Existing Conditions Report

TIBBETTS VALLEY PARK – FUTURE OFF-LEASH DOG PARK

CITY OF ISSAQUAH

April 29, 2019

Prepared for:

Jennifer Fink and Chante Floreani
City of Issaquah
Parks & Recreation Department
PO Box 1307
Issaquah, WA 98027-1307

The Watershed Company

Title-page image: View of study area from 12th Avenue NW looking southwest (Imagery source: Google Earth Streetview).

The information contained in this report is based on the application of technical guidelines currently accepted as the best available science and in conjunction with the manuals and criteria outlined in the methods section. All discussions, conclusions and recommendations reflect the best professional judgment of the author(s) and are based upon information available at the time the study was conducted. All work was completed within the constraints of budget, scope, and timing. The findings of this report are subject to verification and agreement by the appropriate local, state and federal regulatory authorities. No other warranty, expressed or implied, is made.

THE WATERSHED COMPANY

750 Sixth Street South
Kirkland, WA 98033

p 425.822.5242
f 425.827.8136

watershedco.com

Reference Number: 190220

Contacts: Katy Crandall
Ecologist + ISA Certified Arborist®
Kyle Braun
Landscape Architect + ISA Certified Arborist®

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1. Project Overview

The City of Issaquah is planning to create an off-leash dog park in the undeveloped southeast corner of Tibbetts Valley Park, located at 965 12th Avenue NW in the City of Issaquah (parcel number 2924069056). On March 19th, 2019, The Watershed Company conducted a tree inventory and wetland delineation study within the selected study area (Figure 1) to identify potential site constraints and aid in site planning and design.

This report summarizes the findings of the tree inventory and wetland delineation study and details applicable federal, state, and local regulations. General recommendations pertaining to tree removal and development near wetland areas are also provided.

1.1 Study Area

The study area comprises approximately 2.8 acres of forested land in the southeast corner of Tibbetts Valley Park (Figure 1).

Figure 1. Vicinity (left) and overview map (right) showing the location of the study area (Imagery source: King County iMap).

2. Methods

2.1 Tree Assessment

Based on the Issaquah Municipal Code (IMC), a significant tree is a tree that measures at least six inches or greater at diameter-at-breast-height (DBH); alder or cottonwood trees need to measure eight inches or greater at DBH. Any trees that are listed on the King County complete

weed list are not considered significant. Landmark trees are defined as any tree with a diameter of 30 inches or greater. Each significant tree assessed was tagged with a round aluminum tag, with a unique ID number that was affixed to the trunk.

2.2 Tree Mapping

A survey was received from the City of Issaquah on February 21, 2019. The survey files are dated the year of 1999. Most of the trees present on the 1999 survey still existed at the time of the inventory. Trees not included in the original survey were GPS mapped on aerial photography with ArcGIS Collector application on an Apple iPad.

2.3 Attribute Data Collection

Attributes documented for all inventoried trees include a unique identification number, geo-spatial location point (mapped onto a geo-located aerial photograph), and species name. Physical attributes include the number of stems, DBH, estimated canopy radius, condition, and general assessment notes.

Areas located near delineated wetlands and/or large stands of insignificant trees were inventoried by characterizing the general group of trees by species, average tree size, and health.

The diameter of all subject trees was measured at four-and-a-half feet above the surface of the ground at the trunk where possible; however, some stems were measured differently due to size or branching structure. For trees with major branching at or below four-and-a-half feet, the smallest portion of the trunk below major branching was measured. Methods for measuring and calculating the diameter of trees with major leans and on steep slopes generally followed those outlined in the Guide for Plant Appraisal (CTLA 2018).

Canopy radius, also known as dripline, was measured from the trunk to the outermost branch tips by estimating a vertical line to the ground.

A basic Level 1 visual assessment was used to evaluate the health and condition of trees within the study area in accordance with the International Society of Arboriculture (ISA) standards. Each tree was given a rating from 1-5 (Excellent – Dead/Dying) as summarized in Table 1.

Table 1. Assessment of plant condition considers health, structure, and form. Each may be described in rating categories that will be translated into a percent rating. (CTLA 2018)

Rating Category	Condition Components			Percent Rating
	Health	Structure	Form	
Excellent - 1	High vigor and nearly perfect health with little or no twig dieback, discoloration, or defoliation.	Nearly ideal and free of defects.	Nearly ideal for the species. Generally symmetric. Consistent with the intended use.	81% to 100%
Good - 2	Vigor is normal for species. No significant damage due to diseases or pests. Any twig dieback, defoliation, or discoloration is minor.	Well-developed structure. Defects are minor and can be corrected.	Minor asymmetries/deviations from species norm. Mostly consistent with the intended use. Function and aesthetics are not compromised.	61% to 80%
Fair - 3	Reduced vigor. Damage due to insects or diseases may be significant and associated with defoliation but is not likely to be fatal. Twig dieback, defoliation, discoloration, and/or dead branches may compromise up to 50% of the crown.	A single defect of a significant nature or multiple moderate defect. Defects are not practical to correct or would require multiple treatments over several years.	Major asymmetries/deviations from species norm and/or intended use. Function and/or aesthetics are compromised.	41% to 60%
Poor - 4	Unhealthy and declining in appearance. Poor vigor. Low foliage density and poor foliage color are present. Potentially fatal pest infestation. Extensive twig and/or branch dieback.	A single serious defect or multiple significant defects. Recent change in tree orientation. Observed structural problems cannot be corrected. Failure may occur at any time.	Largely asymmetric/abnormal. Detracts from intended use and/or aesthetics to a significant degree.	21% to 40%
Dead / Dying - 5	Poor vigor. Appears dying and in the last stages of life. Little live foliage.	Single or multiple severe defects. Failure is probable or imminent.	Visually unappealing. Provides little or no function in the landscape.	0% to 20%

2.4 Wetland Assessment

Public-domain information on the study area was reviewed for this delineation study. Resources and review findings are presented in Table 2 of the "Findings" section of this letter.

