

Environmental Investigations and Cleanups

Several environmental investigations were performed at this property between 1990 and 2003. Information regarding the investigations and cleanups is presented in the Sea King Industrial Park Data Gaps Report (SAIC 2013). Chemical concentrations exceeding screening levels in soil are summarized below.

Chemical	Soil	Sediment COC?
Metals		
Arsenic	●	✓
Cadmium	●♦	
Chromium	♦	
Copper	♦	
Lead	●♦	

Chemical	Soil	Sediment COC?
Zinc	♦	✓
PAHs		
Benzo(a)anthracene	●	
Benzo(a)pyrene	●♦	
Benzo(b)fluoranthene	●	
Benzo(g,h,i)perylene	♦	
Dibenzo(a,h)anthracene	●♦	✓
Indeno(1,2,3-cd)pyrene	●♦	
Phthalates		
BEHP	♦	
Dioxins/Furans		
2,3,7,8-TCDD TEQ	●	

● Detected concentrations exceeded MTCA Method A or B cleanup level

♦ Detected concentrations exceeded the draft soil-to-sediment or groundwater-to-sediment screening level

✓ COC exceeds SQS in LDW sediment adjacent to the source control area.

All chemicals listed in the table are sediment COCs for the LDW Superfund Site, with the exception of petroleum hydrocarbons and VOCs.
Individual chemical concentrations are provided in Table 17.

A sediment investigation between 2001 and 2003 determined that dioxin/furan concentrations exceeded MTCA Method B cleanup levels and LDW natural background concentrations in the drainage ditch west of the facility. Multiple iterations of sediment excavations and confirmation sampling were conducted for the drainage ditch. The last excavation was performed in February 2003; dioxin/furan concentrations in the only confirmation sediment sample were below screening levels. No additional investigations and/or excavations were conducted for the drainage ditch.

Soil in areas beneath the ToxGon building with arsenic concentrations that exceeded the MTCA Method B cleanup level were left in place, per Ecology instruction. All excavated areas were filled with new concrete (PGG 2002).

On August 20, 2002, Ecology accepted the certification of clean closure for the former thermal treatment unit and the indoor/outdoor container storage units. The acceptance did not include investigating and remediating dioxin/furan contamination in the west drainage ditch and the middle fork of Hamm Creek (Ecology 2002).

In June 2003, Ecology reviewed the West Drainage Ditch/Hamm Creek Clean Closure Report (PGG 2003) and determined that no further remedial action was necessary (Ecology 2003c).

Potential for Sediment Recontamination

The potential for sediment contamination associated with this property is summarized below:

- Warp Corp, the current operator at the property, received a CNE in October 2011. Potential for sediment recontamination due to current facility operations is low.

- SCS was in compliance during inspections by Ecology and King County in 2011. Potential for sediment recontamination due to current facility operations is low provided that the improvements and source control BMPs are maintained.
- Multiple iterations of sediment excavations and confirmation sampling were conducted for the drainage ditch. In February 2003, dioxins/furans concentrations in one confirmation sediment sample from the drainage ditch were below screening levels. No additional investigations and/or excavations were conducted for the drainage ditch. Stormwater from the former PEI/ToxGon facility discharged to the LDW via Outfall 2100(A). Dioxins/furans concentrations were detected above the LDW background dioxin/furan TEQ in two sediment samples collected adjacent to Outfall 2100(A). Residual dioxins/furans in surrounding soil and drainage system sediments have the potential to be discharged to the LDW via the stormwater pathway.
- Soil investigations at the property found that arsenic and dioxin/furan concentrations exceeded MTCA Method B cleanup levels and LDW background concentrations. Soil excavations were completed between 2001 and 2002 to remove contaminated soil. During the excavations, groundwater was encountered at 7 feet bgs. Groundwater samples were not collected during excavation activities. Groundwater discharge in this area of the S 96th Street SD basin contributes year-round to base flow within the storm drain system (Herrera 1994). The potential for sediment recontamination via groundwater discharge is unknown.

Source Control Actions

Information needed to assess the potential for sediment recontamination associated with current or historical operations at this facility was summarized in the Sea King Industrial Park Data Gaps Report (SAIC 2013). The following source control actions will be conducted to fill the identified data gaps and reduce the potential for recontamination of sediments:

- Ecology will request that the property owner collect additional solids samples from the drainage ditch and groundwater samples in order to determine the potential for sediment recontamination via the groundwater discharge pathway.

3.3.13 Old Dominion Freight Lines

Current Operations	Trucking, shipping and receiving
Historical Operations	Trucking, shipping and receiving
Tax Parcel No.	3224049034, 5624200213, 5624200211, 562400212
Address	600 S 96th Street 98108
Facility/Site ID	18788836
Alternate Name(s)	Desimone Trust Property, Old Dominion Freight Line, Roadway Express Inc. T870, Roadway Express Inc. 96th, YRC Inc. Seattle
Chemicals of Concern	Zinc
Media Affected	Groundwater

Old Dominion Freight Line (Old Dominion) operates at parcel 9034 (Figure 12). The facility is bordered by S 96th Street to the south, the South 96th Business Park and The Revere Group to the west, Western United Fish and former Advance Electroplating to the east, and residential properties to the north (Figure 8).

Historical Operations

The property was previously known as the Desimone Trust Property (SKCPDH 2002). Additional information about operations at the Desimone Trust Property was not available for review.

In January 2001, Roadway Express notified Ecology that the company planned to move operations to the 600 S 96th Street facility in April 2001 (Roadway Express 2001). According to the company's website, YRC Freight (YRC) acquired Roadway Express in 2003 (YRC Freight 2013). It is not clear when the facility's name changed from Roadway Express to YRC. Both YRC and Roadway Express conducted truck shipping and receiving operations at the facility. The company stored trailers, truck cabs, and forklifts outside. Vehicle cleaning was not conducted on site. Fueling was conducted by a contracted mobile fuel service. The northeast portion of the facility was used for truck and trailer maintenance (Ecology 2007b).

Current Operations

King County tax assessor records indicate Old Dominion purchased the property in 2008. Old Dominion operates a truck shipping and receiving facility at the 600 S 96th Street location. Additional information regarding current operations was not available for review.

Regulatory History

According to Ecology's PARIS database, Old Dominion applied for coverage under a CNE on December 17, 2009. Ecology approved the CNE on March 17, 2010.

King County inspected Old Dominion between October and December 2010. No corrective actions were identified.

In November 2011, EPA contractors collected two storm drain solids samples (KCS96B and KCS96B1) from storm drain structures in S 96th Street to the south of the Old Dominion property (Figure 4) (KTA 2012a). Concentrations of PCBs, metals, phthalates, phenols, benzyl alcohol, benzoic acid and petroleum hydrocarbons exceeded the storm drain screening values. Zinc, butyl benzyl phthalate, BEHP, dimethyl phthalate, 4-methylphenol, pentachlorophenol, benzyl alcohol, and benzoic acid concentrations exceeded the CSL-based screening level; the benzyl alcohol exceedance factor at station KCS96B was 130 (Table 8).

Environmental Investigations and Cleanups

One environmental investigation was performed at this property in the early 1990s. Benzene, cadmium, and zinc concentrations in groundwater exceeded MTCA cleanup levels. Cadmium and zinc concentrations also exceeded the draft groundwater-to-sediment screening levels (Table 18) (SAIC 2013).

Potential for Sediment Recontamination

The potential for sediment contamination associated with this property is summarized below:

- Limited information regarding current operations by Old Dominion was available for review. The facility received a CNE in March 2010; therefore, the potential for sediment recontamination associated with the current operations at the facility is low.
- Groundwater monitoring data from the early 1990s indicates that benzene, cadmium, and zinc were present in concentrations that exceeded MTCA cleanup levels. Cadmium and zinc concentrations exceeded the draft groundwater-to-sediment screening level. Zinc concentrations have exceeded the storm drain screening values in storm drain solids near the property and have exceeded the SMS criteria in sediment near the Sea King Industrial Park source control area (Table 8, Station KCS96B1). In addition, groundwater discharge in this area of the S 96th Street SD basin contributes year-round to base flow within the storm drain system (Herrera 1994).There is potential for sediment recontamination associated with groundwater discharge from this property.

Source Control Actions

Information needed to assess the potential for sediment recontamination associated with current or historical operations at this facility was summarized in the Sea King Industrial Park Data Gaps Report (SAIC 2013). The following source control actions will be conducted to fill the identified data gaps and reduce the potential for recontamination of sediments:

- Ecology will request that the property owner collect additional groundwater samples in order to determine the potential for sediment recontamination via the groundwater discharge pathway.

3.3.14 Selland Auto Transport

Current Operations	Automobile-carrier truck maintenance and washing
Historical Operations	Unknown
Tax Parcel No.	5624200230
Address	615 S 96th Street 98108
Facility/Site ID	37752719
Chemicals of Concern	Copper, zinc
Media Affected	Stormwater

Selland Auto Transport (Selland Auto) currently operates on parcel 0230 (Figure 12). Selland Auto is bordered by a Seattle City Light right-of-way to the south, Allied Body Works to the east, S 96th Street to the north, and a truck repair company to the west (Figure 8).

Historical Operations

No information regarding historical operations at the property was available for review.

Current Operations

Selland Auto maintains, refuels, and washes automobile-carrier trucks at the facility. Selland Auto began operation in 1967. The facility has an indoor repair shop for servicing trucks and trailers. Selland Auto stores a diesel AST for refueling in secondary containment. The facility washes trucks and trailers in a covered wash bay. The trucks and trailers are parked on the eastern or western facility boundaries. Selland Auto conducts welding and repairs of transporters indoors in the welding shop (Figure 26). The welding shop has a galvanized roof (Selland Auto 2012a). Industrial activities with the potential to contaminate stormwater include vehicle washing, fueling, vehicle maintenance, and outdoor materials storage. Three onsite catch basins discharge to the S 96th Street SD system. Five onsite catch basins convey washwater to an oil/water separator prior to discharge to the sanitary sewer. The facility stores chemical drums prior to pick up by a waste management company (Ecology 2007a).

Regulatory History

Ecology conducted a joint stormwater and HWTR inspection at Selland Auto on January 26, 2010. The facility had not submitted DMRs to Ecology since the fourth quarter of 2007 and did not develop a SWPPP. Inspectors cited Selland Auto for not providing proper cover and containment of waste oil drums stored outside at the facility and continuing to discharge truck washwater to the storm drain system. Ecology requested a SWPPP from Selland Auto in March 2010. On May 14, 2010, Ecology issued the facility Notice of Penalty Incurred and Due No. 7700 for permit violations described above (Ecology 2010a, 2010b).

Selland Auto submitted a 2010 ISGP annual report on May 9, 2011. Stormwater problems identified by the facility included wood pallets and old tires stacked near catch basins, an uncovered scrap metal bin, and a leaking roof of a hydraulic cylinder storage container. The facility implemented monthly sweeping and catch basin cleaning and covered exposed materials with a tarp. Selland Auto exceeded benchmarks for zinc during the first, third, and fourth quarter 2010. The facility hired an environmental consultant to develop strategies to reduce zinc levels in stormwater (Selland Auto 2011).

King County inspected the facility in 2011. Inspectors did not identify any corrective actions (Ecology 2012g).

Selland Auto submitted a 2011 ISGP annual report on May 9, 2012. The facility trained employees to eliminate truck washwater from entering the storm drain. Selland Auto removed 40 full drums and two 250-gallon tanks of used oil from the property. The facility built covers over scrap metal shelving and a hydraulic cylinder storage container. Copper and zinc concentrations exceeded permit benchmarks during all four quarters in 2011. During the third and fourth quarter 2011, the facility improved housekeeping practices and provided additional cover for materials stored outside. On February 14, 2012, Selland Auto installed medial filters in the catch basins at the facility (Selland Auto 2012b). Selland Auto updated the facility's SWPPP in February 2012 to reflect changes in housekeeping practices and media filter maintenance (Selland Auto 2012a).

According to Ecology's PARIS database, Selland Auto exceeded benchmarks for copper and zinc during the first, second, and third quarter 2012.

Additional information regarding regulatory interactions for Selland Auto is provided in the Sea King Industrial Park Data Gaps Report (SAIC 2013).

Environmental Investigations and Cleanups

An environmental investigation has been performed at this property in 1998 to characterize soil and groundwater conditions near a 20,000-gallon diesel UST, a 2,000-gallon gasoline UST, and two 2,000-gallon waste oil USTs that were installed in the 1970s (PSCI 1998). A soil and groundwater treatment system was installed at the property in July 1999 to treat diesel-range petroleum hydrocarbons (Fischer 1999). The facility is listed as "Cleanup Started" in Ecology's ISIS database. LDW sediment COCs were not analyzed for in the soil and groundwater samples collected at this property. Additional information regarding the investigations and cleanups is presented in the Sea King Industrial Park Data Gaps Report (SAIC 2013). BTEX, gasoline- and diesel-range hydrocarbon concentrations in soil and diesel-range hydrocarbon concentrations in groundwater exceeded MTCA cleanup levels (SAIC 2013).

Potential for Sediment Recontamination

The potential for sediment contamination associated with this property is summarized below:

- The facility exceeded benchmarks for copper and zinc in all four quarters 2011 and the first three quarters of 2012. Zinc is a sediment COC for the Sea King Industrial Park source control area. Ecology has not inspected the facility since January 2010. Zinc concentrations have exceeded the storm drain screening values in storm drain solids near the property (Table 8, Station KCS96B1). There is potential for sediment recontamination associated with stormwater discharge from this property.

Source Control Actions

Information needed to assess the potential for sediment recontamination associated with current or historical operations at this facility was summarized in the Sea King Industrial Park Data Gaps Report (SAIC 2013). The following source control actions will be conducted to fill the identified data gaps and reduce the potential for recontamination of sediments:

- Ecology will perform a follow-up business inspection at Selland Auto to verify compliance with Ecology's recommendations, applicable regulations, and BMPs to prevent the release of contaminants to the LDW.

3.3.15 Ace Galvanizing

Current Operations	Hot-dip galvanizing; masonry contractor
Historical Operations	Hot-dip galvanizing
Tax Parcel No.	0523049008

Address	429 S 96th Street 98108
Facility/Site ID	2077: Ace Galvanizing 21995: Architectural Stone Werkes 41534652: Merchants Metals Inc.
Alternate Name(s)	North West Galvanizing, Architectural Stone Werkes, Merchants Metals, Inc.
Chemicals of Concern	Cadmium, chromium, copper, lead, zinc, petroleum hydrocarbons
Media Affected	Soil, groundwater, storm drain solids, stormwater

Ace Galvanizing operates at parcel 9008 (Figure 12), which is bordered by S 96th Street to the north, a truck repair company to the east, a Seattle City Light power-line right-of-way to the south, and a SR 509 right-of-way to the west (Figure 8). A stream on the SR 509 right-of-way flows parallel to the western boundary of the Ace Galvanizing property.

Contaminated waste products may have been used as fill material on the property (Parametrix and SAIC 1991a).

Historical Operations

North West Galvanizing Company is a historical name for Ace Galvanizing. North West Galvanizing began operating at this property in approximately 1965 (Ecology 1994d). The date of the name change to Ace Galvanizing was not available. Merchants Metals Inc. operated at the property between 1980 and 2002.

Information regarding historical operations at the property prior to 1965 was not available for review.

Current Operations

Ace Galvanizing operates a hot-dip galvanizing shop. The company galvanizes products fabricated by other companies; no fabrication of products is performed at the facility. Surface preparation, pre-flux, and hot dip galvanizing operations are performed under cover. Cooling and finishing operations are generally performed outdoors (Ace Galvanizing 2012a, 2012c).

Approximately 3 acres of the property are paved or covered by buildings (Ace Galvanizing 2012c). Buildings and other features at the facility are shown on Figure 27. Facility features include:

- Warehouse #1, which consists of the office, chemical storage area, and the pickle and oil line;
- Warehouse #2, which includes a waste storage area, ferrous sulfate storage area, and a shipping and receiving office;
- The Production Building, which includes the kettle area, hot dip tanks, and a wet processing area;
- Tank Farm;

- Finishing Area;
- Maintenance Shop and forklift wash area;
- Well house, which captures underground spring water;
- Outdoor galvanized steel storage area;
- Outdoor unprocessed steel and spare equipment storage areas; and
- Outdoor receiving area.

The Maintenance Shop and forklift wash area are covered. The Tank Farm has secondary containment. Underground spring water captured in the Well House is used for process water. Excess water occasionally flows to catch basin CB6 (Ace Galvanizing 2012c).

Rinse water from the pickling and degreasing process is reused in heating tanks at the facility. An acid recovery system removes ferrous sulfate from the sulfuric acid used in pickling. This process allows Ace Galvanizing to reuse the sulfuric acid (Ace Galvanizing 2012a). Recovered ferrous sulfate is shipped to Teck Cominco Metals Ltd in Canada for metal reclamation. Bag house dust is removed from the facility by Dominion Zinc in Spokane for metal reclamation (Ecology 2006d).

The southern third of Warehouse #2 is leased to Architectural Stone Werkes (Ace Galvanizing 2012c).

Stormwater Discharges

Twelve storm drain catch basins are present on the property. The drainage system is divided into four areas. Drainage area 1 (DA1) covers the most of the property and is subdivided into three smaller drainage areas, DA1a through DA1c. Drainage area 2 (DA2) covers the outdoor storage yard. Stormwater in DA1 is treated using an amended sand filter and ion exchange system prior to discharge (Ace Galvanizing 2012c; Ecology 2012f).

DA1a includes the Production Building, Tank Farm, Finishing Area, and the Maintenance Shop and forklift wash area. Stormwater is conveyed to catch basins and trenches, which direct the flow to the stormwater treatment system. After treatment, the stormwater is conveyed to catch basin CB9, which is the discharge monitoring point for DA1. Stormwater from DA1b and DA1c is routed through CB9 before leaving the property (Ace Galvanizing 2012c).

DA1b includes the area leased to Architectural Stone Werkes, an unprocessed steel storage yard and the Well House. Stormwater from this area is conveyed to catch basins CB6 and C7. DA1c includes Warehouse #1 and the employee parking lot (Ace Galvanizing 2012c).

The western portion of DA2 is paved; the eastern portion is covered with packed gravel and dirt. Rainfall generally infiltrates the ground surface; however, during heavy rainfall, stormwater drains to three catch basins, CB-10 through CB-12, via sheet flow. Stormwater is discharged to a trench that runs parallel to the southern end of the property. The discharge monitoring point for DA2 is a manhole in the eastern portion of the yard (Ace Galvanizing 2012c).

Ace Galvanizing identified the following potential stormwater pollutants in its SWPPP (Ace Galvanizing 2012c):

- Oil and grease from incoming steel,
- Suspended solids from unpaved areas and rust and scale from steel stored outdoors,
- Zinc metal filings from sanding and filing finished parts,
- Zinc salts and soluble zinc settling out from smoke and dust, and
- Caustic acid from the Tank Farm.

Regulatory History

In November 2011, EPA contractors collected storm drain solids samples from a storm drain structure on the south side of S 96th Street (Station KCS96A1, Figure 4) next to Ace Galvanizing. Lead, zinc, butyl benzyl phthalate and BEHP concentrations exceeded storm drain screening values; lead and zinc concentrations exceeded the CSL-based screening level (Table 8). The zinc concentration was 99,200 mg/kg DW, 103 times greater than the CSL-based screening level of 960 mg/kg DW (KTA 2012a).

Ace Galvanizing

Water Quality

According to Ecology's PARIS database, Ace Galvanizing gained coverage under the Baseline General ISGP in November 1992. The original permit number was SO3000154. The permit was renewed in 195, 2000, 2002, and 2009. In 2009 the permit number was modified to WAR000154.

DMRs submitted by Ace Galvanizing in 2010 and 2011 indicate that zinc concentrations in stormwater discharges exceeded the permit limits in all four quarters of 2010 and 2011. Copper concentrations also exceeded permit limits in the first quarters 2010 and 2011. By December 2011, Ace Galvanizing implemented Level 3 corrective actions, which included the addition of a sand prefilter and ion exchange system to the stormwater treatment system (Ace Galvanizing 2011, 2012d).

Ecology performed a stormwater compliance inspection at Ace Galvanizing on May 10, 2012, to follow up on the corrective actions identified in 2010 and 2011. A trailer loaded with galvanized products was parked near catch basin CB9. Stormwater runoff from this area would bypass the stormwater treatment system. Process wastes had collected on the ground under an open window of the Production Building. The Ecology inspector directed Ace Galvanizing to move the trailer and refrain from placing galvanized products near catch basin CB9. Ace Galvanizing was also directed to clean up the process wastes and to take precautions to prevent accumulation of waste products in the area (Ecology 2012f).

According to Ecology's PARIS database, zinc concentrations in stormwater discharge exceeded permit limits during the first and second quarters of 2012. More recent data were not available for review.

On April 15, 2013, Ace Galvanizing requested an extension to complete installation of a stormwater treatment system for the DA2 discharge point until August 14, 2013 (Ace Galvanizing 2013). The public comment period to review the request ended on June 3, 2013.

Hazardous Waste and Toxics Reduction Inspections

Ace Galvanizing is a LQG of dangerous waste (Ace Galvanizing 2012b). Hazardous wastes generated at the facility include sludge contaminated with zinc and trace amounts of heavy metals (e.g., lead and cadmium) from processing tanks and tank bottoms, floor sweepings, and filters from the acid recovery system (Ecology 2006d).

Ecology performed a Dangerous Waste inspection at Ace Galvanizing on January 24, 2012 (Ecology 2012a). The following corrective actions were identified:

- Begin taking all appropriate mitigation and control actions after any spill or discharge of dangerous waste or hazardous chemicals.
- Provide documentation that spills observed during the inspection were properly cleaned up.
- Provide copies of manifests to document the disposal of all wastes held past the 90-day accumulation time limit.
- Properly manage, contain, and label all dangerous and universal wastes, including accumulation start dates.
- Properly dispose of universal wastes and provide disposal documentation to Ecology.
- Create and maintain a log with the date and amount of waste treated at the facility.
- Create and implement an inspection schedule and inspect areas where dangerous wastes are stored.
- Establish and institute use of proper training.

Ace Galvanizing submitted a Compliance Certificate and supporting documentation to Ecology on March 6, 2012 (Ace Galvanizing 2012b). On March 26, 2012, Ecology determined that the facility was in compliance with dangerous waste regulations (Ecology 2012d).

Architectural Stone Werkes

According to Ecology's Facility/Site database, Architectural Stone Werkes' ISGP became effective on March 29, 2002, and was cancelled on June 7, 2012.

Ecology performed a stormwater compliance inspection at Architectural Stone Werkes on July 20, 2010. The pollutant sources were identified as dirt and stone dust. Discharge monitoring was being performed at a catch basin with spring-fed base flow (catch basin CB-6). Ecology directed Architectural Stone Werkes to ensure that monitoring samples were collected from surface flow as it entered the catch basin, not from the bottom of the catch basin, in order to properly characterize the industrial stormwater runoff (Ecology 2010c).

Architectural Stone Werkes' 2010 ISGP Annual Report indicates that no permit benchmarks were exceeded during 2010 (Architectural Stone Werkes 2011).

Merchants Metals Inc.

Merchants Metals Inc. was registered as a hazardous waste generator from August 1980 to December 1988 and as a toxics release inventory reporter from January 1988 to October 2002. The EPA ID was WAD027407667.

Environmental Investigations and Cleanups

One environmental investigation was performed at the property in 1991. Information regarding the investigation is presented in the Sea King Industrial Park Data Gaps Report (SAIC 2013). Chemical concentrations exceeding screening levels in soil and groundwater are summarized below. Total and dissolved zinc concentrations in groundwater exceeded 1,000,000 µg/L (almost 1.5 grams of zinc per liter) (SAIC 2013).

Chemical	Soil	Groundwater	Storm Drain Solids	Sediment COC?
Metals				
Cadmium		●♦	▲	
Chromium	●	●♦		
Copper		●♦		
Lead	●		▲	
Zinc	♦	●♦	▲	✓
Petroleum Hydrocarbons				
TPH	●		▲	
VOCs				
Methylene chloride		●		

● Detected concentrations exceeded MTCA Method A or B cleanup level

♦ Detected concentrations exceeded the draft soil-to-sediment or groundwater-to-sediment screening level

▲ Detected concentrations exceeded the SQS

Detected concentrations exceeded the CSL

✓ COC exceeds SQS in LDW sediment adjacent to the source control area.

All chemicals listed in the table are sediment COCs for the LDW Superfund Site, with the exception of petroleum hydrocarbons and VOCs.
Individual chemical concentrations are provided in Tables 19 through 21.

Potential for Sediment Recontamination

The potential for sediment contamination associated with this property is summarized below:

- EPA sampled storm drain solids from the drainage ditch next to the facility in November 2011; zinc concentrations were over 100 times greater than the CSL-based storm drain screening level.
- Ace Galvanizing is continuing to make improvements to the facility's stormwater treatment system in an effort to reduce zinc concentrations in stormwater discharge; however, zinc concentrations in discharge exceeded permit limits in the first and second quarters of 2012. More recent data were not available for review.

- Although Ace Galvanizing has made many efforts to improve housekeeping and reduce pollutants, the most recent inspections in 2012 indicate that housekeeping is a continual problem for the facility. Pollutants spilled to the ground have the potential to infiltrate to soil and groundwater beneath the property through cracks in the pavement. Groundwater discharge in this area of the S 96th Street SD basin contributes year-round to base flow within the storm drain system (Herrera 1994). Zinc concentrations in groundwater at the property exceeded 1,000,000 µg/L. There is potential for sediment recontamination via the groundwater discharge pathway.

Source Control Actions

Information needed to assess the potential for sediment recontamination associated with current or historical operations at this facility was summarized in the Sea King Industrial Park Data Gaps Report (SAIC 2013). The following source control actions will be conducted to fill the identified data gaps and reduce the potential for recontamination of sediments:

- Ecology will perform a follow-up inspection to determine if Ace Galvanizing is in compliance with corrective actions identified during the May 2012 inspection.
- Ecology will review DMRs from third and fourth quarters of 2012 and the beginning of 2013 to assess the water quality of stormwater being conveyed to the S 96th Street SD system from Ace Galvanizing.
- Ecology will request that the property owner collect additional groundwater samples to assess current concentrations of zinc in groundwater at the property and to evaluate whether additional source control actions are needed to minimize the potential for sediment recontamination via the groundwater discharge pathway.

3.3.16 RMC

Current Operations	Metal finishing and painting
Historical Operations	Unknown
Tax Parcel No.	0795001560
Address	10766 Myers Way S 98108
Facility/Site ID	18925
Chemicals of Concern	Copper, zinc
Media Affected	Stormwater

RMC Inc. (RMC) operates at parcel 1560 (Figure 12). The facility is bordered by residential properties to the south, Myers Way S to the north, and commercial properties to the west and east (Figure 10).

Historical Operations

No information regarding historical operations at the property was available for review.

Current Operations

RMC began operating at the current location in October 2009. The facility sandblasts metal parts, cleans and descales metal products, and colors and finishes aluminum or other formed products. Approximately 80 percent of the facility is paved with asphalt or covered with buildings. The asphalt exterior area is used primarily for parking and inventory storage. No equipment is washed outside. The facility stores steel materials outdoors. All galvanized materials are covered with a tarp or wrapped in plastic. RMC covers the outdoor abrasive blast waste dumpster. There is one catch basin located at the facility (Figure 28). The catch basin is connected to the S 96th Street storm drain system (SoundEarth 2012).

Regulatory History

RMC exceeded NPDES ISGP benchmarks for copper and zinc during the first, second, and fourth quarter 2011. The facility covered materials stored on pallets and the dumpster. RMC purchased a container for additional storage and installed a catch basin insert (RMC Inc. 2012).

On January 8, 2013, Ecology conducted a stormwater compliance inspection at RMC. Inspectors determined the stormwater catch basin treatment filter was not adequate for preventing exceedances of copper and zinc. Ecology recommended alternative filter options and additional source control BMPs (Ecology 2013a).

Potential for Sediment Recontamination

The potential for sediment contamination associated with this property is summarized below:

- Copper and zinc concentrations in stormwater at the facility exceeded benchmarks in three quarters during 2011. Zinc is a sediment COC for the Sea King Industrial Park source control area. The facility is located over a mile west of the LDW. The potential for sediment recontamination via the stormwater and spills pathway is low.

Source Control Actions

Information needed to assess the potential for sediment recontamination associated with current or historical operations at this facility was summarized in the Sea King Industrial Park Data Gaps Report (SAIC 2013). The following source control actions will be conducted to fill the identified data gaps and reduce the potential for recontamination of sediments:

- Ecology will perform an inspection to determine if RMC has completed corrective actions to reduce copper and zinc concentrations in stormwater discharge.

3.3.17 Other Upland Properties

Inspection information for the following upland properties was provided by King County after the publication of the Data Gaps Report.

Facility or Property Name	Current Operator	Address	Inspection Notes
Clyde West Inc.	Bidadoo Auctions	9615 West Marginal Way S 98108	Audit inspection performed on August 26, 2010. An illicit floor drain connection was identified. The drain was plugged by the next inspection on June 1, 2011. King County determined the facility to be in compliance (King County 2012b).
Emerald City Machine	Vacant	160 S 108th Street 98108	Audit inspection performed on June 13, 2012. The facility was vacant and available for lease (King County 2012a).
Karawis Inc	Top Hat Mini Mart	10723 1st Avenue S 98108	Audit inspection performed on May 14, 2012. The store and gas pumps were closed due to an accident that occurred in April 2012. King County provided a spill kit. The facility was re-inspected on July 18, 2012. King County advised that a disassembled car on the lot needed to be drained of fluids or covered. At the July 31, 2012 re-inspection, the car was covered and the facility was found to be in compliance (King County 2012c).
Simplex Grinnell	Same	9520 10th Avenue S 98108	Audit inspection performed on August 19, 2010. Corrective actions were identified to cover galvanized piping and provide secondary containment for foaming fire retardant. The facility was re-inspected on June 13, 2012, and found to be in compliance (King County 2012d).
Pacific Material Handling Solutions	Beckwith and Kuffel	1313 S 96th Street 98108	Audit inspection performed on July 10, 2013. Some minor drainage issues were fixed. The facility is in compliance (King County 2013)
Pacific Northwest Motor Lines	Same	515 S 96th Street 98108	Audit inspection performed on April 30, 2009. King County directed the property owner to remove storm drain solids from onsite catch basins, install inserts to control accumulation of solids, and perform regular maintenance of the storm drain system. The facility was re-inspected on June 4 and July 10, 2009. A depressed area had been filled with gravel to eliminate stormwater ponding issues. King County determined the facility to be in compliance (King County 2009).
Sound Delivery Service/ Rasmussen Wire Rope	Sound Delivery Service	9999 8th Avenue S 98108 720 S 100th Street	Audit inspection performed at Rasmussen Wire Rope on February 25, 2010. Corrective actions were identified to prevent stormwater from coming into contact with the fueling station, replace/restock spill kits, improve storage of oil and other liquid items, remove contaminated soil, and improve housekeeping. King County determined that the facility was in compliance on April 2, 2010 (King County 2010). Rasmussen Wire Rope appears to have relocated since the inspection.

Facility inspections have not been performed by Ecology, SPU, or King County at the following properties, or new activities have been introduced since the facility was last inspected. Operations at these facilities may represent potential sediment recontamination sources.

Facility or Property Name	Current Operator	Address	Facility/Site ID
Emerald City Machine	Emerald City Machine	160 S 108th Street 98108	15029
Mason Dixon Intermodal Inc.	Same	9515 10th Avenue S 98108	3546421
McKinstry Co S Barton	Unknown	855 S Barton Street 98108	36919863
Sound Delivery Service	Unknown	9999 8th Avenue S 98108	26432659

All Facility/Site ID numbers associated with a facility/property are listed in the table.

Source Control Actions

Information needed to assess the potential for sediment recontamination associated with current or historical operations at these facilities was summarized in the Sea King Industrial Park Data Gaps Report (SAIC 2013). The following source control actions will be conducted to fill the identified data gaps and reduce the potential for recontamination of sediments:

- Ecology, SPU, or King County will perform initial inspections at the former Emerald City Machine, McKinstry Co. S Barton, Mason Dixon Intermodal Inc., and Sound Delivery Service to verify that the facilities are in compliance with applicable source control regulations and BMPs.
- Ecology will contact representatives of Rasmussen Wire Rope to determine if contaminated soil was removed from the property.

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4.0 Monitoring

Monitoring efforts by SPU, Ecology, and King County will continue to assist in identifying and tracing ongoing sources of COCs present in LDW sediments or in upland media. This information will be used to focus source control efforts on specific problem areas within the Sea King Industrial Park source control area and to track the progress of the source control program. The following types of samples will be collected:

- In-line sediment trap samples from storm drain systems,
- Onsite catch basin sediment samples, and
- Soil and groundwater samples as necessary.

If monitoring data indicate the presence of additional sources that could result in recontamination of sediments associated with the Sea King Industrial Park source control area, then Ecology will identify source control activities as appropriate.

Because source control is an iterative process, monitoring is necessary to identify trends in concentrations of COCs. Monitoring is anticipated to continue for some years. Any decisions to discontinue monitoring will be made jointly by Ecology and EPA, based on the best available information. At this time, Ecology plans to review the progress and data associated with source control action items for each SCAP at least annually, and to summarize this information in the LDW Source Control Status Reports, which are scheduled for publication periodically. In addition, Ecology may prepare Technical Memoranda to update the Data Gaps Reports and SCAPs, as needed.

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5.0 Tracking and Reporting of Source Control Activities

Ecology is the lead for tracking, documenting, and reporting the status of source control to EPA and the public. Each agency involved in source control will document its source control activities and provide regular updates to Ecology. Ecology will prepare periodic LDW Source Control Status Reports that summarize recent activities for each source control area and the overall status of source control in the LDW.

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6.0 References

Absolute German. 2010. Stormwater Pollution Prevention Plan (SWPPP) for Absolute German. January 1, 2010.

Absolute German. 2012. Absolute German Autowrecking Company Website. http://www.absolutegerman.com/ Retrieved on December 6, 2012.

Ace Galvanizing. 2011. Industrial Stormwater General Permit, Annual Report Form, Permit No. WAR-000154, Site Name: Ace Galvanizing. Prepared by Loren McConnell. May 13, 2011.

Ace Galvanizing. 2012a. Pollution Prevention Plan, Facility Name: Ace Galvanizing, Industry Type: Hot Dip Galvanizing, NAIC Code: 332812, EPA ID# or CRK#: WAD009286881, Base Year: 2006. 2012.

Ace Galvanizing. 2012b. Compliance Certificate, Ace Galvanizing, 429 S. 96th St. Seattle, RCRA Site ID: WAD009286881. Prepared by Erik Jacobs, Ace Galvanizing. March 2, 2012.

Ace Galvanizing. 2012c. Stormwater Pollution Prevention Plan, As required by Industrial Stormwater General Permit, Number: WAR000154, For Ace Galvanizing, Inc. (South Plant) 429 S. 96th Street, Seattle, WA, 98108. Plan Consultant: Stormwater Rx. May 2012.

Ace Galvanizing. 2012d. Industrial Stormwater General Permit, Annual Report Form, Permit No. WAR-000154, Site Name: Ace Galvanizing. Prepared by Loren McConnell. May 15, 2012.

Ace Galvanizing. 2013. Modification of Permit Coverage Form for Industrial Stormwater General Permit, Ace Galvanizing, 429 S 96th St, Seattle, WA 98108. Prepared by Loren McConnell, Ace Galvanizing. April 15, 2013.

Advance Electroplating. 1982. Letter from T. Boyd Coleman, Advance Electroplating, to Mike Dawda, Ecology. RE: NPDES Permit No. WA-000172-4 (I). March 12, 1982.

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

AMEC. 2008. Level II Source Control Report Merlino Construction Storage Yard and Maintenance Facility, Seattle, Washington, on Behalf of Gary Merlino Construction Co., Seattle, Washington. December 2008.

Applied Consultants (Applied Consultants, Inc.). 1990a. Letter from Gordon Alwar, Bernard Luther, and Walter Stern, Applied Consultants, to Don Driscoll, Chiyoda International. Subject: Phase II Environmental Assessment, 1237 South Director Street, Seattle, Washington. February 21, 1990.

Applied Consultants. 1990b. Letter from Bernard Luther, Applied Consultants, to Don Driscoll, Chiyoda International Corporation. Subject: Report of Contamination Study, 1237 South Director Street, Seattle, Washington. November 22, 1990.

Applied Consultants. 1991. Report of Contamination Study, 1237 South Director Street, Seattle, Washington. Prepared for Chiyoda International Corporation. June 10, 1991.

Architectural Stone Werkes. 2011. Industrial Stormwater General Permit Annual Report Form. Permit No. WAR-SO3004556B, Site Name: Ace Galvanizing. Prepared by Jim Maxwell. May 13, 2011.

Attorney General (Attorney General of Washington State). 1988. Precision Engineering, Inc., appellant, v. State of Washington, Department of Ecology, Respondent. PCHB No. 7-13, Stipulated Agreement. December 27, 1988.

Blue Environmental. 2012. Stormwater Pollution Prevention Plan, Western Ports Transportation. May 2012.

Blue Sage Environmental. 1999. Site Characterization Report, Release from Underground Storage Tank System (Chapter 173-340 WAC). August 31, 1999.

BNY Mellon (BNY Mellon Wealth Management). 2009. Letter from Elizabeth Parrott Stultz, BNY Mellon, to Claire Hong, USEPA. Re: Request for Information Pursuant to Section 104(e) of CERCLA for the Lower Duwamish Waterway Superfund Site, Seattle, Washington, respondent: Representative of Mellon Trust of Washington, now known as BNY Mellon N.A. – Trust for Giuseppe and Assunta Desimone, Site: Lower Duwamish Waterway, Seattle, Washington. September 2, 2009.

Boeing. 2011. Southpark Stormwater Pollution Prevention Plan: The Boeing Company Southpark Facility, Existing Permit WAR001009. May 5, 2011.

Bolster (Bolster Engineers). 1985. Engineering Report, Hi-Line Asphalt Paving Co., Inc., 1115 S. 96th Ave., Seattle, Wash. December 16, 1985.

Chiyoda (Chiyoda International Corporation). 1992a. Letter from Donald Driscoll, Chiyoda, to Mike Gallagher, Ecology. Subject: Site Remediation/Closure 90064-LR-DOE1. July 8, 1992.

Chiyoda. 1992b. Letter from Donald Driscoll, Chiyoda, to Louise Bardy, Ecology. Subject: Site Remediation/Closure, 90064-LR-DOE2, Addendum to LR DOE1 (dated July 8, 1992). October 12, 1992.

Concrete Restoration (Concrete Restoration Inc.). 2012. Concrete Restoration Inc. Company Website. Http://concreterestorationinc.com/index.html. Retrieved on December 13, 2012.

Delta Marine. 2012a. Discharge Monitoring Report, Authorization WAG-030091, Delta Marine Industries Inc, 1068 S 96th Street, Seattle, 98101. February 22, 2012

Delta Marine. 2012b. Delta Marine Industries, Inc. Storm Water Pollution Prevention Plan. Permit #: WAG030091, Delta Marine Industries, Inc., 1608 S 96th St, Seattle, WA 98108. May 18, 2012.

Delta Marine. 2012c. Delta Marine Company Website. http://www.deltamarine.com/. Accessed on December 26, 2012.

Diamond Painting (Diamond Painting LLC). 2012. Diamond Painting Company Website. http://diamondpaintingllc.com/. Accessed on October 2, 2012.

DJC Oregon (Daily Journal of Commerce Oregon). 2002. Terex-Telelect Acquires Pacific Utilities Equipment. March 21, 2002. http://djcoregon.com/news/2002/03/21/terextelelext-acquires-pacific-utility-equipment. Retrieved January 2, 2013.

Drabek, John. 1997. E-mail from John Drabek, to Bev Poston and Sally Attwood. FW: Gary Merlino Construction. July 29, 1997.

Duwamish Marina. 1977. Affidavit of Charles Genther regarding removal of debris and fill material. September 2, 1977.

E&E (Ecology & Environment, Inc.). 1986. Site Inspection Report of Advance Electroplating, Inc., Seattle, Washington, TDD R10-8510-21. May 1986.

E&E. 1987a. Investigation of the South 96th Street Drainage Ditch. Prepared by Ecology and Environment, Inc. for King County. March 13, 1987.

E&E. 1987b. Investigation of the South 96th Street Drainage Ditch. Prepared by Ecology and Environment, Inc. for King County. August 24, 1987.

Eco Compliance (Eco Compliance Corporation). 2013. Stormwater Pollution Prevention Plan for Pacific Industrial Supply Company, Inc. 1231 South Director Street, Seattle, Washington 98108. July 22, 2013.

Ecology (Washington State Department of Ecology). 1970. Department of Ecology - Waste Discharge Permit, Advance Electroplating, Inc. November 18, 1970.

Ecology. 1976. National Pollutant Discharge Elimination System Waste Discharge Permit, Advance Electroplating, Inc. January 13, 1976.

Ecology. 1977. Memo from Mark Premo to Files. Subject: Advance Electroplating, Inc. July 28, 1977.

Ecology. 1979. National Pollutant Discharge Elimination System - Waste Discharge Permit, Advance Electroplating, Inc. October 10, 1979.

Ecology. 1981. Memorandum from M.M. Dawda, Ecology, to R. McCormick, Ecology. Subject: Recommendation for Enforcement Action, Advance Electroplating Company, Seattle, NPDES Permit WA-000172-4. August 12, 1981.

Ecology. 1982a. Letter from M.F. Palko, Ecology, to USACE. Public Notice No. 071-OYB-1-007930, Duwamish Yacht Club. March 23, 1982.

Ecology. 1982b. Letter from M.M. Dawda, Ecology, to Dave Vistaunet, Duwamish Yacht Club. Corps Permit No. 071-OYB-2-008104. November 5, 1982.

Ecology. 1985. Letter from Philip Miller, Ecology, to Hi-Line Asphalt Paving Company. Order No. DE 85-698. September 23, 1985.

Ecology. 1986a. In the Matter of the Compliance By Precision Engineering, Inc. with Chapter 70,105 and 90.48 RCW and the Rules and Regulations of the Department of Ecology, Order No. DE 86-307. May 23, 1986.

Ecology. 1986b. In the Matter of the Compliance By Precision Engineering, Inc. with Chapter 70,105 and 90.48 RCW and the Rules and Regulations of the Department of Ecology, Order No. DE 86-307. First Amendment. December 19, 1986.

Ecology. 1988a. Memorandum from Julie Sellick, Ecology, to John Conroy, Ecology. Subject: Narrative Report for a Dangerous Waste Inspection at Precision Engineering Inc (WAD 041338252) in Seattle, Washington, on November 17, 1987. January 28, 1988.

Ecology. 1988b. Compliance Inspection for Penberthy Electromelt International, Inc, 631 South 96th Street, Seattle, WA. February 23, 1988.

Ecology. 1989. Washington State Department of Ecology, Sample/Project Analysis Results, Project: DOE-285B, Precision Engineering. May 22, 1989.

Ecology. 1990. Draft Scope of Work, Advance Electroplating, Inc. January 1, 1990.

Ecology. 1991a. Department of Ecology - Inspection Report, Container-Care International, Inc. June 20, 1991.

Ecology. 1991b. Sampling of Freshwater Sediments from the Creek Directly South of Penberthy Electromelt, Inc. July 2, 1991.

Ecology. 1992a. Department of Ecology Inspection Report, Segale Asphalt. December 9, 1992.

Ecology. 1992b. Letter from James D. Krull, Ecology, to Warren Beardsley, PSF Mechanical, Inc. Re: Coverage Under the Storm Water Baseline General Permit, Permit Number: S03-000264. December 28, 1992.

Ecology. 1992c. Letter from James D. Krull, Ecology, to L. Penberthy, Penberthy Electromelt. Re: Coverage Under the Storm Water Baseline General Permit, Permit Number: S03-000280. December 28, 1992.

Ecology. 1994a. Conversation Record with Bob Bunch, Container Care. Subject: Sediment observed washing off the S. 96th Street site on 12/30/93. January 3, 1994.

Ecology. 1994b. Letter from James D. Krull, Ecology, to Jim Okel, Precision Engineering. RE: Coverage Under the Stormwater Baseline General Permit, Permit Number: SO3-001925, Facility\Site Name: Precision Engineering, Inc., Address: 1231 South Director Street, Seattle, WA 98108. August 19, 1994.

Ecology. 1994c. Letter from James Krull, Ecology, to Byron Woolsey, Industrial Automation Inc. RE: Coverage Under the Stormwater Baseline General Permit, Permit Number: S03-001949. August 26, 1994.

Ecology. 1994d. NWRO Hazardous Waste Inspection Report, Ace Galvanizing, Inc., EPA/State ID#: WAD 009286881. Prepared by Robert Stone. December 21, 1994.

Ecology. 1995. NWRO Hazardous Waste Inspection Report, Delta Marine. June 7, 1995.

Ecology. 1997. Letter from Dave Nazy, Ecology, to Rory Stevens, Chiyoda International. Re: Chiyoda International Corporation Property, 1237 South Director Street, Seattle, WA. February 7, 1997.

Ecology. 1998a. Letter from Dan Wrye, Ecology, to Gary Merlino, Gary Merlino Construction Co. RE: Stormwater Baseline General Permit for Industrial Activity, Permit Number: SO3-003120. January 23, 1998.

Ecology. 1998b. Letter from Ecology to Rory Stevens, Chiyoda International Corporation. Re: Completion of Monitoring, No Further Action Determination, Chiyoda International Corporation Property/KASPAC, 1237 S. Director Street, Seattle, Washington. May 16, 1998.

