

January 19, 2022

Ms. Mary Lear, PE King County Department of Natural Resources and Parks Parks and Recreation Division 201 South Jackson Street Seattle, WA 98104

RE: CRITICAL AREA REVIEW AND WETLAND INVESTIGATION, LITTLE LAKE FOREST PARK TRAILHEAD FACILITY, KING COUNTY, WASHINGTON

Dear Ms. Lear:

Shannon & Wilson conducted a critical area review and wetland investigation to support the trailhead improvements proposed at the Little Lake Forest Park Trailhead Facility Project site (see Figure 1). The Project site consists of King County Parcel No. 1920079101, located within unincorporated King County (Sections 19 and 20, Township 20N, Range 7E, W.M.). The subject property is located within the Duwamish-Green River watershed and the Newaukum Creek drainage basin.

The purpose of this letter is to identify and characterize any critical areas on and within 100 feet of the Project site (Study Area), in accordance with the King County Critical Areas Code 21A.24. No streams, wetlands, associated buffers, or wildlife habitat conservation areas were identified in the Study Area.

#### BACKGROUND REVIEW

Desktop research was conducted to help identify potential critical areas within the Study Area. These data sources included:

- U.S. Natural Resources Conservation Service (NRCS) Web Soil Survey interactive map (NRCS, 2021),
- Aerial imagery (Google Earth, 2021),
- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) mapping system (USFWS, 2021),
- Washington State Department of Fish and Wildlife (WDFW) Priority Habitats and Species (PHS) on the Web map (WDFW, 2021),
- King County iMap interactive map (King County, 2021), and



 U.S. National Oceanic and Atmospheric Administration (NOAA) Regional Climate Centers Agriculture Applied Climate Information System (NOAA, 2021).

According to the NRCS's Web Soil Survey, soils within the Study Area are mapped as Everett very gravelly, sandy loam, 8 to 15% slopes and Barneston gravelly, ashy, coarse, sandy loam, 8 to 15% slopes (NRCS, 2021). Neither of these soil units is identified as hydric on the King County Hydric Soils List. However, the Barneston soil unit includes Norma soils, a hydric soil unit, as a minor component (5%) where depressional landforms exist.

Review of Google Earth aerial photography did not reveal any decipherable areas of inundation or saturation associated with wetlands or waterbodies within or near the Study Area (Google Earth, 2021). A review of the USFWS NWI did not show any mapped wetlands within or near the Study Area (USFWS, 2021).

WDFW PHS on the Web map identifies the presence of resident and winter migratory elk (*Cervus elaphus*) ranges within the Project vicinity (WDFW, 2021). No other priority habitats or species are displayed within or near the Study Area.

King County iMap does not display any streams, waterbodies, wetlands, wildlife habitat areas, or flood-prone areas within the Study Area. Potential steep slope hazard areas are displayed just north and northwest of the property boundary, as represented in Figure 2.

Monthly totals and departures from normal precipitation data were collected from the Seattle-Tacoma Airport station (NOAA, 2021) for the three months preceding the December 2021 site visit. According to the Seattle-Tacoma Airport station data, monthly precipitation totals demonstrated wetter than normal conditions for the three-month period preceding the site visit (see Exhibit 1).

	Long-Term R	ainfall (WETS)					
Month	30% Chan	ce Will Have	Observed (2021)	Condition (Dry,	Condition	Weighted	Product (Condition
WOTTETT	Less Than	More Than	Precipitation	Normal, Wet)	Value*	Value	Value x Weighted Value)
Nov	4.79	7.74	10.26	Wet	3	3	9
Oct	2.16	4.21	5.76	Wet	3	2	6
Sept	0.66	1.74	3.02	Wet	3	1	3
Weathe	r Station: SEA	-TAC Airport, F	Period of Record: 1	1981-2010		Sum:	18

Table methodology adapted from NRCS Engineering Field Handbook, Chapter 19 (NRCS, 1997)

\*Condition Value:
Dry = 1
Normal = 2
Wet = 3

If Sum is:	Then:
6-9	Period Has Been Drier Than Normal
10-14	Period Has Been Normal
15-18	Period Has Been Wetter Than Normal

Exhibit 1: Precipitation Analysis for December 2021, Seattle-Tacoma Airport Station



#### FIELD METHODS

The Study Area was evaluated for the potential of wetlands using methods described in the U.S. Army Corps of Engineers (Corps) *Wetlands Delineation Manual* (Corps, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (U.S. Army Engineer Research and Development Center, 2010). Ground visual surveys were used to describe the vegetation community (Federal Geographic Data Committee, 2013). The Munsell Soil Color Chart was used to describe soil colors (Munsell Color, 2000).

Potential wetland areas were identified using the triple-parameter approach, which considers vegetation types, soil conditions, and hydrologic conditions. For an area to be considered wetland, it must display each of the following: (a) dominant plant species that are considered hydrophytic by the accepted classification indicators, (b) soils that are considered hydric under federal definition, and (c) indications of wetland hydrology in accordance with the federal definition. Appendix A includes a more detailed summary of the federal delineation methodology.

During the site investigation, three data points describing vegetation, soil, and hydrology were collected on the subject property (see data forms in Appendix B). Data point locations were collected using a handheld global positioning system unit with an accuracy of approximately 5 feet. Additional soil pits were excavated to sample the entire site, but formal data forms were not completed for all soil pit locations where the soil conditions were similar to those reflected at the formal data point locations.

#### **RESULTS**

Shannon & Wilson conducted fieldwork on December 10, 2021, to investigate potential critical area conditions in the Study Area. The developed portion of the subject property is composed of a single-family residence (SFR), an associated gravel driveway extending to the north and south, and lawn area. Forest and understory vegetation surrounds the developed portion of the property. Topography is relatively flat within the southern and central portions of the property where the SFR and surrounding lawn exists. The northern portion of the property slopes gradually, then more steeply, downhill to the northern boundary. See site photographs in Appendix C.

A data point was collected south of the existing SFR within an overgrown lawn (DP1). Vegetation in this area included common pasture grasses, reed canarygrass (*Phalaris* 



arundinacea), and dandelion (*Taraxacum officinale*). The soil profile ranged from moist to dry to a depth of more than 16 inches. From 0 to 16 inches, soils were very dark brown (10YR 2/2) loam mixed with large cobbles. Below 16 inches, a mixed matrix of brown (10YR 4/3) and very dark grayish-brown (10YR 3/2), gravelly loam was present. No hydric soil or wetland hydrology indicators were present.

The second data point (DP2) was collected north of the SFR within an unmaintained and disturbed lawn area. Vegetation was composed of reed canarygrass, and mosses were also present on the soil surface. The soil profile was dry to a depth of more than 14 inches, and it appeared disturbed. A large amount of gravel and cobble fill material appeared mixed into the surface and subsurface layers. From 0 to 10 inches, soils were very dark brown (10YR 2/2) loam mixed with large cobbles and gravel. From 10 to 14 inches, soils were very dark grayish-brown (10YR 3/2), gravelly clay loam with 5% depletions (10YR 5/2) within the matrix. Below 14 inches, soils were very dark brown (7.5YR 2.5/2), gravelly loam. No hydric soil or wetland hydrology indicators were present.

A third data point (DP3) was collected in the northeast corner of the property within a depression. Vegetation in this area was composed of red alder (*Alnus rubra*), western red cedar (*Thuja plicata*), salmonberry (*Rubus spectabilis*), stinging nettle (*Urtica dioica*), reed canarygrass, and stickywilly (*Galium aparine*). Soils were dry to a depth of below 13 inches. From 0 to 8 inches, soils were black (7.5YR 2.5/1), sandy clay loam with large pieces of wood. A charcoal layer was present between 8 and 9 inches. From 9 to 13 inches, soils were black (7.5YR 2.5/1) clay loam with dark brown (7.5YR 3/4) redoximorphic concentrations within the matrix. Below 13 inches, soils were black (7.5YR 2.5/1) clay loam with very dark brown (7.5YR 2.5/3) redoximorphic concentrations. No hydric soil or wetland hydrology indicators were present.

