Remedial Investigation Report

Report Version: Draft, V2.

Site Name:	Duwamish Waterway Park
Site Address:	7900 10th Avenue South Seattle, WA 98108
Alternate Location Info:	King County Parcel Number: 732790-1195.

Ecology Facility Site ID No.:	49919
Cleanup Site ID:	15139

Prepared By:
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Parks and Recreation
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Signature:

Date:

TABLE OF CONTENTS

FIGURES

TABLES

APPENDICES

ACRONYMS AND ABBREVIATIONS

Acronyms & Abbreviations	Definitions
ARAR	Applicable or Relevant and Appropriate Requirements
bgs	below ground surface
COC	Contaminant/Chemical of Concern
CSID	Cleanup Site Identification number
CSM	Conceptual Site Model
CUL	clean-up levels
Ecology	Washington State Department of Ecology
FSID	Facility Site identification number
MTCA	Model Toxics Control Act
RCW	Revised Code of Washington
TEE	Terrestrial Ecological Evaluation
TPH	total petroleum hydrocarbon
VCP	Voluntary Cleanup Program
WAC	Washington State Administrative Code

EXECUTIVE SUMMARY

Duwamish Waterway Park is located at 7900 10th Avenue South, in Seattle, Washington. The City of Seattle Department of Parks and Recreation (SPR) has operated this park since 1975. Park property is owned by SPR, City of Seattle Department of Transportation (SDOT), the Port of Seattle and until recently, King County. SPR purchased King County's portion in May 2019. Elevated arsenic concentrations were discovered during the property transaction at low concentrations throughout the park and at higher concentrations in fill material located on the northeast corner of the park adjacent to the Duwamish Waterway. Major renovations are planned for the Duwamish Waterway Park in 2020 and remediation of the soil will occur before and during construction.

1. INTRODUCTION

Duwamish Waterway Park (the Site) is located at 7900 10th Avenue South, in Seattle, Washington. The City of Seattle Department of Parks and Recreation (SPR) has operated this park since 1975. Park property is owned by SPR, City of Seattle Department of Transportation (SDOT), the Port of Seattle and until recently, King County. SPR purchased King County's portion in May 2019. Property due diligence review discovered elevated arsenic concentrations in park soil. This Remedial Investigation report has been prepared to document the investigations conducted to date at the park and to request Ecology's opinion on the proposed cleanup actions which will take place concurrent with planned park renovations in 2020.

1.1. GENERAL SITE INFORMATION

Site Name:	Duwamish Waterway Park
Address:	7900 10th Avenue South, Seattle, WA 98108
Facility Site Identification Number:	49919
Cleanup Site Identification Number:	15139
Contact:	Crystal Thimsen/Jean Lee City of Seattle Parks and Recreation 300 Elliott Avenue West, Suite 100 Seattle, WA 98119 206-684-4119 crystal.thimsen@seattle.gov jeanh.lee@seattle.gov

Duwamish Waterway Park is a 1.26-acre park located in the City of Seattle's South Park neighborhood on parcel number 732790-1195. It is adjacent to the Duwamish Waterway. The neighborhood is zoned as an industrial buffer zone, described in the City of Seattle municipal code as areas that provide buffer between industrial areas and adjacent residential zones. The legal land description is the northeast quarter of Section 32, Township 24, Range 04, Willamette Meridian (**Figure 1**).

1.2. SITE HISTORY

SPR has operated Duwamish Waterway Park since 1975. Prior to SPR's purchase in May 2019, the largest portion of the park was owned by King County. Based on a review of the aerial photographs from 1936 to 2015 included in the 2018 Phase I Site Investigation conducted as due diligence performed for the property transaction, previous uses of the site appear to have been residential and perhaps agricultural. The site appeared largely undeveloped with only one residential structure on the northeast corner of the park property near the Duwamish River; this structure first appears in 1936 and was demolished sometime between 1985 and 1990. The Phase 1 report is included as **Appendix A**. The properties adjacent to the park were agricultural and residential until more industrial properties appear in the 1950s and 1960s. Due to the industrial nature of the surrounding properties, there may have been illicit dumping in the past. The park is also located in an area that may have been impacted by the former Asarco Smelter plume

as well as aerial deposition from other nearby industrial properties.

1.3. SITE USE

The site is currently used as a park. Park features include a walking trail, beach access, picnic areas with a barb-e-que, and benches along the riverside. There are mature trees along the eastern and western sides of the park. Due to its location adjacent to the Duwamish Waterway, park users utilize the beach access provided by the park for water recreation activities. The park is an important asset to the community who uses the park each year for the Duwamish River Festival. SPR plans to maintain this location as a park in perpetuity and there are plans to renovate the Park in mid to late 2020, adding a play area, more picnic areas, and upgrading and extending the walking path.

2. FIELD INVESTIGATIONS

2.1. PREVIOUS ENVIRONMENTAL INVESTIGATIONS/SITE CHARACTERIZATION

Although SPR operated the park for the last 45 years, King County owned most of the park for the past 44 years. There were no known environmental investigations conducted in the park until 2014, as described below.

- Eco Compliance Corporation (ECC) conducted limited soil sampling in July 2014 to characterize surface soils prior to constructing a gravel path in the park. Each sample was a composite of three separate samples which were collected from the upper three inches of soil at three locations along the planned path. These samples were analyzed for metals. A composite of the three individual composites was also submitted for carcinogenic polynuclear aromatic hydrocarbons (cPAHs) and dioxins/furans as 2,3,7,8-tetrachlorodibenzo-p-dioxin).
- ECC completed a Phase 1 Site Assessment in May 2018 (**Appendix A**); ECC suggested that the arsenic contamination in surface soils detected in 2014 was due to the former Asarco Smelter plume; this area is identified on the Washington State Department of Ecology's (Ecology) website to have arsenic concentrations below 20 milligram per kilogram (mg/kg).
- In January 2019, ECC collected soil samples at various depths from seven borings located throughout the site to further delineate the surface contamination encountered in the samples collected in 2014. These samples were analyzed for PAHs and arsenic as well as seven additional metals.
- In March 2019, 65 samples were collected from a grid across the entire park to further characterize the arsenic concentrations in surface soils and to confirm that arsenic concentrations in surface soils at the park were largely below the Model Toxics Control Act (MTCA) Method A unrestricted land use cleanup level of 20 mg/kg. Most of the samples were collected from 0 to 6 inches below ground surface, with samples collected from 7 to 12 inches below ground surface in 12 of these samples. Each sample was composited from three locations inside the grid and samples were analyzed for arsenic.

Previous investigations focused on analyzing samples for metals, PAHs, and dioxins and furans because these are the most common contaminants that would be found in surface soils due to ambient air pollutants due to the proximity to industrial activities and the former Asarco Smelter plume (industrial activity was not found in the park). Except for a single exceedance of lead, arsenic is the only metal that was detected at concentrations

above the screening level.

2.1.1. SITE GEOLOGY

The site geology is historically predominately alluvial fill composed of upstream fluvial sediments deposited from the White, Green, and Black Rivers. This fill included beds of fine silts and sands deposited as riverine and floodplain deposits, with coarser sands and gravels deposited near the water's edge. The Duwamish River valley was inhabited by Native American tribal communities who fished, hunted and gathered, and farmed in this area. In the late 1800s and early 1900s, after arrival of people of European origin to the area, the river was extensively modified. Tide flats and floodplains were filled to straighten the river channel, resulting in the abandonment of almost 3.7 miles of the original meandering riverbed. Current side slips in the Duwamish Waterway are remnants of these old river meanders (LDWG, 2010), one of which is across the river and to the north of the Duwamish Waterway Park. Tribal fishing activities continue to the present day.

The river channel has been frequently dredged for navigational purposes, and the excavated material was used to fill the old channel areas and the lowlands to bring them above flood levels. Subsequent filling of the lowlands for continued development results in a surficial layer of fill over most of the lower Duwamish Valley. Historic maps of the Duwamish River indicate that the Duwamish Waterway Park is located on the landward side of a historic oxbow.

Soils were not classified using the standard United States Geological Survey Soil Classification system during the soil boring investigation conducted in 2019. However, field observations indicate a gravel fill in the sample collected in the northeast corner of the Site. This fill was not observed in the borings collected in remaining park areas.

2.1.2. SITE HYDROGEOLOGY

Groundwater was encountered in soil borings advanced during the January 2019 investigation at 8 to 9 feet below ground surface. Localized groundwater flow is likely toward the Duwamish Waterway.

2.1.3. OTHER SITE INFORMATION

A search of Ecology's Environmental Information Management (EIM) database found one beach sediment sample collected in 2018, the concentration of arsenic in this sample ranged from 2.33 to 2.41 mg/kg. Data was also downloaded for sediment samples collected from the Duwamish Waterway in 2004, 2005, and 2006. Concentrations of arsenic in these sediment samples did not exceed 9 mg/kg.

2.2. SAMPLING/ANALYTICAL RESULTS.

Soil samples collected during the investigations described above in 2014 and 2019 were submitted to Analytical Resources, Inc., an Ecology-certified laboratory using United States Environmental Protection Agency (EPA) analytical methods. ECC's sampling reports are included in **Appendix B.** A formal data validation was not completed during the previous investigations.

In 2014, three composite surface soil samples were collected to characterize surface soils prior to constructing a gravel path (**Figure 2**). The composite samples were analyzed for arsenic, barium, cadmium, chromium, lead, selenium, and silver by EPA Method 6010C;

mercury by EPA Method 7471A; carcinogenic PAHs (benzo(a)anthracene, chrysene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenz(a,h)anthracene, and total benzofluoranthenes); and dioxins and furans by EPA 1613B. Sample results were compared to the MTCA Method A cleanup levels for unrestricted land use, except where not available, when the MTCA Method B screening level was used. As shown in **Table 1**, arsenic was the only compound detected in the soil samples at concentrations above MTCA cleanup and/or screening levels. The PAH and dioxin and furan results were reported from one composited site sample. The composited site sample results are not used to evaluate nature and extent of contamination in this RI.

In January 2019, ECC conducted an additional soil investigation to evaluate potential soil contamination prior to the property purchase. Four borings were installed in the northern portion of the site using direct push methods; samples from these borings were collected from approximately 3 to 4 and 8 to 9 feet below the ground surface (ft bgs). The top of the soil/groundwater interface was noted at the 8- to 9-foot interval. Borings were terminated at approximately 10 ft bgs. Soil samples were collected from three shallower borings via a hand auger in the southern portion of the site. Samples were collected from 0.5 to 1 feet bgs and from 2 to 2.5 feet bgs in all three locations (**Figure 2**). Samples were analyzed for the same list of metals as the 2014 soil samples by EPA Methods 6010C and 7471B and for PAHs by EPA Method 8270D with Selected Ion Monitoring (SIM). A formal data validation was not performed. Sample results were compared to MTCA Method A, except where not available, when MTCA Method B was used. As shown in **Table 2**, arsenic and lead were detected at concentrations above the MTCA Method A cleanup level in the soil sample collected from 3 to 4 feet bgs, from boring B-4. All other metals and PAHs concentrations were below MTCA cleanup/screening levels.

In February 2019, ECC collected surface soil samples throughout the site to delineate the arsenic concentrations in surface soils. Sampling was conducted in a grid pattern. Three-point composite samples were collected from 0 to 6 inches at each of the 65 grid locations, with deeper samples collected from 7 to 12 inches at 12 of the 65 locations (Figure 3). Samples were analyzed for arsenic by EPA Method 6010C. A formal data validation was not performed. As shown in Table 3 and Figure 3, arsenic concentrations were uniformly below the MTCA Method A cleanup level for arsenic except for soils collected in the northeast corner of the site.

3. CONCEPTUAL SITE MODEL

Based on previous investigations and historical site use, arsenic is present in elevated concentrations in the soils in the northeast corner of the site and is attributed to fill material brought in sometime between 1977 and 1980 based on aerial photo review and known historical site use. Arsenic concentrations in the remaining areas of the Park are consistent with concentrations of arsenic in surface soils throughout Puget Sound and are not indicative of a release due to industrial activity.

Arsenic is naturally occurring throughout soil in the Puget Sound, and is relatively immobile under oxidizing conditions. Arsenic in soil, either naturally occurring or from anthropogenic releases, forms insoluble complexes with iron, aluminum, and magnesium oxides found in soil surfaces, and in this form, is relatively immobile. However, under reducing conditions, arsenic can be released from the solid phase, resulting in soluble forms of arsenic, which may potentially leach into groundwater or result in runoff of arsenic into

surface waters. Because many arsenic compounds tend to partition to soil under oxidizing conditions however, leaching usually does not transport arsenic. Arsenic is largely immobile in agricultural soils; therefore, it tends to concentrate and remain in upper soil layers indefinitely (ATSDR, 2020). The main transport mechanisms for arsenic at the site are:

- Leaching of metals in the vadose zone soil to the underlying saturated zone soils and/or groundwater
- Leaching of metals in the saturated zone soil to groundwater
- Erosion of surface soils to beach sediment along the Duwamish Waterway
- Erosion of surface soils to surface water (Duwamish Waterway)

Potential receptors at risk from exposure at the Site are human and ecological receptors. The human receptors include direct exposure of workers during park construction or maintenance activities, human exposure via drinking water and surface water consumption, and residential (i.e. park users); the ecological receptors are terrestrial wildlife (birds and burrowing animals) and freshwater aquatic species.

The objective of the preliminary exposure assessment is to assess the completeness of exposure pathways from environmental media of potential concern and associated contaminant fate and transport mechanisms for the potential receptors. The conceptual site model (CSM) is presented graphically on Figure 4 and discussed below.

3.1. SOIL

Arsenic concentrations in soil exceeding applicable MTCA Method A cleanup levels (CULs) present a potential risk to human receptors.

The main fate and transport mechanisms for soil at the Site include adsorption, volatilization, leaching, advection, dispersion, diffusion, and biodegradation. Leaching of metals from the soil by dissolution and desorption to groundwater is discussed below. The exposure pathway for soil at the site includes direct contact with soil or inhalation of airborne soil particles. The potential exposure pathways for soil are discussed below:

- Direct Contact: Arsenic concentrations in soil exceed MTCA CULs primarily in the northeast corner of the site. Though the area is covered with grass and park users do not come into direct contact, this pathway is complete to 8 feet bgs for environmental field personnel and construction and utility workers who may come in contact with contaminated soil during excavation activities. The direct contact pathway is considered complete for park users despite being covered with grass.
- Inhalation: The release mechanism for this exposure pathway is the inhalation of airborne soil particles during excavation and construction activities on the Property. This exposure pathway could be complete for environmental field personnel and construction and utility workers during redevelopment, but it is not complete for park users because the soil is primarily covered with grass.
- Erosion: The release mechanism for this exposure pathway is erosion to the adjacent beach and the Duwamish River. This pathway is complete for surface soils even though the area is primarily covered with grass.

3.2. GROUNDWATER

The groundwater pathway is incomplete because arsenic concentrations in groundwater are unknown. Groundwater beneath the Site is not a potential source for drinking water.

3.3. VAPOR

The vapor inhalation pathway is incomplete. According to Ecology's draft Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action (Ecology, 2009), vapor intrusion assessment is recommended when there is the presence of chemicals of sufficient volatility and toxicity to pose a threat, and occupied buildings are present or could be constructed in the future above or near the contamination. Metals in soil and groundwater at the site are not volatile, buildings do not exist on site nor currently planned for future construction; therefore, the vapor intrusion pathway is not complete.

4. PROPOSED CLEANUP STANDARDS

The proposed cleanup standards must comply with the MTCA cleanup regulations specified in WAC 173-340 and with applicable state and federal laws. The cleanup standards selected for the Site are consistent with the remedial objective which is to contain existing contamination of soil and/or groundwater to limit exposure to humans and/or the environment and prevent contaminants in soil and groundwater from migrating off the Site. RCW 70.105D.030(2)d requires cleanup standards to be "at least as stringent as all applicable state and federal laws." As shown in Table 4, applicable state and federal laws were considered in the selection of the cleanup level for soil and include the applicable state and federal laws included by Ecology in their Preliminary Cleanup Levels for the Lower Duwamish Waterway Document. The proposed CUL for arsenic in soil at the site is 7 mg/kg, The point of compliance is surface soils (to 12 inches below ground surface) throughout the site, except in the area of contaminated fill, where the point of compliance extends to the depth of fill (approximately 4 feet below ground surface).

5. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

5.1. SUMMARY AND CONCLUSIONS

Surface soils in the Duwamish Waterway Park contain arsenic at concentrations expected for a property located in an industrialized location in South Seattle. An exception is the fill soils in the northeast corner of the park where arsenic concentrations are elevated. Because the park is adjacent to the Duwamish Waterway, the cleanup level is adjusted to the natural background concentration of 7 mg/kg to be protective of both human health and the ongoing Duwamish Waterway cleanup activities. Sampling results from the beach and sediments do not indicate that arsenic concentrations in these locations are elevated. The soil to groundwater pathway is not complete due to lack of groundwater sampling.

5.2. RECOMMENDATIONS

Major renovations are planned for the Duwamish Waterway Park in mid to late 2020. Due to the lack of industrial activity at the park, Ecology model remedies for properties impacted by the former Asarco Smelter plume are appropriate to use to remediate the soils. The following remedies will be employed prior to and during park renovations:

- Excavation and Removal:
    - Contaminated fill in the northeast corner of the park will be excavated and removed. Excavated soils will be disposed at a Subtitle D landfill. Confirmation samples will be collected from the bottom and sidewalls of the excavation to ensure that the contaminated fill has been removed.

        - The existing tree will be protected; therefore, soils may not be removed to the full extent of contamination in the root zone of the tree. Soils will be removed to at least one foot below ground surface to protect human health.
        - The stability of the armored shoreline rockery wall adjacent to the Duwamish Waterway will be protected when excavating soils. This armoring is Port of Seattle property and extends onto the site at an undefined distance. The excavation will not undermine or compromise the shoreline armoring. Future Port of Seattle plans for this area may include removal of rockery and shoreline restoration at which time contaminated soil left in place would be likely removed.
    - Soils removed for irrigation trench installation throughout the site will be disposed of offsite. Confirmation soil samples will be collected in these areas to ensure that remaining soils at depth are below cleanup levels.
- Capping
    - The soils under the play area, the walkway, and the picnic areas will be capped with various materials including concrete pads, gravel, and the materials that make up the play area. The direct exposure pathway for human and ecological receptors will be incomplete with the caps, removing the risk of exposure.
- Soil Mixing
    - Surface soils in the remaining areas of the park that are not capped or excavated will be rototilled to mix higher concentration surface soils with lower concentration soils at depth. Park renovations include hydroseed and grass seed to re-establish the lawn after major renovations are complete. Confirmation soil samples will be collected following Ecology guidance after rototilling and prior to any lawn establishing activities.

Figure 5 shows the approximate areas of excavation and capping. The drawings in Appendix C contain detailed drawings of the areas described above; except the excavation area. Confirmation soil samples collected during remedial activities will be submitted to an Ecology-certified laboratory and analyzed for arsenic using EPA Method 6020A. Data summary reviews will be performed by City of Seattle environmental analysts. A summary report describing the remedial actions will be submitted to Ecology within 60 days of completion of the park renovations.

6. REFERENCES

Agency for Toxic Substances and Disease Registry (ATSDR), 2007, Toxicological Profile for Arsenic, U.S. Department of Health and Human Services, August.

Lower Duwamish Waterway Group (LDWG), 2010, Lower Duwamish Waterway Remedial Investigation, Final Remedial Investigation Report, prepared by Windward Environmental, July.

Washington State Department of Ecology (Ecology), 2019, Tacoma Smelter Plume Model Remedies Guidance, Sampling and cleanup of arsenic and lead contaminated soils, July.

Ecology, revised 2013. *Model Toxics Control Act Regulation and Statute*. Washington State Department of Ecology, Olympia, Washington. 324 pages. Publication No. 94-06. http://www.ecy.wa.gov/biblio/9406.html

Figures

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SCALE IN FEET

Duwamish Waterway Park

Figure 1

Legend

- # 2014 Composite Sample Location
- # 2019 Geoprobe Sample Location
- # 2019 Hand Auger Sample Location

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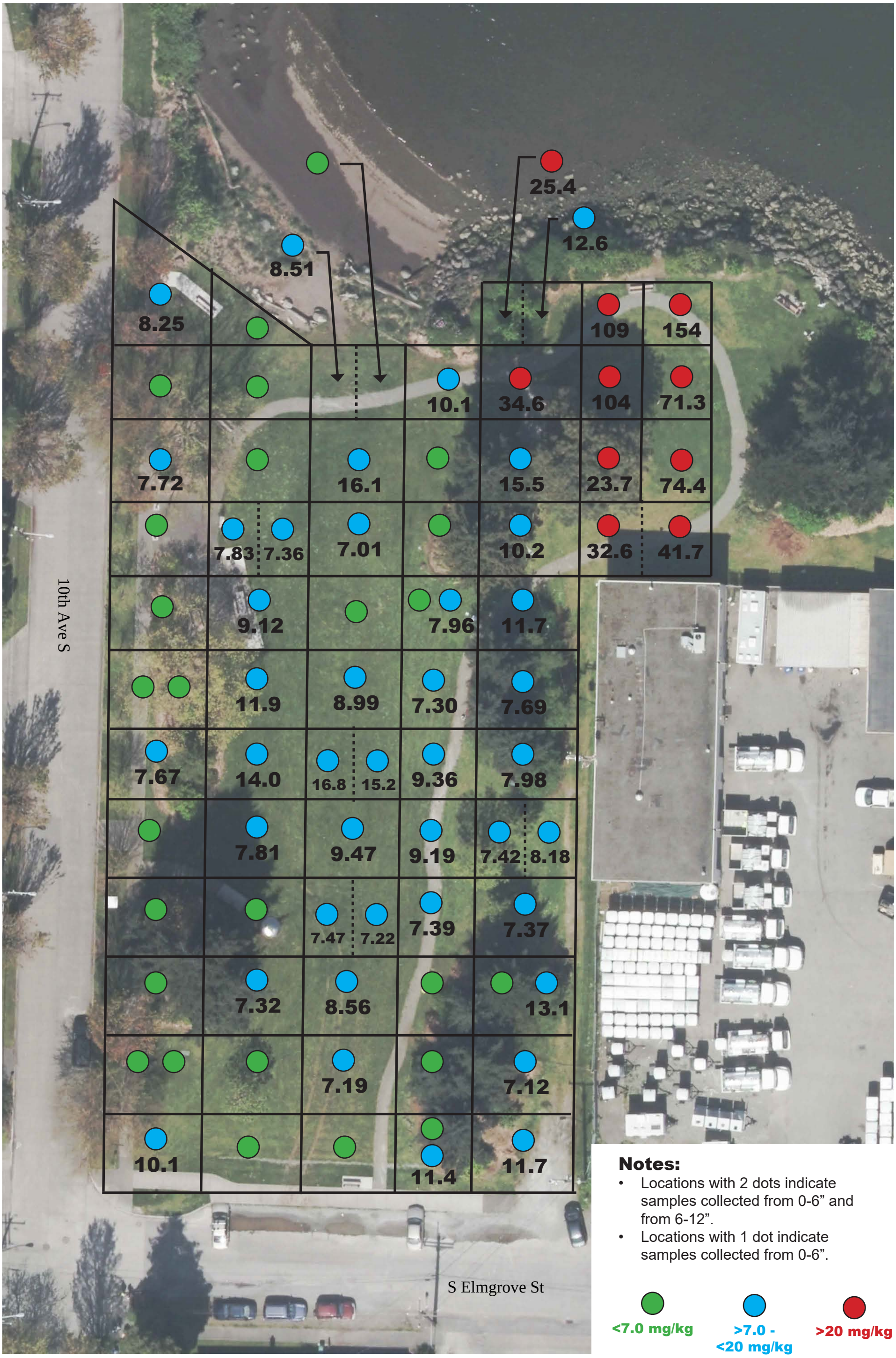
SCALE IN FEET

Duwamish Waterway Park

Figure 2



Notes:

- Locations with 2 dots indicate samples collected from 0-6” and from 6-12”.
- Locations with 1 dot indicate samples collected from 0-6”.

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Duwamish Waterway Park
Figure 3

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SCALE IN FEET
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Conceptual Site Model
Duwamish Waterway Park
Figure 4

Primary Source	Affected Media	Transport Mechanisms	Environmental Media of Potential Concern	Exposure Pathway
Arsenic Contaminated Soil	Soil	Adsorption	Subsurface Soil	Direct Contact
		Leaching		
	Groundwater	Advection/ Dispersion	Shallow Water-Bearing Zone	Direct Contact
		Diffusion		
	Surface Water	Erosion	Surface Water/Sediments of Duwamish Waterway	Direct Contact

Potential Receptors	HUMAN			ECOLOGICAL		
	WORKERS	DRINKING WATER	RESIDENTIAL	TERRESTRIAL		AQUATIC
Soil	•	NA	•	•		
Groundwater			X			
Surface Water		•	•			•

LEGEND
- • Pathway complete for potential receptor
- **X** Pathway incomplete
- **NA** Not applicable
- ☐ Pathway could be complete but potential receptor is unlikely

Notes:

- Areas not shown to scale.
- Lawn area not indicated above will be aerated or rototilled.
- Irrigation trenching not shown.

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SCALE IN FEET

Duwamish Waterway Park

Figure 5

Tables

Table 1
Soil Investigation Results - Trail Construction Sampling
July 2, 2014

Sample ID / Depth (inches bgs)	MTCA Method A [1]	1 [2]	2	3
		0-3	0-3	0-3
Metals (mg/kg)				
Arsenic	20	**61**	**69**	7
Barium	16,000 [3]	70.8	104	82.0
Cadmium	2.0	0.6	0.9	0.7
Chromium	2,000 [4]	26.3	42.4	28.6
Lead	250	89	135	32
Mercury	2.0	0.06	0.09	0.08
Selenium	400 [3]	5 U	5 U	5 U
Silver	400 [3]	0.3 U	0.3 U	0.3 U
PAHs (µg/kg)				
Benzo(a)anthracene	NE	180 U		
Chrysene	NE	200		
Total Benzofluoranthenes	NE	250		
Benzo(a)pyrene	100	180 U		
Indeno(1,2,3-cd)pyrene	NE	180 U		
Dibenzo(a,h)anthracene	NE	180 U		
Total cPAHs TEQ	100	27		
Dioxins/Furans (pg/g)				
2,3,7,8-TCDD		1.85		

Notes:
1. MTCA A value for unrestricted land use
2. **Bolded** values exceed the screening level
3. MTCA B value
4. Screening level for chromium III

Abbreviations
bgs = below ground surface
MTCA = Model Toxics Control Act
mg/kg = milligram per kilogram
NE = not established
pg/g = picogram per gram
ug/kg = micrograms per kilogram
U = analyte not detected at the given reporting limit

Table 2
Soil Boring Investigation Results
January 18, 2019

Sample ID	MTCA Method A[1]	1A[2]		2A		3A		B-1		B-2		B-3		B-4	
Depth (ft bgs)		0.5-1	2-2.5	0.5-1	2-2.5	0.5-1	2-2.5	3-4	8-9	3-4	8.5-9.5	4-5	8.5-9.5	3-4	8-9
Metals (mg/kg)															
Arsenic	20	11.8	11.9	8.35	**20.3**	16.9	15.8	6.13	6.33	6.98	5.99	6.71	6.64	**261**	7.33
Barium	16,000[3]	58.4	26.7	39.9	85.3	58.9	62.2	27.9	25.4	15.8	21.0	20.0	28.2	89.9	21.0
Cadmium	2.0	0.462	0.279	0.345	1.63	0.564	0.586	0.174 J	0.171 J	0.223	0.176 J	0.168 J	0.210 J	1.32	0.262
Chromium	2,000[4]	17.7	10.6	12.7	26.2	18.3	22.0	8.02	8.40	9.82	8.04	9.50	9.90	33.0	8.27
Lead	250	11.6	14.6	12.6	23.0	52.4	26.5	0.799	0.676 J	1.56 J	0.702 J	0.948 J	1.25 J	**284**	0.882 J
Mercury	2.0	0.114	0.0356	0.109	0.134	0.124	0.162	0.0261 U	0.0213 U	0.0197 U	0.0222 U	0.0237 U	0.0218 U	0.0760	0.0250 U
Selenium	400[3]	2.09	1.13 J	0.945 J	30.4 U	2.13 J	2.41 J	1.80 J	0.827 J	1.35 J	1.54 J	1.67 J	1.88 J	2.67 J	1.82 J
Silver	400[3]	0.332 U	0.309 U	0.353 U	1.82 U	0.362 U	0.352 U	0.294 U	0.320 U	0.299 U	0.310 U	0.303 U	0.355 U	0.308 J	0.354 U
PAHs (µg/kg)															
Naphthalene	5,000	15.2	9.88	13.0	88.4	5.07	8.86	4.79 U	4.74 U	4.82 U	9.52	4.94 U	4.82 U	4.54 J	1.62 J
2-Methylnaphthalene	NE	24.7	14.8	20.5	154	4.50 J	18.4	1.16 J	1.11 J	4.82 U	15.9	4.94 U	1.46 J	4.30 J	3.50 J
1-Methylnaphthalene	NE	23.2	13.8	22.3	140	4.75 J	19.8	0.99 J	0.85 J	0.55 J	12.8	0.47 J	0.92 J	2.75 J	2.15 J
Acenaphthylene	NE	4.81 U	2.24 J	4.87 U	2.91 J	2.00 J	4.71 U	4.79 U	4.74 U	4.82 U	4.97 U	4.94 U	4.82 U	2.28 J	4.88 U
Acenaphthene	NE	2.12 J	4.47 J	4.87 U	31.9	1.24 J	6.40	4.79 U	4.74 U	4.82 U	3.02 J	4.94 U	0.78 J	2.68 J	4.88 U
Dibenzofuran	NE	10.1	6.35	9.95	50.1	2.87 J	11.1	4.79 U	4.74 U	4.82 U	6.79	4.94 U	4.82 U	1.87 J	4.88 U
Fluorene	NE	2.68 J	1.53 J	1.56 J	4.84 U	1.25 J	2.52 J	4.79 U	4.74 U	4.82 U	1.32 J	4.94 U	0.96 J	2.11 J	4.88 U
Phenanthrene	NE	46.8	27.8	31.8	128	26.1	41.0	1.71 J	1.26 J	1.75 J	20.2	0.87 J	2.63 J	19.3	3.21 J
Anthracene	NE	3.78 J	2.56 J	4.23 J	9.90	3.19 J	4.25	4.79 U	4.74 U	4.82 U	4.97 U	4.94 U	4.82 U	3.93 J	4.88 U
Fluoranthene	NE	28.1	18.2	25.4	35.0	32.4	22.9	4.79 U	4.74 U	3.15 J	3.32 J	1.07 J	1.25 J	30.2	1.29 J
Pyrene	NE	24.3	18.1	25.1	40.1	30.8	21.3	4.79 U	0.67 J	2.57 J	3.24 J	1.41 J	1.44 J	31.3	2.20 J
Benzo(a)anthracene	NE	12.5	8.65	11.6	19.8	15.8	10.1	4.79 U	4.74 U	1.22 J	1.60 J	4.94 U	4.82 U	15.0	4.88 U
Chrysene	NE	18.9	15.5	17.2	28.6	24.4	18.7	4.79 U	4.74 U	2.98 J	3.04 J	4.94 U	1.03 J	20.0	1.22 J
Benzo(b)fluoranthene	NE	13.3	13.2	11.2	11.9	20.6	13.6	1.48 J	4.74 U	2.47 J	4.97 U	4.94 U	4.82 U	14.8	4.88 U
Benzo(k)fluoranthene	NE	5.39	4.96	5.33	3.59	9.09	5.02	4.79 U	4.74 U	1.15 J	4.97 U	4.94 U	4.82 U	8.49	4.88 U
Benzo(j)fluoranthene	NE	6.88	6.26	5.26	5.31	9.85	5.94	4.79 U	4.74 U	0.98 J	4.97 U	4.94 U	4.82 U	8.08	4.88 U
Total Benzofluoranthenes	NE	24.4	22.4	21.8	18.8	38.1	23.7	4.79 U	4.74 U	4.74 J	4.97 U	4.94 U	4.82 U	31.7	4.88 U
Benzo(a)pyrene	100	11.7	11.3	11.1	8.45	19.2	9.56	4.79 U	4.74 U	1.75 J	0.80 J	1.04 J	4.82 U	19.1	0.70 J
Indeno(1,2,3-cd)pyrene	NE	10.7	14.4	8.35	10.5	18.7	9.32	4.79 U	4.74 U	2.01 J	4.97 U	4.94 U	4.82 U	18.7	4.88 U
Dibenzo(a,h)anthracene	NE	8.64	9.84	8.09	10.8	9.97	7.95	4.79 U	4.74 U	6.28	6.40	4.94 U	4.82 U	10.1	4.88 U
Benzo(g,h,i)perylene	NE	11.7	18.6	9.55	7.34	20.0	10.2	4.79 U	4.74 U	2.54 J	4.97 U	1.26 J	4.82 U	26.9	1.58 J
Total cPAHs TEF	100	16.94	16.56	15.73	14.40	26.86	14.35	3.61 J	3.58 U	3.09 J	2.38 J	2.30 J	3.63 J	26.01	1.93 J

Notes:
1. MTCA A value for unrestricted land use
2. **Bolded** values exceed the screening level
3. MTCA B value
4. Screening level for chromium III

Abbreviations
bgs = below ground surface
J = result is estimated
MTCA = Model Toxics Control Act
mg/kg = milligram per kilogram
NE = not established
ug/kg = micrograms per kilogram
U = analyte not detected at the given reporting limit

Table 3
Shallow Soil Investigation Results
February 22, 2019

Sample ID	Depth (inches bgs)	Arsenic (mg/kg) [1]
1	0-6	10.1
2		5.08
3		5.22
4		5.05
4A	7-12	11.4
5	0-6	11.7
6		6.56
6A	7-12	6.30
7	0-6	6.54
8		7.19
9		6.78
10		7.12
11		3.83
12		7.32
13		8.56
14		6.53
15		6.04
15A	7-12	13.1
16	0-6	5.22
17		6.12
18		7.47
18A	7-12	7.22
19	0-6	7.39
20		7.37
21		5.36
22		7.81
23		9.47
24		9.19
25		7.42
25A	7-12	8.18
26	0-6	7.67
27		14.0
28		16.8
28A	7-12	15.2
29	0-6	9.36
30		7.98
31		6.32
31A	7-12	6.57
32	0-6	11.9

Sample ID	Depth (inches bgs)	Arsenic (mg/kg) [1]
33	0-6	8.99
34		7.30
35		7.69
36		5.86
37		9.12
38		5.89
39		6.74
39A	7-12	7.96
40	0-6	11.7
41		6.43
42		7.83
42A	7-12	7.36
43	0-6	7.01
44		5.91
45		10.2
46		**41.7**
47		7.72
48		6.81
49		16.1
50		4.77
51		15.5
52		**23.7**
52A	7-12	**32.6**
53	0-6	**74.4**
54		6.09
55		4.82
56		8.51
56A	7-12	4.13
57	0-6	10.1
58		**34.6**
59		**104**
60		**71.3**
61		8.25
62		4.10
63		**25.4**
63A	7-12	12.6
64	0-6	**109**
65		**154**

Notes:
1. **Bolded** values exceed the MTCA A screening level for unrestricted land use of 20 mg/kg

Abbreviations
bgs = below ground surface
MTCA = Model Toxics Control Act
mg/kg = milligram per kilogram

Table 4
Applicable and Relevant Regulations and Site Cleanup Level Selection

Chemical	MTCA A	MTCA B Soil Direct Contact (cancer)	Soil Concentration to Protect GW as Drinking Water Vadose Zone [1]	Soil Concentration to Protect Surface Water via GW Vadose Zone [1]	Soil Concentration to Protect Sediment via GW Vadose Zone [1]	Soil Concentration Protective of GW as Drinking Water Saturated Zone [1]	Soil Concentration protective of Surface Water via GW Saturated Zone [1]	Soil Concentration to Protect Sediment via GW Saturated Zone [1]	Soil Concentration to Protect Sediment via Bank Erosion Min. ROD CUL + SMS Lower Tier	Site-Specific TEE Unrest. Land Use	Natural Background Ecology (1994)	Lowest Applicable Cleanup Level	Natural Background greater than lowest cleanup level	Applicable Cleanup Level for Site
Arsenic	20	0.67	0.34	0.082	129	0.017	0.0041	6.49	7.00	7.00	7.00	0.0041	yes	7.00

Notes:
All concentrations in mg/kg

Appendix A

PHASE 1 ENVIRONMENTAL SITE ASSESSMENT AND HAZARDOUS MATERIALS SURVEY

Duwamish Waterway Park
7900 – 10th Avenue South
Seattle, Washington 98106

Prepared for: Seattle Parks and Recreation
800 Maynard Avenue South, 3rd Floor
Seattle, Washington 98134

May 31, 2018

Project Number 14-07001

Eco Compliance Corporation

Environmental Scientists, Planners and Consultants

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TABLE OF CONTENTS

TABLE OF CONTENTS (continued)

TABLE OF CONTENTS (continued)

TABLE OF CONTENTS (continued)

LIST OF FIGURES

EXECUTIVE SUMMARY

This report is a Phase 1 Environmental Site Assessment (ESA), conducted as a good faith effort to identify obvious visually- and/or physically-observable recognized environmental conditions associated with the subject Duwamish Waterway Park property located at 7900 – 10th Avenue South in the northeast quarter of Section 32, Township 24, Range 4 of Seattle, King County, Washington.

This report included an evaluation of reasonably ascertainable federal, state and local agency files and records, historical records and aerial photographs. Interviews were conducted, and a visual reconnaissance of the property and abutting and/or adjacent sites was performed.

This ESA did not include a vapor migration analysis (although the site was evaluated for strong, pungent and noxious odors). There were no samples collected or analyzed. A property title report was not reviewed. A formal wetlands assessment was not performed (although the site was inspected for typical wetland-type species such as cattails and reeds). Contaminated properties that may be contiguous to or adjoining the subject property were not evaluated beyond what has been reported herein.

This report was requested by Seattle Parks and Recreation (herein referred to as the user) as part of a potential purchase of the property. This work was initiated on Friday, April 13, 2018.

SITE AND VICINITY GENERAL CHARACTERISTICS

The subject property consists of a public park. Onsite vegetation consists of typical grass, weeds, shrubs and trees. The northern portion of the park fronts the Duwamish River.

The property is mostly flat with no predominant surface grade.

The property is located in a mixed-use area of Seattle, consisting of single- and multi-family housing and commercial businesses. As noted above, the northern portion of the park fronts the Duwamish River.

Based on proximity to the Duwamish River, the general direction of shallow groundwater flow within the subject area is expected to be variable but generally to the northwest following the flow of the river.

SUMMARY OF FINDINGS AND OPINIONS

We have performed a Phase 1 ESA of the subject Duwamish Waterway Park property located at 7900 – 10th Avenue South in the northeast quarter of Section 32, Township 24, Range 4 of Seattle, King County, Washington in conformance with the scope and limitations of ASTM practice E1527-13. Any exceptions to or deletions from this practice are described in this report.

The following summary of findings, opinions and conclusions and recommendations is provided:

Recognized Environmental Conditions (defined by the ASTM standard as the presence or likely presence of any hazardous substances or petroleum products in, on or at a property: 1) due to a release to the environment; 2) under conditions indicative of a release to the environment; or 3) under conditions that pose a material threat of a future release to the environment):

- The subject property has documented arsenic contamination in the shallow onsite soil. The property is located in what has been classified by the state as a "Level 1" area, where arsenic concentrations in near-surface (0 – 6 inches) soils likely exceed 20 parts-per-million (ppm) (the state cleanup standard for arsenic in soil is 20 ppm based on unrestricted [residential] land use). This contamination is from the former Asarco smelter in Tacoma. The smelter closed in 1986.

- There is a potential for soil, sediment and/or groundwater contamination to exist on the subject property from adjacent offsite sources, including that from the Duwamish River.

Overall, sampling should be conducted onsite to determine the presence and/or extent of the documented and suspected contamination.

Controlled Recognized Environmental Conditions (defined by the ASTM standard as a recognized environmental condition resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority [for example, as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority], with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls [for example, property use restrictions, activity and use limitations, institutional controls or engineering controls]):

- There were no obvious Controlled Recognized Environmental Conditions noted with the subject property during the time of this Phase 1 ESA report.

Historical Recognized Environmental Conditions (defined by the ASTM standard as a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls [for example, property use restrictions, activity and use limitations, institutional controls or engineering controls]):

- There were no obvious Historical Recognized Environmental Conditions noted with the subject property during the time of this Phase 1 ESA report.

De Minimis Conditions (defined by the ASTM standard as a condition that generally does not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be de minimis conditions are not recognized environmental conditions nor controlled recognized environmental conditions. However, please note that these de minimis conditions could become recognized environmental conditions if improperly handled or managed).

- The subject property is listed as King County property, publicly-owned land and a park. The property is also listed as having a restrictive size/shape.

  The property is listed as being in a critical area ordinance basin condition area, groundwater management area, water resource inventory area and an area susceptible to groundwater contamination. The property is listed as Duwamish River waterfront, a chinook distribution area, and a FEMA 100- and 500-year floodplain.

  Overall and because of these listings and conditions, building and land use restrictions and set-back requirements may apply to any future development of the property.

1. INTRODUCTION

1.1 PURPOSE

This report is a Phase 1 Environmental Site Assessment (ESA), conducted as a good faith effort to identify obvious visually- and/or physically-observable recognized environmental conditions associated with the subject Duwamish Waterway Park property located at 7900 – 10th Avenue South in the northeast quarter of Section 32, Township 24, Range 4 of Seattle, King County, Washington (Figure 1). This report was requested by Seattle Parks and Recreation (herein referred to as the user) as part of a potential purchase of the property. This work was initiated on Friday, April 13, 2018.

The term "good faith" is defined by the American Society for Testing and Materials (ASTM) as "the absence of any intention to seek an unfair advantage or to defraud another party; an honest and sincere intention to fulfill one's obligations in the conduct or transaction concerned".

The term "visually- and/or physically-observable" is defined by ASTM as "observations made by vision while walking through a property and the structures located on it and observations made by the sense of smell, particularly observations of noxious or foul odors".

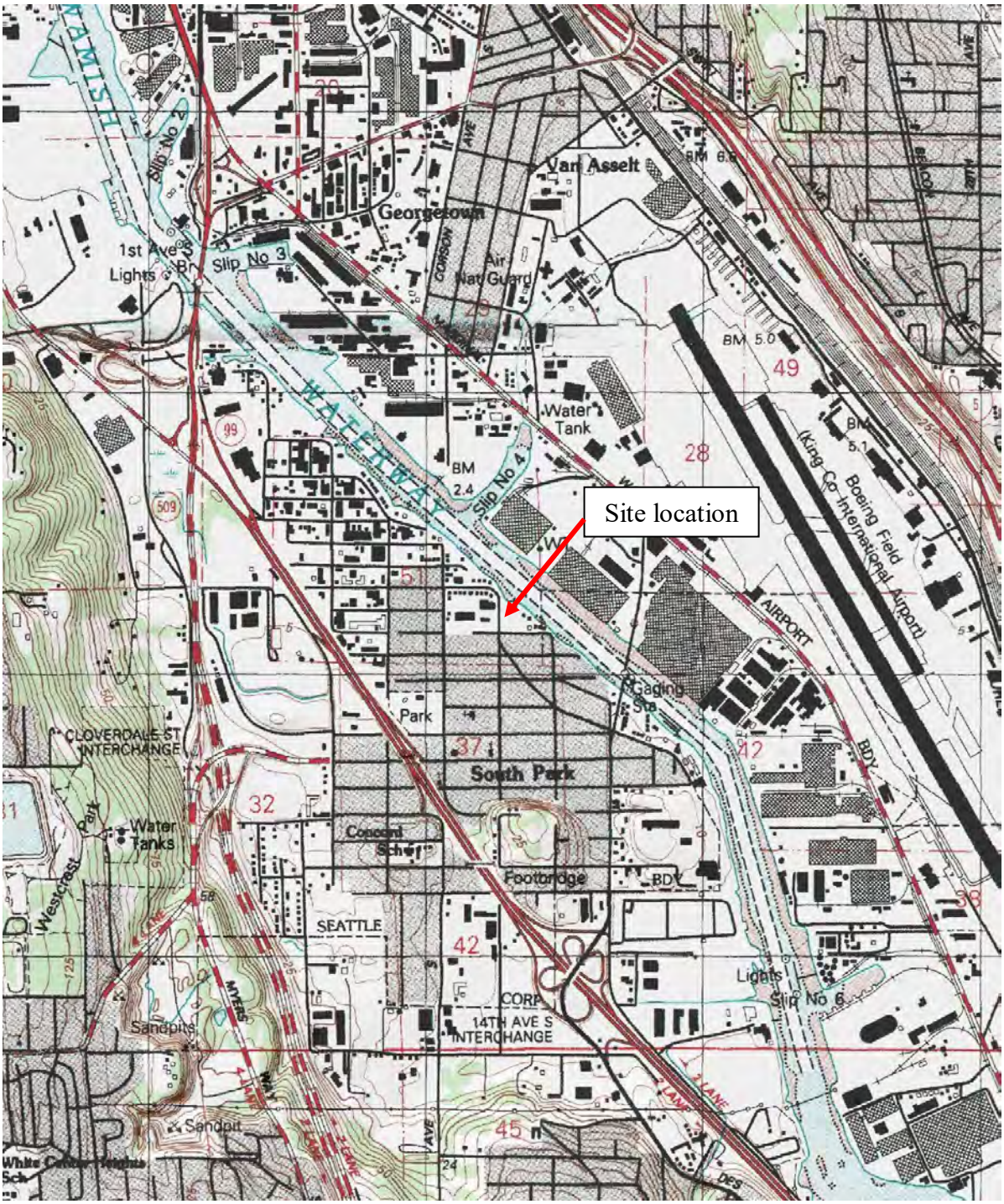
The term "recognized environmental conditions" is defined by ASTM as "the presence or likely presence of any hazardous substances or petroleum products in, on or at a property; 1) due to release to the environment; 2) under conditions indicative of a release to the environment; or 3) under conditions that pose a material threat of a future release to the environment." The term is not intended to include de minimis concentrations that generally do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

1.2 SCOPE OF SERVICES

This Phase 1 ESA was conducted using guidance from standard E1527-13 established by ASTM.

The ASTM standard is intended for use on a voluntary basis, defining an approach to good commercial and customary practice in the United States of America for conducting an environmental site assessment of a parcel of commercial real estate with respect to the range of contaminants within the scope of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (42 U.S.C. 9601) and petroleum products. As such, this standard is intended to permit a user to satisfy one of the requirements to qualify for the innocent landowner, contiguous property owner, or bona fide prospective purchaser limitations on CERCLA liability (landowner liability protections).

Figure 1. Site location map.



N

Not to scale

(425) 271-5629

Use of the ASTM standard constitutes "all appropriate inquiry" into the previous ownership and uses of the property consistent with good commercial or customary practice as defined in 42 U.S.C.

The ASTM standard recognizes that no environmental site assessment can wholly eliminate uncertainty regarding the potential for recognized environmental conditions in connection with a property. Performance of this practice is intended to reduce, but not eliminate, uncertainty regarding the potential for recognized environmental conditions in connection with a property, and the practice recognizes reasonable limits of time and cost.

This report included an evaluation of reasonably ascertainable federal, state and local agency files and records, historical records and aerial photographs. Interviews were conducted, and a visual reconnaissance of the property and abutting and/or adjacent sites was performed.

This ESA did not include a vapor migration analysis (although the site was evaluated for strong, pungent and noxious odors). There were no samples collected or analyzed. A property title report was not reviewed. A formal wetlands assessment was not performed (although the site was inspected for typical wetland-type species such as cattails and reeds). Contaminated properties that may be contiguous to or adjoining the subject property were not evaluated beyond what has been reported herein.

1.3 SIGNIFICANT ASSUMPTIONS

Significant assumptions made in association with this Phase 1 ESA include:

1. All information gathered and visual and/or physical observations made during the course of this Phase 1 ESA are relevant, complete, accurate and representative of the true environmental condition of the subject property.

1.4 LIMITATIONS AND EXCEPTIONS

The information discussed herein was gathered utilizing current ASTM guidance, available records, reasonable efforts and professional judgment. No other guarantees as to the actual environmental condition of the subject property, expressed or otherwise, are implied.

1.5 USER RELIANCE, TERMS AND CONDITIONS

The user and its authorized representatives, including its lenders, may read and rely on the information contained herein, subject to the terms of our standard Consultant Agreement.

2. SITE DESCRIPTION

2.1 LOCATION AND LEGAL DESCRIPTION

According to the King County Assessor's office website, the subject property consists of one parcel of land (Lots 1 through 9 and 48, the western 9 feet of Lots 10 and 47, and the adjacent vacant street of Block 13 of the River Park Addition) encompassing a total of 54,947 square feet (1.26 acres) located at 7900 – 10th Avenue South in the northeast quarter of Section 32, Township 24, Range 4 of Seattle (Figure 2). The tax identification number of this parcel is 732790-1195. The owner is noted as King County – Property Services.

2.2 SITE AND VICINITY GENERAL CHARACTERISTICS

The subject property consists of a public park. Onsite vegetation consists of typical grass, weeds, shrubs and trees. The northern portion of the park fronts the Duwamish River (see Figures 1 and 2).

The property is mostly flat with no predominant surface grade. The property is located in a mixed-use area of Seattle, consisting of single- and multi-family housing and commercial businesses. As noted above, the northern portion of the park fronts the Duwamish River.

King County is in the Puget Sound lowland, a topographic basin that extends from the Cascade Mountains on the east to the Olympic Mountains on the west (Liesch). Most of the area consists of extensive, gently rolling plains, commonly ranging in altitude from 200 to 600 feet. The drift mantling these plains was deposited by the latest (Vashon) glacier, and the numerous surface depressions left by the retreating glacier are now occupied by small lakes and peat bogs. The surface of the Vashon glacial drift has not been greatly modified by postglacial erosion. However, spring-fed streams have cut short, steep-sided canyons into the margins of the drift plains, and many slopes adjacent to Puget Sound have been steepened by wave erosion.

Gravel, sand, silt, clay, and boulders deposited by the Vashon drift are widespread in King County and in the aggregate are over 150 feet thick. The Vashon till has variable runoff with common undrained and poorly drained depressions (Waldron). Runoff is good on steeper slopes. Infiltration is very slow. Although the till is relatively impermeable, thin beds of sand and gravel mapped with the till commonly yield small quantities of perched or semi-perched water.

Groundwater in King County is replenished almost entirely by precipitation on or near the area. Water levels in wells are generally within 100 feet of the land surface.

Based on proximity to the Duwamish River, the general direction of shallow groundwater flow within the subject area is expected to be variable but generally to the northwest following the flow of the river.

Figure 2. Subject property.

N

Not to scale

2.3 CURRENT USE OF THE PROPERTY

The subject property consists of a public park.

2.4 SITE DESCRIPTION

The subject property consists of a public park. Onsite vegetation consists of typical grass, weeds, shrubs and trees. The northern portion of the park fronts the Duwamish River (see Figures 1 and 2).

The property is mostly flat with no predominant surface grade.

2.5 CURRENT USES OF ADJOINING PROPERTIES

The subject property is bordered immediately to the north by the Duwamish River and commercial businesses; to the south by South Elmgrove Street, single-family housing and commercial businesses; to the west by 10th Avenue South and commercial businesses; and to the east by commercial businesses. Overall, there were no obvious visible recognized environmental concerns noted with this immediate area surrounding the subject property during the time of the site reconnaissance.

3. USER PROVIDED INFORMATION

As discussed above, Seattle Parks and Recreation is identified as the user of this Phase 1 ESA.

The ASTM standards identify tasks to be performed by the user that will help identify the possibility of recognized environmental conditions in connection with the subject property. These tasks do not require the technical expertise of an environmental professional and are generally not performed by environmental professionals performing a Phase 1 ESA. In order to qualify for the landowner liability protections (LLPs) offered by the Small Business Liability Relief and Brownfields Revitalization Act of 2001, the user must provide the following information, if available, to the environmental professional.

3.1 TITLE RECORDS

A property title report was not provided by the user.

3.2 ENVIRONMENTAL LIENS OR ACTIVITY AND USE LIMITATIONS

The user has no knowledge regarding environmental liens or land use restrictions related to the subject property.