Ecology. 1999. Letter from John Lillie, Ecology, to George and Jane Human, All-City Auto. Re: Independent Remedial Action, All-City Wrecking - 9438 Des Moines Way South, Seattle, WA. June 24, 1999.

Ecology. 2000. Letter from Nnamdi Madakor, Ecology, to Ryan Pleas, KRS Marine. Re: Voluntary Cleanup Program, KRS Maine [sic], 1621 S. 92nd Place, Seattle, WA 98108. TCP I.D. #NW0482. August 17, 2000.

Ecology. 2001a. Stormwater Compliance Inspection Report, Delta Marine Industries, NPDES#WAG030091B, 1608 D 96th St, Seattle, WA 98108. March, 2, 2001.

Ecology. 2001b. Letter from Tricia Miller, Ecology, to Laurie Pinard, ICON. Modification of the Site Specific Page for Seattle Asphalt Plant #2604. March 2, 2001.

Ecology. 2002. Letter from Julie Sellick, Ecology, to James Bellamy, TOXGON Corporation. Re: Ecology Acceptance of Certification of Clean Closure of the RCRA Interim Status Former Thermal Treatment Unit and Indoor/Outdoor Container Storage Units (WAD 061 669 644). August 20, 2002.

Ecology. 2003a. Hazardous Waste & Toxics Reduction Program Compliance Report, Precision Engineering RCRA ID#: WAD041338252, 1231 S. Director. Inspection Date: October 3, 2002. January 25, 2003.

Ecology. 2003b. E-mail from Trevor Deffner, Industrial Automation, to Scott Lamb, Ecology. RE: Pollution Prevention Planning. Transmitted on February 18, 2003.

Ecology. 2003c. Letter from Dean Yasuda, Ecology, to James Bellamy, TOXGON Corporation. Re: ToxGon Corporation (formerly Penberthy Electromelt International) at 631 South 96th Street, Seattle, Washington. June 6, 2003.

Ecology. 2003d. Letter from Julie Sellick, Ecology, to James Bellamy, TOXGON Corporation. Re: Termination of the RCRA Interim Status Permit and Denial of the Final RCRA Permit to Storage Dangerous Wastes for the for the ToxGon Corporation (ToxGon), WAD 061 669 644. August 28, 2003.

Ecology. 2004. Lower Duwamish Waterway Source Control Strategy. Publication No. 04-09-043. Prepared by Washington State Department of Ecology, Northwest Regional Office, Toxics Cleanup Program. January 2004.

Ecology. 2005a. Letter from Nancy L. Winters, Ecology, to Raymond Burke, Global Intermodal Systems Inc. RE: Notice of Termination (NOT) of Coverage under the Industrial Stormwater General Permit, Permit Number: SO3-001330, Facility\Site Name: Global Intermodal Systems Inc., Address: 1818 S 93, Seattle, Washington 98108. May 23, 2005.

Ecology. 2005b. Letter from Elliott Zimmermann, Ecology, to Laurie Hill, International Paints. Re: Dangerous waste compliance inspection at International Paints (Seattle) (WAH 000 026 949) on November 29, 2005. December 5, 2005.

Ecology. 2006a. Letter from Nancy L. Winters, Ecology, to George Cardile, Precision Engineering. RE: Notice of Termination (NOT) of Coverage under the Industrial Stormwater General Permit, Permit Number: SO3-001925, Facility\Site Name: Precision Engineering Inc., Address: 1231 S Director St, Seattle, Washington 98108. January 9, 2006.

Ecology. 2006b. Letter from Elliott Zimmermann, Ecology, to George Cardile, Precision Engineering. RE: Dangerous Waste Compliance Inspection at Precision Engineering (WAD 041 338 252) on March 1, 2006. March 17, 2006.

Ecology. 2006c. Letter from Bert Ponton, Ecology, to George Cardile, Precision Engineering. Subject: Precision Engineering is no longer required to submit a Pollution Prevention Plan. June 14, 2006.

Ecology. 2006d. Hazardous Waste & Toxics Reduction Program Compliance Report, Ace Galvanizing 429 South 96th Street, Seattle, WA 98108. October 12, 2006.

Ecology. 2007a. Stormwater Compliance Inspection Report for Selland Auto Transport, Inc., 615 S 96th Street, Seattle, WA. April 23, 2007.

Ecology. 2007b. Stormwater Compliance Inspection Report, Roadway Express, NPDES#SO3004620A, 600 S 96th Street, Seattle, WA 98108. April 26, 2007.

Ecology. 2007c. Stormwater Compliance Inspection Report, Industrial Automation Inc, 1421 S 93rd St, Seattle, WA 98108-5107, NPDES Permit #S03001949D. May 16, 2007.

Ecology. 2007d. Lower Duwamish Waterway Source Control Status Report, 2003 to June 2007. Publication No. 07-09-064. Prepared by Washington State Department of Ecology, Northwest Regional Office, Toxics Cleanup Program. July 2007.

Ecology. 2007e. Stormwater Compliance Inspection Report, Pacific Utility Co. (Terex Utilities), NPDES Permit# SO3001901D. July 17, 2007.

Ecology. 2007f. Letter from Kevin Fitzpatrick, Ecology, to Gary Merlino, Gary Merlino Construction Co. RE: Gary Merlino Construction Co., 827 S. Director Street & 920 Barton Street, Seattle, WA 98108. August 16, 2007.

Ecology. 2007g. Letter from Susan Dier, Ecology, to Laurie Hill, International Pain LLC. RE: Dangerous Waste Annual Report visit to International Pain LLC, 1541 S 92nd Place, Suite C, Seattle, on September 18, 2007, RCRA Site ID #: WA000026949. October 10, 2007.

Ecology. 2007h. Stormwater Compliance Inspection Report, ICON Materials Seattle Asphalt. November 6, 2007.

Ecology. 2008a. Letter from Michael Jeffers, Ecology, to Glen Wilcox, Industrial Automation Inc. RE: Dangerous Waste Compliance Inspection at Industrial Automation Inc., RCRA ID # WAR00009068 (inactive) on 2/12/2008. February 25, 2008.

Ecology. 2008b. Letter from Michael Jeffers, Ecology, to Drew Rosenfelt, PSF Mechanical Inc. RE: Dangerous Waste Compliance Inspection at PSF Mechanical, Inc., RCRA ID# WAD988497559 (inactive) on March 4, 2008. March 7, 2008.

Ecology. 2008c. Letter from Nancy Winters, Ecology, to Michael Wiater, Utility Equipment. RE: Notice of Termination (NOT) of Coverage under the Industrial Stormwater General Permit. April 11, 2008.

Ecology. 2008d. Letter from Michael Jeffers, Ecology, to Claud Benson, CB Finishing. RE: Urban Waters Source Control Compliance Inspection at CB Finishing, Inc. on April 8, 2008. April 18, 2008.

Ecology. 2008e. Lower Duwamish Waterway Source Control Status Report, July 2007 to March 2008. Publication No. 08-09-063. Prepared by Washington State Department of Ecology, Northwest Regional Office, Toxics Cleanup Program. May 2008.

Ecology. 2008f. Letter from Michael Jeffers, Ecology, to Bruce O'Neal, Pacific Industrial Supply Co, Inc. RE: Urban Waters source control compliance inspection at Pacific Industrial Supply Inc. on June 5, 2008. June 11, 2008.

Ecology. 2008g. Letter from Gregory Stegman, Ecology, to Drew Rosenfelt, PSF Mechanical Inc. RE: Non-Compliance with the Industrial Stormwater General Permit No. SO300246 terms and conditions. July 10, 2008.

Ecology. 2008h. Letter from Michael Jeffers, Ecology, to Joe Pena, Diamond Painting LLC. RE: Results from the Urban Waters Environmental Compliance Inspection at Diamond Painting LLC on 7/8/2008: Corrective action required. July 11, 2008.

Ecology. 2008i. Letter from Michael Jeffers, Ecology, to Joe Pena, Diamond Painting LLC. RE: Results from the Urban Waters Environmental Compliance follow-up Inspection at Diamond Painting LLC on August 13, 2008. August 28, 2008.

Ecology. 2008j. Letter from Michael Jeffers, Ecology, to Steve Klem, Colorgraphics. RE: Results from the Urban Waters Environmental Compliance Inspection at Colorgraphics on September 9, 2008: Corrective Action Required. September 17, 2008.

Ecology. 2008k. Lower Duwamish Waterway Source Control Status Report, April 2008 to August 2008. Publication No. 08-09-068. Prepared by Washington State Department of Ecology, Northwest Regional Office, Toxics Cleanup Program. October 2008.

Ecology. 2008l. Stormwater Compliance Inspection Report, Gary Merlino Construction Company, NPDES Permit #SO3-003120C. December 4, 2008.

Ecology. 2008m. Letter from Michael Jeffers, Ecology, to Glen Wooldridge, Wooldridge Boats. Re: Results from the Urban Waters Environmental Compliance source control inspection at Wooldridge Boats Inc. on December 4, 2008: Corrective action required. December 22, 2008.

Ecology. 2008n. Boatyard General Permit Inspection Report, Delta Marine Industries, 1608 S 96th Street, Seattle, WA 98108, WAG030091C. December 30, 2008.

Ecology. 2009a. Letter from Michael Jeffers, Ecology, to Glen Wooldridge, Wooldridge Boats. Re: Results from the Urban Waters Environmental Compliance source control inspection at Wooldridge Boats Inc. on February 4, 2009. February 5, 2009.

Ecology 2009b. Letter from Rachel Best, Ecology, to Mark Giustino, Delta Marine Industries. Re: Hazardous Waste Inspection on February 24, 2009 at Delta Marine Industries RCRA ID#: WAD052593480. March 19, 2009.

Ecology. 2009c. Periodic Review, All-City Wrecking, Facility Site ID#: 22342251. June 2009.

Ecology. 2009d. Lower Duwamish Waterway, Source Control Status Report, September 2008 through June 2009. Publication No. 09-09-183. Prepared by Washington State Department of Ecology, Northwest Regional Office, Toxics Cleanup Program. August 2009.

Ecology. 2009e. Boatyard General Permit Inspection Report, Delta Marine Industries, 1608 S 96th Street, Seattle, WA 98108. November 19, 2009.

Ecology. 2010a. Letter from Kevin Fitzpatrick, Ecology, to Tom Bridgham, Selland Auto Transport. Re: Notice of Penalty Incurred and Due No. 7700. May 14, 2010.

Ecology. 2010b. News Release: Duwamish Valley trucking firm fined for violating stormwater permit. May 24, 2010.

Ecology. 2010c. Stormwater Compliance Inspection Report, Architectural Stonewerkes, 429 ½ S. 96th Street, Seattle, WA 98108. July 20, 2010.

Ecology. 2011a. Letter from Bill Moore, Ecology, to Nancy Brend, Industrial Automation Inc. Re: Administrative Order, Notice of Penalty. January 18, 2011.

Ecology. 2011b. Letter from Donovan Gray, Ecology, to Bruce O'Neal, Pacific Industrial Supply. RE: Results from the Urban Waters Environmental Compliance Inspection at Pacific Industrial Supply on May 10, 2011. Corrective action required. May 18, 2011.

Ecology. 2011c. Letter from Donovan Gray, Ecology, to Jimmy Blais, Gary Merlino Construction Co. RE: Results from the Urban Waters Environmental Compliance Inspection at Gary Merlino Construction Co on May 18, 2011: Corrective action required. June 8, 2011.

Ecology. 2011d. Letter from Mark Adams, Ecology, to James Okel, Precision Engineering. Re: Opinion under WAC 173-340-515(5) on Proposed Remedial Action for the following Hazardous Waste Site: Name: Precision Engineering, Address: 1231 South Director Street, Seattle, WA 98108, Facility/Site No.: 2056, VCP No.: NW1511. July 8, 2011.

Ecology. 2011e. Letter from Donovan Gray, Ecology, to Jimmy Blais, Gary Merlino Construction Co. RE: Results from the Urban Waters Environmental Compliance Inspection at Gary Merlino Construction Co on July 14, 2011: Corrective action required. - referred to Department of Ecology's Water Quality Program. July 27, 2011.

Ecology. 2011f. Lower Duwamish Waterway Source Control Status Report, July 2009 through September 2010. Publication No. 11-09-169. Prepared by Washington Stated Department of Ecology, Northwest Regional Office, Toxics Cleanup Program. August 2011.

Ecology. 2011g. Letter from Donovan Gray, Ecology, to Bruce O'Neal, Pacific Industrial Supply. Re: Notification Compliance Achieved. September 6, 2011.

Ecology. 2011h. Letter from Bill Moore, Ecology, to Warren Beardsley, PSF Mechanical Inc. RE: Request for Modification of Permit Coverage, Level 3 Time Extension PSF Mechanical, Inc., Industrial Stormwater General Permit No. WAR000264. November 23, 2011.

Ecology. 2012a. Letter from Daylin Davidson, Ecology, to Loren McConnell, Ace Galvanizing. RE: Dangerous Waste Compliance Inspection on January 24, 2012 at Ace Galvanizing Inc, RCRA ID#: WAD009286881. January 27, 2012.

Ecology. 2012b. Water Quality Program Corrections Required, Absolute German, 9510 14th Ave S, Seattle, WA 98108. Permit #: WAR125038. February 1, 2012.

Ecology. 2012c. Letter from Russell Olsen, Ecology, to Property Owner, MA Segale. Re: No Further Action (NFA) Determination associated with Leaking Underground Storage Tank (LUST) Site: MA Segale, Inc. February 13, 2012.

Ecology. 2012d. Letter from Daylin Davidson, Ecology, to Loren McConnell, Ace Galvanizing. RE: Dangerous Waste Compliance Inspection on January 24, 2012 at Ace Galvanizing Inc, RCRA ID#: WAD009286881. March 26, 2012.

Ecology. 2012e. Letter from Russell E. Olsen, Ecology, to Property Owner, Sunnyvale Construction Co., Inc. RE: No Further Action (NFA) Determination associated with Leaking Underground Storage Tank (LUST) Site: Site Name: Sunnydale Construction Co. Inc., Property Address: 1119 S 96th, Seattle, WA 98108, Facility/Site No.: 48248356, LUST ID: 417097. April 23, 2012.

Ecology. 2012f. Industrial Stormwater General Permit Inspection Report, Ace Galvanizing Inc., 429 S 96th Street, Seattle, WA 98108. May 10, 2012.

Ecology. 2012g. Lower Duwamish Waterway, Source Control Status Report, October 2010 through December 2011. Publication No. 12-09-131. Prepared by Washington State Department of Ecology, Northwest Regional Office, Toxics Cleanup Program. July 2012.

Ecology. 2012h. Water Quality Program, Corrections Required, ICON Materials, 1115 S. 96th St., Seattle, WA 98108. Prepared by Ken Waldo and Bob Wright. September 26, 2013.

Ecology. 2012i. Lower Duwamish Waterway Source Control Strategy. Draft Final. Prepared by Washington State Department of Ecology Toxics Cleanup Program and Water Quality Program. Revised December 2012.

Ecology. 2013a. Stormwater Compliance Inspection Report for RMC, Inc., 10766 Myers Way S, Seattle, WA. January 8, 2013.

Ecology. 2013b. Lower Duwamish Waterway Source Control Status Report, January 2012 through December 2012. DRAFT. Prepared by Washington Stated Department of Ecology, Northwest Regional Office, Toxics Cleanup Program. April 2013.

Ecology and King County. 2011. Control of Toxic Chemicals in Puget Sound: Assessment of Selected Toxic Chemicals in the Puget Sound Basin, 2007-2011. Washington State Department of Ecology, Olympia, WA and King County Department of Natural Resources, Seattle, WA. Ecology Publication No. 11-03-055. 2011.

EMCON. 1995a. Fax Transmittal of Ground Water Analytical Results from Mike Staton, to Louise Bardy. RE: Chiyoda Site. June 20, 1995.

EMCON. 1995b. Independent Remedial Action Report, Chiyoda International Corporation Property, Seattle, Washington. November 14, 1995.

EMCON. 1996. Letter from Michael Staton and Linda Dawson, EMCON, to Dave Nazy, Ecology. Re: Addendum to Independent Remedial Action Report, Chiyoda International Corporation Property, 1237 South Director Street, Seattle, Washington. September 9, 1996.

EMCON. 1997. Letter from Michael Staton, EMCON, to Dave Nazy, Ecology. Re: Additional Soil Remediation Activities Report, Chiyoda International Corporation Property, 1237 South Director Street, Seattle, Washington. January 28, 1997.

EMCON. 1998. Fax of Letter from Michael Staton, Emcon, to Dave Nazy, Ecology. Re: Additional Groundwater Sampling Report, Chiyoda International Corporation Property, Seattle, Washington. March 4, 1998.

EPA and Ecology. 2002. Lower Duwamish Waterway Site Memorandum of Understanding between the United States Environmental Protection Agency and the Washington State Department of Ecology. April 2002.

EPA and Ecology. 2004. Lower Duwamish Waterway Site Memorandum of Understanding between the United States Environmental Protection Agency and the Washington State Department of Ecology. April 2004.

Exponent. 1998. Phase 1 Site Characterization. March 26, 1998.

Fischer. 1999. Email from Bruce Fischer, Terrasolve, to Al Armstrong, Ecology. Re: Selland Auto Transport. April 28, 1999.

Floyd Snyder. 1999a. Voluntary Cleanup Action Plan, All-City Auto Wrecking, King County, Washington. March 18, 1999.

Floyd Snyder. 1999b. VCP Site Closure Report, All City Auto Wrecking, King County, Washington. May 27, 1999.

GeoEngineers. 1989. Report, Phase 1 Environmental Site Assessment and Underground Storage Tank Removal, Property Located at 1237 South Director Street, Seattle, Washington, for Chiyoda International Corporation. October 18, 1989.

GeoEngineers. 1991. Report of Remedial Action: Underground Storage Tank Removal, M. A. Segale Asphalt Plant, Seattle, Washington. April 17, 1991.

Giustino. 2009. Hazardous Waste and Toxic Reduction Program Compliance Certificate, Delta Marine Industries. June 30, 2009.

Global Intermodal. 1996. Stormwater Pollution Prevent Plan, Global Intermodal Systems (Formerly ITEL Terminals) 1818 South 93rd Street, Seattle, Washington 98108. February 2, 1996.

Gray, Donovan. 2010. Hazardous Waste and Toxics Reduction - Northwest Regional Office Monthly Report, January-September 2010. October 2010.

Gray, Donovan. 2011. Email from Donovan Gray to Michael Jeffers et al., Ecology. Subject: RE: Show Quality Metal Finishing. May 26, 2011.

Greenleaf (Greenleaf Valuation Group, Inc.). 2007. Letter from James A. Greenleaf, Greenleaf, to Michael Goldfarb, Attorney, and P. Stephen DiJulio, Foster Pepper & Shefelman. RE: Revised Arbitrator's Decision in the Matter of the Desimone Trust/Duwamish Marina Premises Lease. January 25, 2007.

Hart Crowser. 2002. Technical Memorandum from Julie Wukelic, Hart Crowser, to David Williams and Carla Wigen, and Desimone Trust. Re: Environmental Review – Global Intermodal Systems Property 7693. March 29, 2002.

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

Harter and Rollins (Thomas Harter and Larry Rollins). 2008. Watersheds, Groundwater and Drinking Water: A Practical Guide. University of California (System) Division of Agriculture and Natural Resources. 2008.

Herrera (Herrera Environmental Consultants). 1994. South 96th Street Water Quality Engineering Report, Nonpoint Source Pollution Controls for the Hamm Creek Watershed. Prepared by Herrera Environmental Consultants for King County Surface Water Management Division. April 1994.

Hong West (Hong West and Associates, Inc.). 1995. South 96th Street Soil, Sediment, and Groundwater Quality Assessment and Supplemental Geotechnical Study, Draft Final Report. Prepared by Hong West and Associates, Inc. for TAMS Consultants, Inc. January 19, 1995.

Hurley, James P. 2000. Letter from James P. Hurley, James P Hurley Co., to Joe Hickey, Ecology. Subject: Voluntary Cleanup Program Submission, Hydraulic Oil Contaminated Soil Cleanup Project, KRS marine at 1621 South 92nd Place, Seattle, Washington. May 23, 2000.

ICON Materials. 2001. Letter from Laurie Pinard, ICON, to John Drabek, Ecology. Re: NPDES Discharge Permit No. WAG 50-3282, Seattle Asphalt Plant, Plant #2604, 115 South 96th Street, Seattle, WA. February 12, 2001.

ICON Materials. 2010. Stormwater Pollution Prevention Plan (SWPPP), Spill Prevention, Control, and Countermeasures Plan (SPCCP), and Spill Response Plan (SRP): ICON Materials. June 25, 2010.

Industrial Automation. 2011. Industrial Stormwater General Permit Annual Report Form, Permit No. WAR-001949, Industrial Automation, Inc., King County. May 13, 2011.

Industrial Automation. 2012a. Stormwater Pollution Prevention Plan (SWPPP) for Industrial Automation, Inc., Permit No. WAR001949. Updated February 1, 2012.

Industrial Automation. 2012b. Industrial Stormwater General Permit Annual Report Form, Permit No. WAR001949, Industrial Automation, King County. May 17, 2012.

Jeffers, Mike. 2008a. Email from Mike Jeffers, Ecology, to Iris Winstanley, SAIC, and Sarah Good, Ecology. RE: Update from Ecology's HWTR LDW inspector August 2008. September 4, 2008.

Jeffers, Mike. 2008b. Email from Mike Jeffers, Ecology, to Iris Winstanley, SAIC. RE: Update from Ecology's HWTR LDW inspector October 2008. December 1, 2008.

Jeffers, Mike. 2009. Email from Mike Jeffers, Ecology, to Iris Winstanley, SAIC, and Sarah Good, Ecology. Update from Ecology's HWTR LDW inspector. March 9, 2009.

King County. 1994. King County Surface Water Management Division. Sea King Industrial Park Drainage Investigation file. April 15, 1994.

King County. 1998. Drainage Investigation Report - Investigation Request, Tukwila Roofing. April 6, 1998.

King County. 1999. South 96th Street Source Control Project, Agreement No. G9500236. Final Report. Prepared by King County Water and Land Resources Division for Washington State Department of Ecology. February 8, 1999.

King County. 2003. King County Surface Water Management Division - Drainage Investigation Report, Carey Limousine. May 29, 2003.

King County. 2008. Letter from Despina Strong, Ecology, to John Nguyen, Western United Fish Company. RE: Issuance of Wastewater Discharge Permit No. 7839-01 to Western United Fish Company by the King County Department of Natural Resources and Parks. August 29, 2008.

King County. 2009. Inspection Activity Log for Lackstrom Property (Pacific Northwest Motor Lines), 515 S 96th St. July 22, 2009.

King County. 2010. Inspection Activity Log for Rasmusson [Rasmussen] Wire Rope, 720 S 100th St. July 23, 2010.

King County. 2012a. Inspection Activity Log for R&R Services, 160 S 108th St. July 31, 2012.

King County. 2012b. Inspection Activity Log for Bidadoo Auctions, 1531 S 96th St. August 9, 2012.

King County. 2012c. Inspection Activity Log for Top Hat Mini Mart, 10723 1st Ave S. October 25, 2012.

King County. 2012d. Inspection Activity Log for Simplex Grinnel [Grinnell], 9520 10th Ave S. November 14, 2012.

King County. 2013. Inspection Activity Log for Beckwith and Kuffel, 1313 S 96th St. July 11, 2013.

KTA (KTA Associates, Inc.). 2012a. Memo from Ken Taylor, KTA Associates, Inc., to Joe Roberto, USEPA. Re: Report – First Round of Duwamish Sediment Sampling – King County. January 4, 2012.

KTA. 2012b. Memo from Ken Taylor, KTA Associates, Inc., to Joe Roberto, USEPA. Re: Report – Second Round of Duwamish Sediment Sampling – King County. May 31, 2012.

Laucks. 1985. Letter from J.M. Owens, Laucks, to Werner Otto, Duwamish Yacht Club Inc. Report on Soil. July 18, 1985.

LSI Adapt. 2001. Global Intermodal Systems, Limited Environmental Audit. November 20, 2001.

Marketing NW. 2010. Marketing NW.com Blog for ColorGraphics. http://marketingnw.com/blog/colorgraphics. Retrieved on October 30, 2012.

Merlino Construction (Gary Merlino Construction Company). 1997. Discharge Stormwater Associated with Industrial Activity (Notice of Intent), Gary Merlino Construction Co., 9125 10th Avenue South, Seattle, WA 98108-4612. July 28, 1997.

Merlino Construction. 2011. Industrial Stormwater General Permit Annual Report Form, Permit No. WAR-003120, Gary Merlino Construction Office BD. May 18, 2011.

Merlino Construction. 2012. Industrial Stormwater General Permit Annual Report Form, Permit No. WAR-003120, Gary Merlino Construction Office BD. May 17, 2012.

Merlino Construction. 2013. Modification of Permit Coverage Form for Industrial Stormwater General Permit, Permit No. WAR003120, Gary Merlino Construction Company, 9125 10th Avenue South, Seattle, WA 98108. Prepared by James R. Blais, Merlino Construction. May 2, 2013.

METRO (Municipality of Metropolitan Seattle). 1969. Memo from A.L. Poole to G.D. Farris. Subject: Advance Electroplating, Inc. (9585 8th Ave. S.) Industrial Wastes. September 23, 1969.

METRO. 1985. Letter from Vallana M. Piccolo, METRO, to Larry Showland, Precision Engineering. Re: Cancellation of Permit No. 7052. September 18, 1985.

METRO. 1986. In the Matter of Enforcement Action Against Precision Engineering, Inc., Notice of Penalty and Compliance Schedule. Issued to Mr. D.F. Morgan, President, Precision Engineering. February 26, 1986.

METRO. 1994. Letter from Debra Liceaga, METRO, to Barb Smith, Ecology. Thomas Equipment Rental vacated office. April 13, 1994.

MFA (Maul Foster & Alongi, Inc.). 2005. Preliminary Soil and Groundwater Site Assessment Report, Precision Engineering, Inc., 1231 S. Director Street, Seattle, Washington. Prepared for Precision Engineering. August 5, 2005.

MFA. 2008. Final Remedial Investigation and Risk Assessment Report, Former Precision Engineering, Inc. Site, 1231 South Director Street, Seattle, Washington, VCP ID Number NW 1511. Prepared for Stoel Rives, LLP. July 21, 2008.

MFA. 2011. Final Feasibility Study, Former Precision Engineering, Inc. Site, 1231 South Director Street, Seattle, Washington. Prepared for Stoel Rives, LLP. March 3, 2011.

NOAA (National Oceanic and Atmospheric Administration). 1998. Duwamish Waterway Sediment Characterization Study Report. As cited in Windward 2003b.

Pacific Industrial (Pacific Industrial Supply). 2011. Compliance Certificate for Pacific Industrial Supply, Date of Visit: May 10, 2011. May 10, 2011.

Pacific Testing Labs. 1995. Chiyoda International Corporation Subsurface Soil and Ground Water Investigation for the Kaspac Property, Seattle, Washington, Certificate No. 9411-6630. January 3, 1995.

Pacific Utility. 2001. Letter from Wayne Miller, Pacific Utility Equipment Co, to Ecology. Re: Request for SWPPP, Permit #SO30019101C. October 3, 2001.

Parametrix (Parametrix, Inc.) and SAIC (Science Applications International Corporation). 1991a. Site Hazard Assessment Summary Report for Ace Galvanizing Company, Seattle, Washington. Prepared for Washington Department of Ecology. June 1991.

Parametrix and SAIC. 1991b. Final Site Hazard Assessment Summary Report for Advance Electroplating, Seattle, Washington. July 1991.

Penberthy. 1992. Notice of Intent For Baseline General Permit to Discharge Stormwater Associated with Industrial Activity, Penberthy Electromelt, 631 S 96th Street, Seattle, WA. September 28, 1992.

PGG. 2001. RCRA Interim Status Closure Investigation Report, ToxGon/Penberthy Site, Seattle, WA. April 10, 2001.

PGG. 2002. RCRA Interim Status Clean Closure Report, ToxGon/Penberthy Site, Seattle, WA. August 8, 2002.

PGG. 2003. RCRA Interim Status Clean Closure Report, West Drainage Ditch/Hamm Creek, ToxGon/Penberthy Site, Seattle, WA. April 10, 2003.

Precision Engineering. 1976. Municipality of Metropolitan Seattle, Industrial Waste Discharge Permit, Application Form, Precision Engineering, Inc., 1231 So. Director St. Seattle, Wa. 98108. Prepared by J.E. Riedeman, Precision Engineering. December 6, 1976.

Precision Engineering. 1993. Independent Remedial Action Report, Precision Engineering, Inc., 1231 South Director Street, Seattle, Washington 98108. June 30, 1993.

Property Solutions (Property Solutions, Inc.). 2004. Phase I Environmental Assessment of Desimone/Global Intermodal Systems, 1818 South 93rd Street, Tukwila, King County, Washington 98108, Prepared for Mellon Bank, N.A. December 15, 2004.

PSCI (Pacific Specialty Construction, Inc.). 1998. Site Investigation Report, PSCI-WA-98-0541, Selland Auto Transport, Inc. Facility, 615 S 96th St, Seattle, WA. November 16, 1998.

PSF Mechanical. 2010. Revised Stormwater Pollution Prevention Plan, PSF Mechanical. February 2010.

PSF Mechanical. 2011. Industrial Stormwater General Permit Annual Report Form, Permit No WAR-000264, PSF Mechanical, Inc. May 11, 2011.

PSF Mechanical. 2012. Industrial Stormwater General Permit Annual Report Form, Permit No. WAR-000264, PSF Mechanical, Inc. May 3, 2012.

Rainier Bank (Rainier National Bank). 1978. Letter from Robert E. Reynolds, Rainier Bank, to Harold Weist, Safeco Title. Subject: Order #380547. February 3, 1978.

RMC Inc. 2012. Industrial Stormwater General Permit Annual Report Form for RMC, Inc., 10766 Myers Way South, Seattle, WA. January 3, 2012.

Roadway Express. 2001. Letter from Robert E. Zimmerman, Roadway Express, to Ecology. Re: Submittal of NOI - Application for General Permit to Discharge Stormwater Associated with Industrial Activity, Roadway Express, Inc. 600 S 96th Street, Seattle, WA. January 16, 2001.

SAIC (Science Applications International Corporation). 2006. Soil and Groundwater Screening Criteria, Source Control Action Plan, Slip 4, Lower Duwamish Waterway. Prepared for the Washington State Department of Ecology. August 2006 (Revised February 2007).

SAIC. 2011. Surface Sediment Sampling at Outfalls in the Lower Duwamish Waterway, Seattle, WA, Data Report. Prepared for the Washington State Department of Ecology, Toxics Cleanup Program. October 2011.

SAIC. 2012. Lower Duwamish Waterway, RM 0.0 to 1.0 West (Spokane Street to Kellogg Island): Summary of Existing Information and Identification of Data Gaps, Volume 1. Prepared for the Washington State Department of Ecology, Toxics Cleanup Program. September 2012.

SAIC. 2013. Lower Duwamish Waterway, RM 3.8 to 4.2 West, Sea King Industrial Park, Summary of Existing Information and Identification of Data Gaps. Prepared for Washington State Department of Ecology, Toxics Cleanup Program. May 2013.

SCS Engineers. 1986. Preliminary METRO Compliance Report for Precision Engineering, Inc., Seattle, Washington. May 28, 1986.

Seattle Deposition Reporters. 1994. Before Appraisers Kelling, Allen and Safer, In the matter of the appraisal of the Desimone/Duwamish Marina Premises Lease, Arbitration Hearing Volumes 1 and 2. July 12 and 13, 1994.

Seattle Times. 1995. “Polluter's Sentence Angers Neighbors.” The Seattle Times. August 6, 1995. http://community.seattletimes.nwsource.com/archive/?date=19950806&slug=2135155. Retrieved on December 17, 2012.

Seattle Times. 1998. “Tukwila Construction Firm Segale Sold to Oldcastle.” The Seattle Times. April 30, 1998. http://community.seattletimes.nwsource.com/archive/?date=19980430&slug=2748086. Retrieved on December 19, 2012.

Security Contractor Services. 2013. Company Website: http://www.scsfence.com/index.php?page=home. Retrieved on January 9, 2013.

Selland Auto. 2011. Industrial Stormwater General Permit Annual Report Form for Selland Auto Transport, 615 S 96th St, Seattle, WA. May 9, 2011.

Selland Auto. 2012a. Stormwater Pollution Prevention Plan for Selland Auto Transport, Inc., 615 S 96th Street, Seattle, WA. February 27, 2012.

Selland Auto. 2012b. Industrial Stormwater General Permit Annual Report Form for Selland Auto Transport, 615 S 96th St, Seattle, WA. May 9, 2012.

Show Quality Metal (Show Quality Metal Finishing). 2012. Show Quality Metal Finishing Company Website. http://www.metlfin.com/about.html. Retrieved on December 13, 2012.

SKCDPH (Seattle-King County Department of Public Health). 1985. Letter from Wally Swofford, SKCDPH, to Werner Otto, Duwamish Yacht Club. Re: Classification of Dredge Spoils Presently Stored on City Light Property. August 5, 1985.

SKCDPH. 2002. Letter from Peter Isaksen, SKCDPH, to Ken Morehead, Repair Technology Inc. Re: Completed Site Hazard Assessment of the Repair Technology site, 400 S 96th Street, Seattle, WA. March 1, 2002.

SNR. 2009. NPDES Industrial Storm Water Discharge Permit Level 2 and 3 Response Report, PSF Mechanical. February 13, 2009.

Sound Propeller (Sound Propeller Services, Inc.). 2012. Sound Propeller Systems Company Website. http://www.soundpropellersystems.com/services.html. Retrieved October 30, 2012.

SoundEarth (Sound Earth Strategies). 2012. Stormwater pollution Prevention Plan for RMC, Inc., 10766 Myers Way South, Seattle, WA. April 2012.

SPU (Seattle Public Utilities). 2010a. Source Control Inspection Program, Sediment Remediation, Initial Inspection for Johnson Western Gunite Company, 833 S Director Street, Seattle, WA. November 5, 2010.

SPU. 2010b. Source Control Inspection Program, Sediment Remediation, Initial Inspection for Keithly Electric Co., 827 S Director Street, Seattle, WA. November 5, 2010.

SPU. 2010c. Joint Inspection Program, Lower Duwamish Waterway, Screening Inspection for Heavy Haul Specialists, 829 S Director Street, Seattle, WA. November 15, 2010.

SPU. 2010d. Seattle Public Utilities Source Control Program for the Lower Duwamish Waterway, December 2010 Progress Report. December 2010.

Tanner, C. 1991. Potential Intertidal Habitat Restoration Sites in the Duwamish River Estuary. EPA 910/9-91-050. Prepared for Port of Seattle Engineering Department and U.S. Environmental Protection Agency, Seattle, WA. As cited in Windward 2003b.

Tiffany. 2013. Email from Bruce Tiffany, KCIW, to Megan Gay, SAIC. RE: King Electrical Manufacturing – Sea King Industrial Park Source Control Area. June 12, 2013.

ToxGon (ToxGon Corporation). 1996. Letter from William Whitacre, ToxGon Corporation, to James Krull, Ecology. Re: Permit No. SO3000280 Issued to Penberthy Electromelt Int'l, Inc., Notice of Intent: Change of Information. March 28, 1996.

USEPA (United States Environmental Protection Agency). 1995a. EPA News Release, Advance Electroplating. June 26, 1995.

USEPA. 1995b. United States Environmental Protection Agency Advance Electroplating Removal Action. Prepared by Thor Cutler. USEPA. September 2, 1995.

USEPA. 1996. United States Environmental Protection Agency Pollution Report, Advance Electroplating Removal Site. Prepared by Thor Cutler, USEPA. August 15, 1996.

USEPA. 2002. Principles for Managing Contaminated Sediment Risks at Hazardous Waste Sites. OSWER Directive 9285.6-08. U.S. Environmental Protection Agency. February 12, 2002.

USEPA. 2003. Agreement and Covenant Not to Sue South Park Industrial Properties, LLC. In the Matter of: Advance Electroplating and Fruehauf Trailer Services, Seattle, WA. October 15, 2003.

USEPA. 2008a. Letter from Sheila Eckman, EPA, to Ivor Jones, Delta Marine Industries. Re: General Notice of Potential Liability Pursuant to Section 107(a) and Request for Information Pursuant to Section 104(e) of CERCLA, for the Lower Duwamish Waterway Superfund Site, Seattle, Washington. March 25, 2008.

USEPA. 2008b. Letter from Sheila Eckman, EPA, to Michelle Jones, Latitude Forty-Seven LLC. Re: Request for Information Pursuant to Section 104(e) of CERCLA for the Lower Duwamish Waterway Superfund Site, Seattle, Washington. March 25, 2008.

USEPA. 2008c. Letter from Howard Orlean, USEPA, to Annette Llanos, Duwamish Yacht Club. Re: Request for Information Pursuant to Section 104(e) of CERCLA for the Lower Duwamish Waterway Superfund Site, Seattle, Washington. July 17, 2008.

USEPA. 2008d. Letter from Howard Orlean, USEPA, to CT Corporation System, Registered Agent for Sea King Industrial Park LLC, and Sea King Industrial Park LLC. Re: Request for Information Pursuant to Section 104(e) of CERCLA for the Lower Duwamish Waterway Superfund Site, Seattle, Washington. July 17, 2008.

USEPA. 2009a. Letter from Sheila Eckman, USEPA, to Nancy Pellegrino, Mellon Trust of Washington. Re: Request for Information Pursuant to Section 104(e) of CERCLA for the Lower Duwamish Waterway Superfund Site, Seattle, Washington. April 23, 2009.

USEPA. 2009b. Letter from Sheila Eckman, USEPA, to Dan Raymond, Registered Agent for Gary Merlino Construction Co., Inc. Re: Request for Information Pursuant to Section 104(e) of CERCLA for the Lower Duwamish Waterway Superfund Site, Seattle, Washington. July 21, 2009.

USEPA. 2011. Letter from Sheila Eckman, EPA, to Global Intermodal Systems, Inc. Re: Request for Information Pursuant to Section 104(e) of CERCLA for the Lower Duwamish Waterway Superfund Site, Seattle, Washington. May 24, 2011.

USEPA. 2013. Proposed Plan, Lower Duwamish Waterway Superfund Site. U.S. Environmental Protection Agency, Region 10. February 28, 2013.

Warp Corp. 2013. Company Website: http://warpexhibits.com/about.html. Retrieved on January 9, 2013.

WDOH (Washington Department of Health). 2000. Health Consultation for Toxgon Corporation, Seattle, King County, Washington. June 2, 2000.

Western Ports (Western Ports Transportation, Inc.). 2011. Industrial Stormwater General Permit Annual Report Form, Western Ports. May 11, 2011.

Western Ports. 2012. Industrial Stormwater General Permit Annual Report Form, Western Ports. May 15, 2012.

Weston (Roy F. Weston, Inc.). 1999. Site inspection report: Lower Duwamish River, RM 2.5-11.5, Volume 1 – Report and appendices. Prepared for U.S. Environmental Protection Agency Region 10, Seattle, WA. April 1999.

Windward (Windward Environmental LLC). 2003a. Lower Duwamish Waterway Remedial Investigation, Task 5: Identification of Candidate Sites for Early Action, Technical Memorandum: Data Analysis and Candidate Site Identification, Final. Prepared for the Lower Duwamish Waterway Group. June 12, 2003.

Windward (Windward Environmental LLC). 2003b. Lower Duwamish Waterway Remedial Investigation, Phase 1 Remedial Investigation Report, Final. Prepared for the Lower Duwamish Waterway Group. July 3, 2003.

Windward. 2004. Lower Duwamish Waterway Remedial Investigation, Data Report: Survey and Sampling of Lower Duwamish Waterway Seeps, Final. Prepared for the Lower Duwamish Waterway Group. November 18, 2004.

Windward. 2005a. Lower Duwamish Water Remedial Investigation, Data Report: Chemical Analyses of Benthic Invertebrate and Clam Tissue Samples and Co-Located Sediment Samples. Prepared for the Lower Duwamish Waterway Group. May 20, 2005.

Windward. 2005b. Lower Duwamish Waterway Remedial Investigation, Data Report: Round 1 Surface Sediment Sampling for Chemical Analyses and Toxicity Testing Final. Prepared for the Lower Duwamish Waterway Group. October 21, 2005.

Windward. 2005c. Lower Duwamish Waterway Remedial Investigation, Data Report: Round 2 Surface Sediment Sampling for Chemical Analyses and Toxicity Testing Final. Prepared for the Lower Duwamish Waterway Group. December 9, 2005.

Windward. 2007. Lower Duwamish Waterway Remedial Investigation, Phase 2 Remedial Investigation Report, Draft. Prepared for the Lower Duwamish Waterway Group. November 5, 2007.

Windward. 2010a. Lower Duwamish Waterway Remedial Investigation. Technical Memorandum: 2009/2010 Surface Sediment Sampling Results for Dioxins and Furans and Other Chemicals. Prepared by Windward Environmental LLC for the U.S. Environmental Protection Agency and the Washington State Department of Ecology. May 21, 2010.

Windward. 2010b. Lower Duwamish Waterway Remedial Investigation Report. Final. Prepared by Windward Environmental LLC for the Lower Duwamish Waterway Group. July 9, 2010.

Wooldridge (Wooldridge Boats). 2013. Company Website: http://www.wooldridgeboats.com/about-us. Retrieved on January 23, 2013.

Wright. 2010. Lower Duwamish Source Control Status Report - August 1, 2009 to September 30, 2010. November 8, 2010.

YRC Freight. 2013. Company Website. http://www.yrc.com/about/history.html. Retrieved on January 18, 2013.

Zahler et al. 2006. Seattle's South Park (Images of America Series) byAmanda Zahler, Anna Marti and Gary Thomsen.