#### CONCLUSION

As indicated in the above data, the triple-parameter approach for identifying wetlands was not met anywhere within the Study Area. Additionally, no wetland or other aquatic features were observed from the edge of the property boundary or public roadways within the Study Area.



#### **CLOSURE**

The findings and conclusions documented in this letter have been prepared for specific application to this Project, and have been developed in a manner consistent with that level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in the area, and in accordance with the terms and conditions set forth in our agreement. The conclusions presented in this letter are professional opinions based on interpretation of information currently available to us, and are made within the operational scope, budget, and schedule constraints of this Project. No warranty, express or implied, is made.

Shannon & Wilson has prepared the enclosed "Important Information About Your Wetland Delineation Mitigation and/or Stream Classification Proposal" to assist you and others in understanding the use and limitations of our proposals.

If you have any questions, please contact me at (206) 695-6927.

Sincerely,

SHANNON & WILSON

Elyse Denkers, PWS

Ecologist, Permitting Specialist

EBD:MAC:AJS/ebd

Enc. References (2 pages)

Figure 1 – Vicinity Map

Figure 2 – Site Review Map

Appendix A – Wetland Delineation Methodology

Appendix B – Wetland Determination Data Forms

Appendix C – Site Photographs

Important Information About Your Wetland Delineation/Mitigation and/or Stream Classification Report

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#### REFERENCES

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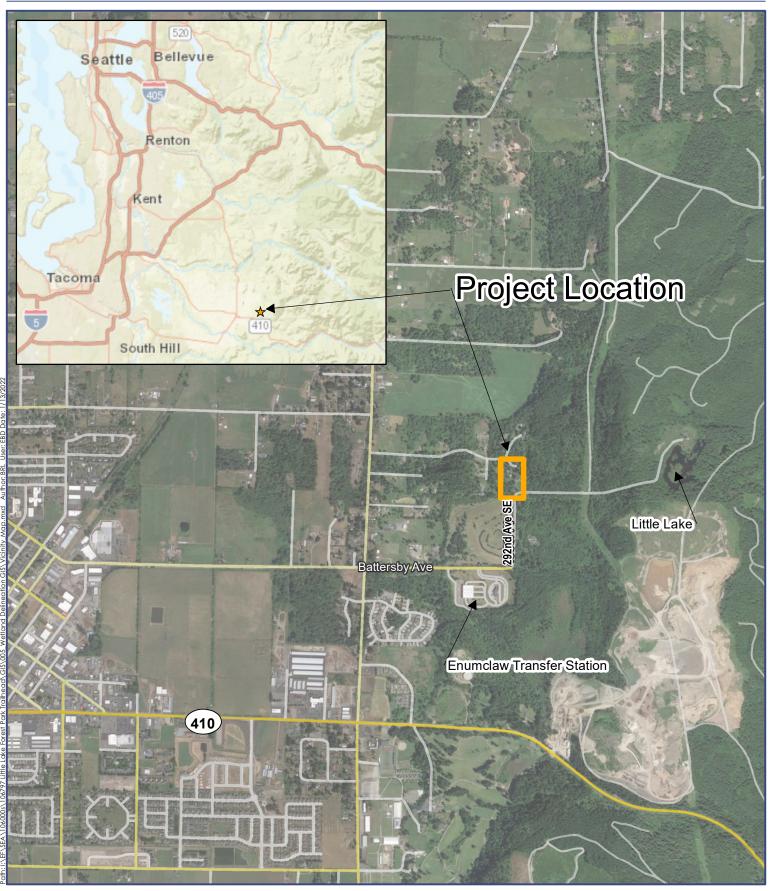
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106797-002



SE 434th St DP3 DP2 ADP1 **LEGEND Data Points** Potential Steep Slope Hazard Areas Study Area



Notes:

contours - 5 foot (below 1000 feet) and 10 foot

1. Potential steep slopes hazard areas downloaded from King County GIS.

2. Data points were collected using a hand-held GPS device with accuracy of approximately 5 feet.

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Site Review Map Figure 2



## Appendix A

# Wetland Delineation Methodology

### Appendix A

# Wetland Delineation Methodology

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#### A.1 INTRODUCTION

The triple-parameter approach, as required in the Washington State Department of Ecology's (Ecology's) 1997 Washington State Wetlands Identification and Delineation Manual, the U.S. Army Corps of Engineers' (the Corps') 1987 Corps of Engineers Wetland Delineation Manual, and the Corps' 2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0) was used to identify and delineate the wetlands on the site described in this report. The triple-parameter approach requires that vegetation, soils, and hydrology are each evaluated to determine the presence or absence of wetlands. An area is considered to be a wetland if each of the following is met: (a) dominant hydrophytic vegetation is present in the area, (b) the soils in the area are hydric, and (c) the necessary hydrologic conditions within the area are met.

A determination of wetland presence was made by conducting a Routine Delineation. Corresponding upland and wetland plots were recorded to characterize surface and subsurface conditions and more accurately determine the boundaries of on-site wetlands.

#### A.2 WETLAND VEGETATION

Hydrophytic plants are plant species specially adapted for saturated and/or anaerobic conditions. These species can be found in areas where there is a significant duration and frequency of inundation, which produces permanently or periodically saturated soils. Hydrophytic species, due to morphological, physiological, and reproductive adaptations, have the ability to grow, effectively compete, reproduce, and thrive in anaerobic soil. Indicators of hydrophytic vegetation are based on the wetland indicator status of plant species on the national wetland plant list (Lichvar and others, 2016). Plants are categorized as Obligate (OBL), Facultative Wetland (FACW), Facultative (FAC), Facultative Upland (FACU), or Upland (UPL). Species in the facultative categories (FACW, FAC, and FACU) are recognized as occurring in both wetlands and non-wetlands to varying degrees. Most wetlands are dominated mainly by species rated as OBL, FACW, or FAC (Exhibit A-1).

#### **Exhibit A-1 Plant Indicator Status**

#### **Plant Indicator Status Categories**

Obligate Wetland (OBL) – Plants that almost always occur in wetlands.

Facultative Wetland (FACW) – Plants that usually occur in wetlands but may occur in non-wetlands.

Facultative (FAC) – Plants that occur in wetlands or non-wetlands.

Facultative Upland (FACU) – Plants that usually occur in non-wetlands but may occur in wetlands.

Obligate Upland (UPL) – Plants that almost never occur in wetlands.

Source: Lichvar and others, 2016

The approximate percentage of absolute cover for each of the different plant species occurring within the tree, sapling/shrub, woody vine, and herbaceous strata was determined. Trees within a 30-foot radius; sapling/shrubs and woody vines within a 15-foot radius; and herbaceous species within a 5-foot radius of each data point were identified and noted. However, where site conditions merited it, the dimensions of the tree, sapling/shrub, woody vine, and herbaceous strata were modified.

The dominance test is the primary hydrophytic vegetation indicator and it is used in all wetland delineations. Dominant plant species are considered to be those that, when cumulatively totaled in descending order of absolute percent cover, exceed 50% of the total absolute cover for each vegetative stratum. Any additional species individually representing 20% or greater of the total absolute cover for each vegetative strata are also considered dominant. Hydrophytic vegetation is considered to be present when greater than 50% of the dominant plant species within the area had an indicator status of OBL, FACW, or FAC.

If a plant community does not meet the dominance test in areas where hydric soils and wetland hydrology are present, vegetation is reevaluated using the prevalence index, plant morphological adaptations for living in wetlands, and/or abundance of bryophytes (e.g., mosses) adapted to living in wetlands. The prevalence index is a weighted average that takes into account the abundance of all plant species within the sampling area to determine if hydrophytic vegetation is more or less prevalent. Using the prevalence index, all plants within the sampling area are grouped by wetland indicator status and absolute percent cover is summed for each group. Total cover for each indicator status group is weighted by the following multipliers: OBL=1, FACW=2, FAC=3, FACU=4, UPL=5. The prevalence index is calculated by dividing the sum of the weighted totals by the sum of total cover in the sampling area. A prevalence index of 3.0 or less indicates that hydrophytic vegetation is present.