3.3 SPECIALIZED KNOWLEDGE

The user has no specialized knowledge of the subject property, such as engineering controls or institutional controls at the site because of environmental contamination. The user has no knowledge regarding environmental litigation, action or notices filed against the property, or of landfilling activities, drug lab activities, chemical spills, fuel oil tanks or environmental cleanups performed.

3.4 COMMONLY KNOWN OR REASONABLY ASCERTAINABLE INFORMATION

Commonly known or reasonably ascertainable information related to the subject property as provided by the user is consistent with a portion of the findings discussed in this report. Specifically, that the property consists of a public park.

3.5 VALUATION REDUCTION FOR ENVIRONMENTAL ISSUES

The user states that the value of the property is in-line with current market conditions. The value has not been reduced due to environmental contamination or environmental issues.

3.6 OWNER, PROPERTY MANAGER AND OCCUPANT INFORMATION

Mr. Robert Stier was identified by the user as a representative for King County, current owner of the subject property.

There was no property manager identified. The property is not occupied.

3.7 REASON FOR PERFORMING THIS PHASE 1 ESA

As discussed above, this Phase 1 ESA was requested by the user as part of a potential purchase of the property.

3.8 OTHER

The user states that topsoil material was imported in 1980 – 1981 for a planting project.

The subject property is owned by King County. The Seattle Department of Parks and Recreation has operated the property as a park since 1974 – 1975.

The user is aware of a soil sampling report prepared by Eco Compliance Corporation (report dated July 20, 2014) in which arsenic was detected in the shallow (0 – 3 inches) onsite soil at concentrations above the state cleanup standard.

There was no other information provided by the user as part of this Phase 1 ESA. The user is not aware of any other environmental reports prepared for the property.

4. RECORDS REVIEW

4.1 HISTORICAL REVIEW

4.1.1 Historical Maps

Historic maps were reviewed for information on past use of the subject property. Copies of select Sanborn maps are attached as Appendix A. The following information was noted:

1917 Sanborn: The subject property is bisected from west-to-east by South Monroe Street. There are no structures noted onsite.

1920 Kroll: The subject property is noted as Lots 1 through 8 of Block 13 and Lots 1 through 7 of Block 22 of the River Park Addition. There are no structures noted onsite.

1924 Kroll: The subject property is noted as Lots 1 through 8 of Block 13 and Lots 1 through 7 of Block 22 of the River Park Addition. There are no structures noted onsite.

1929 Sanborn: The subject property is bisected from west-to-east by South Monroe Street. Two structures are noted along the northern portion of the property at addresses of 7804- and 78041/2 – 10th Avenue South. There are no structures noted on the southern portion of the site.

1929 Sanborn updated to 1954: One structure is noted on Block 22 of the subject property at an address of 7804 – 10th Avenue South.

1930 Kroll: The subject property is noted as Lots 1 through 8 of Block 13 and Lots 1 through 7 of Block 22 of the River Park Addition. There are no structures noted onsite.

1939 Kroll: The subject property is noted as Lots 1 through 8 of Block 13 and Lots 1 through 7 of Block 22 of the River Park Addition. Two structures are noted on Lot 4 of Block 22 of the property.

1950 Kroll: The subject property is noted as Lots 1 through 8 of Block 13 and Lots 1 through 7 of Block 22 of the River Park Addition. One structure is noted onsite at an address of 7904 – 10th Avenue South.

1950 Sanborn: The subject property is bisected from west-to-east by South Monroe Street. One structure is noted along the northern portion of the property at an address of 7804 – 10th Avenue South. There are no structures noted on the southern portion of the site.

1966 Kroll: The subject property is noted as Lots 1 through 8 of Block 13 and Lots 1 through 7 of Block 22 of the River Park Addition. The property is noted as the Duwamish Waterway Park. There are no structures noted onsite.

1967 Sanborn: The subject property is bisected from west-to-east by South Monroe Street. One structure is noted along the northern portion of the property at an address of 7804 – 10th Avenue South. There are no structures noted on the southern portion of the site.

1977 Kroll: The subject property is noted as Lots 1 through 8 of Block 13 and Lots 1 through 7 of Block 22 of the River Park Addition. The property is noted as the Duwamish Waterway Park. There are no structures noted onsite.

1995 Kroll: The subject property is noted as Lots 1 through 8 of Block 13 and Lots 1 through 7 of Block 22 of the River Park Addition. The property is noted as the Duwamish Waterway Park. There are no structures noted onsite.

2000 Kroll: The subject property is noted as Lots 1 through 8 of Block 13 and Lots 1 through 7 of Block 22 of the River Park Addition. The property is noted as the Duwamish Waterway Park. There are no structures noted onsite.

4.1.2 City Directories

Historic city telephone directories were researched for information on past ownership and/or use of the subject property (copies of these directories are not included as part of this report). The addresses researched were 7800- through 8100 – 10th Avenue South (even-numbered addresses) and 1000 through 1022 South Elmgrove Street (even-numbered addresses). The following information was noted for the years listed:

1890 – 1937: These directories are indexed by name only and thereby provide no readily-usable information based on site address.

1938:
7902 – 10th Avenue South. Karl Meyer.
7918 – 10th Avenue South. Earl L. Henry.
7926 – 10th Avenue South. Mrs. Mary A. Davis.
Wm. Gagnon.
1016 South Elmgrove Street. John J. Burns.
1022 South Elmgrove Street. Dominic Genovese.

1943 – 1944:
7902 – 10th Avenue South. Karl Meyer.
7918 – 10th Avenue South. Cecilia Gifford.
7926 – 10th Avenue South. Geo I. Sasonoff.
1016 South Elmgrove Street. Johnson J. Burns.
1022 South Elmgrove Street. Dominico Genovese.

1948 – 1949: 1016 South Elmgrove Street. J.J. Burns.
1022 South Elmgrove Street. Dominick Genovese.

1954: 7904 – 10th Avenue South. Vacant.
1014 South Elmgrove Street. Chas R. Cooper.

1959: 7904 – 10th Avenue South. Dean K. Thatcher.
1016 South Elmgrove Street. John J. Burns.
1022 South Elmgrove Street. Dominick Genovese.

1964: 7904 – 10th Avenue South. Vacant.
1016 South Elmgrove Street. John J. Burns.
1022 South Elmgrove Street. Mrs. Susie Genovese.

1970: 1016 South Elmgrove Street. Vacant.
1022 South Elmgrove Street. Mrs. Asunta Genovese.

1975: 1022 South Elmgrove Street. Long Painting (annex).

1980: There are no listings in this directory under the addresses researched.

1985: There are no listings in this directory under the addresses researched.

1989 – 1990: There are no listings in this directory under the addresses researched.

1994: There are no listings in this directory under the addresses researched.

1999: There are no listings in this directory under the addresses researched.

2004: There are no listings in this directory under the addresses researched.

2009: There are no listings in this directory under the addresses researched.

2014: There are no listings in this directory under the addresses researched.

4.1.3 Aerial Photographs

Electronic copies of aerial photographs of the subject area were reviewed. These copies are attached as Appendix B. Some of the photographs are difficult to read due to their format. The following information was noted for the years listed:

2015: The subject property appears undeveloped similar to what exists today. Onsite vegetation appears similar to today.

2011: The subject property appears undeveloped similar to what exists today. Onsite vegetation appears similar to today.

2006: The subject property appears undeveloped similar to what exists today. Onsite vegetation appears similar to today.

1991: The quality of this photograph is poor. The subject property appears undeveloped similar to what exists today. Onsite vegetation appears similar to today.

1990: The subject property appears undeveloped similar to what exists today. Onsite vegetation appears similar to today.

1985: The subject property appears undeveloped similar to what exists today. Onsite vegetation appears similar to today.

1980: The subject property appears undeveloped similar to what exists today. Onsite vegetation appears similar to today.

1977: The subject property appears undeveloped similar to what exists today. Onsite vegetation appears similar to today.

1969: The subject property appears undeveloped similar to what exists today. The property is covered with mostly low-lying vegetation.

1965: The subject property appears undeveloped similar to what exists today. The property is covered with mostly low-lying vegetation.

1956: The quality of this photograph is poor. What may be one structure is noted along the northern portion of the subject property. The property is covered with mostly low-lying vegetation.

1953: One structure is noted along the northern portion of the subject property. The property is covered with mostly low-lying vegetation.

1943: Two structures are noted along the northern portion of the subject property. The property is covered with mostly low-lying vegetation.

1936: Two structures are noted along the northern portion of the subject property. The property is covered with mostly low-lying vegetation.

4.2 REVIEW OF FEDERAL AND STATE RECORDS

A review of federal and state agency files was conducted in reference to the subject property. The results of this review are summarized and discussed below. A listing of agency files is attached as Appendix C.

4.2.1 Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) information system contains information pertaining to facilities that generate hazardous waste or operate as a hazardous waste treatment, storage or disposal (TSD) facility. The RCRA system also contains information pertaining to TSD facilities which have conducted, or are currently conducting, a corrective action(s).

Based on agency file information, there are 2 RCRA corrective action sites within an approximate one mile distance from the subject property (see Appendix C). These sites are not located within an approximate 0.125-mile distance from the subject property, but are both reportedly topographically equal-to or higher in elevation as compared to the subject property. Overall and based on distance, these sites pose no obvious apparent threat to the environmental condition of the subject property.

There is one RCRA TSD facility within an approximate 0.5-mile distance from the subject property (see Appendix C). This site is not located within an approximate 0.125-mile distance from the subject property, but is reportedly topographically equal-to or higher in elevation as compared to the subject property. Overall and based on distance, this site poses no obvious apparent threat to the environmental condition of the subject property.

There are 2 large-quantity hazardous waste generators within an approximate 0.25-mile distance from the subject property (see Appendix C). These sites are not located within an approximate 0.125-mile distance from the subject property, but are both reportedly topographically equal-to or higher in elevation as compared to the subject property. Overall and based on distance, these sites pose no obvious apparent threat to the environmental condition of the subject property.

There are no RCRA small-quantity hazardous waste generators or RCRA conditionally-exempt small quantity hazardous waste generator exempt small-quantity hazardous waste generators within an approximate 0.25-mile distance from the subject property.
exempt small quantity hazardous waste generators within an approximate 0.25-mile distance from the subject property.

The subject property is not listed as a RCRA small- or large-quantity hazardous waste generator, conditionally-exempt small quantity hazardous waste generator, TSD facility or corrective action site.

4.2.2 Superfund Enterprise Management System

The Superfund Enterprise Management System (SEMS), formerly known as the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS), is a compilation of known or suspected uncontrolled or abandoned hazardous waste sites. These sites have either been investigated or are currently under investigation by EPA for the release or threatened release of hazardous substances. Once a site is placed on SEMS, it may be subjected to several levels of review and evaluation, and ultimately placed on the National Priorities List (NPL).

SEMS-Archive, formerly known as the CERCLIS No Further Remedial Action Planned Sites (NFRAP) list, contains information pertaining to sites which have been removed from the federal EPA's SEMS database. SEMS-Archive sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly without the need for the site to be placed on the NPL, or the contamination was not serious enough to require federal Superfund action or NPL consideration.

Based on agency file information, there are 2 SEMS-Archive sites within an approximate 0.5-mile distance from the subject property (see Appendix C). These sites are not located within an approximate 0.125-mile distance from the subject property, but are both reportedly topographically equal-to or higher in elevation as compared to the subject property. Overall and based on distance, these sites pose no obvious apparent threat to the environmental condition of the subject property.

There are no SEMS sites within an approximate 0.5-mile distance from the subject property.

The subject property is not listed as a SEMS or SEMS-Archive site.

4.2.3 National Priorities List

The National Priorities List (NPL), also known as the Superfund list, is an EPA listing of uncontrolled or abandoned hazardous waste sites. The list is primarily based on a score that a site receives from EPA's hazard ranking system. These sites are targeted for possible long-term remedial action under Superfund.

Based on agency file information, there is one NPL site within an approximate one mile distance from the subject property (Lower Duwamish Waterway) (see Appendix C). This site is not located within an approximate 0.125-mile distance from the subject property, and is reportedly topographically lower in elevation as compared to the subject property. Overall and because the property includes frontage along the Duwamish River, this site could pose a threat to the environmental condition of the subject property.

There are no proposed or de-listed NPL sites within an approximate one mile distance from the subject property.

The subject property is not listed as an NPL, proposed NPL or de-listed NPL site.

4.2.4 Environmental Response Notification System

The Environmental Response Notification System (ERNS) is a national computer database that is used to store information on the sudden and/or accidental release of hazardous substances, including petroleum, into the environment. The ERNS reporting system contains preliminary information on specific releases including the spill location, the substance released and the responsible party.

Based on agency file information, the subject property (7900 – 10th Avenue South) is listed as an ERNS site (see Appendix C). This activity could pose a threat to the environmental condition of the subject property.

4.2.5 Underground Storage Tanks

The Washington State Department of Ecology (Ecology) underground storage tank (UST) list is a comprehensive listing of all registered USTs located in the state of Washington. The UST list may not contain information on residential and commercial tanks that contain heating oil that is used onsite for non-retail purposes.

Based on agency file information, there are 2 UST sites within an approximate 0.25-mile distance from the subject property (see Appendix C). These sites are located within an approximate 0.125-mile distance from the subject property, and are both reportedly topographically equal-to or higher in elevation as compared to the subject property. Being listed as a UST site does not mean the site has adversely impacted the environment. As a result, these sites pose no obvious apparent threat to the environmental condition of the subject property.

There are 5 UST sites within an approximate 0.25-mile distance from the subject property (see Appendix C). These sites are not located within an approximate 0.125-mile distance from the subject property, and are all reportedly topographically lower in elevation as compared to the subject property. Being listed as a UST site does not mean the site has adversely impacted the environment. As a result and based on distance and elevation, these sites pose no obvious apparent threat to the environmental condition of the subject property.

The subject property is not listed as a UST site.

4.2.6 Leaking Underground Storage Tanks

The Ecology leaking UST (LUST) list is a comprehensive listing of all reported LUST sites in the state of Washington.

Based on agency file information, there are 11 LUST sites within an approximate 0.5-mile distance from the subject property (see Appendix C). These sites are not located within an approximate 0.125-mile distance from the subject property, but are all reportedly topographically equal-to or higher in elevation as compared to the subject property. Overall and based on distance, these sites pose no obvious apparent threat to the environmental condition of the subject property.

There are 2 LUST sites within an approximate 0.5-mile distance from the subject property (see Appendix C). These sites are not located within an approximate 0.125-mile distance from the subject property, and are both reportedly topographically lower in elevation as compared to the subject property. Overall and based on distance and elevation, these sites pose no obvious apparent threat to the environmental condition of the subject property.

The subject property is not listed as a LUST site.

4.2.7 Confirmed and Suspected Contaminated Sites

The Ecology Confirmed and Suspected Contaminated Sites report is a comprehensive listing of all known or suspected potentially hazardous sites in the state of Washington. This list was formerly known as the Affected Media and Contaminants Report. Sites specified on this list with **confirmed** contamination are ranked from 1 – 5 based on cleanup priority. A ranking of "1" is the highest priority for cleanup under the state program. Sites with **suspected** contamination are not ranked.

Based on agency file information, there are 75 confirmed/suspected contaminated sites within an approximate one mile distance from the subject property (see Appendix C). These sites are not located within an approximate 0.125-mile distance from the subject property, but are all reportedly topographically equal-to or higher in elevation as compared to the subject property. Overall and based on distance, these sites pose no obvious apparent threat to the environmental condition of the subject property.

There are 8 confirmed/suspected contaminated sites within an approximate one mile distance from the subject property (see Appendix C). These sites are not located within an approximate 0.125-mile distance from the subject property, and are all reportedly topographically lower in elevation as compared to the subject property. Overall and based on distance and elevation, these sites pose no obvious apparent threat to the environmental condition of the subject property.

The subject property is not listed as a confirmed/suspected contaminated site.

4.2.8 No Further Action Confirmed and Suspected Contaminated Sites

The No Further Action Confirmed and Suspected Contaminated Sites report is a comprehensive listing of all known or suspected potentially hazardous sites in the state of Washington where Ecology has issued a "No Further Action" determination letter stating that no further environmental cleanup is required at the site at this time.

Based on agency file information, there is one no further action confirmed or suspected contaminated site within an approximate 0.5-mile distance from the subject property (see Appendix C). This site is located within an approximate 0.125-mile distance from the subject property, and is reportedly topographically equal-to or higher in elevation as compared to the subject property. Overall and based on the definition of a no further action confirmed or suspected contaminated site, this site poses no obvious apparent threat to the environmental condition of the subject property.

There are 4 no further action confirmed or suspected contaminated sites within an approximate 0.5-mile distance from the subject property (see Appendix C). This site are not located within an approximate 0.125-mile distance from the subject property, but are all reportedly topographically equal-to or higher in elevation as compared to the subject property. Overall and based on distance and the definition of a no further action confirmed or suspected contaminated site, this site poses no obvious apparent threat to the environmental condition of the subject property.

There is one no further action confirmed or suspected contaminated site within an approximate 0.5-mile distance from the subject property (see Appendix C). This site is not located within an approximate 0.125-mile distance from the subject property, and is reportedly topographically lower in elevation as compared to the subject property. Overall and based on distance, elevation and the definition of a no further action confirmed or suspected contaminated site, this site poses no obvious apparent threat to the environmental condition of the subject property.

The subject property is not listed as a no further action confirmed or suspected contaminated site.

4.2.9 State Landfill Sites

Ecology maintains a list of all permitted solid waste landfills, transfer stations and incinerators currently operating within the state of Washington. Typically, such databases contain insufficient and/or inaccurate addresses for these types of facilities.

Based on agency file information, there is one state landfill site within an approximate 0.5-mile distance from the subject property (see Appendix C). This site is not located within an approximate 0.125-mile distance from the subject property, but is reportedly topographically equal-to or higher in elevation as compared to the subject property. Overall and based on distance, this site poses no obvious apparent threat to the environmental condition of the subject property.

There are 2 state landfill sites within an approximate 0.5-mile distance from the subject property (see Appendix C). These sites are not located within an approximate 0.125-mile distance from the subject property, and are both reportedly topographically lower in elevation as compared to the subject property. Overall and based on distance and elevation, these sites pose no obvious apparent threat to the environmental condition of the subject property.

The subject property is not listed as a state landfill site.

4.2.10 Independent Cleanup Report Sites

Ecology maintains remedial action reports that have been submitted from either the owner or operator of the site. These actions have been conducted without Ecology oversight or approval and are not under order or decree.

Based on agency file information, there is one independent cleanup report site within an approximate 0.5-mile distance from the subject property (see Appendix C). This site is located within an approximate 0.125-mile distance from the subject property, and is reportedly topographically equal-to or higher in elevation as compared to the subject property. Overall and based on proximity, this site could pose a threat to the environmental condition of the subject property.

There are 21 independent cleanup report sites within an approximate 0.5-mile distance from the subject property (see Appendix C). These sites are not located within an approximate 0.125-mile distance from the subject property, but are all reportedly topographically equal-to or higher in elevation as compared to the subject property. Overall and based on distance, these sites pose no obvious apparent threat to the environmental condition of the subject property.

There are 3 independent cleanup report sites within an approximate 0.5-mile distance from the subject property (see Appendix C). These sites are not located within an approximate 0.125-mile distance from the subject property, and are all reportedly topographically lower in elevation as compared to the subject property. Overall and based on distance and elevation, these sites pose no obvious apparent threat to the environmental condition of the subject property.

The subject property is not listed as an independent cleanup report site.

4.2.11 Voluntary Cleanup Program Sites

Ecology has a Voluntary Cleanup Program by which owners or operators of a site can voluntarily submit cleanup reports for Ecology review and the possible issuance of a "No Further Action" letter of determination based on the cleanup performed. The cleanup actions performed and reports submitted have been done so voluntarily, without Ecology oversight or approval or under Ecology order or decree.

Based on agency file information, there is one voluntary cleanup program site within an approximate 0.5-mile distance from the subject property (see Appendix C). This site is located within an approximate 0.125-mile distance from the subject property, and is reportedly topographically equal-to or higher in elevation as compared to the subject property. Overall and based on proximity, this site could pose a threat to the environmental condition of the subject property.

The subject property is not listed as a voluntary cleanup program site.

4.2.12 Other Agency Reports

4.2.12.1 HSL Sites

Based on agency file information, there are 55 HSL (list of hazardous sites) sites within an approximate one mile distance from the property (see Appendix C). These sites are not located within an approximate 0.125-mile distance from the subject property, but are all reportedly topographically equal-to or higher in elevation as compared to the subject property. Overall and based on distance, these sites pose no obvious apparent threat to the environmental condition of the subject property.

There are 5 HSL sites within an approximate one mile distance from the property (see Appendix C). These sites are not located within an approximate 0.125-mile distance from the subject property, and are all reportedly topographically lower in elevation as compared to the subject property. Overall and based on distance and elevation, these sites pose no obvious apparent threat to the environmental condition of the subject property.

The subject property is not listed as an HSL site.

4.2.12.2 Institutional Control Sites

Based on agency file information, there are 2 institutional control sites within an approximate 0.5-mile distance from the subject property (see Appendix C). These sites are not located within an approximate 0.125-mile distance from the subject property, and are both reportedly topographically lower in elevation as compared to the subject property. Overall and based on distance and elevation, these sites pose no obvious apparent threat to the environmental condition of the subject property.

The subject property is not listed as an institutional control site.

4.2.12.3 Brownfield Sites

Based on agency file information, there is one brownfield site within an approximate 0.5-mile distance from the subject property (see Appendix C). This site is not located within an approximate 0.125-mile distance from the subject property, but is reportedly topographically equal-to or higher in elevation as compared to the subject property. Overall and based on distance, this site poses no obvious apparent threat to the environmental condition of the subject property.

The subject property is not listed as a brownfield site.

4.2.12.4 Allsite Sites

Based on agency file information, there are 8 Allsite sites within an approximate 0.5-mile distance from the subject property (see Appendix C). These sites are located within an approximate 0.125-mile distance from the subject property, and are all reportedly topographically equal-to or higher in elevation as compared to the subject property. Overall and based on proximity, these sites could pose a threat to the environmental condition of the subject property.

There are 107 Allsite sites within an approximate 0.5-mile distance from the subject property (see Appendix C). These sites are not located within an approximate 0.125-mile distance from the subject property, but are all reportedly topographically equal-to or higher in elevation as compared to the subject property. Overall and based on distance, these sites pose no obvious apparent threat to the environmental condition of the subject property.

There are 12 Allsite sites within an approximate 0.5-mile distance from the subject property (see Appendix C). These sites are not located within an approximate 0.125-mile distance from the subject property, and are all reportedly topographically lower in elevation as compared to the subject property. Overall and based on distance and elevation, these sites pose no obvious apparent threat to the environmental condition of the subject property.

The subject property is not listed as an Allsite site.

4.2.12.5 RCRA Non-Generator Sites

RCRA non-generator sites are sites that at one time, but no longer, produced hazardous waste. Sites that produce or produced hazardous waste do not mean that they have adversely impacted the environment.

Based on agency file information, there are 5 RCRA non-generator sites within an approximate 0.25-mile distance from the subject property (see Appendix C). These sites are located within an approximate 0.125-mile distance from the subject property, and are all reportedly topographically equal-to or higher in elevation as compared to the subject property. Overall and based on the definition of a RCRA non-generator site, these sites pose no obvious apparent threat to the environmental condition of the subject property.

There are 5 RCRA non-generator sites within an approximate 0.25-mile distance from the subject property (see Appendix C). These sites are not located within an approximate 0.125-mile distance from the subject property, but are all reportedly topographically equal-to or higher in elevation as compared to the subject property. Overall and based on distance and the definition of a RCRA non-generator site, these sites pose no obvious apparent threat to the environmental condition of the subject property.

The subject property is not listed as a RCRA non-generator site.

4.2.12.6 Manifest Sites

Based on agency file information, there are 3 manifest sites within an approximate 0.25-mile distance from the subject property (see Appendix C). These sites are not located within an approximate 0.125-mile distance from the subject property, but are all reportedly topographically equal-to or higher in elevation as compared to the subject property. Overall and based on distance, these sites pose no obvious apparent threat to the environmental condition of the subject property.

The subject property is not listed as a manifest site.

4.2.12.7 EDR Historic Auto Station Sites

Based on agency file information, there is one EDR historic auto station site within an approximate 0.125-mile distance from the subject property (see Appendix B). This site is located within an approximate 0.125-mile distance from the subject property, and is reportedly topographically equal-to or higher in elevation as compared to the subject property. Overall and based on proximity, this site could pose a threat to the environmental condition of the subject property.

The subject property is not listed as an EDR historic auto station site.

4.2.12.8 Spills Sites

Based on agency file information, the subject property (7900 – 10th Avenue South) is listed as a spills (spills reported to the Spill Prevention, Preparedness and Response Division) site (see Appendix C). This activity could pose a threat to the environmental condition of the subject property.

4.2.12.9 Other

Based on agency file information, there are none of the following sites within up to an approximate one mile distance from the subject property:

- NPL Liens (EPA liens against real property in order to recover remedial action expenditures or when the property owner receives notification of potential liability) sites.
- Federal Facility sites.
- LUCIS (land use control information system) sites.
- Engineering Controls sites.
- Indian LUST sites.
- FEMA UST sites.
- Aboveground Storage Tank (AST) sites.
- Indian UST sites.
- Indian VCP sites.
- Solid Waste Recycling Facility (SWRCY) sites.
- SW Tire (solid waste tire facility) sites.
- Indian ODI (Open Dump Inventory) sites.
- Open Dump Inventory (ODI) sites.
- IHS (open dumps on Indian land) Open Dumps sites.
- Historical CDL (clandestine drug lab contaminated site) sites.
- Clandestine Drug Lab (CDL) sites.
- Liens 2 (CERCLA lien information) sites.
- HMIRS (Hazardous material spill incidents reported to DOT) sites.
- FUDS (Formerly Used Defense Sites) sites.

- Department of Defense (DOD) sites.
- State Coalition for Remediation of Drycleaners Listing (SCRD Drycleaners) sites.
- Financial Assurance sites.
- EPA Watch List sites.
- 2020 Corrective Action Program List sites.
- TSCA (Manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory List) sites.
- TRIS (Facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313) sites.
- SSTS (Section 7 tracking system) sites.
- ROD (Record of Decision) sites.
- Risk Management Plan (RMP) sites.
- RAATS (Records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA, up to September 30, 1995) sites.
- Potentially Responsible Parties (PRP) sites.
- PADS (Generators, transporters, commercial storers and/or brokers and disposers of PCBs who are required to notify the EPA of such activity) sites.
- ICIS (integrated compliance information system) sites.
- FTTS (Administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA) sites.
- MLTS (Sites which possess or use radioactive materials and which are subject to NRC licensing requirements) sites.
- Coal Ash sites.
- PCB transformer sites.
- Radiation Information (RADINFO) database sites.

- Historical FTTS (Administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA) sites.
- Department of Transportation, Office of Pipeline Safety Incident and Accident data (DOT OPS) sites.
- Consent (Major legal settlements that establish responsibility and standards for cleanup at NPL sites) sites.
- Indian reservations sites.
- Formerly Utilized Sites Remedial Action Program (FUSRAP) sites.
- Uranium Mill Tailings Site (UMTRA) sites.
- Lead smelter sites.
- AIRS (Annual emission reporting to the Department of Ecology) sites.
- Mines (Department of Labor, Mine Safety and Health Administration) site.
- Abandoned Mines sites.
- FINDS (Facility information and "pointers" to other sources that contain more detail) sites.
- Docket HWC (Hazardous Waste Compliance Docket Listing) sites.
- UXO (Unexploded Ordnance Sites) sites.
- ECHO (enforcement & compliance history information) sites.
- EPA Fuels Program Registered Listing sites.
- Drycleaner sites.
- Financial assurance sites.
- Inactive Drycleaners sites.
- National Pollutant Discharge Elimination System (NPDES) sites.
- Underground injection control (UIC) well sites.

- EDR (Environmental Data Resources) Manufactured Gas Plant (MGP) sites.
- EDR (Environmental Data Resources) Historic Cleaners sites.
- Recovered Government Archive State Hazardous Waste Facilities List sites.
- Recovered Government Archive Solid Waste Facilities List sites.
- Recovered Government Archive LUST sites.

The subject property is not listed in any of these agency reports.

4.2.13 Washington State Department of Ecology

The Washington State Department of Ecology website was researched for potential groundwater wells on the subject property. According to website records, there are no such wells based on tax identification number and site map.

Ecology has conducted studies of potential arsenic and lead contamination in soil from air emissions from the former Asarco smelter in Tacoma. Based on these studies, the subject property appears to be located in what has been classified a "Level 1" area, where arsenic concentrations in near-surface (0 – 6 inches) soils likely exceed 20 parts-per-million (ppm) (Ecology's cleanup standard for arsenic in soil is 20 ppm based on unrestricted [residential] land use). Lead concentrations in the soil may also exceed the Ecology cleanup standard of 250 ppm. The study states that contaminant concentrations are highest on undeveloped properties, and properties where soils have not been disturbed since development. The Asarco smelter closed in 1986.

From a soil sampling report prepared by Eco Compliance Corporation (report dated July 20, 2014), arsenic was detected in the shallow (0 – 3 inches) onsite soil at concentrations above the state cleanup standard.

Contamination from the former Asarco smelter is widespread throughout the Puget Sound area. Currently, Ecology is not requiring any sampling be conducted at sites such as the subject property.

4.2.14 Washington State Archives

The Puget Sound Branch of the Washington State Archives was contacted for information related to the subject property (copies of this information are not included as part of this report).

According to archive records, the subject property consists of one parcel of land (Lot 7 of Block 13 of the River Park Addition) encompassing a total of 54,947 square feet located at 7900 – 10th Avenue South in the Northeast quarter of Section 32, Township 24, Range 4 of King County. The tax identification number of this parcel is 732790-1195. The owner is noted as King County.

Use of the property is noted as a park. The name of the property is noted as the Duwamish Waterway Park.

The property is serviced by city water and sewer.

There are no structures noted onsite.

4.3 REVIEW OF LOCAL RECORDS AND SOURCES

4.3.1 King County Assessor

The King County Assessor's office website was researched for information related to the subject property.

According to website records, the property consists of one parcel of land (Lots 1 through 9 and 48, the western 9 feet of Lots 10 and 47, and the adjacent vacant street of Block 13 of the River Park Addition) encompassing a total of 54,947 square feet (1.26 acres) located at 7900 – 10th Avenue South in the northeast quarter of Section 32, Township 24, Range 4 of Seattle (see Figure 2). The tax identification number of this parcel is 732790-1195. The owner is noted as King County – Property Services.

The property is zoned IB U/45, with use noted as a Park, Public (zoo/arboretum). The property is serviced by city water and public sewer/septic.

The property is noted as having Duwamish River waterfront. The property is noted as having a restrictive size/shape.

There are no nuisances, problems or environmental issues noted for the property. There are no active permits noted. There are no structures noted onsite.

4.3.2 King County Recorder

The King County Recorder's office website was researched for information related to the subject property.

According to website records, there are no agreements, code violations, compliance, consent, covenants, easements, hazardous substance certificate, judgments, liens, notices or notice of sensitive areas noted for the subject property based on tax identification number.

4.3.3 King County GIS

The King County GIS website was researched for information related to the subject property. According to website records, the property is listed as a King County property, publicly-owned land and a park.

The property is listed as being in a critical area ordinance basin condition area, groundwater management area, water resource inventory area and an area susceptible to groundwater contamination.

The property is listed as Duwamish River waterfront, a chinook distribution area, and a FEMA 100- and 500-year floodplain.

The property is not listed as being in a critical area ordinance tributary basin area, groundwater source area, water quality area, wellhead protection area, critical aquifer recharge area or sole source aquifer area.

The property is not listed as a sensitive, seismic, steep slope, erosion hazard, landslide, coal mine, shoreline or wildlife network area. The property is not in a channel migration hazard area.

The property is not listed as an urban growth area, drainage basin area, critical area ordinance shoreline condition area or as a groundwater quality sampling site. There are no wetlands, streams or lakes noted on the property. There are no drainage complaints noted.

The property is not on tribal land, nor is it an illegal drug lab property, cemetery, airport or farmland preservation property.

4.3.4 Seattle-King County Health Department

The Seattle-King County Health Department website was researched for information related to the subject property. According to website records, there are no drug lab activities noted for the property based on tax identification number or site address.

There is no septic system noted onsite based on tax identification number.

4.3.5 City and City/County Abandoned Landfill Reports

The Old Landfills in the City of Seattle, City of Seattle Abandoned Landfill Study, and the Seattle-King County Abandoned Landfill Toxicity/Hazard Assessment Project reports were reviewed for information on abandoned (closed) City- and County-owned landfills within the immediate vicinity of the subject property. The subject property is not identified as an abandoned landfill in the City or City/County reports.

4.3.6 City of Seattle Department of Planning and Development

The City of Seattle Department of Planning and Development was contacted for information related to the subject property. This information is contained on microfilm, which may not always be available or complete, and is most times difficult to read due to the quality of the film and the machines available. Copies of the microfilm information is not included as part of this ESA.

According to department personnel, permit number 593475 was issued on December 15, 1980 to cut and fill approximately 450 cubic yards onsite to construct a rockery and landscape the existing park. The address is noted as 8000 – 10th Avenue South. The owner is noted as Seattle Parks.

4.3.7 Seattle Public Utilities

The Seattle Public Utilities was contacted regarding water supply and water quality in the area of the subject property, and sewer service.

According to department personnel, drinking water is supplied to the subject area via 8-inch cast iron pipelines along both 10th Avenue South and South Elmgrove Street.

Water within the distribution system reportedly satisfies applicable federal and state drinking water standards and has no associated adverse health concerns.

The subject area is serviced by city sewer.

5. SITE RECONNAISSANCE

As part of the Phase 1 ESA, a site reconnaissance of the subject property and general surrounding area was conducted by Bill Kane from Eco Compliance Corporation on Tuesday, April 17, 2018. Site photographs are attached as Appendix D.

5.1 METHODOLOGY AND LIMITING CONDITIONS

The park was accessible during the time of this survey. The property was evaluated using a grid pattern.

The general surrounding area was inspected as possible using a circular pattern around the subject property. However, there was only limited access to these surrounding properties. As a result, all observations were made from the subject property, public roadways, sidewalks and other general publicly-accessible areas.

5.2 GENERAL SITE SETTING

The subject property consists of a public park. Onsite vegetation consists of typical grass, weeds, shrubs and trees. The northern portion of the park fronts the Duwamish River (see Figures 1 and 2).

The property is mostly flat with no predominant surface grade.

5.3 EXTERIOR OBSERVATIONS

5.3.1 Subject Property

Onsite vegetation consists of typical grass, weeds, shrubs and trees. This vegetation appeared healthy during the time of the site reconnaissance, with no obvious evidence of stress due to potential environmental contamination.

A few areas of disturbed soil were noted onsite. There were no obvious environmental concerns noted with this soil during the time of the site reconnaissance, such as unusual odors, contents or petroleum sheen. There was no obvious evidence of significant soil erosion onsite.

The property includes frontage along the Duwamish River. There were no obvious environmental concerns noted with the sediment or water along this area during the time of the site reconnaissance, such as unusual odors, contents or petroleum sheen.

There was no obvious evidence of aboveground or underground fuel oil tanks, wells, lakes, streams, pits, ponds, lagoons, sumps or drums noted onsite during the time of the site reconnaissance.

There were no obvious wetlands areas or suspect wetland species such as cattails or reeds noted onsite.

Power is supplied to the subject area via aboveground wiring. There were no obvious electrical transformers noted onsite.

Radon is an inert radioactive gas formed by the decomposition of radium in soil. The generation of radon gas varies with geography and geographic area, while the presence of radon inside structures varies with building construction and ventilation. According to the Washington State Department of Health's Radon Outreach Program, the average indoor radon level in King County is 1.2 pCi/L (picocuries per liter). EPA recommends corrective action be taken when radon levels are between 2 pCi/L and 4 pCi/L. As a result, radon poses no obvious apparent threat to the environmental condition of the subject property.

5.4 INTERIOR OBSERVATIONS

5.4.1 Subject Buildings

The subject property is a park. There are no structures onsite.

6. INTERVIEWS

6.1 INTERVIEW WITH OWNER

A representative for King County, current owner of the subject property, was not available during the time of this Phase 1 ESA.

Based on a documented conversation between the user and King County, the water/tideland area of the property has been deeded to the Port.

King County is not aware of any issues onsite, since the property has never been used for anything and there are no obvious indications of concern.

6.2 INTERVIEW WITH SITE MANAGER

There was no site manager identified as part of this Phase 1 ESA.

6.3 INTERVIEWS WITH OCCUPANTS

The subject property is not occupied.

6.4 INTERVIEWS WITH LOCAL GOVERNMENT OFFICIALS

Various discussions were held with government representatives regarding the historic and current status of the subject property. Information gathered from these discussions is presented herein.

6.5 INTERVIEWS WITH OTHERS

There were no other interviews conducted as part of this Phase 1 ESA.

7. FINDINGS AND OPINIONS

We have performed a Phase 1 ESA of the subject Duwamish Waterway Park property located at 7900 – 10th Avenue South in the northeast quarter of Section 32, Township 24, Range 4 of Seattle, King County, Washington in conformance with the scope and limitations of ASTM practice E1527-13. Any exceptions to or deletions from this practice are described in this report.

The following summary of findings, opinions and conclusions and recommendations is provided:

Recognized Environmental Conditions (defined by the ASTM standard as the presence or likely presence of any hazardous substances or petroleum products in, on or at a property: 1) due to a release to the environment; 2) under conditions indicative of a release to the environment; or 3) under conditions that pose a material threat of a future release to the environment):

- The subject property has documented arsenic contamination in the shallow onsite soil. The property is located in what has been classified by the state as a "Level 1" area, where arsenic concentrations in near-surface (0 – 6 inches) soils likely exceed 20 parts-per-million (ppm) (the state cleanup standard for arsenic in soil is 20 ppm based on unrestricted [residential] land use). This contamination is from the former Asarco smelter in Tacoma. The smelter closed in 1986.

- There is a potential for soil, sediment and/or groundwater contamination to exist on the subject property from adjacent offsite sources, including that from the Duwamish River.

Overall, sampling should be conducted onsite to determine the presence and/or extent of the documented and suspected contamination.

Controlled Recognized Environmental Conditions (defined by the ASTM standard as a recognized environmental condition resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority [for example, as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority], with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls [for example, property use restrictions, activity and use limitations, institutional controls or engineering controls]):

- There were no obvious Controlled Recognized Environmental Conditions noted with the subject property during the time of this Phase 1 ESA report.

Historical Recognized Environmental Conditions (defined by the ASTM standard as a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls [for example, property use restrictions, activity and use limitations, institutional controls or engineering controls]):

- There were no obvious Historical Recognized Environmental Conditions noted with the subject property during the time of this Phase 1 ESA report.

De Minimis Conditions (defined by the ASTM standard as a condition that generally does not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be de minimis conditions are not recognized environmental conditions nor controlled recognized environmental conditions. However, please note that these de minimis conditions could become recognized environmental conditions if improperly handled or managed).

- The subject property is listed as King County property, publicly-owned land and a park. The property is also listed as having a restrictive size/shape.

  The property is listed as being in a critical area ordinance basin condition area, groundwater management area, water resource inventory area and an area susceptible to groundwater contamination. The property is listed as Duwamish River waterfront, a chinook distribution area, and a FEMA 100- and 500-year floodplain.

  Overall and because of these listings and conditions, building and land use restrictions and set-back requirements may apply to any future development of the property.

8. DEVIATIONS AND ADDITIONAL SERVICES

The park was accessible during the time of this survey. The property was evaluated using a grid pattern.

The general surrounding area was inspected as possible using a circular pattern around the subject property. However, there was only limited access to these surrounding properties. As a result, all observations were made from the subject property, public roadways, sidewalks and other general publicly-accessible areas.

Overall, these restrictions pose no obvious apparent data gap related to the assessment of or conclusions made for the subject property.

Any other deviations to, or additional services provided as part of, this Phase 1 ESA are discussed in the above-sections of this report.

9. REFERENCES

Abandoned Landfill Study in the City of Seattle. Seattle-King County Department of Public Health. July 30, 1984.

City of Seattle Department of Planning and Development. Seattle, Washington. Microfilm department. Historic property records.

Liesch, Bruce A., Charles E. Price and Kenneth L. Walters. Geology and Groundwater Resources of Northwestern King County, Washington. 1963. Seattle Public Library, call number 551.49 L625G.

Old Landfills in the City of Seattle. Circa 1934.

Puget Sound Regional Archives. Bellevue, Washington. Historic property records and city directories.

Seattle-King County Abandoned Landfill Toxicity/Hazard Assessment Project. Seattle-King County Department of Public Health. December 31, 1986.

Seattle Public Library. Seattle, Washington. Historic maps and city directories.

Waldron, Howard H., Bruce A. Liesch, Donal R. Mullineaux and Dwight R. Crandal. Preliminary Geologic Map of Seattle and Vicinity. Suzzalo Library, University of Washington, map number I-354.

10. SIGNATURE OF ENVIRONMENTAL PROFESSIONAL(S)

I declare that, to the best of my professional knowledge and belief, I meet the definition of "environmental professional" as defined in Section 312.10 of 40 CFR 312.

I have the specific qualifications based on education, training and experience to assess a property of the nature, history and setting of the subject property. I have developed and performed the appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Bill Kane

11. QUALIFICATION(S) OF ENVIRONMENTAL PROFESSIONAL(S)

Bill Kane
Chemical Engineer

EDUCATION

Seattle University. Bachelor of Arts, Business Administration, Marketing. 1993.
University of Washington. Bachelor of Science, Chemical Engineering. 1984.

REGISTRATIONS AND CERTIFICATIONS

Registered Engineer IT, Washington (17005).
Certified AHERA building inspector for asbestos-containing materials.
Certified UST site assessor.
OSHA 40-hour health & safety and 8-hour supervisor and refresher training.

SELECT PROJECT EXPERIENCE

NPL Site Remedial Investigation/Feasibility Study. Prepared RI/FS documents characterizing the lateral and vertical extent of contamination attributable to the CERCLA NPL solid waste landfill, and evaluated various remedial technologies and alternatives for cleanup of contaminated leachate and groundwater from the site. Evaluated current and potential future risk scenarios through groundwater, surface water, seep and soil pathways. Coordinated monthly and quarterly groundwater and liquid level monitoring and sampling to assess the performance of closure measures on the reduction of landfill-derived contaminants. Prepared expedited response actions including the removal of PCB-contaminated oil from the landfill aquifer. Involved in negotiations with the state and EPA to de-list the site.

NPL Site Treatability Study. Conducted treatability studies to evaluate remedial technologies for removal of aqueous leachate contaminants including PCBs, metals and volatile and semi-volatile compounds. Technologies evaluated included oil/water separation, froth flotation, flocculation/sedimentation, aeration and activated carbon. Developed process alternatives and coordinated the design and costing of the various treatment strings.

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Soil and Groundwater Remediation. Designed and provided capital cost estimates of systems for treating soil and groundwater contaminated by wood treating and metals manufacturing companies. Soil and groundwater contaminants included petroleum hydrocarbons, PCBs, pentachlorophenol, vinyl chloride and other organic and inorganic compounds. Systems designed included air stripping towers, granular activated carbon columns, and aeration and bioremediation landfarms.

Environmental Site Assessments. Coordinated laboratories, drillers and surveyors to collect, analyze and evaluate samples and facility data in support of the state's ranking of contaminated sites. Site ranking was performed based on the toxicity of detected site hazards and the potential for exposure to the contamination by receptor targets through groundwater, surface water and air pathways. Ranking was also based on an evaluation of the facility's systems generating wastes and their potential for releases to and subsequent impacts on the environment.

Environmental Audits. Conducted environmental audits of numerous industrial processing facilities in various states. The audits involved the systematic review of files and operating records and conducting site inspections to assess the facility's compliance of daily operations to federal, state and local hazardous waste regulations, water and air pollution control permits, surface water discharge requirements and health and safety rules and regulations.

Rockwell International, Rocky Flats Plant. Implemented step-wise approaches to efficiently structure Rockwell's waste operations and provide a traceable and credible pathway to support their waste management practices. Involved with various waste management activities at Rocky Flats, including:

- Verified the grouting of low level, transuranic and mixed wastes met various performance parameters including onsite storage requirements and offsite disposal criteria as established by the NTS and INEL/WIPP.

- Implemented waste process analysis and sampling plans to assess system operating conditions and to segregate waste based on radionuclide content.

- Evaluated facility plutonium processing techniques and operations and recommended alternative methods to minimize radiation exposure and reduce waste generation.

- Destructive and non-destructive testing of processed and packaged low level and transuranic waste forms to assess process systems performance and compliance with disposal site criteria.

- Developed and implemented Rockwell's Hazardous Waste Management audit program and audited all hazardous, radioactive and mixed waste operations and collection, treatment and storage sites on a daily, weekly and monthly basis. Developed and implemented an annual training program and certified inspectors to assist with verifying the regulatory compliance of hazardous, radioactive and mixed wastes prepared for onsite storage and offsite disposal.

- Implemented a plant-wide quality education and training program for the minimization, handling and disposal of radioactive wastes, including the evaluation and pilot-testing of a waste compaction technology to reduce the number of transuranic waste packages produced.

- Developed a computer program to track the analyses and regulatory compliance of all hazardous, radioactive and mixed waste containers generated, and applied resulting data to non-conforming processes and procedures to improve waste compliance and reduce rework.

Washington State Department of Ecology/Hanford Nuclear Reservation. Provided engineering and scientific expertise related to the state's oversight of the operation, cleanup, closure and restoration of the Hanford nuclear site. Identified and resolved technical issues with the Department of Energy and their contractors within many areas of the site and as documented in various reports including:

- Single-Shell Tank Core Sample Data Analysis.
- 100-NR-1, 100-NR-2 and 100-NR-3 Operable Units RFI/CMS Work Plans.
- 100-BC-1 and 100-BC-5 Operable Unit RI/FS Work Plans.
- 1100-EM-1 Operable Unit RI/FS Work Plan.
- Liquid Effluent Study (23 Documents).
- 2101-M-Pond Site.
- 216-B-3 Pond Site.
- Double-Shell Tank System Part A and Part B Dangerous Waste Permit Applications.
- Low-Level Burial Grounds Dangerous Waste Permit Application Design Documents.
- Hanford Site Soil and Groundwater Background.
- Site Wide Background Soil Sampling and Analysis Plan.
- New Production Reactor Environmental Impact Statement.

Appendix B

Eco
Compliance
Corporation

Environmental Scientists, Planners and Consultants

1823 Bremerton Ave NE
Renton, WA 98059-3954
phone (425) 271-5629
fax (425) 271-5629
www.ecocompliance.biz

July 20, 2014

Mr. Todd Meadows
Seattle Parks and Recreation
800 Maynard Avenue South, 3rd Floor
Seattle, Washington 98134

Re: Soil sample results for Duwamish Waterway Park.

Dear Todd:

On Wednesday, July 2, 2014, shallow soil samples were collected from the Duwamish Waterway Park located at 7900 South Elmgrove Street in Seattle. Future plans call for removal of the upper approximate 3 inches of grass/soil to create an approximate 5-foot wide, 600-foot long gravel path within the park (Figure 1). The purpose of this sampling was to characterize this soil for possible chemical contamination.

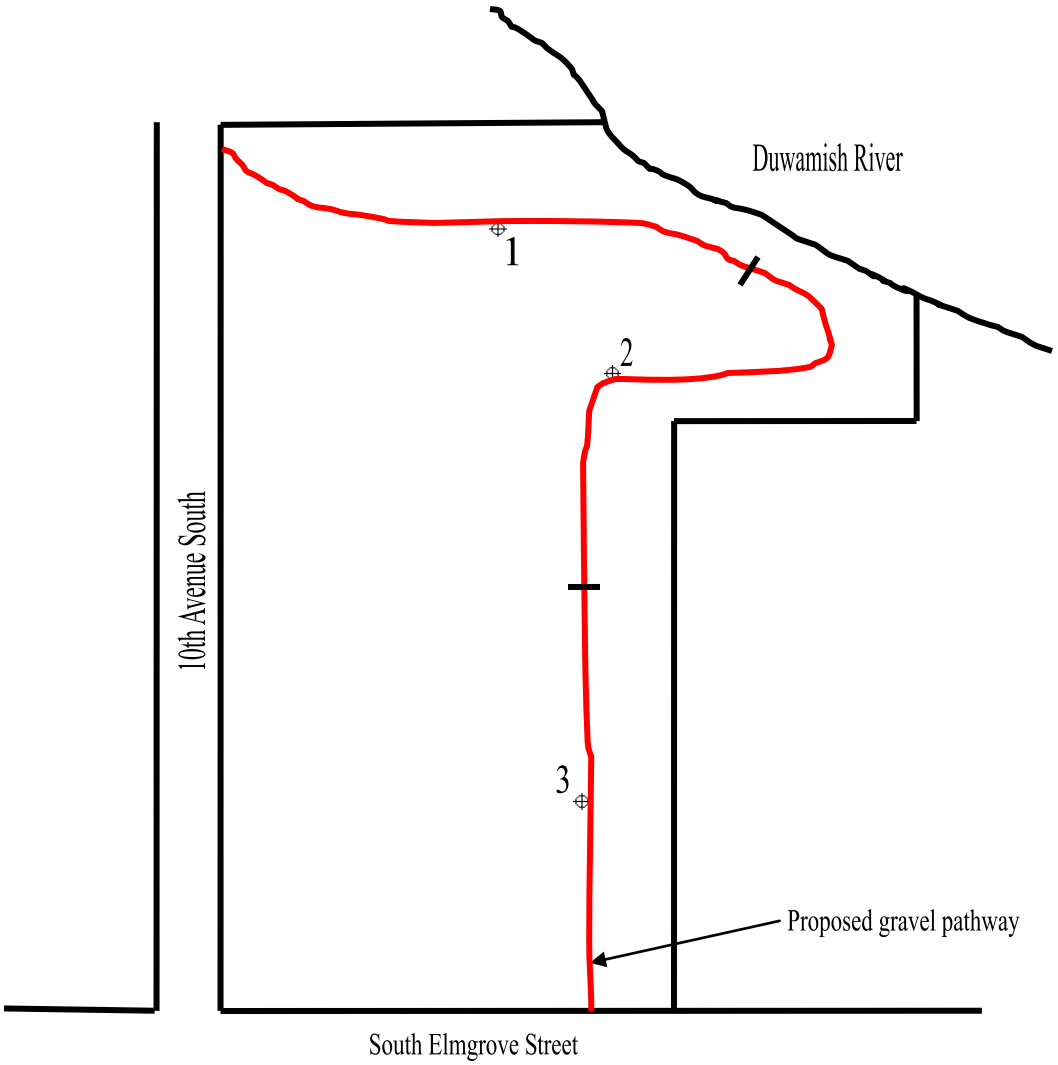
SOIL SAMPLING AND ANALYTICAL RESULTS

The subject path area was divided into 3 approximate 200-foot-long sections (see Figure 1). One soil sample was collected within each section (3 samples total) (sample numbers 1, 2 and 3) (see Figure 1). Each sample was a composite of soil from 3 random locations within each section.

Samples were collected using hand equipment from the upper approximate 3 inches of grass/soil. All samples were analyzed for 8 RCRA (Resource Conservation and Recovery Act) metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver). Sample numbers 1, 2 and 3 were also composited into one container and analyzed for carcinogenic PAHs (cPAHs), and dioxins/furans as 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD) (sample 1 – 3 Composite).

Soil analytical results are attached and summarized below in Table 1. Table 1 also lists cleanup standards established by the Washington State Department of Ecology (Ecology) under their MTCA (Model Toxics Control Act) regulations based on unrestricted (residential) land use.

Figure 1. Approximate location of proposed pathway and soil sampling locations. Duwamish Waterway Park. July 2, 2014.



⌖ Composite sample from 3 random locations within this section of the proposed pathway.

N

Not to scale

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Table 1. Shallow soil sampling results. Duwamish Waterway Park, Seattle. July 2, 2014.