Tables

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Table 1
Facilities within the Sea King Industrial Park Source Control Area

Ecology Facility/ Site ID	Facility Name	Alternate Name(s)	Facility Address	Zip	Active EPA ID No.	Ecology CSCSL	NPDES Permit	KCIW Discharge Authorization	Ecology UST List	Ecology LUST List	VCP	Ecology NFA Determination	EPA CERCLA Section 104(e) Request for Information	Parcel
Adjacent Facilities														
60381981	Boeing South Park	Boeing Scientific	1420 S Trenton Street	98108	●		●						●	7883608601, 7883608603
6915930	Delta Marine Industries	None	1608 S 96th Street	98108								●		0001600029, 0001600062, 5624200005, 5624200021, 5624200006
22978975	Delta Marine Industries Inc.	None	1608 S 96th Street	98108	●							●		0001600029, 0001600062, 5624200005, 5624200021, 5624200006
21209	Diamond Painting	Sea King Industrial Park	1601 S 92nd Place, Ste B	98108										7619000000
2544945	Diamond Painting LLC 1601	Sea King Industrial Park	1601 S 92nd Place, Ste B	98108										7619000000
None	Duwamish Yacht Club	None	1801 S 93rd Street	98108										0001600061
86343865	Global Intermodal Systems	Delta Marine, ITEL Terminals	1818 S 93rd Street	98108	●		●							0001600029, 0001600062
4154808	International Paint LLC	Sea King Industrial Park	1541 S 92nd Place, Ste C	98108	●									7619000000
42882451	International Paint Warehouse	Sea King Industrial Park	1601 S 92nd Place, Bldg H Ste C	98108	●									7619000000
90355185	KRS Marine	Sea King Industrial Park	1621 S 92nd Place	98108							●			0001600060
67478551	Progressive Medical Corp	Sea King Industrial Park	1600 S 92nd Place, Ste H	98108	●									7619000000
4210684	Protective Coating Consultants Inc.	Sea King Industrial Park	1501 S 92nd Place, Ste A	98108	●									7619000000
5776	Sound Propeller Systems Inc.	Sea King Industrial Park	9130 15th Place S	98108										7619000000
4401006	Ultrapak Printing Inc Former Tenant	Colographics, Colorgraphics Inc. 92nd Place, Colorgraphics Seattle South Park, Sea King Industrial Park	1600 S 92nd Place	98108	●									7619000000
9037205	USEPA Warehouse	Sea King Industrial Park	1620 S 92nd Place, Unit B	98108	●									0001600060
Upland Facilities														
2489	Kaspac Chiyoda Property	Carey Limousine, Cascade Transmission Company, Chiyoda International Corp, Kaspac Corp Seattle, Kaspac Corporation, Tukwila Roofing Co	1237 S Director Street	98108	●				●					0001600016
1143511	Pacific Industrial Supply	Precision Engineering	1231 S Director Street	98108			●							0001600055
2056	Precision Engineering	Pacific Industrial Supply	1231 S Director Street	98108							●			0001600055
Upland Facilities within the S 96th Street Storm Drain														
92548826	4th Ave Paint	South 96th Industrial Park	4th Avenue S & S 96th Street	98108										3224049071
75249294	7 Eleven 232214460	None	9618 4th Avenue SW	98106					●					0623049351
41533396	AAAA Mini Storage	None	1421 S 96th Street	98108	●									5624200390
10207	Absolute German	All City Auto Wrecking & Sales, Inc., MKT Southpark LLC, Pac West Seattle, South Park Chevron	9510 14th Avenue S	98108			●							5624200091, 5624200097
2077	Ace Galvanizing Inc	Architectural Stone Werkes, Merchants Metals Inc., North West Galvanizing	429 S 96th Street	98108	●	●	●		●				●	0523049008
2079	Advance Electroplating	Advance Co Inc., CB Finishing Inc., Concrete Restoration, CRJ Construction Co, Pro Weld, Show Quality Metal Finishing, South Park Industrial Properties LLC	9585 8th Avenue S	98108	●	●	●		●					5624200208
82395194	Aero-Lac Inc.	South 96th Industrial Park	420 S 96th Street, Ste 11	98108										3224049071
25327412	Ahrenius Manufacturing Inc.	Frog Hollow Corp	1425 S 93rd Street	98108	●									0001600042
22342251	All City Auto Wrecking & Sales Inc.	Absolute German, MKT Southpark LLC, Pac West Seattle, South Park Chevron	9438 Des Moines Memorial Drive	98108	●						●			5624200091, 5624200097

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5469634	Allied Body Works Inc.	None	625 S 96th Street	98108	●		●							5624200232
21995	Architectural Stone Werkes	Ace Galvanizing	429 S 96th Street	98108			●							0523049008
73914265	ARCO Service Station 4375	None	11215 8th Avenue S	98168							●			3361400006
2882470	AT&T Wireless South Park	None	9128 10th Avenue S	98108										
17553	Atacs Products Inc. Seattle	PNP Properties LLC	860 S Cambridge Street	98108										2433700074
16677	Atomic Fabrications	South 93rd Business Park	1605 S 93rd Street, Bldg E Unit R	98108			●							0001600050
21231	Avidex Industries	Proline/Avidex, PNP Properties LLC	860 S Cambridge Street	98108										2433700074
19959367	Bayside Automotive Storage Inc	Holnam Markey, Markey Property Parcel 4, Sea Con Property, NRC Environmental Services, Teris LLC DBA Division Transport	NE Corner of 96th Street & 10th Avenue S	98108	●									5624200150
11358859	Boulevard Park Chevron	None	805 S 112th Street	98168					●					3361400006
4914795	CB Finishing	Advance Eletroplating, Advance Co Inc., Concrete Restoration, CRJ Construction Co, Pro Weld, Show Quality Metal Finishing, South Park Industrial Properties LLC	9587 8th Avenue S	98108			●	●						5624200208
11972772	Centimark Corp Seattle Office	South 96th Industrial Park	430 S 96th Street	98108	●									3224049071
3479178	Cliff Housers Automotive	509 Auto Repair, James Shilling, Strickland Property	806 S 112th Street	98168	●	●			●	●				0797000181
1852542	Clyde West Inc.	Bidaboo Auctions	9615 West Marginal Way S 98108											5624200411
67814731	Container Care Puget Sound	Western Ports Containers, Western Ports Transportation	9600 8th Avenue S	98108	●		●							2433200165, 5624200270, 5624200290, 5624200291
12865	Custom Metal Spinning LLC	South 93rd Business Park	9330 15th Avenue S, Unit C	98108										0001600050
89923232	DEOX	South 93rd Business Park	1605 S 93rd Street, Bldg E Unit C	98108	●									0001600050
91322212	Desimone Trust	None	9365 7th Avenue S	98168							●			
75318226	Duwamish Manor	Duwamish Manor Industrial Park, South 93rd Business Park	9320 15th Avenue S	98108	●									0001600050
41379359	Duwamish Manor Industrial Park	Duwamish Manor, South 93rd Business Park	9320 15th Avenue S	98108	●									0001600050
95735434	Ecolights Northwest LLC	Western United Fish Company	9411 8th Avenue S, Ste 3	98108	●									5624200210
15029	Emerald City Machine	R&R Services	160 S 108th Street	98168										0795001795, 0795001800, 0795001805
47625361	Federal Express Corp BFI	South 93rd Business Park	9320 15th Avenue S	98108	●									0001600050
23352	Filterfresh Coffee Service Inc	None	9243 10th Avenue S	98108										2433700075
24384	Frog Hollow Corp	Ahrenius Manufacturing Inc.	1425 S 93rd Street	98108										0001600042
27446996	Fruehauf Trailer Inc Seattle	Terex Utilities	9426 8th Avenue S	98108	●	●			●	●				5624200170, 5624200191
7727938	Gary Merlino Construction Company	Gary Merlino Construction Office BD, former Thomas Equipment Rental	9125 10th Avenue S	98108			●		●	●			●	2433700015, 2433700055, 2433700095, 2433200185
18369741	Glen Acres Home Association	None	1000 S 112th Street	98168						●				0523049022, 0797000126, 0797000127, 0799000026
1557860	Halfon Candy Co.	None	9229 10th Avenue S	98108		●								2433700076

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93252843	ICON Materials Seattle Asphalt	MA Sagale Inc. Seattle Plant, MA Segale Inc. Seattle Asphalt Plant, Sunnydale Construction Company	1115 S 96th Street	98108	●		●			●				5624200330, 5624200335, 5624200310, 5624200311
74236527	Industrial Automation Inc	None	1421 S 93rd Street	98108	●		●							0001600042, 0001600037
11797661	Karawis Inc.	Top Hat Mini Mart	10723 1st Avenue S	98168					●					1721801935
1502	King County Housing Authority	None	9606 4th Avenue SW	98106	●									0623049351, 0623049352, 0623049387
45994892	King County Radio Shop UST 455634	None	112th Street & 3rd Avenue SW	98181					●					0623049375
2404488	King Electrical Mfg Co	None	9131 10th Avenue S	98108	●		●						●	2433700068, 2433700105
12901	Koepping & Koepping	South 93rd Business Park	1705 S 93rd Street, Bldg F7	98108										0001600050
2263	Markey Property Parcel 4	Bayside Automotive Storage, Holnam Markey, NRC Environmental Services, Sea Con Property, Sherwin Williams, Simplex Grinnell, Teris LLC dba Division Transport	9520 10th Avenue S	98108		●					●	●		5624200150
3546421	Mason Dixon Intermodal Inc.	None	9515 10th Avenue S	98108	●									5624200170
36919863	McKinstry Co S Barton St	None	855 S Barton Street	98108	●				●					2433700070
41534652	Merchants Metals Inc	Ace Galvanizing	429 1/2 S 96th Street	98108	●									0523049008
231954	MKT Southpark LLC	Absolute German, All City Auto Wrecking & Sales, Inc., Pac West Seattle, South Park Chevron	9525 14th Avenue S	98108										5624200091, 5624200097
42665774	Morgan Trucking Inc Seattle	MacMillan Piper	9228 10th Avenue S	98108	●				●					2433700165
2347	Norman Property	BMW of Seattle, Highland Park, Norman Enterprises Inc.	11603 10th Avenue S	98168		●	●					●		3361402095
14839	Northwest Connecting Rod	South 93rd Business Park	1705 S 93rd Street, Unit F7	98108										0001600050
19871	NRC Environmental Services	Bayside Automotive Storage, Holnam Markey, Markey Property Parcel 4, Sea Con Property, Sherwin Williams, Simplex Grinnell, Teris LLC dba Division Transport	9520 10th Avenue S, Ste 150	98108	●									5624200150
3533187	Pacific Material Handling Solutions	Beckwith and Kuffel, FMH Material Handling Solutions, Clarklift of Washington Alaska Inc., Darr FMH	1313 S 96th Street	98108			●		●	●				5624200351
86136757	Pacific Utility Equipment Co	Wooldridge Boats Inc.	1303 S 96th Street	98108	●		●							5624200360
37593895	Professional Coating, Inc.	South 93rd Business Park	1705 S 93rd Street, Unit F22	98108										0001600050
9246491	Progressive Fastening Inc	None	837 Director Street	98108	●									2433700015
75934919	Property Abandoned Centers DOT	None	Corner of S 96th Street & 4th Avenue S	98108	●									
29834194	Propulsion Controls Engineering	South 93rd Business Park	1705 S 93rd Street, Unit F10	98108	●									0001600050
76299717	PSF Industries Inc. Field Yard	None	9332 14th Avenue S	98108	●									0001600046
18451551	PSF Mechanical Inc.	None	9322 14th Avenue S	98108	●		●							0001600046
13397378	Puget Sound Coatings Inc.	Puget Sound Coatings Machinists Inc.	9400 8th Avenue S	98108	●						●			5624200190
97263627	Puget Sound Coatings Machinists Inc.	Puget Sound Coatings Inc.	9220 8th Avenue S	98108	●		●		●	●			●	2433200215
12462	Qual Fab Inc	South 93rd Business Park	1705 S 93rd Street, Bldg F Unit 11	98108										0001600050
96526349	R&J Autobody Inc.	The T&H Autobody	10832 Myers Way S	98168	●									0795000035

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2080	Repair Technology Inc.	Advance Hard Chrome Inc., South 96th Industrial Park	400 S 96th Street	98108	●	●		●				●	●	3224049071
18925	RMC Inc.	RMC Powder Coating	10766 Myers Way S	98168			●							0795001560
2058	S 96th Street Ditch	None	S 96th Street & Duwamish River	98108		●								
16779	Security Contractor Services, Inc.	Penberthy Electromelt, Remedco, ToxGon, Warp Corp	9619 8th Avenue S	98108			●							5624200250
37752719	Selland Auto Transport	None	615 S 96th Street	98108-	●	●	●		●	●	●			5624200230
39258864	Sherwin Williams Store 4317	Bayside Automotive, Holnam Markey, Markey Property Parcel 4, NRC Environmental Services, Sea Con Property, Simplex Grinnell, Teris LLC dba Division Transport	9530 10th Avenue S	98108	●		●							5624200150
2236438	Simplex Grinnell	Bayside Automotive, Holnam Markey, Markey Property Parcel 4, NRC Environmental Services, Sea Con Property, Sherwin Williams, Teris LLC dba Division Transport	9520 10th Avenue S, Ste 100	98108										5624200150
21077	SKBA Buddhist Temple	None	9910 8th Avenue S	98168			●							5624200573
26432659	Sound Delivery Service	Rasmusson Wire Rope	9999 8th Avenue S 720 S 100th Street	98138										0523049010
27778576	South Park Chevron	Absolute German, All City Auto Wrecking & Sales, Inc., MKT Southpark LLC, Pac West Seattle	9525 14th Avenue S	98108					●					5624200091, 5624200097
48248356	Sunnydale Construction Co. Inc.	ICON Materials Asphalt Plant	1119 S 96th Street	98108					●	●				5624200330
3291	Terex Utilities	Fruehauf Trailer Services	9426 8th Avenue S	98108			●							5624200191
79578412	Teris LLC	NRC Environmental Services, Teris LLC dba Division Transport	9520 10th Avenue S, Ste 150	98108	●									5624200150
74799553	Terrel Sommers Inc	None	9508 8th Avenue S	98108	●									
69951382	Thomas Equipment Rental	Gary Merlino Construction Company	827 S Director Street	98108	●									2433700015, 2433700055, 2433700095, 2433200185
2329	ToxGon Corp Seattle	Penberthy Electromelt, Remedco, Security Contractor Services, Warp Corp	631 S 96th Street	98108	●	●						●		5624200253
7327447	United States Seafoods	South 93rd Business Park	1605 S 93rd Street, Unit EH	98108	●									0001600050
21141463	USEPA Technical Assistance Team Warehouse	South 93rd Business Park	1605 S 93rd Street, Bldg E Unit R	98108	●									0001600050
17115	WA DOT SR 99 ITS Project	None	SR599 SR99 & SR509	98168			●							
24029	Warp Corp	Penberthy Electromelt, Remedco, Security Contractor Services, ToxGon	631 S 96th Street	98108			●							5624200253
2463219	Western United Fish Company	Ecolights Northwest LLC	9411 8th Avenue S	98108				●						5624200210
18788836	YRC Inc. Seattle	Desimone Trust Property, Old Dominion Freight Line Inc., Roadway Express Inc. 96th, Roadway Express Inc. T8870	600 S 96th Street	98108	●		●							3224049034, 5624200211, 562400212, 5624200213

Table 2
Sediment Samples Collected Near the Sea King Industrial Park Source Control Area

EventName	Location Name	Date Collected	Collection Depth (feet)	Metals	SVOCs[a]	PCBs	Dioxins/ Furans	Organo-metals	VOCs	Pesticides	Source
S 96th Street Water Quality Engineering Report	96-8	4/27/1993	Surface	•	•						Herrera 1994
Boeing Site Characterization	R20	10/10/1997	Surface	•	•	•					Windward 2003b
	R25	10/9/1997		•	•	•					
	R28	10/10/1997		•	•	•					
	R29	10/9/1997		•	•	•					
	R32	10/10/1997		•	•	•					
	R33	10/9/1997		•	•	•					
	R36	10/10/1997		•	•	•					
	R37	10/9/1997		•	•	•					
NOAA Site Characterization	WIT258	10/1/1997	Surface			•[b]					Windward 2003b
	WIT259	10/1/1997				•[b]					
	WIT262	10/16/1997				•[b]					
	WIT263	10/16/1997				•[b]					
	WIT264	10/2/1997				•[b]					
	WIT268	10/14/1997				•[b]					
	WST308	10/1/1997				•[b]					
	WST309	10/1/1997				•[b]					
	WST311	11/13/1997				•[b]					
	WST312	10/23/1997				•[b]					
	WST314	10/1/1997				•[b]					
	WST315	11/12/1997				•[b]					
EPA Site Investigation	DR209	8/27/1998	Surface	•	•	•					Weston 1999
	DR210	8/25/1998		•	•	•		•			
	DR211	8/25/1998		•	•	•					
	DR258	8/25/1998		•	•	•		•	•	•	
	DR259	8/25/1998		•	•	•					
	DR262	9/1/1998		•	•	•		•			
	DR263	8/25/1998		•	•	•					
	DR264	8/26/1998		•	•	•	•	•			
	DR284	8/25/1998		•	•	•	•	•	•	•	
	DR285	8/25/1998		•	•	•					
Dredge Material Characterization Duwamish Yacht Club	C1	3/4/1999	>0.5	•	•	•		•		•	Windward 2003b
	C2	3/4/1999	>0.5	•	•	•		•		•	
	C3	3/4/1999	>0.5	•	•	•		•		•	
	C4	3/4/1999	>0.5	•	•	•		•		•	
	C5	3/4/1999	>0.5	•	•	•		•		•	
	C6	3/4/1999	>0.5	•	•	•		•		•	

Table 2
Sediment Samples Collected Near the Sea King Industrial Park Source Control Area

EventName	Location Name	Date Collected	Collection Depth (feet)	Metals	SVOCs[a]	PCBs	Dioxins/ Furans	Organo-metals	VOCs	Pesticides	Source
LDWRI Benthic	B10b	8/19/2004	Surface	●	●	●		●		●	Windward 2005a
LDWRI Phase 2 Round 1	LDW-SS113b	1/20/2005	Surface	●	●	●				●	Windward 2005b, 2005c, 2007
	LDW-SS117	1/20/2005		●	●	●					
	LDW-SS134	1/24/2005		●	●	●				●	
LDWRI Phase 2 Round 2	LDW-SS122	3/8/2005	Surface	●	●	●					Windward 2005b, 2005c, 2007
	LDW-SS124	3/15/2005		●	●	●		●			
	LDW-SS131	3/8/2005		●	●	●		●		●	
	LDW-SS133	3/9/2005		●	●	●		●		●	
	LDW-SS135	3/15/2005		●	●	●					
	LDW-SS136	3/15/2005		●	●	●					
LDW Subsurface Sediment 2006	LDW-SC54	2/23/2006	0 - 2	●	●	●				●	Windward 2007
		2/23/2006	2 - 4	●	●	●				●	
LDW Dioxin Sampling	LDW-SS542	12/17/2009	Surface				●				Windward 2010a
	LDW-SS544-comp	1/12/2010		●	●	●	●				
LDW Outfall Sampling	LDW-SSSP1-A	3/24/2011	Surface	●	●	●					SAIC 2011
	LDW-SSSP1-D	3/24/2011		●	●	●					
	LDW-SSSP1-U	3/24/2011		●	●	●					
	LDW-SSSP2-A	3/24/2011		●	●	●					
	LDW-SSSP2-D	3/24/2011		●	●	●					
	LDW-SSSP2-U	3/24/2011		●	●	●					
	LDW-SSSP3-A	3/24/2011		●	●	●					
	LDW-SSSP3-D	3/24/2011		●	●	●	●				
	LDW-SSSP3-U	3/24/2011		●	●	●					

SVOCs- semi-volatile organic compounds
PCBs - polychlorinated biphenyls
VOCs - volatile organic compounds
PAHs - polycyclic aromatic hydrocarbons

a - SVOCs includes PAHs and phthalates
b - Samples also analyzed for polychlorinated terphenyls

Table 3
Chemicals Detected Above Screening Levels in Surface Sediment Samples
Near the Sea King Industrial Park Source Control Area

Event Name	Location Name	Date Collected	Chemical	Conc'n (mg/kg DW)	TOC %	Conc'n (mg/kg OC)	SQS	CSL	Units	SQS Exceedance Factor	CSL Exceedance Factor
Metals											
EPA Site Investigation	DR210	8/25/1998	Mercury	4.60E-01	1.45		0.41	0.59	mg/kg DW	1.1	<1
LDW Outfall Sampling	LDW-SSSP3-A	3/24/2011	Zinc	1.44E+03 J	1.56		410	960	mg/kg DW	3.5	1.5
S 96th Street WQ Engineering Report	96-8	4/27/1993	Zinc	5.00E+02	2.17		410	960	mg/kg DW	1.2	<1
PAHs											
S 96th Street WQ Engineering Report	96-8	4/27/1993	Benzo(g,h,i)perylene	8.20E-01 M	2.17	3.78E+01	31	78	mg/kg OC	1.2	<1
S 96th Street WQ Engineering Report	96-8	4/27/1993	Dibenzo(a,h)anthracene	6.80E-01	2.17	3.13E+01	12	33	mg/kg OC	2.6	<1
Phthalates											
EPA Site Investigation	DR258	8/25/1998	Butyl benzyl phthalate	1.00E-01	1.55	6.50E+00	4.9	64	mg/kg OC	1.3	<1
Other SVOCs											
LDW Outfall Sampling	LDW-SSSP3-A	3/24/2011	Benzyl alcohol	1.80E-01	1.56		0.057	0.073	mg/kg DW	3.2	2.5
PCBs											
LDW Outfall Sampling	LDW-SSSP1-U	3/24/2011	PCBs (total calc'd)	2.00E-01	0.553	3.60E+01	12	65	mg/kg OC	3	<1
LDWRI-Surface Sediment Round 2	LDW-SS122	3/8/2005	PCBs (total calc'd)	3.70E-01	1.35	2.70E+01	12	65	mg/kg OC	2.3	<1
EPA Site Investigation	DR210	8/25/1998	PCBs (total calc'd)	3.80E-01	1.45	2.60E+01	12	65	mg/kg OC	2.2	<1
NOAA Site Characterization	WIT258	10/1/1997	PCBs (total-calc'd)	3.40E-01	1.59	2.14E+01	12	65	mg/kg OC	1.8	<1
Boeing Site Characterization	R20	10/10/1997	PCBs (total calc'd)	1.70E-01	0.82	2.07E+01	12	65	mg/kg OC	1.7	<1

mg/kg - milligram per kilogram
ug/kg - microgram per kilogram
ng/kg - nanogram per kilogram
DW - dry weight
TOC - total organic carbon
OC - organic carbon normalized
SQS - SMS Sediment Quality Standard
CSL - SMS Cleanup Screening Level
SMS - Sediment Management Standard (Washington Administrative Code 173-204)
PAHs - polycyclic aromatic hydrocarbons
SVOCs - semi-volatile organic compounds
PCB - polychlorinated biphenyl
J - Estimated value between the method detection limit and the laboratory reporting limit
LDW - Lower Duwamish Waterway
TEQ - toxic equivalency

Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentrations to the CSL or SQS; exceedance factors are shown only if they are greater than 1.
Sampling events are listed in Table 1.

Table 4
Chemicals Detected Above Screening Levels in Soil
S 96th Street Storm Drain Basin

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
S 96th Street Drain									
Herrera 1994	4/6/1993	96-19	0	Acenaphthene	0.3	4,800	0.06	<1	5.0
E&E 1987a	11/13/86	PF5		Aroclor 1254	0.26	0.5	0.065	<1	4.0
E&E 1987b	6/12/87	K-1		Aroclor 1254	0.22	0.5	0.065	<1	3.4
Hong West 1995	Dec-93	DSG-9		Arsenic	70	0.67	590	104	<1
Hong West 1995	Nov-93	DS-24		Arsenic	50	0.67	590	75	<1
Hong West 1995	Nov-93	DS-10		Arsenic	38	0.67	590	57	<1
Hong West 1995	Dec-93	DSG-12		Arsenic	32	0.67	590	48	<1
Hong West 1995	Nov-93	DS-25		Arsenic	30	0.67	590	45	<1
Herrera 1994	4/6/1993	96-16	0	Arsenic	20	0.67	590	30	<1
Hong West 1995	Nov-93	DS-6		Arsenic	20	0.67	590	30	<1
Hong West 1995	Nov-93	DS-12		Arsenic	20	0.67	590	30	<1
Hong West 1995	Nov-93	DS-32		Arsenic	20	0.67	590	30	<1
Hong West 1995	Nov-93	DS-26		Arsenic	17	0.67	590	25	<1
Hong West 1995	Nov-93	DS-30		Arsenic	16	0.67	590	24	<1
Hong West 1995	Nov-93	DS-33		Arsenic	16	0.67	590	24	<1
Hong West 1995	Nov-93	DS-1		Arsenic	15	0.67	590	22	<1
Hong West 1995	Nov-93	DS-2		Arsenic	15	0.67	590	22	<1
Hong West 1995	Nov-93	DS-3		Arsenic	14	0.67	590	21	<1
Hong West 1995	Nov-93	DS-8		Arsenic	14	0.67	590	21	<1
Hong West 1995	Nov-93	DS-11		Arsenic	14	0.67	590	21	<1
Hong West 1995	Nov-93	DS-29		Arsenic	14	0.67	590	21	<1
Hong West 1995	Nov-93	DS-31		Arsenic	14	0.67	590	21	<1
Hong West 1995	Nov-93	DS-5		Arsenic	13	0.67	590	19	<1
Hong West 1995	Nov-93	DS-20		Arsenic	12	0.67	590	18	<1
Hong West 1995	Nov-93	DS-21		Arsenic	12	0.67	590	18	<1
Hong West 1995	Dec-93	DSG-18		Arsenic	12	0.67	590	18	<1
Hong West 1995	Nov-93	DS-4		Arsenic	11	0.67	590	16	<1
Hong West 1995	Nov-93	DS-28		Arsenic	11	0.67	590	16	<1
Hong West 1995	Nov-93	DS-34		Arsenic	11	0.67	590	16	<1
Hong West 1995	Nov-93	DS-27		Arsenic	10	0.67	590	15	<1
Hong West 1995	Nov-93	DS-22		Arsenic	9.3	0.67	590	14	<1
Hong West 1995	Dec-93	DSG-22		Arsenic	9.3	0.67	590	14	<1
Hong West 1995	Nov-93	DS-14		Arsenic	9.2	0.67	590	14	<1
Hong West 1995	Nov-93	DS-19		Arsenic	9.0	0.67	590	13	<1
E&E 1987a	11/13/86	PF1		Arsenic	8.47	0.67	590	13	<1
Hong West 1995	Nov-93	DS-13		Arsenic	8.3	0.67	590	12	<1

Table 4
Chemicals Detected Above Screening Levels in Soil
S 96th Street Storm Drain Basin

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Hong West 1995	Nov-93	DS-16		Arsenic	8	0.67	590	12	<1
Hong West 1995	Nov-93	DS-9		Arsenic	7.8	0.67	590	12	<1
E&E 1987a	11/13/86	PF5		Arsenic	7.74	0.67	590	12	<1
E&E 1987a	11/13/86	PF4		Arsenic	6.98	0.67	590	10	<1
Hong West 1995	Nov-93	DS-17		Arsenic	6.5	0.67	590	9.7	<1
E&E 1987a	11/13/86	PF6		Arsenic	6	0.67	590	9.1	<1
E&E 1987a	11/13/86	PF2		Arsenic	5.85	0.67	590	8.7	<1
Herrera 1994	4/6/1993	96-19	0	Arsenic	5.1	0.67	590	7.6	<1
Hong West 1995	Dec-93	DSG-9		Benzene	0.12	0.03		4.0	
E&E 1987b	6/12/87	K-1		Benzo(a)anthracene	21	1.37	0.27	15	78
E&E 1987b	6/12/87	K-1		Benzo(a)pyrene	880	0.137	0.21	6,423	4,190
E&E 1987a	11/13/86	PF1		Bis(2-ethylhexyl)phthalate	3.9	71	0.078	<1	50
E&E 1987a	11/13/86	PF3		Bis(2-ethylhexyl)phthalate	1.6	71	0.078	<1	21
E&E 1987a	11/13/86	PF4		Bis(2-ethylhexyl)phthalate	0.63	71	0.078	<1	8.1
Herrera 1994	4/6/1993	96-16	0	Cadmium	8.5	2	1.7	4.3	5.0
Hong West 1995	Dec-93	DSG-9		Cadmium	5.6	2	1.7	2.8	3.3
Hong West 1995	Nov-93	DS-21		Cadmium	5.4	2	1.7	2.7	3.2
Hong West 1995	Nov-93	DS-20		Cadmium	4.9	2	1.7	2.5	2.9
Hong West 1995	Nov-93	DS-6		Cadmium	4.5	2	1.7	2.3	2.6
Hong West 1995	Nov-93	DS-23		Cadmium	4.5	2	1.7	2.3	2.6
Hong West 1995	Nov-93	DS-5		Cadmium	4.2	2	1.7	2.1	2.5
Hong West 1995	Nov-93	DS-22		Cadmium	4	2	1.7	2.0	2.4
Hong West 1995	Nov-93	DS-24		Cadmium	3.9	2	1.7	2.0	2.3
Hong West 1995	Nov-93	DS-8		Cadmium	3.7	2	1.7	1.9	2.2
Hong West 1995	Nov-93	DS-12		Cadmium	3.7	2	1.7	1.9	2.2
Hong West 1995	Nov-93	DS-19		Cadmium	3.7	2	1.7	1.9	2.2
Hong West 1995	Nov-93	DS-10		Cadmium	3.5	2	1.7	1.8	2.1
Hong West 1995	Nov-93	DS-27		Cadmium	3.3	2	1.7	1.7	1.9
Hong West 1995	Nov-93	DS-14		Cadmium	3.1	2	1.7	1.6	1.8
Hong West 1995	Nov-93	DS-34		Cadmium	2.8	2	1.7	1.4	1.6
Hong West 1995	Nov-93	DS-33		Cadmium	2.7	2	1.7	1.4	1.6
Hong West 1995	Nov-93	DS-4		Cadmium	2.6	2	1.7	1.3	1.5
Hong West 1995	Nov-93	DS-1		Cadmium	2.5	2	1.7	1.3	1.5
Hong West 1995	Nov-93	DS-11		Cadmium	2.5	2	1.7	1.3	1.5
Hong West 1995	Nov-93	DS-3		Cadmium	2.4	2	1.7	1.2	1.4
Hong West 1995	Nov-93	DS-18		Cadmium	2.3	2	1.7	1.2	1.4
Hong West 1995	Dec-93	DSG-18		Cadmium	2.3	2	1.7	1.2	1.4

Table 4
Chemicals Detected Above Screening Levels in Soil
S 96th Street Storm Drain Basin

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Hong West 1995	Nov-93	DS-7		Cadmium	2.2	2	1.7	1.1	1.3
Hong West 1995	Nov-93	DS-13		Cadmium	2.2	2	1.7	1.1	1.3
Hong West 1995	Nov-93	DS-15		Cadmium	2.1	2	1.7	1.1	1.2
Hong West 1995	Dec-93	DSG-12		Cadmium	2.1	2	1.7	1.1	1.2
Hong West 1995	Dec-93	DSG-22		Cadmium	2.1	2	1.7	1.1	1.2
Hong West 1995	Nov-93	DS-26		Cadmium	2.0	2	1.7	1.0	1.2
Hong West 1995	Nov-93	DS-32		Cadmium	2.0	2	1.7	1.0	1.2
Hong West 1995	Nov-93	DS-17		Cadmium	1.9	2	1.7	<1	1.1
Hong West 1995	Nov-93	DS-25		Cadmium	1.9	2	1.7	<1	1.1
Hong West 1995	Nov-93	DS-2		Cadmium	1.8	2	1.7	<1	1.1
E&E 1987b	6/12/87	K-1		Chrysene	52	137	0.46	<1	113
Herrera 1994	4/6/1993	96-16	0	Copper	168	3,200	39	<1	4.3
Hong West 1995	Nov-93	DS-6		Copper	150	3,200	39	<1	3.8
Hong West 1995	Nov-93	DS-5		Copper	140	3,200	39	<1	3.6
Hong West 1995	Nov-93	DS-3		Copper	130	3,200	39	<1	3.3
Hong West 1995	Nov-93	DS-8		Copper	130	3,200	39	<1	3.3
Hong West 1995	Nov-93	DS-10		Copper	100	3,200	39	<1	2.6
Hong West 1995	Nov-93	DS-20		Copper	100	3,200	39	<1	2.6
Hong West 1995	Dec-93	DSG-9		Copper	100	3,200	39	<1	2.6
Hong West 1995	Nov-93	DS-21		Copper	97	3,200	39	<1	2.5
Hong West 1995	Nov-93	DS-11		Copper	93	3,200	39	<1	2.4
Hong West 1995	Nov-93	DS-1		Copper	90	3,200	39	<1	2.3
Hong West 1995	Nov-93	DS-19		Copper	90	3,200	39	<1	2.3
Hong West 1995	Nov-93	DS-7		Copper	89	3,200	39	<1	2.3
Hong West 1995	Nov-93	DS-23		Copper	86	3,200	39	<1	2.2
Hong West 1995	Nov-93	DS-24		Copper	86	3,200	39	<1	2.2
Hong West 1995	Nov-93	DS-2		Copper	80	3,200	39	<1	2.1
Hong West 1995	Nov-93	DS-4		Copper	72	3,200	39	<1	1.8
Hong West 1995	Nov-93	DS-12		Copper	72	3,200	39	<1	1.8
Hong West 1995	Nov-93	DS-22		Copper	66	3,200	39	<1	1.7
Hong West 1995	Nov-93	DS-28		Copper	65	3,200	39	<1	1.7
Hong West 1995	Dec-93	DSG-22		Copper	63	3,200	39	<1	1.6
Hong West 1995	Dec-93	DSG-18		Copper	60	3,200	39	<1	1.5
Hong West 1995	Nov-93	DS-30		Copper	59	3,200	39	<1	1.5
Hong West 1995	Nov-93	DS-15		Copper	55	3,200	39	<1	1.4
E&E 1987a	11/13/86	PF3		Copper	54.2	3,200	39	<1	1.4
Hong West 1995	Nov-93	DS-25		Copper	53	3,200	39	<1	1.4

Table 4
Chemicals Detected Above Screening Levels in Soil
S 96th Street Storm Drain Basin

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Hong West 1995	Nov-93	DS-14		Copper	52	3,200	39	<1	1.3
Hong West 1995	Nov-93	DS-26		Copper	51	3,200	39	<1	1.3
Hong West 1995	Nov-93	DS-13		Copper	48	3,200	39	<1	1.2
Hong West 1995	Nov-93	DS-17		Copper	48	3,200	39	<1	1.2
Hong West 1995	Nov-93	DS-34		Copper	46	3,200	39	<1	1.2
Hong West 1995	Nov-93	DS-16		Copper	42	3,200	39	<1	1.1
Hong West 1995	Nov-93	DS-18		Copper	42	3,200	39	<1	1.1
E&E 1987a	11/13/86	PF1		Copper	41.3	3,200	39	<1	1.1
Hong West 1995	Nov-93	DS-33		Copper	41	3,200	39	<1	1.1
Hong West 1995	Dec-93	DSG-12		Diesel-range hydrocarbons	8,000	2,000		4.0	
Hong West 1995	Dec-93	DSG-9		Diesel-range hydrocarbons	3,000	2,000		1.5	
Hong West 1995	Dec-93	DSG-12		Gasoline-range hydrocarbons	760	30		25	
Hong West 1995	Dec-93	DSG-9		Gasoline-range hydrocarbons	68	30		2.3	
Hong West 1995	Dec-93	DSG-9		Heavy-oil range hydrocarbons	46,000	2,000		23	
Hong West 1995	Dec-93	DSG-12		Heavy-oil range hydrocarbons	27,000	2,000		14	
Hong West 1995	Dec-93	DSG-18		Heavy-oil range hydrocarbons	6,200	2,000		3.1	
Hong West 1995	Dec-93	DSG-22		Heavy-oil range hydrocarbons	4,500	2,000		2.3	
E&E 1987b	6/12/87	K-1		Indeno(1,2,3-cd)pyrene	5	1.37	0.088	3.6	57
Hong West 1995	Nov-93	DS-24		Lead	320	250	67	1.3	4.8
Hong West 1995	Nov-93	DS-34		Lead	320	250	67	1.3	4.8
Hong West 1995	Dec-93	DSG-9		Lead	260	250	67	1.0	3.9
Hong West 1995	Nov-93	DS-33		Lead	240	250	67	<1	3.6
Hong West 1995	Nov-93	DS-23		Lead	190	250	67	<1	2.8
Hong West 1995	Nov-93	DS-20		Lead	140	250	67	<1	2.1
Hong West 1995	Nov-93	DS-26		Lead	140	250	67	<1	2.1
Hong West 1995	Nov-93	DS-28		Lead	140	250	67	<1	2.1
E&E 1987a	11/13/86	PF1		Lead	131	250	67	<1	2.0
Hong West 1995	Nov-93	DS-8		Lead	130	250	67	<1	1.9
Hong West 1995	Nov-93	DS-10		Lead	130	250	67	<1	1.9
Hong West 1995	Nov-93	DS-19		Lead	130	250	67	<1	1.9
Hong West 1995	Nov-93	DS-3		Lead	120	250	67	<1	1.8
Hong West 1995	Nov-93	DS-21		Lead	120	250	67	<1	1.8
Hong West 1995	Nov-93	DS-27		Lead	120	250	67	<1	1.8
Hong West 1995	Nov-93	DS-1		Lead	100	250	67	<1	1.5
Hong West 1995	Nov-93	DS-22		Lead	100	250	67	<1	1.5
Hong West 1995	Nov-93	DS-30		Lead	96	250	67	<1	1.4
Hong West 1995	Nov-93	DS-29		Lead	95	250	67	<1	1.4

Table 4
Chemicals Detected Above Screening Levels in Soil
S 96th Street Storm Drain Basin

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Hong West 1995	Dec-93	DSG-22		Lead	87	250	67	<1	1.3
Hong West 1995	Nov-93	DS-11		Lead	81	250	67	<1	1.2
Hong West 1995	Nov-93	DS-12		Lead	81	250	67	<1	1.2
Hong West 1995	Nov-93	DS-5		Lead	77	250	67	<1	1.1
Hong West 1995	Nov-93	DS-25		Lead	74	250	67	<1	1.1
Hong West 1995	Nov-93	DS-6		Lead	71	250	67	<1	1.1
Hong West 1995	Nov-93	DS-19		Mercury	9.9	2	0.03	5.0	330
Hong West 1995	Nov-93	DS-33		Mercury	0.54	2	0.03	<1	18
Hong West 1995	Nov-93	DS-23		Mercury	0.22	2	0.03	<1	7.3
Herrera 1994	4/6/1993	96-16	0	Mercury	0.2	2	0.03	<1	6.7
Hong West 1995	Dec-93	DSG-9		Mercury	0.18	2	0.03	<1	6.0
Hong West 1995	Nov-93	DS-3		Mercury	0.15	2	0.03	<1	5.0
Hong West 1995	Nov-93	DS-10		Mercury	0.15	2	0.03	<1	5.0
Hong West 1995	Nov-93	DS-34		Mercury	0.14	2	0.03	<1	4.7
Hong West 1995	Dec-93	PCB-2A		PCBs, total	0.5	0.5	0.065	1.0	7.7
Hong West 1995	Dec-93	PCB-1B		PCBs, total	0.3	0.5	0.065	<1	4.6
Hong West 1995	Dec-93	DSG-9		Phenanthrene	1.2 J		0.49		2.4
E&E 1987b	6/12/87	K-1		Pyrene	27	2,400	1.4	<1	19
Hong West 1995	Nov-93	DS-28		Silver	2.5	400	0.61	<1	4.1
Hong West 1995	Nov-93	DS-29		Silver	2.5	400	0.61	<1	4.1
Herrera 1994	4/6/1993	96-16	0	Silver	1	400	0.61	<1	1.6
Hong West 1995	Nov-93	DS-30		Silver	1	400	0.61	<1	1.6
Hong West 1995	Nov-93	DS-27		Silver	0.67	400	0.61	<1	1.1
Herrera 1994	4/6/1993	96-16	0	Total petroleum hydrocarbons	24,000	2,000		12	
Hong West 1995	Nov-93	DS-12		Total petroleum hydrocarbons	13,000	2,000		6.5	
Hong West 1995	Nov-93	DS-23		Total petroleum hydrocarbons	9,400	2,000		4.7	
Hong West 1995	Nov-93	DS-14		Total petroleum hydrocarbons	5,900	2,000		3.0	
Hong West 1995	Nov-93	DS-18		Total petroleum hydrocarbons	4,400	2,000		2.2	
Hong West 1995	Nov-93	DS-22		Total petroleum hydrocarbons	3,500	2,000		1.8	
Hong West 1995	Nov-93	DS-21		Total petroleum hydrocarbons	2,900	2,000		1.5	
Hong West 1995	Nov-93	DS-3		Zinc	1,100	24,000	38	<1	29
Hong West 1995	Nov-93	DS-11		Zinc	950	24,000	38	<1	25
Hong West 1995	Nov-93	DS-8		Zinc	880	24,000	38	<1	23
Hong West 1995	Nov-93	DS-1		Zinc	700	24,000	38	<1	18
Herrera 1994	4/6/1993	96-16	0	Zinc	676	24,000	38	<1	18
Hong West 1995	Nov-93	DS-2		Zinc	610	24,000	38	<1	16
Hong West 1995	Nov-93	DS-20		Zinc	590	24,000	38	<1	16

Table 4
Chemicals Detected Above Screening Levels in Soil
S 96th Street Storm Drain Basin

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Hong West 1995	Nov-93	DS-10		Zinc	570	24,000	38	<1	15
Hong West 1995	Nov-93	DS-5		Zinc	560	24,000	38	<1	15
Hong West 1995	Nov-93	DS-19		Zinc	560	24,000	38	<1	15
Hong West 1995	Nov-93	DS-12		Zinc	550	24,000	38	<1	14
Hong West 1995	Nov-93	DS-27		Zinc	550	24,000	38	<1	14
Hong West 1995	Nov-93	DS-6		Zinc	500	24,000	38	<1	13
Hong West 1995	Nov-93	DS-17		Zinc	470	24,000	38	<1	12
Hong West 1995	Nov-93	DS-21		Zinc	460	24,000	38	<1	12
Hong West 1995	Dec-93	DSG-9		Zinc	440	24,000	38	<1	12
Hong West 1995	Nov-93	DS-24		Zinc	430	24,000	38	<1	11
Hong West 1995	Nov-93	DS-22		Zinc	400	24,000	38	<1	11
Hong West 1995	Nov-93	DS-25		Zinc	400	24,000	38	<1	11
Hong West 1995	Nov-93	DS-4		Zinc	360	24,000	38	<1	9.5
Hong West 1995	Nov-93	DS-13		Zinc	350	24,000	38	<1	9.2
Hong West 1995	Nov-93	DS-30		Zinc	330	24,000	38	<1	8.7
Hong West 1995	Nov-93	DS-26		Zinc	320	24,000	38	<1	8.4
Hong West 1995	Nov-93	DS-23		Zinc	310	24,000	38	<1	8.2
Hong West 1995	Nov-93	DS-9		Zinc	300	24,000	38	<1	7.9
Hong West 1995	Nov-93	DS-15		Zinc	300	24,000	38	<1	7.9
Hong West 1995	Nov-93	DS-34		Zinc	290	24,000	38	<1	7.6
Hong West 1995	Nov-93	DS-16		Zinc	280	24,000	38	<1	7.4
Hong West 1995	Nov-93	DS-28		Zinc	280	24,000	38	<1	7.4
Hong West 1995	Nov-93	DS-14		Zinc	270	24,000	38	<1	7.1
Hong West 1995	Nov-93	DS-7		Zinc	260	24,000	38	<1	6.8
Hong West 1995	Nov-93	DS-18		Zinc	260	24,000	38	<1	6.8
Hong West 1995	Nov-93	DS-33		Zinc	220	24,000	38	<1	5.8
Hong West 1995	Dec-93	DSG-22		Zinc	210	24,000	38	<1	5.5
Hong West 1995	Dec-93	DSG-18		Zinc	190	24,000	38	<1	5.0
Hong West 1995	Dec-93	DSG-12		Zinc	170	24,000	38	<1	4.5
E&E 1987a	11/13/86	PF1		Zinc	159	24,000	38	<1	4.2
E&E 1987a	11/13/86	PF3		Zinc	123	24,000	38	<1	3.2
Hong West 1995	Nov-93	DS-29		Zinc	110	24,000	38	<1	2.9
E&E 1987a	11/13/86	PF5		Zinc	86.6	24,000	38	<1	2.3
E&E 1987a	11/13/86	PF2		Zinc	64.5	24,000	38	<1	1.7
Herrera 1994	4/6/1993	96-19	0	Zinc	63.6	24,000	38	<1	1.7
Hong West 1995	Nov-93	DS-32		Zinc	63	24,000	38	<1	1.7
E&E 1987a	11/13/86	PF4		Zinc	52.5	24,000	38	<1	1.4

Table 4
Chemicals Detected Above Screening Levels in Soil
S 96th Street Storm Drain Basin

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Hong West 1995	Nov-93	DS-31		Zinc	51	24,000	38	<1	1.3
Hamm Creek North Fork									
Herrera 1994	4/6/1993	96-3	0	Acenaphthene	0.26	4,800	0.06	<1	4.3
Herrera 1994	4/6/1993	96-3	0	Arsenic	11.7	0.67	590	17	<1
Hamm Creek Middle Fork									
Herrera 1994	4/6/1993	96-14	0	Acenaphthene	2	4,800	0.06	<1	33
Herrera 1994	4/6/1993	96-14	0	Acenaphthylene	0.85		0.069		12
Herrera 1994	4/6/1993	96-14	0	Arsenic	6	0.67	590	9.0	<1
Herrera 1994	4/6/1993	96-14	0	Copper	44.7	3,200	39	<1	1.1
Herrera 1994	4/6/1993	96-14	0	cPAHs, total	0.564	0.137		4.1	
Herrera 1994	4/6/1993	96-14	0	Dibenzo(a,h)anthracene	0.06	0.137	0.033	<1	1.8
Herrera 1994	4/6/1993	96-14	0	Lead	190	250	67	<1	2.8
Herrera 1994	4/6/1993	96-14	0	Naphthalene	0.67	5	0.2	<1	3.4
Herrera 1994	4/6/1993	96-14	0	Zinc	240	24,000	38	<1	6.3

ft bgs - feet below ground surface
mg/kg - milligrams per kilogram
MTCA - Model Toxics Control Act
CSL - Cleanup Screening Level from Washington Sediment Management Standards

J - Estimated value

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.
b - Based on CSL. Where two screening levels are listed for a single chemical, the higher screening levels are for soil samples collected from the vadose zone and the lower screening levels are for soil samples collected from the saturated zone (SAIC 2006).
Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Soil-to-Sediment Screening Level, whichever is lower.

Table 5
Chemicals Detected Above Screening Levels in Groundwater
S 96th Street Storm Drain Basin

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
Herrera 1994	11/26/1991	MW-1	Arsenic	39	0.0583	370	669	<1
Herrera 1994	11/26/1991	MW-4	Arsenic	28	0.0583	370	480	<1
Herrera 1994	11/26/1991	MW-5	Arsenic	16	0.0583	370	274	<1
Herrera 1994	11/26/1991	MW-3	Arsenic	15	0.0583	370	257	<1
Herrera 1994	11/26/1991	MW-4	Cadmium	5	5.0	3.4	1.0	1.5
Hong West 1995	Jan-94	MW-1	Chromium	1400	50	320	28	4.4
Herrera 1994	11/26/1991	MW-1	Chromium	803	50	320	16	2.5
Herrera 1994	11/26/1991	MW-4	Chromium	72	50	320	1.4	<1
Hong West 1995	Nov-91	MW-1	Copper	526	640	120	<1	4.4
Hong West 1995	Nov-91	MW-4	Copper	215	640	120	<1	1.8
Herrera 1994	11/26/1991	MW-1	Lead	145	15	13	9.7	11
Herrera 1994	11/26/1991	MW-4	Lead	58	15	13	3.9	4.5
Herrera 1994	11/26/1991	MW-3	Lead	31	15	13	2.1	2.4
Herrera 1994	11/26/1991	MW-5	Lead	25	15	13	1.7	1.9
Herrera 1994	11/26/1991	MW-1	Mercury	2	2	0.0074	1.0	270
Hong West 1995	Jan-94	MW-4	Mercury	0.6	2	0.0074	<1	81
Herrera 1994	11/26/1991	MW-4	Mercury	0.5	2	0.0074	<1	68
Herrera 1994	11/26/1991	MW-5	Mercury	0.3	2	0.0074	<1	41
Herrera 1994	11/26/1991	MW-3	Mercury	0.1	2	0.0074	<1	14
Hong West 1995	Jan-94	MW-1	Tetrachloroethene	140	5		28	
Herrera 1994	11/26/1991	MW-1	Tetrachloroethene	36	5		7.2	
Hong West 1995	Jan-94	MW-1	Trichloroethene	3,900 D	5		780	
Hong West 1995	Nov-91	MW-1	Trichloroethene	2,800	5		560	
Hong West 1995	Jan-94	MW-106	Zinc	1,200	4,800	76	<1	16
Hong West 1995	Nov-91	MW-1	Zinc	930	4,800	76	<1	12
Hong West 1995	Nov-91	MW-4	Zinc	359	4,800	76	<1	4.7
Hong West 1995	Nov-91	MW-3	Zinc	119	4,800	76	<1	1.6
Hong West 1995	Nov-91	MW-5	Zinc	96	4,800	76	<1	1.3

Table 5
Chemicals Detected Above Screening Levels in Groundwater
S 96th Street Storm Drain Basin

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor

GW - groundwater
ug/L - micrograms per liter
MTCA - Model Toxics Control Act
CSL - Cleanup Screening Level from Washington Sediment Management Standards

D - Result from diluted sample

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.
b - Based on CSL (SAIC 2006).
Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Groundwater-to-Sediment Screening Value.