#### A.3 HYDRIC SOILS

Hydric soils are defined as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (U.S. Department of Agriculture [USDA] Soil Conservation Service [SCS], 1994). Repeated periods of saturation and inundation for more than a few days, in combination with soil microbial activity, causes depletion in oxygen (anaerobic conditions) and results in delayed decomposition of organic matter and reduction of iron, manganese, and sulfur elements. As a result of these processes, most hydric soils develop distinctive characteristics observable in the field during both wet and dry periods (Vasilas and others, 2018). These characteristics may be exhibited as an accumulation of organic matter; bluish-gray, greengray, or low chroma and high value soil colors; mottling or other concentrations of iron and manganese; and/or hydrogen sulfide odor similar to a rotten egg smell.

The USDA Natural Resources Conservation Service (NRCS) developed official hydric soil indicators as summarized in Field Indicators of Hydric Soils in the United States (Vasilas and others, 2018). These indicators were developed to assist in delineation of hydric soils and are based predominantly on hydric soils near the margins of wetlands. Some hydric soils, including soils within the wettest parts of wetlands, may lack any of the approved hydric soil indicators. If a hydric soil indicator is present, the soil is determined to be hydric. If no hydric soil indicator is present, additional site information is used to assess whether the soil meets the definition of hydric soil.

Identification of hydric soils was aided through observation of surface hydrologic characteristics and indicators of wetland hydrology (e.g., drainage patterns). Soil characteristics were observation at several data points, placed both inside and outside the wetland. Holes were dug with a shovel to the depth needed to document an indicator or to confirm the absence of hydric soil indicators. Soil organic content was estimated visually and texturally. Soil colors were examined in the field immediately after sampling. Dry soils were moistened. Soil colors were determined through analysis of the hue, value, and chroma best represented in the Munsell® Soil Color Chart (Munsell Color, 1992).

#### A.4 WETLAND HYDROLOGY

Wetland hydrology is determined by observable evidence that inundation or soil saturation have occurred during a significant portion of the growing season repeatedly over a period of years so that wet condition have been sufficient to produce wetland vegetation and hydric soils. Wetland hydrology indicators give evidence of a continuing wetland hydrologic regime. Wetland hydrology criteria were considered to be satisfied if it appeared that wetland hydrology was present for at least 5 to 12.5% (12 to 31 days) of the growing

season. The growing season in western Washington is typically considered to be from March 1 to October 31 (244 days). However, the growing season is considered to have begun when: (a) evidence of plant growth has begun on two non-evergreen vascular plants, and (b) the soil reaches a temperature of 41 degrees Fahrenheit at a depth of 12 inches. The Seattle District Corps of Engineers requires 14 consecutive days of inundation or saturation for wetland hydrology to be considered present.

Wetland hydrology was evaluated by direct visual observation of surface inundation or soil saturation in data plots. The area near each data point was examined for indicators of wetland hydrology. Wetland hydrology indicators are categorized as primary or secondary based on their estimated reliability. Wetland hydrology was considered present if there was evidence of one primary indicator or at least two secondary indicators.

Some primary indicators include surface water, a shallow water table or saturated soils observed within 12 inches of the surface, dried watermarks, drift lines, sediment deposits, water-stained leaves, and algal mat/crust. Some secondary indicators include a water table within 12 to 24 inches of the surface during the dry season; drainage patterns; a landscape position in a depression, drainage, or fringe of a water body; and a shallow restrictive layer capable of perching water within 12 inches of the surface.

#### A.5 DISCLAIMER

This methodology was prepared for reference use only and is not intended to replace Ecology's 1997 Washington State Wetlands Identification and Delineation Manual, the 1987 Corps Wetland Delineation Manual, or the Corps' 2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0).

#### A.6 REFERENCES

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# Appendix B

# Wetland Determination Data Forms

# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site:	Litlle Lake Fore	est Trailhead Pai	rk (Parcel 19	20079101)	<u>)</u>	City/Count	ty: <u>Enu</u>	umclaw/WA	7	Sampling	g Date:	12/1	0/202	<u>21</u>
Applicant/Owner:	King County							Sta	ite: WA	Sampling	Point:	DP1	_	
Investigator(s):	Merci Clinton, E	Elyse Denkers					5	Section, Tov	wnship, Ran	ge: <u>S20 1</u>	Γ20N R7E			
Landform (hillslope, terr	race, etc.): <u>F</u>	<u>Flat</u>			Loca	I relief (conca	ave, conv	/ex, none):	none		Slope	(%):	<u>0</u>	
Subregion (LRR):	<u>A</u>		Lat: <u>47</u>	.210288			Long:	: <u>-121.952</u>	<u>611</u>		Datum: N	IAD83	<u>3</u>	
Soil Map Unit Name:	Barneston gra	avelly ashy coars	se sandy loa	m, 8 to 15	perce	nt slopes			NWI clas	sification:	<u>NA</u>			
Are climatic / hydrologic	conditions on	the site typical for	or this time o	of year?	Y	es 🗆	No	⊠ (If	no, explain i	n Remarks	s.)			
Are Vegetation ☐,	Soil □,	or Hydrology	□, signi	ficantly dist	turbed	? Are "N	Normal C	Circumstanc	es" present?	?	Yes	$\boxtimes$	No	
Are Vegetation ☐,	Soil □,	or Hydrology	□, natu	rally proble	matic?	? (If nee	eded, exp	plain any ar	nswers in Re	emarks.)				
SUMMARY OF FINE	DINGS – Atta	ch site map s	showing s	ampling p	point	locations,	transec	cts, impo	rtant featu	res, etc.				
Hydrophytic Vegetation	Present?		Yes	⊠ No		Is the Samp	lod Aroa	•						
Hydric Soil Present?			Yes	□ No		within a We		•			Yes		No	
Wetland Hydrology Pres	sent?		Yes	□ No										
Remarks: Precipitati		Seatac Airport	(USDA NR	CS, 2021b)	) dem	onstrated we	etter tha	n normal c	onditions fo	or the thre	e-month pe	riod p	rece	ding
the site vis	sit.													
VEGETATION - Use	scientific na	ames of plant												
Tree Stratum (Plot size	e: <u>30'</u> )		Absolute <u>% Cover</u>			Indicator <u>Status</u>	Domir	nance Test	Worksheet	:				
1							Numbe	er of Domin	ant Species		2			<b>(\\)</b>
2							That A	re OBL, FA	CW, or FAC	<b>)</b> :	<u>2</u>			(A)
3								Number of [			<u>2</u>			(B)
4							Specie	es Across A	II Strata:		∠			(D)
50% =, 20% = _			<u>0</u>	= Tota	I Cove	er			ant Species		<u>100</u>			(A/B)
Sapling/Shrub Stratum	<u>ı</u> (Plot size: <u>15'</u> )	)					That A	re OBL, FA	CW, or FAC	<b>)</b> :	100			(700)
1							Preval	lence Inde	x workshee	t:				
2								Total	I % Cover of	<u>:</u>	Multip	ly by:		
3							OBL s	pecies			x1 =			
4							FACW	species			x2 =			
5							FAC s	pecies			x3 =			
50% =, 20% = _			<u>0</u>	= Tota	I Cove	er	FACU	species			x4 =			
Herb Stratum (Plot size	e: <u>3'</u> )						UPL s	pecies			x5 =			
1. <u>Poa sp.</u>			<u>80</u>	yes		FAC	Colum	n Totals:		_(A)			(	(B)
2. Phalaris arundinad	<u>ea</u>		<u>60</u>	<u>yes</u>		<u>FACW</u>			Prevalence	e Index = E	3/A =			
3. <u>Taraxacum officina</u>	ale_		<u>5</u>	<u>no</u>		<u>FACU</u>	Hydro	phytic Veg	etation Ind	icators:				
4								1 – Rapid T	est for Hydro	ophytic Ve	getation			
5							<b>⊠</b> 2	2 - Dominar	nce Test is >	50%				
6								3 - Prevaler	nce Index is	≤3.0 <sup>1</sup>				
7									•	_	rovide suppor	rtina		
8									Remarks or c			9		
9								5 - Wetland	Non-Vascul	ar Plants <sup>1</sup>				
10							🗆 ғ	Problematic	: Hvdrophvtid	c Vegetatio	on¹ (Explain)			
11.									,	, rogotatio	( <u>=</u> ,,p,a,,,)			
50% =, 20% = _			140	= Tota	I Cove	 er					drology must			
Woody Vine Stratum (							be pre	sent, unies:	s disturbed o	or problem	atic.			
1	/													
2								phytic						
50% =, 20% = _			0	= Tota	l Cove	<u></u>	Vegeta		,	<b>Yes</b>	$\boxtimes$	No	•	
% Bare Ground in Her			-				Prese	nt?						
		aintained laws a	roa											
Remarks: 0	vergrown/unma	aintained lawn ai	ıea											