Sample Number	Sample Location/Description	Analytical Result (ppm)	MTCA Cleanup Standard (ppm)
1	Northern section of proposed pathway. Composite of soil from the upper approximate 3 inches of grass/soil from 3 separate locations. Silty soil.	**61 arsenic** 70.8 barium 0.6 cadmium 26.3 chromium 89 lead 0.06 mercury ND(5) selenium ND(0.3) silver	**20 arsenic** 16,000 barium 2 cadmium 2,000 chromium[a] 250 lead 2 mercury 400 selenium 400 silver
2	Central section of proposed pathway. Composite of soil from the upper approximate 3 inches of grass/soil from 3 separate locations. Silty soil.	**69 arsenic** 104 barium 0.9 cadmium 42.4 chromium 135 lead 0.09 mercury ND(5) selenium ND(0.3) silver	**20 arsenic** 16,000 barium 2 cadmium 2,000 chromium[a] 250 lead 2 mercury 400 selenium 400 silver
3	Southern section of proposed pathway. Composite of soil from the upper approximate 3 inches of grass/soil from 3 separate locations. Silty soil.	7 arsenic 82 barium 0.7 cadmium 28.6 chromium 32 lead 0.08 mercury ND(5) selenium ND(0.3) silver	20 arsenic 16,000 barium 2 cadmium 2,000 chromium[a] 250 lead 2 mercury 400 selenium 400 silver
1 – 3 Composite	Composite of sample numbers 1, 2 and 3 .	0.027 cPAHs[b] 1.85EE-6 2,3,7,8-TCDD	0.1 cPAHs[c] 1.28EE-5 2,3,7,8-TCDD[d]

ND(5) Not detected at the analytical detection limit of 5 parts-per-million (ppm).

a MTCA Method A cleanup standard based on chromium III.

b Total toxic equivalent concentration of carcinogenic PAHs (benzo[a]anthracene, total benzofluoranthenes, benzo[a]pyrene, chrysene, dibenzo[a,h]anthracene and indeno[1,2,3-cd]pyrene). WAC 173-340-708(8)(e)(ii) and -708(8)(e)(iii).

c MTCA Method A cleanup standard for carcinogenic PAHs based on benzo(a)pyrene. WAC 173-340-708(8)(e)(iii).

d MTCA Method B cleanup standard for dioxins/furans based on 2,3,7,8-TCDD. WAC 173-340-708(8)(d)(ii).

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As indicated in Table 1, arsenic was detected in sample numbers 1 and 2 at concentrations that are above Ecology's MTCA cleanup standard based on unrestricted (residential) land use.

Various other metals were detected in samples 1, 2 and 3, but at concentrations that are below the MTCA cleanup standards.

Carcinogenic PAHs were detected in sample 1 – 3 Composite, but at a concentration that is below the MTCA cleanup standard.

Dioxins/furans were detected in sample 1 – 3 Composite as 2,3,7,8-TCDD, but at a concentration that is below the MTCA cleanup standard.

It was a pleasure assisting you with this sampling project. Please call me if you have any questions.

Sincerely,

ECO COMPLIANCE CORPORATION

Bill Kane

Bill Kane
President
bill@ecocompliance.biz

Attachment

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: 1
SAMPLE

Lab Sample ID: YQ29A
LIMS ID: 14-13092
Matrix: Soil
Data Release Authorized:
Reported: 07/10/14

QC Report No: YQ29-Eco Compliance Corporation
Project: Duwamish Park

Date Sampled: 07/02/14
Date Received: 07/02/14

Percent Total Solids: 94.8%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	07/03/14	6010C	07/08/14	**7440-38-2**	**Arsenic**	5	**61**	
3050B	07/03/14	6010C	07/08/14	**7440-39-3**	**Barium**	0.3	**70.8**	
3050B	07/03/14	6010C	07/08/14	**7440-43-9**	**Cadmium**	0.2	**0.6**	
3050B	07/03/14	6010C	07/08/14	**7440-47-3**	**Chromium**	0.5	**26.3**	
3050B	07/03/14	6010C	07/08/14	**7439-92-1**	**Lead**	2	**89**	
CLP	07/03/14	7471A	07/09/14	**7439-97-6**	**Mercury**	0.02	**0.06**	
3050B	07/03/14	6010C	07/08/14	7782-49-2	Selenium	5	5	U
3050B	07/03/14	6010C	07/08/14	7440-22-4	Silver	0.3	0.3	U

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

FORM-I

YQ29:00020

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ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: 2
SAMPLE

Lab Sample ID: YQ29B
LIMS ID: 14-13093
Matrix: Soil
Data Release Authorized:
Reported: 07/10/14

QC Report No: YQ29-Eco Compliance Corporation
Project: Duwamish Park

Date Sampled: 07/02/14
Date Received: 07/02/14

Percent Total Solids: 95.3%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	07/03/14	6010C	07/08/14	**7440-38-2**	**Arsenic**	5	**69**	
3050B	07/03/14	6010C	07/08/14	**7440-39-3**	**Barium**	0.3	**104**	
3050B	07/03/14	6010C	07/08/14	**7440-43-9**	**Cadmium**	0.2	**0.9**	
3050B	07/03/14	6010C	07/08/14	**7440-47-3**	**Chromium**	0.5	**42.4**	
3050B	07/03/14	6010C	07/08/14	**7439-92-1**	**Lead**	2	**135**	
CLP	07/03/14	7471A	07/09/14	**7439-97-6**	**Mercury**	0.02	**0.09**	
3050B	07/03/14	6010C	07/08/14	7782-49-2	Selenium	5	5	U
3050B	07/03/14	6010C	07/08/14	7440-22-4	Silver	0.3	0.3	U

U=Analyte undetected at given LOQ
LOQ=Limit of Quantitation

FORM-I

YQ29:00023

(425) 271-5629

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: 3
SAMPLE

Lab Sample ID: YQ29C
LIMS ID: 14-13094
Matrix: Soil
Data Release Authorized:
Reported: 07/10/14

QC Report No: YQ29-Eco Compliance Corporation
Project: Duwamish Park

Date Sampled: 07/02/14
Date Received: 07/02/14

Percent Total Solids: 92.3%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	ug/kg-dry	Q
3050B	07/03/14	6010C	07/08/14	**7440-38-2**	**Arsenic**	5	**7**	
3050B	07/03/14	6010C	07/08/14	**7440-39-3**	**Barium**	0.3	**82.0**	
3050B	07/03/14	6010C	07/08/14	**7440-43-9**	**Cadmium**	0.2	**0.7**	
3050B	07/03/14	6010C	07/08/14	**7440-47-3**	**Chromium**	0.5	**28.6**	
3050B	07/03/14	6010C	07/08/14	**7439-92-1**	**Lead**	2	**32**	
CLP	07/03/14	7471A	07/09/14	**7439-97-6**	**Mercury**	0.02	**0.08**	
3050B	07/03/14	6010C	07/08/14	7782-49-2	Selenium	5	5	U
3050B	07/03/14	6010C	07/08/14	7440-22-4	Silver	0.3	0.3	U

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

FORM-I

YQ29:00024

(425) 271-5629

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D GC/MS
Page 1 of 1

Sample ID: 1-3 Composite
SAMPLE

Lab Sample ID: YQ29D
LIMS ID: 14-13160
Matrix: Soil
Data Release Authorized: NW
Reported: 07/14/14

QC Report No: YQ29-Eco Compliance Corporation
Project: Duamish Park

Date Sampled: 07/02/14
Date Received: 07/02/14

Date Extracted: 07/07/14
Date Analyzed: 07/11/14 18:58
Instrument/Analyst: NT6/JZ
GPC Cleanup: No
Alumina: No
Silica Gel: No

Sample Amount: 8.43 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 3.00
Percent Moisture: 6.6%

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	180	< 180 U
218-01-9	**Chrysene**	**180**	**200**
50-32-8	Benzo(a)pyrene	180	< 180 U
193-39-5	Indeno(1,2,3-cd)pyrene	180	< 180 U
53-70-3	Dibenz(a,h)anthracene	180	< 180 U
TOTBFA	**Total Benzofluoranthenes**	**180**	**250**

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery	
d14-p-Terphenyl	82.7%
2-Fluorobiphenyl	80.2%

FORM I

YQ29:00010

(425) 271-5629

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Dioxins/Furans by EPA 1613B **Sample ID: 1-3 Composite**
Page 1 of 1

Lab Sample ID: YQ29D
LIMS ID: 14-13160
Matrix: Soil
Data Release Authorized:
Reported: 07/18/14

QC Report No: YQ29-Eco Compliance Corporation
Project: Duamish Park
NA
Date Sampled: 07/02/14
Date Received: 07/02/14

Date Extracted: 07/09/14
Date Analyzed: 07/17/14 12:41
Instrument/Analyst: AS1/PK
Acid Cleanup: Yes
Silica-Carbon Cleanup: No

Sample Amount: 10.1 g-dry-wt
Final Extract Volume: 20 uL
Extract Split: 1.00
Silica-Florisil Cleanup: Yes
Dilution Factor: 1.00

Analyte	Ion Ratio	Ratio Limits	EDL	RL	Result
2,3,7,8-TCDD	0.67	0.65-0.89		0.991	1.85

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 1.85

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 1.85

Reported in pg/g

YQ29:00018

(425) 271-5629

Chain of Custody Record & Laboratory Analysis Request

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

ARI Assigned Number: YQ29	Turn-around Requested: Standard	Page: 1	of 1
ARI Client Company: Eco compliance	Phone: 425-271-5629	Date: 7-2-14	Ice Present?
Client Contact: Bill Kane		No. of Coolers:	Cooler Temps:
Client Project Name: Duwamish Park			
Client Project #:	Samplers: Bill Kane		

Sample ID	Date	Time	Matrix	No. Containers	8 RCRA Metals	Dioxins + furans							Notes/Comments
1	7-2-14		soil	2	X	X							
2	|		|	2	X	X							
3	|		|	2	X	X							

Comments/Special Instructions	Relinquished by	Received by	Relinquished by	Received by
Bill to: Mr. Todd Meadows, Seattle Parks + Rec., 800 Maynard Ave. S, 3rd Fl., Seattle 98134	(Signature) Bill Kane	(Signature) [illegible]	(Signature)	(Signature)
	Printed Name: Bill Kane	Printed Name: Mark D. Haus	Printed Name:	Printed Name:
	Company: Eco compliance	Company: ARI	Company:	Company:
	Date & Time: 7-2-14, 9:30 AM	Date & Time: 7/2/14 0930	Date & Time:	Date & Time:

YQ29 : 00002

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Eco
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Corporation

Environmental Scientists, Planners and Consultants

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January 28, 2019

Ms. Lise Ward
Seattle Parks and Recreation
800 Maynard Avenue South, 3rd Floor
Seattle, Washington 98134

Re: Soil sample results for Duwamish Waterway Park.

Dear Lise:

On Friday, January 18, 2019, soil samples were collected from the Duwamish Waterway Park located at 7900 South Elmgrove Street in Seattle. The purpose of this sampling was to characterize this soil for possible chemical contamination.

This report also discusses results from shallow soil sampling conducted at the site in July, 2014.

SOIL SAMPLING AND ANALYTICAL RESULTS

A total of 4 borings were drilled along the northern portion of the subject property to depths of 10 feet below grade (borings B-1 through B-4) (Figure 1). In addition, 3 hand borings were dug along the southern portion of the property to depths of 2.5 feet below grade (borings 1 through 3) (see Figure 1).

Two soil samples were collected from each boring location (14 samples total). All samples were analyzed for PAHs and RCRA (Resource Conservation and Recovery Act) metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver).

Soil analytical results are attached and summarized below in Table 1. Table 1 also lists cleanup standards established by the Washington State Department of Ecology (Ecology) under their MTCA (Model Toxics Control Act) regulations based on unrestricted (residential) land use.

Figure 1. Approximate soil sampling locations. Duwamish Waterway Park. January 18, 2019.

N

Not to scale

(425) 271-5629

Table 1. Soil sampling results. Duwamish Waterway Park, Seattle. January 18, 2019.

Boring Location	Sample Number	Sample Location/ Description	Analytical Result (ppm)	MTCA Cleanup Standard (ppm)
B-1	B-1A	Boring B-1. Approximately 3 – 4 feet below grade. Sandy soil.	ND Naphthalene 0.00116 2-methylnaphthalene 0.00099 1-methylnaphthalene ND Acenaphthylene ND Acenaphthene ND Dibenzofuran ND Fluorene 0.00171 Phenanthrene ND Anthracene ND Fluoranthene ND Pyrene ND Benzo(a)anthracene ND Chrysene 0.00148 Benzo(b)fluoranthene ND Benzo(k)fluoranthene ND Benzo(j)fluoranthene ND Benzo(a)pyrene ND Indeno(1,2,3-cd)pyrene ND Dibenzo(a,h)anthracene 0.00015 TOTAL TEC PAHs[a] ND Benzo(g,h,i)perylene 6.13 arsenic 27.9 barium 0.174 cadmium 8.02 chromium 0.799 lead ND mercury 1.8 selenium ND silver	5 Naphthalene 320 2-methylnaphthalene 34.5 1-methylnaphthalene NA Acenaphthylene 4800 Acenaphthene 80 Dibenzofuran 3200 Fluorene NA Phenanthrene 24000 Anthracene 3200 Fluoranthene 2400 Pyrene 0.1 Total TEC PAHs[b] NA Benzo(g,h,i)perylene 20 arsenic 16,000 barium 2 cadmium 2,000 chromium[c] 250 lead 2 mercury 400 selenium 400 silver

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Table 1 (continued). Soil sampling results. Duwamish Waterway Park, Seattle. January 18, 2019.

Boring Location	Sample Number	Sample Location/ Description	Analytical Result (ppm)	MTCA Cleanup Standard (ppm)
B-1	B-1B	Boring B-1. Approximately 8 – 9 feet below grade. Moist sandy soil. At top of groundwater table.	ND Naphthalene 0.00111 2-methylnaphthalene 0.00085 1-methylnaphthalene ND Acenaphthylene ND Acenaphthene ND Dibenzofuran ND Fluorene 0.00126 Phenanthrene ND Anthracene ND Fluoranthene 0.00067 Pyrene ND Benzo(a)anthracene ND Chrysene ND Benzo(b)fluoranthene ND Benzo(k)fluoranthene ND Benzo(j)fluoranthene ND Benzo(a)pyrene ND Indeno(1,2,3-cd)pyrene ND Dibenzo(a,h)anthracene ND TOTAL TEC PAHs[a] ND Benzo(g,h,i)perylene 6.33 arsenic 25,4 barium 0.171 cadmium 8.4 chromium 0.676 lead ND mercury 0.827 selenium ND silver	5 Naphthalene 320 2-methylnaphthalene 34.5 1-methylnaphthalene NA Acenaphthylene 4800 Acenaphthene 80 Dibenzofuran 3200 Fluorene NA Phenanthrene 24000 Anthracene 3200 Fluoranthene 2400 Pyrene 0.1 Total TEC PAHs[b] NA Benzo(g,h,i)perylene 20 arsenic 16,000 barium 2 cadmium 2,000 chromium[c] 250 lead 2 mercury 400 selenium 400 silver

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Table 1 (continued). Soil sampling results. Duwamish Waterway Park, Seattle. January 18, 2019.

Boring Location	Sample Number	Sample Location/ Description	Analytical Result (ppm)	MTCA Cleanup Standard (ppm)
B-2	B-2A	Boring B-2. Approximately 3 – 4 feet below grade. Sandy soil.	ND Naphthalene ND 2-methylnaphthalene 0.00055 1-methylnaphthalene ND Acenaphthylene ND Acenaphthene ND Dibenzofuran ND Fluorene 0.00175 Phenanthrene ND Anthracene 0.00315 Fluoranthene 0.00257 Pyrene 0.00122 Benzo(a)anthracene 0.00298 Chrysene 0.00247 Benzo(b)fluoranthene 0.00115 Benzo(k)fluoranthene 0.00098 Benzo(j)fluoranthene 0.00175 Benzo(a)pyrene 0.00210 Indeno(1,2,3-cd)pyrene <u>0.00628 Dibenzo(a,h)anthracene</u> 0.0032 TOTAL TEC PAHs[a] 0.00254 Benzo(g,h,i)perylene 6.98 arsenic 15.8 barium 0.223 cadmium 9.82 chromium 1.56 lead ND mercury 1.35 selenium ND silver	5 Naphthalene 320 2-methylnaphthalene 34.5 1-methylnaphthalene NA Acenaphthylene 4800 Acenaphthene 80 Dibenzofuran 3200 Fluorene NA Phenanthrene 24000 Anthracene 3200 Fluoranthene 2400 Pyrene 0.1 Total TEC PAHs[b] NA Benzo(g,h,i)perylene 20 arsenic 16,000 barium 2 cadmium 2,000 chromium[c] 250 lead 2 mercury 400 selenium 400 silver

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Table 1 (continued). Soil sampling results. Duwamish Waterway Park, Seattle. January 18, 2019.

Boring Location	Sample Number	Sample Location/ Description	Analytical Result (ppm)	MTCA Cleanup Standard (ppm)
B-2	B-2B	Boring B-2. Approximately 8.5 – 9.5 feet below grade. Moist sandy soil. At top of groundwater table.	0.00952 Naphthalene 0.0159 2-methylnaphthalene 0.0128 1-methylnaphthalene ND Acenaphthylene 0.00302 Acenaphthene 0.00679 Dibenzofuran 0.00132 Fluorene 0.0202 Phenanthrene ND Anthracene 0.00332 Fluoranthene 0.00324 Pyrene 0.0016 Benzo(a)anthracene 0.00304 Chrysene ND Benzo(b)fluoranthene ND Benzo(k)fluoranthene ND Benzo(j)fluoranthene 0.0008 Benzo(a)pyrene ND Indeno(1,2,3-cd)pyrene 0.0064 Dibenzo(a,h)anthracene 0.0016 TOTAL TEC PAHs[a] ND Benzo(g,h,i)perylene 5.99 arsenic 21 barium 0.176 cadmium 8.04 chromium 0.702 lead ND mercury 1.54 selenium ND silver	5 Naphthalene 320 2-methylnaphthalene 34.5 1-methylnaphthalene NA Acenaphthylene 4800 Acenaphthene 80 Dibenzofuran 3200 Fluorene NA Phenanthrene 24000 Anthracene 3200 Fluoranthene 2400 Pyrene 0.1 Total TEC PAHs[b] NA Benzo(g,h,i)perylene 20 arsenic 16,000 barium 2 cadmium 2,000 chromium[c] 250 lead 2 mercury 400 selenium 400 silver

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Table 1 (continued). Soil sampling results. Duwamish Waterway Park, Seattle. January 18, 2019.

Boring Location	Sample Number	Sample Location/ Description	Analytical Result (ppm)	MTCA Cleanup Standard (ppm)
B-3	B-3A	Boring B-3. Approximately 4 – 5 feet below grade. Sandy soil.	ND Naphthalene ND 2-methylnaphthalene 0.00047 1-methylnaphthalene ND Acenaphthylene ND Acenaphthene ND Dibenzofuran ND Fluorene 0.00087 Phenanthrene ND Anthracene 0.00107 Fluoranthene 0.00141 Pyrene ND Benzo(a)anthracene ND Chrysene ND Benzo(b)fluoranthene ND Benzo(k)fluoranthene ND Benzo(j)fluoranthene 0.00104 Benzo(a)pyrene ND Indeno(1,2,3-cd)pyrene ND Dibenzo(a,h)anthracene 0.001 TOTAL TEC PAHs[a] 0.00126 Benzo(g,h,i)perylene 6.71 arsenic 20 barium 0.168 cadmium 9.5 chromium 0.948 lead ND mercury 1.67 selenium ND silver	5 Naphthalene 320 2-methylnaphthalene 34.5 1-methylnaphthalene NA Acenaphthylene 4800 Acenaphthene 80 Dibenzofuran 3200 Fluorene NA Phenanthrene 24000 Anthracene 3200 Fluoranthene 2400 Pyrene 0.1 Total TEC PAHs[b] NA Benzo(g,h,i)perylene 20 arsenic 16,000 barium 2 cadmium 2,000 chromium[c] 250 lead 2 mercury 400 selenium 400 silver

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Table 1 (continued). Soil sampling results. Duwamish Waterway Park, Seattle. January 18, 2019.

Boring Location	Sample Number	Sample Location/ Description	Analytical Result (ppm)	MTCA Cleanup Standard (ppm)
B-3	B-3B	Boring B-3. Approximately 8.5 – 9.5 feet below grade. Moist sandy soil. At top of groundwater table.	ND Naphthalene 0.00146 2-methylnaphthalene 0.00092 1-methylnaphthalene ND Acenaphthylene 0.00078 Acenaphthene ND Dibenzofuran 0.00096 Fluorene 0.00263 Phenanthrene ND Anthracene 0.00125 Fluoranthene 0.00144 Pyrene ND Benzo(a)anthracene 0.00103 Chrysene ND Benzo(b)fluoranthene ND Benzo(k)fluoranthene ND Benzo(j)fluoranthene ND Benzo(a)pyrene ND Indeno(1,2,3-cd)pyrene ND Dibenzo(a,h)anthracene 0.0001 TOTAL TEC PAHs[a] ND Benzo(g,h,i)perylene 6.64 arsenic 28.2 barium 0.21 cadmium 9.9 chromium 1.25 lead ND mercury 1.88 selenium ND silver	5 Naphthalene 320 2-methylnaphthalene 34.5 1-methylnaphthalene NA Acenaphthylene 4800 Acenaphthene 80 Dibenzofuran 3200 Fluorene NA Phenanthrene 24000 Anthracene 3200 Fluoranthene 2400 Pyrene 0.1 Total TEC PAHs[b] NA Benzo(g,h,i)perylene 20 arsenic 16,000 barium 2 cadmium 2,000 chromium[c] 250 lead 2 mercury 400 selenium 400 silver

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Table 1 (continued). Soil sampling results. Duwamish Waterway Park, Seattle. January 18, 2019.

Boring Location	Sample Number	Sample Location/ Description	Analytical Result (ppm)	MTCA Cleanup Standard (ppm)
B-4	**B-4A**	Boring B-4. Approximately 3 – 4 feet below grade. Sandy soil with some gravel.	0.00454 Naphthalene 0.0043 2-methylnaphthalene 0.00275 1-methylnaphthalene 0.00228 Acenaphthylene 0.00268 Acenaphthene 0.00187 Dibenzofuran 0.00211 Fluorene 0.0193 Phenanthrene 0.00393 Anthracene 0.0302 Fluoranthene 0.0313 Pyrene 0.015 Benzo(a)anthracene 0.02 Chrysene 0.0148 Benzo(b)fluoranthene 0.00849 Benzo(k)fluoranthene 0.00808 Benzo(j)fluoranthene 0.0191 Benzo(a)pyrene 0.0187 Indeno(1,2,3-cd)pyrene <u>0.0101 Dibenzo(a,h)anthracene</u> 0.027 TOTAL TEC PAHs[a] 0.0269 Benzo(g,h,i)perylene **261 arsenic** 89.9 barium 1.32 cadmium 33 chromium **284 lead** 0.076 mercury 2.67 selenium 0.308 silver	5 Naphthalene 320 2-methylnaphthalene 34.5 1-methylnaphthalene NA Acenaphthylene 4800 Acenaphthene 80 Dibenzofuran 3200 Fluorene NA Phenanthrene 24000 Anthracene 3200 Fluoranthene 2400 Pyrene 0.1 Total TEC PAHs[b] NA Benzo(g,h,i)perylene **20 arsenic** 16,000 barium 2 cadmium 2,000 chromium[c] **250 lead** 2 mercury 400 selenium 400 silver

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Table 1 (continued). Soil sampling results. Duwamish Waterway Park, Seattle. January 18, 2019.

Boring Location	Sample Number	Sample Location/ Description	Analytical Result (ppm)	MTCA Cleanup Standard (ppm)
B-4	B-4B	Boring B-4. Approximately 8 – 9 feet below grade. Moist sandy soil. At top of groundwater table.	0.00162 Naphthalene 0.0035 2-methylnaphthalene 0.00215 1-methylnaphthalene ND Acenaphthylene ND Acenaphthene ND Dibenzofuran ND Fluorene 0.00321 Phenanthrene ND Anthracene 0.00129 Fluoranthene 0.0022 Pyrene ND Benzo(a)anthracene 0.00122 Chrysene ND Benzo(b)fluoranthene ND Benzo(k)fluoranthene ND Benzo(j)fluoranthene 0.0007 Benzo(a)pyrene ND Indeno(1,2,3-cd)pyrene ND Dibenzo(a,h)anthracene 0.0007 TOTAL TEC PAHs[a] 0.00158 Benzo(g,h,i)perylene 7.33 arsenic 21 barium 0.262 cadmium 8.27 chromium 0.882 lead ND mercury 1.82 selenium ND silver	5 Naphthalene 320 2-methylnaphthalene 34.5 1-methylnaphthalene NA Acenaphthylene 4800 Acenaphthene 80 Dibenzofuran 3200 Fluorene NA Phenanthrene 24000 Anthracene 3200 Fluoranthene 2400 Pyrene 0.1 Total TEC PAHs[b] NA Benzo(g,h,i)perylene 20 arsenic 16,000 barium 2 cadmium 2,000 chromium[c] 250 lead 2 mercury 400 selenium 400 silver

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Table 1 (continued). Soil sampling results. Duwamish Waterway Park, Seattle. January 18, 2019.

Boring Location	Sample Number	Sample Location/ Description	Analytical Result (ppm)	MTCA Cleanup Standard (ppm)
1	1A	Hand boring 1. Approximately 0.5 – 1 feet below grade.	0.0152 Naphthalene 0.0247 2-methylnaphthalene 0.0232 1-methylnaphthalene ND Acenaphthylene 0.00212 Acenaphthene 0.0101 Dibenzofuran 0.00268 Fluorene 0.0468 Phenanthrene 0.00378 Anthracene 0.0281 Fluoranthene 0.0243 Pyrene 0.0125 Benzo(a)anthracene 0.0189 Chrysene 0.0133 Benzo(b)fluoranthene 0.00539 Benzo(k)fluoranthene 0.00688 Benzo(j)fluoranthene 0.0117 Benzo(a)pyrene 0.0107 Indeno(1,2,3-cd)pyrene <u>0.00864 Dibenzo(a,h)anthracene</u> 0.018 TOTAL TEC PAHs[a] 0.0117 Benzo(g,h,i)perylene 11.8 arsenic 58.4 barium 0.462 cadmium 17.7 chromium 11.6 lead 0.114 mercury 2.09 selenium ND silver	5 Naphthalene 320 2-methylnaphthalene 34.5 1-methylnaphthalene NA Acenaphthylene 4800 Acenaphthene 80 Dibenzofuran 3200 Fluorene NA Phenanthrene 24000 Anthracene 3200 Fluoranthene 2400 Pyrene 0.1 Total TEC PAHs[b] NA Benzo(g,h,i)perylene 20 arsenic 16,000 barium 2 cadmium 2,000 chromium[c] 250 lead 2 mercury 400 selenium 400 silver

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Table 1 (continued). Soil sampling results. Duwamish Waterway Park, Seattle. January 18, 2019.

Boring Location	Sample Number	Sample Location/ Description	Analytical Result (ppm)	MTCA Cleanup Standard (ppm)
1	1B	Hand boring 1. Approximately 2 – 2.5 feet below grade.	0.00988 Naphthalene 0.0148 2-methylnaphthalene 0.0138 1-methylnaphthalene 0.00224 Acenaphthylene 0.00447 Acenaphthene 0.00635 Dibenzofuran 0.00153 Fluorene 0.0278 Phenanthrene 0.00256 Anthracene 0.0182 Fluoranthene 0.0181 Pyrene 0.00865 Benzo(a)anthracene 0.0155 Chrysene 0.0132 Benzo(b)fluoranthene 0.00496 Benzo(k)fluoranthene 0.00626 Benzo(j)fluoranthene 0.0113 Benzo(a)pyrene 0.0144 Indeno(1,2,3-cd)pyrene <u>0.00984 Dibenzo(a,h)anthracene</u> 0.017 TOTAL TEC PAHs[a] 0.0186 Benzo(g,h,i)perylene 11.9 arsenic 26.7 barium 0.279 cadmium 10.6 chromium 14.6 lead 0.0356 mercury 1.13 selenium ND silver	5 Naphthalene 320 2-methylnaphthalene 34.5 1-methylnaphthalene NA Acenaphthylene 4800 Acenaphthene 80 Dibenzofuran 3200 Fluorene NA Phenanthrene 24000 Anthracene 3200 Fluoranthene 2400 Pyrene 0.1 Total TEC PAHs[b] NA Benzo(g,h,i)perylene 20 arsenic 16,000 barium 2 cadmium 2,000 chromium[c] 250 lead 2 mercury 400 selenium 400 silver

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Table 1 (continued). Soil sampling results. Duwamish Waterway Park, Seattle. January 18, 2019.

Boring Location	Sample Number	Sample Location/ Description	Analytical Result (ppm)	MTCA Cleanup Standard (ppm)
2	2A	Hand boring 2. Approximately 0.5 – 1 feet below grade.	0.013 Naphthalene 0.0205 2-methylnaphthalene 0.0223 1-methylnaphthalene ND Acenaphthylene ND Acenaphthene 0.00995 Dibenzofuran 0.00156 Fluorene 0.0318 Phenanthrene 0.00423 Anthracene 0.0254 Fluoranthene 0.0251 Pyrene 0.0116 Benzo(a)anthracene 0.0172 Chrysene 0.0112 Benzo(b)fluoranthene 0.00533 Benzo(k)fluoranthene 0.00526 Benzo(j)fluoranthene 0.0111 Benzo(a)pyrene 0.00835 Indeno(1,2,3-cd)pyrene <u>0.00809 Dibenzo(a,h)anthracene</u> 0.016 TOTAL TEC PAHs[a] 0.00955 Benzo(g,h,i)perylene 8.35 arsenic 39.9 barium 0.345 cadmium 12.7 chromium 12.6 lead 0.109 mercury 0.945 selenium ND silver	5 Naphthalene 320 2-methylnaphthalene 34.5 1-methylnaphthalene NA Acenaphthylene 4800 Acenaphthene 80 Dibenzofuran 3200 Fluorene NA Phenanthrene 24000 Anthracene 3200 Fluoranthene 2400 Pyrene 0.1 Total TEC PAHs[b] NA Benzo(g,h,i)perylene 20 arsenic 16,000 barium 2 cadmium 2,000 chromium[c] 250 lead 2 mercury 400 selenium 400 silver

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Table 1 (continued). Soil sampling results. Duwamish Waterway Park, Seattle. January 18, 2019.

Boring Location	Sample Number	Sample Location/ Description	Analytical Result (ppm)	MTCA Cleanup Standard (ppm)
2	**2B**	Hand boring 2. Approximately 2 – 2.5 feet below grade.	0.0884 Naphthalene 0.154 2-methylnaphthalene 0.14 1-methylnaphthalene 0.00291 Acenaphthylene 0.0319 Acenaphthene 0.0501 Dibenzofuran ND Fluorene 0.128 Phenanthrene 0.0099 Anthracene 0.035 Fluoranthene 0.0401 Pyrene 0.0198 Benzo(a)anthracene 0.0286 Chrysene 0.0119 Benzo(b)fluoranthene 0.00359 Benzo(k)fluoranthene 0.00531 Benzo(j)fluoranthene 0.00845 Benzo(a)pyrene 0.0105 Indeno(1,2,3-cd)pyrene 0.0108 Dibenzo(a,h)anthracene 0.015 TOTAL TEC PAHs[a] 0.00734 Benzo(g,h,i)perylene **20.3 arsenic** 85.3 barium 1.63 cadmium 26.2 chromium 23 lead 0.134 mercury ND selenium ND silver	5 Naphthalene 320 2-methylnaphthalene 34.5 1-methylnaphthalene NA Acenaphthylene 4800 Acenaphthene 80 Dibenzofuran 3200 Fluorene NA Phenanthrene 24000 Anthracene 3200 Fluoranthene 2400 Pyrene 0.1 Total TEC PAHs[b] NA Benzo(g,h,i)perylene **20 arsenic** 16,000 barium 2 cadmium 2,000 chromium[c] 250 lead 2 mercury 400 selenium 400 silver

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Table 1 (continued). Soil sampling results. Duwamish Waterway Park, Seattle. January 18, 2019.

Boring Location	Sample Number	Sample Location/ Description	Analytical Result (ppm)	MTCA Cleanup Standard (ppm)
3	3A	Hand boring 3. Approximately 0.5 – 1 feet below grade.	0.00507 Naphthalene 0.0045 2-methylnaphthalene 0.00475 1-methylnaphthalene 0.002 Acenaphthylene 0.00124 Acenaphthene 0.00287 Dibenzofuran 0.00125 Fluorene 0.0261 Phenanthrene 0.00319 Anthracene 0.0324 Fluoranthene 0.0308 Pyrene 0.0158 Benzo(a)anthracene 0.0244 Chrysene 0.0206 Benzo(b)fluoranthene 0.00909 Benzo(k)fluoranthene 0.00985 Benzo(j)fluoranthene 0.0192 Benzo(a)pyrene 0.0187 Indeno(1,2,3-cd)pyrene <u>0.00997 Dibenzo(a,h)anthracene</u> 0.028 TOTAL TEC PAHs[a] 0.02 Benzo(g,h,i)perylene 16.9 arsenic 58.9 barium 0.564 cadmium 18.3 chromium 52.4 lead 0.124 mercury 2.13 selenium ND silver	5 Naphthalene 320 2-methylnaphthalene 34.5 1-methylnaphthalene NA Acenaphthylene 4800 Acenaphthene 80 Dibenzofuran 3200 Fluorene NA Phenanthrene 24000 Anthracene 3200 Fluoranthene 2400 Pyrene 0.1 Total TEC PAHs[b] NA Benzo(g,h,i)perylene 20 arsenic 16,000 barium 2 cadmium 2,000 chromium[c] 250 lead 2 mercury 400 selenium 400 silver

(425) 271-5629

Table 1 (continued). Soil sampling results. Duwamish Waterway Park, Seattle. January 18, 2019.

Boring Location	Sample Number	Sample Location/ Description	Analytical Result (ppm)	MTCA Cleanup Standard (ppm)
3	3B	Hand boring 3. Approximately 2 – 2.5 feet below grade.	0.00886 Naphthalene 0.0184 2-methylnaphthalene 0.0198 1-methylnaphthalene ND Acenaphthylene 0.0064 Acenaphthene 0.0111 Dibenzofuran 0.00252 Fluorene 0.041 Phenanthrene 0.00425 Anthracene 0.0229 Fluoranthene 0.0213 Pyrene 0.0101 Benzo(a)anthracene 0.0187 Chrysene 0.0136 Benzo(b)fluoranthene 0.00502 Benzo(k)fluoranthene 0.00594 Benzo(j)fluoranthene 0.00956 Benzo(a)pyrene 0.00932 Indeno(1,2,3-cd)pyrene <u>0.00795 Dibenzo(a,h)anthracene</u> 0.015 TOTAL TEC PAHs[a] 0.0102 Benzo(g,h,i)perylene 15.8 arsenic 62.2 barium 0.586 cadmium 22 chromium 26.5 lead 0.162 mercury 2.41 selenium ND silver	5 Naphthalene 320 2-methylnaphthalene 34.5 1-methylnaphthalene NA Acenaphthylene 4800 Acenaphthene 80 Dibenzofuran 3200 Fluorene NA Phenanthrene 24000 Anthracene 3200 Fluoranthene 2400 Pyrene 0.1 Total TEC PAHs[b] NA Benzo(g,h,i)perylene 20 arsenic 16,000 barium 2 cadmium 2,000 chromium[c] 250 lead 2 mercury 400 selenium 400 silver

ND Not detected.

a Total toxic equivalent concentration (TEC) of carcinogenic PAHs (benzo[a]anthracene, chrysene, benzo[b]fluoranthene, benzo[k]fluoranthene, benzo[j]fluoranthene, benzo[a]pyrene, indeno[1,2,3-cd]pyrene and dibenzo[a,h]anthracene). WAC 173-340-708(8)(e)(ii) and -708(8)(e)(iii).

b MTCA Method A cleanup standard for carcinogenic PAHs based on benzo(a)pyrene. WAC 173-340-708(8)(e)(iii).

c MTCA Method A cleanup standard based on chromium III.

From Table 1, arsenic and lead were detected in boring sample B-4A at 3 – 4 feet below grade at concentrations that are above Ecology's MTCA cleanup standards based on unrestricted (residential) land use.

Arsenic was detected in hand boring sample 2B at 2 – 2.5 feet below grade at a concentration that is above Ecology's cleanup standard.

PAHs and various other metals were detected in all the samples collected from the subject property, but at concentrations that are below the MTCA cleanup standards.

PREVIOUS SHALLOW SOIL SAMPLING RESULTS

From our soil sampling report July 20, 2014, 3 samples were collected from the subject property from the upper approximate 3 inches of grass/soil. Each sample was a composite of soil from 3 random locations. All samples were analyzed for RCRA metals. One composite sample was analyzed for carcinogenic PAHs (cPAHs), and dioxins/furans.

From these samples, arsenic was detected in 2 of the 3 shallow soil samples at concentrations that are above Ecology's MTCA cleanup standard.

Carcinogenic PAHs, dioxins/furans and various other metals were detected in all the samples, but at concentrations that are below the MTCA cleanup standards.

It was a pleasure assisting you with this sampling project. Please call me if you have any questions.

Sincerely,

ECO COMPLIANCE CORPORATION

Bill Kane

Bill Kane
President
bill@ecocompliance.biz

Attachment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

DRAFT REPORT
Data Subject to Change

23 January 2019

Bill Kane
Eco Compliance Corporation
1823 Bremerton Avenue NE
Renton, WA 98059

RE: Duwamish Park

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)	Associated SDG ID(s)
19A0253	N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 19A0253	Turn-around Requested: Rush	Page: 1	of 2
ARI Client Company: Eco Compliance	Phone: 206-715-1396	Date: 1-18-19	Ice Present?
Client Contact: Bill Kane		No. of Coolers: 1	Cooler Temps: 10.0
Client Project Name: Duwamish Park			
Client Project #:	Samplers: Bill Kane		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: PAHs	Analysis Requested: 8 RCRA metals	Analysis Requested	Analysis Requested	Analysis Requested	Analysis Requested	Analysis Requested	Analysis Requested	Notes/Comments
1A	1-18-19	AM	soil	3	X	X							
1B	"	"	"	3	X	X							
2A	"	"	"	3	X	X							
2B	"	"	"	3	X	X							
3A	"	"	"	3	X	X							
3B	"	"	"	3	X	X							
B-1A	"	"	"	3	X	X							
B-1B	"	"	"	3	X	X							
B-2A	"	"	"	3	X	X							
B-2B	"	"	"	3	X	X							

Comments/Special Instructions	Relinquished by:	Received by:	Relinquished by:	Received by:
Bill to: Ms. Lise Ward Seattle Parks + Rec.	(Signature) Bill Kane	(Signature) [redacted]	(Signature)	(Signature)
	Printed Name: Bill Kane	Printed Name: Jasmine Bauman	Printed Name:	Printed Name:
	Company: Eco Compliance	Company: ARI	Company:	Company:
	Date & Time: 1-18-19, 10:35 AM	Date & Time: 1/18/19 1035	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 19A0253	Turn-around Requested: Rush	Page: 2 of 2	
ARI Client Company: Eco Compliance	Phone: 206-715-1396	Date: 1-18-19	Ice Present?
Client Contact: Bill Kane		No. of Coolers:	Cooler Temps:
Client Project Name: Duwamish Park			
Client Project #:	Samplers: Bill Kane		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: PAHs	Analysis Requested: 8 RCRA metals	Analysis Requested	Analysis Requested	Analysis Requested	Analysis Requested	Analysis Requested	Analysis Requested	Notes/Comments
B-3A	1-18-19	AM	Soil	3	X	X							
B-3B	"	"	"	3	X	X							
B-4A	"	"	"	3	X	X							
B-4B	"	"	"	3	X	X							

Comments/Special Instructions	Relinquished by: (Signature)	Printed Name:	Company:	Date & Time:	Received by: (Signature)	Printed Name:	Company:	Date & Time:	Relinquished by: (Signature)	Printed Name:	Company:	Date & Time:	Received by: (Signature)	Printed Name:	Company:	Date & Time:
	Bill Kane	Bill Kane	Eco Compliance	1-18-19, 10:35 AM		Jasmine Bauman	ARI	1/18/19 1035								

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
1A	19A0253-01	Solid	18-Jan-2019 00:00	18-Jan-2019 10:35
1B	19A0253-02	Solid	18-Jan-2019 00:00	18-Jan-2019 10:35
2A	19A0253-03	Solid	18-Jan-2019 00:00	18-Jan-2019 10:35
2B	19A0253-04	Solid	18-Jan-2019 00:00	18-Jan-2019 10:35
3A	19A0253-05	Solid	18-Jan-2019 00:00	18-Jan-2019 10:35
3B	19A0253-06	Solid	18-Jan-2019 00:00	18-Jan-2019 10:35
B-1A	19A0253-07	Solid	18-Jan-2019 00:00	18-Jan-2019 10:35
B-1B	19A0253-08	Solid	18-Jan-2019 00:00	18-Jan-2019 10:35
B-2A	19A0253-09	Solid	18-Jan-2019 00:00	18-Jan-2019 10:35
B-2B	19A0253-10	Solid	18-Jan-2019 00:00	18-Jan-2019 10:35
B-3A	19A0253-11	Solid	18-Jan-2019 00:00	18-Jan-2019 10:35
B-3B	19A0253-12	Solid	18-Jan-2019 00:00	18-Jan-2019 10:35
B-4A	19A0253-13	Solid	18-Jan-2019 00:00	18-Jan-2019 10:35
B-4B	19A0253-14	Solid	18-Jan-2019 00:00	18-Jan-2019 10:35

Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

Work Order Case Narrative

Total Metals - EPA Method 6010C

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The LCS percent recoveries were within control limits.

Total Hg - EPA Method 7470/7471

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The LCS percent recoveries were within control limits.

The Duplicate RPD and Matrix Spike percent recovery were out of control high and are flagged within the QC section of this report.

Polynuclear Aromatic Hydrocarbons (PAH) - EPA Method SW8270D-SIM

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The LCS percent recoveries were within control limits.

The Matrix Spike/Matrix Spike duplicate recoveries and RPD were within limits.

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: EcoCompliance Project Name: Duwamish Park

COC No(s): _____ NA Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: 19A0253 Tracking No: _____ NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	NO
Were custody papers included with the cooler?	YES	NO
Were custody papers properly filled out (ink, signed, etc.)	YES	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 1035 10.0°C

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: D00275695

Cooler Accepted by: JDB Date: 1118/19 Time: 1035

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?			YES NO
What kind of packing material was used? ...	Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: NA		
Was sufficient ice used (if appropriate)?	NA	YES	NO
Were all bottles sealed in individual plastic bags?		YES	NO
Did all bottles arrive in good condition (unbroken)?		YES	NO
Were all bottle labels complete and legible?		JBm YES	NO
Did the number of containers listed on COC match with the number of containers received?		YES	NO
Did all bottle labels and tags agree with custody papers?		YES	NO
Were all bottles used correct for the requested analyses?		YES	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...	NA	YES	NO
Were all VOC vials free of air bubbles?	NA	YES	NO
Was sufficient amount of sample sent in each bottle?		YES	NO
Date VOC Trip Blank was made at ARI	NA		

Was Sample Split by ARI : NA YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: JBm Date: 01/18/19 Time: 1120 Labels checked by: JLB

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions: no sample time designated on COC or labels.

By: JBm Date: 01/18/19

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Temperature Compliance Form

ARI Work Order: 1970253

Cooler#: _____ Temperature(°C): 10.0°C

Sample ID	Bottle Count	Bottle Type
Samples received above 6°C		

Cooler#: _____ Temperature(°C): _____

Sample ID	Bottle Count	Bottle Type

Cooler#: _____ Temperature(°C): _____

Sample ID	Bottle Count	Bottle Type

Cooler#: _____ Temperature(°C): _____

Sample ID	Bottle Count	Bottle Type

Completed by: SSW for SLB Date: 01/18/19 Time: 1035

Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

1A

19A0253-01 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM — Sampled: 01/18/2019 00:00
Instrument: NT8 Analyst: JZ — Analyzed: 01/21/2019 19:18

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		
	Preparation Batch: BHA0516	Sample Size: 12.09 g (wet)	Dry Weight:10.40 g
	Prepared: 20-Jan-2019	Final Volume: 0.5 mL	% Solids: 85.99
Sample Cleanup:	Cleanup Method: Silica Gel		
	Cleanup Batch: CHA0186	Initial Volume: 0.5 mL	
	Cleaned: 21-Jan-2019	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.23	4.81	**15.2**	ug/kg	
2-Methylnaphthalene	91-57-6	1	1.06	4.81	**24.7**	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.39	4.81	**23.2**	ug/kg	
Acenaphthylene	208-96-8	1	1.04	4.81	ND	ug/kg	U
Acenaphthene	83-32-9	1	0.55	4.81	**2.12**	ug/kg	J
Dibenzofuran	132-64-9	1	1.33	4.81	**10.1**	ug/kg	
Fluorene	86-73-7	1	0.61	4.81	**2.68**	ug/kg	J
Phenanthrene	85-01-8	1	0.69	4.81	**46.8**	ug/kg	
Anthracene	120-12-7	1	0.84	4.81	**3.78**	ug/kg	J
Fluoranthene	206-44-0	1	0.45	4.81	**28.1**	ug/kg	
Pyrene	129-00-0	1	0.60	4.81	**24.3**	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.79	4.81	**12.5**	ug/kg	
Chrysene	218-01-9	1	1.01	4.81	**18.9**	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	1.32	4.81	**13.3**	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.73	4.81	**5.39**	ug/kg	
Benzo(j)fluoranthene	205-82-3	1	0.65	4.81	**6.88**	ug/kg	
Benzofluoranthenes, Total		1	2.89	9.62	**24.4**	ug/kg	
Benzo(a)pyrene	50-32-8	1	0.59	4.81	**11.7**	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.01	4.81	**10.7**	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	0.86	4.81	**8.64**	ug/kg	
Benzo(g,h,i)perylene	191-24-2	1	1.02	4.81	**11.7**	ug/kg	
Surrogate: 2-Methylnaphthalene-d10				*32-120 %*	*68.0*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*21-133 %*	*101*	*%*	
Surrogate: Fluoranthene-d10				*36-134 %*	*82.1*	*%*	

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Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

1A

19A0253-01 (Solid)

Metals and Metallic Compounds

Method: EPA 6010C — Sampled: 01/18/2019 00:00
Instrument: ICP2 Analyst: TCH — Analyzed: 01/23/2019 11:31

Sample Preparation: Preparation Method: SWC EPA 3050B
Preparation Batch: BHA0532 — Sample Size: 1.041 g (wet) — Dry Weight:0.90 g
Prepared: 21-Jan-2019 — Final Volume: 50 mL — % Solids: 86.72

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	2	0.521	5.54	**11.8**	mg/kg	
Barium	7440-39-3	2	0.0731	0.332	**58.4**	mg/kg	
Cadmium	7440-43-9	2	0.0377	0.222	**0.462**	mg/kg	
Chromium	7440-47-3	2	0.146	0.554	**17.7**	mg/kg	
Lead	7439-92-1	2	0.210	2.22	**11.6**	mg/kg	
Selenium	7782-49-2	2	0.552	5.54	**2.09**	mg/kg	J
Silver	7440-22-4	2	0.0598	0.332	ND	mg/kg	U

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Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

1A

19A0253-01 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 01/18/2019 00:00
Instrument: CVAA Analyst: SKM — Analyzed: 01/22/2019 13:13

Sample Preparation: Preparation Method: SMM EPA 7471B
Preparation Batch: BHA0531 — Sample Size: 0.223 g (wet) — Dry Weight:0.19 g
Prepared: 21-Jan-2019 — Final Volume: 50 mL — % Solids: 86.72

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.0259	**0.114**	mg/kg	

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Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

1B

19A0253-02 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM — Sampled: 01/18/2019 00:00
Instrument: NT8 Analyst: JZ — Analyzed: 01/21/2019 19:44

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		
	Preparation Batch: BHA0516	Sample Size: 12.08 g (wet)	Dry Weight:10.64 g
	Prepared: 20-Jan-2019	Final Volume: 0.5 mL	% Solids: 88.07
Sample Cleanup:	Cleanup Method: Silica Gel		
	Cleanup Batch: CHA0186	Initial Volume: 0.5 mL	
	Cleaned: 21-Jan-2019	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.20	4.70	**9.88**	ug/kg	
2-Methylnaphthalene	91-57-6	1	1.04	4.70	**14.8**	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.38	4.70	**13.8**	ug/kg	
Acenaphthylene	208-96-8	1	1.02	4.70	**2.24**	ug/kg	J
Acenaphthene	83-32-9	1	0.54	4.70	**4.47**	ug/kg	J
Dibenzofuran	132-64-9	1	1.30	4.70	**6.35**	ug/kg	
Fluorene	86-73-7	1	0.59	4.70	**1.53**	ug/kg	J
Phenanthrene	85-01-8	1	0.67	4.70	**27.8**	ug/kg	
Anthracene	120-12-7	1	0.82	4.70	**2.56**	ug/kg	J
Fluoranthene	206-44-0	1	0.44	4.70	**18.2**	ug/kg	
Pyrene	129-00-0	1	0.59	4.70	**18.1**	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.77	4.70	**8.65**	ug/kg	
Chrysene	218-01-9	1	0.99	4.70	**15.5**	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	1.29	4.70	**13.2**	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.71	4.70	**4.96**	ug/kg	
Benzo(j)fluoranthene	205-82-3	1	0.64	4.70	**6.26**	ug/kg	
Benzofluoranthenes, Total		1	2.83	9.40	**22.4**	ug/kg	
Benzo(a)pyrene	50-32-8	1	0.58	4.70	**11.3**	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.99	4.70	**14.4**	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	0.84	4.70	**9.84**	ug/kg	
Benzo(g,h,i)perylene	191-24-2	1	1.00	4.70	**18.6**	ug/kg	
Surrogate: 2-Methylnaphthalene-d10				*32-120 %*	*60.9*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*21-133 %*	*95.0*	*%*	
Surrogate: Fluoranthene-d10				*36-134 %*	*74.1*	*%*	

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Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

1B

19A0253-02 (Solid)

Metals and Metallic Compounds

Method: EPA 6010C — Sampled: 01/18/2019 00:00
Instrument: ICP2 Analyst: TCH — Analyzed: 01/23/2019 11:08

Sample Preparation: Preparation Method: SWC EPA 3050B
Preparation Batch: BHA0532 — Sample Size: 1.068 g (wet) — Dry Weight:0.97 g
Prepared: 21-Jan-2019 — Final Volume: 50 mL — % Solids: 90.96

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	2	0.484	5.15	**11.9**	mg/kg	
Barium	7440-39-3	2	0.0679	0.309	**26.7**	mg/kg	
Cadmium	7440-43-9	2	0.0350	0.206	**0.279**	mg/kg	
Chromium	7440-47-3	2	0.136	0.515	**10.6**	mg/kg	
Lead	7439-92-1	2	0.196	2.06	**14.6**	mg/kg	
Selenium	7782-49-2	2	0.513	5.15	**1.13**	mg/kg	J
Silver	7440-22-4	2	0.0556	0.309	ND	mg/kg	U

Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

1B

19A0253-02 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 01/18/2019 00:00
Instrument: CVAA Analyst: SKM — Analyzed: 01/22/2019 13:19

Sample Preparation: Preparation Method: SMM EPA 7471B
Preparation Batch: BHA0531 — Sample Size: 0.259 g (wet) — Dry Weight:0.24 g
Prepared: 21-Jan-2019 — Final Volume: 50 mL — % Solids: 90.96

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.0212	**0.0356**	mg/kg	

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Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

2A

19A0253-03 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM — Sampled: 01/18/2019 00:00
Instrument: NT8 Analyst: JZ — Analyzed: 01/21/2019 20:10