Table 6
Chemicals Detected Above Screening Levels in Surface Water
S 96th Street Storm Drain Basin

Source	Sample Date	Sample Location	Chemical	Surface Water Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	Chronic Surface Fresh Water Quality Standard (ug/L)	MTCA Exceedance Factor	Chronic Surface Fresh Water Quality Standard Exceedance Factor	Notes
S 95th Street Drain									
Herrera 1994	4/8/1993	96-12	Copper	38.3	2,900	3.5	<1	11	Storm flow sample
Herrera 1994	4/8/1993	96-1	Copper	28.9	2,900	3.5	<1	8.3	Storm flow sample
Herrera 1994	4/8/1993	96-2	Copper	25.5	2,900	3.5	<1	7.3	Storm flow sample
Herrera 1994	4/20/1993	96-12	Copper	15	2,900	3.5	<1	4.3	Base flow sample
Herrera 1994	4/20/1993	96-2	Copper	11	2,900	3.5	<1	3	Base flow sample
Herrera 1994	4/20/1993	96-1	Copper	5	2,900	3.5	<1	1.4	Base flow sample
Herrera 1994	4/8/1993	96-2	Lead	47.8		0.54		89	Storm flow sample
Herrera 1994	4/8/1993	96-12	Lead	46.9		0.54		87	Storm flow sample
Herrera 1994	4/8/1993	96-1	Lead	27.9		0.54		52	Storm flow sample
Herrera 1994	4/20/1993	96-12	Lead	3.2		0.54		5.9	Base flow sample
Herrera 1994	4/20/1993	96-1	Lead	2.6		0.54		4.8	Base flow sample
Herrera 1994	4/20/1993	96-2	Lead	1.7		0.54		3.1	Base flow sample
Herrera 1994	4/8/1993	96-2	Zinc	365	17,000	32	<1	11	Storm flow sample
Herrera 1994	4/8/1993	96-12	Zinc	246	17,000	32	<1	7.7	Storm flow sample
Herrera 1994	4/8/1993	96-1	Zinc	172	17,000	32	<1	5.4	Storm flow sample
Herrera 1994	4/20/1993	96-12	Zinc	85	17,000	32	<1	2.7	Base flow sample
Herrera 1994	4/20/1993	96-2	Zinc	45	17,000	32	<1	1.4	Base flow sample
Herrera 1994	4/20/1993	96-1	Zinc	42	17,000	32	<1	1.3	Base flow sample
S 96th Street Drain									
Herrera 1994	4/8/1993	96-5	Cadmium	4	41	0.37	<1	11	Storm flow sample
Herrera 1994	4/8/1993	96-5	Copper	12.8	2,900	3.5	<1	4	Storm flow sample
Herrera 1994	4/20/1993	96-5	Copper	9	2,900	3.5	<1	2.6	Base flow sample
Herrera 1994	4/8/1993	96-5	Lead	11.4		0.54		21	Storm flow sample
Herrera 1994	4/20/1993	96-5	Lead	3.3		0.54		6.1	Base flow sample
Herrera 1994	4/8/1993	96-5	Zinc	45	17,000	32	<1	1.4	Storm flow sample
Hamm Creek North Fork									
Herrera 1994	4/20/1993	96-3	Cadmium	8	41	0.37	<1	22	Base flow sample
Herrera 1994	4/20/1993	96-3	Copper	11	2,900	3.5	<1	3.1	Base flow sample
Herrera 1994	4/8/1993	96-3	Copper	4.3	2,900	3.5	<1	1.2	Storm flow sample
Herrera 1994	4/8/1993	96-3	Lead	8.5		0.54		16	Storm flow sample
Herrera 1994	4/20/1993	96-3	Lead	0.9		0.54		1.7	Base flow sample

Table 6
Chemicals Detected Above Screening Levels in Surface Water
S 96th Street Storm Drain Basin

Source	Sample Date	Sample Location	Chemical	Surface Water Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	Chronic Surface Fresh Water Quality Standard (ug/L)	MTCA Exceedance Factor	Chronic Surface Fresh Water Quality Standard Exceedance Factor	Notes
Hamm Creek Middle Fork									
Herrera 1994	4/8/1993	96-4	Copper	18.9	2,900	3.5	<1	5.4	Storm flow sample
Herrera 1994	4/20/1993	96-4	Copper	5	2,900	3.5	<1	1.4	Base flow sample
Herrera 1994	4/8/1993	96-4	Lead	41.2		0.54		76	Storm flow sample
Herrera 1994	4/20/1993	96-4	Lead	1.9		0.54		3.5	Base flow sample
Herrera 1994	4/8/1993	96-4	Zinc	82	17,000	32	<1	2.6	Storm flow sample

GW - groundwater
ug/L - micrograms per liter
MTCA - Model Toxics Control Act
CSL - Cleanup Screening Level from Washington Sediment Management Standards

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.
Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Chronic Surface Fresh Water Quality Standard.

Table 7
Chemicals Detected Above Screening Levels in Storm Drain Solids
S 96th Street Storm Drain Basin (1993)

Source	Sample Date	Sample Location	Chemical	Storm Drain Solids Conc'n (mg/kg DW)	Storm Drain Solids Conc'n (mg/kg OC)	SQS/MTCA Method A (mg/kg DW)	CSL (mg/kg DW)	SQS/MTCA Method A Exceedance Factor	CSL Exceedance Factor
S 95th Street Drain									
Herrera 1994	4/5/1993	96-11	Acenaphthene	3.7 J	410 J	16	57	26	7.2
Herrera 1994	4/5/1993	96-12	Acenaphthene	1.5	207	16	57	13	3.6
Herrera 1994	4/5/1993	96-10	Acenaphthene	0.6	22.1	16	57	1.4	<1
Herrera 1994	4/5/1993	96-11	Benzo(a)pyrene	1.45	161	99	210	1.6	<1
Herrera 1994	4/5/1993	96-11	Benzo(g,h,i)perylene	0.795	88	31	78	2.8	1.1
Herrera 1994	4/5/1993	96-12	Benzo(g,h,i)perylene	0.42	58	31	78	1.9	<1
Herrera 1994	4/5/1993	96-9	Cadmium	14.3		5.1	6.7	2.8	2.1
Herrera 1994	4/5/1993	96-11	Chrysene	1.35	150	110	460	1.4	<1
Herrera 1994	4/5/1993	96-9	Copper	1,370		390	390	3.5	3.5
Herrera 1994	4/5/1993	96-18	Dibenzo(a,h)anthracene	0.7		0.23	0.54	3.0	1.3
Herrera 1994	4/5/1993	96-11	Dibenzo(a,h)anthracene	0.475 J	53 J	12	33	4.4	1.6
Herrera 1994	4/5/1993	96-12	Dibenzo(a,h)anthracene	0.34	47	12	33	3.9	1.4
Herrera 1994	4/5/1993	96-11	Fluoranthene	6.85	759	160	1,200	4.7	<1
Herrera 1994	4/5/1993	96-12	Fluoranthene	2.3	317	160	1,200	2.0	<1
Herrera 1994	4/5/1993	96-11	Fluorene	1.2 J	133 J	23	79	5.8	1.7
Herrera 1994	4/5/1993	96-11	HPAHs, total	17.315	1,920	960	5,300	2.0	<1
Herrera 1994	4/5/1993	96-11	Indeno(1,2,3-cd)pyrene	0.89	99	34	88	2.9	1.1
Herrera 1994	4/5/1993	96-12	Indeno(1,2,3-cd)pyrene	0.54	74	34	88	2.2	<1
Herrera 1994	4/5/1993	96-18	Lead	500		450	530	1.1	<1
Herrera 1994	4/5/1993	96-11	LPAHs, total	19.875 L	2,203 L	370	780	6.0	2.8
Herrera 1994	4/5/1993	96-18	LPAHs, total	8.505 L		5.2	13	1.6	<1
Herrera 1994	4/5/1993	96-12	LPAHs, total	4.568 L	630 L	370	780	1.7	<1
Herrera 1994	4/5/1993	96-11	Phenanthrene	4.85	538	100	480	5.4	1.1
Herrera 1994	4/5/1993	96-12	Phenanthrene	1.2	166	100	480	1.7	<1
Herrera 1994	4/5/1993	96-9	Total petroleum hydrocarbons	19,000		2,000		9.5	
Herrera 1994	4/5/1993	96-11	Zinc	1,660		410	960	4.0	1.7
Herrera 1994	4/5/1993	96-9	Zinc	1,060		410	960	2.6	1.1
Herrera 1994	4/5/1993	96-10	Zinc	840		410	960	2.0	<1
Herrera 1994	4/5/1993	96-18	Zinc	493		410	960	1.2	<1
Herrera 1994	4/5/1993	96-12	Zinc	454		410	960	1.1	<1
S 96th Street Drain									
Herrera 1994	4/5/1993	96-15	Benzo(a)anthracene	1.7		1.3	1.6	1.3	1.1
Herrera 1994	4/5/1993	96-15	Fluoranthene	4.2		1.7	2.5	2.5	1.7
Herrera 1994	4/5/1993	96-15	Total petroleum hydrocarbons	9,600		2,000		4.8	

Table 7
Chemicals Detected Above Screening Levels in Storm Drain Solids
S 96th Street Storm Drain Basin (1993)

Source	Sample Date	Sample Location	Chemical	Storm Drain Solids Conc'n (mg/kg DW)	Storm Drain Solids Conc'n (mg/kg OC)	SQS/MTCA Method A (mg/kg DW)	CSL (mg/kg DW)	SQS/MTCA Method A Exceedance Factor	CSL Exceedance Factor

mg/kg - milligrams per kilogram
DW - dry weight
SQS - SMS Sediment Quality Standard
MTCA - Model Toxics Control Act
CSL - SMS Cleanup Screening Level

J - Estimated value
L - Undetected values (added as analytical detection limits) included in sum.

Table presents detected chemicals only.

Exceedance factors are the ratio of the detected concentrations to the SQS or CSL. Petroleum hydrocarbons are compared to the MTCA Method A cleanup level.
Results were compared to the Lowest Apparent Effects Threshold (LAET) or the second LAET (2LAET) value rather than the SQS and/or CSL due to the TOC content in the following samples: 96-9, 96-15, and 96-18. The LAET is functionally equivalent to the SQS and the 2LAET is functionally equivalent to the CSL. OC-normalization is not considered to be appropriate for when TOC concentrations are less than or equal to 0.5 percent or greater than or equal to 4.0 percent.

Table 8
Chemicals Detected Above Screening Levels in Storm Drain Samples
Sea King Industrial Park Source Control Area (2008 to 2012)

Sample Location	Date Collected	Grab Type	Chemical	Conc'n (mg/kg DW)	TOC (%)	Conc'n (mg/kg OC)	SQS/ LAET	CSL/ 2LAET	Units	SQS Exceedance Factor	CSL Exceedance Factor
KCS96C2	11/7/2011	Inline	Copper	1,460	14.9%		390	390	mg/kg DW	3.7	3.7
KCS96C2	11/7/2011	Inline	Zinc	3,270	14.9%		410	960	mg/kg DW	8.0	3.4
KC-06	4/4/2012	Inline	Zinc	610 J	6.8%		410	960	mg/kg DW	1.5	<1
KCS96D1	11/7/2011	Inline	Zinc	551	1.6%		410	960	mg/kg DW	1.3	<1
KC-09	4/4/2012	Inline	Zinc	469 J	2.9%		410	960	mg/kg DW	1.1	<1
KC-09	4/4/2012	Inline	Benzo(g,h,i)perylene	1.20	2.9%	42	31	78	mg/kg OC	1.3	<1
KCS96C2	11/7/2011	Inline	Benzo(g,h,i)perylene	0.70	14.9%		0.67	0.72	mg/kg DW	1.0	<1
KCS96C2	11/7/2011	Inline	Chrysene	1.80	14.9%		1.4	2.8	mg/kg DW	1.3	<1
KC-09	4/4/2012	Inline	Dibenzo(a,h)anthracene	0.39	2.9%	14	12	33	mg/kg OC	1.1	<1
KC-09	4/4/2012	Inline	Fluoranthene	5.60	2.9%	194	160	1200	mg/kg OC	1.2	<1
KCS96C2	11/7/2011	Inline	Fluoranthene	1.90	14.9%		1.7	2.5	mg/kg DW	1.1	<1
KC-09	4/4/2012	Inline	Indeno(1,2,3-cd)pyrene	1.20	2.9%	42	34	88	mg/kg OC	1.2	<1
KCS96C2	11/7/2011	Inline	BBP	4.2	14.9%		0.063	0.9	mg/kg DW	67	4.7
KCS96C1	11/7/2011	Inline	BBP	2.9	3.3%	89	4.9	64	mg/kg OC	18	1.4
KCS96D1	11/7/2011	Inline	BBP	0.25	1.6%	15	4.9	64	mg/kg OC	3.1	<1
KC-09	4/4/2012	Inline	BBP	0.39	2.9%	14	4.9	64	mg/kg OC	2.8	<1
KC-06	4/4/2012	Inline	BBP	0.17	6.8%		0.063	0.9	mg/kg DW	2.7	<1
KCS96H	11/7/2011	Inline	BBP	0.07	11.7%		0.063	0.9	mg/kg DW	1.2	<1
KCS96C2	11/7/2011	Inline	BEHP	49 B	14.9%		1.3	1.9	mg/kg DW	38	26
KC-06	4/4/2012	Inline	BEHP	4.7 B	6.8%		1.3	1.9	mg/kg DW	3.6	2.5
KCS96H	11/7/2011	Inline	BEHP	3.5 B	11.7%		1.3	1.9	mg/kg DW	2.7	1.8
KCS96C1	11/7/2011	Inline	BEHP	2.7 B	3.3%	83	47	78	mg/kg OC	1.8	1.1
KC-09	4/4/2012	Inline	BEHP	2.3 B	2.9%	80	47	78	mg/kg OC	1.7	1.0
KCS96D1	11/7/2011	Inline	BEHP	1.1 B	1.6%	68	47	78	mg/kg OC	1.4	<1
KC-06	4/4/2012	Inline	Dimethyl phthalate	0.11	6.8%		0.071	0.16	mg/kg DW	1.5	<1
KCS96C2	11/7/2011	Inline	4-Methylphenol	1.0	14.9%		0.67	0.67	mg/kg DW	1.5	1.5
KCS96C2	11/7/2011	Inline	Benzyl alcohol	2.9	14.9%		0.057	0.073	mg/kg DW	51	40
KCS96D1	11/7/2011	Inline	Benzyl alcohol	1.8	1.6%		0.057	0.073	mg/kg DW	32	25
KCS96C1	11/7/2011	Inline	Benzyl alcohol	0.91 J	3.3%		0.057	0.073	mg/kg DW	16	12
KC-06	4/4/2012	Inline	Benzyl alcohol	0.09	6.8%		0.057	0.073	mg/kg DW	1.6	1.3
KCS96C2	11/7/2011	Inline	Phenol	0.92 J	14.9%		0.42	1.2	mg/kg DW	2.2	<1

Table 8
Chemicals Detected Above Screening Levels in Storm Drain Samples
Sea King Industrial Park Source Control Area (2008 to 2012)

Sample Location	Date Collected	Grab Type	Chemical	Conc'n (mg/kg DW)	TOC (%)	Conc'n (mg/kg OC)	SQS/ LAET	CSL/ 2LAET	Units	SQS Exceedance Factor	CSL Exceedance Factor
KCS96C2	11/7/2011	Inline	Total PCBs	1.6 J	14.9%		0.13	1.0	mg/kg DW	12	1.6
KC-06	4/4/2012	Inline	Total PCBs	0.15	6.8%		0.13	1.0	mg/kg DW	1.2	<1
KCS96C2	11/7/2011	Inline	Diesel-range hydrocarbons	3,000	14.9%		2,000		mg/kg DW	1.5	
KCS96C2	11/7/2011	Inline	Heavy oil-range hydrocarbons	14,000	14.9%		2,000		mg/kg DW	7.0	
KC-06	4/4/2012	Inline	Heavy oil-range hydrocarbons	2,800	6.8%		2,000		mg/kg DW	1.4	

mg/kg - milligram per kilogram
ng/kg - nanogram per kilogram
DW - dry weight
TOC - total organic carbon
BEHP - bis(2-ethylhexyl)phthalate
BBP - butylbenzylphthalate
CB - catch basin
SQS - Sediment Quality Standard
CSL - Cleanup Screening Level
PCB - polychlorinated biphenyl
TPH - total petroleum hydrocarbons
PAH - polycyclic aromatic hydrocarbon
TEQ - toxic equivalence quotient
RCB - right of way catch basin

J - Estimated value between the method detection limit and the laboratory reporting limit
B - Analyte was detected in the associated method blank
LAET - lowest apparent effects threshold
2LAET - second lowest apparent effects threshold
Table presents chemicals that exceed a screening level in at least one sample.
Exceedance factors are the ratio fo the detected concentration to the SQS or CSL; exceedance factors are shown only if they are greater than 1.
Screening level for petroleum hydrocarbons is the MTCA soil cleanup level.
Screening level for dioxins/furans is the LDW background concentration (2 ng TEQ/kg).

Table 9
Chemicals Detected Above Screening Levels in Soil
Absolute German (Former All City Auto Wrecking)

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Floyd Snider 1999a	1/14/1999	S-1	2.0-3.0	Benzene	0.06	0.03		2.0	
Floyd Snider 1999b	4/27/1999	S9-2	0.5	Diesel-range hydrocarbons	29,170	2,000		15	
Floyd Snider 1999b	4/27/1999	S14-2	0.5	Diesel-range hydrocarbons	27,610	2,000		14	
Floyd Snider 1999b	4/27/1999	S9-1	0.5	Diesel-range hydrocarbons	19,530	2,000		9.8	
Floyd Snider 1999b	4/27/1999	S14-1	0.5	Diesel-range hydrocarbons	12,250	2,000		6.1	
Floyd Snider 1999b	4/27/1999	S6-2	0.5	Diesel-range hydrocarbons	11,600	2,000		5.8	
Floyd Snider 1999a	1/14/1999	S-14	0-0.5	Diesel-range hydrocarbons	9,750	2,000		4.9	
Floyd Snider 1999b	4/27/1999	S6-1	0.5	Diesel-range hydrocarbons	7,460	2,000		3.7	
Floyd Snider 1999a	1/14/1999	S-1	0-0.5	Diesel-range hydrocarbons	7,440	2,000		3.7	
Floyd Snider 1999a	1/14/1999	S-2	2.0-3.0	Diesel-range hydrocarbons	6,310	2,000		3.2	
Floyd Snider 1999a	1/14/1999	S-2	0-0.5	Diesel-range hydrocarbons	5,350	2,000		2.7	
Floyd Snider 1999a	1/14/1999	S-1	2.0-3.0	Diesel-range hydrocarbons	5,060	2,000		2.5	
Floyd Snider 1999a	1/14/1999	S-4	2.0-3.0	Diesel-range hydrocarbons	4,790	2,000		2.4	
Floyd Snider 1999a	4/4/1997	MW-2	5.0-6.5	Diesel-range hydrocarbons	4,500	2,000		2.3	
Floyd Snider 1999b	4/27/1999	S5-2	0.5	Diesel-range hydrocarbons	4,390	2,000		2.2	
Floyd Snider 1999b	4/27/1999	S6-1 (OE)	2	Diesel-range hydrocarbons	4,330	2,000		2.2	
Floyd Snider 1999a	1/14/1999	S-6	0-0.5	Diesel-range hydrocarbons	4,050	2,000		2.0	
Floyd Snider 1999a	1/14/1999	S-3	0-0.5	Diesel-range hydrocarbons	3,800	2,000		1.9	
Floyd Snider 1999b	4/27/1999	S8-1	0.5	Diesel-range hydrocarbons	3,530	2,000		1.8	
Floyd Snider 1999a	1/14/1999	S-9	0-0.5	Diesel-range hydrocarbons	3,510	2,000		1.8	
Floyd Snider 1999b	4/27/1999	S6-2 (OE)	2	Diesel-range hydrocarbons	3,198	2,000		1.6	
Floyd Snider 1999b	4/27/1999	S1-4	4	Diesel-range hydrocarbons	3,108	2,000		1.6	
Floyd Snider 1999b	4/27/1999	S8-2	0.5	Diesel-range hydrocarbons	2,518	2,000		1.3	
Floyd Snider 1999b	4/27/1999	S11-2	0.5	Diesel-range hydrocarbons	2,439	2,000		1.2	
Floyd Snider 1999b	4/27/1999	S1-2	2-4	Diesel-range hydrocarbons	2,393	2,000		1.2	
Floyd Snider 1999a	1/14/1999	S-8	0-0.5	Diesel-range hydrocarbons	2,260	2,000		1.1	
Floyd Snider 1999a	1/14/1999	S-1	2.0-3.0	Gasoline-range hydrocarbons	360	30		12	
Floyd Snider 1999a	1/14/1999	S-1	0-0.5	Heavy oil-range hydrocarbons	26,900	2,000		13	
Floyd Snider 1999a	1/14/1999	S-14	0-0.5	Heavy oil-range hydrocarbons	18,300	2,000		9.2	
Floyd Snider 1999a	1/14/1999	S-2	0-0.5	Heavy oil-range hydrocarbons	16,800	2,000		8.4	
Floyd Snider 1999a	1/14/1999	S-2	2.0-3.0	Heavy oil-range hydrocarbons	16,600	2,000		8.3	
Floyd Snider 1999a	1/14/1999	S-9	0-0.5	Heavy oil-range hydrocarbons	16,200	2,000		8.1	
Floyd Snider 1999a	4/4/1997	MW-2	5.0-6.5	Heavy oil-range hydrocarbons	14,000	2,000		7.0	
Floyd Snider 1999a	1/14/1999	S-1	2.0-3.0	Heavy oil-range hydrocarbons	12,400	2,000		6.2	
Floyd Snider 1999a	1/14/1999	S-3	0-0.5	Heavy oil-range hydrocarbons	12,100	2,000		6.1	
Floyd Snider 1999a	1/14/1999	S-6	0-0.5	Heavy oil-range hydrocarbons	10,600	2,000		5.3	
Floyd Snider 1999a	1/14/1999	S-4	2.0-3.0	Heavy oil-range hydrocarbons	6,310	2,000		3.2	

Table 9
Chemicals Detected Above Screening Levels in Soil
Absolute German (Former All City Auto Wrecking)

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Floyd Snider 1999a	1/14/1999	S-8	0-0.5	Heavy oil-range hydrocarbons	6,200	2,000		3.1	
Floyd Snider 1999a	1/14/1999	S-12	0-0.5	Heavy oil-range hydrocarbons	5,310	2,000		2.7	
Floyd Snider 1999a	1/14/1999	S-5	0-0.5	Heavy oil-range hydrocarbons	4,830	2,000		2.4	
Floyd Snider 1999a	1/14/1999	S-15	0-0.5	Heavy oil-range hydrocarbons	3,770	2,000		1.9	
Floyd Snider 1999a	1/14/1999	S-11	0-0.5	Heavy oil-range hydrocarbons	3,390	2,000		1.7	
Floyd Snider 1999a	1/14/1999	S-4	0-0.5	Heavy oil-range hydrocarbons	2,650	2,000		1.3	
Floyd Snider 1999a	4/4/1997	MW-2	2.5-4.0	Heavy oil-range hydrocarbons	2,500	2,000		1.3	
Floyd Snider 1999a	1/14/1999	S-13	0-0.5	Heavy oil-range hydrocarbons	2,210	2,000		1.1	
Floyd Snider 1999a	1/14/1999	S-8	0-0.5	Lead	1,590	250	1,300	6.4	1
Floyd Snider 1999a	1/14/1999	S-14	0-0.5	Lead	1,370	250	1,300	5.5	1
Floyd Snider 1999b	4/27/1999	S14-1	0.5	Lead	1,160	250	1,300	4.6	<1
Floyd Snider 1999b	4/27/1999	S6-1	0.5	Lead	1,130	250	1,300	4.5	<1
Floyd Snider 1999a	1/14/1999	S-3	0-0.5	Lead	959	250	1,300	3.8	<1
Floyd Snider 1999a	1/14/1999	S-9	0-0.5	Lead	780	250	1,300	3.1	<1
Floyd Snider 1999b	4/27/1999	S9-1	0.5	Lead	780	250	1,300	3.1	<1
Floyd Snider 1999b	4/27/1999	S6-1 (OE)	2	Lead	768	250	1,300	3.1	<1
Floyd Snider 1999a	1/14/1999	S-12	0-0.5	Lead	758	250	1,300	3.0	<1
Floyd Snider 1999a	1/14/1999	S-6	0-0.5	Lead	695	250	1,300	2.8	<1
Floyd Snider 1999a	1/14/1999	S-2	0-0.5	Lead	682	250	1,300	2.7	<1
Floyd Snider 1999a	1/14/1999	S-7	0-0.5	Lead	669	250	1,300	2.7	<1
Floyd Snider 1999b	4/27/1999	S6-2	1	Lead	655	250	1,300	2.6	<1
Floyd Snider 1999b	4/27/1999	S6-2 (OE)	2	Lead	616	250	1,300	2.5	<1
Floyd Snider 1999a	1/14/1999	S-1	0-0.5	Lead	612	250	1,300	2.4	<1
Floyd Snider 1999b	4/27/1999	S14-2	0.5	Lead	562	250	1,300	2.2	<1
Floyd Snider 1999a	1/14/1999	S-2	2.0-3.0	Lead	485	250	1,300	1.9	<1
Floyd Snider 1999a	1/14/1999	S-4	0-0.5	Lead	470	250	1,300	1.9	<1
Floyd Snider 1999b	4/27/1999	S11-2	0.5	Lead	452	250	1,300	1.8	<1
Floyd Snider 1999a	1/14/1999	S-5	0-0.5	Lead	448	250	1,300	1.8	<1
Floyd Snider 1999b	4/27/1999	S1-4	4	Lead	448	250	1,300	1.8	<1
Floyd Snider 1999a	1/14/1999	S-15	0-0.5	Lead	316	250	1,300	1.3	<1
Floyd Snider 1999b	4/27/1999	S1-1	2-4	Lead	313	250	1,300	1.3	<1
Floyd Snider 1999a	1/14/1999	S-1	2.0-3.0	Lead	298	250	1,300	1.2	<1

Table 9
Chemicals Detected Above Screening Levels in Soil
Absolute German (Former All City Auto Wrecking)

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor

ft bgs - feet below ground surface
mg/kg - milligrams per kilogram
MTCA - Model Toxics Control Act
CSL - Cleanup Screening Level from Washington Sediment Management Standards

Soil removed during remedial excavation

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.
b - Based on CSL. Where two screening levels are listed for a single chemical, the higher screening levels are for soil samples collected from the vadose zone and the lower screening levels are for soil samples collected from the saturated zone (SAIC 2006).
Depth to groundwater is 7.5 ft bgs.
Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Soil-to-Sediment Screening Level.

Table 10
Chemicals Detected Above Screening Levels in Groundwater
Absolute German (Former All City Auto Wrecking)

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
Floyd Snider 1999b	5/3/1999	MW-4	Arsenic	23.9	0.0583	370	410	<1
Floyd Snider 1999a	1/14/1999	MW-4	Arsenic	17.4	0.0583	370	298	<1
Floyd Snider 1999a	1/14/1999	MW-3	Arsenic	16.7	0.0583	370	286	<1
Floyd Snider 1999a	1/14/1999	MW-2	Arsenic	10.7	0.0583	370	184	<1
Floyd Snider 1999b	5/3/1999	MW-3	Arsenic	7.7	0.0583	370	132	<1
Floyd Snider 1999a	4/4/1997	MW-3	Arsenic	5.5	0.0583	370	94	<1
Floyd Snider 1999b	5/3/1999	MW-2R	Arsenic	5.5	0.0583	370	94	<1
Floyd Snider 1999b	5/3/1999	MW-1	Arsenic	1.3	0.0583	370	22	<1
Floyd Snider 1999a	1/14/1999	MW-1	Arsenic	1.2	0.0583	370	21	<1
Floyd Snider 1999a	4/4/1997	MW-3	Cadmium	11	5.0	3.4	2.2	3.2
Floyd Snider 1999a	1/14/1999	MW-2	Diesel-range hydrocarbons	1,150	500		2.3	
Floyd Snider 1999a	4/4/1997	MW-2	Diesel-range hydrocarbons	800	500		1.6	

GW - groundwater
ug/L - micrograms per liter
MTCA - Model Toxics Control Act
CSL - Cleanup Screening Level from Washington Sediment Management Standards

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.
b - Based on CSL (SAIC 2006).
Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Groundwater-to-Sediment Screening Value.

Table 11
Chemicals Detected Above Screeing Levels in Soil
Carey Limousine Service (Former Kaspac/Chiyoda Property)

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
EMCON 1996	6/6/1996	GB-4	1.5	Arsenic	3	0.67	12,000	4.5	<1
EMCON 1996	6/6/1996	GB-4	3	Arsenic	2	0.67	590	3.0	<1
EMCON 1997	1/2/1997	LD-SW2-1	1	Benzene	0.32	0.03		11	
EMCON 1996	6/6/1996	GB-8	4	Benzene	0.12	0.03		4.0	
GeoEngineers 1989	9/19/1989	2		Benzene	0.079	0.03		2.6	
EMCON 1996	6/6/1996	GB-1	1.5	Benzene	0.074	0.03		2.5	
GeoEngineers 1989	9/19/1989	3		Benzene	0.058	0.03		1.9	
Applied Consultants 1990b	8/27/1990	T3		Benzene	0.036	0.03		1.2	
EMCON 1996	6/6/1996	GB-8	4	Gasoline-range hydrocarbons	237	30		7.9	
EMCON 1997	1/2/1997	LD-SW2-1	1	Gasoline-range hydrocarbons	86	30		2.9	
EMCON 1996	6/6/1996	GB-1	1.5	Tetrachloroethene	1.9	0.1		38	
EMCON 1997	1/2/1997	LD-SW2-1	1	Toluene	6,000	7		857	
Applied Consultants 1990b	8/28/1990	B7	0.5	Toluene	4,700	7		671	
EMCON 1996	6/6/1996	GB-1	1.5	Toluene	980	7		140	
Applied Consultants 1990b	8/28/1990	B7	1.5	Toluene	820	7		117	
EMCON 1996	6/6/1996	GB-1	3	Toluene	9.2	7		1.3	
Applied Consultants 1990b	8/28/1990	B-7	0.5	Xylenes, total	30	9		3.3	
EMCON 1996	6/6/1996	GB-1	1.5	Xylenes, total	10	9		1.1	
EMCON 1996	6/6/1996	GB-4	1.5	Zinc	72	24,000	38	<1	1.9
Pacific Testing Labs 1995	12/7/1994	B12-1	2	Zinc	45.9	24,000	38	<1	1.2
Pacific Testing Labs 1995	12/6/1994	B11-1	2	Zinc	43.2	24,000	38	<1	1.1

ft bgs - feet below ground surface
mg/kg - milligrams per kilogram
MTCA - Model Toxics Control Act
CSL - Cleanup Screening Level from Washington Sediment Management Standards

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.
b - Based on CSL. Where two screening levels are listed for a single chemical, the higher screening levels are for soil samples collected from the vadose zone and the lower screening levels are for soil samples collected from the saturated zone (SAIC 2006).
Depth to groundwater was observed between 1.65 ft bgs.
Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Soil-to-Sediment Screening Level.

Table 12
Chemicals Detected Above Screening Levels in Groundwater
Carey Limousine Service (Former Kaspac/Chiyoda Property)

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
Pacific Testing Labs 1995	12/2/1994	MW-7	Arsenic	273	0.0583	370	4,683	<1
EMCON 1995a	5/9/1995	MW-7	Arsenic	104	0.0583	370	1,784	<1
EMCON 1995a	5/9/1995	MW-11	Arsenic	52	0.0583	370	892	<1
EMCON 1995b	7/31/1995	MW-11	Arsenic	50	0.0583	370	858	<1
Pacific Testing Labs 1995	12/2/1994	MW-8	Arsenic	50	0.0583	370	858	<1
EMCON 1995b	7/31/1995	MW-8	Arsenic	45	0.0583	370	772	<1
EMCON 1995b	7/31/1995	MW-7	Arsenic	43	0.0583	370	738	<1
EMCON 1995a	5/9/1995	MW-12	Arsenic	42	0.0583	370	720	<1
Pacific Testing Labs 1995	12/2/1994	MW-6	Arsenic	41	0.0583	370	703	<1
EMCON 1995a	5/9/1995	MW-8	Arsenic	38	0.0583	370	652	<1
EMCON 1995b	7/31/1995	MW-12	Arsenic	29	0.0583	370	497	<1
Pacific Testing Labs 1995	12/2/1994	MW-9	Arsenic	27	0.0583	370	463	<1
EMCON 1995a	5/9/1995	MW-6	Arsenic	23	0.0583	370	395	<1
EMCON 1995b	7/31/1995	MW-6	Arsenic	23	0.0583	370	395	<1
EMCON 1995a	5/9/1995	MW-10	Arsenic	22	0.0583	370	377	<1
EMCON 1995b	8/16/1995	MW-4	Arsenic	22	0.0583	370	377	<1
EMCON 1995a	5/9/1995	MW-11	Arsenic	12	0.0583	370	206	<1
EMCON 1995a	5/9/1995	MW-9	Arsenic	9	0.0583	370	154	<1
EMCON 1995a	5/9/1995	MW-7	Arsenic	6	0.0583	370	103	<1
EMCON 1995a	5/9/1995	MW-8	Arsenic	6	0.0583	370	103	<1
EMCON 1995b	7/31/1995	MW-10	Arsenic	6	0.0583	370	103	<1
EMCON 1995b	8/16/1995	MW-4	Arsenic	6	0.0583	370	103	<1
EMCON 1995a	5/9/1995	MW-12	Arsenic	5	0.0583	370	86	<1
EMCON 1995a	5/9/1995	MW-6	Arsenic	5	0.0583	370	86	<1
Chiyoda 1992b	3/29/1990	MW-3	Benzene	75	0.8		94	
Applied Consultants 1990a	2/1/1990	MW-3	Benzene	46	0.8		58	
EMCON 1995b	7/31/1995	MW-6	Benzene	20	0.8		25	
Applied Consultants 1991	4/19/1991	OB1	Benzene	14.0	0.8		18	
EMCON 1995a	5/9/1995	MW-6	Benzene	13	0.8		16	
EMCON 1997	1/2/1997	MW-8	Benzene	9.9	0.8		12	
Pacific Testing Labs 1995	12/2/1994	MW-6	Benzene	9	0.8		11	
EMCON 1998	9/30/1997	MW-9	Benzene	8.9	0.8		11	
Pacific Testing Labs 1995	12/15/1994	MW-6	Benzene	8.1	0.8		10	
Applied Consultants 1990b	8/28/1990	MW-6	Benzene	7	0.8		8.8	
EMCON 1998	4/14/1997	MW-11	Benzene	6.0	0.8		7.5	
Pacific Testing Labs 1995	12/15/1994	MW-11	Benzene	5.1	0.8		6.4	
Applied Consultants 1991	4/19/1991	RW-1	Benzene	4.8	0.8		6.0	

Table 12
Chemicals Detected Above Screening Levels in Groundwater
Carey Limousine Service (Former Kaspac/Chiyoda Property)

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
EMCON 1998	6/23/1997	MW-11	Benzene	4.3	0.8		5.4	
Applied Consultants 1990b	8/28/1990	RW-1	Benzene	1.9	0.8		2.4	
EMCON 1997	1/2/1997	MW-9	Benzene	1.8	0.8		2.3	
EMCON 1998	4/8/1997	MW-9	Benzene	1.8	0.8		2.3	
EMCON 1998	6/23/1997	MW-9	Benzene	1.0	0.8		1.3	
Pacific Testing Labs 1995	12/2/1994	MW-7	Cadmium	9.4	5	3.4	1.9	2.8
Pacific Testing Labs 1995	12/2/1994	MW-8	Cadmium	5.6	5	3.4	1.1	1.6
Pacific Testing Labs 1995	12/2/1994	MW-6	Cadmium	5.0	5	3.4	1.0	1.5
Pacific Testing Labs 1995	12/2/1994	MW-7	Chromium	345	50	320	6.9	1.1
Pacific Testing Labs 1995	12/2/1994	MW-8	Chromium	257	50	320	5.1	<1
Pacific Testing Labs 1995	12/2/1994	MW-6	Chromium	118	50	320	2.4	<1
Pacific Testing Labs 1995	12/2/1994	MW-9	Chromium	96	50	320	1.9	<1
EMCON 1995a	5/9/1995	MW-7	Chromium	94	50	320	1.9	<1
EMCON 1995a	5/9/1995	MW-10	Chromium	77	50	320	1.5	<1
EMCON 1995a	5/9/1995	MW-11	Chromium	70	50	320	1.4	<1
EMCON 1995a	5/9/1995	MW-8	Chromium	62	50	320	1.2	<1
Pacific Testing Labs 1995	12/2/1994	MW-7	Copper	936	640	120	1.5	7.8
Pacific Testing Labs 1995	12/2/1994	MW-8	Copper	574	640	120	<1	4.8
Pacific Testing Labs 1995	12/2/1994	MW-6	Copper	280	640	120	<1	2.3
Pacific Testing Labs 1995	12/2/1994	MW-9	Copper	276	640	120	<1	2.3
EMCON 1995a	5/9/1995	MW-7	Copper	168	640	120	<1	1.4
EMCON 1995a	5/9/1995	MW-10	Copper	142	640	120	<1	1.2
Applied Consultants 1990b	8/28/1990	MW-6	Gasoline-range hydrocarbons	26,000	800		33	
EMCON 1997	1/2/1997	MW-9	Gasoline-range hydrocarbons	3,930	800		4.9	
Applied Consultants 1990b	8/28/1990	RW-1	Gasoline-range hydrocarbons	3,000	800		3.8	
EMCON 1995a	5/9/1995	MW-6	Diesel-range hydrocarbons	2,080	500		4.2	
EMCON 1995a	5/9/1995	MW-9	Diesel-range hydrocarbons	1,470	500		2.9	
EMCON 1996	6/6/1996	GB-5-WS	Diesel-range hydrocarbons	990	500		2.0	
EMCON 1997	1/2/1997	MW-9	Diesel-range hydrocarbons	920	500		1.8	
EMCON 1995b	7/31/1995	MW-6	Diesel-range hydrocarbons	890	500		1.8	
EMCON 1995a	5/9/1995	MW-10	Diesel-range hydrocarbons	850	500		1.7	
EMCON 1995b	7/31/1995	MW-9	Diesel-range hydrocarbons	730	500		1.5	
EMCON 1995a	5/9/1995	MW-11	Diesel-range hydrocarbons	700	500		1.4	
EMCON 1996	6/6/1996	GB-4-WS	Diesel-range hydrocarbons	690	500		1.4	
EMCON 1995a	5/9/1995	MW-8	Diesel-range hydrocarbons	650	500		1.3	
EMCON 1995a	5/9/1995	MW-6	Heavy-oil range hydrocarbons	1,300	500		2.6	
EMCON 1995a	5/9/1995	MW-9	Heavy-oil range hydrocarbons	980	500		2.0	

Table 12
Chemicals Detected Above Screening Levels in Groundwater
Carey Limousine Service (Former Kaspac/Chiyoda Property)

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
EMCON 1995a	5/9/1995	MW-10	Heavy-oil range hydrocarbons	940	500		1.9	
EMCON 1995a	5/9/1995	MW-8	Heavy-oil range hydrocarbons	840	500		1.7	
Pacific Testing Labs 1995	12/2/1994	MW-7	Lead	289	15	13	19	22
Pacific Testing Labs 1995	12/2/1994	MW-8	Lead	128	15	13	8.5	9.8
Pacific Testing Labs 1995	12/2/1994	MW-6	Lead	126	15	13	8.4	9.7
Pacific Testing Labs 1995	12/2/1994	MW-9	Lead	87	15	13	5.8	6.7
EMCON 1995a	5/9/1995	MW-7	Lead	76	15	13	5.1	5.8
EMCON 1995a	5/9/1995	MW-10	Lead	40	15	13	2.7	3.1
EMCON 1995a	5/9/1995	MW-11	Lead	32	15	13	2.1	2.5
EMCON 1995a	5/9/1995	MW-6	Lead	20	15	13	1.3	1.5
EMCON 1995a	5/9/1995	MW-8	Lead	14	15	13	<1	1.1
Pacific Testing Labs 1995	12/2/1994	MW-8	Silver	51	80	1.5	<1	34
Pacific Testing Labs 1995	12/2/1994	MW-6	Silver	9.5	80	1.5	<1	6.3
Pacific Testing Labs 1995	12/2/1994	MW-9	Silver	4.7	80	1.5	<1	3.1
Applied Consultants 1990b	8/28/1990	MW-6	Tetrachloroethene	10	5		2.0	
Applied Consultants 1991	4/19/1991	MW-6	Toluene	430,000	640		672	
EMCON 1998	4/8/1997	MW-9	Toluene	27,000	640		42	
Pacific Testing Labs 1995	12/2/1994	MW-6	Toluene	15,036	640		23	
Applied Consultants 1990b	8/28/1990	MW-6	Toulene	15,000	640		23	
EMCON 1997	1/2/1997	MW-9	Toluene	14,000	640		22	
Pacific Testing Labs 1995	12/15/1994	MW-6	Toluene	10,000	640		16	
EMCON 1995a	5/9/1995	MW-6	Toluene	4,400	640		6.9	
EMCON 1995a	5/9/1995	MW-6-Dup	Toluene	4,300	640		6.7	
EMCON 1998	6/23/1997	MW-9	Toluene	3,950	640		6.2	
Pacific Testing Labs 1995	12/2/1994	MW-6	Total recoverable petroleum hydrocarbons	6,900	500		14	
Pacific Testing Labs 1995	12/2/1994	MW-7	Total recoverable petroleum hydrocarbons	4,630	500		9.3	
Pacific Testing Labs 1995	12/2/1994	MW-8	Total recoverable petroleum hydrocarbons	3,180	500		6.4	
Pacific Testing Labs 1995	12/2/1994	MW-9	Total recoverable petroleum hydrocarbons	3,180	500		6.4	
Applied Consultants 1990a	2/1/1990	MW-3	Trichloroethene	6.2	5		1.2	
EMCON 1997	1/2/1997	MW-9	Xylenes, total	1,100	1,000		1.1	
Pacific Testing Labs 1995	12/2/1994	MW-7	Zinc	10,000	4,800	76	2.1	132
EMCON 1995a	5/9/1995	MW-7	Zinc	1,240	4,800	76	<1	16
Pacific Testing Labs 1995	12/2/1994	MW-8	Zinc	602	4,800	76	<1	7.9
Pacific Testing Labs 1995	12/2/1994	MW-6	Zinc	450	4,800	76	<1	5.9
Pacific Testing Labs 1995	12/2/1994	MW-9	Zinc	350	4,800	76	<1	4.6
EMCON 1995a	5/9/1995	MW-10	Zinc	138	4,800	76	<1	1.8
EMCON 1995a	5/9/1995	MW-6	Zinc	116	4,800	76	<1	1.5

Table 12
Chemicals Detected Above Screening Levels in Groundwater
Carey Limousine Service (Former Kaspac/Chiyoda Property)

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
EMCON 1995a	5/9/1995	MW-11	Zinc	108	4,800	76	<1	1.4
EMCON 1995a	5/9/1995	MW-8	Zinc	99	4,800	76	<1	1.3

GW - groundwater
ug/L - micrograms per liter
MTCA - Model Toxics Control Act
CSL - Cleanup Screening Level from Washington Sediment Management Standards

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.
b - Based on CSL (SAIC 2006).
Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Groundwater-to-Sediment Screening Value.