Project Site: Little Lake Forest Trailhead Park (Parcel 1920079101)

SOIL Sampling Point: DP-1 Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Depth Matrix Redox Features (inches) Color (moist) % Color (moist) % Type<sup>1</sup> Loc<sup>2</sup> Texture Remarks 0-16 10yr2/2 100 <u>loam</u> large cobbles <u> 16+</u> 10YR4/3 20 gravelly Im 16+ 10YR3/2 <sup>1</sup>Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils3: Histosol (A1) Sandy Redox (S5) 2 cm Muck (A10) Histic Epipedon (A2) Stripped Matrix (S6) Red Parent Material (TF2) Black Histic (A3) Loamy Mucky Mineral (F1) (except MLRA 1) Very Shallow Dark Surface (TF12) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Other (Explain in Remarks) Depleted Below Dark Surface (A11) Depleted Matrix (F3) Thick Dark Surface (A12) Redox Dark Surface (F6) <sup>3</sup>Indicators of hydrophytic vegetation and Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) wetland hydrology must be present,  $\Box$ Sandy Gleyed Matrix (S4) Redox Depressions (F8) unless disturbed or problematic Restrictive Layer (if present): Type: **Hydric Soils Present?** Yes No  $\boxtimes$ Depth (inches) Remarks: Very gravelly with large cobbles. **HYDROLOGY** Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply) Secondary Indicators (2 or more required) Surface Water (A1) Water-Stained Leaves (B9) Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) High Water Table (A2) (MLRA 1, 2, 4A, and 4B) Saturation (A3) Salt Crust (B11) Drainage Patterns (B10) Aquatic Invertebrates (B13) Water Marks (B1) Dry-Season Water Table (C2) Sediment Deposits (B2) Hydrogen Sulfide Odor (C1) Saturation Visible on Aerial Imagery (C9) Drift Deposits (B3) Oxidized Rhizospheres along Living Roots (C3) Geomorphic Position (D2) Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Shallow Aguitard (D3) Iron Deposits (B5) Recent Iron Reduction in Tilled Soils (C6) FAC-Neutral Test (D5) Surface Soil Cracks (B6) Stunted or Stresses Plants (D1) (LRR A) Raised Ant Mounds (D6) (LRR A) Other (Explain in Remarks) Frost-Heave Hummocks (D7) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8) Field Observations: Surface Water Present?  $\boxtimes$ Depth (inches): Yes No na  $\boxtimes$ Water Table Present? Yes No Depth (inches): na Saturation Present? Wetland Hydrology Present? No  $\boxtimes$ Yes No  $\boxtimes$ Depth (inches): na (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks:

# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site:	Litlle Lake Fore	est Trailhead Parl	(Parcel	19200	79101	)	City/Count	y: <u>E</u>	numclaw/\	<u>WA</u>	Sa	mpling [	Date:	12/	10/202	<u>21</u>
Applicant/Owner:	King County									State: WA	<u>A</u> Sa	ampling F	Point:	DP:	2	
Investigator(s):	Merci Clinton,	Elyse Denkers							Section,	Township,	Range:	S20 T2	20N R7E			
Landform (hillslope, te	rrace, etc.):	<u>Flat</u>				Loca	al relief (conca	ve, co	nvex, none	e): <u>none</u>	<u>e</u>		Slop	e (%):	<u>0</u>	
Subregion (LRR):	<u>A</u>		Lat:	47.21 <i>′</i>	1 <u>683</u>			Lon	ng: <u>-121.9</u>	<u>952501</u>			Datum:	NAD8	3	
Soil Map Unit Name:	Barneston gra	avelly ashy coars	e sandy l	oam, 8	3 to 15	perce	nt slopes	_		NWI	l classific	ation:	<u>NA</u>			
Are climatic / hydrolog	ic conditions on	the site typical fo	r this time	e of ye	ar?	Υ	es 🗆	No		(If no, exp	lain in Re	emarks.)	)			
Are Vegetation ☐,	Soil ⊠,	or Hydrology	□, sig	nificar	ntly dis	turbed	l? Are "N	lormal	Circumsta	ances" pre	sent?		Yes		No	$\boxtimes$
Are Vegetation ☐,	Soil □,	or Hydrology	□, na	turally	proble	ematic'	? (If nee	eded, e	explain any	y answers	in Rema	rks.)				
SUMMARY OF FIN	DINGS – Atta	ach site map s	howing	samı	pling	point	locations,	trans	ects, imp	portant fo	eatures	, etc.				
Hydrophytic Vegetation	n Present?		Yes	$\boxtimes$	No		Is the Sampl	lad Ar	02							
Hydric Soil Present?			Yes		No	$\boxtimes$	within a Wet						Yes		No	
Wetland Hydrology Pre	esent?		Yes		No	$\boxtimes$										
Remarks: Precipitat		Seatac Airport	(USDA N	IRCS,	<b>2021</b> b	) dem	onstrated we	tter th	nan norma	al conditio	ons for th	ne three	-month p	eriod	prece	ding
the site v	isit.															
VEGETATION - Use	e scientific n	ames of plants														
Tree Stratum (Plot size	ze: <u>30'</u> )		Absolu <u>% Cov</u>		Domir Specie		Indicator <u>Status</u>	Dom	ninance To	est Works	heet:					
1								Num	ber of Dor	minant Spe	ecies					(*)
2										FACW, or			<u>1</u>			(A)
3								Tota	l Number	of Domina	nt		4			<b>(D)</b>
4								Spec	cies Acros	s All Strata	a:		<u>1</u>			(B)
50% =, 20% =			<u>0</u>		= Tota	al Cove	er	Perc	ent of Dor	minant Spe	ecies		400			(A /D)
Sapling/Shrub Stratur	<u>m</u> (Plot size: <u>15'</u>	)						That	Are OBL,	FACW, or	r FAC:		<u>100</u>			(A/B)
1								Prev	/alence In	dex works	sheet:					
2									<u>To</u>	otal % Cov	er of:		Multi	ply by:	<u>:</u>	
3								OBL	species	_			x1 =	_		
4								FAC	W species	s <u> </u>			x2 =	_		
5								FAC	species	_			x3 =	_		
50% =, 20% =			<u>0</u>		= Tota	al Cove	er	FAC	U species	<u> </u>			x4 =			
Herb Stratum (Plot size	ze: <u>3'</u> )							UPL	species				x5 =	_		
1. Phalaris arundina	cea		<u>100</u>		yes		FACW	Colu	ımn Totals	:: <u> </u>	(A)	)				(B)
2										Preva	lence Inc		A =			
3.								Hyd	rophytic \	Vegetation				· <u> </u>		
4.								_		d Test for I			etation			
5								$\boxtimes$	2 - Domi	nance Tes	st is >50%	6				
6.									3 - Preva	alence Inde	ex is <3 ()	)1				
7.								_		hological A	_		vido oupp	ortina		
8.										in Remarks				Jillig		
9.									5 - Wetla	and Non-Va	ascular P	Plants <sup>1</sup>				
10.										atic Hydror			1 (Evoloin	`		
11								_	FIODICITIO	alic riyuro <sub>l</sub>	priyuc ve	getation	i (Explaili	,		
50% =, 20% =					= Tota	al Cove				nydric soil a				st		
Woody Vine Stratum					- 1016	ai Cove	51	be p	resent, un	less disturl	bed or pr	oblemat	tic.			
1.	(1 lot 3120. <u>10</u> )															
2.								Hyd	rophytic							
50% =, 20% =			0			al Cove		Veg	etation		Yes		$\boxtimes$	N	0	
			<u>0</u>		- 1018	ai 00V6	νı	Pres	sent?							
% Bare Ground in He		20()														
Remarks:	Bryophytes (5-1	0%) present on s	oil surfac	е												