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		
	Preparation Batch: BHA0516	Sample Size: 12.12 g (wet)	Dry Weight:10.27 g
	Prepared: 20-Jan-2019	Final Volume: 0.5 mL	% Solids: 84.73
Sample Cleanup:	Cleanup Method: Silica Gel		
	Cleanup Batch: CHA0186	Initial Volume: 0.5 mL	
	Cleaned: 21-Jan-2019	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.24	4.87	**13.0**	ug/kg	
2-Methylnaphthalene	91-57-6	1	1.08	4.87	**20.5**	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.39	4.87	**22.3**	ug/kg	
Acenaphthylene	208-96-8	1	1.06	4.87	ND	ug/kg	U
Acenaphthene	83-32-9	1	0.56	4.87	ND	ug/kg	U
Dibenzofuran	132-64-9	1	1.34	4.87	**9.95**	ug/kg	
Fluorene	86-73-7	1	0.61	4.87	**1.56**	ug/kg	J
Phenanthrene	85-01-8	1	0.70	4.87	**31.8**	ug/kg	
Anthracene	120-12-7	1	0.85	4.87	**4.23**	ug/kg	J
Fluoranthene	206-44-0	1	0.46	4.87	**25.4**	ug/kg	
Pyrene	129-00-0	1	0.61	4.87	**25.1**	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.80	4.87	**11.6**	ug/kg	
Chrysene	218-01-9	1	1.03	4.87	**17.2**	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	1.34	4.87	**11.2**	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.74	4.87	**5.33**	ug/kg	
Benzo(j)fluoranthene	205-82-3	1	0.66	4.87	**5.26**	ug/kg	
Benzofluoranthenes, Total		1	2.93	9.74	**21.8**	ug/kg	
Benzo(a)pyrene	50-32-8	1	0.60	4.87	**11.1**	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.02	4.87	**8.35**	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	0.87	4.87	**8.09**	ug/kg	
Benzo(g,h,i)perylene	191-24-2	1	1.04	4.87	**9.55**	ug/kg	
Surrogate: 2-Methylnaphthalene-d10				*32-120 %*	*61.6*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*21-133 %*	*88.6*	*%*	
Surrogate: Fluoranthene-d10				*36-134 %*	*70.3*	*%*	

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Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

2A

19A0253-03 (Solid)

Metals and Metallic Compounds

Method: EPA 6010C — Sampled: 01/18/2019 00:00
Instrument: ICP2 Analyst: TCH — Analyzed: 01/23/2019 11:12

Sample Preparation: Preparation Method: SWC EPA 3050B
Preparation Batch: BHA0532 — Sample Size: 1.003 g (wet) — Dry Weight:0.85 g
Prepared: 21-Jan-2019 — Final Volume: 50 mL — % Solids: 84.62

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	2	0.554	5.89	**8.35**	mg/kg	
Barium	7440-39-3	2	0.0778	0.353	**39.9**	mg/kg	
Cadmium	7440-43-9	2	0.0401	0.236	**0.345**	mg/kg	
Chromium	7440-47-3	2	0.156	0.589	**12.7**	mg/kg	
Lead	7439-92-1	2	0.224	2.36	**12.6**	mg/kg	
Selenium	7782-49-2	2	0.587	5.89	**0.945**	mg/kg	J
Silver	7440-22-4	2	0.0636	0.353	ND	mg/kg	U

Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

2A

19A0253-03 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 01/18/2019 00:00
Instrument: CVAA Analyst: SKM — Analyzed: 01/22/2019 13:22

Sample Preparation: Preparation Method: SMM EPA 7471B
Preparation Batch: BHA0531 — Sample Size: 0.21 g (wet) — Dry Weight:0.18 g
Prepared: 21-Jan-2019 — Final Volume: 50 mL — % Solids: 84.62

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.0281	**0.109**	mg/kg	

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Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

2B

19A0253-04 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM — Sampled: 01/18/2019 00:00
Instrument: NT8 Analyst: JZ — Analyzed: 01/21/2019 20:36

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		
	Preparation Batch: BHA0516	Sample Size: 13.07 g (wet)	Dry Weight:10.33 g
	Prepared: 20-Jan-2019	Final Volume: 0.5 mL	% Solids: 79.05
Sample Cleanup:	Cleanup Method: Silica Gel		
	Cleanup Batch: CHA0186	Initial Volume: 0.5 mL	
	Cleaned: 21-Jan-2019	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.23	4.84	**88.4**	ug/kg	
2-Methylnaphthalene	91-57-6	1	1.07	4.84	**154**	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.39	4.84	**140**	ug/kg	
Acenaphthylene	208-96-8	1	1.05	4.84	**2.91**	ug/kg	J
Acenaphthene	83-32-9	1	0.55	4.84	**31.9**	ug/kg	
Dibenzofuran	132-64-9	1	1.33	4.84	**50.1**	ug/kg	
Fluorene	86-73-7	1	0.61	4.84	ND	ug/kg	U
Phenanthrene	85-01-8	1	0.69	4.84	**128**	ug/kg	
Anthracene	120-12-7	1	0.84	4.84	**9.90**	ug/kg	
Fluoranthene	206-44-0	1	0.45	4.84	**35.0**	ug/kg	
Pyrene	129-00-0	1	0.61	4.84	**40.1**	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.80	4.84	**19.8**	ug/kg	
Chrysene	218-01-9	1	1.02	4.84	**28.6**	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	1.33	4.84	**11.9**	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.74	4.84	**3.59**	ug/kg	J
Benzo(j)fluoranthene	205-82-3	1	0.66	4.84	**5.31**	ug/kg	
Benzofluoranthenes, Total		1	2.91	9.68	**18.8**	ug/kg	
Benzo(a)pyrene	50-32-8	1	0.59	4.84	**8.45**	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.02	4.84	**10.5**	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	0.86	4.84	**10.8**	ug/kg	
Benzo(g,h,i)perylene	191-24-2	1	1.03	4.84	**7.34**	ug/kg	
Surrogate: 2-Methylnaphthalene-d10				*32-120 %*	*60.5*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*21-133 %*	*89.0*	*%*	
Surrogate: Fluoranthene-d10				*36-134 %*	*66.1*	*%*	

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Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

2B

19A0253-04 (Solid)

Metals and Metallic Compounds

Method: EPA 6010C — Sampled: 01/18/2019 00:00
Instrument: ICP2 Analyst: TCH — Analyzed: 01/23/2019 13:39

Sample Preparation: Preparation Method: SWC EPA 3050B
Preparation Batch: BHA0532 — Sample Size: 1.088 g (wet) — Dry Weight:0.82 g
Prepared: 21-Jan-2019 — Final Volume: 50 mL — % Solids: 75.62

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	10	2.86	30.4	**20.3**	mg/kg	J, D
Barium	7440-39-3	10	0.401	1.82	**85.3**	mg/kg	D
Cadmium	7440-43-9	10	0.207	1.22	**1.63**	mg/kg	D
Chromium	7440-47-3	10	0.802	3.04	**26.2**	mg/kg	D
Lead	7439-92-1	10	1.15	12.2	**23.0**	mg/kg	D
Selenium	7782-49-2	10	3.03	30.4	ND	mg/kg	U
Silver	7440-22-4	10	0.328	1.82	ND	mg/kg	U

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Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

2B

19A0253-04 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 01/18/2019 00:00
Instrument: CVAA Analyst: SKM — Analyzed: 01/22/2019 13:24

Sample Preparation: Preparation Method: SMM EPA 7471B
Preparation Batch: BHA0531 — Sample Size: 0.234 g (wet) — Dry Weight:0.18 g
Prepared: 21-Jan-2019 — Final Volume: 50 mL — % Solids: 75.62

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.0283	**0.134**	mg/kg	

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Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

3A

19A0253-05 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM — Sampled: 01/18/2019 00:00
Instrument: NT8 Analyst: JZ — Analyzed: 01/21/2019 21:01

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		
	Preparation Batch: BHA0516	Sample Size: 13.09 g (wet)	Dry Weight:10.37 g
	Prepared: 20-Jan-2019	Final Volume: 0.5 mL	% Solids: 79.20
Sample Cleanup:	Cleanup Method: Silica Gel		
	Cleanup Batch: CHA0186	Initial Volume: 0.5 mL	
	Cleaned: 21-Jan-2019	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.23	4.82	**5.07**	ug/kg	
2-Methylnaphthalene	91-57-6	1	1.06	4.82	**4.50**	ug/kg	J
1-Methylnaphthalene	90-12-0	1	0.39	4.82	**4.75**	ug/kg	J
Acenaphthylene	208-96-8	1	1.05	4.82	**2.00**	ug/kg	J
Acenaphthene	83-32-9	1	0.55	4.82	**1.24**	ug/kg	J
Dibenzofuran	132-64-9	1	1.33	4.82	**2.87**	ug/kg	J
Fluorene	86-73-7	1	0.61	4.82	**1.25**	ug/kg	J
Phenanthrene	85-01-8	1	0.69	4.82	**26.1**	ug/kg	
Anthracene	120-12-7	1	0.84	4.82	**3.19**	ug/kg	J
Fluoranthene	206-44-0	1	0.45	4.82	**32.4**	ug/kg	
Pyrene	129-00-0	1	0.60	4.82	**30.8**	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.79	4.82	**15.8**	ug/kg	
Chrysene	218-01-9	1	1.02	4.82	**24.4**	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	1.32	4.82	**20.6**	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.73	4.82	**9.09**	ug/kg	
Benzo(j)fluoranthene	205-82-3	1	0.66	4.82	**9.85**	ug/kg	
Benzofluoranthenes, Total		1	2.90	9.65	**38.1**	ug/kg	
Benzo(a)pyrene	50-32-8	1	0.59	4.82	**19.2**	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.01	4.82	**18.7**	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	0.86	4.82	**9.97**	ug/kg	
Benzo(g,h,i)perylene	191-24-2	1	1.03	4.82	**20.0**	ug/kg	
Surrogate: 2-Methylnaphthalene-d10				*32-120 %*	*52.6*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*21-133 %*	*80.5*	*%*	
Surrogate: Fluoranthene-d10				*36-134 %*	*63.5*	*%*	

Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

3A

19A0253-05 (Solid)

Metals and Metallic Compounds

Method: EPA 6010C — Sampled: 01/18/2019 00:00
Instrument: ICP2 Analyst: TCH — Analyzed: 01/23/2019 11:20

Sample Preparation: Preparation Method: SWC EPA 3050B
Preparation Batch: BHA0532 — Sample Size: 1.04 g (wet) — Dry Weight:0.83 g
Prepared: 21-Jan-2019 — Final Volume: 50 mL — % Solids: 79.76

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	2	0.567	6.03	**16.9**	mg/kg	
Barium	7440-39-3	2	0.0796	0.362	**58.9**	mg/kg	
Cadmium	7440-43-9	2	0.0410	0.241	**0.564**	mg/kg	
Chromium	7440-47-3	2	0.159	0.603	**18.3**	mg/kg	
Lead	7439-92-1	2	0.229	2.41	**52.4**	mg/kg	
Selenium	7782-49-2	2	0.600	6.03	**2.13**	mg/kg	J
Silver	7440-22-4	2	0.0651	0.362	ND	mg/kg	U

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Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

3A

19A0253-05 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 01/18/2019 00:00
Instrument: CVAA Analyst: SKM — Analyzed: 01/22/2019 13:26

Sample Preparation: Preparation Method: SMM EPA 7471B
Preparation Batch: BHA0531 — Sample Size: 0.241 g (wet) — Dry Weight:0.19 g
Prepared: 21-Jan-2019 — Final Volume: 50 mL — % Solids: 79.76

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.0260	**0.124**	mg/kg	

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Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

3B

19A0253-06 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM — Sampled: 01/18/2019 00:00
Instrument: NT8 Analyst: JZ — Analyzed: 01/21/2019 21:27

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		
	Preparation Batch: BHA0516	Sample Size: 13.02 g (wet)	Dry Weight:10.61 g
	Prepared: 20-Jan-2019	Final Volume: 0.5 mL	% Solids: 81.46
Sample Cleanup:	Cleanup Method: Silica Gel		
	Cleanup Batch: CHA0186	Initial Volume: 0.5 mL	
	Cleaned: 21-Jan-2019	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.20	4.71	**8.86**	ug/kg	
2-Methylnaphthalene	91-57-6	1	1.04	4.71	**18.4**	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.38	4.71	**19.8**	ug/kg	
Acenaphthylene	208-96-8	1	1.02	4.71	ND	ug/kg	U
Acenaphthene	83-32-9	1	0.54	4.71	**6.40**	ug/kg	
Dibenzofuran	132-64-9	1	1.30	4.71	**11.1**	ug/kg	
Fluorene	86-73-7	1	0.59	4.71	**2.52**	ug/kg	J
Phenanthrene	85-01-8	1	0.68	4.71	**41.0**	ug/kg	
Anthracene	120-12-7	1	0.82	4.71	**4.25**	ug/kg	J
Fluoranthene	206-44-0	1	0.44	4.71	**22.9**	ug/kg	
Pyrene	129-00-0	1	0.59	4.71	**21.3**	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.78	4.71	**10.1**	ug/kg	
Chrysene	218-01-9	1	0.99	4.71	**18.7**	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	1.29	4.71	**13.6**	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.72	4.71	**5.02**	ug/kg	
Benzo(j)fluoranthene	205-82-3	1	0.64	4.71	**5.94**	ug/kg	
Benzofluoranthenes, Total		1	2.84	9.43	**23.7**	ug/kg	
Benzo(a)pyrene	50-32-8	1	0.58	4.71	**9.56**	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.99	4.71	**9.32**	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	0.84	4.71	**7.95**	ug/kg	
Benzo(g,h,i)perylene	191-24-2	1	1.00	4.71	**10.2**	ug/kg	
Surrogate: 2-Methylnaphthalene-d10				*32-120 %*	*57.8*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*21-133 %*	*89.0*	*%*	
Surrogate: Fluoranthene-d10				*36-134 %*	*70.0*	*%*	

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Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

3B

19A0253-06 (Solid)

Metals and Metallic Compounds

Method: EPA 6010C — Sampled: 01/18/2019 00:00
Instrument: ICP2 Analyst: TCH — Analyzed: 01/23/2019 11:24

Sample Preparation: Preparation Method: SWC EPA 3050B
Preparation Batch: BHA0532 — Sample Size: 1.058 g (wet) — Dry Weight:0.85 g
Prepared: 21-Jan-2019 — Final Volume: 50 mL — % Solids: 80.63

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	2	0.551	5.86	**15.8**	mg/kg	
Barium	7440-39-3	2	0.0774	0.352	**62.2**	mg/kg	
Cadmium	7440-43-9	2	0.0399	0.234	**0.586**	mg/kg	
Chromium	7440-47-3	2	0.155	0.586	**22.0**	mg/kg	
Lead	7439-92-1	2	0.223	2.34	**26.5**	mg/kg	
Selenium	7782-49-2	2	0.584	5.86	**2.41**	mg/kg	J
Silver	7440-22-4	2	0.0633	0.352	ND	mg/kg	U

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Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

3B

19A0253-06 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 01/18/2019 00:00
Instrument: CVAA Analyst: SKM — Analyzed: 01/22/2019 13:33

Sample Preparation: Preparation Method: SMM EPA 7471B
Preparation Batch: BHA0531 — Sample Size: 0.224 g (wet) — Dry Weight:0.18 g
Prepared: 21-Jan-2019 — Final Volume: 50 mL — % Solids: 80.63

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.0277	**0.162**	mg/kg	

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Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

B-1A

19A0253-07 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM — Sampled: 01/18/2019 00:00
Instrument: NT8 Analyst: JZ — Analyzed: 01/21/2019 21:53

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		
	Preparation Batch: BHA0516	Sample Size: 11.15 g (wet)	Dry Weight:10.44 g
	Prepared: 20-Jan-2019	Final Volume: 0.5 mL	% Solids: 93.60
Sample Cleanup:	Cleanup Method: Silica Gel		
	Cleanup Batch: CHA0186	Initial Volume: 0.5 mL	
	Cleaned: 21-Jan-2019	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.22	4.79	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	1.06	4.79	**1.16**	ug/kg	J
1-Methylnaphthalene	90-12-0	1	0.38	4.79	**0.99**	ug/kg	J
Acenaphthylene	208-96-8	1	1.04	4.79	ND	ug/kg	U
Acenaphthene	83-32-9	1	0.55	4.79	ND	ug/kg	U
Dibenzofuran	132-64-9	1	1.32	4.79	ND	ug/kg	U
Fluorene	86-73-7	1	0.60	4.79	ND	ug/kg	U
Phenanthrene	85-01-8	1	0.69	4.79	**1.71**	ug/kg	J
Anthracene	120-12-7	1	0.83	4.79	ND	ug/kg	U
Fluoranthene	206-44-0	1	0.45	4.79	ND	ug/kg	U
Pyrene	129-00-0	1	0.60	4.79	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	0.79	4.79	ND	ug/kg	U
Chrysene	218-01-9	1	1.01	4.79	ND	ug/kg	U
Benzo(b)fluoranthene	205-99-2	1	1.31	4.79	**1.48**	ug/kg	J
Benzo(k)fluoranthene	207-08-9	1	0.73	4.79	ND	ug/kg	U
Benzo(j)fluoranthene	205-82-3	1	0.65	4.79	ND	ug/kg	U
Benzofluoranthenes, Total		1	2.88	9.58	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	0.59	4.79	ND	ug/kg	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.01	4.79	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	0.85	4.79	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	1.02	4.79	ND	ug/kg	U
Surrogate: 2-Methylnaphthalene-d10				*32-120 %*	*59.7*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*21-133 %*	*97.4*	*%*	
Surrogate: Fluoranthene-d10				*36-134 %*	*72.8*	*%*	

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Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

B-1A

19A0253-07 (Solid)

Metals and Metallic Compounds

Method: EPA 6010C — Sampled: 01/18/2019 00:00
Instrument: ICP2 Analyst: TCH — Analyzed: 01/23/2019 13:00

Sample Preparation: Preparation Method: SWC EPA 3050B
Preparation Batch: BHA0532 — Sample Size: 1.082 g (wet) — Dry Weight: 1.02 g
Prepared: 21-Jan-2019 — Final Volume: 50 mL — % Solids: 94.32

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	2	0.461	4.90	**6.13**	mg/kg	
Barium	7440-39-3	2	0.0647	0.294	**27.9**	mg/kg	
Cadmium	7440-43-9	2	0.0333	0.196	**0.174**	mg/kg	J
Chromium	7440-47-3	2	0.129	0.490	**8.02**	mg/kg	
Lead	7439-92-1	2	0.186	1.96	**0.799**	mg/kg	J
Selenium	7782-49-2	2	0.488	4.90	**1.80**	mg/kg	J
Silver	7440-22-4	2	0.0529	0.294	ND	mg/kg	U

Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

B-1A

19A0253-07 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 01/18/2019 00:00
Instrument: CVAA Analyst: SKM — Analyzed: 01/22/2019 13:36

Sample Preparation: Preparation Method: SMM EPA 7471B
Preparation Batch: BHA0531 — Sample Size: 0.203 g (wet) — Dry Weight:0.19 g
Prepared: 21-Jan-2019 — Final Volume: 50 mL — % Solids: 94.32

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.0261	ND	mg/kg	U

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Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

B-1B

19A0253-08 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM — Sampled: 01/18/2019 00:00
Instrument: NT8 Analyst: JZ — Analyzed: 01/21/2019 22:19

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		
	Preparation Batch: BHA0516	Sample Size: 12.13 g (wet)	Dry Weight:10.55 g
	Prepared: 20-Jan-2019	Final Volume: 0.5 mL	% Solids: 86.96
Sample Cleanup:	Cleanup Method: Silica Gel		
	Cleanup Batch: CHA0186	Initial Volume: 0.5 mL	
	Cleaned: 21-Jan-2019	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.21	4.74	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	1.05	4.74	**1.11**	ug/kg	J
1-Methylnaphthalene	90-12-0	1	0.38	4.74	**0.85**	ug/kg	J
Acenaphthylene	208-96-8	1	1.03	4.74	ND	ug/kg	U
Acenaphthene	83-32-9	1	0.54	4.74	ND	ug/kg	U
Dibenzofuran	132-64-9	1	1.31	4.74	ND	ug/kg	U
Fluorene	86-73-7	1	0.60	4.74	ND	ug/kg	U
Phenanthrene	85-01-8	1	0.68	4.74	**1.26**	ug/kg	J
Anthracene	120-12-7	1	0.83	4.74	ND	ug/kg	U
Fluoranthene	206-44-0	1	0.45	4.74	ND	ug/kg	U
Pyrene	129-00-0	1	0.59	4.74	**0.67**	ug/kg	J
Benzo(a)anthracene	56-55-3	1	0.78	4.74	ND	ug/kg	U
Chrysene	218-01-9	1	1.00	4.74	ND	ug/kg	U
Benzo(b)fluoranthene	205-99-2	1	1.30	4.74	ND	ug/kg	U
Benzo(k)fluoranthene	207-08-9	1	0.72	4.74	ND	ug/kg	U
Benzo(j)fluoranthene	205-82-3	1	0.64	4.74	ND	ug/kg	U
Benzofluoranthenes, Total		1	2.85	9.48	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	0.58	4.74	ND	ug/kg	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.00	4.74	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	0.84	4.74	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	1.01	4.74	ND	ug/kg	U
Surrogate: 2-Methylnaphthalene-d10				*32-120 %*	*57.7*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*21-133 %*	*91.7*	*%*	
Surrogate: Fluoranthene-d10				*36-134 %*	*70.7*	*%*	

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Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

B-1B

19A0253-08 (Solid)

Metals and Metallic Compounds

Method: EPA 6010C — Sampled: 01/18/2019 00:00
Instrument: ICP2 Analyst: TCH — Analyzed: 01/23/2019 13:04

Sample Preparation: Preparation Method: SWC EPA 3050B
Preparation Batch: BHA0532 — Sample Size: 1.074 g (wet) — Dry Weight:0.94 g
Prepared: 21-Jan-2019 — Final Volume: 50 mL — % Solids: 87.41

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	2	0.501	5.33	**6.33**	mg/kg	
Barium	7440-39-3	2	0.0703	0.320	**25.4**	mg/kg	
Cadmium	7440-43-9	2	0.0362	0.213	**0.171**	mg/kg	J
Chromium	7440-47-3	2	0.141	0.533	**8.40**	mg/kg	
Lead	7439-92-1	2	0.202	2.13	**0.676**	mg/kg	J
Selenium	7782-49-2	2	0.530	5.33	**0.827**	mg/kg	J
Silver	7440-22-4	2	0.0575	0.320	ND	mg/kg	U

Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

B-1B

19A0253-08 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 01/18/2019 00:00
Instrument: CVAA Analyst: SKM — Analyzed: 01/22/2019 13:38

Sample Preparation: Preparation Method: SMM EPA 7471B
Preparation Batch: BHA0531 — Sample Size: 0.268 g (wet) — Dry Weight:0.23 g
Prepared: 21-Jan-2019 — Final Volume: 50 mL — % Solids: 87.41

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.0213	ND	mg/kg	U

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Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

B-2A

19A0253-09 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM — Sampled: 01/18/2019 00:00
Instrument: NT8 Analyst: JZ — Analyzed: 01/21/2019 22:45

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		
	Preparation Batch: BHA0516	Sample Size: 11.03 g (wet)	Dry Weight:10.37 g
	Prepared: 20-Jan-2019	Final Volume: 0.5 mL	% Solids: 94.06
Sample Cleanup:	Cleanup Method: Silica Gel		
	Cleanup Batch: CHA0186	Initial Volume: 0.5 mL	
	Cleaned: 21-Jan-2019	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.23	4.82	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	1.06	4.82	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	0.39	4.82	**0.55**	ug/kg	J
Acenaphthylene	208-96-8	1	1.04	4.82	ND	ug/kg	U
Acenaphthene	83-32-9	1	0.55	4.82	ND	ug/kg	U
Dibenzofuran	132-64-9	1	1.33	4.82	ND	ug/kg	U
Fluorene	86-73-7	1	0.61	4.82	ND	ug/kg	U
Phenanthrene	85-01-8	1	0.69	4.82	**1.75**	ug/kg	J
Anthracene	120-12-7	1	0.84	4.82	ND	ug/kg	U
Fluoranthene	206-44-0	1	0.45	4.82	**3.15**	ug/kg	J
Pyrene	129-00-0	1	0.60	4.82	**2.57**	ug/kg	J
Benzo(a)anthracene	56-55-3	1	0.79	4.82	**1.22**	ug/kg	J
Chrysene	218-01-9	1	1.01	4.82	**2.98**	ug/kg	J
Benzo(b)fluoranthene	205-99-2	1	1.32	4.82	**2.47**	ug/kg	J
Benzo(k)fluoranthene	207-08-9	1	0.73	4.82	**1.15**	ug/kg	J
Benzo(j)fluoranthene	205-82-3	1	0.66	4.82	**0.98**	ug/kg	J
Benzofluoranthenes, Total		1	2.90	9.64	**4.74**	ug/kg	J
Benzo(a)pyrene	50-32-8	1	0.59	4.82	**1.75**	ug/kg	J
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.01	4.82	**2.01**	ug/kg	J
Dibenzo(a,h)anthracene	53-70-3	1	0.86	4.82	**6.28**	ug/kg	
Benzo(g,h,i)perylene	191-24-2	1	1.03	4.82	**2.54**	ug/kg	J
Surrogate: 2-Methylnaphthalene-d10				*32-120 %*	*62.0*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*21-133 %*	*98.5*	*%*	
Surrogate: Fluoranthene-d10				*36-134 %*	*77.0*	*%*	

Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

B-2A

19A0253-09 (Solid)

Metals and Metallic Compounds

Method: EPA 6010C — Sampled: 01/18/2019 00:00
Instrument: ICP2 Analyst: TCH — Analyzed: 01/23/2019 13:08

Sample Preparation: Preparation Method: SWC EPA 3050B
Preparation Batch: BHA0532 — Sample Size: 1.068 g (wet) — Dry Weight: 1.00 g
Prepared: 21-Jan-2019 — Final Volume: 50 mL — % Solids: 93.86

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	2	0.469	4.99	**6.98**	mg/kg	
Barium	7440-39-3	2	0.0658	0.299	**15.8**	mg/kg	
Cadmium	7440-43-9	2	0.0339	0.200	**0.223**	mg/kg	
Chromium	7440-47-3	2	0.132	0.499	**9.82**	mg/kg	
Lead	7439-92-1	2	0.190	2.00	**1.56**	mg/kg	J
Selenium	7782-49-2	2	0.497	4.99	**1.35**	mg/kg	J
Silver	7440-22-4	2	0.0539	0.299	ND	mg/kg	U

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Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

B-2A

19A0253-09 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 01/18/2019 00:00
Instrument: CVAA Analyst: SKM — Analyzed: 01/22/2019 13:40

Sample Preparation: Preparation Method: SMM EPA 7471B
Preparation Batch: BHA0531 — Sample Size: 0.271 g (wet) — Dry Weight:0.25 g
Prepared: 21-Jan-2019 — Final Volume: 50 mL — % Solids: 93.86

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.0197	ND	mg/kg	U

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Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

B-2B

19A0253-10 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM — Sampled: 01/18/2019 00:00
Instrument: NT8 Analyst: JZ — Analyzed: 01/22/2019 00:02

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		
	Preparation Batch: BHA0516	Sample Size: 12.11 g (wet)	Dry Weight:10.07 g
	Prepared: 20-Jan-2019	Final Volume: 0.5 mL	% Solids: 83.13
Sample Cleanup:	Cleanup Method: Silica Gel		
	Cleanup Batch: CHA0186	Initial Volume: 0.5 mL	
	Cleaned: 21-Jan-2019	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.27	4.97	**9.52**	ug/kg	
2-Methylnaphthalene	91-57-6	1	1.10	4.97	**15.9**	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.40	4.97	**12.8**	ug/kg	
Acenaphthylene	208-96-8	1	1.08	4.97	ND	ug/kg	U
Acenaphthene	83-32-9	1	0.57	4.97	**3.02**	ug/kg	J
Dibenzofuran	132-64-9	1	1.37	4.97	**6.79**	ug/kg	
Fluorene	86-73-7	1	0.63	4.97	**1.32**	ug/kg	J
Phenanthrene	85-01-8	1	0.71	4.97	**20.2**	ug/kg	
Anthracene	120-12-7	1	0.87	4.97	ND	ug/kg	U
Fluoranthene	206-44-0	1	0.47	4.97	**3.32**	ug/kg	J
Pyrene	129-00-0	1	0.62	4.97	**3.24**	ug/kg	J
Benzo(a)anthracene	56-55-3	1	0.82	4.97	**1.60**	ug/kg	J
Chrysene	218-01-9	1	1.05	4.97	**3.04**	ug/kg	J
Benzo(b)fluoranthene	205-99-2	1	1.36	4.97	ND	ug/kg	U
Benzo(k)fluoranthene	207-08-9	1	0.75	4.97	ND	ug/kg	U
Benzo(j)fluoranthene	205-82-3	1	0.68	4.97	ND	ug/kg	U
Benzofluoranthenes, Total		1	2.99	9.93	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	0.61	4.97	**0.80**	ug/kg	J
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.04	4.97	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	0.89	4.97	**6.40**	ug/kg	
Benzo(g,h,i)perylene	191-24-2	1	1.06	4.97	ND	ug/kg	U
Surrogate: 2-Methylnaphthalene-d10				*32-120 %*	*57.2*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*21-133 %*	*93.0*	*%*	
Surrogate: Fluoranthene-d10				*36-134 %*	*73.8*	*%*	

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Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

B-2B

19A0253-10 (Solid)

Metals and Metallic Compounds

Method: EPA 6010C — Sampled: 01/18/2019 00:00
Instrument: ICP2 Analyst: TCH — Analyzed: 01/23/2019 13:12

Sample Preparation: Preparation Method: SWC EPA 3050B
Preparation Batch: BHA0532 — Sample Size: 1.077 g (wet) — Dry Weight:0.97 g
Prepared: 21-Jan-2019 — Final Volume: 50 mL — % Solids: 89.80

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	2	0.486	5.17	**5.99**	mg/kg	
Barium	7440-39-3	2	0.0682	0.310	**21.0**	mg/kg	
Cadmium	7440-43-9	2	0.0352	0.207	**0.176**	mg/kg	J
Chromium	7440-47-3	2	0.136	0.517	**8.04**	mg/kg	
Lead	7439-92-1	2	0.196	2.07	**0.702**	mg/kg	J
Selenium	7782-49-2	2	0.515	5.17	**1.54**	mg/kg	J
Silver	7440-22-4	2	0.0558	0.310	ND	mg/kg	U

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Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

B-2B

19A0253-10 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 01/18/2019 00:00
Instrument: CVAA Analyst: SKM — Analyzed: 01/22/2019 13:43

Sample Preparation: Preparation Method: SMM EPA 7471B
Preparation Batch: BHA0531 — Sample Size: 0.251 g (wet) — Dry Weight:0.23 g
Prepared: 21-Jan-2019 — Final Volume: 50 mL — % Solids: 89.80

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.0222	ND	mg/kg	U

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Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

B-3A

19A0253-11 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM — Sampled: 01/18/2019 00:00
Instrument: NT8 Analyst: JZ — Analyzed: 01/22/2019 00:28

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		
	Preparation Batch: BHA0516	Sample Size: 11.01 g (wet)	Dry Weight:10.12 g
	Prepared: 20-Jan-2019	Final Volume: 0.5 mL	% Solids: 91.91
Sample Cleanup:	Cleanup Method: Silica Gel		
	Cleanup Batch: CHA0186	Initial Volume: 0.5 mL	
	Cleaned: 21-Jan-2019	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.26	4.94	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	1.09	4.94	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	0.40	4.94	**0.47**	ug/kg	J
Acenaphthylene	208-96-8	1	1.07	4.94	ND	ug/kg	U
Acenaphthene	83-32-9	1	0.56	4.94	ND	ug/kg	U
Dibenzofuran	132-64-9	1	1.36	4.94	ND	ug/kg	U
Fluorene	86-73-7	1	0.62	4.94	ND	ug/kg	U
Phenanthrene	85-01-8	1	0.71	4.94	**0.87**	ug/kg	J
Anthracene	120-12-7	1	0.86	4.94	ND	ug/kg	U
Fluoranthene	206-44-0	1	0.46	4.94	**1.07**	ug/kg	J
Pyrene	129-00-0	1	0.62	4.94	**1.41**	ug/kg	J
Benzo(a)anthracene	56-55-3	1	0.81	4.94	ND	ug/kg	U
Chrysene	218-01-9	1	1.04	4.94	ND	ug/kg	U
Benzo(b)fluoranthene	205-99-2	1	1.36	4.94	ND	ug/kg	U
Benzo(k)fluoranthene	207-08-9	1	0.75	4.94	ND	ug/kg	U
Benzo(j)fluoranthene	205-82-3	1	0.67	4.94	ND	ug/kg	U
Benzofluoranthenes, Total		1	2.97	9.88	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	0.61	4.94	**1.04**	ug/kg	J
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.04	4.94	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	0.88	4.94	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	1.05	4.94	**1.26**	ug/kg	J
Surrogate: 2-Methylnaphthalene-d10				*32-120 %*	*57.8*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*21-133 %*	*98.1*	*%*	
Surrogate: Fluoranthene-d10				*36-134 %*	*75.0*	*%*	

Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

B-3A

19A0253-11 (Solid)

Metals and Metallic Compounds

Method: EPA 6010C — Sampled: 01/18/2019 00:00
Instrument: ICP2 Analyst: TCH — Analyzed: 01/23/2019 13:16

Sample Preparation: Preparation Method: SWC EPA 3050B
Preparation Batch: BHA0532 — Sample Size: 1.07 g (wet) — Dry Weight:0.99 g
Prepared: 21-Jan-2019 — Final Volume: 50 mL — % Solids: 92.59

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	2	0.474	5.05	**6.71**	mg/kg	
Barium	7440-39-3	2	0.0666	0.303	**20.0**	mg/kg	
Cadmium	7440-43-9	2	0.0343	0.202	**0.168**	mg/kg	J
Chromium	7440-47-3	2	0.133	0.505	**9.50**	mg/kg	
Lead	7439-92-1	2	0.192	2.02	**0.948**	mg/kg	J
Selenium	7782-49-2	2	0.503	5.05	**1.67**	mg/kg	J
Silver	7440-22-4	2	0.0545	0.303	ND	mg/kg	U

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Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

B-3A

19A0253-11 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 01/18/2019 00:00
Instrument: CVAA Analyst: SKM — Analyzed: 01/22/2019 13:45

Sample Preparation: Preparation Method: SMM EPA 7471B
Preparation Batch: BHA0531 — Sample Size: 0.228 g (wet) — Dry Weight:0.21 g
Prepared: 21-Jan-2019 — Final Volume: 50 mL — % Solids: 92.59

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.0237	ND	mg/kg	U

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Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

B-3B

19A0253-12 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM — Sampled: 01/18/2019 00:00
Instrument: NT8 Analyst: JZ — Analyzed: 01/22/2019 00:53

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		
	Preparation Batch: BHA0516	Sample Size: 13.05 g (wet)	Dry Weight:10.38 g
	Prepared: 20-Jan-2019	Final Volume: 0.5 mL	% Solids: 79.55
Sample Cleanup:	Cleanup Method: Silica Gel		
	Cleanup Batch: CHA0186	Initial Volume: 0.5 mL	
	Cleaned: 21-Jan-2019	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.23	4.82	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	1.06	4.82	**1.46**	ug/kg	J
1-Methylnaphthalene	90-12-0	1	0.39	4.82	**0.92**	ug/kg	J
Acenaphthylene	208-96-8	1	1.04	4.82	ND	ug/kg	U
Acenaphthene	83-32-9	1	0.55	4.82	**0.78**	ug/kg	J
Dibenzofuran	132-64-9	1	1.33	4.82	ND	ug/kg	U
Fluorene	86-73-7	1	0.61	4.82	**0.96**	ug/kg	J
Phenanthrene	85-01-8	1	0.69	4.82	**2.63**	ug/kg	J
Anthracene	120-12-7	1	0.84	4.82	ND	ug/kg	U
Fluoranthene	206-44-0	1	0.45	4.82	**1.25**	ug/kg	J
Pyrene	129-00-0	1	0.60	4.82	**1.44**	ug/kg	J
Benzo(a)anthracene	56-55-3	1	0.79	4.82	ND	ug/kg	U
Chrysene	218-01-9	1	1.01	4.82	**1.03**	ug/kg	J
Benzo(b)fluoranthene	205-99-2	1	1.32	4.82	ND	ug/kg	U
Benzo(k)fluoranthene	207-08-9	1	0.73	4.82	ND	ug/kg	U
Benzo(j)fluoranthene	205-82-3	1	0.66	4.82	ND	ug/kg	U
Benzofluoranthenes, Total		1	2.90	9.63	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	0.59	4.82	ND	ug/kg	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.01	4.82	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	0.86	4.82	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	1.03	4.82	ND	ug/kg	U
Surrogate: 2-Methylnaphthalene-d10				*32-120 %*	*53.7*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*21-133 %*	*89.2*	*%*	
Surrogate: Fluoranthene-d10				*36-134 %*	*70.0*	*%*	

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Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

B-3B

19A0253-12 (Solid)

Metals and Metallic Compounds

Method: EPA 6010C — Sampled: 01/18/2019 00:00
Instrument: ICP2 Analyst: TCH — Analyzed: 01/23/2019 13:20

Sample Preparation: Preparation Method: SWC EPA 3050B
Preparation Batch: BHA0532 — Sample Size: 1.003 g (wet) — Dry Weight:0.85 g
Prepared: 21-Jan-2019 — Final Volume: 50 mL — % Solids: 84.32

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	2	0.556	5.91	**6.64**	mg/kg	
Barium	7440-39-3	2	0.0780	0.355	**28.2**	mg/kg	
Cadmium	7440-43-9	2	0.0402	0.236	**0.210**	mg/kg	J
Chromium	7440-47-3	2	0.156	0.591	**9.90**	mg/kg	
Lead	7439-92-1	2	0.225	2.36	**1.25**	mg/kg	J
Selenium	7782-49-2	2	0.589	5.91	**1.88**	mg/kg	J
Silver	7440-22-4	2	0.0639	0.355	ND	mg/kg	U

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Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

B-3B

19A0253-12 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 01/18/2019 00:00
Instrument: CVAA Analyst: SKM — Analyzed: 01/22/2019 13:47

Sample Preparation: Preparation Method: SMM EPA 7471B
Preparation Batch: BHA0531 — Sample Size: 0.272 g (wet) — Dry Weight:0.23 g
Prepared: 21-Jan-2019 — Final Volume: 50 mL — % Solids: 84.32

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.0218	ND	mg/kg	U

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Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

B-4A

19A0253-13 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM — Sampled: 01/18/2019 00:00
Instrument: NT8 Analyst: JZ — Analyzed: 01/22/2019 01:19

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		
	Preparation Batch: BHA0516	Sample Size: 11.03 g (wet)	Dry Weight:10.10 g
	Prepared: 20-Jan-2019	Final Volume: 0.5 mL	% Solids: 91.59
Sample Cleanup:	Cleanup Method: Silica Gel		
	Cleanup Batch: CHA0186	Initial Volume: 0.5 mL	
	Cleaned: 21-Jan-2019	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.26	4.95	**4.54**	ug/kg	J
2-Methylnaphthalene	91-57-6	1	1.09	4.95	**4.30**	ug/kg	J
1-Methylnaphthalene	90-12-0	1	0.40	4.95	**2.75**	ug/kg	J
Acenaphthylene	208-96-8	1	1.07	4.95	**2.28**	ug/kg	J
Acenaphthene	83-32-9	1	0.57	4.95	**2.68**	ug/kg	J
Dibenzofuran	132-64-9	1	1.37	4.95	**1.87**	ug/kg	J
Fluorene	86-73-7	1	0.62	4.95	**2.11**	ug/kg	J
Phenanthrene	85-01-8	1	0.71	4.95	**19.3**	ug/kg	
Anthracene	120-12-7	1	0.86	4.95	**3.93**	ug/kg	J
Fluoranthene	206-44-0	1	0.47	4.95	**30.2**	ug/kg	
Pyrene	129-00-0	1	0.62	4.95	**31.3**	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.82	4.95	**15.0**	ug/kg	
Chrysene	218-01-9	1	1.04	4.95	**20.0**	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	1.36	4.95	**14.8**	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.75	4.95	**8.49**	ug/kg	
Benzo(j)fluoranthene	205-82-3	1	0.67	4.95	**8.08**	ug/kg	
Benzofluoranthenes, Total		1	2.98	9.90	**31.7**	ug/kg	
Benzo(a)pyrene	50-32-8	1	0.61	4.95	**19.1**	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.04	4.95	**18.7**	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	0.88	4.95	**10.1**	ug/kg	
Benzo(g,h,i)perylene	191-24-2	1	1.05	4.95	**26.9**	ug/kg	
Surrogate: 2-Methylnaphthalene-d10				*32-120 %*	*52.5*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*21-133 %*	*75.4*	*%*	
Surrogate: Fluoranthene-d10				*36-134 %*	*60.0*	*%*	

Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

B-4A

19A0253-13 (Solid)

Metals and Metallic Compounds

Method: EPA 6010C — Sampled: 01/18/2019 00:00
Instrument: ICP2 Analyst: TCH — Analyzed: 01/23/2019 13:24

Sample Preparation: Preparation Method: SWC EPA 3050B
Preparation Batch: BHA0532 — Sample Size: 1.067 g (wet) — Dry Weight:0.96 g
Prepared: 21-Jan-2019 — Final Volume: 50 mL — % Solids: 89.97

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	2	0.490	5.21	**261**	mg/kg	
Barium	7440-39-3	2	0.0688	0.313	**89.9**	mg/kg	
Cadmium	7440-43-9	2	0.0354	0.208	**1.32**	mg/kg	
Chromium	7440-47-3	2	0.138	0.521	**33.0**	mg/kg	
Lead	7439-92-1	2	0.198	2.08	**284**	mg/kg	
Selenium	7782-49-2	2	0.519	5.21	**2.67**	mg/kg	J
Silver	7440-22-4	2	0.0563	0.313	**0.308**	mg/kg	J

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Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

B-4A

19A0253-13 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 01/18/2019 00:00
Instrument: CVAA Analyst: SKM — Analyzed: 01/22/2019 13:49

Sample Preparation: Preparation Method: SMM EPA 7471B
Preparation Batch: BHA0531 — Sample Size: 0.25 g (wet) — Dry Weight:0.22 g
Prepared: 21-Jan-2019 — Final Volume: 50 mL — % Solids: 89.97

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.0222	**0.0760**	mg/kg	

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Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

B-4B

19A0253-14 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM — Sampled: 01/18/2019 00:00
Instrument: NT8 Analyst: JZ — Analyzed: 01/22/2019 01:45

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		
	Preparation Batch: BHA0516	Sample Size: 13.03 g (wet)	Dry Weight:10.25 g
	Prepared: 20-Jan-2019	Final Volume: 0.5 mL	% Solids: 78.65
Sample Cleanup:	Cleanup Method: Silica Gel		
	Cleanup Batch: CHA0186	Initial Volume: 0.5 mL	
	Cleaned: 21-Jan-2019	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.24	4.88	**1.62**	ug/kg	J
2-Methylnaphthalene	91-57-6	1	1.08	4.88	**3.50**	ug/kg	J
1-Methylnaphthalene	90-12-0	1	0.39	4.88	**2.15**	ug/kg	J
Acenaphthylene	208-96-8	1	1.06	4.88	ND	ug/kg	U
Acenaphthene	83-32-9	1	0.56	4.88	ND	ug/kg	U
Dibenzofuran	132-64-9	1	1.35	4.88	ND	ug/kg	U
Fluorene	86-73-7	1	0.62	4.88	ND	ug/kg	U
Phenanthrene	85-01-8	1	0.70	4.88	**3.21**	ug/kg	J
Anthracene	120-12-7	1	0.85	4.88	ND	ug/kg	U
Fluoranthene	206-44-0	1	0.46	4.88	**1.29**	ug/kg	J
Pyrene	129-00-0	1	0.61	4.88	**2.20**	ug/kg	J
Benzo(a)anthracene	56-55-3	1	0.80	4.88	ND	ug/kg	U
Chrysene	218-01-9	1	1.03	4.88	**1.22**	ug/kg	J
Benzo(b)fluoranthene	205-99-2	1	1.34	4.88	ND	ug/kg	U
Benzo(k)fluoranthene	207-08-9	1	0.74	4.88	ND	ug/kg	U
Benzo(j)fluoranthene	205-82-3	1	0.66	4.88	ND	ug/kg	U
Benzofluoranthenes, Total		1	2.94	9.76	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	0.60	4.88	**0.70**	ug/kg	J
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.02	4.88	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	0.87	4.88	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	1.04	4.88	**1.58**	ug/kg	J
Surrogate: 2-Methylnaphthalene-d10				*32-120 %*	*57.8*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*21-133 %*	*92.2*	*%*	
Surrogate: Fluoranthene-d10				*36-134 %*	*71.5*	*%*	

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Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

B-4B

19A0253-14 (Solid)

Metals and Metallic Compounds

Method: EPA 6010C — Sampled: 01/18/2019 00:00
Instrument: ICP2 Analyst: TCH — Analyzed: 01/23/2019 13:28

Sample Preparation: Preparation Method: SWC EPA 3050B
Preparation Batch: BHA0532 — Sample Size: 1.067 g (wet) — Dry Weight:0.85 g
Prepared: 21-Jan-2019 — Final Volume: 50 mL — % Solids: 79.50

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	2	0.554	5.89	**7.33**	mg/kg	
Barium	7440-39-3	2	0.0778	0.354	**21.0**	mg/kg	
Cadmium	7440-43-9	2	0.0401	0.236	**0.262**	mg/kg	
Chromium	7440-47-3	2	0.156	0.589	**8.27**	mg/kg	
Lead	7439-92-1	2	0.224	2.36	**0.882**	mg/kg	J
Selenium	7782-49-2	2	0.587	5.89	**1.82**	mg/kg	J
Silver	7440-22-4	2	0.0637	0.354	ND	mg/kg	U

Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

B-4B

19A0253-14 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 01/18/2019 00:00
Instrument: CVAA Analyst: SKM — Analyzed: 01/22/2019 13:52

Sample Preparation: Preparation Method: SMM EPA 7471B
Preparation Batch: BHA0531 — Sample Size: 0.252 g (wet) — Dry Weight:0.20 g
Prepared: 21-Jan-2019 — Final Volume: 50 mL — % Solids: 79.50

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.0250	ND	mg/kg	U

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Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

Semivolatile Organic Compounds - SIM - Quality Control

Batch BHA0516 - EPA 3546 (Microwave)

Instrument: NT8 Analyst: JZ

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BHA0516-BLK1)				Prepared: 20-Jan-2019 Analyzed: 21-Jan-2019 18:27							
Naphthalene	ND	1.28	5.00	ug/kg							U
2-Methylnaphthalene	ND	1.10	5.00	ug/kg							U
1-Methylnaphthalene	0.60	0.40	5.00	ug/kg							J
Acenaphthylene	ND	1.08	5.00	ug/kg							U
Acenaphthene	ND	0.57	5.00	ug/kg							U
Dibenzofuran	ND	1.38	5.00	ug/kg							U
Fluorene	ND	0.63	5.00	ug/kg							U
Phenanthrene	ND	0.72	5.00	ug/kg							U
Anthracene	ND	0.87	5.00	ug/kg							U
Fluoranthene	ND	0.47	5.00	ug/kg							U
Pyrene	ND	0.63	5.00	ug/kg							U
Benzo(a)anthracene	ND	0.82	5.00	ug/kg							U
Chrysene	ND	1.05	5.00	ug/kg							U
Benzo(b)fluoranthene	ND	1.37	5.00	ug/kg							U
Benzo(k)fluoranthene	ND	0.76	5.00	ug/kg							U
Benzo(j)fluoranthene	ND	0.68	5.00	ug/kg							U
Benzofluoranthenes, Total	ND	3.01	10.0	ug/kg							U
Benzo(a)pyrene	ND	0.61	5.00	ug/kg							U
Indeno(1,2,3-cd)pyrene	ND	1.05	5.00	ug/kg							U
Dibenzo(a,h)anthracene	ND	0.89	5.00	ug/kg							U
Benzo(g,h,i)perylene	ND	1.07	5.00	ug/kg							U
Surrogate: 2-Methylnaphthalene-d10	92.5			ug/kg	*150*		*61.7*	*32-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	147			ug/kg	*150*		*98.1*	*21-133*			
Surrogate: Fluoranthene-d10	118			ug/kg	*150*		*78.4*	*36-134*			
LCS (BHA0516-BS1)				Prepared: 20-Jan-2019 Analyzed: 21-Jan-2019 18:53							
Naphthalene	166	1.28	5.00	ug/kg	300		55.4	36-120			
2-Methylnaphthalene	177	1.10	5.00	ug/kg	300		59.1	35-120			
1-Methylnaphthalene	176	0.40	5.00	ug/kg	300		58.8	39-120			
Acenaphthylene	195	1.08	5.00	ug/kg	300		64.9	35-120			
Acenaphthene	188	0.57	5.00	ug/kg	300		62.5	39-120			
Dibenzofuran	199	1.38	5.00	ug/kg	300		66.4	38-120			
Fluorene	212	0.63	5.00	ug/kg	300		70.6	41-120			
Phenanthrene	222	0.72	5.00	ug/kg	300		74.1	46-120			
Anthracene	225	0.87	5.00	ug/kg	300		74.9	36-120			

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Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

Semivolatile Organic Compounds - SIM - Quality Control

Batch BHA0516 - EPA 3546 (Microwave)

Instrument: NT8 Analyst: JZ

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BHA0516-BS1)					Prepared: 20-Jan-2019 Analyzed: 21-Jan-2019 18:53						
Fluoranthene	244	0.47	5.00	ug/kg	300		81.4	46-120			
Pyrene	241	0.63	5.00	ug/kg	300		80.2	49-120			
Benzo(a)anthracene	259	0.82	5.00	ug/kg	300		86.4	42-120			
Chrysene	251	1.05	5.00	ug/kg	300		83.6	48-120			
Benzo(b)fluoranthene	248	1.37	5.00	ug/kg	300		82.6	35-127			
Benzo(k)fluoranthene	247	0.76	5.00	ug/kg	300		82.5	37-129			
Benzo(j)fluoranthene	257	0.68	5.00	ug/kg	300		85.6	40-120			
Benzofluoranthenes, Total	754	3.01	10.0	ug/kg	900		83.8	46-120			
Benzo(a)pyrene	251	0.61	5.00	ug/kg	300		83.8	36-120			
Indeno(1,2,3-cd)pyrene	337	1.05	5.00	ug/kg	300		112	40-120			
Dibenzo(a,h)anthracene	302	0.89	5.00	ug/kg	300		101	38-120			
Benzo(g,h,i)perylene	295	1.07	5.00	ug/kg	300		98.3	38-120			
Surrogate: 2-Methylnaphthalene-d10	87.3			ug/kg	*150*		*58.2*	*32-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	155			ug/kg	*150*		*103*	*21-133*			
Surrogate: Fluoranthene-d10	114			ug/kg	*150*		*76.1*	*36-134*			
Matrix Spike (BHA0516-MS1)		**Source: 19A0253-09**			Prepared: 20-Jan-2019 Analyzed: 21-Jan-2019 23:10						
Naphthalene	162	1.23	4.81	ug/kg	289	ND	56.1	36-120			
2-Methylnaphthalene	174	1.06	4.81	ug/kg	289	ND	60.2	35-120			
1-Methylnaphthalene	172	0.39	4.81	ug/kg	289	0.55	59.2	39-120			
Acenaphthylene	195	1.04	4.81	ug/kg	289	ND	67.3	35-120			
Acenaphthene	188	0.55	4.81	ug/kg	289	ND	65.2	39-120			
Dibenzofuran	193	1.33	4.81	ug/kg	289	ND	66.7	38-120			
Fluorene	208	0.61	4.81	ug/kg	289	ND	71.9	41-120			
Phenanthrene	218	0.69	4.81	ug/kg	289	1.75	74.8	46-120			
Anthracene	218	0.84	4.81	ug/kg	289	ND	75.4	36-120			
Fluoranthene	236	0.45	4.81	ug/kg	289	3.15	80.5	46-120			
Pyrene	227	0.60	4.81	ug/kg	289	2.57	77.6	49-120			
Benzo(a)anthracene	245	0.79	4.81	ug/kg	289	1.22	84.5	42-120			
Chrysene	232	1.01	4.81	ug/kg	289	2.98	79.2	48-120			
Benzo(b)fluoranthene	233	1.32	4.81	ug/kg	289	2.47	79.8	35-127			
Benzo(k)fluoranthene	225	0.73	4.81	ug/kg	289	1.15	77.6	37-129			
Benzo(j)fluoranthene	234	0.65	4.81	ug/kg	289	0.98	80.6	40-120			
Benzofluoranthenes, Total	693	2.90	9.63	ug/kg	867	4.74	79.4	46-120			
Benzo(a)pyrene	241	0.59	4.81	ug/kg	289	1.75	82.8	36-120			