Table 13
Chemicals Detected Above Screening Levels in Soil
Pacific Industrial Supply/Former Precision Engineering

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Former Precision Engineering Property									
MFA 2008	12/13/2005	GP13	1	Arsenic	9.45	0.7	590	14	<1
MFA 2008	12/13/2005	GP15	3	Arsenic	7.76	0.7	590	12	<1
MFA 2008	12/12/2005	GP29	1	Arsenic	5.91	0.7	590	8.9	<1
MFA 2008	12/12/2005	GP31	1	Arsenic	5.72	0.7	590	8.6	<1
MFA 2008	12/14/2005	GP20	1	Arsenic	5.47	0.7	590	8.2	<1
MFA 2008	12/14/2005	GP24	3 (Dup)	Arsenic	3.64	0.7	590	5.5	<1
MFA 2008	12/13/2005	GP18	1	Arsenic	3.55	0.7	590	5.3	<1
MFA 2008	12/14/2005	GP24	3	Arsenic	3.06	0.7	590	4.6	<1
MFA 2008	12/13/2005	GP14	3	Arsenic	3	0.7	590	4.5	<1
MFA 2008	12/13/2005	GP12	3	Arsenic	2.79	0.7	590	4.2	<1
MFA 2008	12/12/2005	GP28	1	Arsenic	1.89	0.7	590	2.8	<1
Precision Engineering 1993	3/11/1993	WP-8		Chromium	7,470		270		28
MFA 2008	12/14/2005	GP32	1	Chromium	6,750		270		25
Precision Engineering 1993	3/12/1993	WP-13		Chromium	6,650		270		25
Precision Engineering 1993	3/12/1993	WP-9		Chromium	6,080		270		23
Precision Engineering 1993	3/12/1993	WP-10		Chromium	5,810		270		22
Precision Engineering 1993	3/12/1993	WP-11		Chromium	5,760		270		21
Precision Engineering 1993	3/11/1993	WP-7		Chromium	5,300		270		20
MFA 2008	12/13/2005	GP18	1	Chromium	4,430		270		16
Precision Engineering 1993	3/12/1993	WP-12		Chromium	4,180		270		15
MFA 2008	6/7/2005	GP2	1	Chromium	2,680		270		9.9
MFA 2008	12/13/2005	GP17	6	Chromium	1,660		270		6.1
MFA 2008	6/16/2005	GP4	1.5	Chromium	1,230		270		4.6
MFA 2008	6/9/2005	GP3	6	Chromium	1,100		270		4.1
MFA 2008	12/14/2005	GP23	10.5	Chromium	979		270		3.6
MFA 2008	6/9/2005	GP3	14	Chromium	941		270		3.5
MFA 2008	6/9/2005	GP3	2	Chromium	915		270		3.4
MFA 2008	6/16/2005	GP6	1	Chromium	584		270		2.2
MFA 2008	12/14/2005	GP32	1	Chromium (hexavalent)	3,500 J	19	270	184	13
MFA 2008	12/13/2005	GP18	1	Chromium (hexavalent)	2,300 J	19	270	121	8.5
MFA 2008	6/16/2005	GP6	1	Chromium (hexavalent)	627	19	270	33	2.3
MFA 2008	6/7/2005	GP2	1	Chromium (hexavalent)	523	19	270	28	1.9
MFA 2008	6/7/2005	GP1	1.5	Chromium (hexavalent)	152	19	270	8.0	<1
MFA 2008	12/13/2005	GP17	6	Chromium (hexavalent)	60 J	19	270	3.2	<1

Table 13
Chemicals Detected Above Screening Levels in Soil
Pacific Industrial Supply/Former Precision Engineering

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
MFA 2008	6/16/2005	GP4	1.5	Chromium (hexavalent)	53.4	19	270	2.8	<1
MFA 2008	6/9/2005	GP3	6	Chromium (hexavalent)	49.8	19	270	2.6	<1
MFA 2008	6/9/2005	GP3	14	Chromium (hexavalent)	34.4	19	270	1.8	<1
MFA 2008	6/7/2005	GP1	6	Chromium (hexavalent)	31.8	19	270	1.7	<1
MFA 2008	6/9/2005	GP3	2	Chromium (hexavalent)	27.7	19	270	1.5	<1
MFA 2008	12/14/2005	GP32	1	Chromium (trivalent)	3,250	2,000	270	1.6	12
MFA 2008	6/7/2005	GP2	1	Chromium (trivalent)	2,157	2,000	270	1.1	8.0
MFA 2008	12/13/2005	GP18	1	Chromium (trivalent)	2,130	2,000	270	1.1	7.9
MFA 2008	12/13/2005	GP17	6	Chromium (trivalent)	1,600	2,000	270	<1	5.9
MFA 2008	6/16/2005	GP4	1.5	Chromium (trivalent)	1,176.6	2,000	270	<1	4.4
MFA 2008	6/9/2005	GP3	6	Chromium (trivalent)	1,050.2	2,000	270	<1	3.9
MFA 2008	12/14/2005	GP23	10.5	Chromium (trivalent)	979	2,000	270	<1	3.6
MFA 2008	6/9/2005	GP3	14	Chromium (trivalent)	906.6	2,000	270	<1	3.4
MFA 2008	6/9/2005	GP3	2	Chromium (trivalent)	887.3	2,000	270	<1	3.3
MFA 2008	12/13/2005	GP18	1	Copper	113	3,200	39	<1	2.9
MFA 2008	12/12/2005	GP31	1	Copper	40.2	3,200	39	<1	1.0
MFA 2008	12/14/2005	GP21	6.5	Diesel-range hydrocarbons	5,270	2,000		2.6	
MFA 2008	12/14/2005	GP21	6.5	Heavy-oil range hydrocarbons	19,900	2,000		10	
MFA 2008	12/13/2005	GP18	1	Mercury	1.1	2	0.030	<1	37
MFA 2008	12/12/2005	GP29	1	Mercury	0.876	2	0.030	<1	29
MFA 2008	6/16/2005	GP6	14.5	Trichloroethene	1.16	0.03		39	
MFA 2008	6/17/2005	GP11	6.5	Trichloroethene	0.281	0.03		9.4	
MFA 2008	6/17/2005	GP11	2	Trichloroethene	0.0872	0.03		2.9	
MFA 2008	6/16/2005	GP6	1	Trichloroethene	0.0405	0.03		1.4	
MFA 2008	12/13/2005	GP13	1	Zinc	84.9	24,000	38	<1	2.2
MFA 2008	12/13/2005	GP15	3	Zinc	71.6	24,000	38	<1	1.9
MFA 2008	12/14/2005	GP24	3 (Dup)	Zinc	50.4	24,000	38	<1	1.3
MFA 2008	12/14/2005	GP20	1	Zinc	49.3	24,000	38	<1	1.3
MFA 2008	12/12/2005	GP31	1	Zinc	46.1	24,000	38	<1	1.2
MFA 2008	12/14/2005	GP24	3	Zinc	44.3	24,000	38	<1	1.2
MFA 2008	12/13/2005	GP18	1	Zinc	40.9	24,000	38	<1	1.1
Drainage Ditch									
MFA 2008	10/25/2007	P9	0.5	Arsenic	111	0.7	12,000	159	<1
MFA 2008	12/15/2005	HA3	0.5	Arsenic	53.9	0.7	12,000	77	<1
MFA 2008	1/10/2007	HA22	0.5	Arsenic	53.5	0.7	12,000	76	<1

Table 13
Chemicals Detected Above Screening Levels in Soil
Pacific Industrial Supply/Former Precision Engineering

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
MFA 2008	12/15/2005	HA4	0.5	Arsenic	44.3	0.7	12,000	63	<1
Ecology 1989	3/22/1989	S-1	0.5	Arsenic	44	0.7	12,000	63	<1
MFA 2008	11/19/2007	SS-3	1.5	Arsenic	37	0.7	590	53	<1
MFA 2008	12/15/2005	HA5	0.5	Arsenic	35.9	0.7	12,000	51	<1
MFA 2008	10/24/2007	B13	1.5	Arsenic	26.3	0.7	590	38	<1
MFA 2008	11/19/2007	SS-6	1.5	Arsenic	23.7	0.7	590	34	<1
MFA 2008	10/24/2007	P1	0.5	Arsenic	22	0.7	12,000	31	<1
MFA 2008	3/27/2008	C-2	1.5	Arsenic	21.6	0.7	590	31	<1
MFA 2008	10/24/2007	P7	0.5	Arsenic	19.9	0.7	12,000	28	<1
MFA 2008	11/19/2007	SS-6	0.5	Arsenic	16.8	0.7	12,000	24	<1
MFA 2008	10/24/2007	B1	1.5	Arsenic	16.2	0.7	590	23	<1
MFA 2008	10/24/2007	B10	1.5	Arsenic	16.1	0.7	590	23	<1
MFA 2008	10/24/2007	P2	0.5	Arsenic	15.7	0.7	12,000	22	<1
MFA 2008	10/25/2007	P10	0.5	Arsenic	15.6	0.7	12,000	22	<1
MFA 2008	10/24/2007	B2	1.5	Arsenic	13.9	0.7	590	20	<1
MFA 2008	10/24/2007	P8	0.5	Arsenic	13.8	0.7	12,000	20	<1
MFA 2008	10/24/2007	P3	0.5	Arsenic	13.3	0.7	12,000	19	<1
MFA 2008	3/27/2008	C-3	1.5	Arsenic	13.2	0.7	590	19	<1
MFA 2008	1/9/2007	HA19	0.5	Arsenic	12.7	0.7	12,000	18	<1
MFA 2008	12/15/2005	HA5	1.5	Arsenic	12.5	0.7	590	18	<1
MFA 2008	1/10/2007	HA25	1.5	Arsenic	11.8	0.7	590	17	<1
MFA 2008	1/10/2007	HA25	0.5	Arsenic	11.6	0.7	12,000	17	<1
MFA 2008	10/24/2007	P4	0.5	Arsenic	11.6	0.7	12,000	17	<1
MFA 2008	10/24/2007	B12	1.5	Arsenic	11.3	0.7	590	16	<1
MFA 2008	10/24/2007	B3	1.5	Arsenic	10.7	0.7	590	15	<1
MFA 2008	1/10/2007	HA22	1.5	Arsenic	10.3	0.7	590	15	<1
MFA 2008	10/24/2007	B8	1.5	Arsenic	10	0.7	590	14	<1
MFA 2008	3/27/2008	C-1	2	Arsenic	9.91	0.7	590	14	<1
MFA 2008	10/24/2007	P5	0.5	Arsenic	9.54	0.7	12,000	14	<1
MFA 2008	10/24/2007	P6	0.5	Arsenic	9.05	0.7	12,000	13	<1
MFA 2008	4/19/2006	HA12	0.5	Arsenic	9	0.7	12,000	13	<1
MFA 2008	12/15/2005	HA1	1.5 (Dup)	Arsenic	8.35 J	0.7	590	12	<1
MFA 2008	10/24/2007	B11	1.5	Arsenic	8.26	0.7	590	12	<1
MFA 2008	10/24/2007	B9	1.5	Arsenic	8	0.7	590	11	<1
MFA 2008	10/24/2007	B7	1.5	Arsenic	7.21	0.7	590	10	<1

Table 13
Chemicals Detected Above Screening Levels in Soil
Pacific Industrial Supply/Former Precision Engineering

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
MFA 2008	12/15/2005	HA3	1.5	Arsenic	6.96	0.7	590	10	<1
MFA 2008	11/19/2007	SS-3	0.5	Arsenic	6.79	0.7	12,000	9.7	<1
MFA 2008	1/9/2007	HA17	0.5	Arsenic	6.61	0.7	12,000	9.4	<1
MFA 2008	1/10/2007	HA21	1.5	Arsenic	5.83	0.7	590	8.3	<1
MFA 2008	1/10/2007	HA21	0.5	Arsenic	5.72	0.7	12,000	8.2	<1
MFA 2008	1/9/2007	HA17	1.5	Arsenic	5.3	0.7	590	7.6	<1
MFA 2008	12/15/2005	HA4	1.5	Arsenic	5.25	0.7	590	7.5	<1
MFA 2008	1/10/2007	HA24	1.5	Arsenic	5.23	0.7	590	7.5	<1
MFA 2008	1/9/2007	HA18	0.5	Arsenic	5.03	0.7	12,000	7.2	<1
MFA 2008	1/10/2007	HA23	1.5	Arsenic	4.91	0.7	590	7.0	<1
MFA 2008	1/10/2007	HA24	0.5	Arsenic	4.9	0.7	12,000	7.0	<1
MFA 2008	11/19/2007	SS-2	0.5	Arsenic	4.82	0.7	12,000	6.9	<1
MFA 2008	1/10/2007	HA23	0.5	Arsenic	4.44	0.7	12,000	6.3	<1
MFA 2008	11/19/2007	SS-5	0.5	Arsenic	4.43	0.7	12,000	6.3	<1
MFA 2008	1/9/2007	HA19	1.5	Arsenic	4.02	0.7	590	5.7	<1
MFA 2008	12/15/2005	HA2	0.5	Arsenic	3.94	0.7	12,000	5.6	<1
MFA 2008	12/15/2005	HA1	0.5	Arsenic	3.81	0.7	12,000	5.4	<1
MFA 2008	10/24/2007	B4	1.5	Arsenic	3.79	0.7	590	5.4	<1
MFA 2008	11/19/2007	SS-4	0.5	Arsenic	3.58	0.7	12,000	5.1	<1
MFA 2008	10/24/2007	B5	1.5	Arsenic	3.07	0.7	590	4.4	<1
MFA 2008	12/15/2005	HA1	1.5	Arsenic	2.88 J	0.7	590	4.1	<1
MFA 2008	10/24/2007	B6	1.5	Arsenic	2.76	0.7	590	3.9	<1
MFA 2008	12/15/2005	HA2	1.5	Arsenic	2.71	0.7	590	3.9	<1
MFA 2008	11/19/2007	SS-1	0.5	Arsenic	2.64	0.7	12,000	3.8	<1
MFA 2008	12/15/2005	HA5	0.5	Benzo(a)pyrene	1.45	0.14	4.2	10	<1
MFA 2008	12/15/2005	HA4	0.5	Benzo(a)pyrene	0.694	0.14	4.2	5.0	<1
MFA 2008	12/15/2005	HA5	0.5	Benzo(b)fluoranthene	1.62	1.37	9.0	1.2	<1
MFA 2008	12/15/2005	HA4	0.5	Cadmium	28.7	2	34	14	<1
MFA 2008	12/15/2005	HA5	0.5	Cadmium	3.13	2	34	1.6	<1
MFA 2008	12/15/2005	HA3	0.5	Cadmium	2.53	2	34	1.3	<1
MFA 2008	12/15/2005	HA4	0.5	Chromium	8,480		5,400		1.6
MFA 2008	12/15/2005	HA2	0.5	Chromium (hexavalent)	89 J	19	5,400	4.7	<1
MFA 2008	12/15/2005	HA4	0.5	Chromium (trivalent)	8,480	2,000	5,400	4.2	1.6
MFA 2008	12/15/2005	HA4	0.5	Copper	978	3,200	780	<1	1.3
MFA 2008	12/15/2005	HA1	1.5 (Dup)	Copper	68.4 J	3,200	39	<1	1.8
MFA 2008	12/15/2005	HA4	1.5	Copper	48.8	3,200	39	<1	1.3
MFA 2008	12/15/2005	HA5	0.5	Dibenzo(a,h)anthracene	0.435	0.137	0.66	3.2	<1

Table 13
Chemicals Detected Above Screening Levels in Soil
Pacific Industrial Supply/Former Precision Engineering

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
MFA 2008	12/15/2005	HA4	0.5	Diesel-range hydrocarbons	35,900	2,000		18	
MFA 2008	12/15/2005	HA4	0.5	Heavy-oil range hydrocarbons	106,000	2,000		53	
MFA 2008	12/15/2005	HA5	0.5	Heavy-oil range hydrocarbons	7,330	2,000		3.7	
MFA 2008	12/15/2005	HA4	1.5	Heavy-oil range hydrocarbons	3,550	2,000		1.8	
MFA 2008	12/15/2005	HA2	0.5	Heavy-oil range hydrocarbons	3,170	2,000		1.6	
MFA 2008	12/15/2005	HA3	0.5	Heavy-oil range hydrocarbons	2,470	2,000		1.2	
MFA 2008	10/25/2007	P9	0.5	Lead	2,410	250	1,300	9.6	1.9
MFA 2008	12/15/2005	HA4	0.5	Lead	1,710	250	1,300	6.8	1.3
MFA 2008	12/15/2005	HA5	0.5	Lead	1,440	250	1,300	5.8	1.1
Ecology 1989	3/22/1989	S-1	0.5	Lead	1,310	250	1,300	5.2	1.0
MFA 2008	3/27/2008	C-2	1.5	Lead	1,020	250	67	4.1	15
MFA 2008	1/10/2007	HA22	0.5	Lead	986	250	1,300	3.9	<1
MFA 2008	11/19/2007	SS-6	0.5	Lead	838	250	1,300	3.4	<1
MFA 2008	11/19/2007	SS-3	1.5	Lead	668	250	67	2.7	10
MFA 2008	10/24/2007	P1	0.5	Lead	653	250	1,300	2.6	<1
MFA 2008	12/15/2005	HA3	0.5	Lead	545	250	1,300	2.2	<1
MFA 2008	11/19/2007	SS-6	1.5	Lead	526	250	67	2.1	7.9
MFA 2008	3/27/2008	C-1	2	Lead	470	250	67	1.9	7.0
MFA 2008	1/10/2007	HA21	0.5	Lead	398	250	1,300	1.6	<1
MFA 2008	10/25/2007	P10	0.5	Lead	365	250	1,300	1.5	<1
MFA 2008	1/10/2007	HA25	0.5	Lead	302	250	1,300	1.2	<1
MFA 2008	1/9/2007	HA17	0.5	Lead	278	250	1,300	1.1	<1
MFA 2008	3/27/2008	C-3	1.5	Lead	213	250	67	<1	3.2
MFA 2008	12/15/2005	HA5	1.5	Lead	209	250	67	<1	3.1
MFA 2008	1/10/2007	HA21	1.5	Lead	121	250	67	<1	1.8
MFA 2008	10/24/2007	B12	1.5	Lead	108	250	67	<1	1.6
MFA 2008	12/15/2005	HA1	1.5 (Dup)	Lead	95.3 J	250	67	<1	1.4
MFA 2008	12/15/2005	HA3	0.5	Mercury	2.65	2	0.59	1.3	4.5
MFA 2008	12/15/2005	HA4	0.5	Mercury	2.28	2	0.59	1.1	3.9
Ecology 1989	3/22/1989	S-1	0.5	Mercury	2.08	2	0.59	1.0	3.5
MFA 2008	12/15/2005	HA5	0.5	Mercury	0.918	2	0.59	<1	1.6
MFA 2008	12/15/2005	HA1	1.5	Mercury	0.328	2	0.030	<1	11
MFA 2008	12/15/2005	HA2	1.5	Mercury	0.232	2	0.030	<1	7.7
MFA 2008	12/15/2005	HA4	0.5	Zinc	2,620	24,000	770	<1	3.4
MFA 2008	12/15/2005	HA1	1.5 (Dup)	Zinc	293 J	24,000	38	<1	7.7
MFA 2008	12/15/2005	HA2	1.5	Zinc	134	24,000	38	<1	3.5
MFA 2008	12/15/2005	HA5	1.5	Zinc	110	24,000	38	<1	2.9

Table 13
Chemicals Detected Above Screening Levels in Soil
Pacific Industrial Supply/Former Precision Engineering

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
MFA 2008	12/15/2005	HA4	1.5	Zinc	86.3	24,000	38	<1	2.3
MFA 2008	12/15/2005	HA1	1.5	Zinc	70.8 J	24,000	38	<1	1.9
MFA 2008	12/15/2005	HA3	1.5	Zinc	46.2	24,000	38	<1	1.2

ft bgs - feet below ground surface
mg/kg - milligrams per kilogram
MTCA - Model Toxics Control Act
CSL - Cleanup Screening Level from Washington Sediment Management Standards

J - Estimated value
Soil removed during remedial excavation

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.
b - Based on CSL. Where two screening levels are listed for a single chemical, the higher screening levels are for soil samples collected from the vadose zone and the lower screening levels are for soil samples collected from the saturated zone (SAIC 2006).
Depth to groundwater is tidally influenced at this property, and was observed between 3 and 7 ft bgs.
Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Soil-to-Sediment Screening Level.

Table 14
Chemicals Detected Above Screening Levels in Groundwater
Pacific Industrial Supply/Former Precision Engineering

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
MFA 2011	7/16/2010	MW6	Arsenic	35.7	0.0583	370	612	<1
MFA 2008	4/18/2006	MW1	Arsenic	33	0.0583	370	566	<1
MFA 2008	12/27/2005	MW1	Arsenic	32.3	0.0583	370	554	<1
MFA 2011	7/15/2010	MW1	Arsenic	28.1	0.0583	370	482	<1
MFA 2008	4/19/2006	MW6	Arsenic	24	0.0583	370	412	<1
MFA 2008	12/29/2005	MW3	Arsenic	15.3	0.0583	370	262	<1
MFA 2008	12/27/2005	MW4	Arsenic	15.1	0.0583	370	259	<1
MFA 2008	4/18/2006	MW4	Arsenic	15	0.0583	370	257	<1
MFA 2011	7/13/2010	MW3	Arsenic	14.5	0.0583	370	249	<1
MFA 2008	12/29/2005	MW6	Arsenic	11.9	0.0583	370	204	<1
MFA 2011	7/15/2010	MW4	Arsenic	11.2	0.0583	370	192	<1
MFA 2008	12/28/2005	MW8 (Dup)	Arsenic	7.85	0.0583	370	135	<1
MFA 2008	4/18/2006	MW7 (Dup)	Arsenic	7.3	0.0583	370	125	<1
MFA 2008	4/18/2006	MW7	Arsenic	7.1	0.0583	370	122	<1
MFA 2008	12/28/2005	MW7	Arsenic	6.62	0.0583	370	114	<1
MFA 2008	12/28/2005	MW8	Arsenic	6.41	0.0583	370	110	<1
MFA 2011	7/15/2010	MW8	Arsenic	6.3	0.0583	370	108	<1
MFA 2008	12/28/2005	MW2	Arsenic	5.63	0.0583	370	97	<1
MFA 2011	7/13/2010	MW7	Arsenic	5.6	0.0583	370	96	<1
MFA 2011	7/13/2010	MW7 (Dup)	Arsenic	5.4	0.0583	370	93	<1
MFA 2008	4/19/2006	MW5	Arsenic	4.9	0.0583	370	84	<1
MFA 2008	4/18/2006	MW8	Arsenic	4.8	0.0583	370	82	<1
MFA 2008	12/28/2005	MW5	Arsenic	4.59	0.0583	370	79	<1
MFA 2008	4/19/2006	MW2	Arsenic	3.8	0.0583	370	65	<1
MFA 2011	7/15/2010	MW2	Arsenic	2.3	0.0583	370	39	<1
MFA 2008	12/28/2005	MW5	Chromium	497,000	50	320	9,940	1,553
MFA 2008	6/16/2005	GP8	Chromium	355,000	50	320	7,100	1,109
MFA 2008	6/16/2005	GP6	Chromium	343,000	50	320	6,860	1,072
MFA 2008	6/16/2005	GP4	Chromium	267,000	50	320	5,340	834
MFA 2008	6/9/2005	GP2	Chromium	37,100	50	320	742	116
MFA 2008	4/19/2006	MW5	Chromium	32,000	50	320	640	100
Precision Engineering 1993	6/22/1988	MW3	Chromium	923	50	320	18	2.9
Precision Engineering 1993	3/8/1990	MW1	Chromium	332	50	320	6.6	1.0
Precision Engineering 1993	6/22/1988	MW2	Chromium	278	50	320	5.6	<1

Table 14
Chemicals Detected Above Screening Levels in Groundwater
Pacific Industrial Supply/Former Precision Engineering

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
Precision Engineering 1993	3/8/1990	MW4	Chromium	239	50	320	4.8	<1
Precision Engineering 1993	3/8/1990	MW3	Chromium	57	50	320	1.1	<1
MFA 2008	12/28/2005	MW5	Chromium (hexavalent)	450,000	48		9,375	
MFA 2008	4/19/2006	MW5	Chromium (hexavalent)	350,000	48		7,292	
MFA 2008	6/16/2005	GP6	Chromium (hexavalent)	300,000	48		6,250	
MFA 2008	6/16/2005	GP8	Chromium (hexavalent)	294,000	48		6,125	
MFA 2008	6/16/2005	GP4	Chromium (hexavalent)	236,000	48		4,917	
MFA 2008	6/9/2005	GP2	Chromium (hexavalent)	4,720	48		98	
MFA 2008	6/16/2005	MW1	Chromium (hexavalent)	269	48		5.6	
MFA 2008	6/16/2005	GP7	Chromium (hexavalent)	101	48		2.1	
MFA 2008	6/16/2005	GP5	Chromium (hexavalent)	89.7	48		1.9	
MFA 2011	7/16/2010	MW5	Chromium (hexavalent)	81.6	48		1.7	
MFA 2008	6/16/2005	GP8	Chromium (trivalent)	61,000	24,000		2.5	
MFA 2008	12/28/2005	MW5	Chromium (trivalent)	47,000	24,000		2.0	
MFA 2008	6/16/2005	GP6	Chromium (trivalent)	43,000	24,000		1.8	
MFA 2008	6/9/2005	GP2	Chromium (trivalent)	32,380	24,000		1.3	
MFA 2008	6/16/2005	GP4	Chromium (trivalent)	31,000	24,000		1.3	
MFA 2008	6/16/2005	GP6	cis-1,2-Dichloroethene	144	16		9.0	
Precision Engineering 1993	3/8/1990	MW1	Copper	240	640	120	<1	2.0
Precision Engineering 1993	3/8/1990	MW4	Copper	150	640	120	<1	1.3
MFA 2008	4/18/2006	MW7	Dibenzo(a,h)anthracene	0.038 J	0.012	0.013	3.2	2.9
MFA 2008	12/29/2005	MW6	Diesel-range hydrocarbons	2,640	500		5.3	
MFA 2008	12/28/2005	MW8 (Dup)	Diesel-range hydrocarbons	1,790	500		3.6	
MFA 2008	12/28/2005	MW8	Diesel-range hydrocarbons	1,710	500		3.4	
MFA 2008	12/28/2005	MW2	Diesel-range hydrocarbons	1,190	500		2.4	
MFA 2008	12/28/2005	MW5	Diesel-range hydrocarbons	831	500		1.7	
MFA 2008	6/16/2005	GP8	Diesel-range hydrocarbons	814	500		1.6	
MFA 2008	4/19/2006	MW6	Diesel-range hydrocarbons	760	500		1.5	
MFA 2011	7/16/2010	MW6	Diesel-range hydrocarbons	730	500		1.5	
MFA 2008	12/29/2005	MW6	Heavy-oil range hydrocarbons	1,320	500		2.6	
MFA 2008	12/28/2005	MW8 (Dup)	Heavy-oil range hydrocarbons	1,210	500		2.4	
MFA 2008	4/19/2006	MW6	Heavy-oil range hydrocarbons	1,200	500		2.4	
MFA 2008	12/28/2005	MW2	Heavy-oil range hydrocarbons	1,040	500		2.1	
MFA 2008	12/28/2005	MW8	Heavy-oil range hydrocarbons	1,000	500		2.0	

Table 14
Chemicals Detected Above Screening Levels in Groundwater
Pacific Industrial Supply/Former Precision Engineering

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
MFA 2011	7/16/2010	MW6	Heavy-oil range hydrocarbons	930	500		1.9	
MFA 2008	6/17/2005	MW2	Heavy-oil range hydrocarbons	512	500		1.0	
MFA 2008	4/18/2006	MW7	Indeno(1,2,3-cd)pyrene	0.039 J	0.12	0.033	<1	1.2
MFA 2008	4/18/2006	MW1	Indeno(1,2,3-cd)pyrene	0.034 J	0.12	0.033	<1	1.0
Precision Engineering 1993	3/8/1990	MW1	Lead	57	15	13	3.8	4.4
Precision Engineering 1993	3/8/1990	MW4	Lead	35	15	13	2.3	2.7
Precision Engineering 1993	3/8/1990	MW1	Mercury	0.5	2	0.0074	<1	68
Precision Engineering 1993	3/8/1990	MW1	Methylene chloride	12	5		2.4	
MFA 2008	6/16/2005	GP6	Trichloroethene	1,130	5		226	
MFA 2008	12/28/2005	MW5	Trichloroethene	22.1	5		4.4	
MFA 2008	6/16/2005	GP8	Trichloroethene	16.8	5		3.4	
MFA 2008	4/19/2006	MW5	Trichloroethene	7.9	5		1.6	
MFA 2008	12/14/2005	GP13	Vinyl chloride	16.5	0.2		83	
MFA 2008	4/18/2006	MW8	Vinyl chloride	0.8 J	0.2		4.0	
MFA 2008	12/28/2005	MW8	Vinyl chloride	0.56	0.2		2.8	
MFA 2008	12/28/2005	MW8 (Dup)	Vinyl chloride	0.4	0.2		2.0	
Precision Engineering 1993	3/8/1990	MW1	Zinc	620	4,800	76	<1	8.2
Precision Engineering 1993	3/8/1990	MW4	Zinc	370	4,800	76	<1	4.9
Precision Engineering 1993	3/8/1990	MW3	Zinc	90	4,800	76	<1	1.2

GW - groundwater
ug/L - micrograms per liter
MTCA - Model Toxics Control Act
CSL - Cleanup Screening Level from Washington Sediment Management Standards

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.
b - Based on CSL (SAIC 2006).
Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Groundwater-to-Sediment Screening Value.

Table 15
Chemicals Detected Above Screening Levels in Soil
Former Advanced Electroplating Inc.

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Parametrix and SAIC 1991b	5/9/1991	MW-01	3.5	Arsenic	25	0.67	12,000	37	<1
Parametrix and SAIC 1991b	5/9/1991	MW-01	6.5	Arsenic	15.6	0.67	12,000	23	<1
Parametrix and SAIC 1991b	5/9/1991	MW-01-Dup	9.5	Arsenic	12.8	0.67	590	19	<1
Parametrix and SAIC 1991b	5/9/1991	MW-01	9.5	Arsenic	10.8	0.7	590	16	<1
Parametrix and SAIC 1991b	5/9/1991	MW-01	9.5	Trichloroethene	0.071	0.03		2.4	
Parametrix and SAIC 1991b	5/9/1991	MW-01	9.5	Zinc	179	24,000	38	<1	4.7
Parametrix and SAIC 1991b	5/9/1991	MW-01-Dup	9.5	Zinc	87.8	24,000	38	<1	2.3

ft bgs - feet below ground surface
mg/kg - milligrams per kilogram
MTCA - Model Toxics Control Act
CSL - Cleanup Screening Level from Washington Sediment Management Standards

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.
b - Based on CSL. Where two screening levels are listed for a single chemical, the higher screening levels are for soil samples collected from the vadose zone and the lower screening levels are for soil samples collected from the saturated zone (SAIC 2006).
Depth to groundwater was observed at 6.5 ft bgs.
Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Soil-to-Sediment Screening Level.

Table 16
Chemicals Detected Above Screening Levels in Groundwater
Former Advanced Electroplating Inc.

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
Parametrix and SAIC 1991b	5/13/1991	MW-01	1,1,1-Trichloroethane	330	200		1.7	
Parametrix and SAIC 1991b	5/14/1991	MW-01	Arsenic	46	0.0583	370	789	<1
Parametrix and SAIC 1991b	5/14/1991	MW-01	Arsenic	22	0.0583	370	377	<1
Parametrix and SAIC 1991b	5/14/1991	MW-01	Cadmium	358	5	3.4	72	105
Parametrix and SAIC 1991b	5/14/1991	MW-01	Cadmium	327	5	3.4	65	96
Parametrix and SAIC 1991b	5/14/1991	MW-01	Chromium	5,590	50	320	112	17
Parametrix and SAIC 1991b	5/14/1991	MW-01	Chromium	5,320	50	320	106	17
Parametrix and SAIC 1991b	5/14/1991	MW-01	Copper	7,380	640	120	12	62
Parametrix and SAIC 1991b	5/14/1991	MW-01	Copper	6,420	640	120	10	54
Parametrix and SAIC 1991b	5/13/1991	MW-01	Tetrachloroethene	300	5		60	
Parametrix and SAIC 1991b	5/13/1991	MW-01	Trichloroethene	1,500	5		300	
Parametrix and SAIC 1991b	5/14/1991	MW-01	Zinc	64,600	4,800	76	13	850
Parametrix and SAIC 1991b	5/14/1991	MW-01	Zinc	57,100	4,800	76	12	751

GW - groundwater
ug/L - micrograms per liter
MTCA - Model Toxics Control Act
CSL - Cleanup Screening Level from Washington Sediment Management Standards

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.
b - Based on CSL (SAIC 2006).
Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Groundwater-to-Sediment Screening Value.

Table 17
Chemicals Detected Above Screening Levels in Soil
Former Penberthy Electromelt/ToxGon Corp Seattle

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Former Penberthy Electromelt Property									
PGG 2001	1/22/2001	S-5-0-6	0.5	2,3,7,8-TCDD TEQ	0.00046	0.000011		42	
PGG 2001	1/22/2001	S-13-0-6	0.5	2,3,7,8-TCDD TEQ	0.00044	0.000011		40	
PGG 2001	1/23/2001	S-7-0-6	0.5	2,3,7,8-TCDD TEQ	0.0002	0.000011		18	
PGG 2001	1/22/2001	S-14-0-6	0.5	2,3,7,8-TCDD TEQ	7.90E-05	0.000011		7.2	
PGG 2001	1/23/2001	S-9-0-6	0.5	2,3,7,8-TCDD TEQ	5.20E-05	0.000011		4.7	
PGG 2001	1/22/2001	B3-48-54	4.5	2,3,7,8-TCDD TEQ	3.70E-05	0.000011		3.4	
PGG 2001	1/22/2001	S-6-0-6	0.5	2,3,7,8-TCDD TEQ	2.20E-05	0.000011		2.0	
PGG 2001	1/23/2001	S-10-0-6	0.5	2,3,7,8-TCDD TEQ	1.30E-05	0.000011		1.2	
PGG 2001	1/22/2001	S-13-0-6	0.5	Arsenic	156	0.67	12,000	233	<1
PGG 2002	2/12/2002	Bkyd-SW+2-N	2	Arsenic	68	0.67	12,000	101	<1
PGG 2002	9/24/2001	PbO - SE		Arsenic	66	0.67	590	99	<1
PGG 2002	1/15/2002	Bkyd-SW+2	2	Arsenic	49	0.67	12,000	73	<1
PGG 2001	1/23/2001	S-7-0-6	0.5	Arsenic	44	0.67	12,000	66	<1
PGG 2001	1/23/2001	S-9-0-6	0.5	Arsenic	40	0.67	12,000	60	<1
PGG 2001	1/22/2001	S-SW		Arsenic	40	0.67	590	60	<1
PGG 2002	11/19/2001	S-13-Conf	0.5	Arsenic	34	0.67	12,000	51	<1
PGG 2002	11/19/2001	Bkyd-SW	1	Arsenic	32	0.67	12,000	48	<1
PGG 2002	2/12/2002	Bkyd-SW+2-S	2	Arsenic	27	0.67	12,000	40	<1
PGG 2001	1/23/2001	S-10-0-6	0.5	Arsenic	25	0.67	12,000	37	<1
PGG 2002	12/11/2001	S-13-Conf @ 4'	4	Arsenic	25	0.67	12,000	37	<1
PGG 2002	1/15/2002	S-13-Conf-7ft	7	Arsenic	23	0.67	590	34	<1
PGG 2002	12/11/2001	Bkyd-SW+1	1	Arsenic	21	0.67	12,000	31	<1
PGG 2001	1/22/2001	S-14-0-6	0.5	Arsenic	15	0.67	12,000	22	<1
PGG 2002	9/24/2001	Beneath Sump	2	Arsenic	14	0.67	12,000	21	<1
PGG 2002	2/12/2002	Bkyd-SW+2-N Floor	2	Arsenic	14	0.67	12,000	21	<1
PGG 2002	3/13/2002	Bkyd-SW-2ft-S Native	2	Arsenic	12	0.67	12,000	18	<1
PGG 2001	1/22/2001	CS-3-0-6	0.5	Arsenic	11	0.67	12,000	16	<1
PGG 2001	1/23/2001	S-8-0-6	0.5	Arsenic	11	0.67	12,000	16	<1
PGG 2002	12/17/2001	Repeat-1-CS-3	1	Arsenic	11	0.67	12,000	16	<1
PGG 2002	2/12/2002	Bkyd-SW+2-S Floor	2	Arsenic	11	0.67	12,000	16	<1
PGG 2001	1/22/2001	S-5-0-6	0.5	Arsenic	10	0.67	12,000	15	<1
PGG 2001	1/22/2001	S-SN		Arsenic	10	0.67	590	15	<1
PGG 2002	3/13/2002	Bkyd-SW-2ft-N Native	2	Arsenic	9.8	0.67	12,000	15	<1
PGG 2001	1/22/2001	S-6-0-6	0.5	Arsenic	9	0.67	12,000	13	<1
PGG 2002	11/9/2001	Beneath Sump - 2ft	2	Arsenic	9	0.67	12,000	13	<1

Table 17
Chemicals Detected Above Screening Levels in Soil
Former Penberthy Electromelt/ToxGon Corp Seattle

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
PGG 2002	3/13/2002	Bkyd-SW-4ft-Floor N	4	Arsenic	9	0.67	12,000	13	<1
PGG 2001	1/22/2001	S-B-1		Arsenic	9	0.67	590	13	<1
PGG 2002	3/13/2002	Bkyd-SW-4ft-Floor S	4	Arsenic	8.8	0.67	12,000	13	<1
PGG 2002	11/19/2001	S-14-Conf	0.5	Arsenic	8.2	0.67	12,000	12	<1
PGG 2001	1/22/2001	B3-6-12	1	Arsenic	8	0.67	12,000	12	<1
PGG 2001	1/22/2001	S-Comp		Arsenic	8	0.67	590	12	<1
PGG 2002	12/14/2001	CS-8-0-6	0.5	Arsenic	7.4	0.67	12,000	11	<1
PGG 2001	1/22/2001	B8-48-54	4.5	Arsenic	7	0.67	12,000	10	<1
PGG 2002	12/11/2001	Beneath Sump - 4ft	4	Arsenic	6.4	0.67	12,000	9.6	<1
PGG 2001	1/22/2001	B6-6-12	1	Arsenic	6	0.67	12,000	9.0	<1
PGG 2002	11/19/2001	Bkyd-SE	1	Arsenic	5.2	0.67	12,000	7.8	<1
PGG 2001	1/22/2001	CS-2-0-6	0.5	Arsenic	5	0.67	12,000	7.5	<1
PGG 2001	1/22/2001	CS-5-0-6	0.5	Arsenic	5	0.67	12,000	7.5	<1
PGG 2002	11/19/2001	S-9-Conf	0.5	Arsenic	5	0.67	12,000	7.5	<1
PGG 2002	11/19/2001	S-7-Conf	0.5	Arsenic	4.5	0.67	12,000	6.7	<1
PGG 2002	9/24/2001	PbO - SS		Arsenic	4.2	0.67	590	6.3	<1
PGG 2002	9/24/2001	PbO - SW		Arsenic	3.9	0.67	590	5.8	<1
PGG 2002	1/29/2002	S-14-Conf @ 2'	2	Arsenic	3.6	0.67	12,000	5.4	<1
PGG 2002	11/9/2001	PbO - 2ft SE	2	Arsenic	3.2	0.67	12,000	4.8	<1
PGG 2002	9/24/2001	Drum Sump		Arsenic	3.2	0.67	590	4.8	<1
PGG 2002	9/24/2001	PbO - 2' Floor	2	Arsenic	2.7	0.67	12,000	4.0	<1
PGG 2002	9/24/2001	B2/3 Trench-6	6	Arsenic	2.4	0.67	590	3.6	<1
PGG 2002	12/14/2001	CS-7-0-6	0.5	Arsenic	2.2	0.67	12,000	3.3	<1
PGG 2002	9/24/2001	S-5-Conf	0.5	Arsenic	2.1	0.67	12,000	3.1	<1
PGG 2002	9/21/2001	Drum West		Arsenic	2.1	0.67	590	3.1	<1
PGG 2002	11/19/2001	Bkyd-SNE	1	Arsenic	1.9	0.67	12,000	2.8	<1
PGG 2002	9/24/2001	Asphalt	0.5	Arsenic	1.6	0.67	12,000	2.4	<1
PGG 2002	9/24/2001	PbO - SN		Arsenic	1.4	0.67	590	2.1	<1
PGG 2001	1/22/2001	S-13-0-6	0.5	Cadmium	176	2	34	88	5.2
PGG 2002	11/19/2001	S-13-Conf	0.5	Cadmium	8.8	2	34	4.4	<1
PGG 2001	1/22/2001	S-14-0-6	0.5	Cadmium	4.1	2	34	2.1	<1
PGG 2001	1/22/2001	S-2-0-6	0.5	Cadmium	3.7	2	34	1.9	<1
PGG 2002	12/14/2001	CS-8-0-6	0.5	Cadmium	3.7	2	34	1.9	<1
PGG 2001	1/23/2001	S-7-0-6	0.5	Cadmium	2.9	2	34	1.5	<1
PGG 2001	1/22/2001	S-5-0-6	0.5	Cadmium	2.1	2	34	1.1	<1
PGG 2001	1/23/2001	S-9-0-6	0.5	Cadmium	2	2	34	1.0	<1

Table 17
Chemicals Detected Above Screening Levels in Soil
Former Penberthy Electromelt/ToxGon Corp Seattle

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
PGG 2001	1/22/2001	S-SW		Cadmium	1.9	2	1.7	<1	1.1
PGG 2001	1/22/2001	S-B-1		Chromium	734		270		2.7
PGG 2001	1/22/2001	S-SN		Chromium	408		270		1.5
PGG 2001	1/22/2001	S-B-1		Copper	437	3,200	39	<1	11
PGG 2001	1/22/2001	S-SN		Copper	301	3,200	39	<1	7.7
PGG 2001	1/22/2001	S-SW		Copper	282	3,200	39	<1	7.2
PGG 2001	1/22/2001	S-Comp		Copper	197	3,200	39	<1	5.1
PGG 2001	1/22/2001	S-SE		Copper	133	3,200	39	<1	3.4
PGG 2002	9/24/2001	PbO - SE		Copper	97	3,200	39	<1	2.5
PGG 2002	9/24/2001	PbO - SS		Copper	93	3,200	39	<1	2.4
PGG 2001	1/22/2001	S-B-2E		Copper	84.1	3,200	39	<1	2.2
PGG 2001	1/22/2001	S-B-1		Lead	940	250	67	3.8	14
PGG 2001	1/22/2001	S-13-0-6	0.5	Lead	592	250	1,300	2.4	<1
PGG 2001	1/22/2001	S-B-2E		Lead	429	250	67	1.7	6.4
PGG 2002	9/24/2001	PbO - SS		Lead	410	250	67	1.6	6.1
PGG 2001	1/22/2001	S-SN		Lead	313	250	67	1.3	4.7
PGG 2002	9/24/2001	PbO - SE		Lead	170	250	67	<1	2.5
PGG 2001	1/22/2001	S-Comp		Lead	148	250	67	<1	2.2
PGG 2001	1/22/2001	S-SE		Lead	145	250	67	<1	2.2
PGG 2001	1/22/2001	S-SW		Lead	110	250	67	<1	1.6
PGG 2001	1/22/2001	B2-6-12	1	Silver	18	400	12	<1	1.5
PGG 2001	1/22/2001	S-B-1		Silver	2.7	400	0.61	<1	4.4
PGG 2001	1/22/2001	S-SN		Silver	1	400	0.61	<1	1.6
PGG 2001	1/22/2001	S-SW		Silver	0.8	400	0.61	<1	1.3
PGG 2002	11/19/2001	S-13-Conf	0.5	TCDD	0.0004209	0.000011		38	
PGG 2002	11/19/2001	S-14-Conf	0.5	TCDD	8.07E-05	0.000011		7.3	
PGG 2002	11/19/2001	Bkyd-SE	1	TCDD	0.00008042	0.000011		7.3	
PGG 2002	12/14/2001	Repeat-1-CS-6	1	TCDD	0.000026037	0.000011		2.4	
PGG 2001	1/22/2001	S-13-0-6	0.5	Zinc	1920	24,000	770	<1	2.5
PGG 2001	1/22/2001	S-SW		Zinc	211	24,000	38	<1	5.6
PGG 2001	1/22/2001	S-B-1		Zinc	149	24,000	38	<1	3.9
PGG 2001	1/22/2001	S-SN		Zinc	119	24,000	38	<1	3.1
PGG 2001	1/22/2001	S-SE		Zinc	87.6	24,000	38	<1	2.3
PGG 2001	1/22/2001	S-Comp		Zinc	83.2	24,000	38	<1	2.2
PGG 2002	9/24/2001	PbO - SS		Zinc	74	24,000	38	<1	1.9
PGG 2002	9/24/2001	PbO - SE		Zinc	66	24,000	38	<1	1.7

Table 17
Chemicals Detected Above Screening Levels in Soil
Former Penberthy Electromelt/ToxGon Corp Seattle

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
PGG 2001	1/22/2001	S-B-2E		Zinc	64.6	24,000	38	<1	1.7
PGG 2001	1/22/2001	B3-48-54	4.5	Zinc	42.7	24,000	770	<1	<1
PGG 2001	1/22/2001	S-B-2S		Zinc	42.5	24,000	38	<1	1.1
Drainage Ditches Adjacent to Property									
PGG 2001	1/22/2001	S-11-0-6	0.5	2,3,7,8-TCDD TEQ	3.80E-05	0.000011		3.5	
PGG 2001	1/23/2001	S-12-0-6	0.5	2,3,7,8-TCDD TEQ	2.20E-05	0.000011		2.0	
Ecology 1991b	7/2/1991	Penb-2	Surface	Arsenic	25	0.67	12,000	37	<1
Ecology 1991b	7/2/1991	Penb-1	Surface	Arsenic	24	0.67	12,000	36	<1
Ecology 1991b	7/2/1991	Penb-3	Surface	Arsenic	13	0.67	12,000	19	<1
PGG 2001	1/22/2001	S-11-0-6	0.5	Arsenic	10	0.67	12,000	15	<1
PGG 2003	9/21/2001	S-11-Upstream	0.5	Arsenic	6.5	0.67	12,000	9.7	<1
PGG 2003	9/21/2001	S-11-Downstream	0.5	Arsenic	3.3	0.67	12,000	4.9	<1
PGG 2001	1/23/2001	S-12-0-6	0.5	Benzo(a)anthracene	2.5	1.37	5.4	1.8	<1
PGG 2001	1/23/2001	S-12-0-6	0.5	Benzo(a)pyrene	5.3	0.137	4.2	39	1.3
PGG 2001	1/23/2001	S-12-0-6	0.5	Benzo(b)fluoranthene	5.1	1.37	9	3.7	<1
PGG 2001	1/23/2001	S-12-0-6	0.5	Benzo(g,h,i)perylene	4		1.6		2.5
PGG 2001	1/22/2001	S-11-0-6	0.5	Bis(2-ethylhexyl)phthalate	9.5	71	1.6	<1	5.9
PGG 2001	1/23/2001	S-12-0-6	0.5	Bis(2-ethylhexyl)phthalate	4.2	71	1.6	<1	2.6
PGG 2001	1/22/2001	S-11-0-6	0.5	Butyl benzyl phthalate	1.8	530	1.3	<1	1.4
PGG 2001	1/22/2001	S-11-0-6	0.5	Cadmium	6.9	2	34	3.5	<1
PGG 2003	11/9/2001	W. Drain Native (40ft)	0.5	Cadmium	7	2	34	3.4	<1
PGG 2003	9/21/2001	S-11-Downstream	0.5	Cadmium	3.9	2	34	2.0	<1
PGG 2003	9/21/2001	S-11-Upstream	0.5	Cadmium	2.4	2	34	1.2	<1
PGG 2001	1/23/2001	S-12-0-6	0.5	Dibenzo(a,h)anthracene	1.1	0.137	0.66	8.0	1.7
PGG 2001	1/23/2001	S-12-0-6	0.5	Indeno(1,2,3-cd)pyrene	4.8	1.37	1.8	3.5	2.7
PGG 2003	1/16/2003	W.Drain-80ft+3ft Ex	3	TCDD	4.40E-05	0.000011		4.0	
PGG 2003	3/7/2002	W. Drain-80 ft Native	0.5	TCDD	3.87E-05	0.000011		3.5	
PGG 2003	11/9/2001	W. Drain Native (40ft)	0.5	TCDD	2.98E-05	0.000011		2.7	
PGG 2003	3/5/2002	W. Drain-80 ft Excav	0.5	TCDD	1.91E-05	0.000011		1.7	
PGG 2003	9/25/2002	W.Drain-80ft+2ft Excav	0.5	TCDD	1.80E-05	0.000011		1.6	
PGG 2003	9/21/2001	S-11-Downstream	0.5	TCDD	0.000014391	0.000011		1.3	
PGG 2001	1/23/2001	S-12-0-6	0.5	Zinc	1,260	24,000	770	<1	1.6
PGG 2003	11/9/2001	W. Drain Native (40ft)	0.5	Zinc	1,100	24,000	770	<1	1.4
PGG 2001	1/22/2001	S-11-0-6	0.5	Zinc	1080	24,000	770	<1	1.4

Table 17
Chemicals Detected Above Screening Levels in Soil
Former Penberthy Electromelt/ToxGon Corp Seattle

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor

ft bgs - feet below ground surface
mg/kg - milligrams per kilogram
MTCA - Model Toxics Control Act
CSL - Cleanup Screening Level from Washington Sediment Management Standards

Soil removed during remedial excavation

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.
b - Based on CSL. Where two screening levels are listed for a single chemical, the higher screening levels are for soil samples collected from the vadose zone and the lower screening levels are for soil samples collected from the saturated zone (SAIC 2006).
Depth to groundwater is 6 ft bgs.
Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Soil-to-Sediment Screening Level.