Project Site: <u>Little Lake Forest Trailhead Park (Parcel 1920079101)</u>

Depth	Matrix	<			Redox F	eatures						
inches)	Color (moist)	%		Color (mo	oist) %	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		Remark	S	
0-10	10YR2/2	10	)0					Loam	Gravely			
<u>10-14</u>	10YR3/2	95	<u>5</u>	10YR5/	<u>2</u> <u>5</u>	<u>D</u>	<u>M</u>	Clay Loam				
<u>14+</u>	7.5YR2.5/2	<u>10</u>	<u>)0</u>					<u>Loam</u>				
			_									
			_									
		_	_									
		_	_									
			_									
					rix, CS=Covered or	Coated Sand	I Grains. <sup>2</sup> L		re Lining, M=Matri			
	Indicators: (Appli	cable to	all LRR	_	-			_	ors for Problemat	ic Hydric S	Soils <sup>3</sup> :	
_	sol (A1)				Sandy Redox (S5	•			2 cm Muck (A10)	. (750)		
	Epipedon (A2)				Stripped Matrix (S	•			Red Parent Materia		<b>540</b> \	
_	Histic (A3)				Loamy Mucky Mir		cept MLRA 1)	_	ery Shallow Dark		F12)	
	ogen Sulfide (A4)	£ (A.4	4.4)		Loamy Gleyed Ma				Other (Explain in R	emarks)		
-	ted Below Dark Su		11)		Depleted Matrix (	•						
_	Dark Surface (A12)				Redox Dark Surfa			3Indicate	ors of hydrophytic	vegetation	and	
	y Mucky Mineral (S´	•			Depleted Dark Su			wetla	and hydrology mus	t be presen		
	y Gleyed Matrix (S4	·			Redox Depressio	ris (Fo)		unles	ss disturbed or pro	blematic.		
ype:	Layer (if present):											
epth (inch							Hydric Soils I	Procent?	Yes		No	Σ
Remarks:		ooks like	e gravel v	vas placed	here and then soil	pushed over i	•					
Remarks:  'DROLOG  Vetland Hy	Lots of cobbles, l		e gravel v	was placed	here and then soil	pushed over i	•					
<u>'DROLOO</u> Vetland Hy	Lots of cobbles, le	s:				pushed over i	•	Secondar	ry Indicators (2 or r	nore requir	ed)	
'DROLOG Vetland Hy Primary Indi	Lots of cobbles, leading to the second secon	s:					•		y Indicators (2 or r ter-Stained Leaves		ed)	
'DROLOG Vetland Hy Irimary Indi ☐ Surfa	Lots of cobbles, leading of the cobbles of cobbles of the cobbles	s:		eck all tha	t apply)	paves (B9)	it.	☐ Wat	-	s (B9)	ed)	
DROLOG /etland Hy rimary Indi Surfa	Lots of cobbles, leading of the cobbles of cobbles of the cobbles	s:		eck all tha	t apply) Water-Stained Le	paves (B9)	it.	☐ Wat	ter-Stained Leaves	s (B9) <b>4B)</b>	ed)	
YDROLOG Vetland Hy Primary Indi □ Surfa □ High □ Satur	Company of the Compan	s:		eck all tha	t apply) Water-Stained Le (except MLRA 1,	paves (B9) , <b>2, 4A</b> , and <b>4</b>	it.	☐ Wat (ML	ter-Stained Leaves	(B9) <b>4B)</b>	ed)	
'DROLOG Vetland Hy rimary Indi □ Surfa □ High □ Satur □ Wate	Company Indicators (minimum of the Water (A1) Water Table (A2) Fration (A3)	s:		eck all tha	t apply)  Water-Stained Le  (except MLRA 1, Salt Crust (B11)	eaves (B9) , <b>2, 4A, and 4</b> ates (B13)	it.	☐ Wate (ML☐ Draid ☐ Dry-	ter-Stained Leaves  RA 1, 2, 4A, and inage Patterns (B1	6 (B9) 4B) 0) ble (C2)		
'DROLOG Vetland Hy rimary Indi Surfa High Satur Wate	Lots of cobbles, leading of the cobbles of c	s:		eck all tha	t apply)  Water-Stained Le  (except MLRA 1,  Salt Crust (B11)  Aquatic Invertebra	eaves (B9)  , 2, 4A, and 4  ates (B13)  Odor (C1)	it.	☐ Wat  (ML ☐ Drai ☐ Dry- ☐ Satu	ter-Stained Leaves .RA 1, 2, 4A, and inage Patterns (B1 -Season Water Ta	(B9)  4B)  0)  ble (C2)  Aerial Image		
TDROLOG Vetland Hy rrimary Indi Surfa High Satur Wate Sedir	Lots of cobbles, leading of the cobbles of cobbles, leading of the cobbles of the	s:		eck all tha	t apply)  Water-Stained Le  (except MLRA 1,  Salt Crust (B11)  Aquatic Invertebra  Hydrogen Sulfide	eaves (B9)  , 2, 4A, and 4  ates (B13)  Odor (C1)  cheres along I	it.	☐ Wat  (ML ☐ Drai ☐ Dry- ☐ Satu S) ☐ Geo	ter-Stained Leaves  RA 1, 2, 4A, and  inage Patterns (B1  -Season Water Ta  uration Visible on A	s (B9) 4B) 0) ble (C2) Aerial Image (D2)		
'/DROLOG Vetland Hy Primary Indi □ Surfa □ High □ Satur □ Wate □ Sedir □ Drift I □ Algal	Lots of cobbles, leading of the cobbles of cobbles, leading of the cobbles of the	s:		eck all tha	t apply)  Water-Stained Le (except MLRA 1, Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp	eaves (B9)  , 2, 4A, and 4  ates (B13)  Odor (C1)  wheres along I	it.  BB)  Living Roots (C3)		ter-Stained Leaves  RA 1, 2, 4A, and inage Patterns (B1 -Season Water Ta uration Visible on a	s (B9)  4B)  0) ble (C2) Aerial Image		
/DROLOG Vetland Hy Primary Indi Surfa High Satur Sedir Drift [ Algal	Lots of cobbles, leading of cobbles, leading of cobbles of cobbles, leading of cobbles o	s: f one req		eck all tha	t apply)  Water-Stained Le (except MLRA 1, Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp Presence of Redu	eaves (B9) a, 2, 4A, and 4 ates (B13) Odor (C1) bheres along I uced Iron (C4 uction in Tilled	it.  BB)  Living Roots (C3)  Soils (C6)		ter-Stained Leaves  RA 1, 2, 4A, and inage Patterns (B1 -Season Water Ta uration Visible on a pmorphic Position illow Aquitard (D3)	(B9)  4B)  0)  ble (C2)  Aerial Image (D2)	ery (C9)	
TDROLOG Vetland Hy rimary Indi Surfa High Satur Sedir Drift I Algal Iron I	Lots of cobbles, leading to the cobbles of cobbles, leading to the cobbles of	s: f one req	quired; ch	neck all tha	t apply)  Water-Stained Le (except MLRA 1, Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp Presence of Redu Recent Iron Redu	eaves (B9)  ates (B13)  odor (C1)  wheres along I  cuced Iron (C4  cuction in Tilled  eses Plants (D1	it.  BB)  Living Roots (C3)  Soils (C6)		ter-Stained Leaves LRA 1, 2, 4A, and inage Patterns (B1-Season Water Tauration Visible on Amorphic Position Illow Aquitard (D3) C-Neutral Test (D5	6 (B9) 4B) 0) ble (C2) Aerial Image (D2) )	ery (C9)	