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Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

Semivolatile Organic Compounds - SIM - Quality Control

Batch BHA0516 - EPA 3546 (Microwave)

Instrument: NT8 Analyst: JZ

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BHA0516-MS1)	**Source: 19A0253-09**			Prepared: 20-Jan-2019 Analyzed: 21-Jan-2019 23:10							
Indeno(1,2,3-cd)pyrene	311	1.01	4.81	ug/kg	289	2.01	107	40-120			
Dibenzo(a,h)anthracene	278	0.86	4.81	ug/kg	289	6.28	93.9	38-120			
Benzo(g,h,i)perylene	267	1.03	4.81	ug/kg	289	2.54	91.4	38-120			
Surrogate: 2-Methylnaphthalene-d10	85.5			ug/kg	*144*	*89.6*	*59.2*	*32-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	143			ug/kg	*144*	*142*	*99.1*	*21-133*			
Surrogate: Fluoranthene-d10	109			ug/kg	*144*	*111*	*75.8*	*36-134*			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BHA0516-MSD1)	**Source: 19A0253-09**			Prepared: 20-Jan-2019 Analyzed: 21-Jan-2019 23:36							
Naphthalene	165	1.22	4.80	ug/kg	288	ND	57.3	36-120	1.83	30	
2-Methylnaphthalene	177	1.06	4.80	ug/kg	288	ND	61.5	35-120	1.77	30	
1-Methylnaphthalene	175	0.39	4.80	ug/kg	288	0.55	60.4	39-120	1.76	30	
Acenaphthylene	191	1.04	4.80	ug/kg	288	ND	66.4	35-120	1.69	30	
Acenaphthene	181	0.55	4.80	ug/kg	288	ND	62.7	39-120	4.22	30	
Dibenzofuran	186	1.32	4.80	ug/kg	288	ND	64.6	38-120	3.43	30	
Fluorene	201	0.61	4.80	ug/kg	288	ND	69.8	41-120	3.14	30	
Phenanthrene	219	0.69	4.80	ug/kg	288	1.75	75.5	46-120	0.65	30	
Anthracene	220	0.84	4.80	ug/kg	288	ND	76.5	36-120	1.20	30	
Fluoranthene	243	0.45	4.80	ug/kg	288	3.15	83.3	46-120	3.17	30	
Pyrene	230	0.60	4.80	ug/kg	288	2.57	78.9	49-120	1.36	30	
Benzo(a)anthracene	251	0.79	4.80	ug/kg	288	1.22	86.8	42-120	2.42	30	
Chrysene	241	1.01	4.80	ug/kg	288	2.98	82.6	48-120	3.81	30	
Benzo(b)fluoranthene	234	1.32	4.80	ug/kg	288	2.47	80.4	35-127	0.50	30	
Benzo(k)fluoranthene	227	0.73	4.80	ug/kg	288	1.15	78.2	37-129	0.56	30	
Benzo(j)fluoranthene	236	0.65	4.80	ug/kg	288	0.98	81.6	40-120	0.97	30	
Benzofluoranthenes, Total	700	2.89	9.60	ug/kg	864	4.74	80.4	46-120	0.95	30	
Benzo(a)pyrene	242	0.59	4.80	ug/kg	288	1.75	83.6	36-120	0.66	30	
Indeno(1,2,3-cd)pyrene	318	1.01	4.80	ug/kg	288	2.01	110	40-120	2.21	30	
Dibenzo(a,h)anthracene	283	0.86	4.80	ug/kg	288	6.28	96.0	38-120	1.89	30	
Benzo(g,h,i)perylene	271	1.02	4.80	ug/kg	288	2.54	93.0	38-120	1.44	30	
Surrogate: 2-Methylnaphthalene-d10	84.2			ug/kg	*144*	*89.6*	*58.5*	*32-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	142			ug/kg	*144*	*142*	*98.4*	*21-133*			
Surrogate: Fluoranthene-d10	112			ug/kg	*144*	*111*	*77.7*	*36-134*			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

Metals and Metallic Compounds - Quality Control

Batch BHA0531 - SMM EPA 7471B

Instrument: CVAA Analyst: SKM

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BHA0531-BLK1)			Prepared: 21-Jan-2019 Analyzed: 22-Jan-2019 13:08							
Mercury	ND	0.0250	mg/kg							U
LCS (BHA0531-BS1)			Prepared: 21-Jan-2019 Analyzed: 22-Jan-2019 13:10							
Mercury	0.459	0.0250	mg/kg	0.500		91.9	80-120			
Duplicate (BHA0531-DUP1)	**Source: 19A0253-01**		Prepared: 21-Jan-2019 Analyzed: 22-Jan-2019 13:15							
Mercury	0.0875	0.0255	mg/kg		0.114			26.70	20	*
Matrix Spike (BHA0531-MS1)	**Source: 19A0253-01**		Prepared: 21-Jan-2019 Analyzed: 22-Jan-2019 13:17							
Mercury	0.447	0.0262	mg/kg	0.262	0.114	127	75-125			*

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

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Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

Certified Analyses included in this Report

Analyte	Certifications
EPA 6010C in Solid	
Silver	NELAP,WADOE,DoD-ELAP
Arsenic	NELAP,WADOE,DoD-ELAP,ADEC
Barium	NELAP,WADOE,ADEC,DoD-ELAP
Cadmium	NELAP,WADOE,DoD-ELAP,ADEC
Chromium	NELAP,WADOE,DoD-ELAP,ADEC
Lead	NELAP,WADOE,DoD-ELAP,ADEC
Selenium	NELAP,WADOE,DoD-ELAP
EPA 7471B in Solid	
Mercury	WADOE,NELAP,DoD-ELAP,CALAP
EPA 8270D-SIM in Solid	
Naphthalene	ADEC,DoD-ELAP,NELAP,WADOE
2-Methylnaphthalene	ADEC,DoD-ELAP,NELAP
1-Methylnaphthalene	ADEC,DoD-ELAP,NELAP,WADOE
Biphenyl	ADEC,DoD-ELAP,NELAP
2,6-Dimethylnaphthalene	ADEC,WADOE
Acenaphthylene	ADEC,DoD-ELAP,NELAP,WADOE
Acenaphthene	ADEC,DoD-ELAP,NELAP,WADOE
Dibenzofuran	ADEC,DoD-ELAP,NELAP
Fluorene	ADEC,DoD-ELAP,NELAP,WADOE
Phenanthrene	ADEC,DoD-ELAP,NELAP,WADOE
Anthracene	ADEC,DoD-ELAP,NELAP,WADOE
Carbazole	ADEC,DoD-ELAP,NELAP
1-Methylphenanthrene	ADEC
Fluoranthene	ADEC,DoD-ELAP,NELAP,WADOE
Pyrene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(a)anthracene	ADEC,DoD-ELAP,NELAP,WADOE
Chrysene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(b)fluoranthene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(k)fluoranthene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(j)fluoranthene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(e)pyrene	ADEC,NELAP
Benzo(a)pyrene	ADEC,DoD-ELAP,NELAP,WADOE
Perylene	ADEC,NELAP
Indeno(1,2,3-cd)pyrene	ADEC,DoD-ELAP,NELAP,WADOE
Dibenzo(a,h)anthracene	ADEC,DoD-ELAP

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Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

Benzo(g,h,i)perylene ADEC,DoD-ELAP,NELAP,WADOE

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	02/07/2019
CALAP	California Department of Public Health CAELAP	2748	06/30/2019
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	01/01/2021
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-011	05/12/2019
WADOE	WA Dept of Ecology	C558	06/30/2019
WA-DW	Ecology - Drinking Water	C558	06/30/2019

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Eco Compliance Corporation	Project: Duwamish Park	
1823 Bremerton Avenue NE	Project Number: [none]	**Reported:**
Renton WA, 98059	Project Manager: Bill Kane	23-Jan-2019 14:33

Notes and Definitions

*	Flagged value is not within established control limits.
D	The reported value is from a dilution
J	Estimated concentration value detected below the reporting limit.
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

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Items for Project Manager Review

LabNumber	Analysis	Analyte	Exception
19A0253-01	Met 6010C - Ag		Status is Analyzed
	Met 6010C - As		Status is Analyzed
	Met 6010C - Ba		Status is Analyzed
	Met 6010C - Cd		Status is Analyzed
	Met 6010C - Cr		Status is Analyzed
	Met 6010C - Pb		Status is Analyzed
	Met 6010C - Se		Status is Analyzed
	Metals Prep ICP		Status is Available

Items for Project Manager Review

LabNumber	Analysis	Analyte	Exception
19A0253-02	Met 6010C - Ag		Status is Analyzed
	Met 6010C - As		Status is Analyzed
	Met 6010C - Ba		Status is Analyzed
	Met 6010C - Cd		Status is Analyzed
	Met 6010C - Cr		Status is Analyzed
	Met 6010C - Pb		Status is Analyzed
	Met 6010C - Se		Status is Analyzed
	Metals Prep ICP		Status is Available

Items for Project Manager Review

LabNumber	Analysis	Analyte	Exception
19A0253-03	Met 6010C - Ag		Status is Analyzed
	Met 6010C - As		Status is Analyzed
	Met 6010C - Ba		Status is Analyzed
	Met 6010C - Cd		Status is Analyzed
	Met 6010C - Cr		Status is Analyzed
	Met 6010C - Pb		Status is Analyzed
	Met 6010C - Se		Status is Analyzed
	Metals Prep ICP		Status is Available

Items for Project Manager Review

LabNumber	Analysis	Analyte	Exception
19A0253-04	Met 6010C - Ag		Status is Analyzed
	Met 6010C - As		Status is Analyzed
	Met 6010C - Ba		Status is Analyzed
	Met 6010C - Cd		Status is Analyzed
	Met 6010C - Cr		Status is Analyzed
	Met 6010C - Pb		Status is Analyzed
	Met 6010C - Se		Status is Analyzed
	Metals Prep ICP		Status is Available

Items for Project Manager Review

LabNumber	Analysis	Analyte	Exception
19A0253-05	Met 6010C - Ag		Status is Analyzed
	Met 6010C - As		Status is Analyzed
	Met 6010C - Ba		Status is Analyzed
	Met 6010C - Cd		Status is Analyzed
	Met 6010C - Cr		Status is Analyzed
	Met 6010C - Pb		Status is Analyzed
	Met 6010C - Se		Status is Analyzed
	Metals Prep ICP		Status is Available

Items for Project Manager Review

LabNumber	Analysis	Analyte	Exception
19A0253-06	Met 6010C - Ag		Status is Analyzed
	Met 6010C - As		Status is Analyzed
	Met 6010C - Ba		Status is Analyzed
	Met 6010C - Cd		Status is Analyzed
	Met 6010C - Cr		Status is Analyzed
	Met 6010C - Pb		Status is Analyzed
	Met 6010C - Se		Status is Analyzed
	Metals Prep ICP		Status is Available

Items for Project Manager Review

LabNumber	Analysis	Analyte	Exception
19A0253-07	Met 6010C - Ag		Status is Analyzed
	Met 6010C - As		Status is Analyzed
	Met 6010C - Ba		Status is Analyzed
	Met 6010C - Cd		Status is Analyzed
	Met 6010C - Cr		Status is Analyzed
	Met 6010C - Pb		Status is Analyzed
	Met 6010C - Se		Status is Analyzed
	Metals Prep ICP		Status is Available

Items for Project Manager Review

LabNumber	Analysis	Analyte	Exception
19A0253-08	Met 6010C - Ag		Status is Analyzed
	Met 6010C - As		Status is Analyzed
	Met 6010C - Ba		Status is Analyzed
	Met 6010C - Cd		Status is Analyzed
	Met 6010C - Cr		Status is Analyzed
	Met 6010C - Pb		Status is Analyzed
	Met 6010C - Se		Status is Analyzed
	Metals Prep ICP		Status is Available

Items for Project Manager Review

LabNumber	Analysis	Analyte	Exception
19A0253-09	Met 6010C - Ag		Status is Analyzed
	Met 6010C - As		Status is Analyzed
	Met 6010C - Ba		Status is Analyzed
	Met 6010C - Cd		Status is Analyzed
	Met 6010C - Cr		Status is Analyzed
	Met 6010C - Pb		Status is Analyzed
	Met 6010C - Se		Status is Analyzed
	Metals Prep ICP		Status is Available

Items for Project Manager Review

LabNumber	Analysis	Analyte	Exception
19A0253-10	Met 6010C - Ag		Status is Analyzed
	Met 6010C - As		Status is Analyzed
	Met 6010C - Ba		Status is Analyzed
	Met 6010C - Cd		Status is Analyzed
	Met 6010C - Cr		Status is Analyzed
	Met 6010C - Pb		Status is Analyzed
	Met 6010C - Se		Status is Analyzed
	Metals Prep ICP		Status is Available

Items for Project Manager Review

LabNumber	Analysis	Analyte	Exception
19A0253-11	Met 6010C - Ag		Status is Analyzed
	Met 6010C - As		Status is Analyzed
	Met 6010C - Ba		Status is Analyzed
	Met 6010C - Cd		Status is Analyzed
	Met 6010C - Cr		Status is Analyzed
	Met 6010C - Pb		Status is Analyzed
	Met 6010C - Se		Status is Analyzed
	Metals Prep ICP		Status is Available

Items for Project Manager Review

LabNumber	Analysis	Analyte	Exception
19A0253-12	Met 6010C - Ag		Status is Analyzed
	Met 6010C - As		Status is Analyzed
	Met 6010C - Ba		Status is Analyzed
	Met 6010C - Cd		Status is Analyzed
	Met 6010C - Cr		Status is Analyzed
	Met 6010C - Pb		Status is Analyzed
	Met 6010C - Se		Status is Analyzed
	Metals Prep ICP		Status is Available

Items for Project Manager Review

LabNumber	Analysis	Analyte	Exception
19A0253-13	Met 6010C - Ag		Status is Analyzed
	Met 6010C - As		Status is Analyzed
	Met 6010C - Ba		Status is Analyzed
	Met 6010C - Cd		Status is Analyzed
	Met 6010C - Cr		Status is Analyzed
	Met 6010C - Pb		Status is Analyzed
	Met 6010C - Se		Status is Analyzed
	Metals Prep ICP		Status is Available

Items for Project Manager Review

LabNumber	Analysis	Analyte	Exception
19A0253-14	Met 6010C - Ag		Status is Analyzed
	Met 6010C - As		Status is Analyzed
	Met 6010C - Ba		Status is Analyzed
	Met 6010C - Cd		Status is Analyzed
	Met 6010C - Cr		Status is Analyzed
	Met 6010C - Pb		Status is Analyzed
	Met 6010C - Se		Status is Analyzed
	Metals Prep ICP		Status is Available

Items for Project Manager Review

	Analysis	Matrix	Definition
Analysis Definitions	8270D-SIM PAH (0.1 ug/L or 5 u	(Solid)	B-Flags used
	8270D-SIM PAH (0.1 ug/L or 5 u	(Water)	B-Flags used
	8270D-SIM PAH (0.1 ug/L or 5 u	(Solid)	D-Flags used
	8270D-SIM PAH (0.1 ug/L or 5 u	(Water)	D-Flags used
	8270D-SIM PAH (0.1 ug/L or 5 u	(Solid)	J-Flags used
	8270D-SIM PAH (0.1 ug/L or 5 u	(Water)	J-Flags used
	8270D-SIM PAH (0.1 ug/L or 5 u	(Solid)	Result calculations based on MDL
	8270D-SIM PAH (0.1 ug/L or 5 u	(Water)	Result calculations based on MDL
	8270D-SIM PAH (0.1 ug/L or 5 u	(Solid)	U-Flags used
	8270D-SIM PAH (0.1 ug/L or 5 u	(Water)	U-Flags used
	Met 6010C - Ag	(Solid)	B-Flags used
	Met 6010C - Ag	(Solid)	D-Flags used
	Met 6010C - Ag	(Solid)	J-Flags used
	Met 6010C - Ag	(Solid)	Result calculations based on MDL
	Met 6010C - Ag	(Solid)	U-Flags used
	Met 6010C - As	(Solid)	B-Flags used
	Met 6010C - As	(Solid)	D-Flags used
	Met 6010C - As	(Solid)	J-Flags used
	Met 6010C - As	(Solid)	Result calculations based on MDL
	Met 6010C - As	(Solid)	U-Flags used
	Met 6010C - Ba	(Solid)	B-Flags used
	Met 6010C - Ba	(Solid)	D-Flags used
	Met 6010C - Ba	(Solid)	J-Flags used
	Met 6010C - Ba	(Solid)	Result calculations based on MDL
	Met 6010C - Ba	(Solid)	U-Flags used
	Met 6010C - Cd	(Solid)	B-Flags used
	Met 6010C - Cd	(Solid)	D-Flags used
	Met 6010C - Cd	(Solid)	J-Flags used
	Met 6010C - Cd	(Solid)	Result calculations based on MDL
	Met 6010C - Cd	(Solid)	U-Flags used
	Met 6010C - Cr	(Solid)	B-Flags used
	Met 6010C - Cr	(Solid)	D-Flags used
	Met 6010C - Cr	(Solid)	J-Flags used
	Met 6010C - Cr	(Solid)	Result calculations based on MDL
	Met 6010C - Cr	(Solid)	U-Flags used
	Met 6010C - Pb	(Solid)	B-Flags used
	Met 6010C - Pb	(Solid)	D-Flags used
	Met 6010C - Pb	(Solid)	J-Flags used
	Met 6010C - Pb	(Solid)	Result calculations based on MDL
	Met 6010C - Pb	(Solid)	U-Flags used
	Met 6010C - Se	(Solid)	B-Flags used
	Met 6010C - Se	(Solid)	D-Flags used
	Met 6010C - Se	(Solid)	J-Flags used

Items for Project Manager Review

	Analysis	Matrix	Definition
Analysis Definitions	Met 6010C - Se	(Solid)	Result calculations based on MDL
	Met 6010C - Se	(Solid)	U-Flags used
	Met 7471B Hg	(Solid)	B-Flags used
	Met 7471B Hg	(Solid)	D-Flags used
	Met 7471B Hg	(Solid)	U-Flags used
	Solids, Total, Dried at 103 -105 °	(Solid)	D-Flags used
	Solids, Total, Dried at 103 -105 °	(Solid)	Result calculations based on MDL
	Solids, Total, Dried at 103 -105 °	(Solid)	U-Flags used
	Solids, Total, Metals Correction	(Solid)	B-Flags used
	Solids, Total, Metals Correction	(Solid)	D-Flags used
	Solids, Total, Metals Correction	(Solid)	U-Flags used
	Solids, Total, PSEP (Extractions)	(Solid)	D-Flags used
	Solids, Total, PSEP (Extractions)	(Solid)	U-Flags used

Items for Project Manager Review

LabNumber	Analysis	Analyte	Exception
BHA0531-DUP1	Met 7471B Hg	Mercury	*: Flagged value is not within established control limits.
	Met 7471B Hg	Mercury	Exceeds RPD control limit

Items for Project Manager Review

LabNumber	Analysis	Analyte	Exception
BHA0531-MS1	Met 7471B Hg	Mercury	*: Flagged value is not within established control limits.
	Met 7471B Hg	Mercury	Exceeds upper control limit

Eco
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March 1, 2019

Ms. Lise Ward
Seattle Parks and Recreation
800 Maynard Avenue South, 3rd Floor
Seattle, Washington 98134

Re: Soil sample results for Duwamish Waterway Park, Seattle.

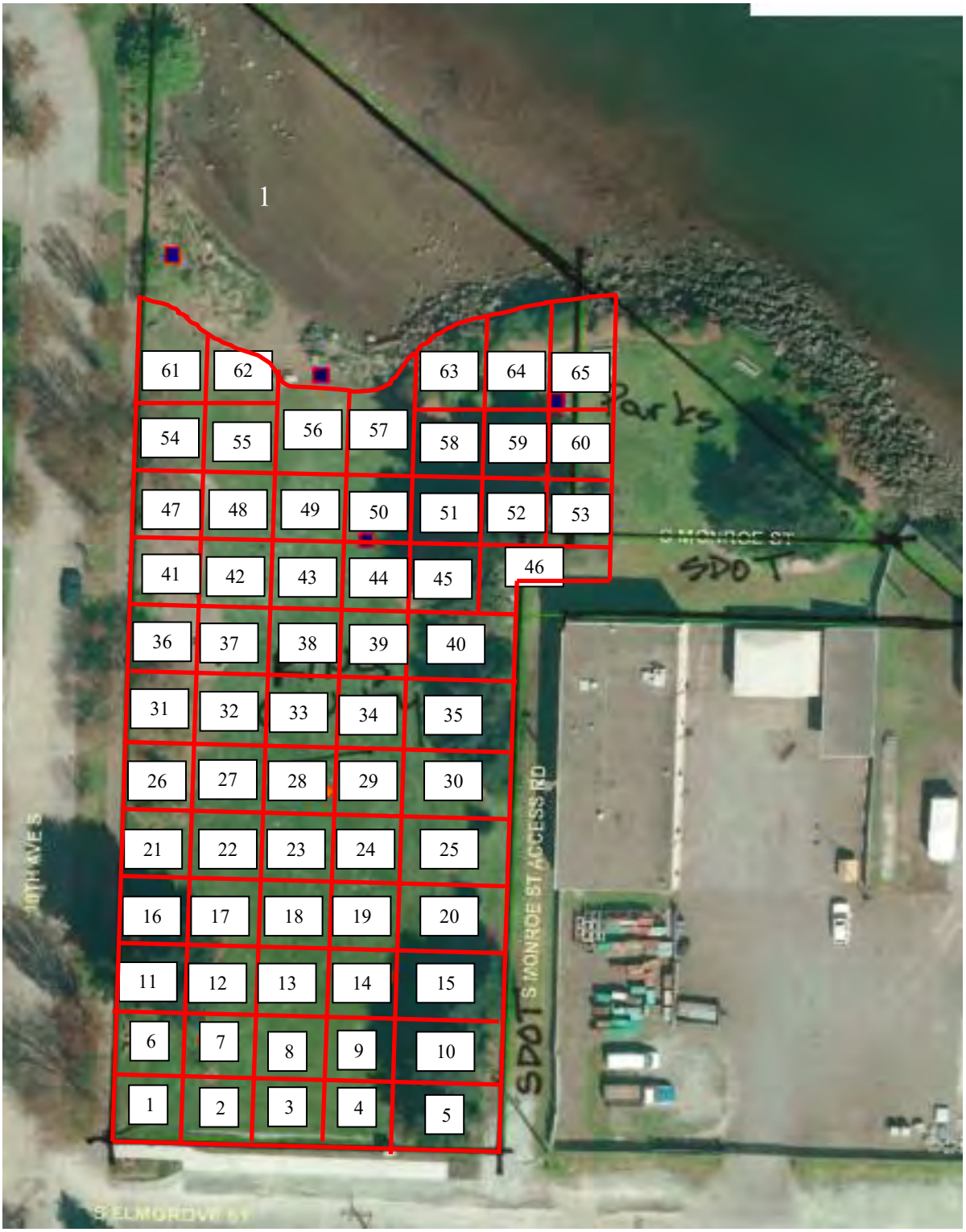
Dear Lise:

From our soil sampling report dated July 20, 2014, 3 samples were collected from the subject Duwamish Waterway Park property from the upper approximate 3 inches of grass/soil. Each sample was a composite of soil from 3 random locations. All samples were analyzed for RCRA (Resource Conservation and Recovery Act) metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver). From these samples, arsenic was detected in 2 of the 3 locations at concentrations that are above the Washington State Department of Ecology's (Ecology's) MTCA (Model Toxics Control Act) cleanup standard based on unrestricted (residential) land use.

In January, 2019, 4 borings were drilled along the northern portion of the subject park to depths of 10 feet below grade. In addition, 3 hand borings were dug along the southern portion of the property to depths of 2.5 feet below grade. Two soil samples were collected from each boring location (14 samples total). All samples were analyzed for PAHs and RCRA metals. From these samples, arsenic and lead were detected in one boring at 3 – 4 feet below grade at concentrations that are above Ecology's cleanup standards (report dated January 30, 2019). Arsenic was also detected in one hand boring at 2 – 2.5 feet below grade at a concentration that is above Ecology's cleanup standard.

To help better-define the locations and depths of arsenic contamination at the park, the property was divided into 65 grids (grid numbers 1 through 65) (Figure 1). Beginning on Thursday, February 21, 2019, one soil sample was collected from each grid (65 samples total). Each sample was a composite of soil from 3 random locations within each grid. Each sample was collected at depths of approximately 1 – 6 inches below grade. In addition, 12 samples were collected from discrete random locations at depths of approximately 7 – 12 inches below grade. All samples were analyzed for arsenic content. Soil analytical results are attached and summarized below in Table 1.

Figure 1. Soil sampling grids. Duwamish Waterway Park, Seattle. January, 2019.



N

Not to scale

(425) 271-5629

Table 1. Soil sampling results. Duwamish Waterway Park, Seattle. February, 2019.

Grid	Grid Size (feet)	Grid Characteristics	Sample Number	Sample Depth (inches)	Analytical Result (ppm)	MTCA Cleanup Standard (ppm)
1	25-by-25	Grass field	1	1 - 6	10.1 arsenic	20 arsenic
2	25-by-25	Grass field	2	1 - 6	5.08 arsenic	20 arsenic
3	25-by-25	Grass field	3	1 - 6	5.22 arsenic	20 arsenic
4	25-by-25	Grass field	4	1 - 6	5.05 arsenic	20 arsenic
4	25-by-25	Grass field	4A	7 - 12	11.4 arsenic	20 arsenic
5	25-by-38	Trees	5	1 - 6	11.7 arsenic	20 arsenic
6	25-by-25	Grass field	6	1 - 6	6.56 arsenic	20 arsenic
6	25-by-25	Grass field	6A	7 - 12	6.3 arsenic	20 arsenic
7	25-by-25	Grass field	7	1 - 6	6.54 arsenic	20 arsenic
8	25-by-25	Grass field	8	1 - 6	7.19 arsenic	20 arsenic
9	25-by-25	Grass field	9	1 - 6	6.78 arsenic	20 arsenic
10	25-by-38	Trees	10	1 - 6	7.12 arsenic	20 arsenic
11	25-by-25	Trees	11	1 - 6	3.83 arsenic	20 arsenic
12	25-by-25	Grass field	12	1 - 6	7.32 arsenic	20 arsenic
13	25-by-25	Grass field	13	1 - 6	8.56 arsenic	20 arsenic
14	25-by-25	Grass field	14	1 - 6	6.53 arsenic	20 arsenic
15	25-by-38	Trees	15	1 - 6	6.04 arsenic	20 arsenic
15	25-by-25	Trees	15A	7 - 12	13.1 arsenic	20 arsenic
16	25-by-25	Grass and trees	16	1 - 6	5.22 arsenic	20 arsenic
17	25-by-25	Grass field	17	1 - 6	6.12 arsenic	20 arsenic
18	25-by-25	Grass field	18	1 - 6	7.47 arsenic	20 arsenic
18	25-by-25	Grass field	18A	7 - 12	7.22 arsenic	20 arsenic
19	25-by-25	Grass field	19	1 - 6	7.39 arsenic	20 arsenic
20	25-by-38	Grass and trees	20	1 - 6	7.37 arsenic	20 arsenic
21	25-by-25	Grass and trees	21	1 - 6	5.36 arsenic	20 arsenic
22	25-by-25	Grass field	22	1 - 6	7.81 arsenic	20 arsenic
23	25-by-25	Grass field	23	1 - 6	9.47 arsenic	20 arsenic
24	25-by-25	Grass field	24	1 - 6	9.19 arsenic	20 arsenic
25	25-by-38	Grass and trees	25	1 - 6	7.42 arsenic	20 arsenic
25	25-by-38	Grass and trees	25A	7 - 12	8.18 arsenic	20 arsenic
26	25-by-25	Trees	26	1 - 6	7.67 arsenic	20 arsenic
27	25-by-25	Grass field	27	1 - 6	14 arsenic	20 arsenic
28	25-by-25	Grass field	28	1 - 6	16.8 arsenic	20 arsenic
28	25-by-25	Grass field	28A	1 - 6	15.2 arsenic	20 arsenic
29	25-by-25	Grass field	29	1 - 6	9.36 arsenic	20 arsenic
30	25-by-38	Grass and trees	30	1 - 6	7.98 arsenic	20 arsenic
31	25-by-25	Trees	31	1 - 6	6.32 arsenic	20 arsenic
31	25-by-25	Trees	31A	7 - 12	6.57 arsenic	20 arsenic
32	25-by-25	Grass field	32	1 - 6	11.9 arsenic	20 arsenic

Table 1 (continued). Soil sampling results. Duwamish Waterway Park, Seattle. February, 2019.

Grid	Grid Size (feet)	Grid Characteristics	Sample Number	Sample Depth (inches)	Analytical Result (ppm)	MTCA Cleanup Standard (ppm)
33	25-by-25	Grass field	33	1 - 6	8.99 arsenic	20 arsenic
34	25-by-25	Grass field	34	1 - 6	7.3 arsenic	20 arsenic
35	25-by-38	Grass and trees	35	1 - 6	7.69 arsenic	20 arsenic
36	25-by-25	Trees and concrete	36	1 - 6	5.86 arsenic	20 arsenic
37	25-by-25	Grass and concrete	37	1 - 6	9.12 arsenic	20 arsenic
38	25-by-25	Grass field	38	1 - 6	5.89 arsenic	20 arsenic
39	25-by-25	Grass field	39	1 - 6	6.74 arsenic	20 arsenic
39	25-by-25	Grass field	39A	7 - 12	7.96 arsenic	20 arsenic
40	25-by-38	Grass and trees	40	1 - 6	11.7 arsenic	20 arsenic
41	25-by-25	Grass and concrete	41	1 - 6	6.43 arsenic	20 arsenic
42	25-by-25	Grass field	42	1 - 6	7.83 arsenic	20 arsenic
42	25-by-25	Grass field	42A	7 - 12	7.36 arsenic	20 arsenic
43	25-by-25	Grass field	43	1 - 6	7.01 arsenic	20 arsenic
44	25-by-25	Grass field	44	1 - 6	5.91 arsenic	20 arsenic
45	25-by-25	Trees	45	1 - 6	10.2 arsenic	20 arsenic
46	10-by-50	Grass and trees	46	1 - 6	**41.7 arsenic**	**20 arsenic**
47	25-by-25	Trees	47	1 - 6	7.72 arsenic	20 arsenic
48	25-by-25	Grass field	48	1 - 6	6.81 arsenic	20 arsenic
49	25-by-25	Grass field	49	1 - 6	16.1 arsenic	20 arsenic
50	25-by-25	Grass field	50	1 - 6	4.77 arsenic	20 arsenic
51	25-by-25	Trees	51	1 - 6	15.5 arsenic	20 arsenic
52	25-by-25	Trees	52	1 - 6	**23.7 arsenic**	**20 arsenic**
52	25-by-25	Trees	52A	7 - 12	**32.6 arsenic**	**20 arsenic**
53	25-by-25	Trees	53	1 - 6	**74.4 arsenic**	**20 arsenic**
54	25-by-25	Grass and trees	54	1 - 6	6.09 arsenic	20 arsenic
55	25-by-25	Grass field	55	1 - 6	4.82 arsenic	20 arsenic
56	25-by-40	Grass field	56	1 - 6	8.51 arsenic	20 arsenic
56	25-by-40	Grass field	56A	7 - 12	4.13 arsenic	20 arsenic
57	25-by-40	Grass field	57	1 - 6	10.1 arsenic	20 arsenic
58	25-by-25	Grass and trees	58	1 - 6	**34.6 arsenic**	**20 arsenic**
59	25-by-25	Trees and concrete	59	1 - 6	**104 arsenic**	**20 arsenic**
60	25-by-25	Grass and trees	60	1 - 6	**71.3 arsenic**	**20 arsenic**
61	25-by-40	Grass field	61	1 - 6	8.25 arsenic	20 arsenic

(425) 271-5629

Table 1 (continued). Soil sampling results. Duwamish Waterway Park, Seattle. February, 2019.

Grid	Grid Size (feet)	Grid Characteristics	Sample Number	Sample Depth (inches)	Analytical Result (ppm)	MTCA Cleanup Standard (ppm)
62	25-by-20	Grass field	62	1 - 6	4.1 arsenic	20 arsenic
63	25-by-40	Trees	63	1 - 6	**25.4 arsenic**	**20 arsenic**
63	25-by-40	Trees	63A	7 - 12	12.6 arsenic	20 arsenic
64	25-by-40	Grass field	64	1 - 6	**109 arsenic**	**20 arsenic**
65	25-by-40	Grass field	65	1 - 6	**154 arsenic**	**20 arsenic**

From Table 1, arsenic was detected in grids 46, 52, 53, 58, 59, 60, 63, 64 and 65 at approximately 1 – 6 inches below grade at concentrations that are above Ecology's MTCA cleanup standard based on unrestricted (residential) land use (Figure 2).

Arsenic was also detected in grid 52 (sample 52A) at approximately 7 – 12 inches below grade at a concentration that is above the Ecology cleanup standard (see Figure 2).

Arsenic was detected in all the other grids, but at concentrations that are below the Ecology cleanup standard.

It was a pleasure assisting you with this sampling project. Please call me if you have any questions.

Sincerely,

ECO COMPLIANCE CORPORATION

Bill Kane

Bill Kane
President
bill@ecocompliance.biz

Attachment

Figure 1. Soil sampling grids with arsenic above the Ecology cleanup standard of 20 ppm. Duwamish Waterway Park, Seattle. January, 2019.

N

Not to scale

(425) 271-5629

Appendix C

SEATTLE PARKS AND RECREATION
DUWAMISH WATERWAY PARK RENOVATION

PW NO.: PR18-039
PRK NO.: 732416-34, FUNDING SOURCE - ### XXX
6 MARCH 2019

PROJECT DESCRIPTION:

WORK INCLUDES BUT IS NOT LIMITED TO: CSC, DEMOLITION, DRAINAGE, ROCKERIES, CURBS, CURB RAMPS, CONCRETE, METAL INLAYS, ADJUSTMENTS & REPAIRS TO EXISTING IRRIGATION SYSTEMS DISRUPTED BY CONSTRUCTION, FURNISHINGS, PLANTING, LAWN RESTORATION, PLAY AREA EQUIPMENT & SAFETY SURFACING. PLAY EQUIPMENT TO BE FURNISHED BY OWNER AND INSTALLED BY CONTRACTOR.

PROPERTY OWNER

SEATTLE PARKS AND RECREATION
800 MAYNARD AVENUE S.
RDA BUILDING, 3RD FLOOR
SEATTLE, WA 98134
GARRETT FARRELL
(206) 233-7921
garrett.farrell@seattle.gov

PROPERTY ADDRESS

7900 10TH AVE S, SEATTLE, WA 98106

LEGAL DESCRIPTION

RIVER PARK ADD LOTS 1 THRU 9 & 48 TGW W 9 FT OF LOTS 10 & 47 & VAC ST ADJ TGW LOTS 1 THRU 9 & 47 - 48 BLK 22 & POR VAC ST ADJ

RIVER PARK ADP LOTS 43-44-45 & 46 TGW POR VAC ST ADJ LESS CWW DIST NO 1

PARCEL NUMBER(S)

732790-1195, LOT SIZE 54,947 SF

732790-2355, LOT SIZE 5,325 SF

LANDSCAPE ARCHITECT

JOHNSON+SOUTHERLAND
3827B SOUTH EDMUNDS ST.
SEATTLE WA 98118
SCOTT BOETJER
(206) 723-8275 X227
sboetjer@johnsonsoutherland.com

CIVIL ENGINEER

SITEWISE DESIGN, PLLC.
219 1ST AVE S
SEATTLE WA 98104
STEVE HATZENBELLER
(206) 402-4644
steve@sitewisepllc.com

SHEET INDEX

1

>>>>CAUTION - CALL 811<<<<
UTILITY NOTIFICATION CENTER
BEFORE YOU DIG!
WWW.CALL811.COM

ALSO CONTRACT WITH A COMMERCIAL UNDERGROUND UTILITIES LOCATOR SERVICE TO IDENTIFY BELOW-GROUND INFRASTRUCTURE THAT MAY NOT BE LOCATED BY CALL 811 BEFORE-YOU-DIG.

100% CONSTRUCTION DOCUMENTS

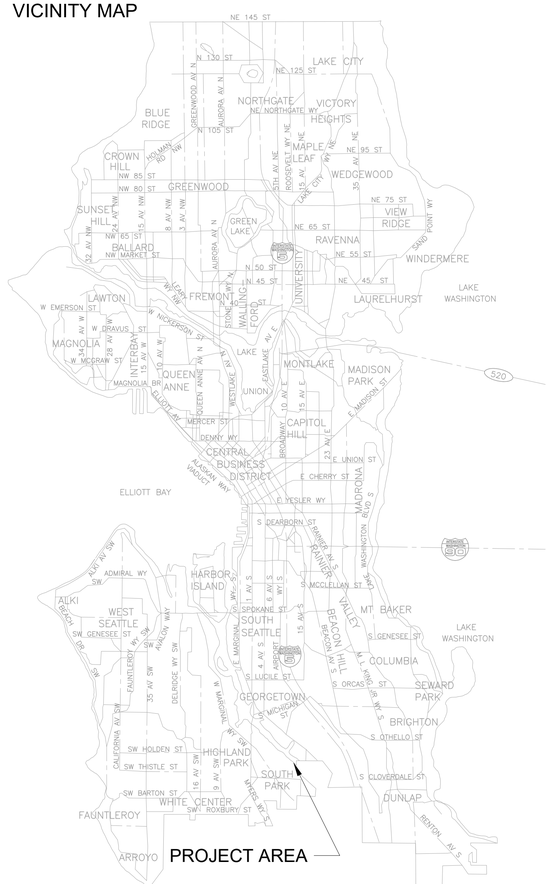
13 MAY 2019

2

DUWAMISH WATERWAY PARK

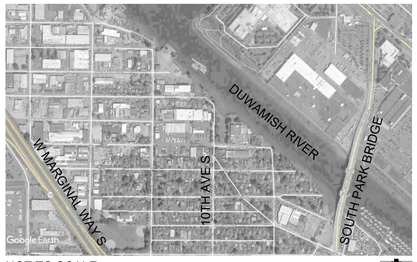
7900 10TH AVE S | SEATTLE, WA 98106

VICINITY MAP



NOT TO SCALE

LOCATION MAP



NOT TO SCALE

ABBREVIATIONS

ACP	ASPHALT CONCRETE PAVEMENT		
APPX	APPROXIMATE		
BOB	BOTTOM OF BENCH	HB	HOSE BIB
BOC	BOTTOM OF CURB	HC	HANDICAPPED ACCESSIBLE
BS	BOTTOM OF STAIR	HT	HEIGHT
BW	BOTTOM OF WALL	LP	LOW POINT
CL	CENTER LINE	LPL	LIGHT POLE
CB	CATCH BASIN	MAX	MAXIMUM
CDF	CONTROLLED DENSITY FILL	MH	MANHOLE
CIP	CAST IN PLACE	MIN	MINIMUM
CJ	CONTROL JOINT	N/E	NORTHING & EASTING
CLR	CLEAR	NTS	NOT TO SCALE
CONC	CONCRETE	OC	ON CENTER
CONT	CONTINUOUS	OHW	ORDINARY HIGH WATER MARK
CR	CRUSHED ROCK	PL	PROPERTY LINE
CRZ	CRITICAL ROOT ZONE	QTY	QUANTITY
CTR	CENTER	R	RADIUS
DET	DETAIL	RP	REFERENCE POINT
DIA	DIAMETER	REQ	REQUIRED
DIM	DIMENSION	RET	RETAINING
DWG	DRAWING	SF	SQUARE FEET
EJ	EXPANSION JOINT	TOB	TOP OF BANK
EL	ELEVATION	TOC	TOP OF CURB
ELEC	ELECTRICAL	TOE	TOP OF EWF
EQ	EQUAL	TW	TOP OF WALL
EWF	ENGINEERED WOOD FIBER	TYP	TYPICAL
EXST	EXISTING	V	VAULT
FG	FINISHED GRADE	W/	WITH
FOIC	FURNISHED BY OWNER, INSTALLED BY CONTRACTER	W/O	WITHOUT
		WWM	WELDED WIRE MESH
FS	FINISHED SURFACE		

GENERAL NOTES

1. ALL WORK SHALL CONFORM WITH MOST CURRENT APPLICABLE CODES AND LOCAL BUILDING JURISDICTION REQUIREMENTS.
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS SHOWN ON DRAWINGS PRIOR TO COMMENCEMENT OF WORK. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO STARTING ANY WORK IN THE AREA OF CONCERN. DO NOT SCALE DRAWINGS.
3. WHERE ON ANY OF THE DRAWINGS OR DETAILS, A PORTION OF THE WORK IS SHOWN AND/OR DETAILED AND THE REMAINDER IS INDICATED IN OUTLINE, THE PARTS SHOWN AND/OR DETAILED SHALL APPLY TO ALL OTHER PORTIONS OF THE WORK.
4. PRIOR TO AND DURING THE WORK, CONTRACTOR SHALL VERIFY EXISTING CONDITIONS. ANY CONDITIONS INCONSISTENT OR PROBLEMATIC WITH REGARD TO THE INTENT OF THE DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO COMMENCEMENT OR CONTINUING THE WORK.
5. COORDINATE ALL OPERATIONS WITH ENGINEER INCLUDING AREAS USED FOR STORAGE, ACCESS TO AND FROM SITE, TIMING OF WORK, CONSIDERATION OF SPECIAL REQUIREMENTS INCLUDING NOISE ORDINANCE, FUMES, ETC. INSTALL DUST AND NOISE BARRIERS AS REQUIRED TO PROTECT EXISTING ADJACENT AREAS OR BUILDINGS. MAINTAIN ENVIRONMENT SUITABLE TO PERMIT CONTINUED OCCUPANCIES IN ADJACENT AREAS OR BUILDINGS.
6. ADA COMPLIANCE: PROJECT TO COMPLY WITH 2010 ADA STANDARDS, CITY OF SEATTLE STANDARDS AND STATE OF WASHINGTON STANDARDS. WHERE STANDARDS DIFFER OR ARE IN CONFLICT, MOST STRINGENT REQUIREMENT TO GOVERN.

SHORELINE EXEMPTION NOTES

CONDITIONS OF EXEMPTION APPROVAL	RESPONSE
APPROPRIATE BMPS SHALL BE EMPLOYED TO MINIMIZE THE AMOUNT OF EROSION AT THE SHORELINE CAUSED BY CONSTRUCTION MATERIAL STORAGE AND STAGING AND THE PROPOSED CONSTRUCTION WORK.	NO MATERIAL STORAGE OR STAGING ALLOWED WITHIN 200-FOOT SHORELINE SETBACK. SEE C2.0 CSC PLAN FOR ADDITIONAL BMPS.
DEBRIS THAT ENTERS THE WATER DURING CONSTRUCTION SHALL BE COLLECTED AND DISPOSED OF AT THE APPROPRIATE UPLAND FACILITY.	NOTED
BUILDING PERMIT PLANS SHALL INCLUDE CALCULATIONS FOR EXISTING AND PROPOSED IMPERVIOUS SURFACE AREA WITHIN SHORELINE DISTRICT.	SEE "SUMMARY OF IMPACTS & MITIGATION" ON L4.0 PLANTING PLAN AND C4.0 AND C4.1 OSSM PLANS.
APPROPRIATE BEST MANAGEMENT PRACTICES (BMPS) SHALL BE EMPLOYED TO PREVENT DELETERIOUS MATERIAL FROM ENTERING AQUATIC HABITAT DURING THE PROPOSED WORK.	NOTED
ANY CHANGES TO VEGETATION SHALL BE CONSISTENT WITH STANDARDS IN SMC 23.60A.190.	NOTED
BUILDING PERMIT PLANS SHALL SHOW HABITAT MITIGATION/LANDSCAPE PLAN THAT INCLUDES DETAILS OF LOCATION, SIZE, QUANTITY AND SPECIES OF PLANTS PROPOSED AS MITIGATION FOR INCREASE IN IMPERVIOUS SURFACE AREA WITHIN SHORELINE HABITAT BUFFER.	SEE L4.0 PLANTING PLAN.

3

APPROVED FOR ADVERTISING:
Liz Alzeer
Purchasing & Contracting Services Division

Seattle, Washington _____ 20____
Date

Signature: _____
Director, Purchasing & Contracting Services Division

NO.	REVISION – AS BUILT	DATE
3	3 PERMIT REVISIONS	01/10/20
2	2 PERMIT REVISIONS	10/16/19
1	1 PERMIT REVISIONS	7/18/19

REVIEWED: _____ _____
PARK ENGINEER DATE

All work done in accordance with the City of Seattle Standard Plans and Specifications in effect on the date shown above, and supplemented by Special Provisions.

JOHNSON SOUTHERLAND
3827B South Edmunds St. Ph. 206-723-8275
Seattle, WA 98118 Fax 206-723-0392

STATE OF WASHINGTON
REGISTERED
LANDSCAPE ARCHITECT
MARGARET E JOHNSON
CERTIFICATE NO. 426

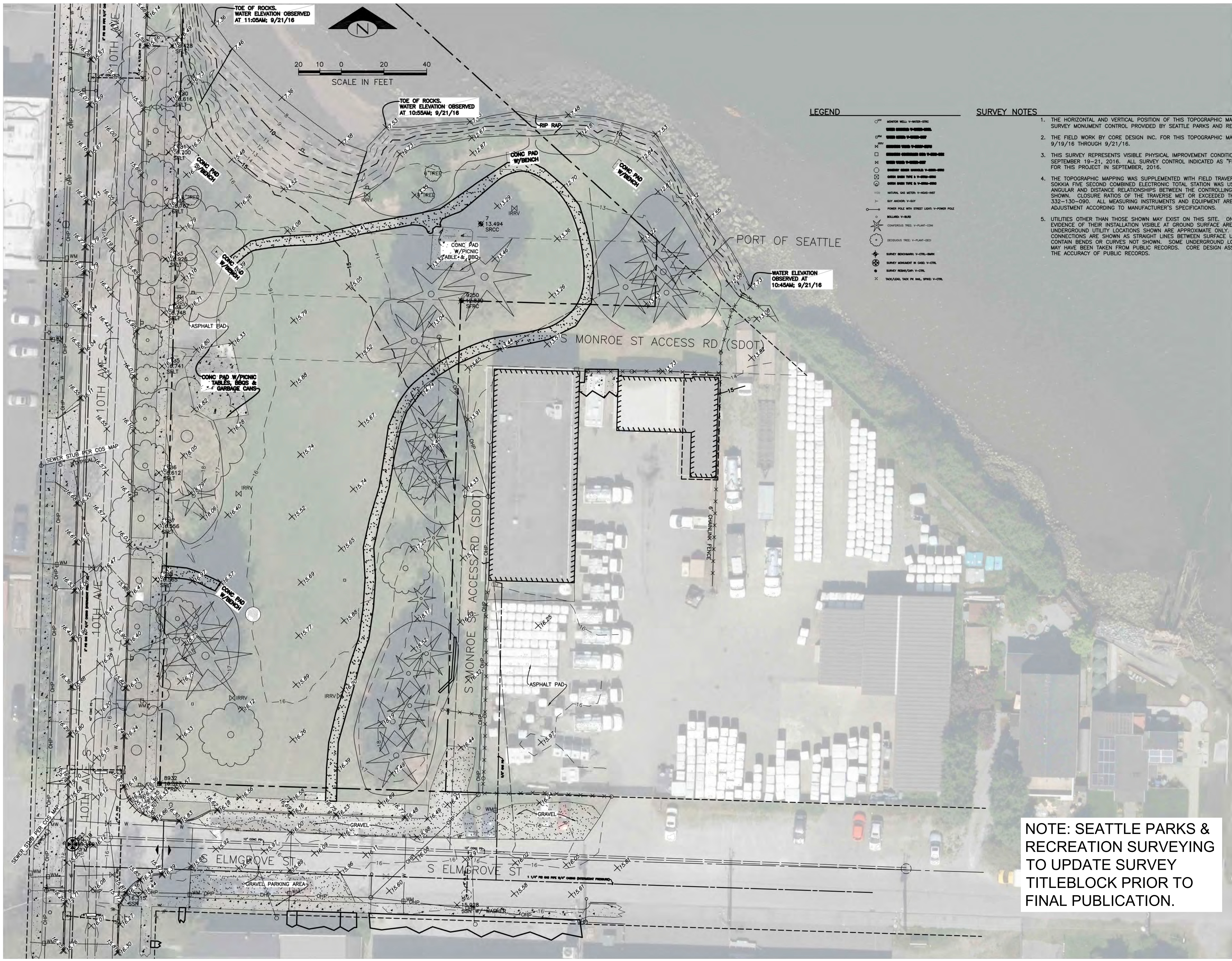
Seattle Parks & Recreation

DUWAMISH WATERWAY PARK
7900 10TH AVE SOUTH, SEATTLE, WA 98106

RENOVATION

COVER SHEET

DESIGNED MJ	DATE 13 MAY 2019
DRAWN SB	
CHECKED MJ	SHEET 1 OF 18
ORDINANCE NO. ######/######	**T1.0**
CONTRACT NO. ####	
SCALE NTS	



>>>>CAUTION - CALL 811<<<<
UTILITY NOTIFICATION CENTER BEFORE YOU DIG!
WWW.CALLBEFOREYOUDIG.ORG

NOT LESS THAN **2** OR MORE THAN **10** BUSINESS DAYS PRIOR TO COMMENCING EXCAVATION OR DEMOLITION, SECURE THE SERVICES OF A COMMERCIAL UNDERGROUND UTILITIES LOCATOR SERVICE TO IDENTIFY BELOW-GROUND IMPROVEMENTS THAT MAY NOT BE INDICATED ON THE DRAWINGS. ADDITIONALLY, TO REQUEST ON-SITE UNDERGROUND UTILITY SYSTEMS LOCATES, CALL **SPR INSPECTION REQUEST LINE @ (206) 684-7034.** REFER TO SECTIONS 02100 & 02120 OF THE SPECIFICATIONS FOR INSTRUCTIONS ON HOW TO PROCEED.

NO.	REVISION — AS BUILT	DATE
3	3 PERMIT REVISIONS (THIS SHEET ADDED)	01/10/20
2		
1		

REVIEWED:
PARK ENGINEER — DATE

All work done in accordance with the City of Seattle Standard Plans and Specifications in effect on the date shown above, and supplemented by Special Provisions.