Table 18
Chemicals Detected Above Screening Levels in Groundwater
Old Dominion Freight Line (Desimone Trust Property)

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
Hart Crowser 1991*		Well 2	Benzene	4	1		5.0	
Hart Crowser 1991*		Well 2	Cadmium	14	5.0	3.4	2.8	4.1
Hart Crowser 1991*		Well 2	Zinc	106,000	4,800	76	22	1,395
Hart Crowser 1991*		Well 1C	Zinc	100	4,800	76	<1	1.3
Hart Crowser 1991*		Well 3A	Zinc	100	4,800	76	<1	1.3

GW - groundwater
ug/L - micrograms per liter
MTCA - Model Toxics Control Act
CSL - Cleanup Screening Level from Washington Sediment Management Standards

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.
b - Based on CSL (SAIC 2006).
Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Groundwater-to-Sediment Screening Value.

*As cited in Herrera 1994

Table 19
Chemicals Detected Above Screening Levels in Soil
Ace Galvanizing

Source	Sample Date	Sample Location	Sample Depth (ft bgs)	Chemical	Soil Conc'n (mg/kg)	MTCA Cleanup Level[a] (mg/kg)	Soil-to-Sediment Screening Level[b] (mg/kg)	MTCA Exceedance Factor	Soil-to-Sediment Screening Level Exceedance Factor
Parametrix and SAIC 1991a	5/8/1991	SS08	0-0.5	Cadmium	4	2	34	2.0	<1
Parametrix and SAIC 1991a	5/8/1991	SS03	0-0.5	Cadmium	3	2	34	1.5	<1
Parametrix and SAIC 1991a	5/8/1991	SS05	0-0.5	Cadmium	3	2	34	1.5	<1
Parametrix and SAIC 1991a	5/8/1991	SS08	0-0.5	Lead	653	250	1,300	2.6	<1
Parametrix and SAIC 1991a	5/8/1991	SS05	0-0.5	Lead	408	250	1,300	1.6	<1
Parametrix and SAIC 1991a	5/8/1991	SS03	0-0.5	Lead	284	250	1,300	1.1	<1
Parametrix and SAIC 1991a	5/8/1991	SS07	0-0.5	Total petroleum hydrocarbons	31,000	2,000		16	
Parametrix and SAIC 1991a	5/8/1991	SS08	0-0.5	Total petroleum hydrocarbons	7,800	2,000		3.9	
Parametrix and SAIC 1991a	5/8/1991	SS06	0-0.5	Total petroleum hydrocarbons	2,500	2,000		1.3	
Parametrix and SAIC 1991a	5/8/1991	SS05	0-0.5	Total petroleum hydrocarbons	2,300	2,000		1.2	
Parametrix and SAIC 1991a	5/8/1991	SS08	0-0.5	Zinc	12,100	24,000	770	<1	16
Parametrix and SAIC 1991a	5/8/1991	SS05	0-0.5	Zinc	9,030	24,000	770	<1	12
Parametrix and SAIC 1991a	5/8/1991	SS03	0-0.5	Zinc	6,330	24,000	770	<1	8.2
Parametrix and SAIC 1991a	5/8/1991	SS06	0-0.5	Zinc	5,890	24,000	770	<1	7.6
Parametrix and SAIC 1991a	5/8/1991	SS09	0-0.5	Zinc	5,810	24,000	770	<1	7.5
Parametrix and SAIC 1991a	5/8/1991	SS07	0-0.5	Zinc	2,330	24,000	770	<1	3.0
Parametrix and SAIC 1991a	5/8/1991	MW01	22	Zinc	116	24,000	38	<1	3.1

ft bgs - feet below ground surface
mg/kg - milligrams per kilogram
MTCA - Model Toxics Control Act
CSL - Cleanup Screening Level from Washington Sediment Management Standards

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.
b - Based on CSL. Where two screening levels are listed for a single chemical, the higher screening levels are for soil samples collected from the vadose zone and the lower screening levels are for soil samples collected from the saturated zone (SAIC 2006).
Depth to groundwater is 22 ft bgs.
Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Soil-to-Sediment Screening Level.

Table 20
Chemicals Detected Above Screening Levels in Groundwater
Ace Galvanizing

Source	Sample Date	Sample Location	Chemical	GW Conc'n (ug/L)	MTCA Cleanup Level[a] (ug/L)	GW-to-Sediment Screening Level[b] (ug/L)	MTCA Exceedance Factor	GW-to-Sediment Screening Level Exceedance Factor
Parametrix and SAIC 1991a	5/14/1991	MW01	Cadmium	139	5	3.4	28	41
Parametrix and SAIC 1991a	5/14/1991	MW01	Cadmium	126	5	3.4	25	37
Parametrix and SAIC 1991a	5/14/1991	MW01	Chromium	2,870	50	320	57	9.0
Parametrix and SAIC 1991a	5/14/1991	MW01	Chromium	2,750	50	320	55	8.6
Parametrix and SAIC 1991a	5/14/1991	MW01	Copper	850	640	120	1.3	7.1
Parametrix and SAIC 1991a	5/14/1991	MW01	Copper	807	640	120	1.3	6.7
Parametrix and SAIC 1991a	5/14/1991	MW01	Methylene chloride	16	5		3.2	
Parametrix and SAIC 1991a	5/14/1991	MW01	Zinc	1,420,000	4,800	76	296	18,684
Parametrix and SAIC 1991a	5/14/1991	MW01	Zinc	1,350,000	4,800	76	281	17,763

GW - groundwater
ug/L - micrograms per liter
MTCA - Model Toxics Control Act
CSL - Cleanup Screening Level from Washington Sediment Management Standards

a - The lower of MTCA Method A or B cleanup levels was selected, from CLARC database.
b - Based on CSL (SAIC 2006).
Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentration to the MTCA Cleanup Level or Groundwater-to-Sediment Screening Value.

Table 21
Chemicals Detected Above Screening Levels in Storm Drain Solids
Ace Galvanizing

Source	Sample Date	Sample Location	Chemical	Storm Drain Solids Conc'n (mg/kg DW)	SQS/MTCA Method A (mg/kg DW)	CSL (mg/kg DW)	SQS/MTCA Method A Exceedance Factor	CSL Exceedance Factor
Parametrix and SAIC 1991a	5/8/1991	SD04	Cadmium	21	5.1	6.7	4.1	3.1
Parametrix and SAIC 1991a	5/8/1991	SD02	Cadmium	11	5.1	6.7	2.2	1.6
Parametrix and SAIC 1991a	5/8/1991	SD04	Lead	1,480	450	530	3.3	2.8
Parametrix and SAIC 1991a	5/8/1991	SD01	Total petroleum hydrocarbons	23,800	2,000		12	
Parametrix and SAIC 1991a	5/8/1991	SD04	Total petroleum hydrocarbons	8,900	2,000		4.5	
Parametrix and SAIC 1991a	5/8/1991	SD02	Total petroleum hydrocarbons	8,000	2,000		4	
Parametrix and SAIC 1991a	5/8/1991	SD04	Zinc	91,100	410	960	222	95
Parametrix and SAIC 1991a	5/8/1991	SD02	Zinc	29,900	410	960	73	31
Parametrix and SAIC 1991a	5/8/1991	SD01	Zinc	12,400	410	960	30	13

mg/kg - milligrams per kilogram
DW - dry weight
SQS - SMS Sediment Quality Standard
MTCA - Model Toxics Control Act
CSL - SMS Cleanup Screening Level

Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentrations to the SQS or CSL. Petroleum hydrocarbons are compared to the MTCA Method A cleanup level.

Figures

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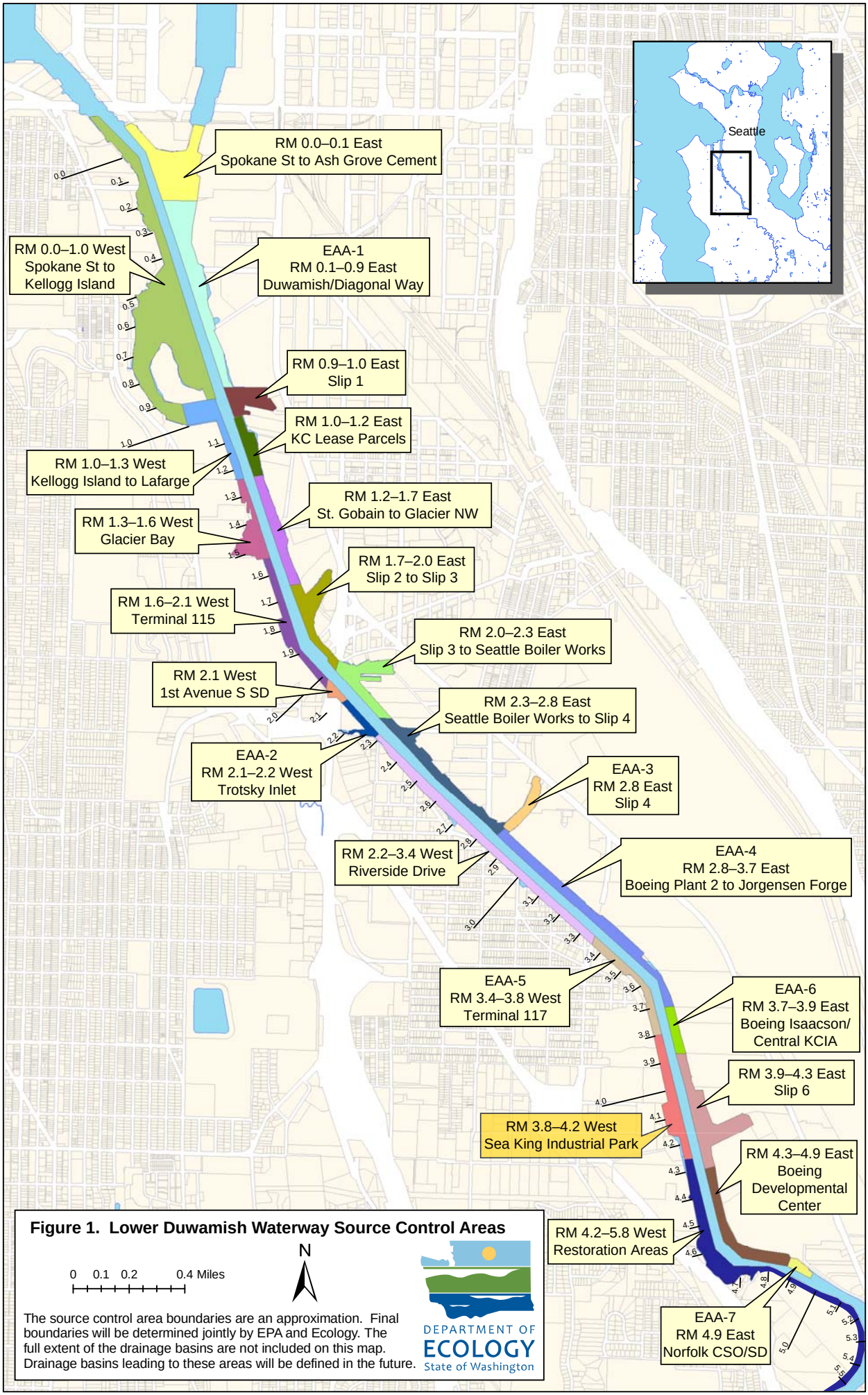
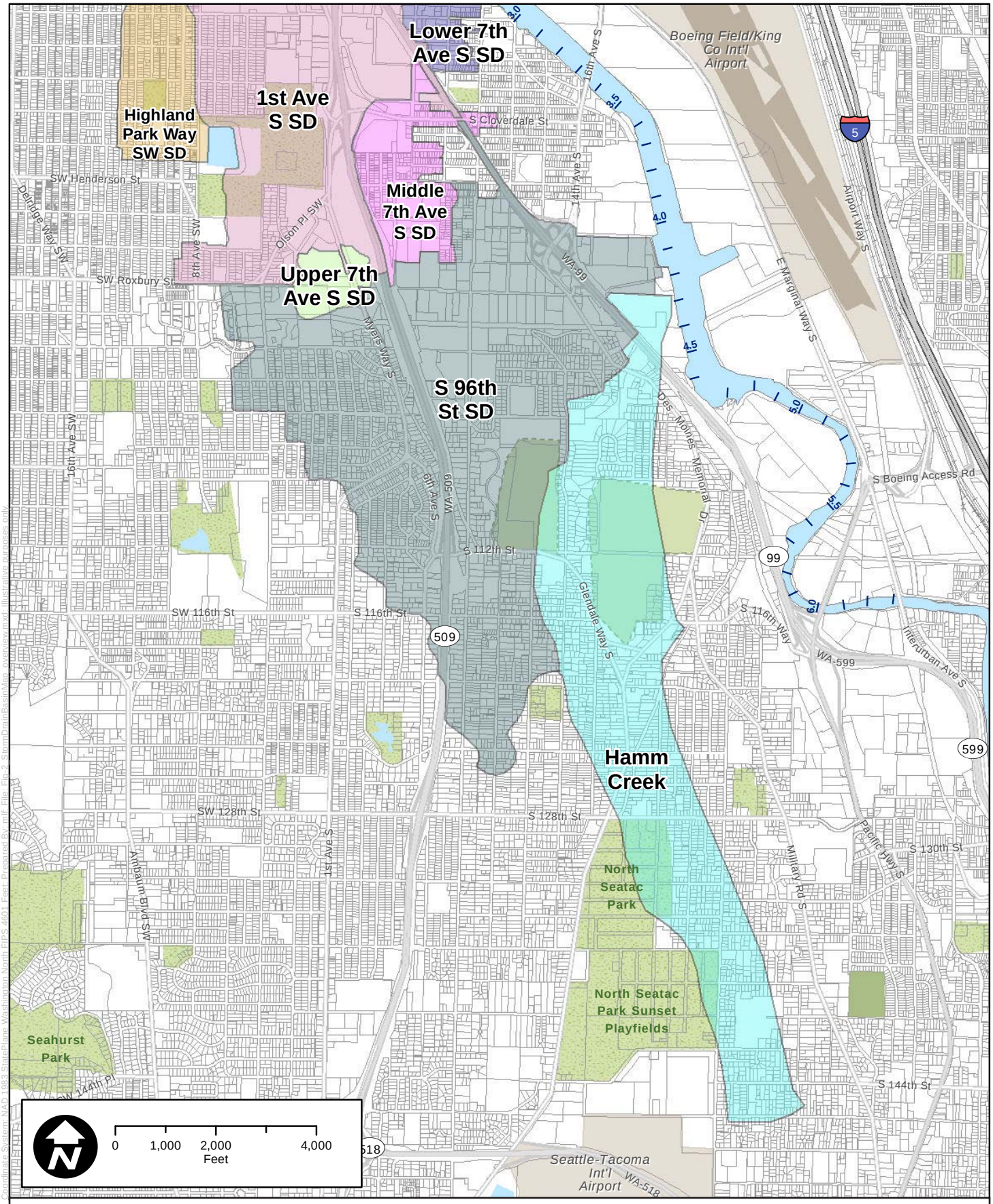


Figure 1. Lower Duwamish Waterway Source Control Areas

The source control area boundaries are an approximation. Final boundaries will be determined jointly by EPA and Ecology. The full extent of the drainage basins are not included on this map. Drainage basins leading to these areas will be defined in the future.



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State of Washington

Figure 2. Lower Duwamish Waterway Storm Drain Basins Near the Sea King Industrial Park Source Control Area

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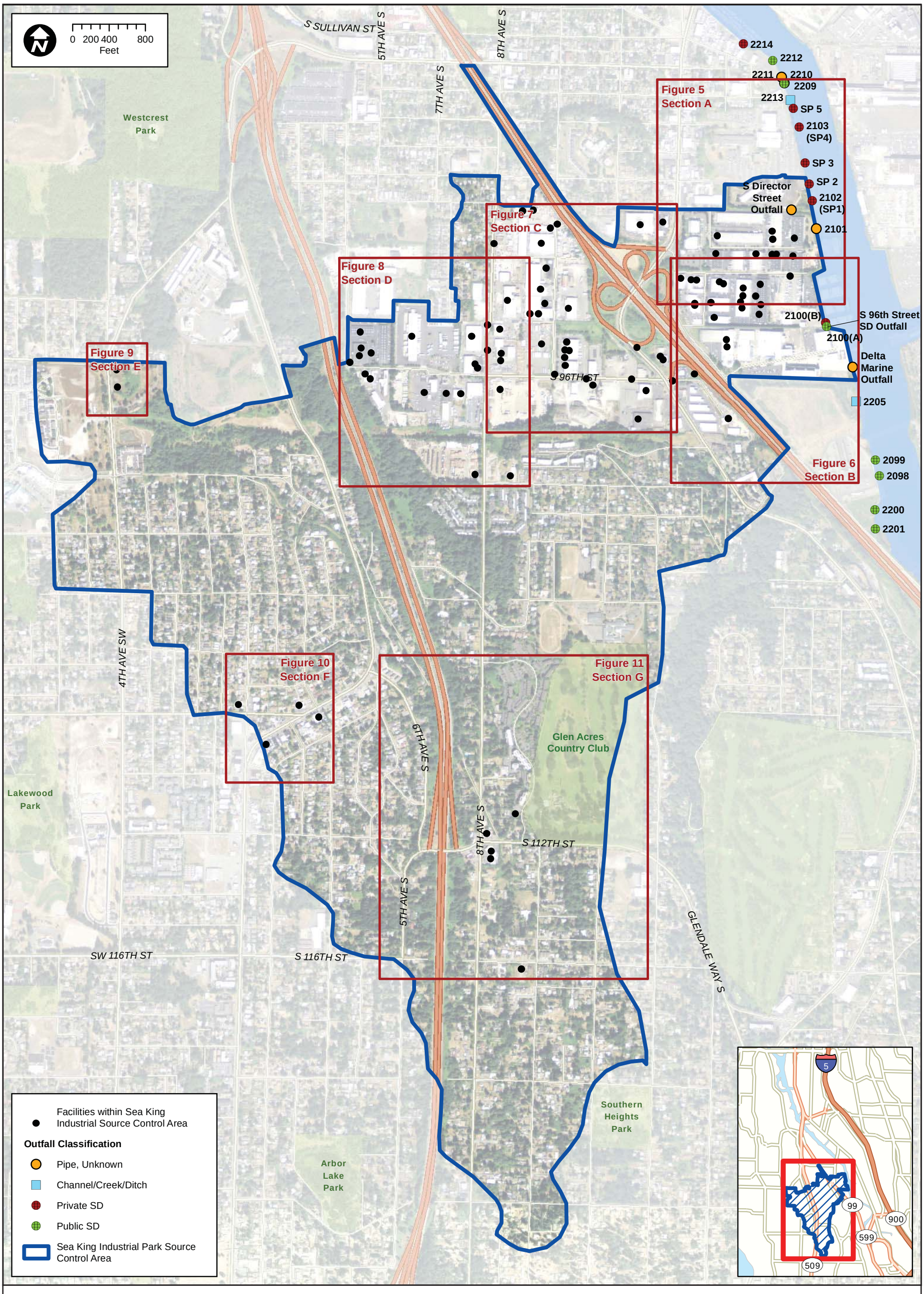

Figure 3. Sea King Industrial Park Source Control Area

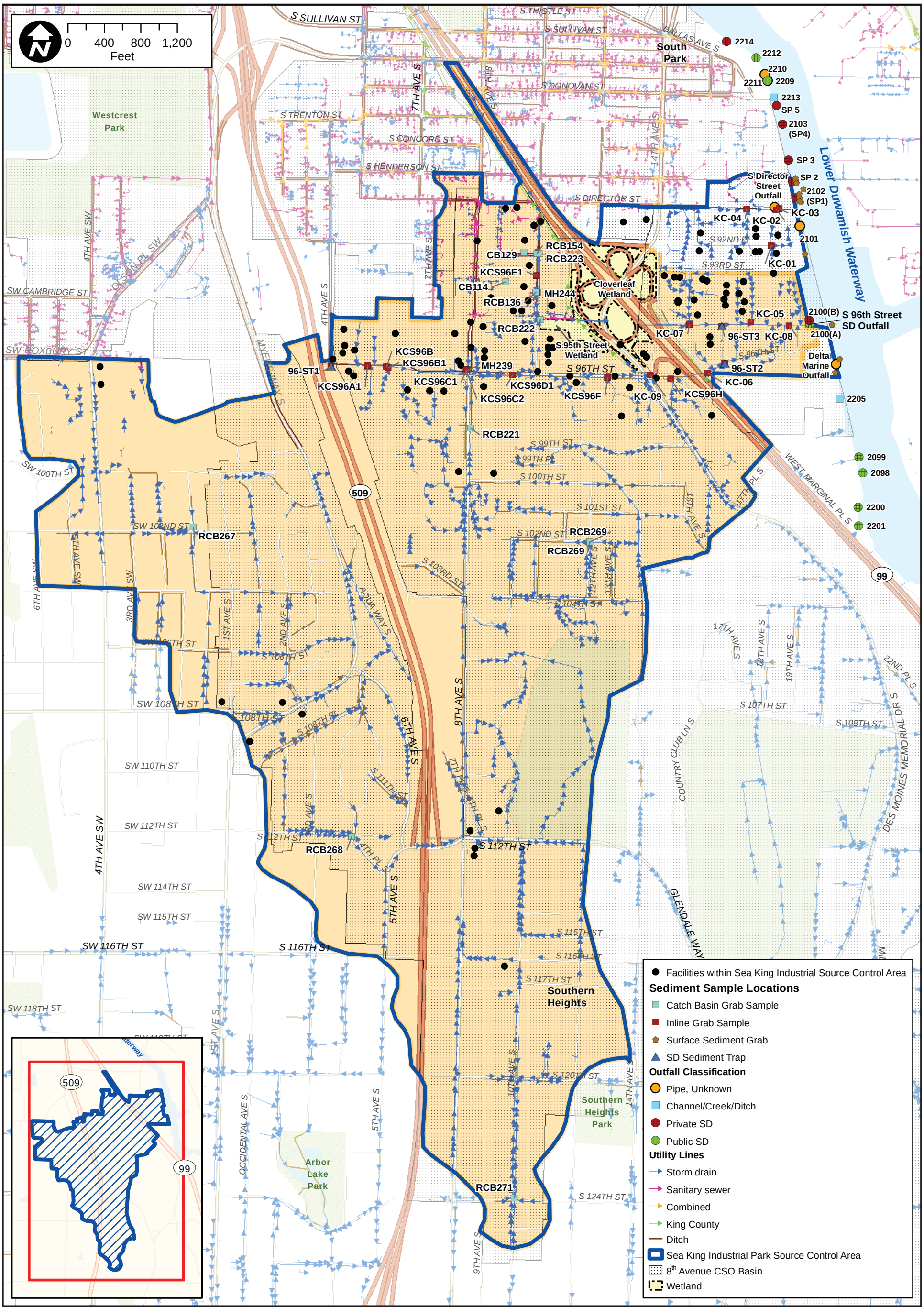

Figure 4. Storm Drain and Sanitary Sewer Lines in Sea King Industrial Park Source Control Area

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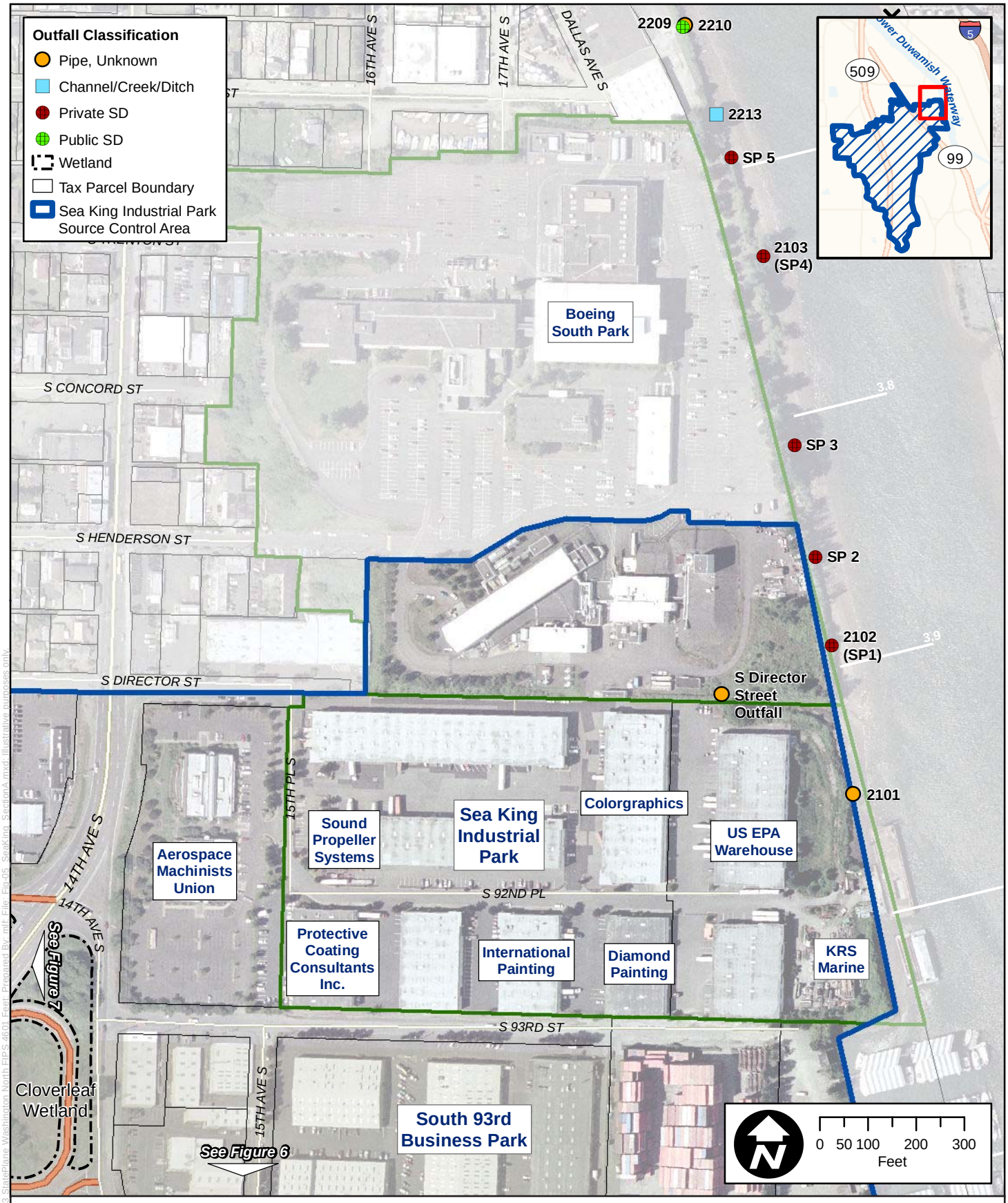

Figure 5. Sea King Industrial Park Source Control Area (Section A)

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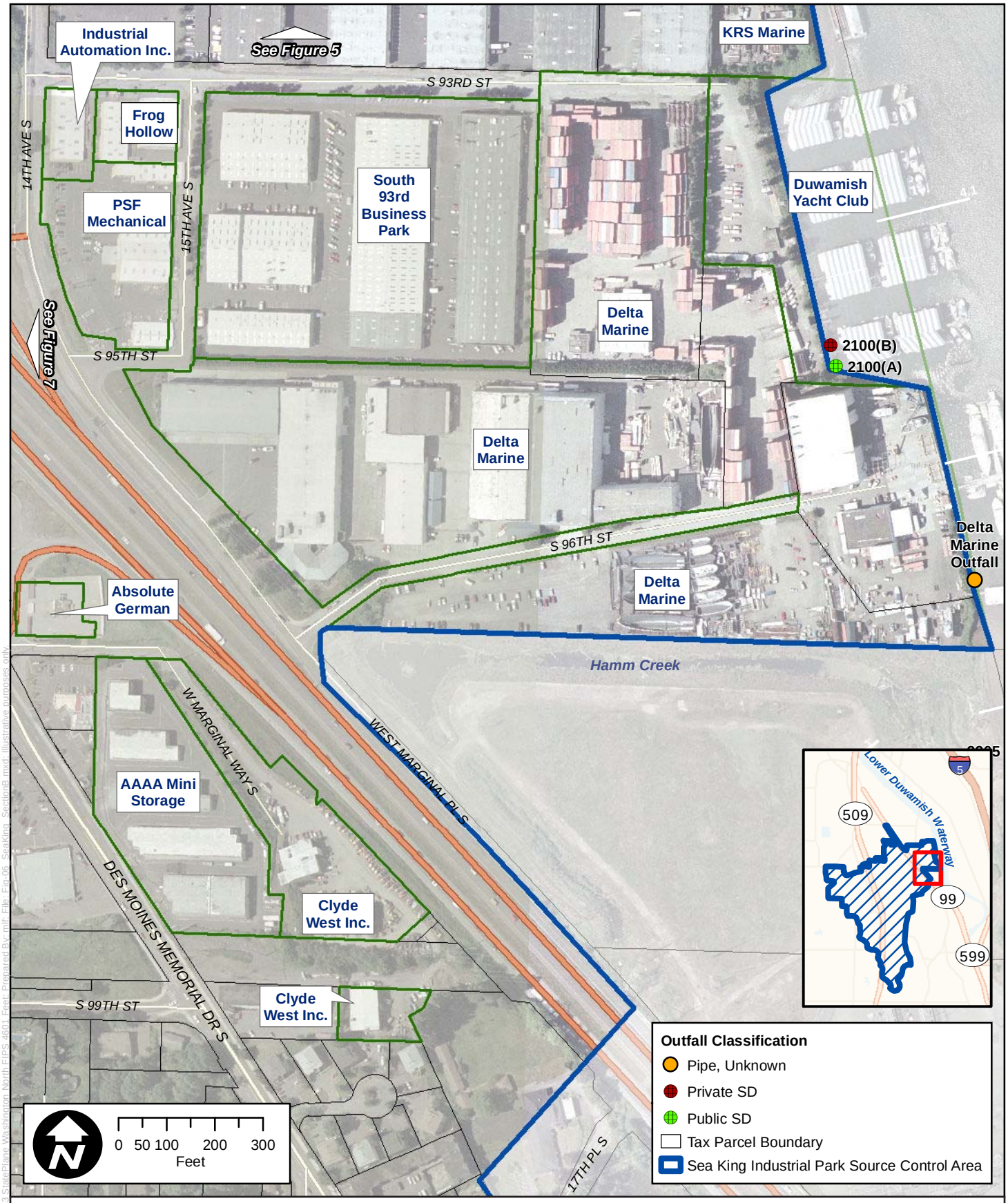

Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet Prepared By mxd File: Fig 06_SeaKing1_SectionB.mxd Illustrative purposes only

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Figure 6. Sea King Industrial Park Source Control Area (Section B)

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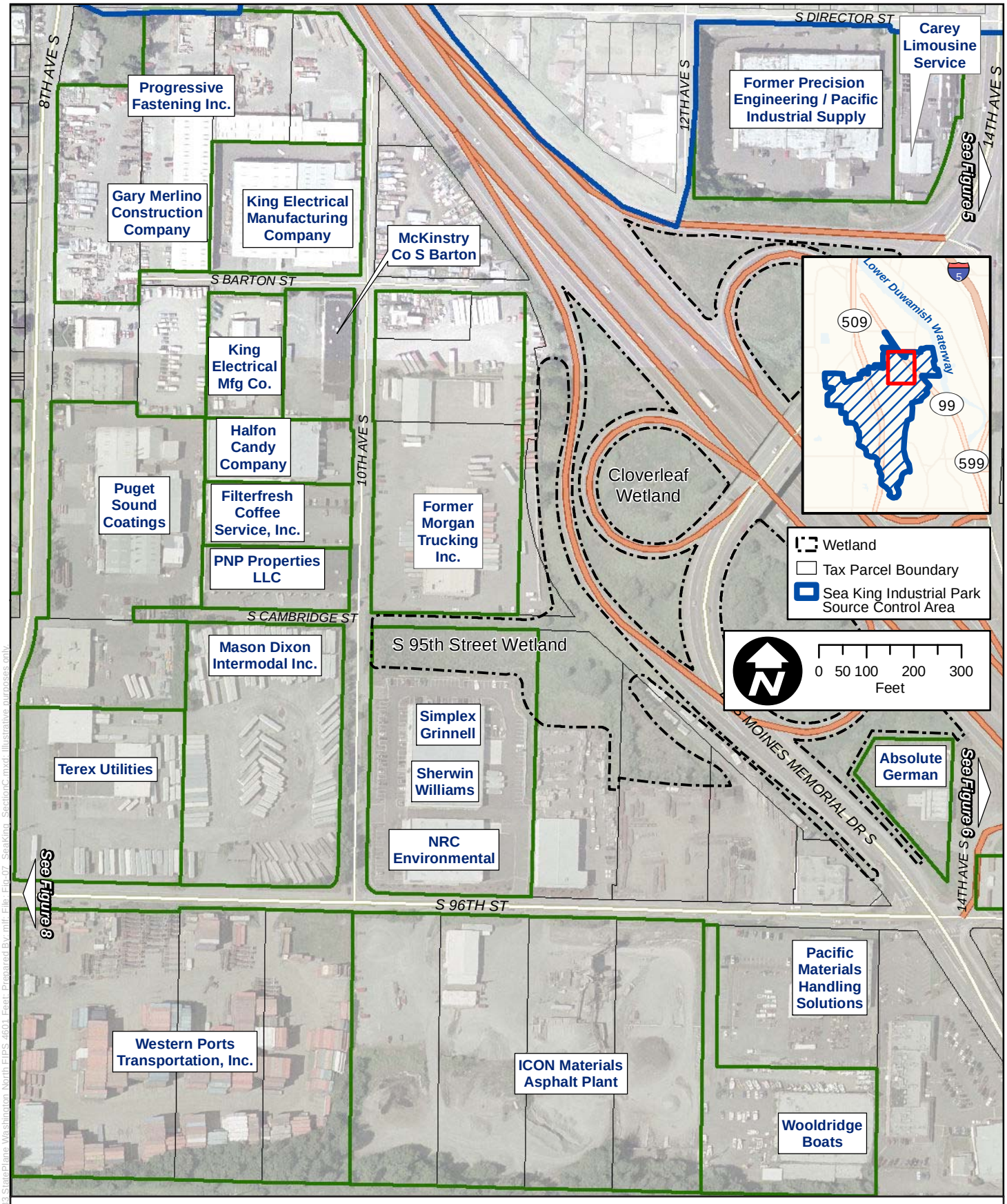

Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet Prepared By mll File: Fig07_SeaKing_SectionC.mxd Illustrative purposes only

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State of Washington

Figure 7. Sea King Industrial Park Source Control Area (Section C)

SAIC
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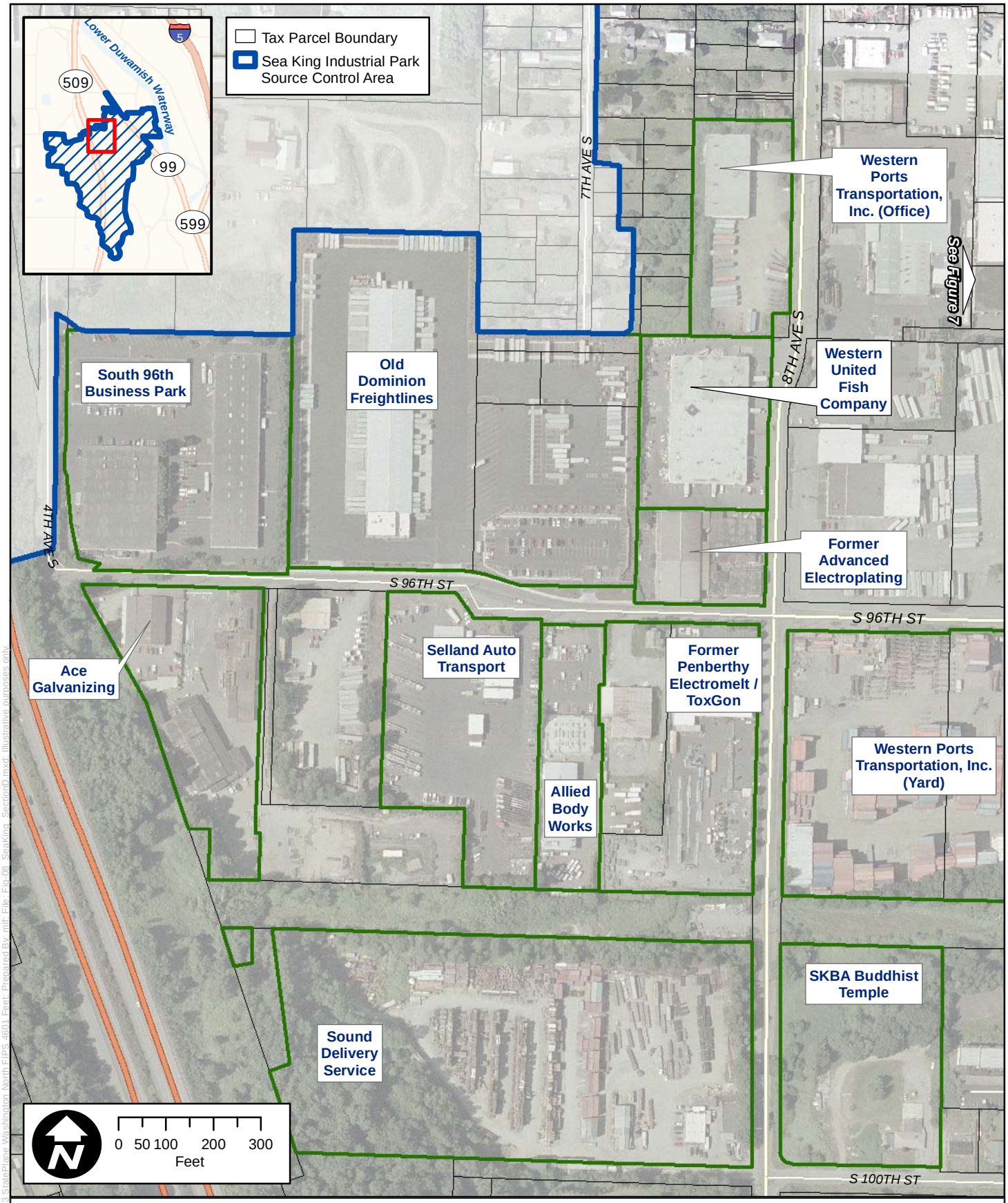

Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet Prepared By mjf File: Fig-08_SeaKing1_SectionD.mxd Illustrative purposes only

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Figure 8. Sea King Industrial Park Source Control Area (Section D)

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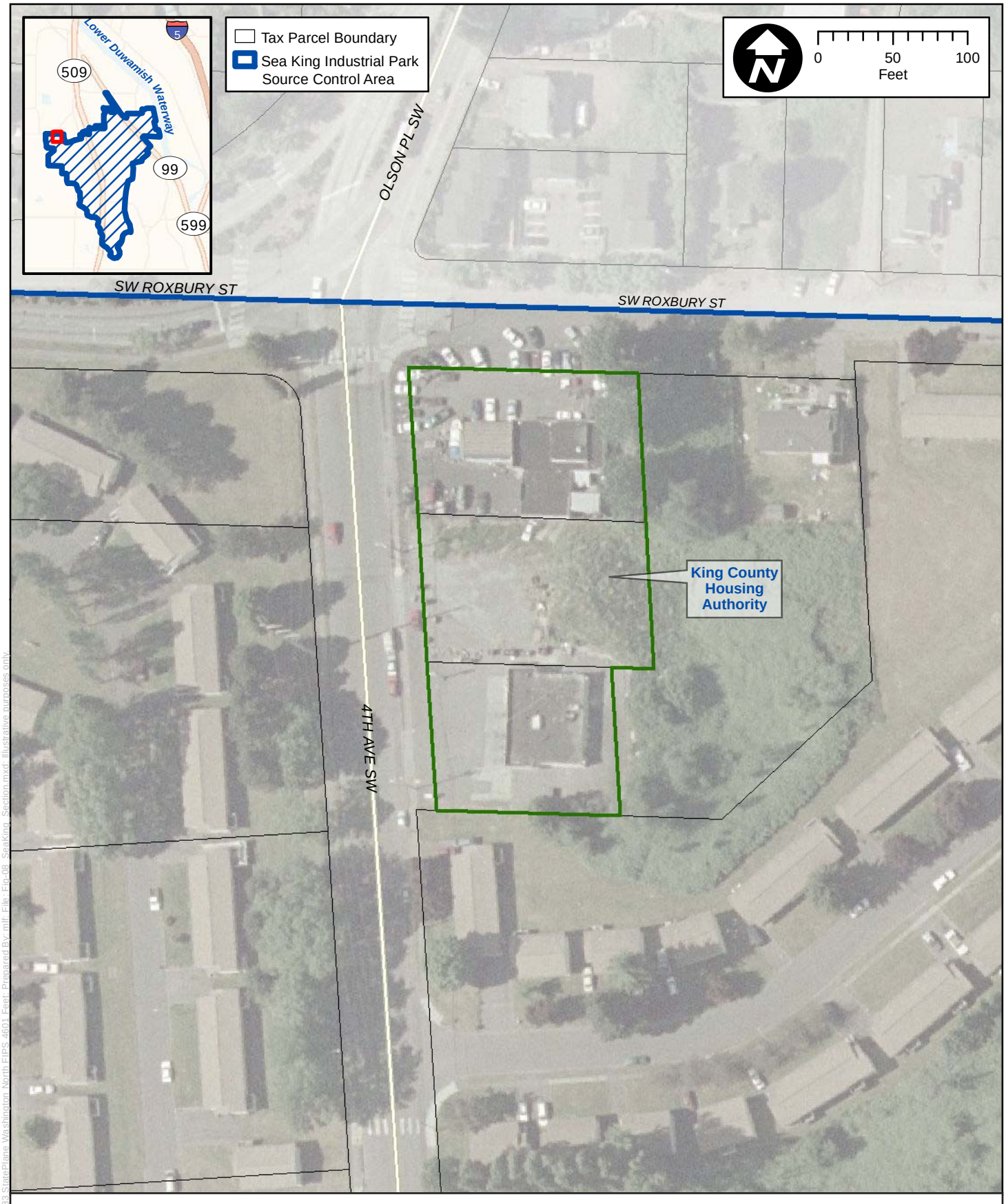

Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet Prepared By mlf File: Fig-08_SeaKing1_Section.mxd Illustrative purposes only

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Figure 9. Sea King Industrial Park Source Control Area (Section E)

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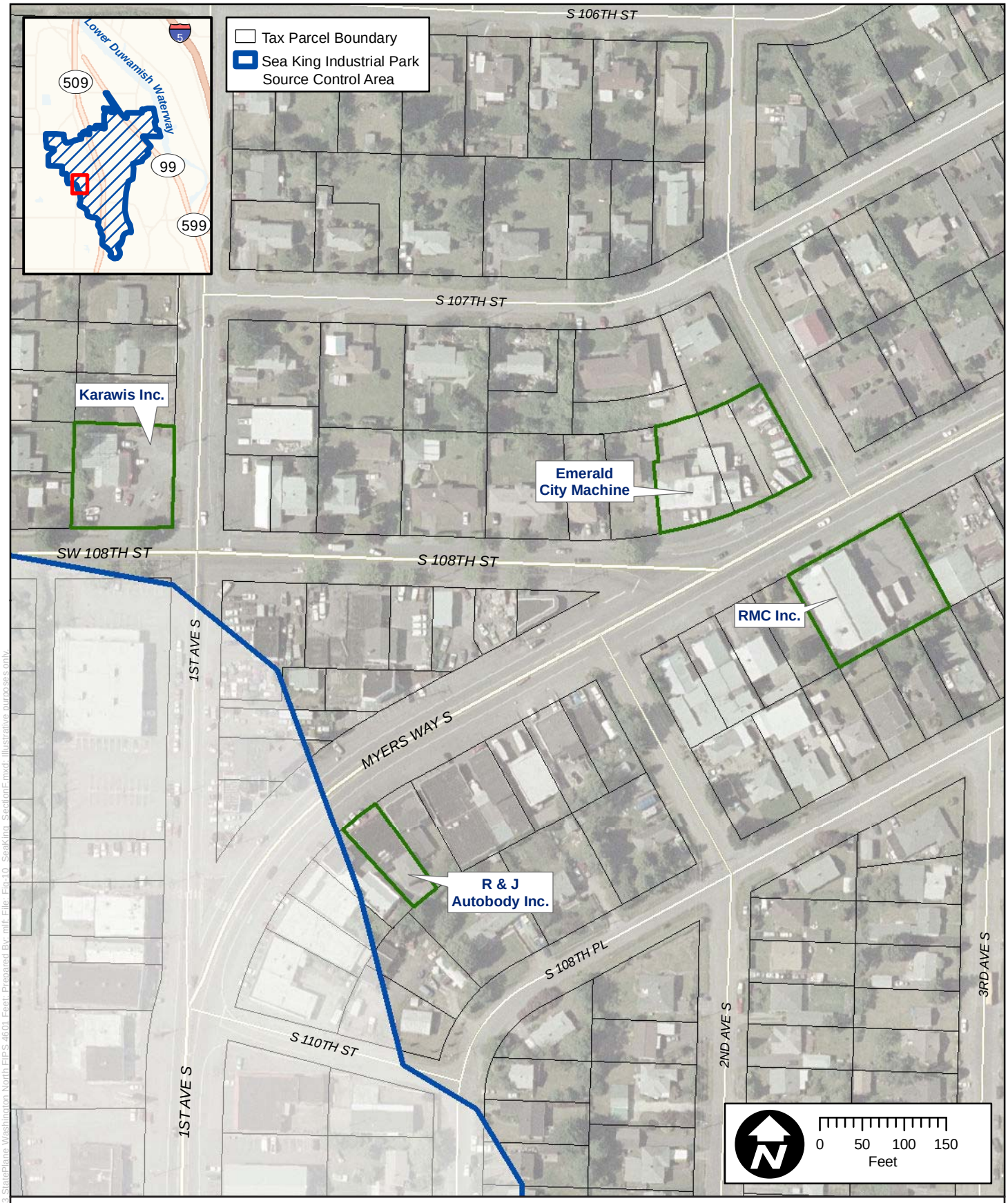

Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet Prepared by mtl File: Fig10_SeaKing_SectionF.mxd Illustrative purposes only.