rDROLOG Vetland Hy rimary Indi Surfa High Satur Sedir Algal Iron [ Surfa Inunc	Lots of cobbles, leading to the cobbles of cobbles, leading to the cobbles of	s: f one req ) rial Imag	quired; ch	eck all tha	t apply)  Water-Stained Le (except MLRA 1, Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp Presence of Redu Recent Iron Redu Stunted or Stress	eaves (B9)  ates (B13)  odor (C1)  wheres along I  cuced Iron (C4  cuction in Tilled  eses Plants (D1	it.  BB)  Living Roots (C3)  Soils (C6)	Wat	ter-Stained Leaves  RA 1, 2, 4A, and  inage Patterns (B1 -Season Water Ta  uration Visible on a  pmorphic Position  illow Aquitard (D3)  C-Neutral Test (D5  sed Ant Mounds (I	6 (B9) 4B) 0) ble (C2) Aerial Image (D2) )	ery (C9)	
/DROLOG // Vetland Hy // Irimary Indi   Surfa   High   Satur   Wate   Sedir   Drift I   Algal   Iron I   Surfa	Lots of cobbles, leading to the cobbles of cobbles, leading to the cobbles of	s: f one req ) rial Imag	quired; ch	eck all tha	t apply)  Water-Stained Le (except MLRA 1, Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp Presence of Redu Recent Iron Redu Stunted or Stress	eaves (B9)  ates (B13)  odor (C1)  wheres along I  cuced Iron (C4  cuction in Tilled  eses Plants (D1	it.  BB)  Living Roots (C3)  Soils (C6)	Wat	ter-Stained Leaves  RA 1, 2, 4A, and  inage Patterns (B1 -Season Water Ta  uration Visible on a  pmorphic Position  illow Aquitard (D3)  C-Neutral Test (D5  sed Ant Mounds (I	6 (B9) 4B) 0) ble (C2) Aerial Image (D2) )	ery (C9)	
VDROLOG Vetland Hy Irimary Indi Surfa High Satur Sedir Sedir Surfa Iron [ Surfa Iro	Lots of cobbles, leading to the cobbles of cobbles, leading to the cobbles of	s: f one req rial Imag cave Sui	quired; ch	eck all tha	t apply)  Water-Stained Le (except MLRA 1, Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp Presence of Redu Recent Iron Redu Stunted or Stress	eaves (B9)  , 2, 4A, and 4  ates (B13)  Odor (C1)  wheres along I  uced Iron (C4  uction in Tilled  es Plants (D1  Remarks)	it.  BB)  Living Roots (C3)  Soils (C6)	Wat	ter-Stained Leaves  RA 1, 2, 4A, and  inage Patterns (B1 -Season Water Ta  uration Visible on a  pmorphic Position  illow Aquitard (D3)  C-Neutral Test (D5  sed Ant Mounds (I	6 (B9) 4B) 0) ble (C2) Aerial Image (D2) )	ery (C9)	
TDROLOG Vetland Hy Irimary Indi Surfa High Satur Sedir Jrift [	Lots of cobbles, leading to the cobbles of cobbles, leading to the cobbles of	s: f one req rial Imag cave Sui	quired; ch	eck all tha	t apply)  Water-Stained Le (except MLRA 1, Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp Presence of Redu Recent Iron Redu Stunted or Stress Other (Explain in	eaves (B9)  ates (B13)  Odor (C1)  cheres along I  cuced Iron (C4  cition in Tilled  ies Plants (D1  Remarks)  s): na	it.  BB)  Living Roots (C3)  Soils (C6)	Wat	ter-Stained Leaves  RA 1, 2, 4A, and  inage Patterns (B1 -Season Water Ta  uration Visible on a  pmorphic Position  illow Aquitard (D3)  C-Neutral Test (D5  sed Ant Mounds (I	6 (B9) 4B) 0) ble (C2) Aerial Image (D2) )	ery (C9)	
TDROLOG Vetland Hy Irimary Indi Surfa High Satur Drift I Surfa Iron I Surfa Inunc Spars ield Obser Jurface Wa Vater Table	Lots of cobbles, leading to the cobbles of cobbles, leading to the cobbles of	s: f one req rial Imag	gery (B7)	neck all tha	t apply)  Water-Stained Le (except MLRA 1, Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp Presence of Redu Recent Iron Redu Stunted or Stress Other (Explain in	eaves (B9)  ates (B13)  Odor (C1)  heres along Luced Iron (C4  action in Tilled  as Plants (D1  Remarks)  s): na  s): na	it.  JB)  Living Roots (C3)  J Soils (C6)  J (LRR A)	Wat	ter-Stained Leaves  .RA 1, 2, 4A, and inage Patterns (B1 -Season Water Ta uration Visible on a pmorphic Position allow Aquitard (D3) C-Neutral Test (D5 sed Ant Mounds (I st-Heave Hummod	6 (B9) 4B) 0) ble (C2) Aerial Image (D2) )	ery (C9)	lo
VDROLOG Vetland Hy Primary Indi Surfa High Satur Sedir Sedir Iron [ Surfa Inunc Spars Gurface Wa Vater Table Saturation F	Lots of cobbles, leading to the cobbles of cobbles, leading to the cobbles of	s: f one req rial Imag cave Sur Yes Yes Yes	gery (B7)	neck all tha	t apply)  Water-Stained Le (except MLRA 1, Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp Presence of Redu Recent Iron Redu Stunted or Stress Other (Explain in	paves (B9)  ates (B13)  Odor (C1)  oheres along I  cuced Iron (C4  cition in Tilled  es Plants (D1  Remarks)  s): na  s): na  s): na	it.  BB)  Living Roots (C3)  I Soils (C6)  I) (LRR A)	□ Wat  (ML □ Drai □ Dry- □ Satu □ Sha □ FAC □ Rais □ Fros	ter-Stained Leaves  .RA 1, 2, 4A, and inage Patterns (B1 -Season Water Ta uration Visible on a pmorphic Position allow Aquitard (D3) C-Neutral Test (D5 sed Ant Mounds (I st-Heave Hummod	s (B9)  4B)  0) ble (C2) Aerial Image (D2)  ) 06) (LRR A	ery (C9)	lo
FDROLOG  Vetland Hy  Irimary Indi  Surfa  High Satur  Orift I  Surfa Iron I  Inunc Spars  ield Obser  Jurface Wa  Vater Table  aturation F  includes ca	Lots of cobbles, leading to the cobbles of cobbles, leading to the cobbles of	s: f one req rial Imag cave Sur Yes Yes Yes	gery (B7)	neck all tha	t apply)  Water-Stained Le (except MLRA 1, Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp Presence of Redu Recent Iron Redu Stunted or Stress Other (Explain in  Depth (inchese	paves (B9)  ates (B13)  Odor (C1)  oheres along I  cuced Iron (C4  cition in Tilled  es Plants (D1  Remarks)  s): na  s): na  s): na	it.  BB)  Living Roots (C3)  I Soils (C6)  I) (LRR A)	□ Wat  (ML □ Drai □ Dry- □ Satu □ Sha □ FAC □ Rais □ Fros	ter-Stained Leaves  .RA 1, 2, 4A, and inage Patterns (B1 -Season Water Ta uration Visible on a pmorphic Position allow Aquitard (D3) C-Neutral Test (D5 sed Ant Mounds (I st-Heave Hummod	s (B9)  4B)  0) ble (C2) Aerial Image (D2)  ) 06) (LRR A	ery (C9)	lo

# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: <u>Little</u>	<u>e Lake Forest Trailhead P</u>	Park (Parcel 1920	079101)	City/Count	y: <u>Enumclaw/WA</u>	Sampling Da	ate:	12/10/20	<u> 21</u>
Applicant/Owner: King	g County				State: <u>W</u>	/A Sampling Po	oint:	DP3	
Investigator(s): Mer	rci Clinton, Elyse Denkers				Section, Township	, Range: <u>S20 T20</u>	N R7E		
Landform (hillslope, terrace	e, etc.): <u>depression</u>		Loc	al relief (conca	ive, convex, none): con	<u>icave</u>	Slope (	%): <u>1</u>	
Subregion (LRR): A		Lat: <u>47.2</u>	<u>1163</u>		Long: <u>-121.95222</u>	I	Datum: <u>N</u>	<u>ND83</u>	
Soil Map Unit Name: Ba	arneston gravelly ashy coa	arse sandy loam,	8 to 15 perc	ent slopes	NW	/I classification:	<u>NA</u>		
Are climatic / hydrologic co	nditions on the site typical	I for this time of y	ear?	Yes 🗆	No 🛛 (If no, exp	plain in Remarks.)			
Are Vegetation ☐, S	ioil □, or Hydrology	/ □, signific	antly disturbe	d? Are "N	Normal Circumstances" pre	esent?	Yes	⊠ No	
Are Vegetation ☐, S	ioil □, or Hydrology	/ □, naturall	ly problemation	c? (If nee	eded, explain any answers	in Remarks.)			
SUMMARY OF FINDIN	GS – Attach site map	showing san	npling poin	t locations,	transects, important f	features, etc.			
Hydrophytic Vegetation Pre	esent?	Yes 🛚	No 🗌		11.4				
Hydric Soil Present?		Yes 🗌	No 🛚	Is the Samp			Yes	☐ No	$\boxtimes$
Wetland Hydrology Present	t?	Yes 🗌	No 🛛						
Remarks: Precipitation	totals from Seatac Airpo	ort (USDA NRCS	s, 2021b) den	nonstrated we	etter than normal condition	ons for the three-ı	month peri	od prece	eding
the site visit.									
VEGETATION - Use sc	ientific names of pla	nts							
Tree Stratum (Plot size: 3	<u>O'</u> )	Absolute	Dominant Species?	Indicator	Dominance Test Works	sheet:			
1. Alnus rubra		<u>% Cover</u> <u>10</u>	Species? yes	<u>Status</u> <u>FAC</u>	Number of Dominant Sp	nacios			
2. Thuja plicata		10	<u>yes</u>	FAC	That Are OBL, FACW, o		<u>5</u>		(A)
3		<u></u>	<u> </u>		Total Number of Domina	ant			
4.					Species Across All Strat		<u>5</u>		(B)
50% =, 20% =		20	= Total Cov	 /er	Percent of Dominant Sp	ocios			
Sapling/Shrub Stratum (P	<del></del>	<del></del>			That Are OBL, FACW, o		<u>100</u>		(A/B)
1. Rubus spectabilis	<u></u> /	<u>40</u>	<u>yes</u>	FAC	Prevalence Index work	sheet:			
2		<u></u>	100	<u>. 7.10</u>	Total % Co		Multiply	bv:	
3					OBL species	<del></del>	x1 =	<u>~1.</u>	
4					FACW species		x2 =		
5.					FAC species		x3 =		
50% =, 20% =		40	= Total Cov		FACU species		x4 =		
Herb Stratum (Plot size: 3	<del></del>	<u></u>			UPL species		x5 =		
1. <u>Urtica dioica</u>	<i>-1</i>	<u>20</u>	VAS	FAC	_	(A)	χο		(B)
			<u>yes</u>		Column Totals:	alence Index = B/A	_		(D)
2. Phalaris arundinacea		<u>80</u>	<u>yes</u>	FACU.					
3. <u>Galium aparine</u>		<u>5</u>	<u>no</u>	<u>FACU</u>	Hydrophytic Vegetatio		totion		
4					1 – Rapid Test for		lation		
5					2 - Dominance Te				
6					☐ 3 - Prevalence Ind	ex is <u>&lt;</u> 3.0 <sup>1</sup>			
7			—			Adaptations¹ (Provi s or on a separate		ng	
8					_	•	sneet)		
9			—		5 - Wetland Non-V	ascular Plants <sup>1</sup>			
10					☐ Problematic Hydro	phytic Vegetation <sup>1</sup>	(Explain)		
11					<sup>1</sup> Indicators of hydric soil	and wetland hydro	logy must		
50% =, 20% =		<u>105</u>	= Total Cov	/er	be present, unless distu				
Woody Vine Stratum (Plot	ɪ size: <u>15'</u> )								
1			—		Uralnambustia				
2					Hydrophytic Vegetation	Yes	$\boxtimes$	No	
50% =, 20% =	_	<u>0</u>	= Total Cov	/er	Present?		_		_
% Bare Ground in Herb S	tratum <u>0</u>								
Remarks:									
1									

Project Site: <u>Little Lake Forest Trailhead Park (Parcel 1920079101)</u>

OIL						or or confi	irm the absence	of indicate	ors.)				
	ription: (Describe	-	tn needed t	o docu				or mulcate	,				
Depth	Matrix		0-1	/:- <b>+</b> \	Redox Feat		12	_ 		-			
inches)	Color (moist)	<u>%</u>	Color	(moist)		Type <sup>1</sup>	Loc <sup>2</sup>	Texture		R	Remarks		
<u>0-8</u>	7.5YR2.5/1	<u>100</u>						SCL					
<u>8-9</u>	charcol layer	<u>100</u>	7.5Y	— D2//				Clay Los					
9-13 13+	7.5YR2.5/1	<u>97</u>	7.5YR		<u>3</u>	<u>R</u> R	<u>M</u> M	Clay Loa					
<u>13+</u>	7.5YR2.5/1	<u>98</u>	<u>7.511</u>	2.3/3	<u>2</u>	K	<u>M</u>	Clay Loa	<u> </u>				
				_									
				_				-					
Type: C= Co	oncentration. D=De	pletion. RM	=Reduced N	— Лatrix. С	CS=Covered or Co	ated Sand	I Grains. <sup>2</sup> Lo	ocation: PL=	Pore Lining, M	=Matrix			
•	ndicators: (Applic								ators for Prob		vdric S	oils³:	
Histoso				_	andy Redox (S5)				2 cm Muck (		,		
_	Epipedon (A2)				tripped Matrix (S6)				Red Parent I		F2)		
	Histic (A3)				pamy Mucky Minera		cept MLRA 1)		Very Shallow	-		12)	
_	gen Sulfide (A4)			_	pamy Gleyed Matrix	. , .	•		Other (Expla		•	,	
	ed Below Dark Sur	ace (A11)			epleted Matrix (F3)						,		
_	Dark Surface (A12)	• •		] Re	edox Dark Surface	(F6)							
☐ Sandy	Mucky Mineral (S1	)		De	epleted Dark Surfa	ce (F7)			cators of hydrop	. , .			
_	Gleyed Matrix (S4)				edox Depressions				etland hydrolog nless disturbed			,	
	_ayer (if present):							<u>ui</u>	nicoo dictarbod	or problem	nauo.		
уре:													
											_	N.	
Depth (inche	s):	eces of woo	od mixed in.				Hydric Soils F	resent?		Yes		No	Σ
Depth (inche	Top layer large pi	eces of woo	od mixed in.				Hydric Soils F	resent?		Yes		NO	Σ
Depth (inche Remarks:	Top layer large pi		od mixed in.				Hydric Soils F	resent?		Yes		NO	
Depth (inche Remarks: 'DROLOG Wetland Hyd	Top layer large pi	:		that app	oly)		Hydric Soils F		dary Indicators				
Depth (inche Remarks: YDROLOG Vetland Hyder Primary Indice	Top layer large pic	:		] W	ater-Stained Leave			Second V	Water-Stained L	(2 or more Leaves (B9	e require		
OPPTH (inche Remarks:  /DROLOG  Vetland Hyder  Primary Indice  Surface	Top layer large pice of the second se	:	ed; check all	] W				Second V		(2 or more Leaves (B9	e require		
Primary Indic  Surfac  High V	Top layer large pice Y  drology Indicators cators (minimum of the Water (A1)	:	ed; check all	] W:	ater-Stained Leave			Second V	Water-Stained L	(2 or more Leaves (B9	e require		
Primary Indic  Surfac  High V	Top layer large pictors drology Indicators (minimum of the Water (A1)	:	ed; check all	Wa	ater-Stained Leave	4A, and 4		Second (	Water-Stained L	(2 or more Leaves (B9 <b>a, and 4B)</b> rns (B10)	e require		
Pepth (inche Remarks:  POROLOG Vetland Hyd Surfac High V Satura Water	Top layer large pictors drology Indicators (minimum of the Water (A1) Vater Table (A2)	:	ed; check all	] Wa (ex ] Sa	vater-Stained Leave except MLRA 1, 2, alt Crust (B11)	<b>4A</b> , and <b>4</b>		Second (	Water-Stained L (MLRA 1, 2, 4A Orainage Patter	(2 or more Leaves (B9 <b>a, and 4B)</b> rns (B10) ater Table (	e require	ed)	
/DROLOG Wetland Hyd Surfac High V Satura Water Sedim	Top layer large pictors ators (minimum of the Water (A1) Vater Table (A2) Marks (B1)	:	ed; check all	War (ex Sa Acc	vater-Stained Leave except MLRA 1, 2, alt Crust (B11) quatic Invertebrates	<b>4A</b> , and 4 s (B13) dor (C1)	B)	Second (	Water-Stained L MLRA 1, 2, 4A Drainage Patter Dry-Season Wa	(2 or more Leaves (B9 a, <b>and 4B)</b> rns (B10) ater Table ( ole on Aeria	e require 9) (C2) al Image	ed)	
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# Appendix C