SEATTLE PARKS AND RECREATION

THOMAS S. BARGER, JR. — STATE OF WASHINGTON — REGISTERED PROFESSIONAL LAND SURVEYOR — 35144 — PRELIMINARY

DUWAMISH WATERWAY PARK

PROJECT NAME

EXISTING CONDITIONS

FIELD CREW: CORE Design/SPR
DRAWN: CORE Design/SPR
CHECKED: DAP/TSB
DATE: 3/24/2017
SHEET X OF X
ORDINANCE NO. -
CONTRACT NO. -
Sht. No.
SCALE 1" = 20'
PARK'S FILE NUMBER FOR PARK USE ONLY

3

GENERAL SITE IMPROVEMENT NOTES

1. SEE PROJECT MANUAL (SPECIFICATIONS).
2. CONTRACTOR TO COORDINATE UTILITY LOCATES FROM SEATTLE PARKS & RECREATION DEPARTMENT SHOPS AND 811 DIAL A DIG FOR ALL AREAS RECEIVING WORK PRIOR TO MOBILIZATION.
3. PRIOR TO MOBILIZATION, MEET ON-SITE WITH THE ENGINEER FOR A PRE-CONSTRUCTION MEETING AND TO SCHEDULE CONSTRUCTION OBSERVATION DATES BY ENGINEER, PARKS ARBORIST, AND LANDSCAPE ARCHITECT.
4. ENCLOSE CONSTRUCTION ACTIVITIES USING TEMPORARY CONSTRUCTION FENCE AS SHOWN ON DRAWINGS OR AS APPROVED BY ENGINEER.
5. KEEP WALKWAYS CLEAR AND FREE OF DEBRIS. VEGETATED AND PAVED SURFACES THAT ARE DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER AT NO COST TO THE OWNER.
6. PROTECT EXISTING TREES, VEGETATION, IRRIGATION, LAWN, PAVING, FURNISHINGS AND ELEMENTS INDICATED TO REMAIN. ALL FEATURES SHOWN ARE TO REMAIN EXCEPT AS CALLED OUT FOR DEMOLITION AND SALVAGE.
7. CONTRACTOR TO REPLACE IN KIND ANY TREES, VEGETATION, IRRIGATION, LAWN, PAVING, FURNISHINGS AND ELEMENTS TO REMAIN WITHIN AND OUTSIDE THE LIMITS OF WORK DAMAGED BY CONSTRUCTION ACTIVITIES, OR BY CONSTRUCTION RELATED ACTIVITIES SUCH AS EQUIPMENT ACCESS, MATERIALS STORAGE, OR WORKER TRAFFIC.
8. AREAS WHERE EXISTING VEGETATION AND/OR SOIL ARE DISTURBED OR COMPACTED ARE REQUIRED TO BE RESTORED, PER SPECIFICATIONS AND SEATTLE STORMWATER MANUAL VOLUME 3, SECTION 5.1.
9. A SOIL MANAGEMENT PLAN IS REQUIRED AND SHALL INCLUDE THE FOLLOWING:
   a. A SITE MAP SHOWING AREAS TO BE FENCED AND LEFT UNDISTURBED DURING CONSTRUCTION, AND AREAS THAT WILL BE AMENDED AT THE TURF OR PLANTING BED RATES
   b. CALCULATIONS OF THE AMOUNTS OF COMPOST, COMPOST AMENDED TOPSOIL, AND MULCH TO BE USED ON THE SITE
10. EXISTING CONDITIONS OUTSIDE OF SURVEY SHEET S1.0 BOUNDARIES ARE PROVIDED FROM PARKS SURVEY RECORDS. CONTRACTOR SHALL FIELD VERIFY ALL INVERTS AND CONTROL. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
11. NO MATERIAL STORAGE OR STAGING WITHIN 200' SHORELINE SETBACK. (3)

TREE PROTECTION NOTES

1. PRIOR TO MOBILIZATION, MEET ONSITE WITH THE ENGINEER TO REVIEW TREE PROTECTION AND DEMOLITION OF PAVING WITHIN EXISTING TREE DRIPLINE REQUIREMENTS AND TO COORDINATE DEMOLITION OBSERVATION BY PARKS ARBORIST.
2. PERFORM DEMOLITION AND REMOVAL OF MATERIALS SHOWN IN THE DRAWINGS WITHIN THE DRIPLINES OF EXISTING TREES BY HAND OR WITH THE USE OF SMALL EQUIPMENT AS DIRECTED BY THE ENGINEER.
3. AFTER THE DEMOLITION AND REMOVAL OF THE EXISTING PAVING, COORDINATE ACCESS TO THE AREA WITHIN THE EXISTING TREE DRIPLINES AS DIRECTED BY THE ENGINEER TO ALLOW THE PARKS ARBORIST WHO WILL, WITH THEIR CREW, EXCAVATE THE ROOTS OF THE EXISTING TREES WITH AN AIRSPADE, ASSESS IMPACTS TO THE TREES BY THE WORK, AND ROOT PRUNE AS THEY DEEM NECESSARY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ANY AND ALL ADDITIONAL EXCAVATION NECESSARY TO INSTALL THE PAVING PER THE PLANS AND THE ENGINEER'S DIRECTIONS.

SITE DEMOLITION NOTES

1. DEMOLISH, REMOVE AND LEGALLY DISPOSE OF MATERIALS, PAVING, LAWN OR OTHER ELEMENTS REQUIRED FOR THE INSTALLATION OF THE PROPOSED IMPROVEMENTS AT A LEGAL OR APPROVED OFF-SITE FACILITY, UNLESS REUSE OF MATERIAL ON-SITE IS APPROVED IN WRITING BY THE ENGINEER. RECYCLE TO THE FULLEST EXTENT POSSIBLE. PROVIDE DOCUMENTATION (DUMP RECEIPTS) FOR ALL MATERIALS REMOVED FROM THE SITE, IF REQUESTED. ITEMS ENCOUNTERED IN THE FIELD AND NOT IDENTIFIED ON THIS PLAN SHALL BE OFFERED TO THE ENGINEER FOR SALVAGE PRIOR TO DISPOSAL.
2. PRIOR TO REMOVAL & DISPOSAL OF TREES, CONTACT ENGINEER TO CONFIRM SALVAGE OF WOODY DEBRIS FOR USE ON SITE
3. LIMITS OF PAVING DEMOLITION, PROPOSED PAVING, AND RETAINED ELEMENTS ARE APPROXIMATE AND ARE TO BE VERIFIED IN THE FIELD BY THE ENGINEER.
4. PROTECT FACILITIES NOT IDENTIFIED FOR DEMOLITION INCLUDING BUT NOT LIMITED TO: BURIED ELECTRICAL LINES, STORM SEWER LINES, TELEPHONE LINES, CATCH BASINS, SUBSURFACE DRAINAGE INFRASTRUCTURE, TREES, VEGETATION, FENCING, IRRIGATION, LAWN, PAVING, FURNISHINGS AND ELEMENTS INDICATED TO REMAIN. ALL FEATURES SHOWN ARE INDICATED TO REMAIN EXCEPT AS CALLED OUT FOR DEMOLITION AND SALVAGE.
5. CONTRACTOR TO REPLACE IN KIND ANY TREES, VEGETATION, IRRIGATION, LAWN, PAVING, FURNISHINGS AND ELEMENTS INDICATED TO REMAIN WITHIN AND OUTSIDE THE LIMITS OF WORK DAMAGED BY CONSTRUCTION ACTIVITIES, OR BY CONSTRUCTION RELATED ACTIVITIES SUCH AS EQUIPMENT ACCESS, MATERIALS STORAGE, OR WORKER TRAFFIC.

PAVING LAYOUT & GRADING NOTES

1. SEE ALSO GENERAL NOTES, T1.0.
2. MARK PAVING LAYOUT ON GROUND WITH PAINT. OBTAIN APPROVAL FROM ENGINEER OF PAVING LAYOUT PRIOR TO INSTALLING PAVING. OBTAIN APPROVAL FROM ENGINEER FOR IMPACTS TO EXISTING IRRIGATION. NOTIFY ENGINEER 2 DAYS IN ADVANCE FOR INSPECTION.
3. WHERE LAYOUT OF NEW PAVING IS CALLED OUT TO MATCH LAYOUT OF EXISTING DEMO'D PAVING, MATCH HORIZONTAL ALIGNMENT OF PAVING TO BE REPLACED AS CLOSELY AS POSSIBLE.
4. WHEN LAYING OUT CURVES, ASCERTAIN THAT THE CURVED SECTIONS INTERSECT WITH OTHER CURVES OR WITH STRAIGHT SECTIONS ON A TANGENT FOR A SMOOTH ALIGNMENT.
5. PROVIDE LONGITUDINAL PATH GRADIENTS AS SHOWN ON PLANS AND IN NO CASE TO EXCEED SLOPE LIMIT OF 5%. ANY NEW PAVING THAT DOES NOT MEET THESE CRITERIA MUST BE REMOVED & REPLACED AT THE CONTRACTOR'S EXPENSE.
6. PROVIDE PAVING CROSS-SLOPES AS SHOWN ON PLANS, NO LESS THAN 1% TO DRAIN, AND IN NO CASE TO EXCEED MAXIMUM CROSS SLOPE LIMIT OF 2%. ANY NEW PAVING THAT DOES NOT MEET THESE CRITERIA MUST BE REMOVED & REPLACED AT THE CONTRACTOR'S EXPENSE.
7. WHERE PROPOSED FINISH GRADE DOES NOT MATCH ADJACENT FINISH GRADE IN LAWN AREAS, FINE GRADE LAWN TO PROVIDE ADJACENT GRADE ½" BELOW FINISH GRADE OF PAVING AND GENTLY BLEND INTO ADJACENT GRADES AT NO MORE THAN A 1:4 SLOPE, PRESERVING EXISTING DRAINAGE PATTERNS WHERE POSSIBLE.
8. PROVIDE SMOOTH AND FLUSH TRANSITION AT ALL LOCATIONS WHERE NEW PAVING MEETS EXISTING PAVING WITH NO VERTICAL CHANGE OF LEVEL GREATER THAN ¼" PER ADA 303.2 & ANSI 117.1 AND NO BEVELED CHANGE OF LEVEL GREATER THAN ½" PER ADA 303.3. IF NEW PAVING MEETS EXISTING PAVING THAT HAS A CROSS-SLOPE OF 2% OR GREATER, PROVIDE TRANSITIONAL SEGMENT NO LONGER THAN 4' TO NEW PAVING WITH CROSS-SLOPE OF LESS THAN 2%.

PLANTING NOTES

1. RESTORE AND RESEED LAWN AREAS IMPACTED BY CONSTRUCTION PER THE PROJECT MANUAL.
2. IN ALL AREAS WHERE SHRUBS AND/OR GROUND COVERS HAVE BEEN REMOVED, RESTORE AREA TO LAWN PER THE PROJECT MANUAL.
3. PREPARE SOIL, PROVIDE & PLANT TREES, SHRUBS & MULCH PER PLANS. SEE PROJECT MANUAL.

IRRIGATION NOTES

1. PROTECT THE EXISTING IRRIGATION SYSTEM FROM DAMAGE.
2. PROVIDE ADJUSTMENTS AND/OR IMPROVEMENTS TO THE IRRIGATION SYSTEM AS NEEDED TO PROTECT IT FROM CONSTRUCTION IMPACTS, TO ACCOMMODATE PROPOSED IMPROVEMENTS AND TO RESTORE IT TO FUNCTIONALITY IN THE AREAS AFFECTED BY THIS CONSTRUCTION PROJECT TO THE SATISFACTION OF THE ENGINEER, PER THE NOTES BELOW AND PER THE PROJECT MANUAL. IMPROVEMENTS MAY INCLUDE BUT ARE NOT LIMITED TO: MOVING VALVE BOXES AND HEADS AWAY FROM THE FOOTPRINT OF PROPOSED PAVING, PROVIDING SLEEVING TO PROTECT LINES UNDER VEHICLE PATHWAYS AND RELOCATING LINES, HEADS AND COMPONENTS HORIZONTALLY AND/OR VERTICALLY TO ACCOMMODATE NEW CONTOURS.
3. ALL IRRIGATION DEMO, REPAIR, MODIFICATION, AND INSTALLATION WORK TO BE PERFORMED BY A QUALIFIED IRRIGATION CONTRACTOR AS DEFINED IN THE MOST CURRENT VERSION OF THE SEATTLE PARKS AND RECREATION CONSTRUCTION STANDARD SPECIFICATIONS.
4. COORDINATE AN IRRIGATION LOCATE & EXISTING SYSTEM FUNCTION TEST IN PRESENCE OF PARKS STAFF, INCLUDING PLUMBER, ELECTRICIAN, DISTRICT IRRIGATION COORDINATOR AND ENGINEER PRIOR TO BEGINNING DEMOLITION TO VERIFY COVERAGE AND CONDITION. TEST MUST TAKE PLACE A MINIMUM OF 48 HOURS PRIOR TO ANY WORK. PROVIDE AS-BUILT DRAWINGS DOCUMENTING THE EXISTING IRRIGATION SYSTEMS. LOCATE AND MARK ALL EXISTING IRRIGATION HEADS PRIOR TO TEST BY PAINTING A CIRCLE AROUND (NOT DIRECTLY ON) THE HEAD.
5. LAYOUT INSPECTION: BEFORE PROCEEDING WITH ANY WORK, PERFORM AN ON-SITE INSPECTION OF THE NEEDED IRRIGATION ADJUSTMENTS AND/OR IMPROVEMENTS AND REPAIRS TO THE EXISTING IRRIGATION SYSTEM WITH THE ENGINEER, DISTRICT IRRIGATION COORDINATOR AND SPR PLUMBING AND ELECTRICAL SHOPS PERSONNEL. PAINT OR FLAG ADJUSTMENTS AND/OR IMPROVEMENTS AND REPAIRS TO SCALE ON THE SITE. THE LAYOUT SHALL INCLUDE BUT NOT BE LIMITED TO: CONTROL VALVES, ISOLATION VALVES, ELECTRICAL CONTROL WIRING, MAINLINES, LATERAL LINES, SLEEVING AND POP-UP SPRINKLER HEADS. THE ENGINEER WILL REVIEW AND APPROVE OR REQUIRE REVISIONS TO THE LAYOUT AS NEEDED. NO IRRIGATION WORK MAY BE PERFORMED BEFORE THE ENGINEER APPROVES THE LAYOUT.
6. NOTIFY ENGINEER IN ADVANCE OF ANY PLANNED WATER SERVICE INTERRUPTIONS OR IMMEDIATELY IN CASE OF EMERGENCY OR ACCIDENTAL INTERRUPTION.
7. PERFORM ALL NECESSARY ADJUSTMENTS TO THE IRRIGATION SYSTEM(S) IN ACCORDANCE WITH APPROVED LAYOUT & INSPECTION.
8. ADHERE TO ALL INSPECTIONS AS DEFINED IN THE SEATTLE PARKS AND RECREATION CONSTRUCTION STANDARD SPECIFICATIONS FOR IRRIGATION SYSTEMS INCLUDING BUT NOT LIMITED TO THE INSPECTION OF ALL PIPES IN OPEN TRENCHES PRIOR TO BACKFILLING AND ALL ELECTRICAL WORK AND ELECTRICAL CONTROL WIRING IN OPEN TRENCHES PRIOR TO BACKFILLING.
9. WHERE THE IRRIGATION SYSTEM NEEDS TO BE REPAIRED OR MODIFIED, ALL WORK AND COMPONENTS SHALL CONFORM TO THE MOST CURRENT VERSION OF THE SEATTLE PARKS AND RECREATION CONSTRUCTION STANDARD SPECIFICATIONS FOR IRRIGATION SYSTEMS UNLESS OTHERWISE NOTED. PROVIDE AND INSTALL ALL MATERIALS NECESSARY FOR A COMPLETE AND WORKING IRRIGATION SYSTEM, MATCHING TYPE AND/OR BRAND OF EXISTING COMPONENTS. ENSURE HEAD TO HEAD COVERAGE ACROSS THE ENTIRE ZONE WITH NO OVER SPRAY ONTO THE ADJACENT PAVING.
10. PROVIDE & INSTALL NEW WIRES AND CONDUIT TO MAKE THE SYSTEM WORK IF NO SPARE WIRES FROM EXISTING ARE AVAILABLE.
11. PROVIDE ISOLATION VALVES AT ANY TRANSITION PIPING FROM EXISTING MATERIALS TO NEW MATERIALS FOR THE REQUIRED PRESSURE TEST.
12. ALL POP-UP SPRINKLER HEADS TO BE 1' BACK OF PAVING AND PROVIDE HEAD TO HEAD COVERAGE ACROSS THE ENTIRE ZONE WITH NO OVER SPRAY ONTO ADJACENT PAVING.
13. PROVIDE SCHEDULE 80 PVC OR DUCTILE IRON (UNLESS OTHERWISE NOTED) SLEEVING AT ALL LOCATIONS WHERE IRRIGATION MAINLINES OR LATERAL LINES PASS UNDER PROPOSED ASPHALT PAVING, CONCRETE PAVING, OR CRUSHED ROCK PAVING. SLEEVING MUST HAVE A MINIMUM SIZE OF TWICE THE INSERTED PIPE DIAMETER. EXTEND SLEEVING 18" BEYOND EDGE OF PAVING, BOTH SIDES. VALVE WIRING WILL BE IN SEPARATE ELECTRICAL CONDUIT. ALL SLEEVING TO BE INSTALLED BY CONTRACTOR AND MUST BE INSPECTED BY THE PLUMBING AND ELECTRICIAN SHOPS PRIOR TO COVERING.

>>>>CAUTION - CALL 811<<<<
UTILITY NOTIFICATION CENTER
BEFORE YOU DIG!
WWW.CALL811.COM

ALSO CONTRACT WITH A COMMERCIAL UNDERGROUND UTILITIES LOCATOR SERVICE TO IDENTIFY BELOW-GROUND INFRASTRUCTURE THAT MAY NOT BE LOCATED BY CALL 811 BEFORE-YOU-DIG.

100% CONSTRUCTION DOCUMENT

13 MAY 2019

(2)

NO.	REVISION – AS BUILT	DATE
3	(3) PERMIT REVISIONS	01/10/20
2	(2) PERMIT REVISIONS	10/16/19
1		

REVIEWED: _____ PARK ENGINEER _____ DATE

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JOHNSON SOUTHERLAND
3827B South Edmunds St. Seattle, WA 98118
Ph. 206-723-8275 Fax 206-723-0392

STATE OF WASHINGTON
REGISTERED
LANDSCAPE ARCHITECT
MARGARET E JOHNSON
CERTIFICATE NO. 426

Seattle Parks & Recreation

DUWAMISH WATERWAY PARK
7900 10TH AVE SOUTH, SEATTLE, WA 98106

RENOVATION

LANDSCAPE NOTES

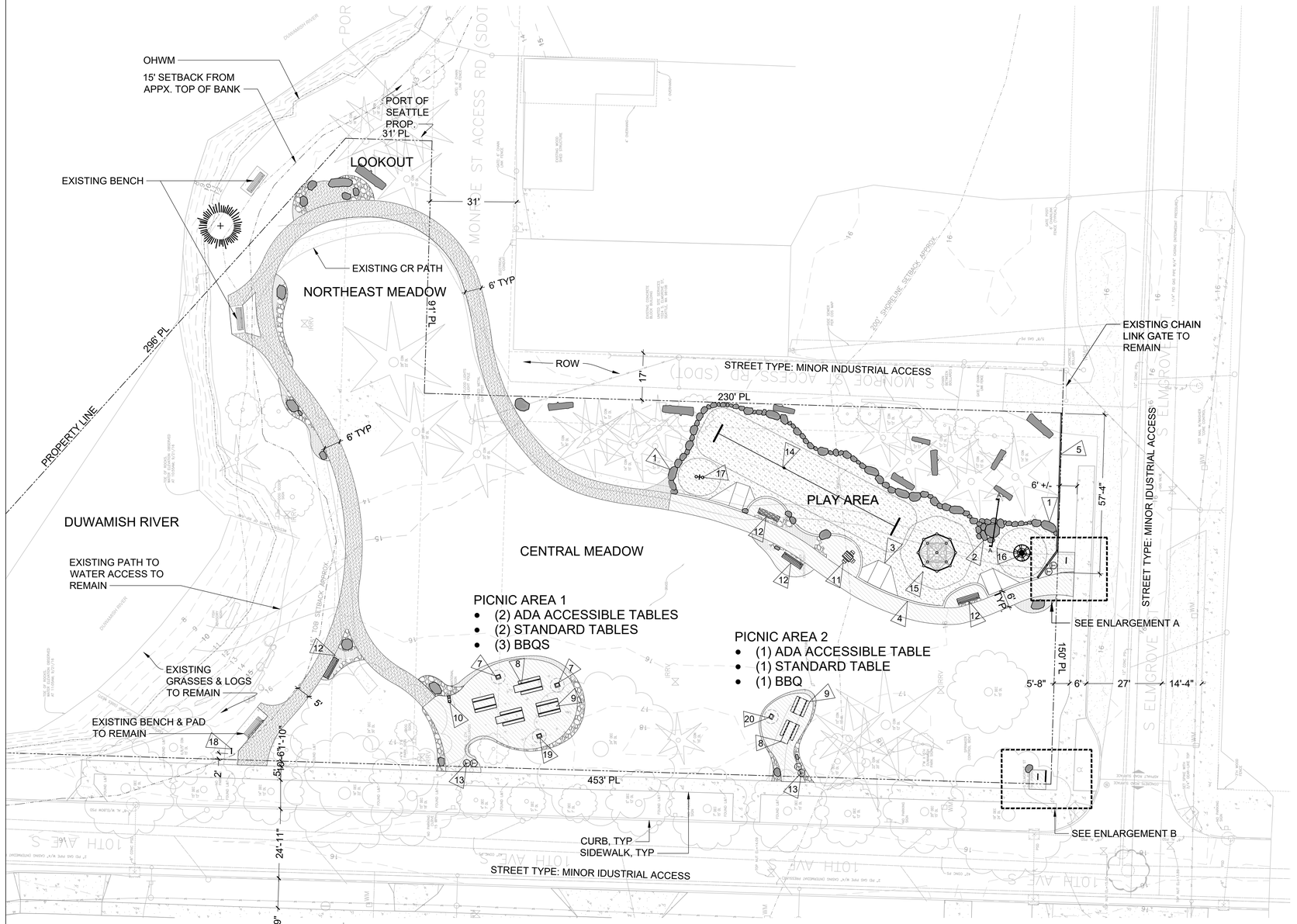
DESIGNED MJ
DRAWN SB
CHECKED MJ
DATE 13 MAY 2019
SHEET 3 OF 18

ORDINANCE NO. ######/######
CONTRACT NO. ####
SCALE

L0.1

FLAG NOTES

1. STONE BENCH, SEE 5/L5.1
2. STONE LOOKOUT, SEE AA/TBD
3. PLAY AREA RAMP, TYP, SEE 6/L5.0
4. PLAY AREA CURB OR WALL, TYP, SEE C5.0 & 4/L5.1
5. 3-RAIL FENCE, PARKS STD
6. SALVAGED PARKS SIGN, STD PLAN 10 14 00.13
7. SALVAGED BBQ, TYP
8. SALVAGED PICNIC TABLE, ADA ACCESSIBLE, TYP
9. PICNIC TABLE, ADA ACCESSIBLE, TYP
10. DRINKING FOUNTAIN, SEE C3.0 & 1/C6.1
11. PLAY AREA TABLE, SEE 6/L5.1
12. BENCH, PARKS STD, SEE 9/L5.1
13. SALVAGED (1) RECYCLE , (1) GARBAGE RECEPTACLE
14. SPEEDWAY ZIPLINE, SEE SPECIFICATIONS
15. SPACEBALL CLIMBER, SEE SPECIFICATIONS
16. SPINAMI SPINNER, SEE SPECIFICATIONS
17. DOUBLE BOBBLE ROCKER, SEE SPECIFICATIONS
18. BIKE RACK, TYP, SEE 8/L5.1
19. LARGE BBQ, TYP, SEE 7/L5.1
20. STANDARD BBQ, TYP, SEE 7/L5.1



20' 0' 10' 20' 40' 80'

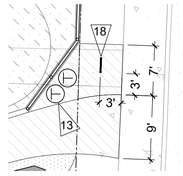
FULL SHEET (24X36), SCALE: 1" = 20'-0"

NOTES

1. FOR TREE PROTECTION, TREE REMOVALS, TREE IDENTIFICATION AND ALL ITEMS TO BE REMOVED, SALVAGED, AND/OR DEMOLISHED, SEE SITE PREPARATION PLAN L1.0
2. FOR EXISTING AND PROPOSED PLANTING AREAS. SEE PLANTING PLAN L4.0.
3. FOR ON-SITE STORMWATER TREATMENT SYSTEMS, SEE UTILITY PLAN C3.0.
4. FOR APPLICABLE LAND USE CODE CALCULATIONS, SEE GRADING & PAVING PLAN, C5.0

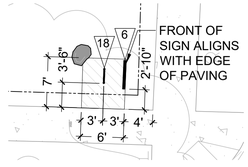
KEY

- EXISTING TREES (W/ TYPE/SIZE IDENTIFIER) ADJACENT TO WORK TO REMAIN
- CONCRETE PAVING, SEE 4/L5.0
- EXPOSED AGGREGATE PAVING, SEE 5/L5.0
- COBBLE PAVING, SEE 5/L5.0
- CRUSHED ROCK PAVING, TYP, SEE 3/L5.0
- EWF SURFACING, SEE 4/L5.1
- LOG, TYP, SEE 3/L5.1
- BOULDER, TYP, SEE 2/L5.1
- INTERPRETIVE BOULDER, TYP, SEE 2/L5.1
- ROCKERY, TYP, SEE 1/L5.1



ENLARGEMENT A

SCALE: 1" = 10'-0"



ENLARGEMENT B

SCALE: 1" = 10'-0"

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100% CONSTRUCTION DOCUMENT

13 MAY 2019

2

LEGAL DESCRIPTION

RIVER PARK ADD LOTS 1 THRU 9 & 48 TGW W 9 FT OF LOTS 10 & 47 & VAC ST ADJ TGW LOTS 1 THRU 9 & 47 - 48 BLK 22 & POR VAC ST ADJ

RIVER PARK ADP LOTS 43-44-45 & 46 TGW POR VAC ST ADJ LESS CWW DIST NO 1

PARCEL NUMBER(S)

732790-1195, LOT SIZE 54,947 SF

732790-2355, LOT SIZE 5,325 SF

NO.	REVISION – AS BUILT	DATE
3		
2	2 PERMIT REVISIONS	10/16/19
1	1 PERMIT REVISIONS (THIS SHEET ADDED)	7/18/19

REVIEWED: _____ PARK ENGINEER _____ DATE

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STATE OF WASHINGTON REGISTERED LANDSCAPE ARCHITECT
MARGARET E. JOHNSON CERTIFICATE NO. 426

Seattle Parks & Recreation

DUWAMISH WATERWAY PARK
7900 10TH AVE SOUTH, SEATTLE, WA 98106

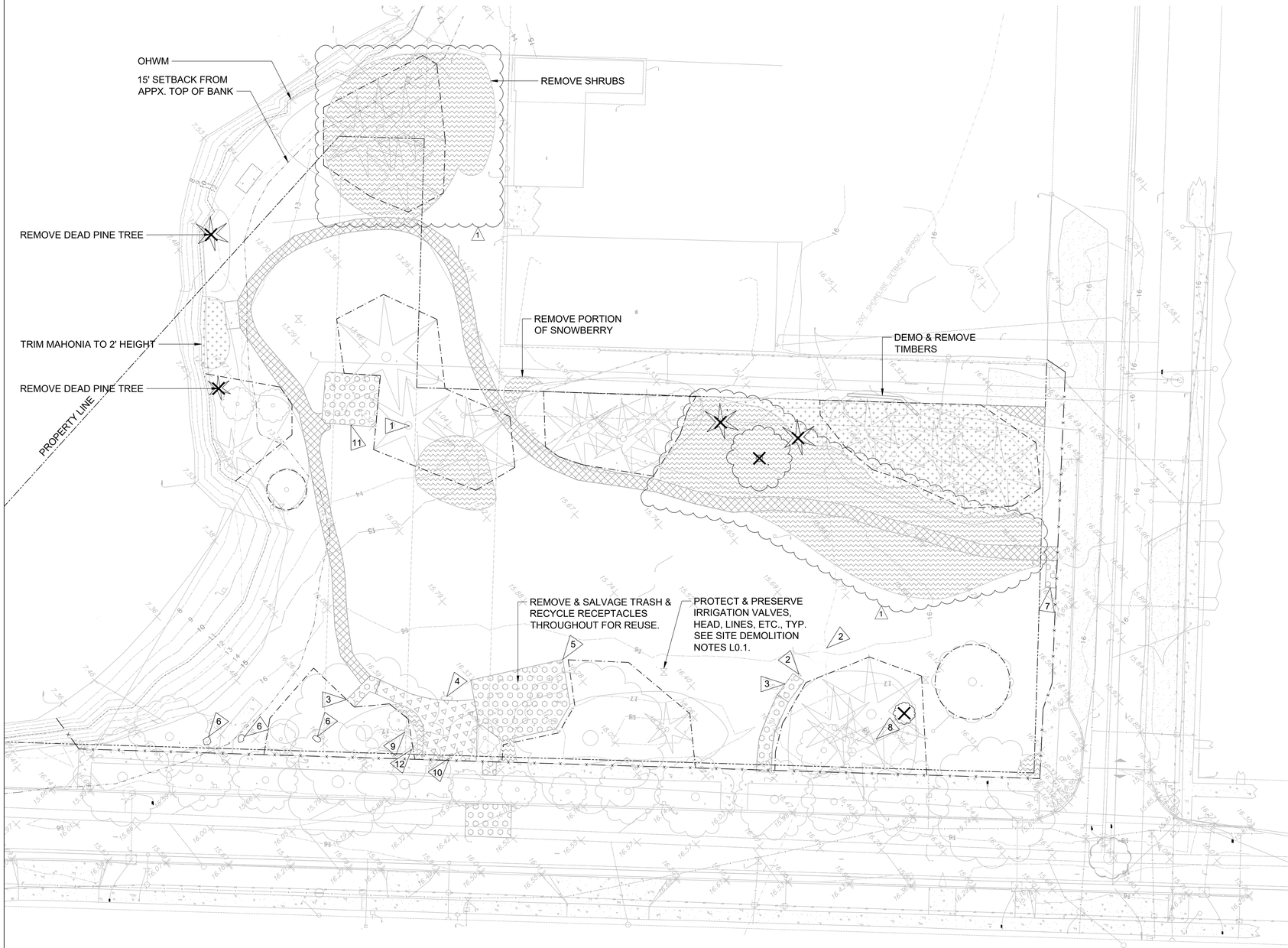
RENOVATION

ENHANCED SITE PLAN

DESIGNED	MJ	DATE	13 MAY 2019
DRAWN	SB		
CHECKED	MJ	SHEET	4 OF 18
ORDINANCE NO.	######/######		L0.2
CONTRACT NO.	####		
SCALE	1"=20'-0"		

FLAG NOTES

1. PRUNE ALL EXISTING CONIFEROUS TREES TO REMOVE BRANCHES WITHIN 10' OF GRADE, TYP (APPLIES TO ALL CONFIFEROUS TREES THROUGHOUT.
2. REMOVE & SALVAGE STEEL DOME & RAINMAKER. DELIVER TO SPR SHOPS. DEMOLISH & REMOVE ASSOCIATED FOOTINGS
3. REMOVE & SALVAGE BENCH FRAME & TIMBER FOR REUSE. DEMO FOOTINGS & CONCRETE SLAB
4. DEMO & REMOVE INFORMATIONAL SIGN
5. REMOVE & SALVAGE (2) PICNIC TABLES & (3) BBQ'S FOR REINSTALLATION. DEMOLISH CONCRETE SLAB & SALVAGE BASE COURSE
6. REMOVE ROCK, SALVAGE FOR REINSTALLATION
7. REMOVE & SALVAGE BENCH FOR REINSTALLATION. DEMO CONCRETE FOOTINGS & SLAB. SALVAGE BASE
8. DEMO & REMOVE EXISTING PARK SIGN
9. REMOVE & SALVAGE DOG SIGN & PARK SIGN FOR REUSE
10. REMOVE & SALVAGE (3) BOLLARDS FOR REUSE
11. REMOVE & SALVAGE PICNIC TABLE & BBQ FOR REUSE. DEMOLISH CONCRETE SLAB & SALVAGE BASE COURSE
12. REMOVE & SALVAGE PARKS STANDARD RAINBOW SIGN FOR REUSE. DEMO & REMOVE FOOTINGS.



20' 0' 10' 20' 40' 80'

FULL SHEET (24X36), SCALE: 1" = 20'-0"

SITE PREPARATION NOTES

1. SEE NOTES L0.1

KEY

- EXISTING TREES (W/ TYPE/SIZE IDENTIFIER) TO REMAIN. PROTECT & PRESERVE, SEE TREE PROTECTION NOTES L0.1.
- EXISTING TREES TO BE REMOVED, SEE SITE DEMOLITION NOTES L0.1.
- DEMO AND REMOVE EXISTING CONCRETE PAVING, TYP.
- DEMO AND REMOVE EXISTING ASPHALT PAVING, TYP.
- DEMO AND REMOVE EXISTING CRUSHED ROCK PAVING, TYP.
- SELECTIVELY CLEAR & GRUB VEGETATION PER ENGINEER'S DIRECTION
- CLEAR & GRUB SHRUB &/OR GROUNDCOVER. CONFIRM EXTENT W/ ENGINEER
- TEMPORARY CONSTRUCTION FENCE, SEE 1/L5.0
- TEMPORARY TREE PROTECTION FENCE, SEE 2/L5.0

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100% CONSTRUCTION DOCUMENT

13 MAY 2019

NO.	REVISION – AS BUILT	DATE
3		
2	2 PERMIT REVISIONS	10/16/19
1	1 PERMIT REVISIONS	7/18/19

REVIEWED: _____ PARK ENGINEER _____ DATE

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MARGARET E JOHNSON
CERTIFICATE NO. 426

Seattle Parks & Recreation

DUWAMISH WATERWAY PARK
7900 10TH AVE SOUTH, SEATTLE, WA 98106

RENOVATION

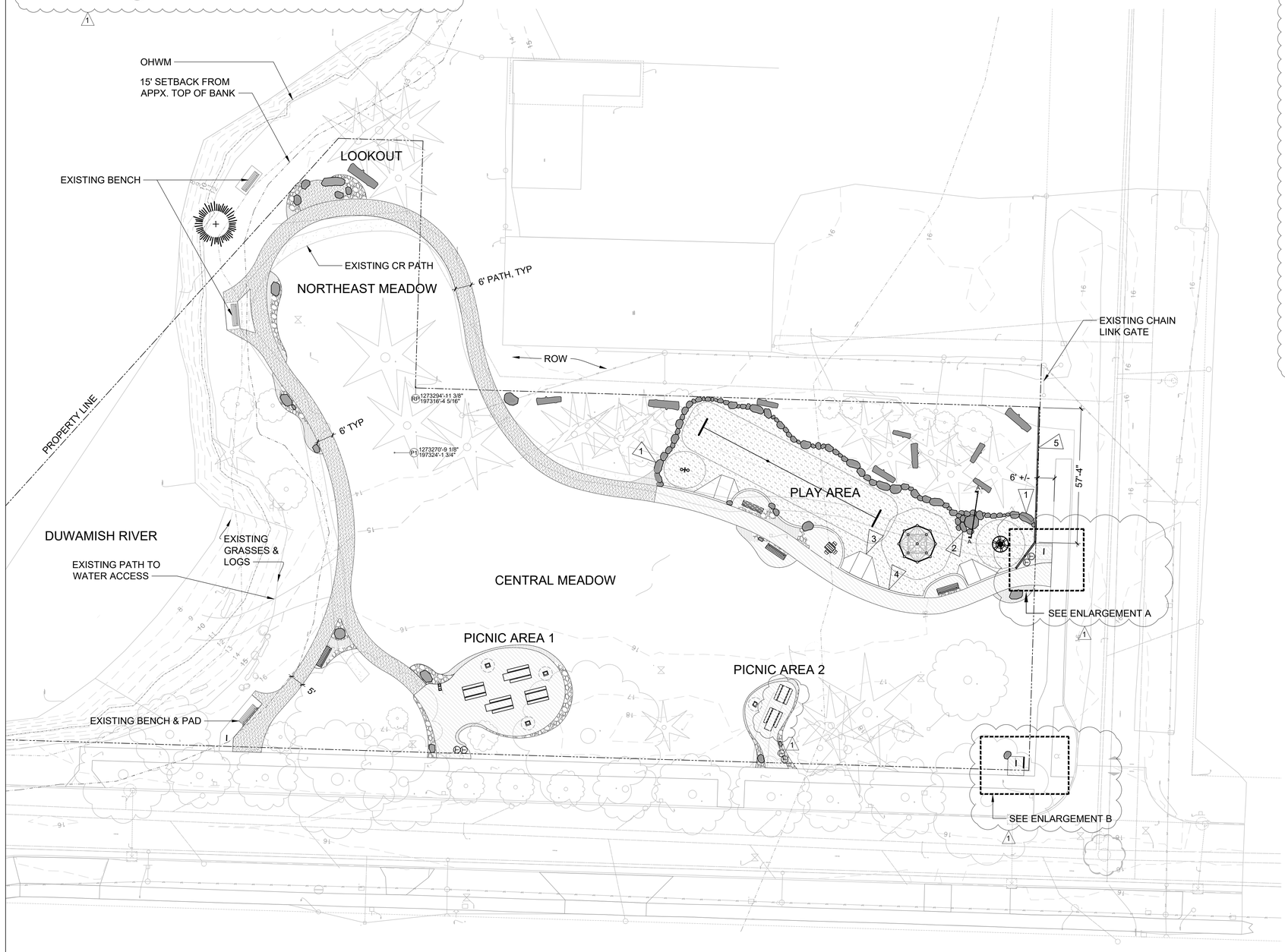
SITE PREPARATION PLAN

DESIGNED MJ	DATE 13 MAY 2019
DRAWN SB	
CHECKED MJ	SHEET 5 OF 18
ORDINANCE NO. ######/######	**L1.0**
CONTRACT NO. ####	
SCALE 1"=20'-0"	

FLAG NOTES

1. STONE BENCH, SEE 5/L5.1
2. STONE LOOKOUT, SEE AA/TBD
3. PLAY AREA RAMP, TYP, SEE 6/L5.0
4. PLAY AREA CURB OR WALL, TYP, SEE C5.0 & 4/L5.1
5. 3-RAIL FENCE, PARKS STD

1



20' 0' 10' 20' 40' 80'

FULL SHEET (24X36), SCALE: 1" = 20'-0"

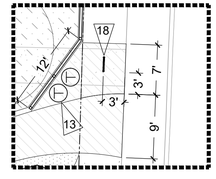
LAYOUT NOTES

1. SEE NOTES L0.1
2. SEE CIVIL SHEETS FOR GRADING & DRAINAGE

KEY

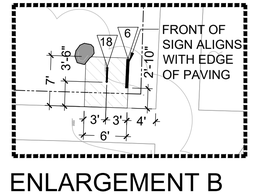
- EXISTING TREES ADJACENT TO WORK
- CONCRETE PAVING, SEE 4/L5.0
- EXPOSED AGGREGATE PAVING, SEE 5/L5.0
- COBBLE PAVING, SEE 5/L5.0
- CRUSHED ROCK PAVING, TYP, SEE 3/L5.0
- EWF SURFACING, SEE 4/L5.1
- LOG, TYP, SEE 3/L5.1
- BOULDER, TYP, SEE 2/L5.1
- INTERPRETIVE BOULDER, TYP, SEE 2/L5.1
- ROCKERY, TYP, SEE 1/L5.1

1



ENLARGEMENT A

SCALE: 1" = 10'-0"



ENLARGEMENT B

SCALE: 1" = 10'-0"

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100% CONSTRUCTION DOCUMENT

13 MAY 2019

2

NO.	REVISION – AS BUILT	DATE
3		
2	2 PERMIT REVISIONS	7/18/19
1	1 PERMIT REVISIONS	7/18/19

REVIEWED:
PARK ENGINEER DATE

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Seattle, WA 98118 Fax 206-723-0392

STATE OF WASHINGTON
REGISTERED
LANDSCAPE ARCHITECT
MARGARET E JOHNSON
CERTIFICATE NO. 426

Seattle Parks & Recreation

DUWAMISH WATERWAY PARK
7900 10TH AVE SOUTH, SEATTLE, WA 98106

RENOVATION

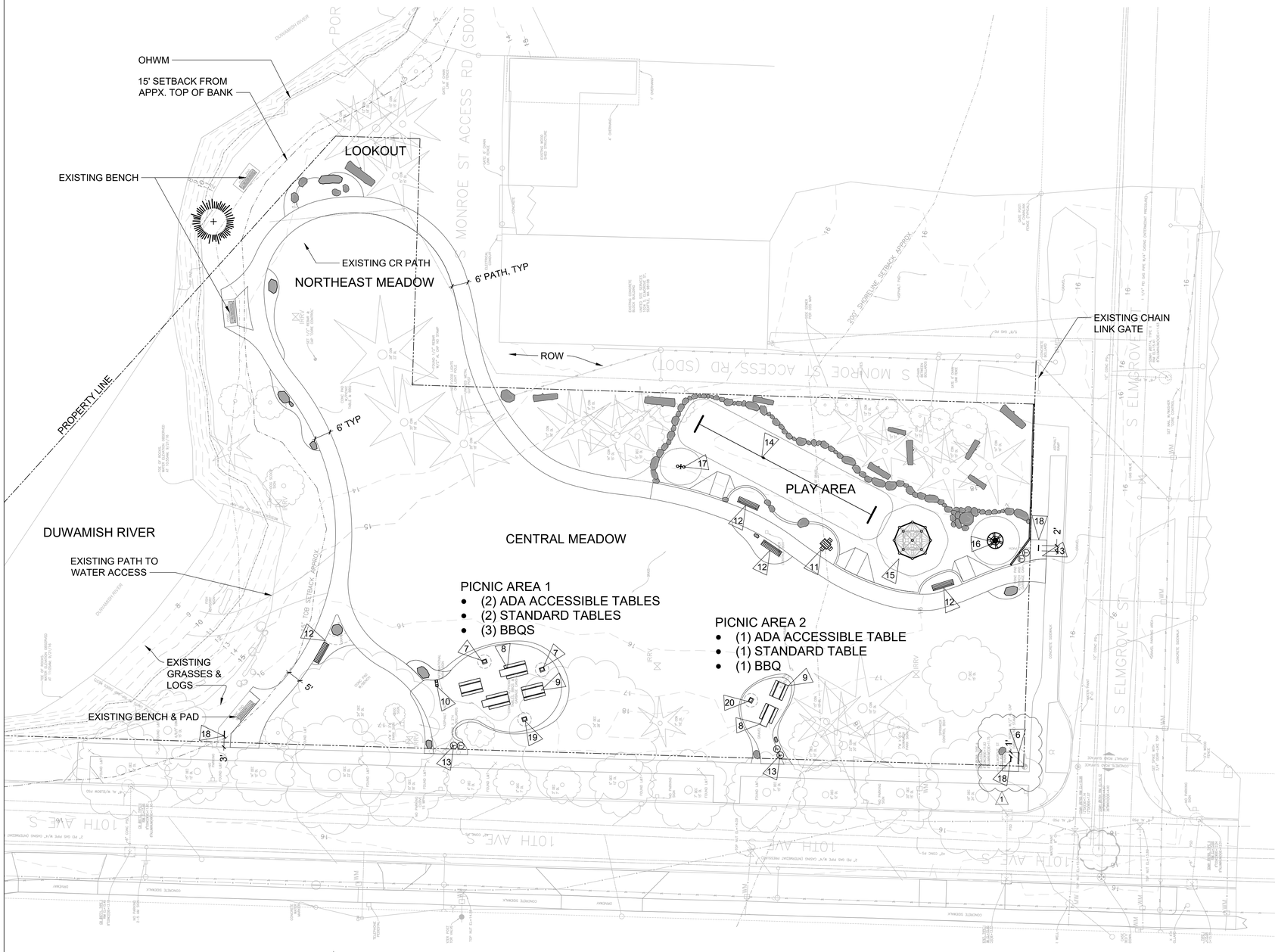
LAYOUT PLAN

DESIGNED MJ	DATE 13 MAY 2019
DRAWN SB	SHEET 6 OF 18
CHECKED MJ	
ORDINANCE NO. ######/######	**L2.0**
CONTRACT NO. ####	
SCALE 1"=20'-0"	

FLAG NOTES

6 SALVAGED PARKS SIGN, STD PLAN 10 14 00.13	11 PLAY AREA TABLE, SEE 6/L5.1	16 SPINAMI SPINNER, SEE SPECIFICATIONS
7 SALVAGED BBQ, TYP	12 BENCH, PARKS STD, SEE 9/L5.1	17 DOUBLE BOBBLE ROCKER, SEE SPECIFICATIONS
8 SALVAGED PICNIC TABLE, ADA ACCESSIBLE, TYP	13 SALVAGED (1) RECYCLE , (1) GARBAGE RECEPTACLE	18 BIKE RACK, TYP, SEE 8/L5.1
9 PICNIC TABLE, ADA ACCESSIBLE, TYP	14 SPEEDWAY ZIPLINE, SEE SPECIFICATIONS	19 LARGE BBQ, TYP, SEE 7/L5.1
10 DRINKING FOUNTAIN, SEE C3.0 & 1/C6.1	15 SPACEBALL CLIMBER, SEE SPECIFICATIONS	20 STANDARD BBQ, TYP, SEE 7/L5.1

1



LAYOUT NOTES

1. SEE NOTES L0.1
2. FURNISHINGS ARE SPECIFIED IN PROJECT MANUAL.
3. INSTALL PLAY EQUIPMENT AND FURNISHINGS PER LAYOUT APPROVED BY ENGINEER. COORDINATING DRAINAGE, CURB LAYOUT, PLAY EQUIPMENT USE AREAS & DEPTHS OF FOOTINGS WITH DEPTHS OF CURBS, DRAINAGE AND EWF.
4. SEE CIVIL SHEET 5.0 FOR GRADING & DRAINAGE PLAN.