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Figure 10. Sea King Industrial Park Source Control Area (Section F)

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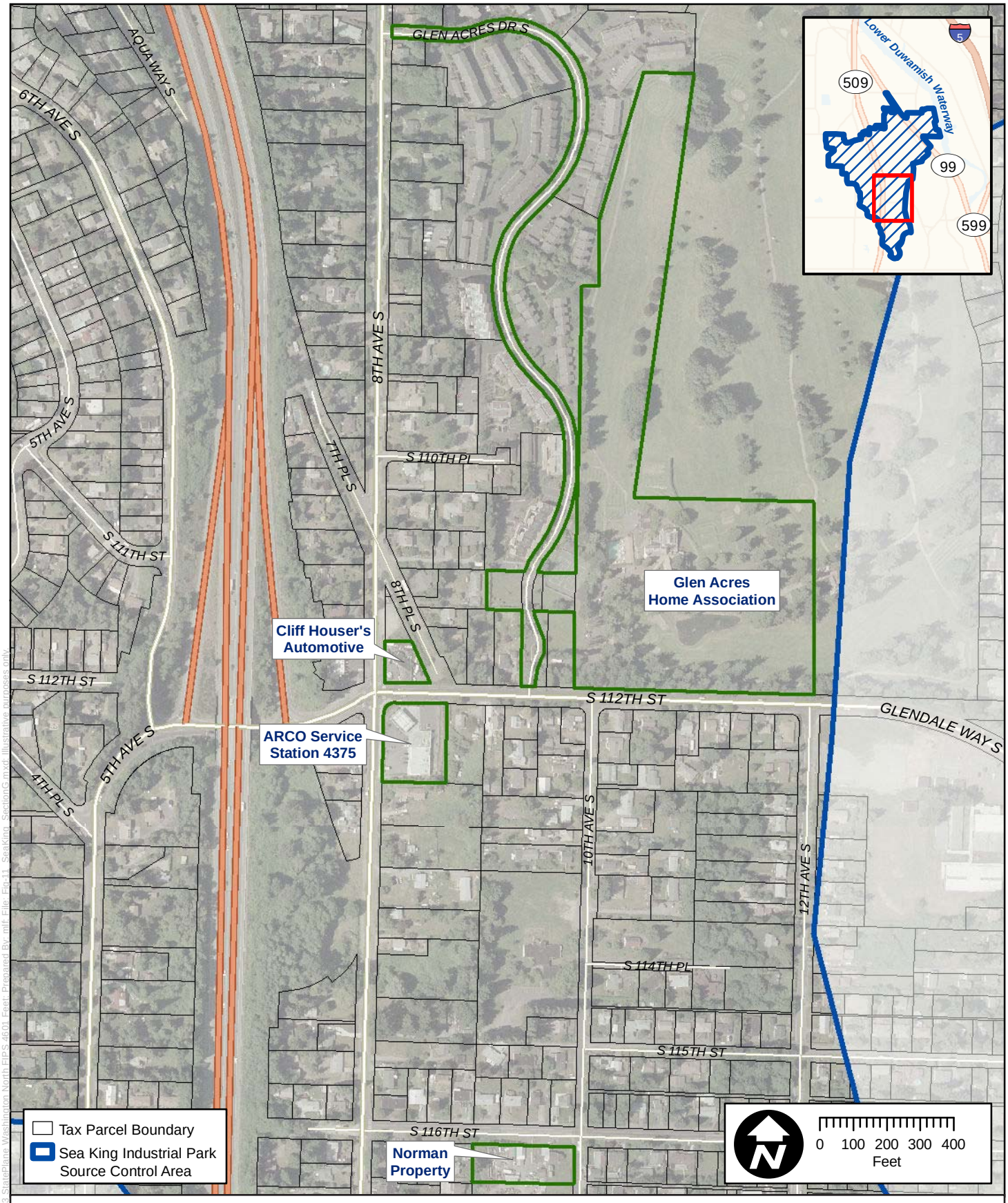

Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet. Prepared by mit File: Fig11_SeaKing_SectionG.mxd. Illustrative purposes only.

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Figure 11. Sea King Industrial Park Source Control Area (Section G)

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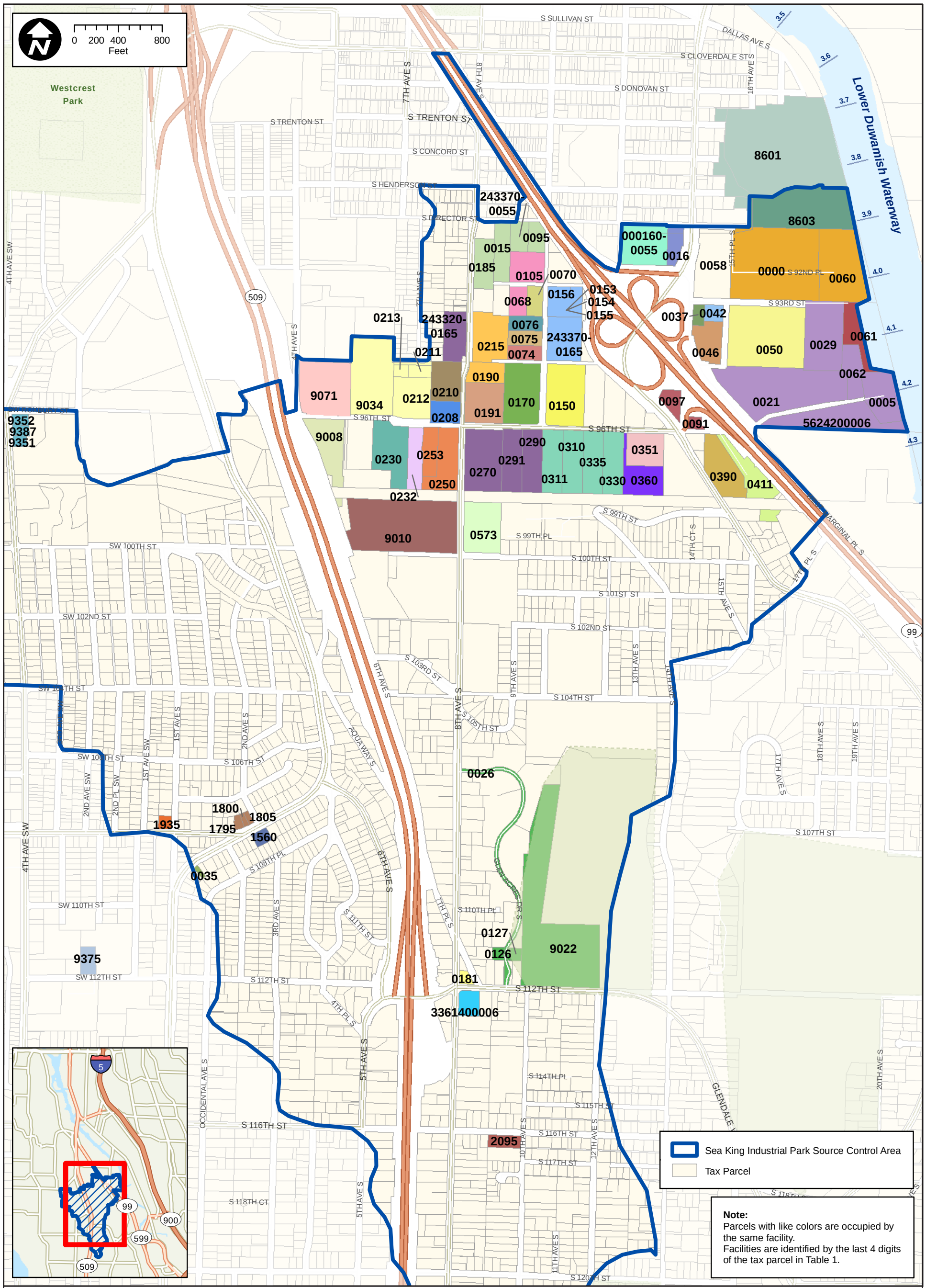

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Figure 12. Tax Parcels for Properties in the Sea King Industrial Park Source Control Area

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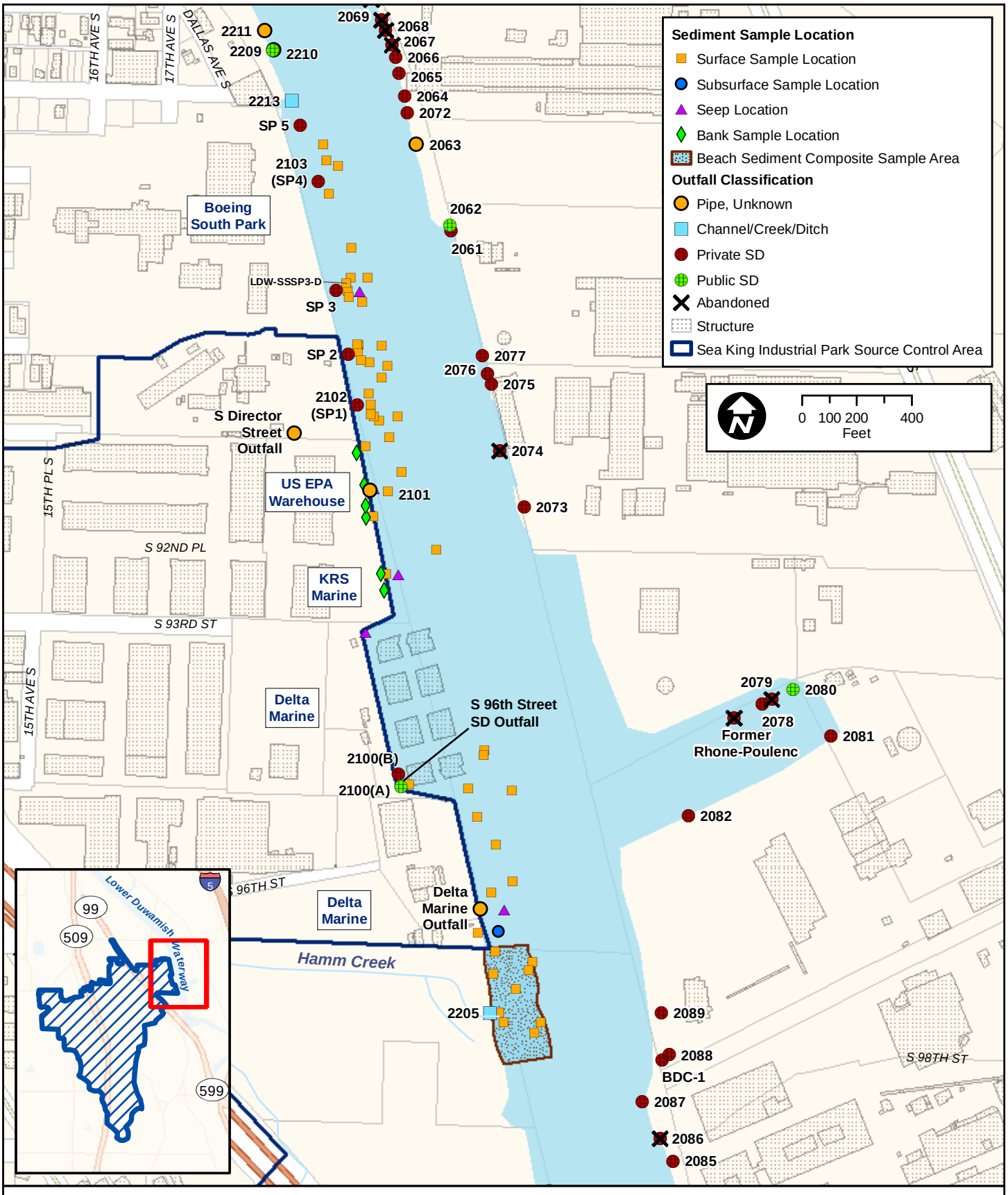

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Figure 13a. Sediment, Seep, and Bank Soil Sample Locations Near the Sea King Industrial Park Source Control Area

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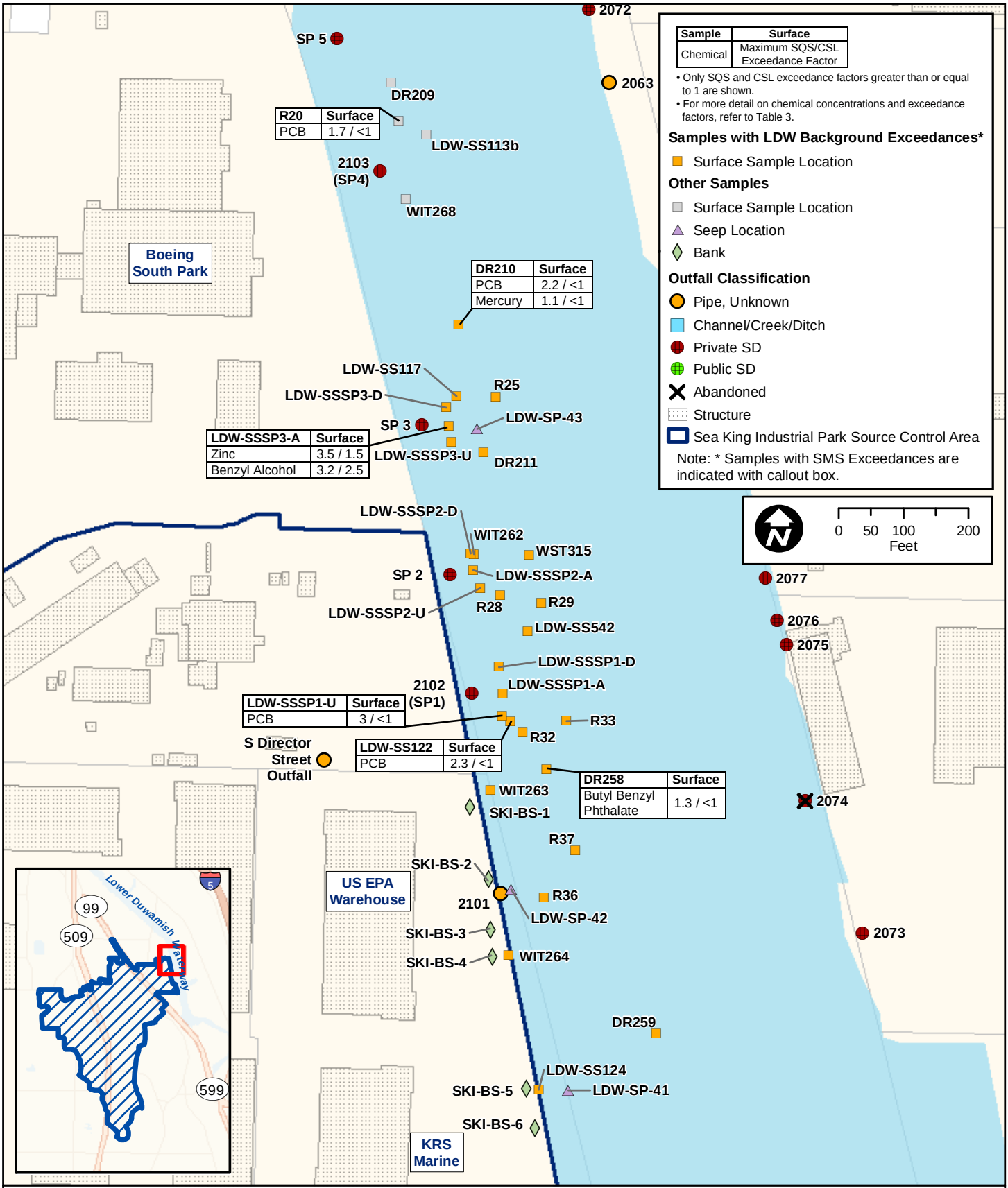

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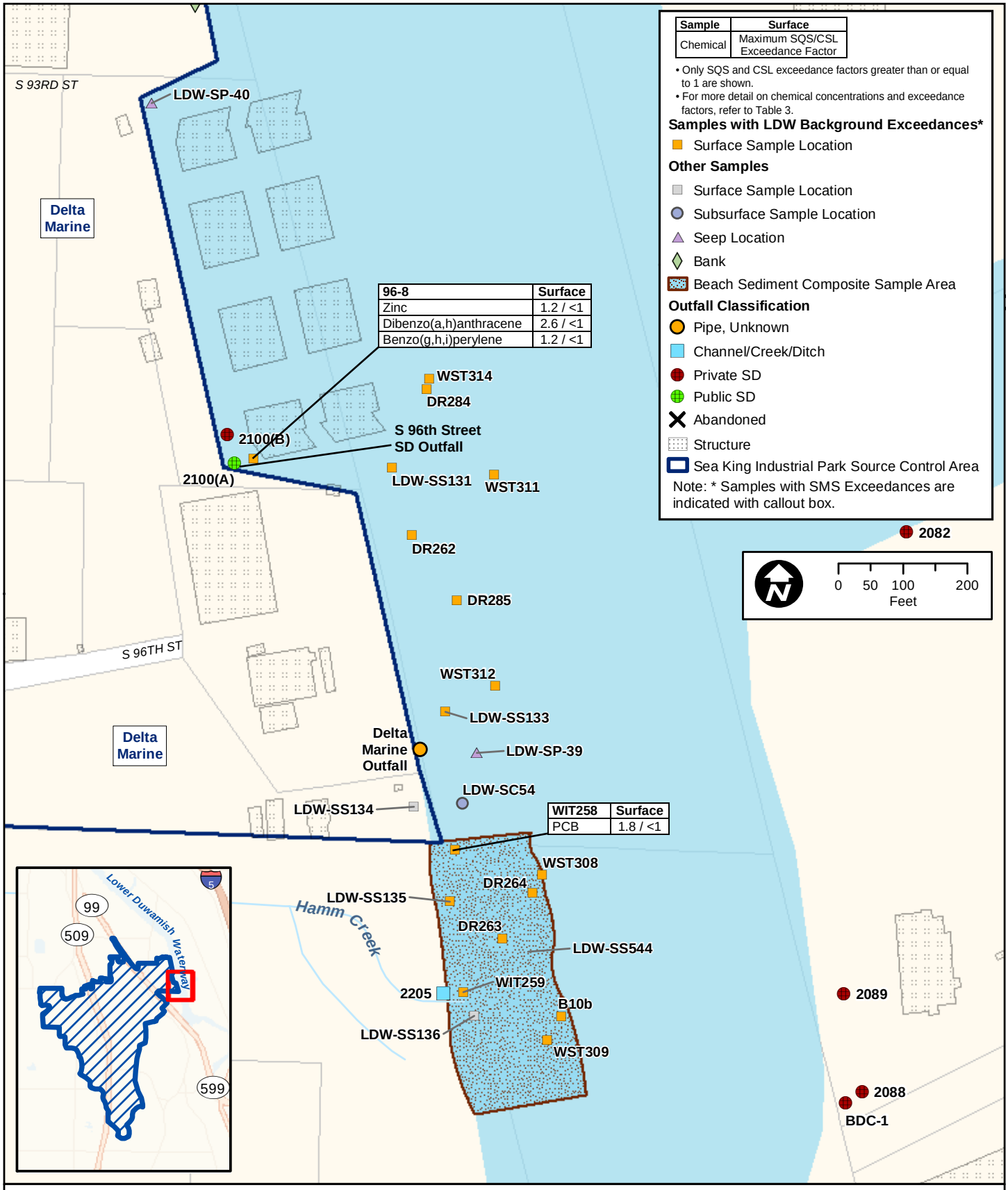
Figure 13b. Sediment, Seep, and Bank Soil Sample Locations Near the Northern Portion of the Sea King Industrial Park Source Control Area

SAIC® From Science to Solutions



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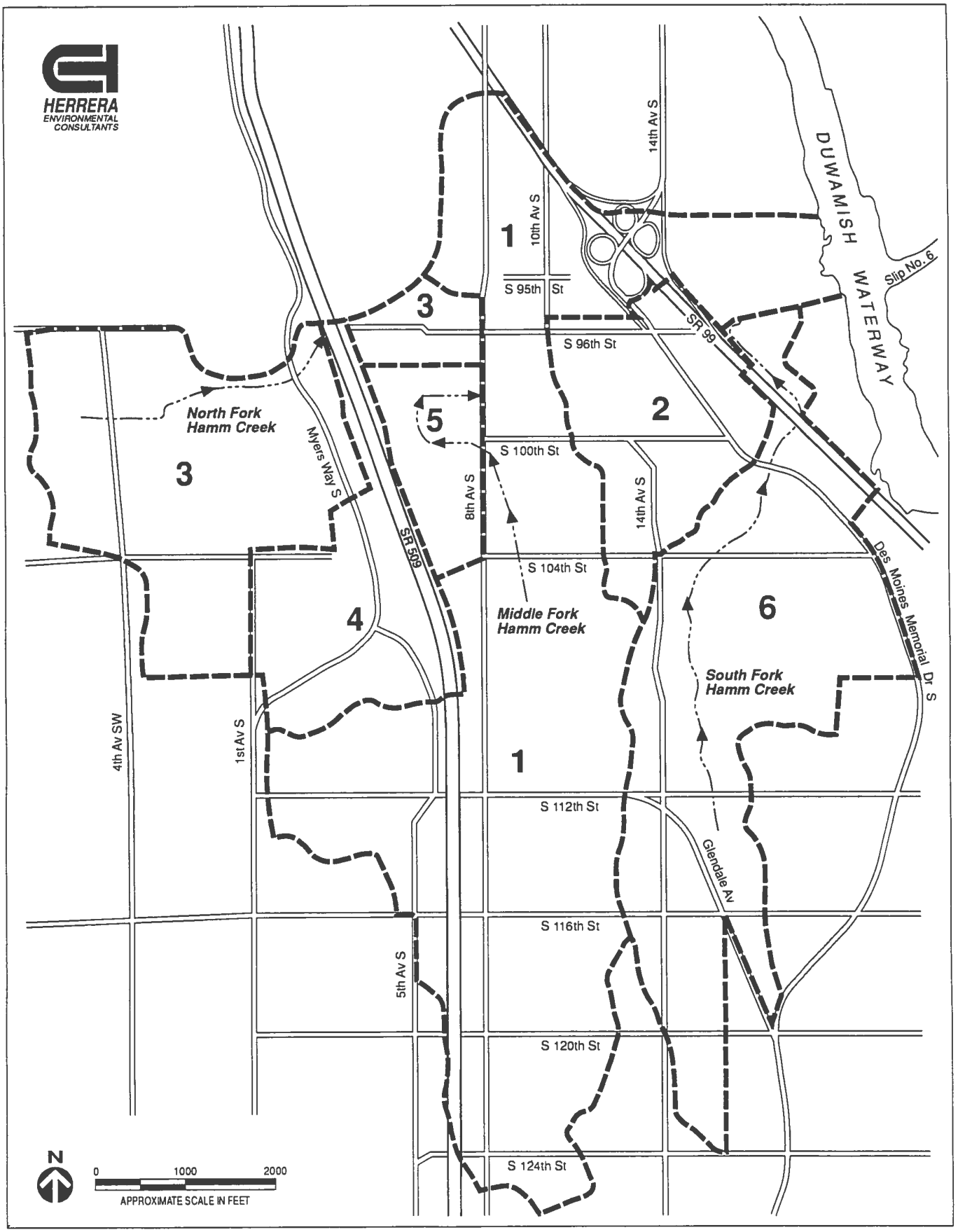
State of Washington

Figure 13c. Sediment, Seep, and Bank Soil Sample Locations Near the Southern Portion of the Sea King Industrial Park Source Control Area

SAIC® From Science to Solutions



Source: Herrera 1994

Figure 14. S 96th Street Drainage Basin and Sub-basins (1994)

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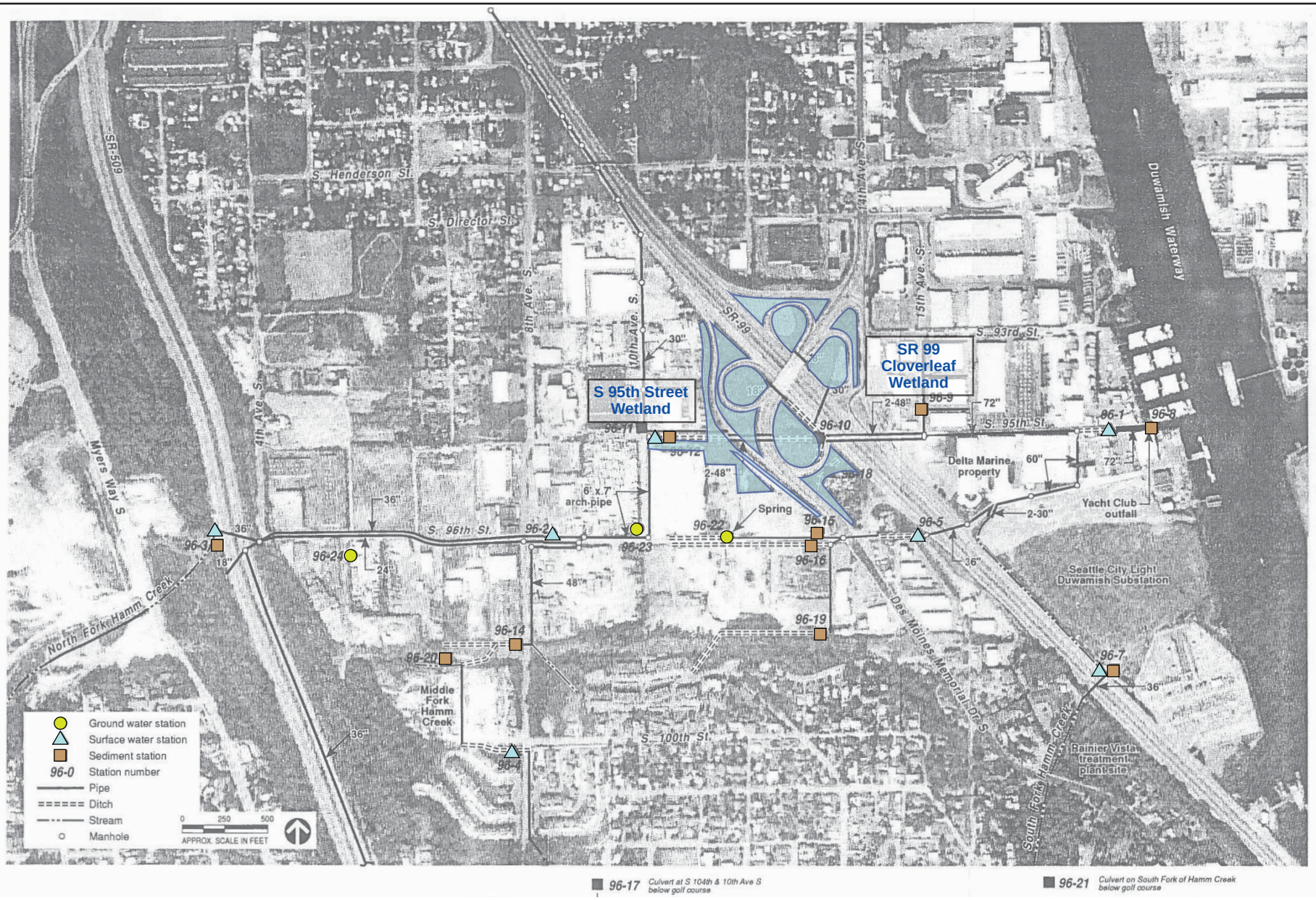
SAIC
From Science to Solutions



Source: Herrera 1994

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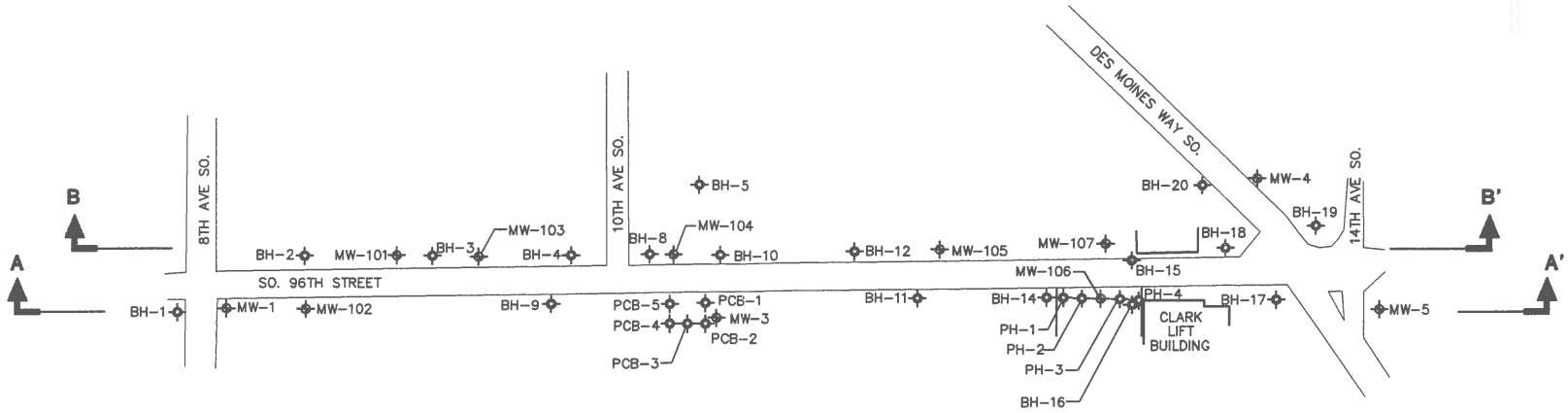
Figure 15a. S 96th Street Drainage Basin (1994) and Water Quality Engineering Study Sample Locations

SAIC® From Science to Solutions



LEGEND

MW-5 MONITORING WELL

BH-2 SOIL BORING

A A' CROSS SECTION

0 100 200 400

SCALE: 1"=200'

HONGWEST & ASSOCIATES, INC.

SOUTH 96TH STREET IMPROVEMENT PROJECT

CROSS SECTION LOCATION MAP

PROJECT NO.: 91149 FIGURE: 3-1

C:\JOBS\91149\91149005.DWG

DEPARTMENT OF ECOLOGY State of Washington

Source: Hong West 1995

Figure 15b. S 96th Street Soil and Groundwater Quality Assessment (1991 to 1995)

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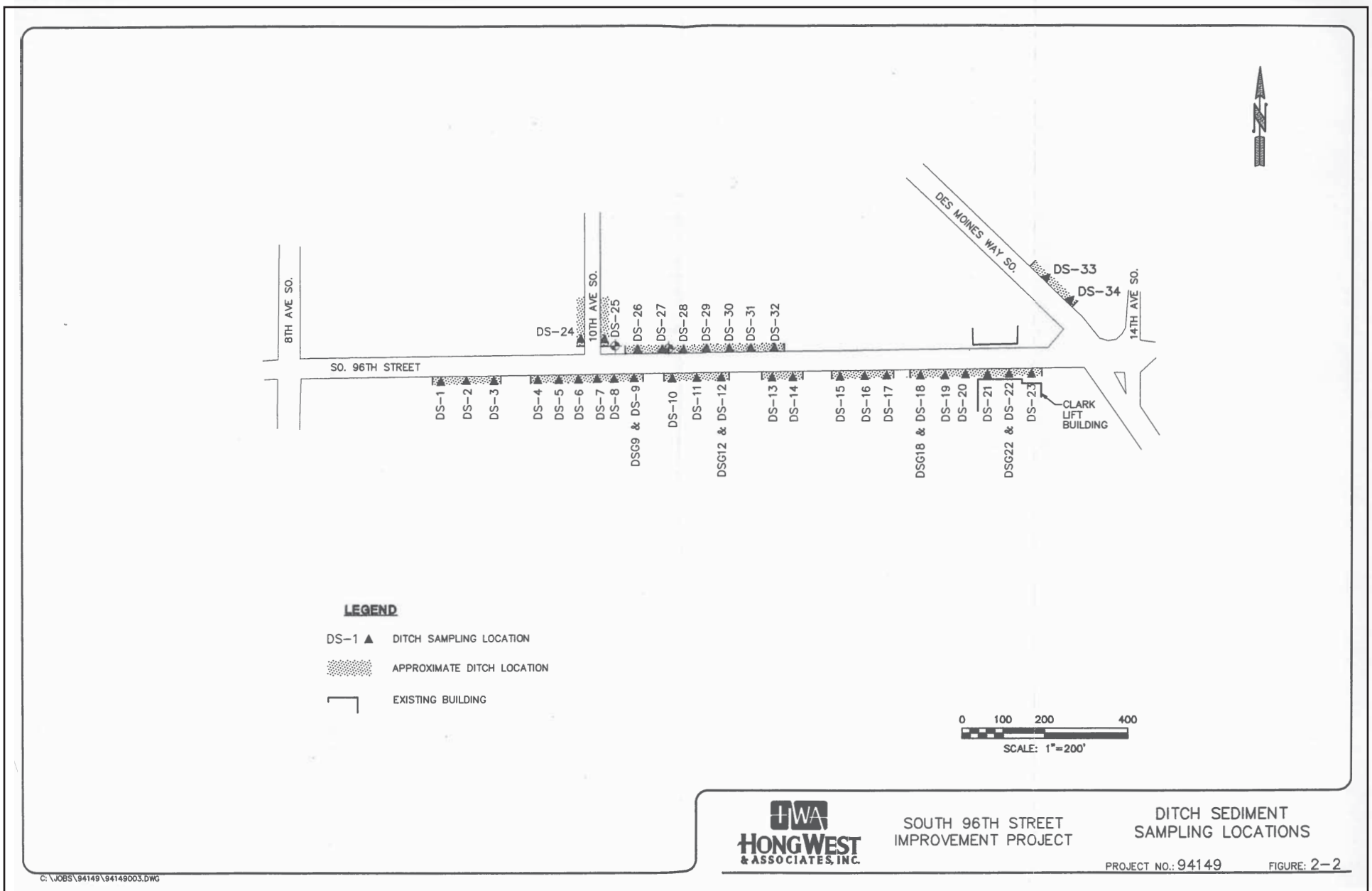

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Source: Hong West 1995

Figure 15c. S 96th Street Drainage Ditch Soil Sample Locations (1993)

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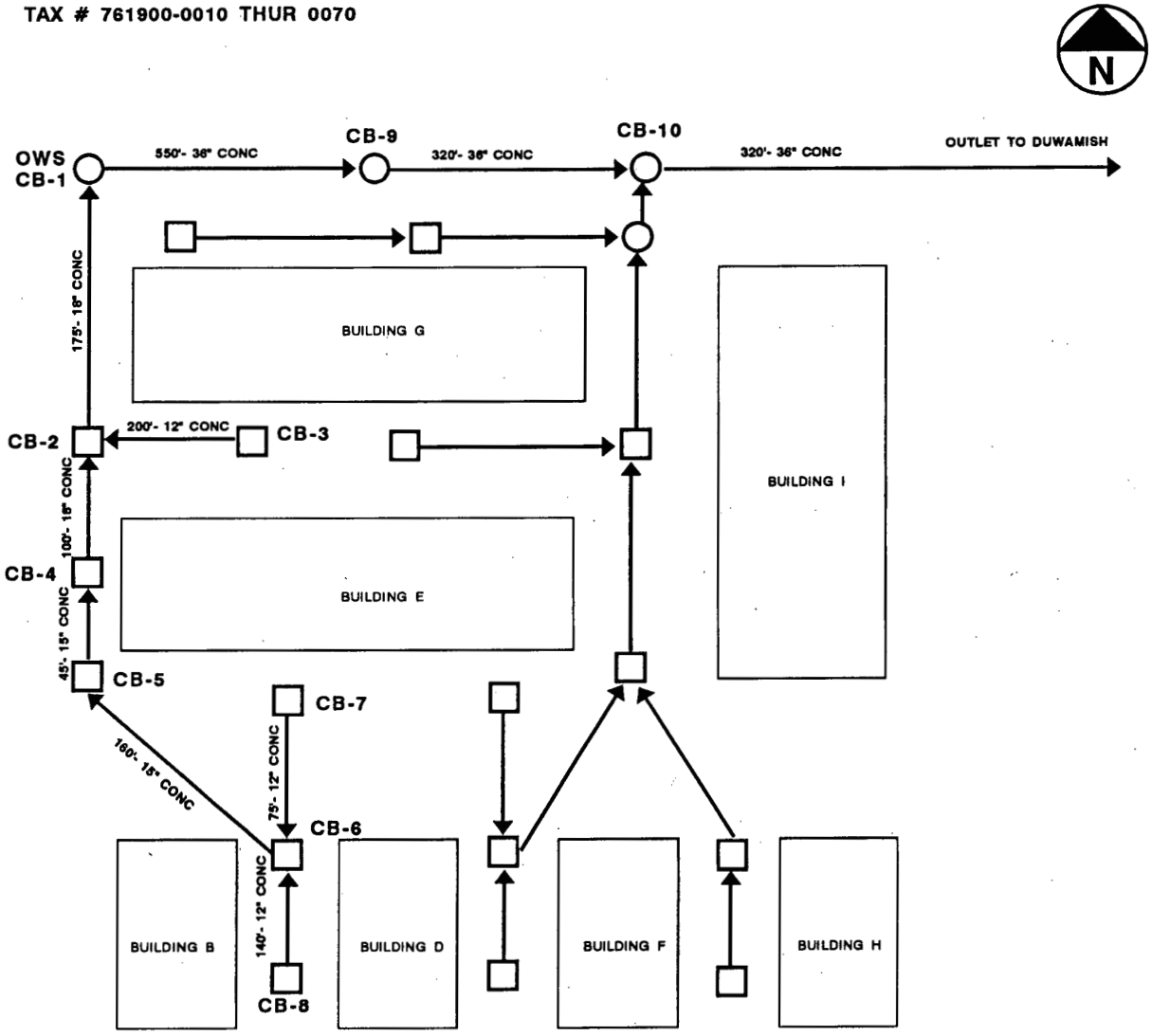
King County
Surface Water
Management
Everyone lives downstream

PROJECT NO. N97749
PROJECT SEA-KING INDUSTRIAL PARK
LOCATION 1501 - SO 92ND ST
KROLL PAGE 79W
TB PAGE 625-C4
MAINT. DIVISION 3
OUT OF SERVICE NO
BASIN DUWAMISH
TYPE CONVEYANCE
DATE 9-28-94
INITIALS - MAM

TAX # 761900-0010 THUR 0070



Source: King County 1994

Figure 16. Sea King Industrial Park Facility Drainage Map

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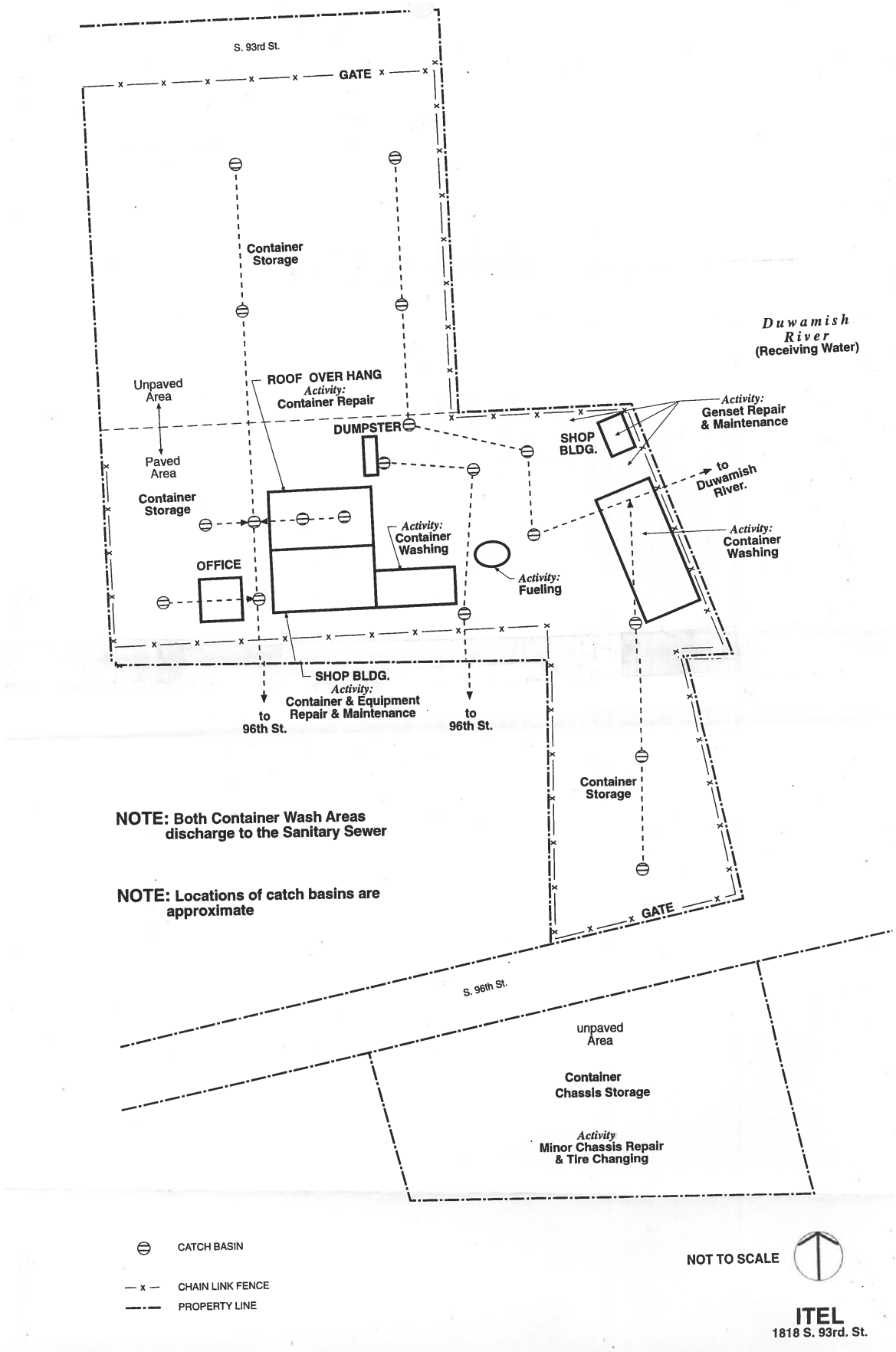