# Site Photographs

Photographs from December 10, 2021, Natural Resources Site Visit, and November 30, 2021, Geotechnical Site Visit (documented in separate letter)



Exhibit C-1: Southern portion of Property and General Location of DP1, Facing North (11/30/2021)



Exhibit C-2: Soil Pit Associated with DP1 (12/10/2021)



Exhibit C-3: Facing East from DP2 (12/10/2021)



Exhibit C-4: Northern Portion of Property, Facing North from DP2 (12/10/2021)



Exhibit C-5: Facing North at DP3 (12/10/2021)



Exhibit C-6: Northern Portion of Property, Facing North (12/10/2021)



Attachment to and part of Report:

January 19, 2022

To: Ms. Mary Lear, PE

King County Department of Natural

Resources and Parks

# Important Information About Your Wetland Delineation/Mitigation and/or Stream Classification Report

#### A WETLAND/STREAM REPORT IS BASED ON PROJECT-SPECIFIC FACTORS.

Wetland delineation/mitigation and stream classification reports are based on a unique set of project-specific factors. These typically include the general nature of the project and property involved, its size and configuration, historical use and practice, the location of the project on the site and its orientation, and the level of additional risk the client assumed by virtue of limitations imposed upon the exploratory program. The jurisdiction of any particular wetland/stream is determined by the regulatory authority(ies) issuing the permit(s). As a result, one or more agencies will have jurisdiction over a particular wetland or stream with sometimes confusing regulations. It is necessary to involve a consultant who understands which agency(ies) has jurisdiction over a particular wetland/stream and what the agency(ies) permitting requirements are for that wetland/stream. To help reduce or avoid potential costly problems, have the consultant determine how any factors or regulations (which can change subsequent to the report) may affect the recommendations.

Unless your consultant indicates otherwise, your report should not be used:

- If the size or configuration of the proposed project is altered.
- If the location or orientation of the proposed project is modified.
- If there is a change of ownership.
- For application to an adjacent site.
- For construction at an adjacent site or on site.
- Following floods, earthquakes, or other acts of nature.

Wetland/stream consultants cannot accept responsibility for problems that may develop if they are not consulted after factors considered in their reports have changed. Therefore, it is incumbent upon you to notify your consultant of any factors that may have changed prior to submission of our final report.

Wetland boundaries identified and stream classifications made by Shannon & Wilson are considered preliminary until validated by the U.S. Army Corps of Engineers (Corps) and/or the local jurisdictional agency. Validation by the regulating agency(ies) provides a certification, usually written, that the wetland boundaries verified are the boundaries that will be regulated by the agency(ies) until a specified date, or until the regulations are modified, and that the stream has been properly classified. Only the regulating agency(ies) can provide this certification.

#### MOST WETLAND/STREAM "FINDINGS" ARE PROFESSIONAL ESTIMATES.

Site exploration identifies wetland/stream conditions at only those points where samples are taken and when they are taken, but the physical means of obtaining data preclude the determination of precise conditions. Consequently, the information obtained is intended to be sufficiently accurate for design but is subject to interpretation. Additionally, data derived through sampling and subsequent laboratory testing are extrapolated by the consultant who then renders an opinion about overall conditions, the likely reaction to proposed construction activity, and/or appropriate design. Even under optimal circumstances, actual conditions may differ from those thought to exist because no consultant, no matter how qualified, and no exploration program, no matter how comprehensive, can reveal what is hidden by earth, rock, and time. Nothing can be done to prevent

Page 1 of 2 1/2022



the unanticipated, but steps can be taken to help reduce their impacts. For this reason, most experienced owners retain their consultants through the construction or wetland mitigation/stream classification stage to identify variances, conduct additional evaluations that may be needed, and recommend solutions to problems encountered on site.

#### WETLAND/STREAM CONDITIONS CAN CHANGE.

Since natural systems are dynamic systems affected by both natural processes and human activities, changes in wetland boundaries and stream conditions may be expected. Therefore, delineated wetland boundaries and stream classifications cannot remain valid for an indefinite period of time. The Corps typically recognizes the validity of wetland delineations for a period of five years after completion. Some city and county agencies recognize the validity of wetland delineations for a period of two years. If a period of years has passed since the wetland/stream report was completed, the owner is advised to have the consultant reexamine the wetland/stream to determine if the classification is still accurate.

Construction operations at or adjacent to the site and natural events such as floods, earthquakes, or water fluctuations may also affect conditions and, thus, the continuing adequacy of the wetland/stream report. The consultant should be kept apprised of any such events and consulted to determine if additional evaluation is necessary.

#### THE WETLAND/STREAM REPORT IS SUBJECT TO MISINTERPRETATION.

Costly problems can occur when plans are developed based on misinterpretation of a wetland/stream report. To help avoid these problems, the consultant should be retained to work with other appropriate professionals to explain relevant wetland, stream, geological, and other findings, and to review the adequacy of plans and specifications relative to these issues.

#### DATA FORMS SHOULD NOT BE SEPARATED FROM THE REPORT.

Final data forms are developed by the consultant based on interpretation of field sheets (assembled by site personnel) and laboratory evaluation of field samples. Only final data forms are customarily included in a report. These data forms should not, under any circumstances, be drawn for inclusion in other drawings, because drafters may commit errors or omissions in the transfer process. Although photographic reproduction eliminates this problem, it does nothing to reduce the possibility of misinterpreting the forms. When this occurs, delays, disputes, and unanticipated costs are frequently the result.

To reduce the likelihood of data from misinterpretation, contractors, engineers, and planners should be given ready access to the complete report. Those who do not provide such access may proceed under the mistaken impression that simply disclaiming responsibility for the accuracy of information always insulates them from attendant liability. Providing the best available information to contractors, engineers, and planners helps prevent costly problems and the adversarial attitudes that aggravate them to a disproportionate scale.

#### READ RESPONSIBILITY CLAUSES CLOSELY.

Because a wetland delineation/stream classification is based extensively on judgment and opinion, it is far less exact than other design disciplines. This situation has resulted in wholly unwarranted claims being lodged against consultants. To help prevent this problem, consultants have developed a number of clauses for use in written transmittals. These are not exculpatory clauses designed to foist the consultant's liabilities onto someone else; rather, they are definitive clauses that identify where the consultant's responsibilities begin and end. Their use helps all parties involved recognize their individual responsibilities and take appropriate action. Some of these definitive clauses are likely to appear in your report, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to your questions.

#### THERE MAY BE OTHER STEPS YOU CAN TAKE TO REDUCE RISK.

Your consultant will be pleased to discuss other techniques or designs that can be employed to mitigate the risk of delays and to provide a variety of alternatives that may be beneficial to your project.