KEY

EXISTING TREES ADJACENT TO WORK

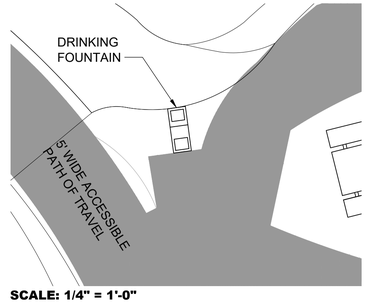
PLAY AREA ADA SCHEDULE

TOTAL ELEVATED PLAY ACTIVITIES:	0
TOTAL GROUND-LEVEL PLAY ACTIVITIES:	4
ACCESSIBLE ELEVATED ACTIVITES (REQUIRED):	0
ACCESSIBLE ELEVATED ACTIVITES (PROVIDED):	0
ACCESSIBLE GROUND-LEVEL ACTIVITES (REQUIRED):	4
ACCESSIBLE GROUND-LEVEL ACTIVITES (PROVIDED):	4
ACCESSIBLE GROUND-LEVEL PLAY TYPES (REQUIRED):	4
ACCESSIBLE GROUND-LEVEL PLAY TYPES (PROVIDED):	4

ASTM F1487-11
CPSC #325

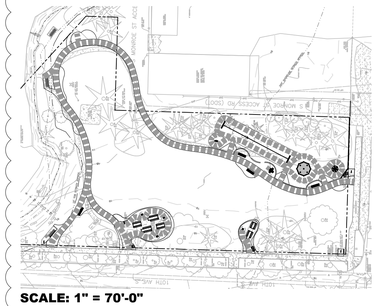
DRINKING FOUNTAIN AREA ENLARGEMENT

NOTE: SHADED AREAS ARE ADA ACCESSIBLE ROUTES & AREAS



SCALE: 1/4" = 1'-0"

ACCESSIBILITY DIAGRAM



SCALE: 1" = 70'-0"

5' WIDE ACCESSIBLE PATH OF TRAVEL

3

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100% CONSTRUCTION DOCUMENT

13 MAY 2019

2

NO.	REVISION – AS BUILT	DATE
3	3 PERMIT REVISIONS	01/10/20
2	2 PERMIT REVISIONS	10/16/19
1	1 PERMIT REVISIONS	7/18/19

REVIEWED:
PARK ENGINEER DATE

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Seattle, WA 98118 Fax 206-723-0392

STATE OF WASHINGTON
REGISTERED
LANDSCAPE ARCHITECT
MARGARET E JOHNSON
CERTIFICATE NO. 426

Seattle Parks & Recreation

DUWAMISH WATERWAY PARK
7900 10TH AVE SOUTH, SEATTLE, WA 98106

RENOVATION

FINISHES & FURNISHINGS PLAN

DESIGNED MJ
DRAWN SB
CHECKED MJ
DATE 13 MAY 2019
SHEET 7 OF 18

ORDINANCE NO. #######/######
CONTRACT NO. ####
SCALE 1"=20'-0"

L3.0

PLANTING SCHEDULE

SYMBOL	QTY	BOTANICAL NAME	COMMON NAME	SIZE (MIN)	SPACING	STD PLAN	NOTES
		TREES					
	4	CALOCEDRUS DECURRENS	INCENSE CEDAR	6'-8' HT	AS	101	
	1	PINUS CONTORTA v CONTORTA	SHORE PINE	6'-8' HT	AS	101	
	6	PSEUDOTSUGA MENZIESII	DOUGLAS FIR	6'-8' HT	AS	101	
	719 SF	SHRUBS					
		CORNUS SERICEA 'KELSEYI'	KELSEY DOGWOOD	#1 CONT	2' OC	111,112	
	482 SF	SUNNY PLANT MIX					
		ARCTOSTAPHYLOS X MEDIA	LOW MANZANITA	#1 CONT	2' OC	111,112	
		CORNUS SERICEA 'KELSEYI'	KELSEY DOGWOOD	#1 CONT	2' OC	111,112	
		SYMPHORICARPOS ALBA	SNOWBERRY	#2 CONT	3' OC	110,112	
		MAHONIA REPENS	LOW OREGON GRAPE	#1 CONT	2' OC	111,112	
		FRAGRARIA X CHILOENSIS	BEACH STRAWBERRY	#1 CONT	2' OC	111,112	
	4353 SF	SHADY PLANT MIX					
		GAULTHERIA SHALLON	SALAL	#2 CONT	3' OC	110,112	
		MAHONIA NERVOSA	OREGON GRAPE	#2 CONT	3' OC	110,112	
		POLYSTICHUM MUNITUM	SWORD FERN	#1 CONT	2' OC	111,112	

PLANTING NOTES

1. SEE NOTES L0.1

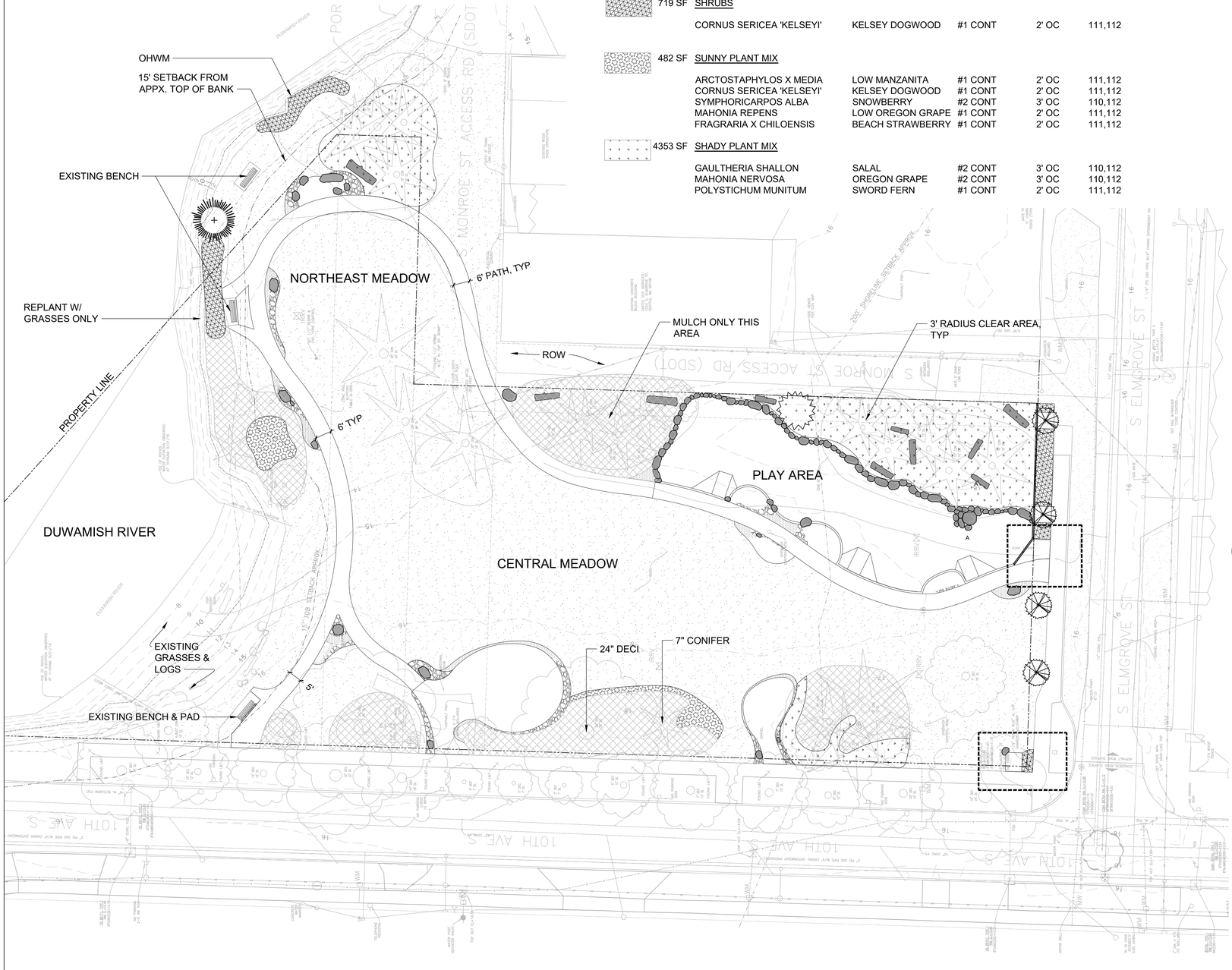
KEY

EXISTING TREES ADJACENT TO WORK

EXISTING SHRUB BEDS TO REMAIN

EXISTING & PROPOSED LAWN AREA

1



20' 0' 10' 20' 40' 80'

FULL SHEET (24X36), SCALE: 1" = 20'-0"

SUMMARY OF IMPACTS & MITIGATION

	WITHIN SHORELINE SETBACK	OUTSIDE OF SHORELINE SETBACK	TOTAL
IMPACTS			
TREES REMOVED 1-7"/5" DIA WESTERN RED CEDAR 1-6"/6" DIA WESTERN RED CEDAR 1-9" DIA BIG-LEAF MAPLE NOT INCLUDED 2 DEAD PINES	3	0	3
SHRUB AREA REMOVED	3699 SF	360 SF	4059 SF
EXISTING IMPERVIOUS AREA	3598 SF	401 SF	3999 SF
PROPOSED IMPERVIOUS AREA	8149 SF	3033 SF 3	11182 SF
MITIGATION			
TREES ADDED	2	4	6
SHRUB AREA ADDED	2587 SF	3137 SF	5724 SF

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100% CONSTRUCTION DOCUMENT

13 MAY 2019

2

NO.	REVISION – AS BUILT	DATE
3	3 PERMIT REVISIONS	01/10/20
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REVIEWED:
PARK ENGINEER DATE

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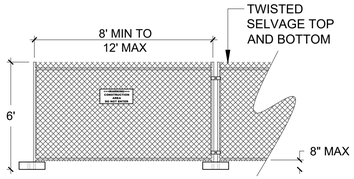
Seattle Parks & Recreation

DUWAMISH WATERWAY PARK
7900 10TH AVE SOUTH, SEATTLE, WA 98106

RENOVATION

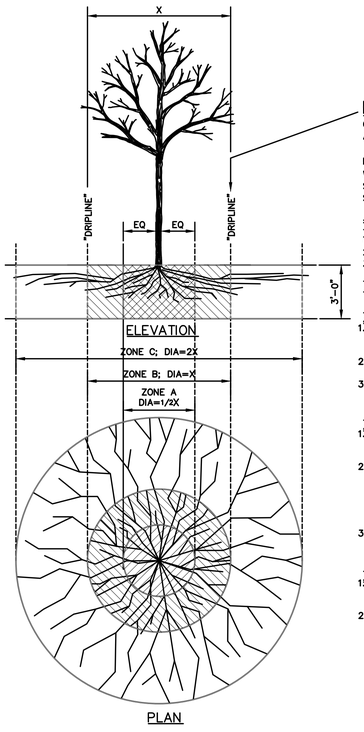
PLANTING PLAN

DESIGNED	MJ	DATE	13 MAY 2019
DRAWN	SB	SHEET	8 OF 18
CHECKED	MJ		
ORDINANCE NO.	######/######	**L4.0**	
CONTRACT NO.	####		
SCALE	1"=20'-0"		



NOTES:
1. REFER TO SPECIFICATION 01 56 26.
1. CHAIN LINK FABRIC TO BE MIN. 11 GAUGE, GALVANIZED. NO RUSTED OR EXCESSIVELY MALFORMED FABRIC.
2. FENCE BASES SHALL BE OF SUFFICIENT WEIGHT and/or SPREAD TO ADEQUATELY SUPPORT EACH PANEL.
3. PANEL-TO-PANEL CONNECTIONS SHALL BE MADE AT A MIN. TWO LOCATIONS PER CONNECTION UNLESS OTHERWISE APPROVED.
4. PROVIDE CONSTRUCTION WARNING SIGNAGE 50'O.C. ALONG

1 TEMPORARY CONSTRUCTION FENCE
NOT TO SCALE



PLAN

FENCING/ROOT PROTECTION
CHAIN LINK FENCING TO BE PROVIDED AND MAINTANED AT DRIPLINE

ENGINEER'S APPROVAL REQUIRED FOR USE/ACCESS WITHIN ZONE B. PERMISSION FOR USE/ACCESS REQUIRES SURFACE PROTECTION FOR ALL UNFENCED, UNPAVED SURFACES WITHIN ZONE B

* SURFACE PROTECTION MEASURES
1. MULCH LAYER, 6"–8"DEPTH
2. 3/4"PLYWOOD
3. STEEL PLATES

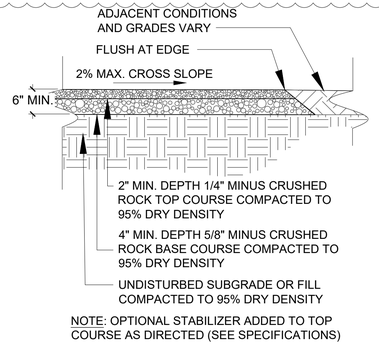
TRENCHING/EXCAVATION

ZONE A (CRITICAL ROOT ZONE)
1. NO DISTURBANCE ALLOWED WITHOUT SITE–SPECIFIC INSPECTION AND APPROVAL OF METHODS TO MINIMIZE ROOT DAMAGE
2. SEVERANCE OF ROOTS LARGER THAN 2"DIA REQUIRES ENGINEER'S APPROVAL
3. TUNNELING REQUIRED TO INSTALL LINES 3'–0"BELOW GRADE OR DEEPER

ZONE B (DRIPLINE)
1. OPERATION OF HEAVY EQUIPMENT AND/OR STOCKPILING OF MATERIALS SUBJECT TO ENGINEERS APPROVAL. SURFACE PROTECTION* MEASURES REQUIRED
2. TRENCHING ALLOWED AS FOLLOWS:
   – EXCAVATION BY HAND OR WITH HAND–DRIVEN TRENCHER MAY BE REQUIRED
   – LIMIT TRENCH WIDTH. DO NOT DISTURB ZONE A MAINTAIN 2/3 OR MORE OF ZONE B IN UNDISTURBED CONDITION
3. TUNNELING MAY BE REQUIRED FOR TRENCHES DEEPER THAN 3'–0"

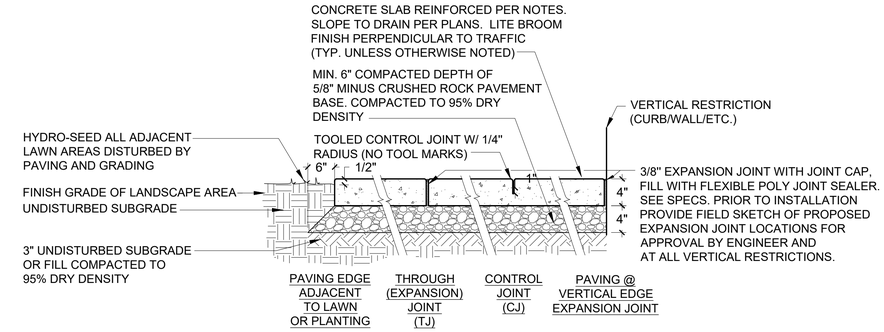
ZONE C (FEEDER ROOT ZONE)
1. OPERATION OF HEAVY EQUIPMENT AND/OR STOCKPILING OF MATERIALS SUBJECT TO ENGINEERS APPROVAL. SURFACE PROTECTION* MEASURES MAY BE REQUIRED
2. TRENCHING WITH HEAVY EQUIPMENT ALLOWED AS FOLLOWS:
   – MINIMIZE TRENCH WIDTH
   – MAINTAIN 2/3 OR MORE OF ZONE C IN UNDISTURBED CONDITION

2 TEMPORARY TREE PROTECTION FENCE
NOT TO SCALE

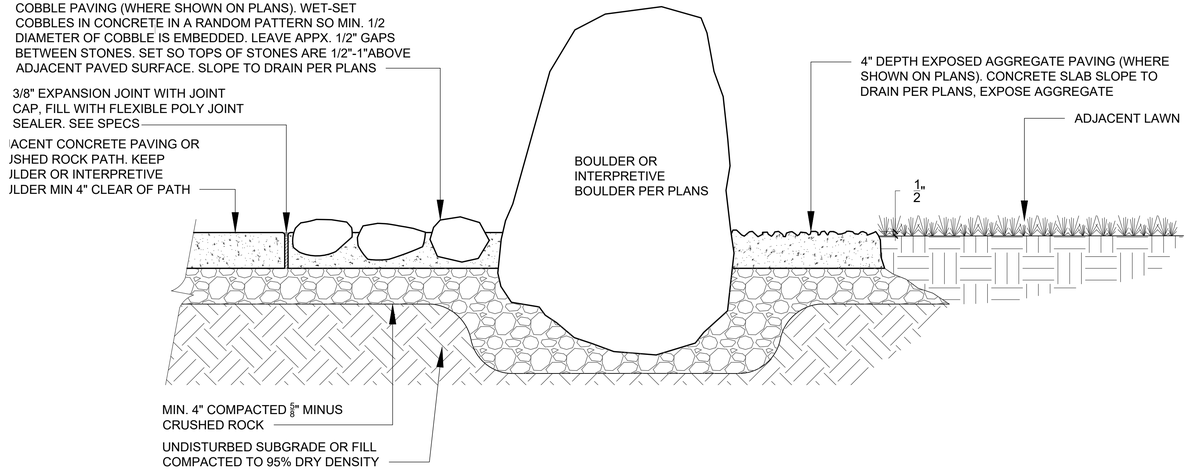


NOTE: OPTIONAL STABILIZER ADDED TO TOP COURSE AS DIRECTED (SEE SPECIFICATIONS)

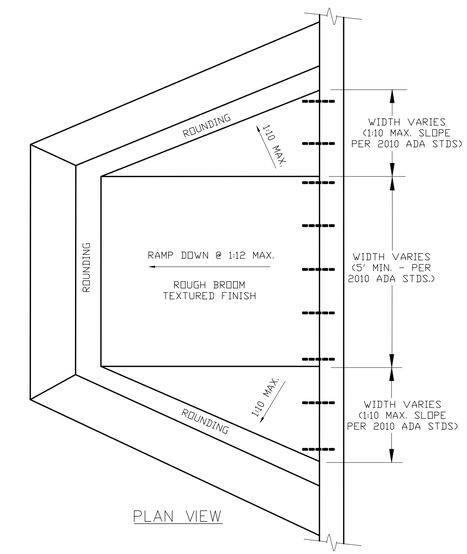
3 CRUSHED ROCK PAVING, STD DETAIL NO.32 15 43
SCALE: 3/4"=1'-0"



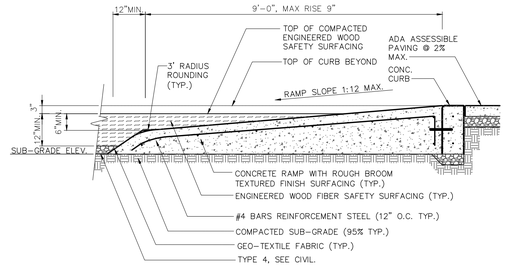
4 CONCRETE PAVING
SCALE: 3/4"=1'-0"



5 "SANDBAR" INTERPRETIVE ART PAVING
SCALE: 1"=1'-0"



PLAN VIEW



SECTION VIEW

GENERAL NOTES:
1. ALL PLAY AREA RAMPS SHALL MEET CURRENT ADA LAWS & REGULATIONS PER ASTM & CPSC.
2. RAMP SLOPE SHALL BE 1:12 MAX. (1:16 MAX. WHEN RAMP IS PART OF ADA ROUTE BETWEEN PLAY ELEMENTS WITHIN THE PLAY AREA ITSELF).
3. LENGTH & SHAPE OF RAMPS CAN VARY DEPENDING ON SITE CONDITIONS.
4. RAMP WIDTH SHALL BE 5' MIN. PER ADA.

6 PLAY AREA RAMP
SCALE: 3/4"=1'-0"

>>>>CAUTION - CALL 811<<<<
UTILITY NOTIFICATION CENTER
BEFORE YOU DIG!
WWW.CALL811.COM

ALSO CONTRACT WITH A COMMERCIAL UNDERGROUND UTILITIES LOCATOR SERVICE TO IDENTIFY BELOW-GROUND INFRASTRUCTURE THAT MAY NOT BE LOCATED BY CALL 811 BEFORE-YOU-DIG.

100% CONSTRUCTION DOCUMENT

13 MAY 2019

2

NO.	REVISION – AS BUILT	DATE
3		
2	2 PERMIT REVISIONS	10/16/19
1	1 PERMIT REVISIONS	7/18/19

REVIEWED:
PARK ENGINEER DATE

All work done in accordance with the City of Seattle Standard Plans and Specifications in effect on the date shown above, and supplemented by Special Provisions.

JOHNSON SOUTHERLAND
3827B South Edmunds St. Ph. 206-723-8275
Seattle, WA 98118 Fax 206-723-0392

STATE OF WASHINGTON REGISTERED LANDSCAPE ARCHITECT
MARGARET E JOHNSON
CERTIFICATE NO. 426

Seattle Parks & Recreation

DUWAMISH WATERWAY PARK
7900 10TH AVE SOUTH, SEATTLE, WA 98106

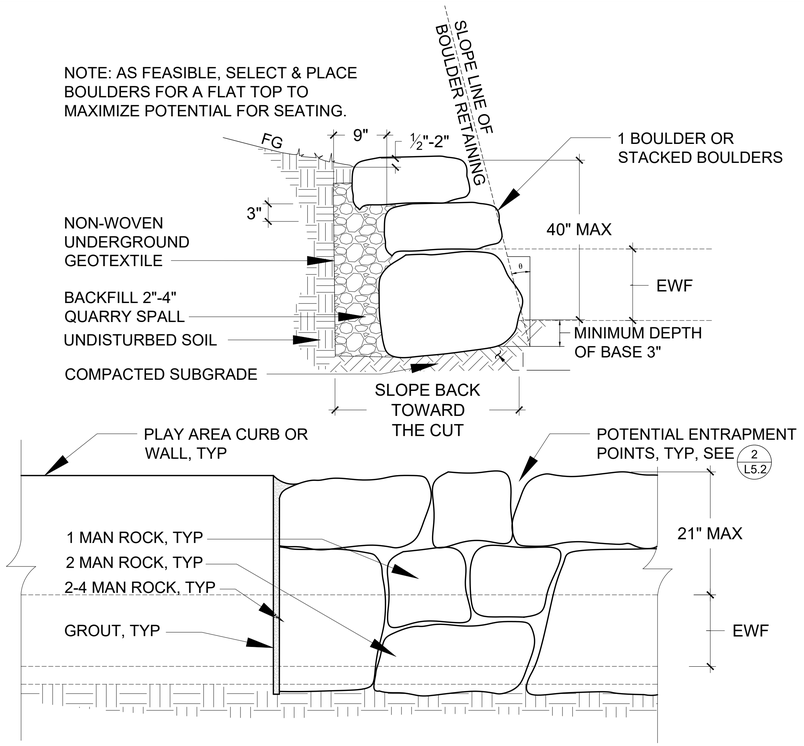
RENOVATION

LANDSCAPE DETAILS

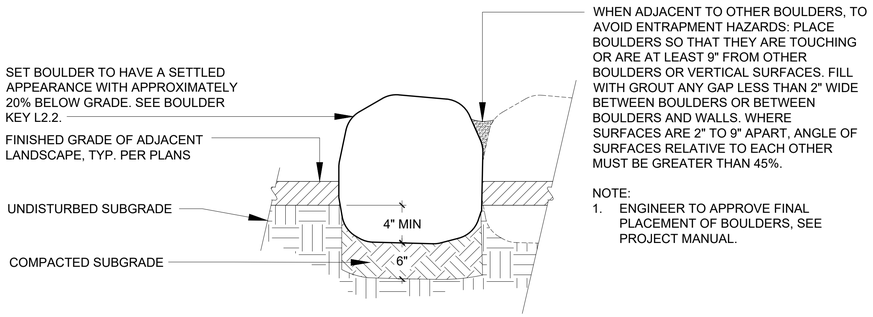
DESIGNED MJ
DRAWN SB
CHECKED MJ
DATE 13 MAY 2019
SHEET 9 OF 18

ORDINANCE NO. ######/######
CONTRACT NO. ####
SCALE VARIES

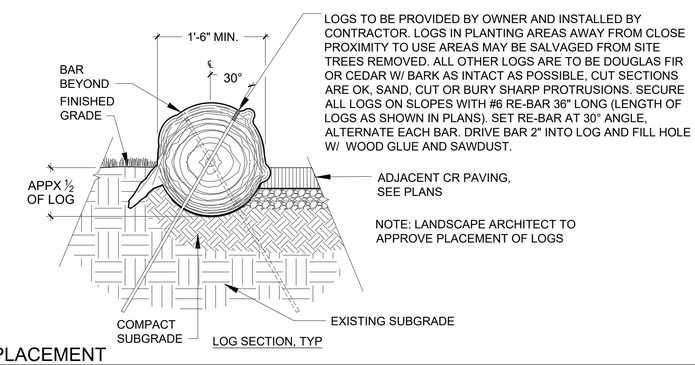
L5.0



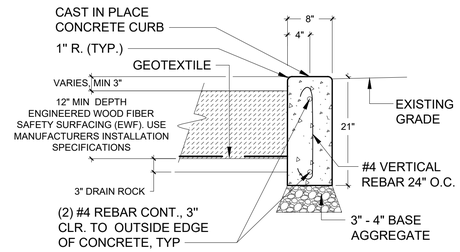
1 ROCKERY
SCALE (FULL SIZE 24x36): 1"=1'-0"



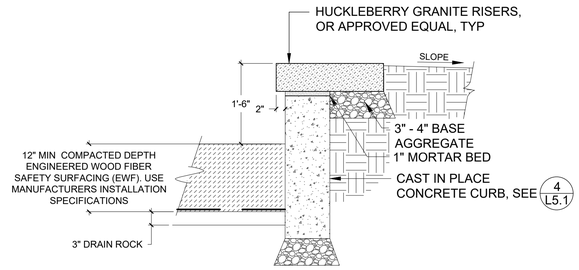
2 BOULDER PLACEMENT
SCALE (FULL SIZE 24x36): 1"=1'-0"



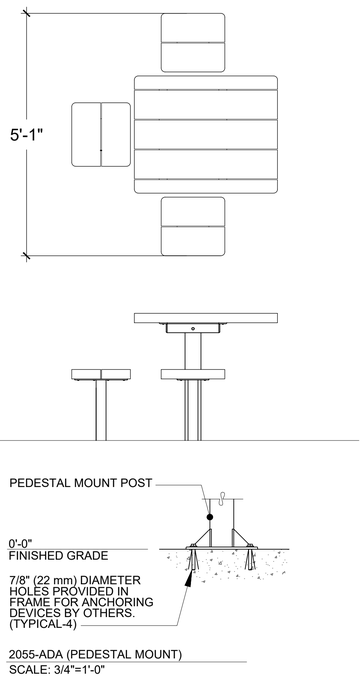
3 LOG PLACEMENT
SCALE (FULL SIZE 24x36): 1"=1'-0"



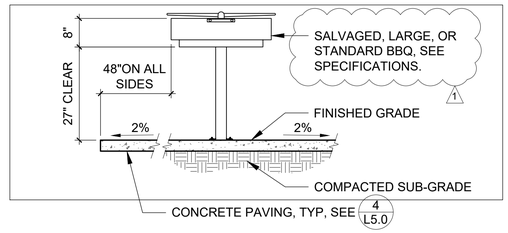
4 PLAY AREA CURB
SCALE (FULL SIZE 24x36): 3/4"=1'-0"



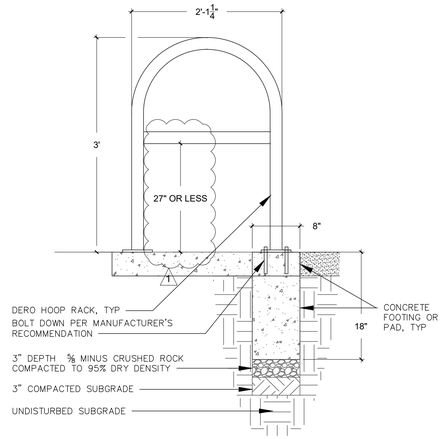
5 STONE BENCH
SCALE (FULL SIZE 24x36): 3/4"=1'-0"



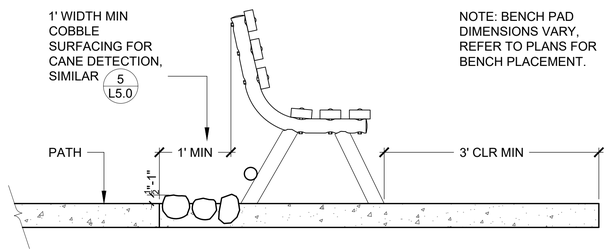
6 PLAY AREA TABLE, TIMBERFORM PARKWAY TABLES MODEL NO. 2057 SCALE (FULL SIZE 24x36): 1"=1'-0"



7 BBQ, STD. DETAIL NO. 12 93 53.13 (REVISED FOR SURFACE MOUNT) SCALE : 1/2"=1'-0"



8 BIKE RACK (SDOT APPROVED)
SCALE (FULL SIZE 24x36): 1"=1'-0"



9 FOR BENCHES WITH BACK TO PATH
SCALE: 1"=1'-0"

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RENOVATION

LANDSCAPE DETAILS

DESIGNED MJ
DRAWN SB
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DATE 13 MAY 2019
SHEET 10 OF 18

ORDINANCE NO. ######/######
CONTRACT NO. ####
SCALE VARIES

L5.1

GENERAL NOTES (U.N.O.)

1. ALL WORK SHALL CONFORM TO THE 2017 EDITION OF CITY OF SEATTLE STANDARD SPECIFICATIONS, THE 2017 EDITION OF THE CITY OF SEATTLE STANDARD PLANS, THE PROJECT MANUAL, AND SEATTLE PARKS STANDARD DETAILS. A COPY OF THESE DOCUMENTS SHALL BE ON SITE DURING CONSTRUCTION.
2. A COPY OF THE APPROVED PLAN MUST BE ON SITE WHENEVER CONSTRUCTION IS IN PROGRESS.
3. ERRORS AND OMISSIONS ON THE PERMITTED PLANS MUST BE CORRECTED BY THE ENGINEER AND APPROVED BY THE CITY OF SEATTLE.
4. ALL PERMITS REQUIRED FOR WORK WITHIN THE PUBLIC RIGHT OF WAY MUST BE OBTAINED PRIOR TO THE START OF CONSTRUCTION.
5. PRIOR TO THE START OF CONSTRUCTION WITHIN THE RIGHT OF WAY, THE PERMITTEE SHALL SCHEDULE AND ATTEND A PRECONSTRUCTION MEETING WITH THE CITY OF SEATTLE DEPARTMENT OF TRANSPORTATION.
6. PERMITTEE SHALL CONTACT SEATTLE DEPARTMENT OF TRANSPORTATION, STREET USE INSPECTOR A MINIMUM OF 2 BUSINESS DAYS PRIOR TO NEEDING AN INSPECTION.
7. ALL DAMAGE TO CITY OR PRIVATE INFRASTRUCTURE CAUSED BY THE CONSTRUCTION SHALL BE REPAIRED AT NO ADDITIONAL COST TO THE OWNER.
8. THE PERMITTEE SHALL BE RESPONSIBLE FOR REFERENCING AND REPLACING ALL MONUMENTS THAT MAY BE DISTURBED, DESTROYED OR REMOVED BY THE PROJECT AND SHALL FILE AN APPLICATION FOR PERMIT TO REMOVE OR DESTROY A SURVEY MONUMENT WITH THE WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES, PURSUANT TO RCW 58.24.040(8).
9. THE PERMITTEE SHALL NOTIFY THE SEATTLE FIRE DEPARTMENT DISPATCHER (206-386-1495) AT LEAST TWENTY-FOUR (24) HOURS IN ADVANCE OF ALL WATER SERVICE INTERRUPTIONS, HYDRANT SHUTOFFS, AND STREET CLOSURES OR OTHER ACCESS BLOCKAGE. THE PERMITTEE SHALL ALSO NOTIFY THE DISPATCHER OF ALL NEW, RELOCATED, OR ELIMINATED HYDRANTS RESULTING FROM THIS WORK.
10. THE PERMITTEE SHALL LOCATE AND PROTECT ALL CASTINGS AND UTILITIES DURING CONSTRUCTION.
11. THE PERMITTEE SHALL CONTACT THE UNDERGROUND UTILITIES LOCATOR SERVICE (1-800-424-5555) AT LEAST 48 HOURS PRIOR TO CONSTRUCTION.
12. IT IS THE SOLE RESPONSIBILITY OF THE PERMITTEE TO VERIFY THE ACCURACY OF ALL UTILITY LOCATIONS SHOWN AND TO FURTHER DISCOVER AND AVOID ANY OTHER UTILITIES NOT SHOWN WHICH MAY BE AFFECTED BY THE IMPLEMENTATION OF THIS PLAN.
13. THE PERMITTEE SHALL ADJUST ALL EXISTING MANHOLE RIMS, DRAINAGE STRUCTURE LIDS, VALVE BOXES, AND UTILITY ACCESS STRUCTURES TO FINISH GRADE WITHIN AREAS AFFECTED BY THE PROPOSED IMPROVEMENTS.
14. SPU-DWW MUST PERFORM ALL CORE DRILL OPERATIONS INTO EXISTING MAINS OR STRUCTURES. CONTRACTORS ARE NOT ALLOWED TO CORE INTO MAINS OR STRUCTURES WITHOUT PRIOR APPROVAL FROM SPU-DWW. TO SCHEDULE CORE CUTS CONTACT SPU-DWW AT 206-615-0511 A MINIMUM 48 HOURS IN ADVANCE.
15. UTILITY SERVICE CONNECTIONS SHOWN ON THIS PLAN REQUIRE SEPARATE PERMITS AND ARE TO BE MAINTAINED PRIVATELY AND NOT BY THE CITY OF SEATTLE.
16. THE PERMITTEE SHALL PROVIDE FOR ALL TESTING AS REQUIRED BY THE CITY OF SEATTLE INSPECTOR.
17. THE PERMITTEE SHALL PROVIDE AND MAINTAIN TEMPORARY EROSION CONTROL AND SEDIMENTATION COLLECTION FACILITIES TO ENSURE THAT SEDIMENT-LADEN WATER DOES NOT ENTER THE NATURAL OR PUBLIC DRAINAGE SYSTEM. AS CONSTRUCTION PROGRESSES AND UNEXPECTED (SEASONAL) CONDITIONS DICTATE, ADDITIONAL CONTROL FACILITIES MAY BE REQUIRED. DURING THE COURSE OF CONSTRUCTION IT SHALL BE THE OBLIGATION AND RESPONSIBILITY OF THE PERMITTEE TO ADDRESS ANY NEW CONDITIONS THAT MAY BE CREATED BY THE PERMITTEE'S ACTIVITIES AND TO PROVIDE ADDITIONAL FACILITIES THAT MAY BE NEEDED TO PROTECT ADJACENT PROPERTIES.
18. THE PERMITTEE SHALL KEEP ALL PAVED SURFACES IN AND AROUND THE PROJECT SITE CLEAN BY SWEEPING PER COS STD SPEC SECTION 8-01.3(16).
19. ALL DISTURBED SOILS SHALL BE AMENDED PER STANDRD PLAN 142 AND SECTION 8-02 OF THE STANDARD SPECIFICATIONS UNLESS WITHIN ONE FOOT OF A CURB OR SIDEWALK, THREE FEET OF A UTILITY STRUCTURE (E.G WATER METER, UTILITY POLE, HAND HOLE, ETC.), OR WITHIN THE DRIPLINE OF AN EXISTING TREE.
20. ALL TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH THE CITY OF SEATTLE TRAFFIC CONTROL MANUAL FOR IN-STREET WORK. AN APPROVED TRAFFIC CONTROL PLAN WILL BE REQUIRED FOR ALL ARTERIAL STREETS PRIOR TO BEGINNING CONSTRUCTION.
21. PERMITTEE SHALL NOTIFY KING COUNTY METRO AT 684-2732 FOURTEEN DAYS IN ADVANCE OF ANY IMPACT TO TRANSIT OPERATIONS.
22. ALL STREET NAME SIGNS MUST BE INSTALLED BY SEATTLE DEPARTMENT OF TRANSPORTATION AT THE PERMITTEE'S EXPENSE.
23. ALL WORK PERFORMED BY SEATTLE CITY LIGHT, SEATTLE PUBLIC UTILITIES, AND OTHER UTILITIES TO REMOVE OR RELOCATE EXISTING UTILITIES SHALL BE DONE AT THE PERMITTEE'S EXPENSE.
24. PERMITTEE MUST CONTACT THE SEATTLE DEPARTMENT OF PARKS AND RECREATION TO APPLY FOR A SEPARATE PERMIT IF WORKING WITHIN A DESIGNATED PARK BOULEVARD.
25. CARE SHALL BE EXERCISED WHEN EXCAVATING NEAR EXISTING CHARGED WATER MAINS.

GENERAL DRAINAGE NOTES (U.N.O.)

1. THE STORM DRAINAGE SYSTEMS SHALL BE CONSTRUCTED ACCORDING TO THE PLANS. ANY DEVIATION FROM THE APPROVED PLANS WILL REQUIRE WRITTEN APPROVAL FROM SDOT, DCI, OR BOTH.
2. THE CONTRACTOR SHALL VERIFY THE LOCATION AND ELEVATION OF ALL CONNECTION POINTS PRIOR TO CONSTRUCTION.
3. SERVICE DRAIN PIPE AND FITTINGS SHALL BE PVC PER ASTM D3034.
4. BEDDING SHALL BE CLASS B FOR ALL PIPE EXCEPT DUCTILE IRON PIPE, WHICH SHALL BE CLASS D. BEDDING MATERIAL FOR PVC PIPE AND CMP SHALL BE MINERAL AGGREGATE TYPE 22. BEDDING MATERIAL FOR PVC PIPE AND CMP SHALL BE MECHANICALLY COMPACTED TO 95% OF MAXIMUM DRY DENSITY AS MEASURED BY ASTM D-698.
5. WHERE A NEW PIPE CLEARS AN EXISTING OR NEW UTILITY BY 6" OR LESS POLYETHYLENE PLASTIC FOAM SHALL BE PLACED AS A CUSHION BETWEEN THE UTILITIES.
6. CATCH BASIN CONNECTIONS, INLET CONNECTIONS, AND SERVICE DRAINS SHALL BE 6" DIAMETER PIPE.
7. TEES, CATCH BASIN CONNECTIONS AND SERVICE DRAINS SHALL BE PLACED AT A MINIMUM SLOPE OF 2% AND A MAXIMUM SLOPE OF 50%, U.N.O. INLET CONNECTIONS SHALL BE PLACED AT A MINIMUM SLOPE 5% AND A MAXIMUM SLOPE OF 50%.
8. SERVICE DRAINS CONNECTED/RECONNECTED AS APPROVED BY DCI INSPECTOR.
9. RE-LAY EXISTING SERVICE DRAINS TO CLEAR OVER OR UNDER THE NEW UTILITY AS APPROVED BY THE ENGINEER.
10. SERVICE DRAINS SHALL NOT BE BACKFILLED UNTIL THE PIPE HAS BEEN INSPECTED AND APPROVED AND THE LOCATION AND DEPTH IS RECORDED BY THE DCI INSPECTOR.
11. TEES ON NEW PIPE LESS THAN 24" IN DIAMETER SHALL BE PREFABRICATED. TEES ON EXISTING PIPE OR ON NEW PIPE WITHOUT PREFABRICATED TEES SHALL BE CONNECTED BY BY CORE DRILLING AND FLEXIBLE CONNECTION.
12. THE CONTRACTOR SHALL PROVIDE SUPPORTS FOR POWER POLES NEAR EXCAVATIONS PER SEATTLE CITY LIGHT.
13. THE CONTRACTOR SHALL TAKE THE NECESSARY PRECAUTIONS DURING TRENCH EXCAVATION TO PROTECT EXISTING UTILITIES FROM DAMAGE AND SETTLEMENT.
14. THE CONTRACTOR SHALL PROVIDE EROSION/SEDIMENTATION CONTROL FACILITIES AS NEEDED TO PREVENT EROSION AND STOP SEDIMENT-LADEN WATERS FROM LEAVING THE SITE.
15. CONTRACTOR TO ACQUIRE SIDE SEWER PERMIT FROM SDCI FOR INSTALLATION OF DRAINAGE IMPROVEMENTS.

SHEET INDEX

EROSION/SEDIMENTATION CONTROL NOTES (U.N.O.)

1. THE IMPLEMENTATION OF THESE CSC PLANS AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT AND UPGRADING OF THESE CSC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ALL CONSTRUCTION IS APPROVED.
2. THE CSC FACILITIES SHOWN ON THIS PLAN MUST BE CONSTRUCTED IN CONJUNCTION WITH ALL CLEARING AND GRADING ACTIVITIES, AND IN SUCH A MANNER AS TO INSURE THAT SEDIMENT LADEN WATER DOES NOT LEAVE THE SITE, ENTER THE DRAINAGE SYSTEM OR VIOLATE APPLICABLE WATER STANDARDS.
3. THE CSC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE CSC FACILITIES SHALL BE UPGRADED (E.G. ADDITIONAL SUMPS, RELOCATION OF DITCHES AND SILT FENCES, ETC.) AS NEEDED FOR UNEXPECTED STORM EVENTS.
4. THE CSC FACILITIES SHALL BE INSPECTED DAILY BY THE CONTRACTOR AND MAINTAINED AS NECESSARY OR AS DIRECTED BY THE CITY OF SEATTLE TO ENSURE THEIR CONTINUED FUNCTIONING.
5. BETWEEN MAY 1ST AND SEPTEMBER 30TH ANY AREA STRIPPED OF VEGETATION, WHERE NO FURTHER WORK IS ANTICIPATED FOR A PERIOD OF 7 DAYS SHALL BE IMMEDIATELY STABILIZED WITH THE APPROVED CSC METHODS (E.G. SEEDING, MULCHING, NETTING, EROSION BLANKETS, ETC.) BETWEEN OCTOBER 1ST AND APRIL 30TH THE PERIOD SHALL BE 2 DAYS.
6. THE CSC FACILITIES ON INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED.
7. STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT AS REQUIRED TO KEEP STREETS CLEAN. ADDITIONAL MEASURES MAY BE REQUIRED TO INSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.
8. CONSTRUCTION EROSION CONTROL MEASURES MUST BE IN PLACE AND APPROVED BY SDCI PRIOR TO ANY EARTH DISTURBANCE. CALL (206) 684-8860 TO SCHEDULE AN INSPECTION APPOINTMENT.
9. NO SEDIMENT SHALL BE TRACKED ONTO PAVED STREETS OR ROADWAYS. SEDIMENT SHALL BE REMOVED FROM TRUCKS AND EQUIPMENT PRIOR TO LEAVING THE CONSTRUCTION SITE. IN THE EVENT OF FAILURE OF THE CSC SYSTEM RESULTING IN SEDIMENT TRACKING ONTO PAVEMENT, THE CONTRACTOR SHALL IMPLEMENT MEASURES IMMEDIATELY TO CORRECT THE SITUATION. THE CONTRACTOR SHALL EMPLOY EMERGENCY MEASURES TO REMOVED SEDIMENT FROM PAVED SURFACES, AS NEEDED. STREET SWEEPING SHALL BE CONSIDERED AN EMERGENCY MEASURE AND NOT A BASIC COMPONENT OF THE CSC SYSTEM. SEDIMENT TRACKED ONTO PAVED SURFACES SHALL NOT BE WASHED INTO STORM DRAINS OR OTHER UTILITY INLETS.
10. GRADING MUST BE STABLIZED BY OCTOBER 31ST, AND NO EXCAVATION OR FILL PLACEMENT TO BE PERFORMED BETWEEN OCTOBER 31ST AND APRIL 1ST.
11. A PRE-CONSTRUCTION MEETING IS REQUIRED BETWEEN THE OWNER'S REPRESENTATIVES (GEOTECHNICAL SPECIAL INSPECTOR, GENERAL CONTRACTOR, AND EXCAVATION CONTRACTOR) AND SDCI SITE INSPECTOR. CONTACT (206) 684-8860 TO ARRANGE MEETING.
12. THE CONTRACTOR SHALL PROVIDE SUMPS, PUMPS, STORMWATER TREATMENT SYSTEMS AND INTERCEPTOR SWALES NECESSARY FOR CONSTRUCTION DISCHARGES. NUMBER, LOCATION AND SIZE OF TEMPORARY SUMPS, PUMPS AND SWALES SHALL BE DETERMINED BY CONTRACTOR IN ACCORDANCE WITH HIS OPERATIONS.

ABBREVIATIONS

ACP	ASPHALT CONCRETE PAVEMENT	LA	LANDSCAPE
APPROX	APPROXIMATE	LF	LINEAL FEET
ARCH	ARCHITECTURAL	MECH	MECHANICAL
ATB	ASPHALT TREATED BASE	MJ	MECHANICAL JOINT
CB	CATCH BASIN	N	NORTH
CEM	PORTLAND CEMENT	OC	ON CENTER
CL	CLASS	OD	OUTSIDE DIAMETER
CONC	CONCRETE	POC	POINT OF CONNECTION
COS	CITY OF SEATTLE	PROP	PROPOSED
COORD	COORDINATE	PVMT	PAVEMENT
CSTC	CRUSHED SURFACING TOP COURSE	REF	REFERENCE
DEMO	DEMOLITION	REM	REMOVE
DIA	DIAMETER	REQ	REQUIRED
E	EAST	S	SOUTH
ELEC	ELECTRICAL	SCH	SCHEDULE
ELEV	ELEVATION	SD	STORM DRAIN
EX, EXIST	EXISTING	SDOT	SEATTLE DEPARTMENT OF TRANSPORTATION
FDC	FIRE DEPARTMENT CONNECTION		
FF	FINISH FLOOR	SPKLR	FIRE SPRINKLER
FG	FINISHED GRADE	SPU	SEATTLE PUBLIC UTILITIES
FL	FLANGE	SQ	SQUARE
GA	GAUGE	SS	SANITARY SEWER
GV	GATE VALVE	STRUCT	STRUCTURAL
HMA	HOT MIX ASPHALT	TYP	TYPICAL
IE	INVERT ELEVATION	UNO	UNLESS NOTED OTHERWISE
L	LENGTH	W	WEST
		W/	WITH
		WA	WATER

>>>>CAUTION - CALL 811<<<<
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Also, verify all underground utilities not located by the 811 service by using a commercial location service and call SPR Inspection Request Line (206) 684-7034.

100% CONSTRUCTION DOCUMENTS

13 MAY 2019

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REVIEWED: _____ PARK ENGINEER _____ DATE

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sitewise design PLLC
A CIVIL ENGINEERING COMPANY
219 First Avenue S., Suite 401
Seattle WA 98104
206 402 4644

STEVEN E. HATGENBERG — STATE OF WASHINGTON — 38332 — REGISTERED PROFESSIONAL ENGINEER

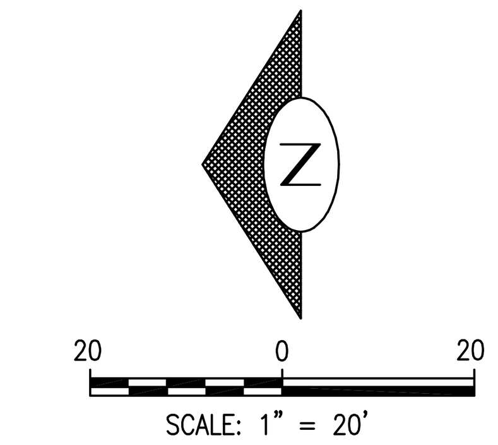
Seattle Parks & Recreation

DUWAMISH WATERWAY PARK
7900 10TH AVE SOUTH, SEATTLE, WA 98106

RENOVATION

CIVIL NOTES

DESIGNED SH	DATE 13 MAY 2019
DRAWN RY	SHEET 11 OF 18
CHECKED SH	
ORDINANCE NO. X	C1.0
CONTRACT NO. X	
SCALE 1"=20'	



DATUM

NAVD 88 – SEE SITE SURVEY FOR BENCHMARK AND ADDITIONAL INFORMATION.

LEGEND

- TEMPORARY CB INSERT PER SEATTLE PARKS STD DET 01 57 13.23 (1/C6.0)
- TEMPORARY ANTI–SILTATION FENCING PER SEATTLE PARKS STD DET 01 57 13.29 (2/C6.0)
- STRAW WATTLE (3/C6.0)
- TEMPORARY CONSTRUCTION FENCE PER LA PLANS, SEE 1/L5.0
- TEMPORARY TREE PROTECTION FENCE PER LA PLANS, SEE 2/L5.0

NOTES

1. SEE SHEET C1.0 FOR GENERAL NOTES.
2. MAINTAIN/RELOCATE CSC MEASURES AND PROVIDE ADDITIONAL CSC MEASURES AS REQUIRED TO STABILIZE EXPOSED SOILS, MINIMIZE SEDIMENT TRANSPORT ON SITE, AND MEET ALL SITE DISCHARGE AND PERMIT REQUIREMENTS. ADDITIONAL FACILITIES BEYOND THOSE INDICATED ON THIS PLAN MAY BE REQUIRED, AND IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE AND PROVIDE ADDITIONAL MEASURES THAT ARE NECESSITATED DUE TO THEIR OPERATIONS AND SEQUENCING OF THE WORK. ALL CSC MEASURES SHALL BE REMOVED FOLLOWING SITE STABILIZATION WITH FINAL PAVING AND PLANTING.
3. NOT ALL REQUIRED CB PROTECTION IS INDICATED ON THIS PLAN. INSTALL CB PROTECTION PER DETAIL 1/C6.0 ON ALL EX CB'S TO REMAIN DURING CONSTRUCTION AND ALL INSTALLED CB'S. MAINTAIN PROTECTION UNTIL TRIBUTARY SURFACES ARE STABILIZED.
4. ALL LOCATIONS OF EXISTING UTILITIES SHOWN HEREON HAVE BEEN ESTABLISHED BY FIELD SURVEY OR OBTAINED FROM AVAILABLE RECORDS AND SHOULD THEREFORE BE CONSIDERED APPROXIMATE ONLY AND NOT NECESSARILY COMPLETE. FIELD VERIFY LOCATION AND DEPTH OF ALL UTILITIES IN AREA OF EXCAVATION AND NOTIFY ENGINEER OF ANY DISCREPANCIES TWO WEEKS PRIOR TO PERFORMING ANY TEMP. SHORING OR EXCAVATION WORK.
5. COORDINATE ALL UTILITY INTERRUPTIONS WITH AFFECTED FACILITY OWNERS. PROVIDE MINIMUM 2 WEEKS ADVANCE NOTICE OF ALL INTERRUPTIONS.
6. THE CONTRACTOR SHALL PROCURE ALL SIDE SEWER PERMITS AND REQUIRED APPROVALS FROM COS FOR CONSTRUCTION DEWATERING/STORMWATER DISCHARGES.
7. ALL TEMP. PIPING SHALL BE REMOVED AND ALL TEMP. PIPE CONNECTIONS CAPPED/PLUGGED UPON TERMINATION OF USE.
8. COORDINATE ALL UTILITY DEMOLITION WITH CONSTRUCTION OF NEW SYSTEMS. TEMPORARILY MAINTAIN EXISTING UTILITY SYSTEM AS REQUIRED TO CONVEY FLOWS FROM PORTIONS OF SITE OUTSIDE CONSTRUCTION AREAS AND PROVIDE TEMPORARY BYPASS AND PUMPING SYSTEMS AS REQUIRED BY CONTRACTORS OPERATIONS AND OWNERS USE OF FACILITIES.

>>>>CAUTION - CALL 811<<<<
UTILITY NOTIFICATION CENTER
BEFORE YOU DIG!
WWW.CALL811.COM

Also, verify all underground utilities not located by the 811 service by using a commercial location service and call SPR Inspection Request Line (206) 684-7034.

100% CONSTRUCTION DOCUMENTS

13 MAY 2019

2

NO.	REVISION – AS BUILT	DATE
3		
2	2 PERMIT REVISIONS	11/18/19
1	1 PERMIT REVISIONS	7/18/19

REVIEWED: ____ PARK ENGINEER ____ DATE

All work done in accordance with the City of Seattle Standard Plans and Specifications in effect on the date shown above, and supplemented by Special Provisions.

sitewise design PLLC
A CIVIL ENGINEERING COMPANY
219 First Avenue S., Suite 401
Seattle WA 98104
206 402 4644

STEVEN E. HATZENBELER
STATE OF WASHINGTON
38332
REGISTERED PROFESSIONAL ENGINEER

Seattle Parks & Recreation

DUWAMISH WATERWAY PARK
7900 10TH AVE SOUTH, SEATTLE, WA 98106

RENOVATION

CSC PLAN

DESIGNED SH
DRAWN RY
CHECKED SH
DATE 13 MAY 2019
SHEET 12 OF 18
ORDINANCE NO. X
CONTRACT NO. X
C2.0
SCALE 1"=20'

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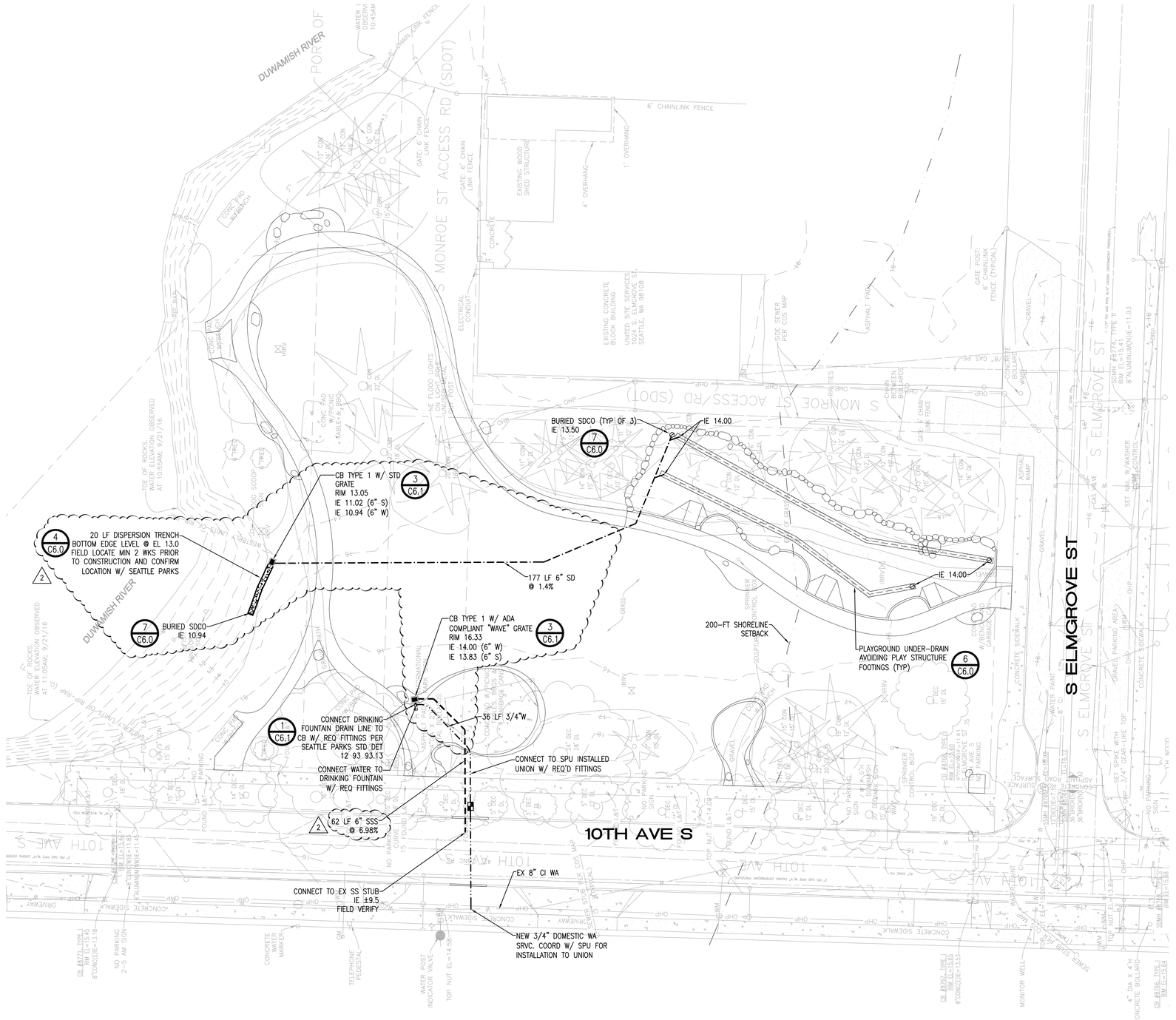

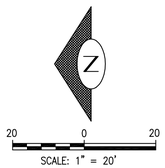

DATUM

NAVD 88 – SEE SITE SURVEY FOR BENCHMARK AND ADDITIONAL INFORMATION.

LEGEND

- CB TYPE 1 (3/C6.1)
- CLEANOUT (4/C6.0)
- BURIED CLEANOUT (7/C6.0)
- WATER METER
- LINEAR DISTRIBUTION TRENCH (6/C6.0)
- 3/4" WATER SERVICE LINE
- 6" PVC SANITARY SIDE SEWER

NOTES

1. SEE SHEET C1.0 FOR GENERAL NOTES.
2. VERIFY INVERTS OF ALL EX. SYSTEMS AT PROPOSED POC'S TO NEW LINES PRIOR TO ORDERING OF MATERIAL AND NOTIFY ENGINEER OF ANY DISCREPANCIES AT LEAST 4 WORKING DAYS PRIOR TO STARTING PIPE LAYING OPERATIONS.
3. TRENCH SECTION SHALL BE PER SEATTLE PARKS STD DET 33 49 26.13. SEE DETAIL 5/C6.0.
4. THE CONTRACTOR SHALL TAKE THE NECESSARY PRECAUTIONS DURING TRENCH EXCAVATION TO PROTECT EXISTING UTILITIES FROM DAMAGE AND SETTLEMENT.
5. RESTORATION FOR ALL UTILITY CUTS IN EXISTING PVMT SHALL BE PER SDOT DIRECTORS RULE 01-2017 IN THE ROW. CONTRACTOR SHALL COORDINATE WITH SDOT AS REQUIRED AND SHALL PAY ALL COSTS FOR RESTORATION.