Source: Global Intermodal 1996

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Figure 17a. Former Global Intermodal Facility Drainage Map

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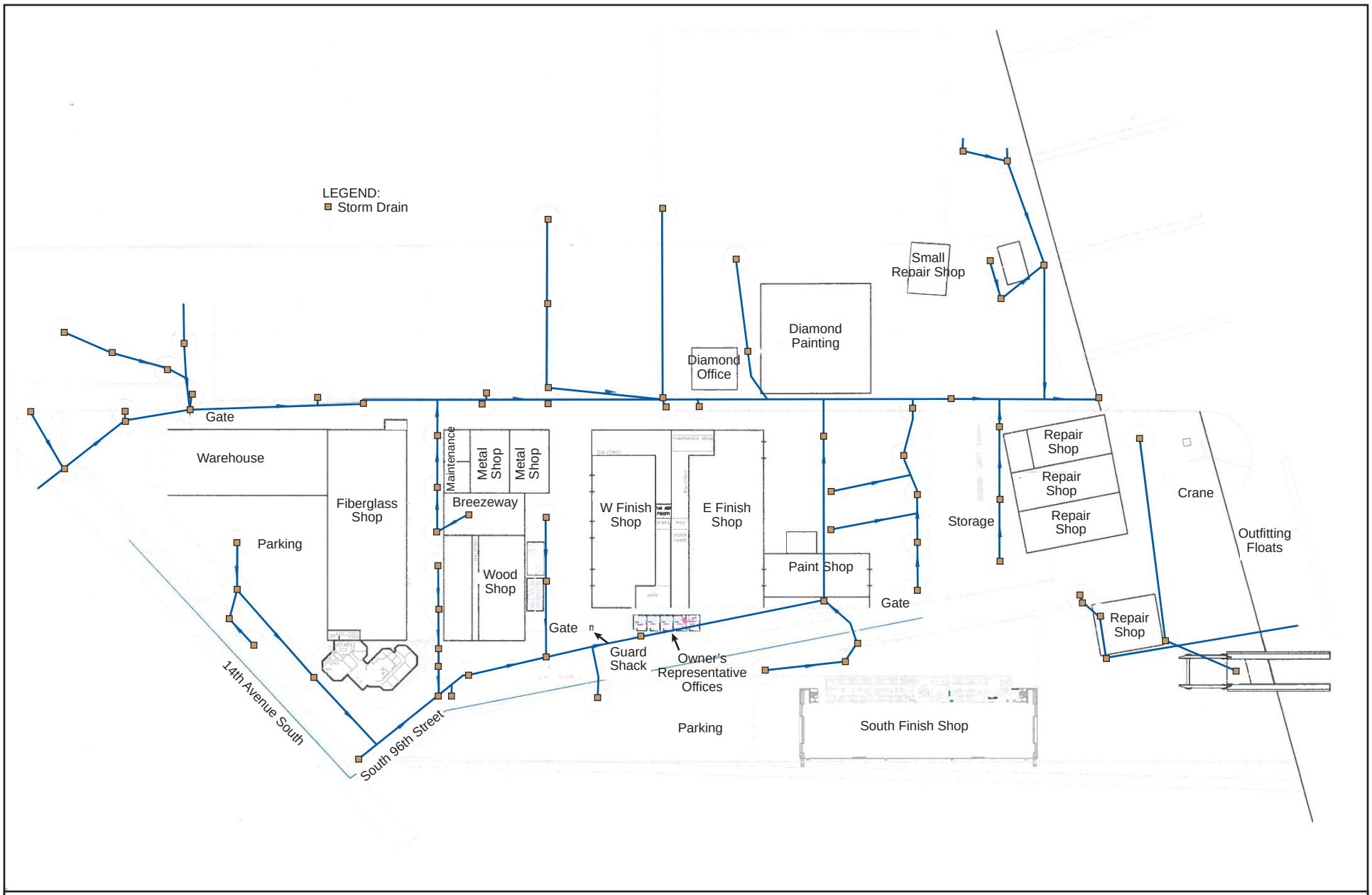

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Source: Delta Marine 2012a

Figure 17b. Delta Marine Facility Drainage Map

SAIC
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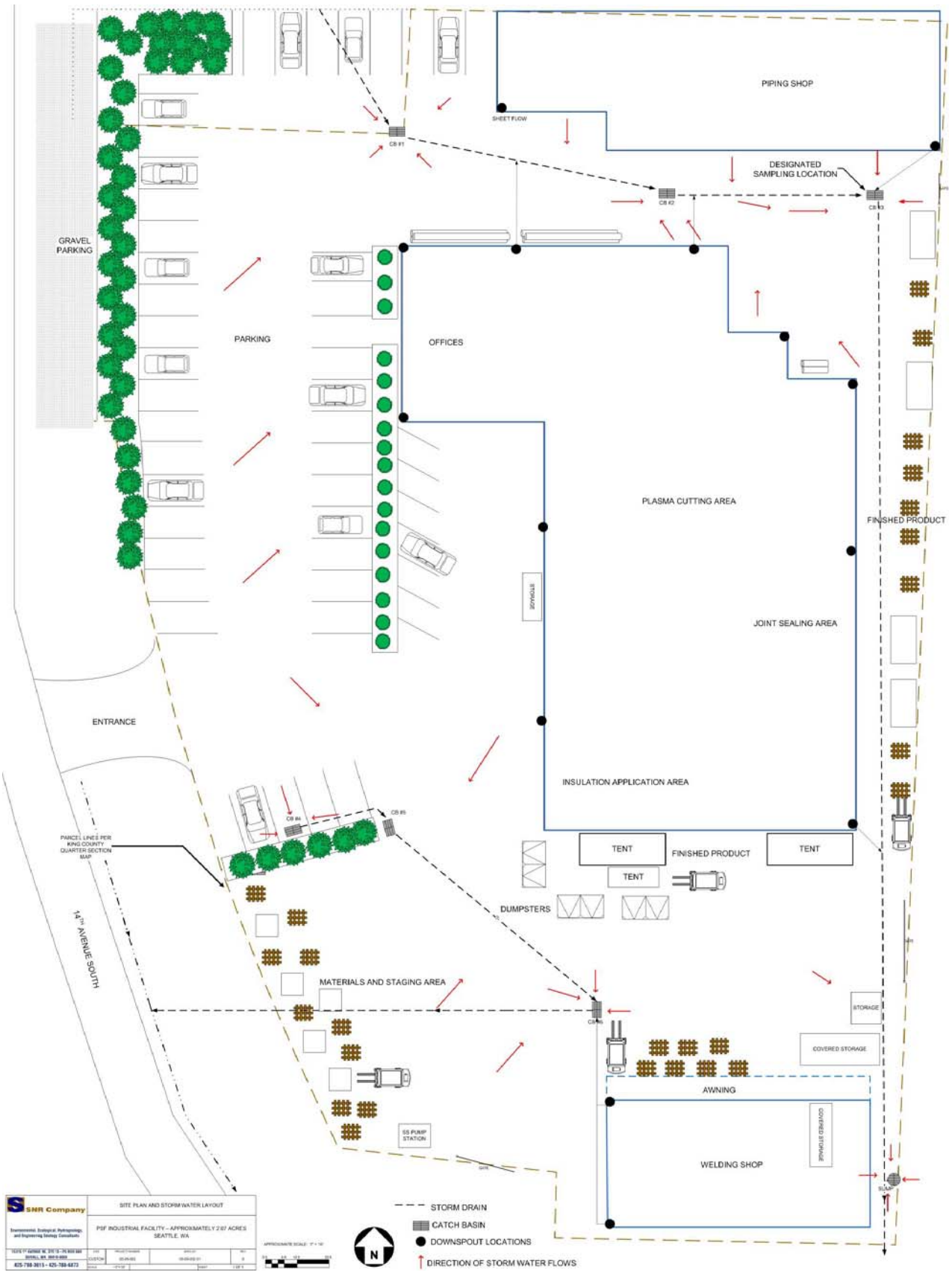

Source: PSF Mechanical 2010

Figure 18. PSF Mechanical Facility Drainage Map

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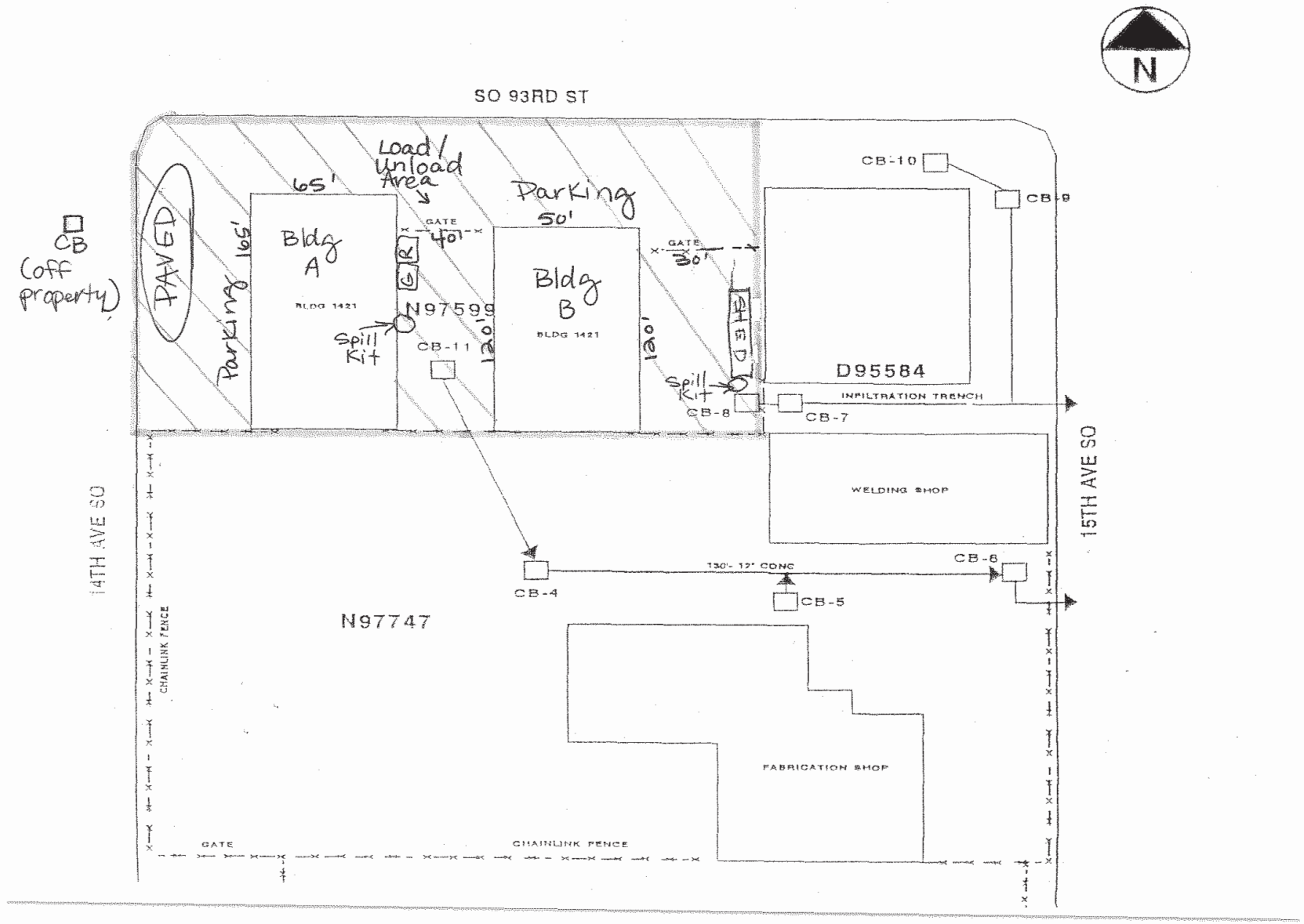
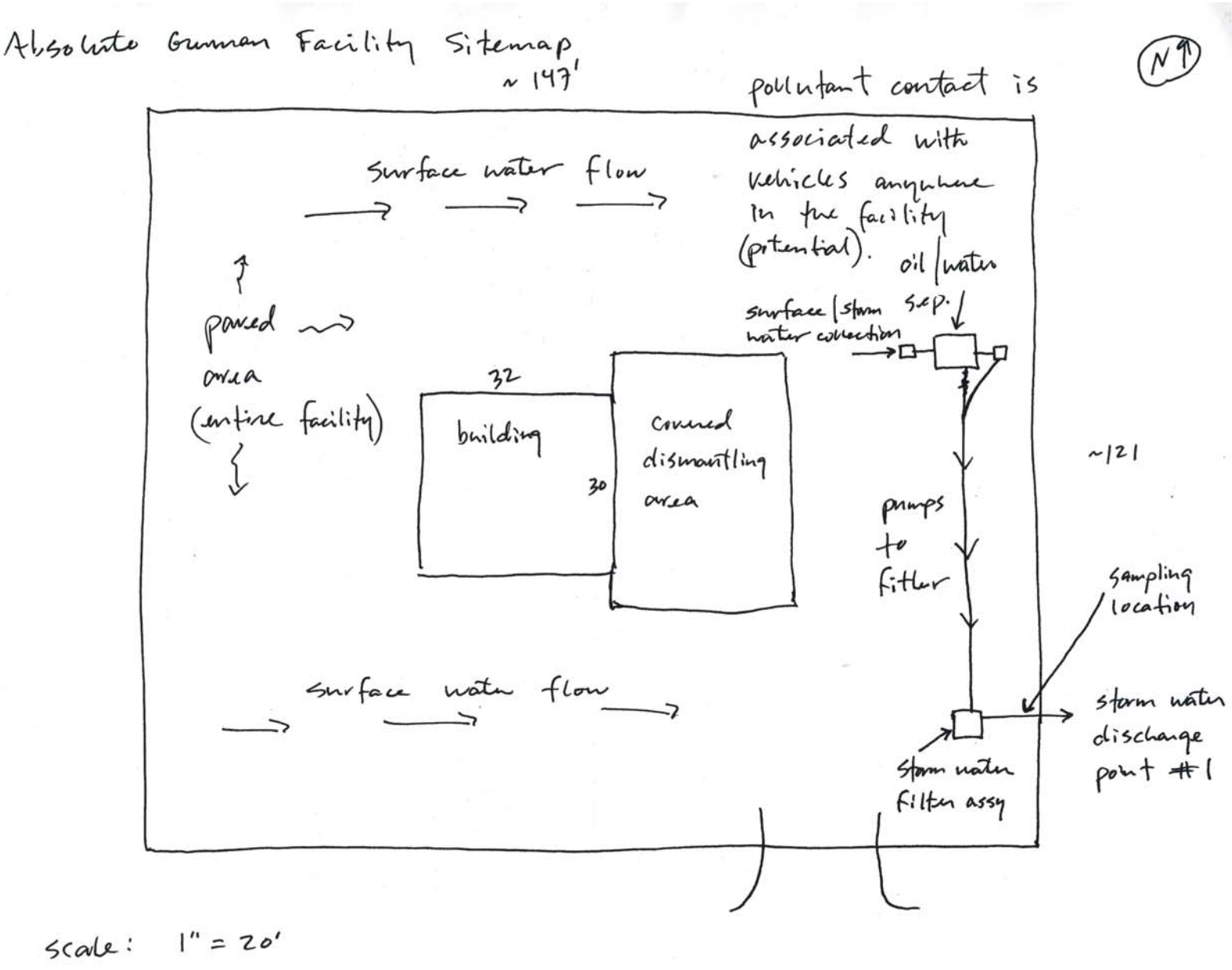


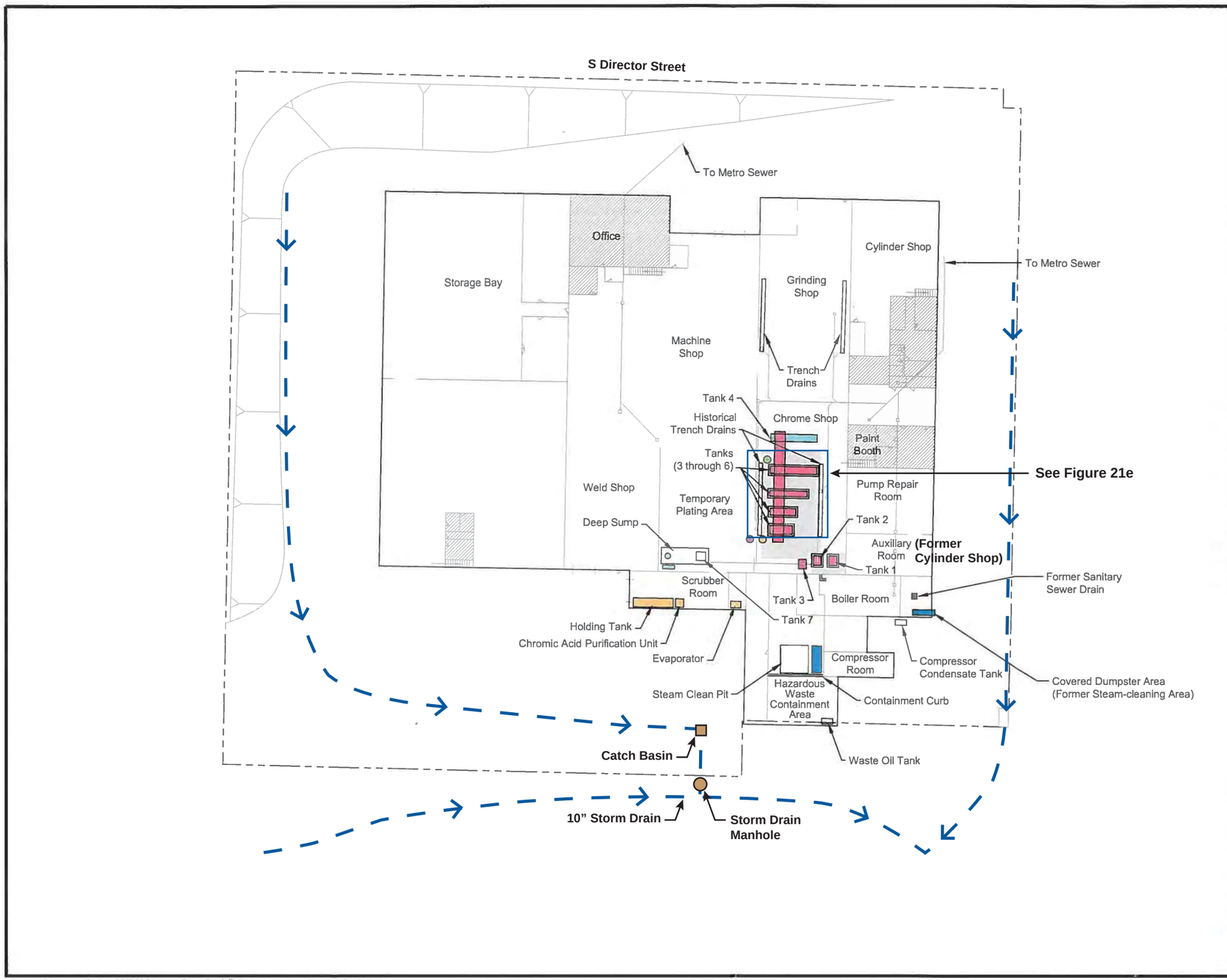
Source: Industrial Automation 2012a

Figure 19. Industrial Automation Facility Drainage Map



Sources: Absolute German 2010

Figure 20. Absolute German Facility Drainage Map



Former Building Features

Precision Engineering, Inc.
Seattle, Washington

Legend:
- Property Boundary
- Former Sanitary Sewer Piping (from July 1986 Drawing by Precision Engineering, Inc.)
- Building Second Floor Present
- 1990 and 1992 Excavation Areas

Former Tanks:
- Chromic Acid Plating Tank
- Other Tanks Containing Chromic Acid
- Sodium Hydroxide Tank
- Sodium Carbonate Tank
- Hydrochloric Acid Tank
- TCE Tank
- Drainage Flow Path

Note:
Locations of property boundary and building corners based on 2006 survey by Duncanson Company, Inc. All other locations are approximate.

N

0 50 100

Feet

MAUL FOSTER ALONGI INC.
ENVIRONMENTAL & ENGINEERING CONSULTANTS
Vancouver, WA | Portland, OR | www.MFAInc.com

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State of Washington

Source: MFA 2005, MFA 2008

Figure 21. Former Precision Engineering Facility Plan

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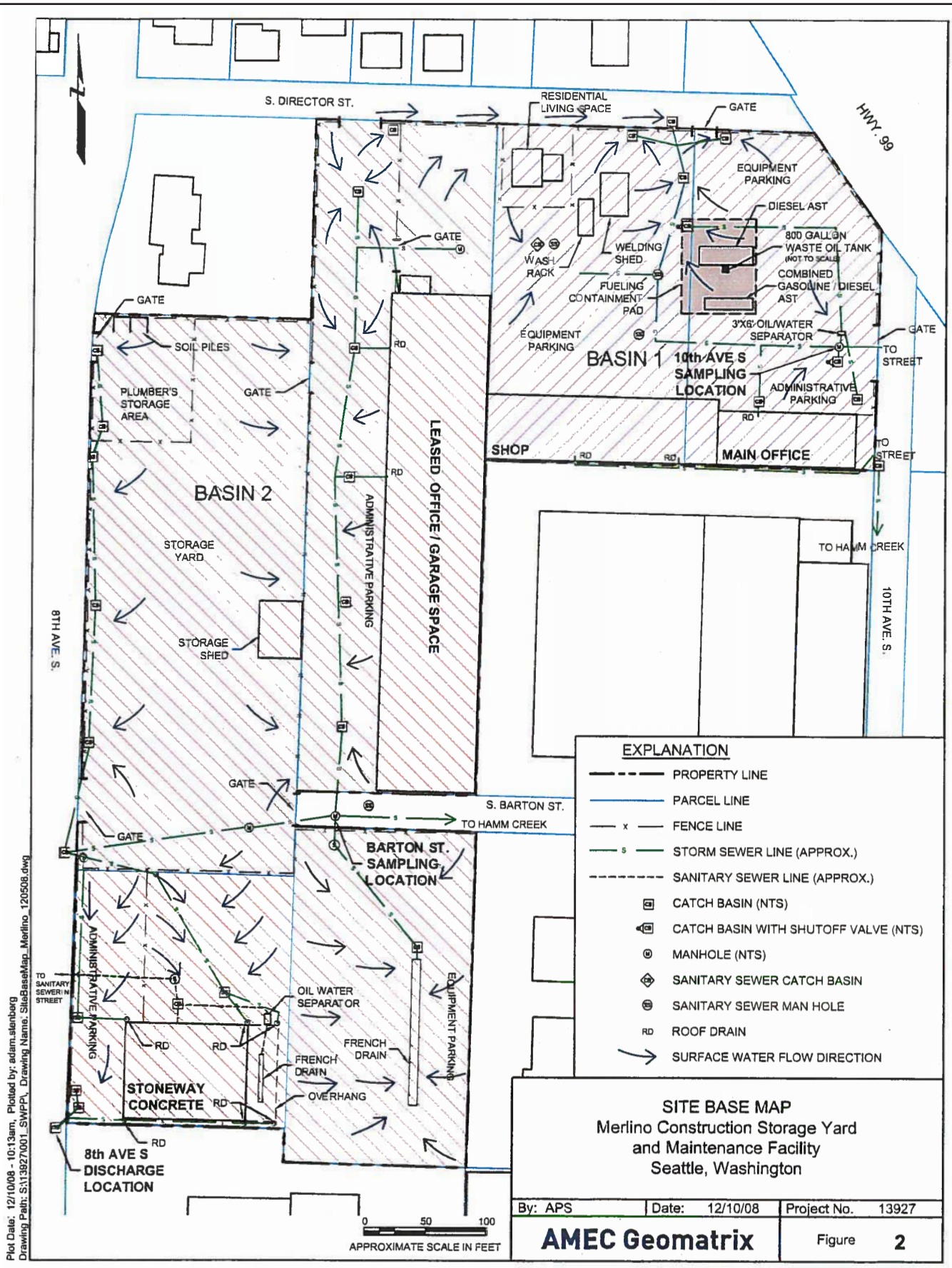

Source: AMEC 2008

Figure 22. Gary Merlino Construction Facility Drainage Map

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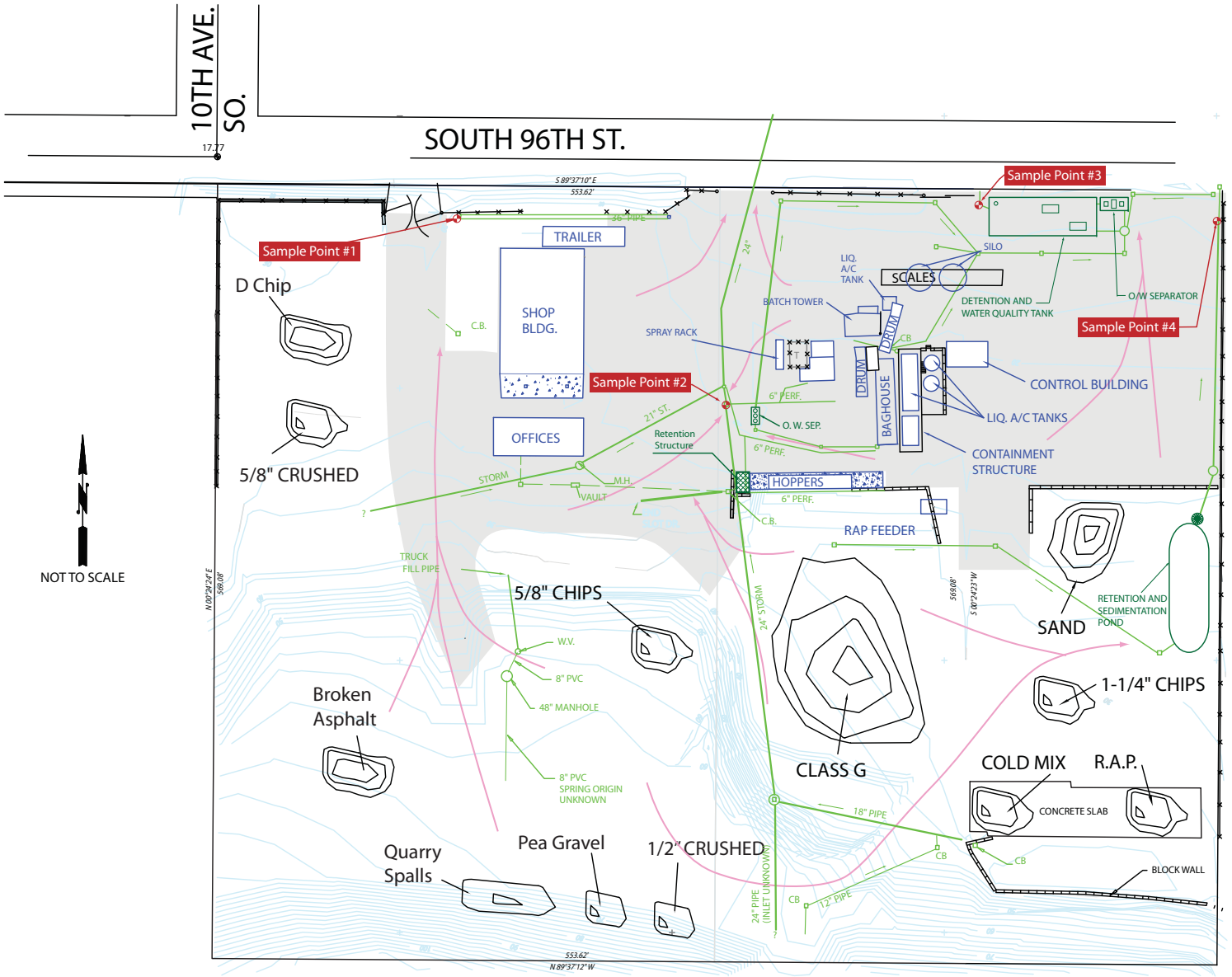

Source: ICON Materials 2010

Figure 23. ICON Materials Facility Drainage Map

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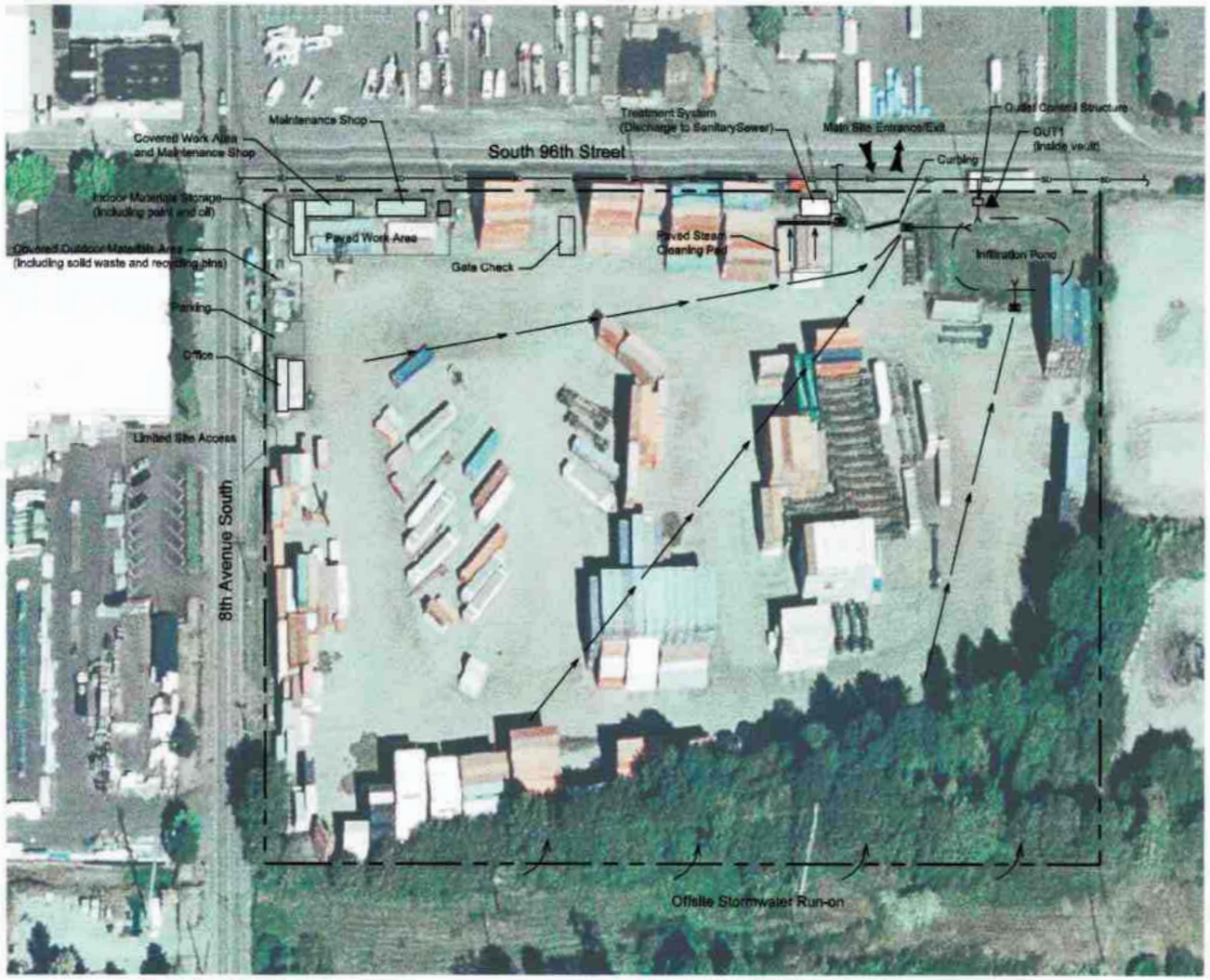
State of Washington

SAIC
From Science to Solutions



Legend

- Aproximate Property Line
- Limits of Paved Area
- Limits of Outdoor Covered Materials Storage
- Stormwater Flow Direction
- Stormwater Infiltration Area
- Public Storm Drain
- OUT1 ▲ Stormwater Monitoring Point
- Catch Basins

Stormwater Monitoring

OUT1 ▲ Collect stormwater samples from inside the vertical corrugated metal standpipe located within vault only when flow is observed exiting the outlet.

Material Flow

Traffic flow through the site proceeds in a counter clockwise direction as follows:

1. Main Site Entrance
2. Gate Check
3. Loading/Unloading of Containers
4. Main Site Exit

N

0 100 200
Feet

Source: Aerial photo dated in 2007 from Aerials Express.

Aspect consulting earth+water

Facility Map
Stormwater Pollution Prevention Plan
Western Ports Transportation Container Depot
Seattle, Washington

DATE	May 2009
DRAWN BY	EJM
CHECKED BY	SCC
PROJECT NO.	090077
FIGURE NO.	2

Source: Blue Environmental 2012

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Figure 24. Western Ports Transportation Facility Drainage Map

SAIC® From Science to Solutions

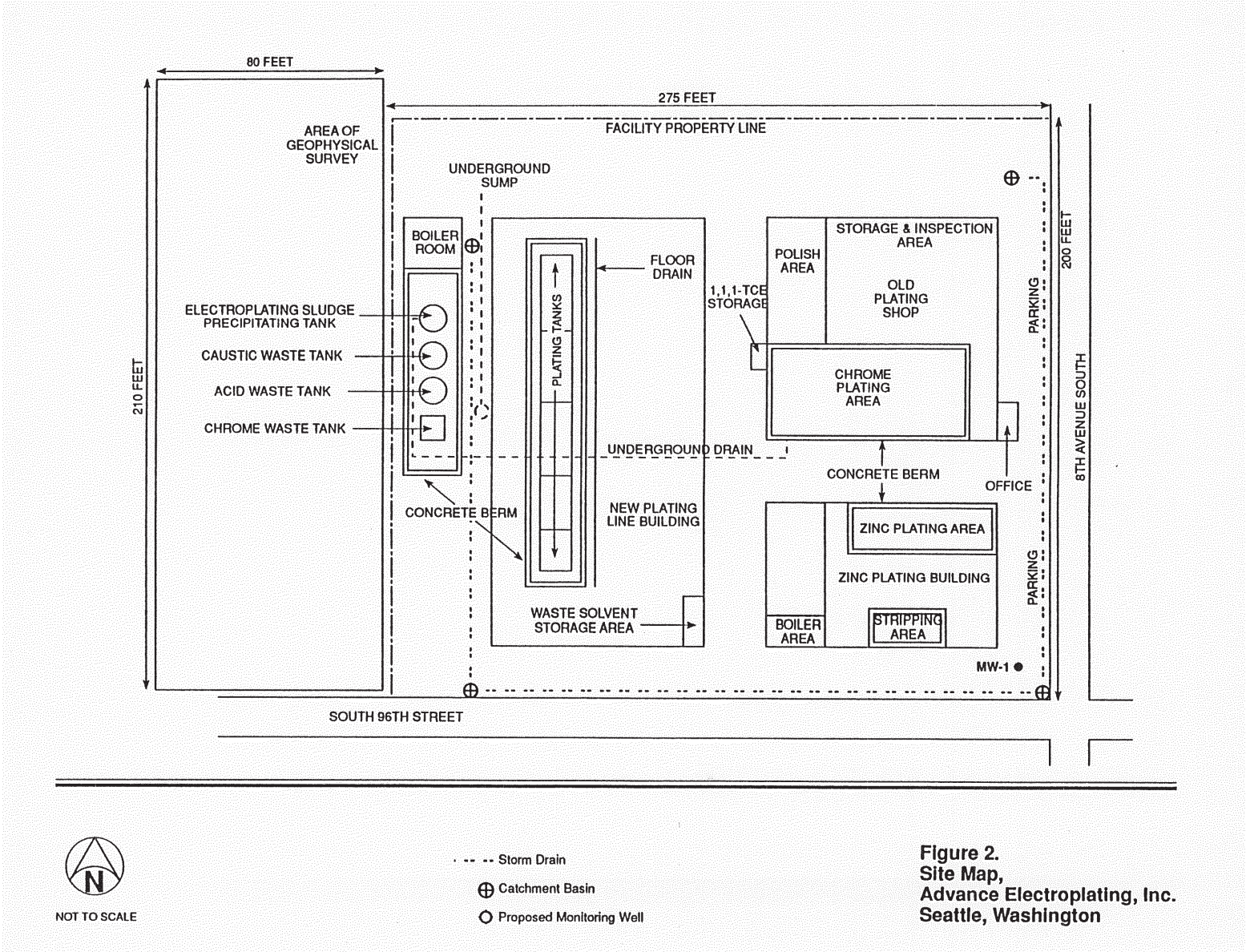

Figure 2.
Site Map,
Advance Electroplating, Inc.
Seattle, Washington

Source: Parametrix and SAIC 1991b

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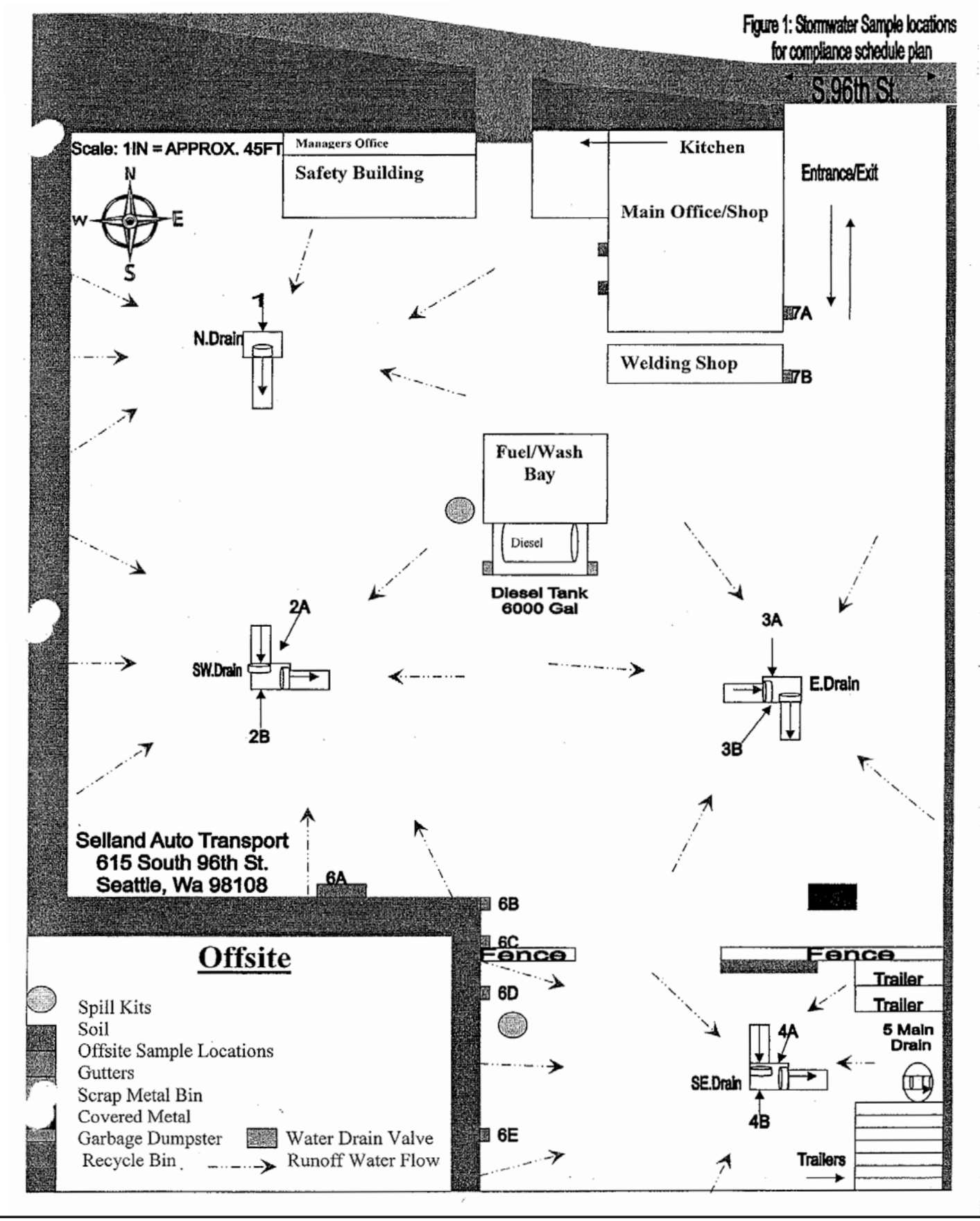
State of Washington

Figure 25. Former Advance Electroplating Site Map

SAIC® From Science to Solutions



Source: Selland Auto 2012a

Figure 26. Selland Auto Transport Facility Drainage Map

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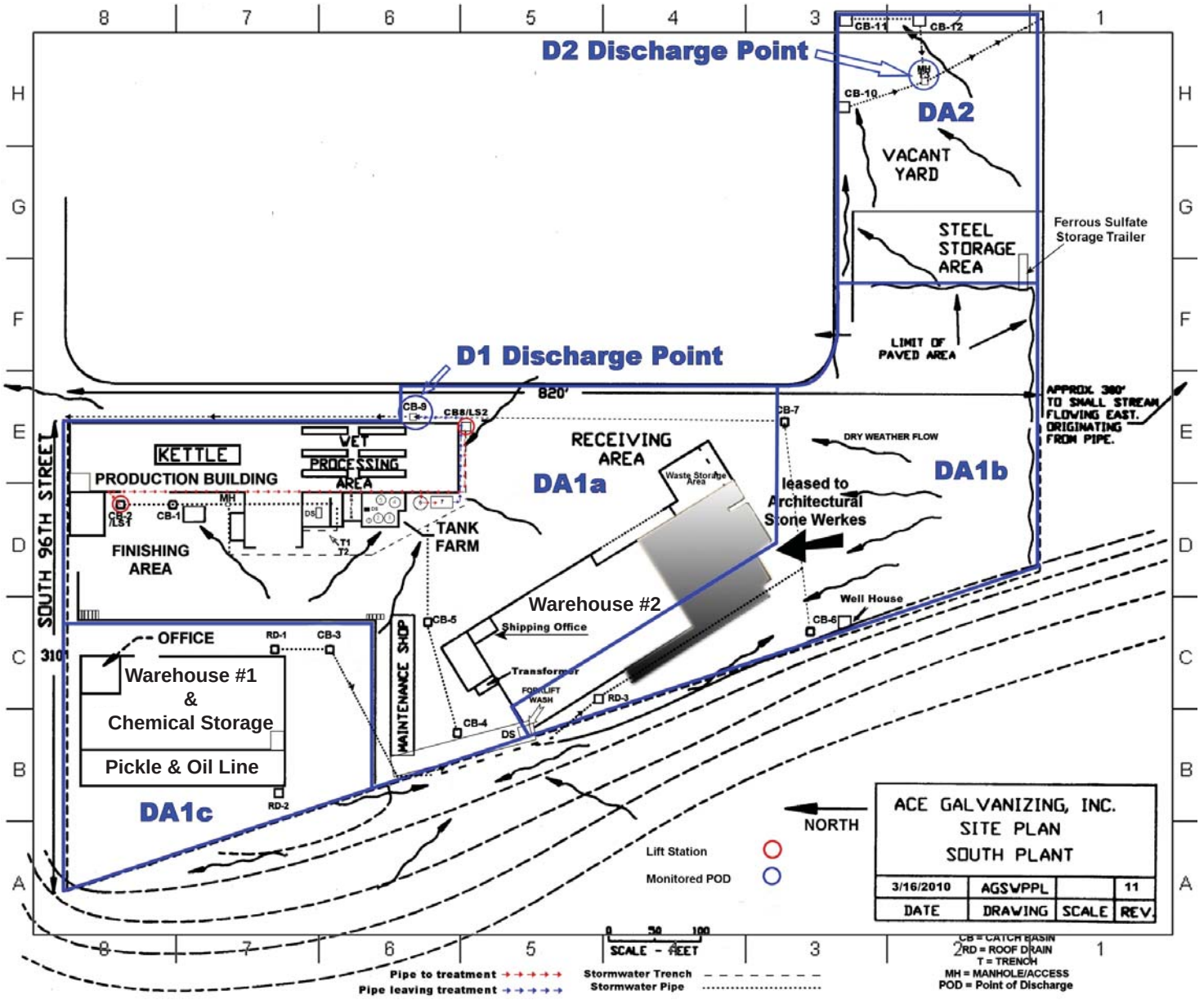

Source: Ace Galvanizing 2012c

Figure 27. Ace Galvanizing Facility Plan and Stormwater Drainage Areas

Source: SoundEarth 2012

DEPARTMENT OF ECOLOGY
State of Washington

Figure 28. RMC Inc. Facility Drainage Map

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