>>>>CAUTION - CALL 811<<<<
UTILITY NOTIFICATION CENTER BEFORE YOU DIG!
WWW.CALL811.COM
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100% CONSTRUCTION DOCUMENTS

13 MAY 2019

2

NO.	REVISION – AS BUILT	DATE
3		
2	2 PERMIT REVISIONS	11/18/19
1	1 PERMIT REVISIONS	7/18/19

REVIEWED:
PARK ENGINEER DATE

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sitewise design PLLC
A CIVIL ENGINEERING COMPANY
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Seattle WA 98104
206 402 4644

STEVEN E. HATZENBELER STATE OF WASHINGTON 38332 REGISTERED PROFESSIONAL ENGINEER

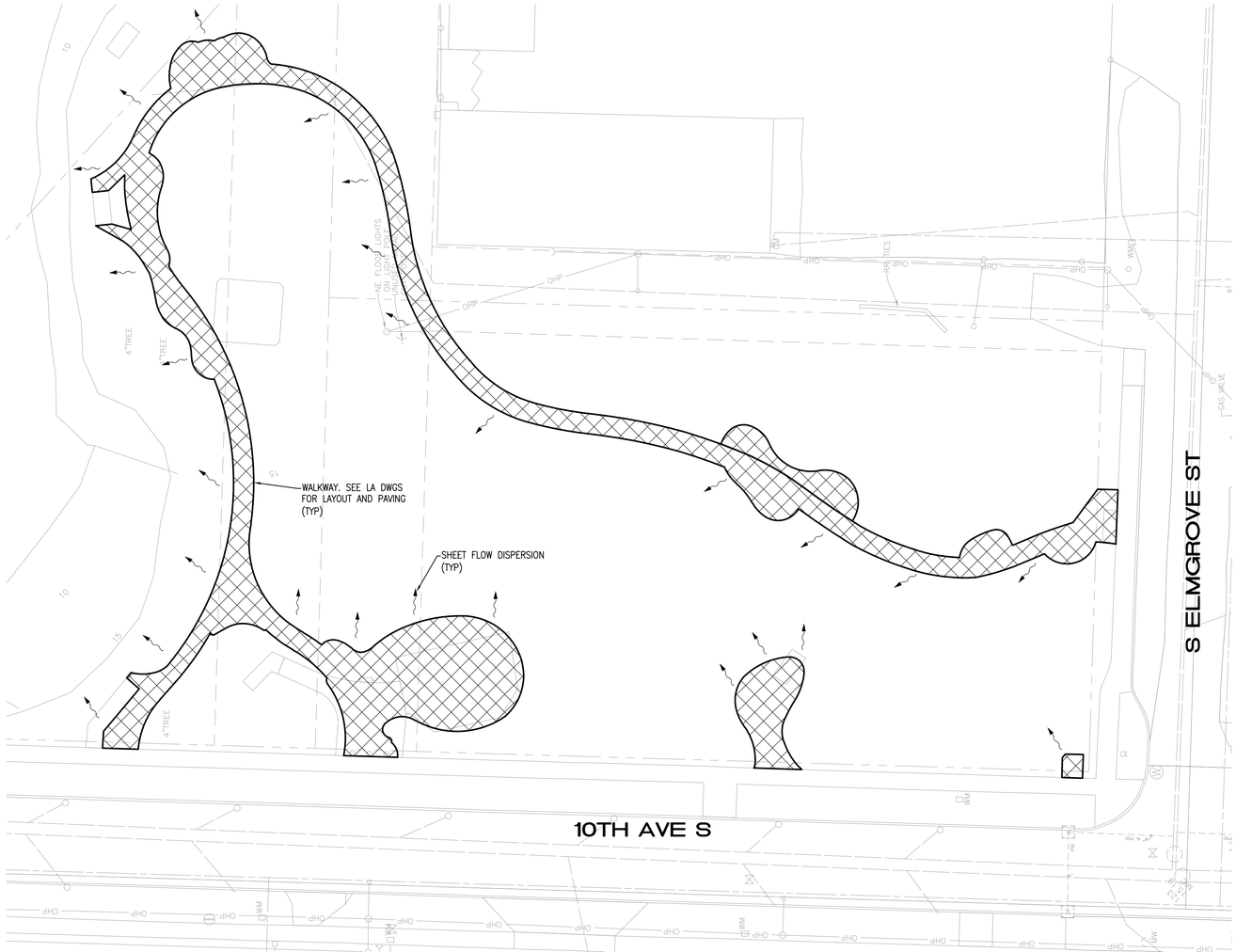
Seattle Parks & Recreation

DUWAMISH WATERWAY PARK
7900 10TH AVE SOUTH, SEATTLE, WA 98106

RENOVATION

UTILITY PLAN

DESIGNED SH	DATE 13 MAY 2019
DRAWN RY	SHEET 13 OF 18
CHECKED SH	
ORDINANCE NO. X	C3.0
CONTRACT NO. X	
SCALE 1"=20'	



DATUM

NAVD 88 – SEE SITE SURVEY FOR BENCHMARK AND ADDITIONAL INFORMATION.

LEGEND

SURFACE 1: NON–ROOF AREA (MITIGATED VIA SHEET FLOW DISPERSION)
AREA: 7,163 SF

On-site Stormwater Management - List Approach Calculator
Site and Drainage Control Summary

Version 07-28-2017

To use the On-Site List Calculator you must select "Enable Content" when the Security Warning appears.

Project Information

Site Address	7900 10th Ave S	SDCI Project Number	6703972-CN
Primary Contact	Steve Hatzenbeler	SDOT Project Number	N/A
Project Type	Trail and Sidewalk	Primary Contact E-mail or Phone	206-402-4644

Total Site Area	63,489	sf
Total New plus Replaced Hard Surface Area	7,163	sf
Existing Hard Surface Area to Remain	0	sf
Total New and/or Replaced Lawn and Landscaping	15,000	sf
Undisturbed and protected site area	41,326	sf

Was the project lot created or reduced in size after Jan 1, 2016?

Project Engineer: Steve Hatzenbeler — Engineer E-mail: Steve@Sitewisepllc.com

On-site Stormwater Management is required for ≥ 2,000 sf of new plus replaced area.

On-site Performance Standard will be used (professional engineer required)? No

Site Information

Note: If required for your project, reference the Preliminary Assessment Report (PAR) to complete this section. If the total areas proposed are different form those provided in the PAR, requirements may change.

Approved Point of Stormwater Discharge: Direct to Receiving Water
Drainage Basin: Designated Receiving Water
Is the downstream drainage system considered Capacity Constrained by SPU? No
Approved Point of Wastewater Discharge: Does Not Apply for Roadway or Trail and Sidewalk projects
Approved Point of Sub-Surface Discharge: Direct to Receiving Water
Flow Control is required: No
Flow Control Standard:
Water Treatment for pollution-generating surfaces is required: No
Select required treatment: ☐ Oil Control ☐ Phosphorus ☐ Enhanced ☐ Basic
Total Pollution Generating Hard Surface Area: sf
Total Pollution Generating Pervious Surface Area: sf
Source Control is required: No
Environmentally Critical Areas: Yes

☐ Steep Slope ☐ Potential Slide ☐ Riparian Corridor ☐ Wetland ☑ Liquefaction ☐ Flood Prone
☐ Landfill ☐ Known Landslide ☑ Fish / Wildlife ☐ Peat / Groundwater Management ☐ Shoreline Habitat

Temporary dewatering required: No — Permanent dewatering required:
Is there known soil and/or groundwater contamination on this site?
A licensed professional recommends dispersion not be used anywhere within the project site due to reasonable concerns of erosion, slope failure, or flooding.

Infiltration Information

Is infiltration investigation required? No — Why? Other
Is infiltration on the site feasible? No — Why? Site cannot meet required vertical separation requirements
Site Measured Infiltration Rate: x Infiltration Rate Correction Factor 0.5 = 0 Site Design Inf Rate

On-site Stormwater Management

Number of roof areas: 0
Number of other surface areas: 1

Surface	Surfaces Description	On-site BMP	Contrib. Area (sf)	Facility Size (sf)	Facility Configuration
1	Surface:Gravel Path	Sheet Flow Dispersion	7,163	-	

Total New/Replaced Roof Area	0	Total Roof Area Managed	0
Total New/Replaced Other Surface Area	7,163	Total Other Surface Managed	7,163
Total Area Managed	7,163	Total Volume Managed On Site	86,420 gal
Estimated compost required for soil amendment	93 cy	*Volume of compost required for soil amendment will be verified by the DPD Site Inspector for SDCI permitted projects.*	

seattle.gov

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UTILITY NOTIFICATION CENTER
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100% CONSTRUCTION DOCUMENTS

13 MAY 2019

2

NO.	REVISION – AS BUILT	
3		
2	2 PERMIT REVISIONS	11/18/19
1	1 PERMIT REVISIONS	7/18/19

REVIEWED:
PARK ENGINEER — DATE

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219 First Avenue S., Suite 401
Seattle WA 98104
206 402 4644

STEVEN E. HATZENBELER — STATE OF WASHINGTON — 38332 — REGISTERED PROFESSIONAL ENGINEER

Seattle Parks & Recreation

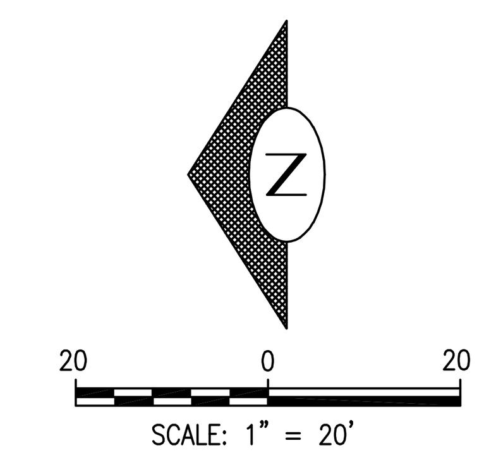
DUWAMISH WATERWAY PARK
7900 10TH AVE SOUTH, SEATTLE, WA 98106

RENOVATION

OSSM PLAN (TRAIL)

DESIGNED	SH	DATE	13 MAY 2019
DRAWN	RY	SHEET	14 OF 18
CHECKED	SH		
ORDINANCE NO.	X	**C4.0**	
CONTRACT NO.	X		
SCALE	1"=20'		

File: Z:\2019 Project Documents\18040 Duwamish Waterway Pk\PLANS\DWP-OSSM (TRAIL).dwg ID: Sheet Date: 15-Nov-19 4:23:44pm



DATUM

NAVD 88 – SEE SITE SURVEY FOR BENCHMARK AND ADDITIONAL INFORMATION.

LEGEND

SURFACE 1: NON–ROOF AREA (MITIGATED VIA PERMEABLE PAVEMENT EQUIVALENT: UNDER–DRAINS ARE 4" ABOVE BOTTOM OF DRAIN TRENCHES) AREA: 4,019 SF (2)

On-site Stormwater Management - List Approach Calculator
Site and Drainage Control Summary

Version 07-28-2017

To use the On-Site List Calculator you must select "Enable Content" when the Security Warning appears.

Project Information

Site Address	7900 10th Ave S	SDCI Project Number	6703972-CN
Primary Contact	Steve Hatzenbeler	SDOT Project Number	N/A
Project Type	Parcel-Based	Primary Contact E-mail or Phone	206-402-4644

Total Site Area	4,019	sf
Total New plus Replaced Hard Surface Area	4,019	sf
Existing Hard Surface Area to Remain	0	sf
Total New and/or Replaced Lawn and Landscaping	0	sf
Undisturbed and protected site area	0	sf
Was the project lot created or reduced in size after Jan 1, 2016?	No	

Project Engineer: Steve Hatzenbeler — Engineer E-mail: Steve@Sitewisepllc.com

On-site Stormwater Management required for ≥ 1,500 sf of new plus replaced area.

On-site Performance Standard will be used (professional engineer required)? No

Site Information

Note: If required for your project, reference the Preliminary Assessment Report (PAR) to complete this section. If the total areas proposed are different form those provided in the PAR, requirements may change.

Approved Point of Stormwater Discharge	Direct to Receiving Water
Drainage Basin	Designated Receiving Water
Is the downstream drainage system considered Capacity Constrained by SPU?	No
Approved Point of Wastewater Discharge	Public Combined Sewer Main
Approved Point of Sub-Surface Discharge	Direct to Receiving Water
Flow Control is required	No
Flow Control Standard	
Water Treatment for pollution-generating surfaces is required	No

Select required treatment: ☐ Oil Control ☐ Phosphorus ☐ Enhanced ☐ Basic

Total Pollution Generating Hard Surface Area ______ sf

Total Pollution Generating Pervious Surface Area ______ sf

Source Control is required	No
Environmentally Critical Areas	Yes

☐ Steep Slope ☐ Potential Slide ☐ Riparian Corridor ☐ Wetland ☑ Liquefaction ☐ Flood Prone

☐ Landfill ☐ Known Landslide ☑ Fish / Wildlife ☐ Peat / Groundwater Management ☐ Shoreline Habitat

Temporary dewatering required: No — Permanent dewatering required: ______

Is there known soil and/or groundwater contamination on this site? No

A licensed professional recommends dispersion not be used anywhere within the project site due to reasonable concerns of erosion, slope failure, or flooding. No

Infiltration Information

Is infiltration investigation required? No — Why? Other

Is infiltration on the site feasible? No — Why? Site cannot meet required vertical separation requirements

Site Measured Infiltration Rate x Infiltration Rate Correction Factor 0.5 = 0 Site Design Inf Rate

On-site Stormwater Management

Number of roof areas: 0

Number of other surface areas: 1

Surface	Surfaces Description	On-site BMP	Contrib. Area (sf)	Facility Size (sf)	Facility Configuration
1	Surface:Playground Surf	Permeable Pavement Surface	4,019	4,019 sf	

Total New/Replaced Roof Area	0	Total Roof Area Managed	0
Total New/Replaced Other Surface Area	4,019	Total Other Surface Managed	4,019
Total Area Managed	4,019	Total Volume Managed On Site	58,401 gal
Estimated compost required for soil amendment	0 cy	*Volume of compost required for soil amendment will be verified by the DPD Site Inspector for SDCI permitted projects.*	

seattle.gov

>>>>CAUTION - CALL 811<<<<
UTILITY NOTIFICATION CENTER BEFORE YOU DIG!
WWW.CALL811.COM

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100% CONSTRUCTION DOCUMENTS

13 MAY 2019 (2)

NO.	REVISION – AS BUILT	DATE
3		
2	(2) PERMIT REVISIONS	11/18/19
1	(1) PERMIT REVISIONS	7/18/19

REVIEWED: PARK ENGINEER ______ DATE ______

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Seattle WA 98104
206 402 4644

STEVEN E. HATZENBELER, STATE OF WASHINGTON, 38332, REGISTERED PROFESSIONAL ENGINEER

Seattle Parks & Recreation

DUWAMISH WATERWAY PARK
7900 10TH AVE SOUTH, SEATTLE, WA 98106

RENOVATION

OSSM PLAN (PARCEL-BASED)

DESIGNED	SH	DATE	13 MAY 2019
DRAWN	RY	SHEET	15 OF 18
CHECKED	SH		
ORDINANCE NO.	X		C4.1
CONTRACT NO.	X		
SCALE	1"=20'		

SCALE: 1" = 20'

DATUM

NAVD 88 – SEE SITE SURVEY FOR BENCHMARK AND ADDITIONAL INFORMATION.

LEGEND

[concrete paving hatch]	CONCRETE PAVING PER 4/L5.0
[crushed rock hatch]	CRUSHED ROCK PAVING PER 3/L5.0
XX.XX	PROPOSED F.G. ELEVATION
175	PROPOSED F.G. CONTOUR

NOTES

1. ALL EARTHWORK AND SUBGRADE PREPARATION SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS AND RECOMMENDATIONS OF GEOTECHNICAL REPORT PREPARED FOR THIS PROJECT.
2. SEE ARCH/LA PLANS FOR ADDITIONAL SURFACING INFO AND SPECIAL FINISHES/SCORING.
3. FINISH GRADE INDICATED IS FINAL SURFACE ELEVATION FOLLOWING PLACEMENT OF ALL SURFACING MATERIALS.
4. GRADE ALL AREAS TO PROVIDE DRAINAGE AWAY FROM THE BUILDINGS. FINE GRADE AREAS TO DIRECT DRAINAGE TO DRAINAGE STRUCTURES.
5. COORDINATE GRADING AROUND BUILDING WITH ARCHITECTURAL DWGS. NOTIFY ENGINEER OF ANY DISCREPANCIES.
6. RESTORATION FOR ALL UTILITY CUTS IN EXISTING PVMT SHALL BE PER SDOT DIRECTORS RULE 01-2017 IN THE ROW. CONTRACTOR SHALL COORDINATE WITH SDOT AS REQUIRED AND SHALL PAY ALL COSTS FOR RESTORATION.

IMPERVIOUS SURFACE COVERAGE

NORTH OF SHORELINE SETBACK
EXISTING: 3,598 SF
PROPOSED: 8,149 SF

SOUTH OF SHORELINE SETBACK
EXISTING: 401 SF
PROPOSED: 3,033 SF

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WWW.CALL811.COM

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100% CONSTRUCTION DOCUMENTS
13 MAY 2019
2

NO.	REVISION – AS BUILT	DATE
3		
2	2 PERMIT REVISIONS	11/18/19
1	1 PERMIT REVISIONS	7/18/19

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Seattle Parks & Recreation

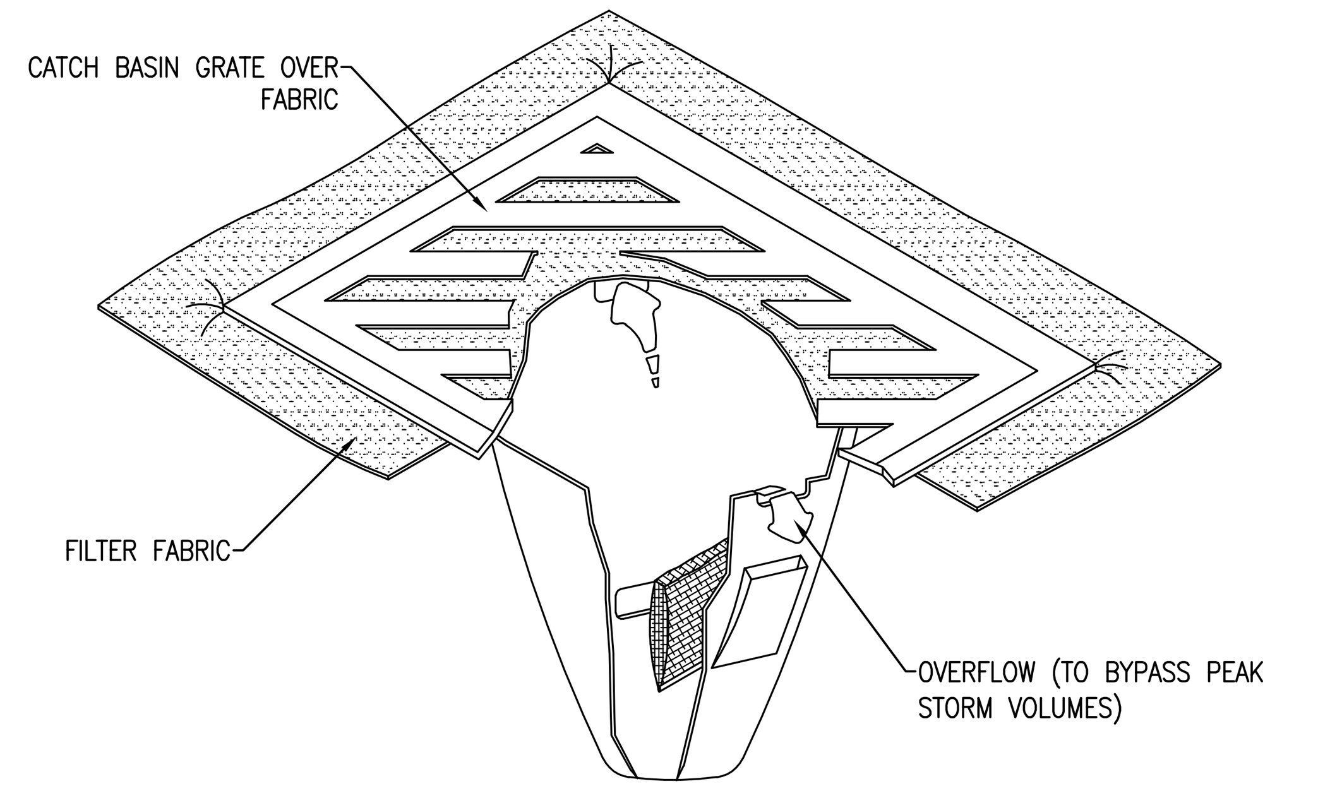
DUWAMISH WATERWAY PARK
7900 10TH AVE SOUTH, SEATTLE, WA 98106

RENOVATION

GRADING & PAVING PLAN

DESIGNED	SH	DATE	13 MAY 2019
DRAWN	RY	SHEET	16 OF 18
CHECKED	SH		C5.0
ORDINANCE NO.	X		
CONTRACT NO.	X		
SCALE	1"=20'		

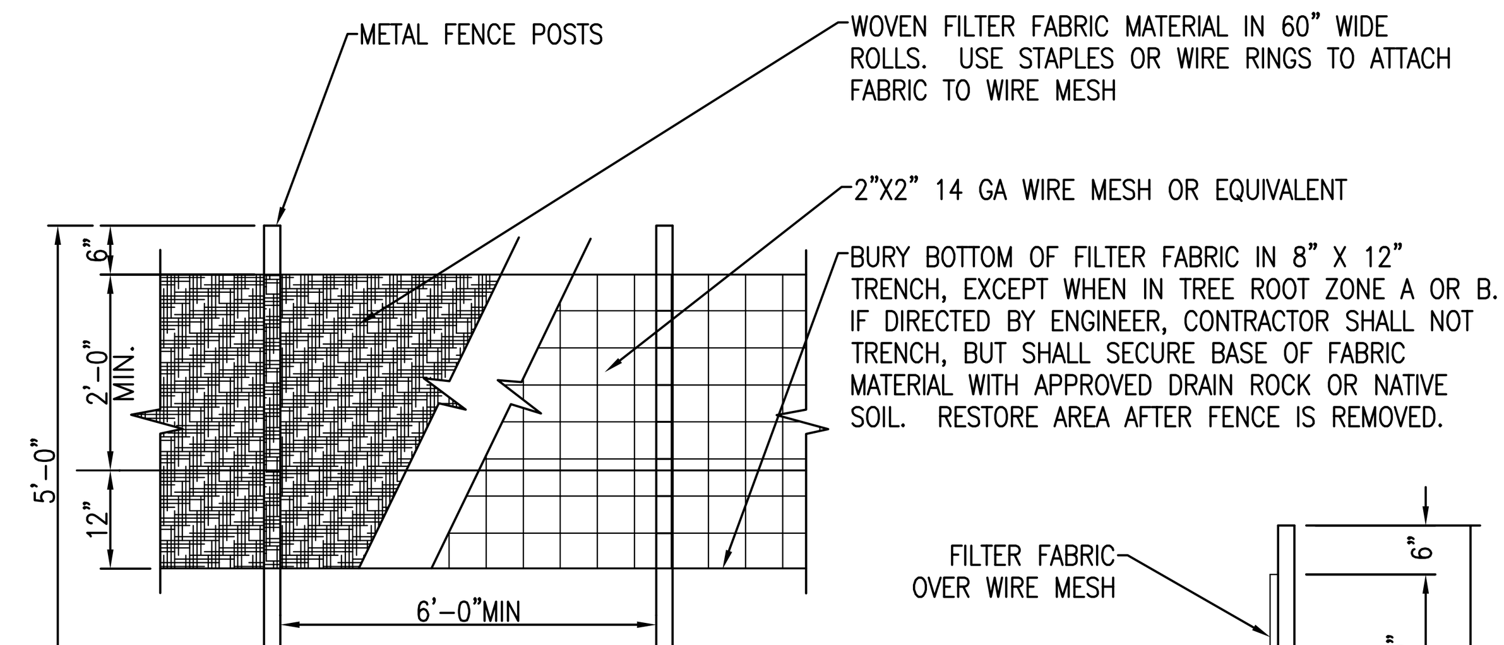
File: Z:\2018 Project Documents\18040 Duwamish Waterway Pk\PLANS\DW-PAV.dwg © Steve Date: 15-Nov-19 4:25:56pm



NOTES:
1. STORM DRAIN INLETS NEED TO BE REMOVED AT THE END OF THE JOB.
2. STORM DRAIN INLETS ARE ONLY TO BE INSTALLED IN DRAINAGE DEVICES PER THE MANUFACTURER'S RECOMMENDATIONS. CATCH BASIN INSERTS ARE NOT TO BE INSTALLED IN CURB INLETS.
3. INSERTS SHALL BE INSPECTED AND MAINTAINED WHEN A ½ INCH RAIN ACCUMULATES WITHIN A 24 HOUR PERIOD. CLEAN AND/OR REPLACE INSERT WHEN HALF OF THE TRAP IS FILLED WITH SEDIMENTS.

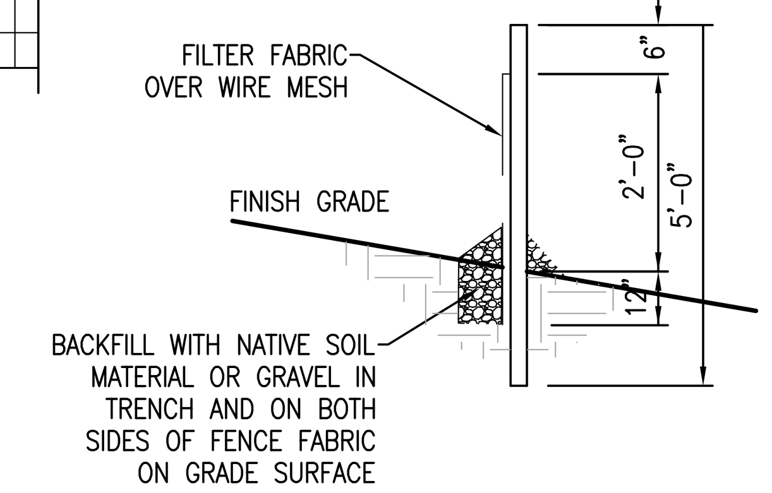
PURPOSE: TO PREVENT SEDIMENT FROM ENTERING STORM DRAINAGE SYSTEMS PRIOR TO PERMANENT STABILIZATION OF THE DISTURBED AREA.

1 C6.0 TEMPORARY CB INSERT
NTS

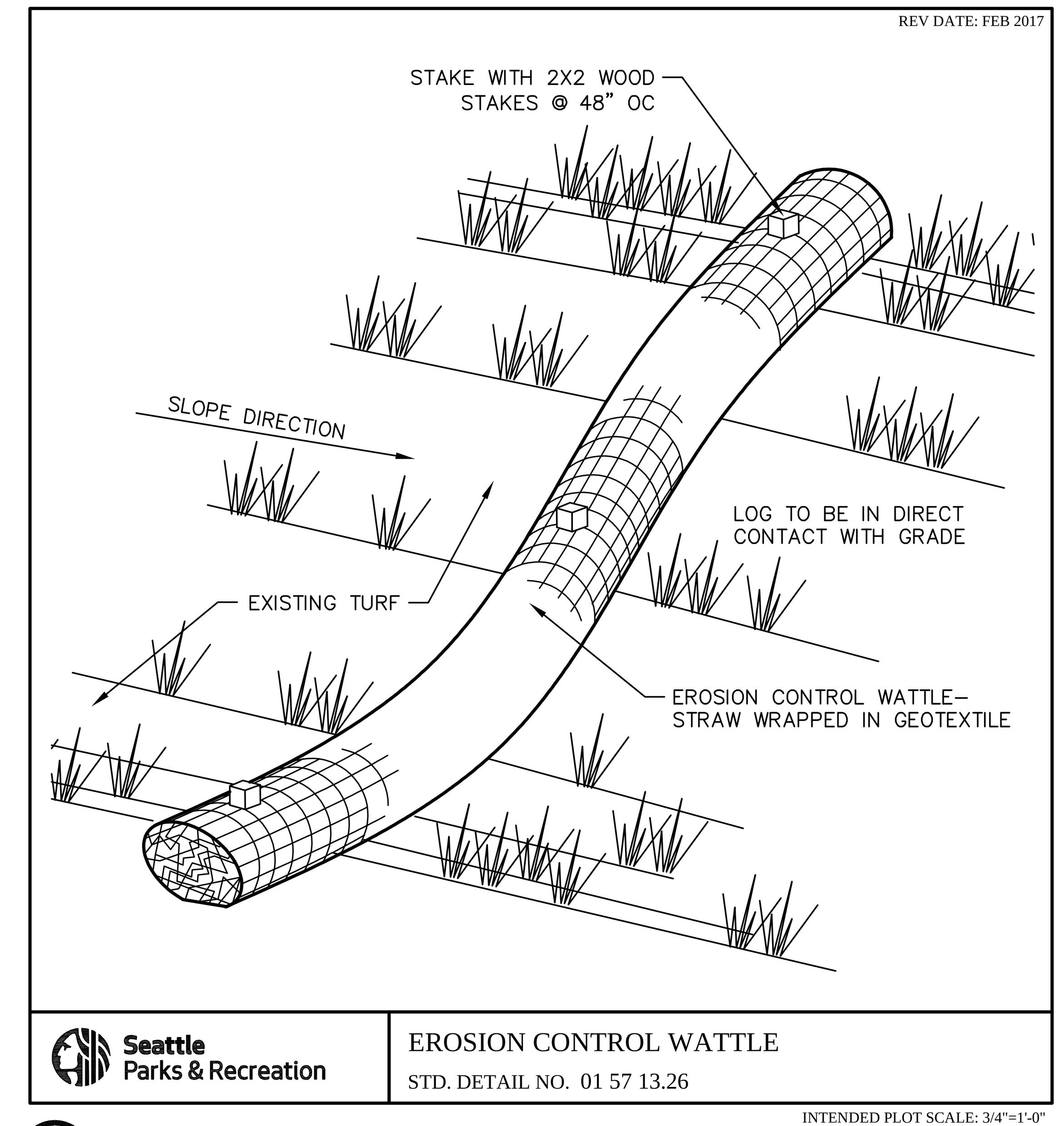


NOTE: ANGLE SILT FENCE BACK UP SLOPE AT THE END OF THE RUN

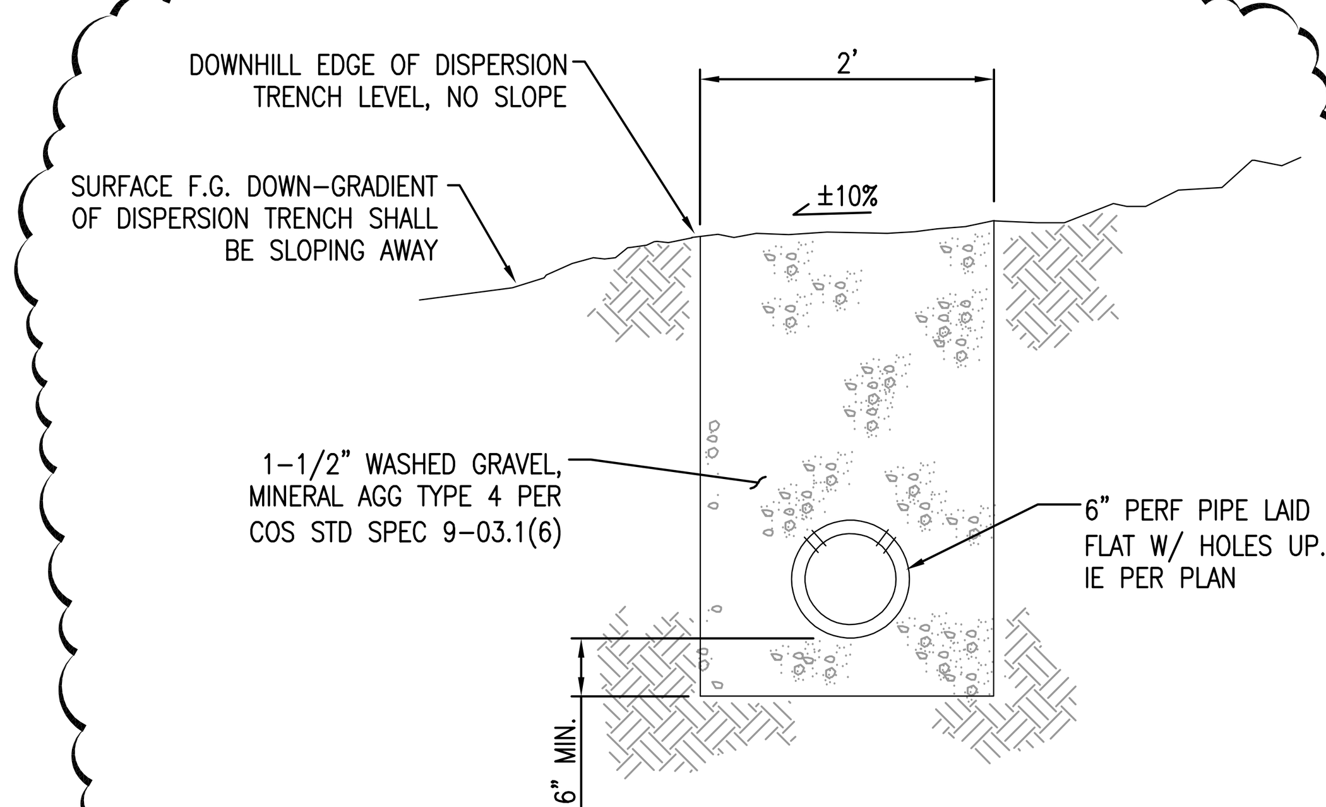
PURPOSE: TO INTERCEPT & DETAIN SMALL AMOUNTS OF SEDIMENT UNDER SHEET FLOW CONDITIONS FROM DISTURBED AREAS DURING CONSTRUCTION AND TO REDUCE THE VELOCITY OF SHEET FLOWS.



2 C6.0 TEMPORARY ANTI-SILTATION FENCING
NTS

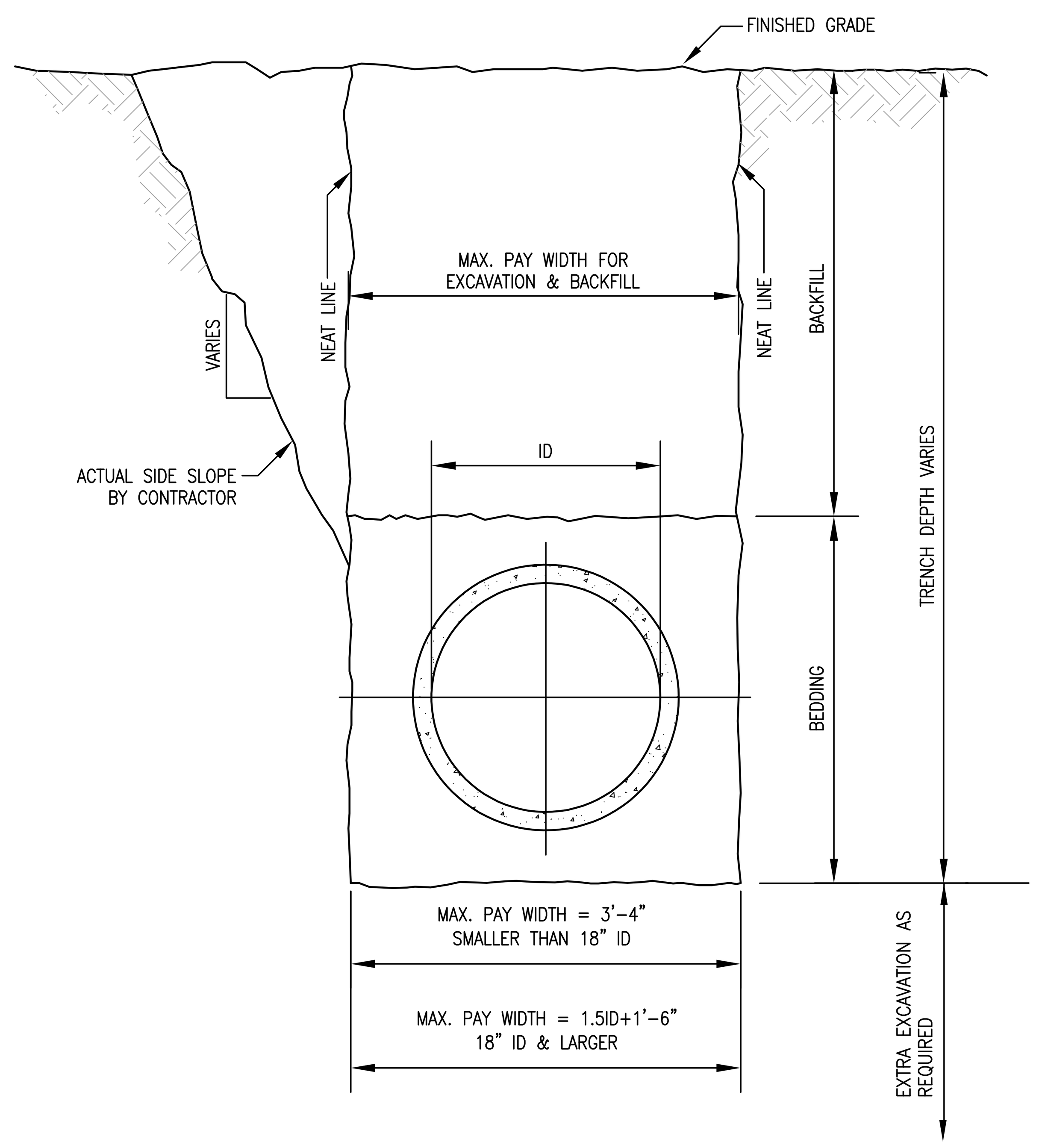


3 C6.0 STRAW WATTLE
NTS



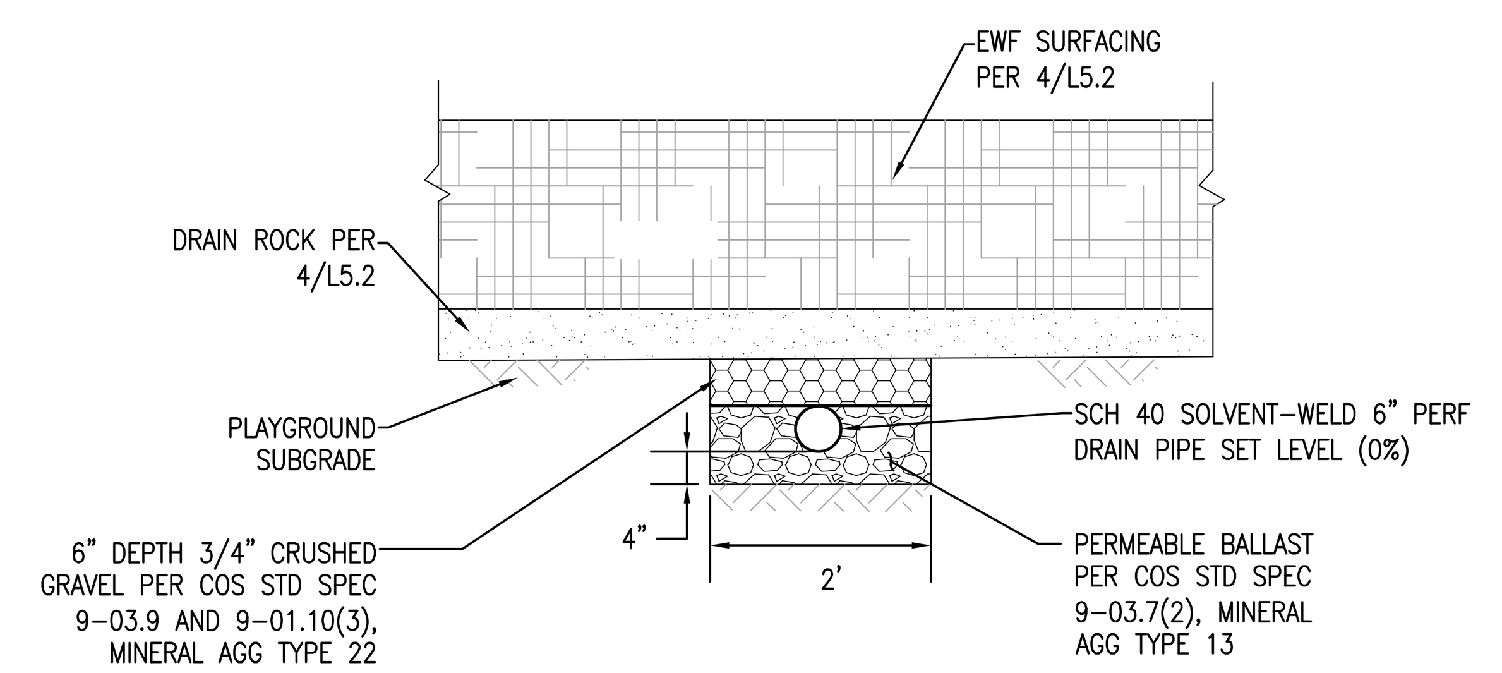
NOTE:
TRENCH SHALL BE CONSTRUCTED SO AS TO PREVENT POINT DISCHARGE.

4 C6.0 DISPERSION TRENCH
NTS

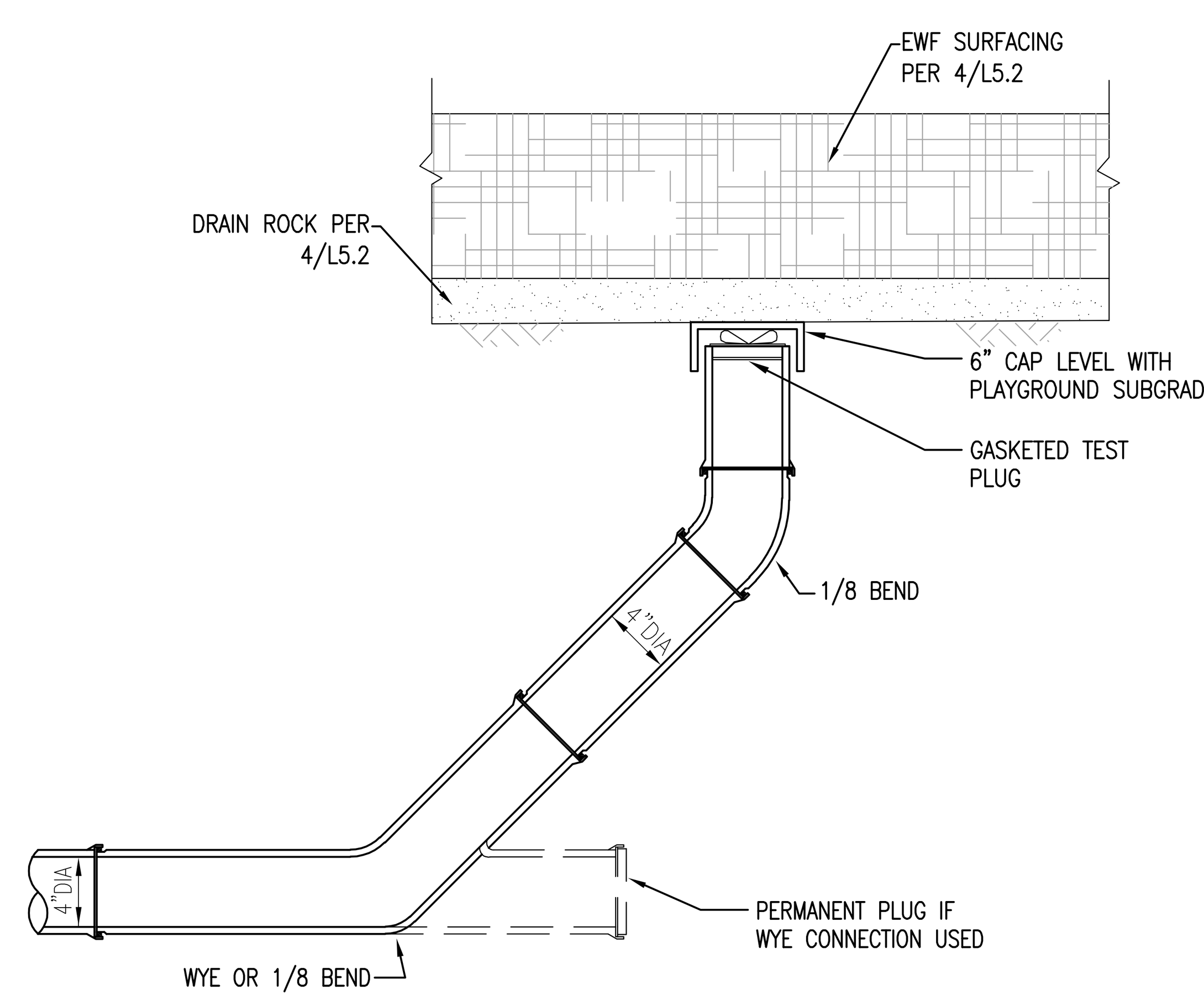


TYPICAL TRENCH SECTION
(SANITARY & STORM SEWERS)

5 C6.0 TYPICAL TRENCH SECTION
NTS



6 C6.0 PLAYGROUND UNDER-DRAIN
NTS



7 C6.0 BURIED CLEANOUT
NTS

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100% CONSTRUCTION DOCUMENTS
13 MAY 2019
2

NO.	REVISION – AS BUILT	DATE
3		
2	2 PERMIT REVISIONS	10/16/19
1	1 PERMIT REVISIONS	7/18/19

REVIEWED:
PARK ENGINEER DATE

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206 402 4644

STEVEN E. HATZENBELER
STATE OF WASHINGTON
38332
REGISTERED PROFESSIONAL ENGINEER

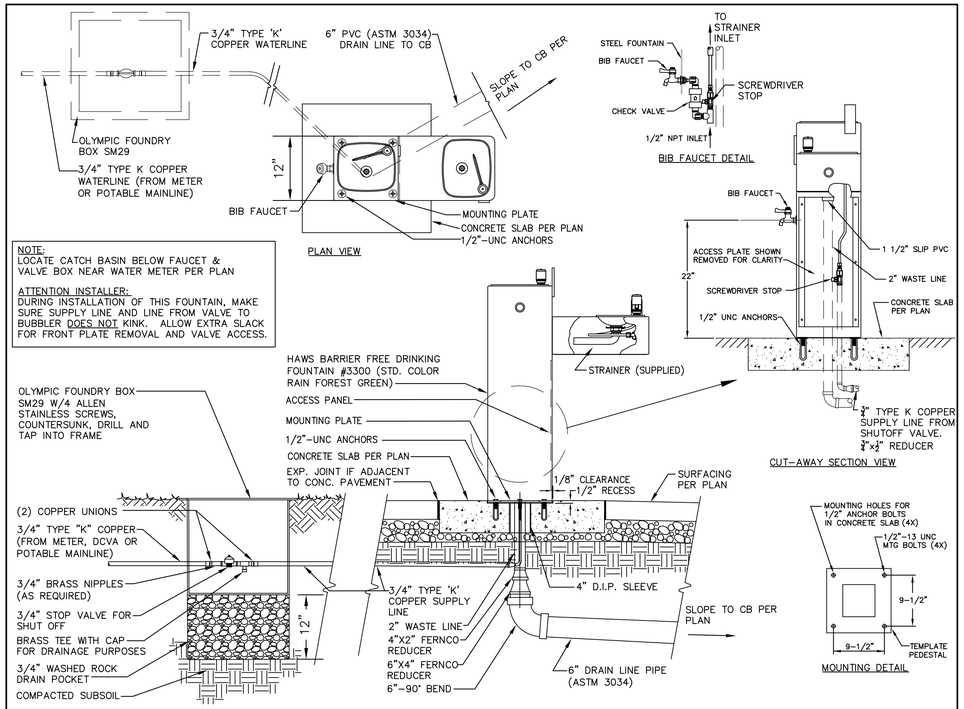
Seattle Parks & Recreation

DUWAMISH WATERWAY PARK
7900 10TH AVE SOUTH, SEATTLE, WA 98106

RENOVATION

CIVIL DETAILS

DESIGNED SH
DRAWN RY
CHECKED SH
DATE 13 MAY 2019
SHEET 17 OF 18
C6.0
ORDINANCE NO. X
CONTRACT NO. X
SCALE 1"=20'



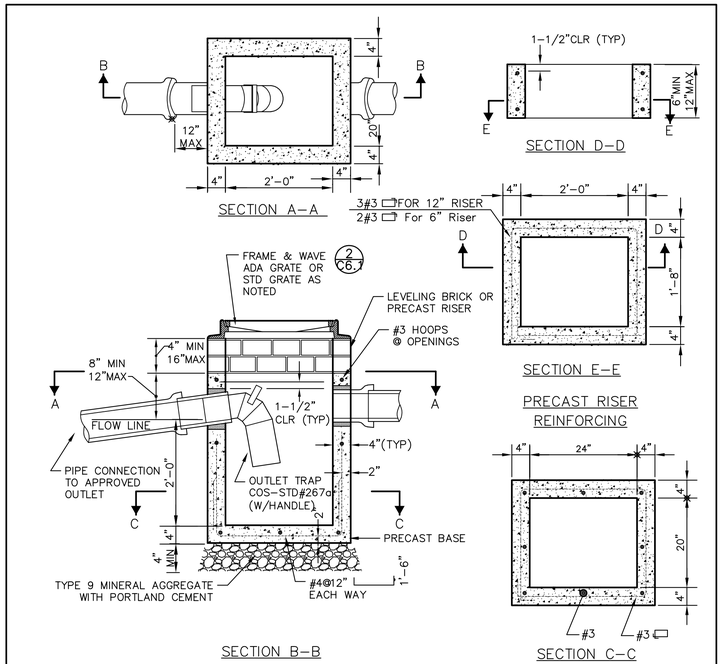
Seattle Parks & Recreation

DRINKING FOUNTAIN - HAWS #3300 - MODIFIED INSTALLATION DETAILS

STD. DETAIL NO. 12 93 93.13

1 C6.1 **DRINKING FOUNTAIN**

NTS



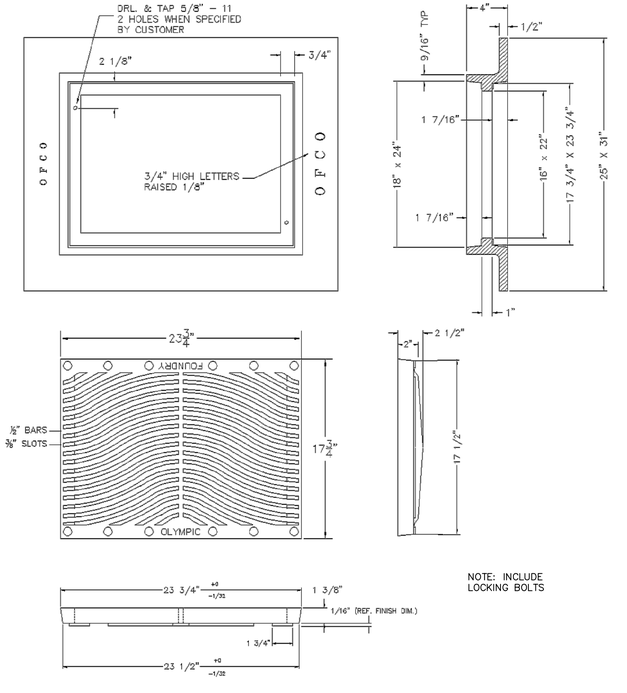
Seattle Parks & Recreation

CB TYPE 15 (TYPE 1)

STD. DETAIL NO. 33 49 16.13

3 C6.1 **CB TYPE 1**

NTS



NOTES: ADA Compliant	OLYMPIC FOUNDRY INC. 18" X 24" "TWS" LOCKING ADA/PEDESTRIAN PROOF FRAME & GRATE		
MATL: Frame; Cast Iron ASTM A48 CL30, Grate: Ductile Iron ASTM A536, CL80-55-06	RATING: H-20	PART NO. SM50TWS D/T	
APPROX WT: 65 Lbs	REV: A DATE: 7/3/2003 New border		REV A
DOCUMENT APPROVED BY: DATE:	DWN: CL DATE: 7/3/2003 CHKD: CL DATE: 7/3/2003	TOLERANCE XX +- .1 XXX +- .06 XXXX +- .030 < +- 2 DEG	REV: DATE: DWG #: SM50 TWS DT SCALE: N/A SHEET: 1 OF 1

2 C6.1 **ADA WAVE GRATE**

NTS

>>>>CAUTION - CALL 811<<<< UTILITY NOTIFICATION CENTER BEFORE YOU DIG!

WWW.CALL811.COM

Also, verify all underground utilities not located by the 811 service by using a commercial location service and call SPR Inspection Request Line (206) 684-7034.

100% CONSTRUCTION DOCUMENTS

13 MAY 2019

2

NO.	REVISION – AS BUILT	DATE
3		
2	2 PERMIT REVISIONS	11/18/19
1	1 PERMIT REVISIONS	7/18/19

REVIEWED:

PARK ENGINEER DATE

All work done in accordance with the City of Seattle Standard Plans and Specifications in effect on the date shown above, and supplemented by Special Provisions.

sitewise design PLLC
A CIVIL ENGINEERING COMPANY
219 First Avenue S., Suite 401
Seattle WA 98104
206 402 4644

STEVEN E. HATZENBELER STATE OF WASHINGTON 38332 REGISTERED PROFESSIONAL ENGINEER

Seattle Parks & Recreation

DUWAMISH WATERWAY PARK

7900 10TH AVE SOUTH, SEATTLE, WA 98106

RENOVATION

CIVIL DETAILS

DESIGNED SH	DATE 13 MAY 2019
DRAWN RY	SHEET 18 OF 18
CHECKED SH	
ORDINANCE NO. X	C6.1
CONTRACT NO. X	
SCALE 1"=20'	