The study area was evaluated for wetlands using methodology from the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region Version 2.0* (U.S. Army Corps of Engineers 2010). Presence or absence of wetlands was determined on the basis of an examination of vegetation, soils and hydrology. These parameters were sampled at several locations along the wetland boundary to determine wetland edge. Wetlands were classified using the Department of Ecology's 2014 rating system (Hruby 2014).

Characterization of climatic conditions for precipitation in the Wetland Determination Data Forms was determined using the WETS table methodology (USDA, NRCS 2015). The "Seattle Tacoma Intl AP" station from 1981-2010 was used as a source for precipitation data (http://agacis.rcc-acis.org/). The WETS table methodology uses climate data from the three months prior to the site visit month to determine if normal conditions are present in the study area region.

3. Findings

The 2.8-acre study area makes up the southeast portion of the approximately 37-acre Tibbetts Valley Park. The study area is situated in the Tibbetts Creek drainage basin of the Cedar-Sammamish Watershed (Water Resource Inventory Area [WRIA] 8); Township 24N, Range 06E, Section 29 of the Public Land Survey System. The site is zoned CF-R: Community Facilities – Recreation.

The study area is characterized as a forested plateau. The plateau sits higher than any point in the park. Study area topography is generally dominated by a gentle north-facing slope; outside of the study area, the land drops steeply to the west. Vegetation consists mainly of red alder (*Alnus rubra)* with various conifers and larger deciduous trees spread throughout. Understory is very sparse, consisting largely of Himalayan blackberry (*Rubus armeniacus*), however much of the blackberry was cleared prior to the site visit. According to the City, the study area was the site of a former residence. Evidence of this prior use still exists and includes an overgrown access driveway and mature ornamental plants. Two small wetlands are present in the northern portion of the study area.

Reviewed public-domain information for the study area is summarized in Table 2.

Table 2. Summary of online mapping and inventory resources.

Resource	Summary
USDA NRCS: Web Soil Survey	*Kitsap silt loam, 2-8 percent slopes (KpB)*
USFWS: NWI Wetland Mapper	*No features mapped in study area.*
WDFW: PHS on the Web	*Little brown bat, Townsend's big-eared bat, Yuma myotis, and big brown bat breeding area and/or communal roost mapped at the township level.*
WDFW: SalmonScape	*No features mapped in study area; salmonids in Tibbetts Creek west of study area.*
WA-DNR: Forest Practices Activity Mapping Tool	*No features mapped in study area; Tibbetts Creeks to west mapped as Type F.*
King County iMap	*No environmentally sensitive areas mapped in study area. Erosion hazard, seismic hazard, and stream polygons (based on 1990 SAO) present within park boundaries.*
WETS Climatic Condition	*Normal*

3.1 Tree Inventory

A total of 124 significant trees were inventoried. Diameters range between eight and 58 inches DBH. The largest tree inventoried is a 58-inch western red cedar (*Thuja plicata*), Tree #1007. Species inventoried consisted of predominantly red alder (*Alnus rubra)*, making up 75 percent of the trees inventoried by number. Several large conifers and large black cottonwoods (*Populus balsamifera*) are also present.

A number of ornamental trees located in the northern end of the study area appear to have been established when the site contained a residential use. Many of these ornamental trees have out-lasted their typical life span and, specifically the grove of fruit trees, display very poor condition.

Five groupings of non-significant trees were also characterized for this study. These groupings contained large numbers of insignificant red alder. Large significant trees in these groupings were inventoried individually. Tree groupings and individual significant trees are shown in the Existing Conditions Map (Appendix A). A summary of the attributes collected for each group of trees is provided in Table 3.

Table 3. Summary of tree groupings and specific attributes.

Group #	Species Summary	Average DBH (IN)	Approximate Area (SF)	Average Condition
1	11 red alder (*Alnus rubra)*	3.0	530	2-Good
2	16 red alder (*Alnus rubra)*	9.0	1,930	2-Good
3	25 red alder (*Alnus rubra).* One large big-leaf maple *(Acer macrophyllum).*	6.0	4,700	2-Good
4	150 red alder (*Alnus rubra)*	5.0	16,500	2-Good
5	45 red alder (*Alnus rubra)*	5.0	7500	2-Good

Of the 124 significant trees inventoried, seven are considered landmark trees. A summary of landmark tree attributes is provided in Table 4 below.

Table 4. Summary table of Landmark Trees rooted within the study area.

Tag #	Species	DBH	Canopy radius	Condition
1007	Western red cedar *(Thuja plicata)*	58.0	25	2 - Good
1010	Red alder (*Alnus rubra*)	34.0	12	3 - Fair
1069	Black cottonwood (*Populus balsamifera*)	35.0	30	1 - Excellent
1095	Black cottonwood (*Populus balsamifera*)	38.5	35	3 - Fair
1098	Black locust (*Robinia pseudoacacia)*	34.0	20	3 - Fair
1108	Western red cedar *(Thuja plicata)*	53.0	25	3 - Fair
1124	Big-leaf maple (*Acer macrophyllum)*	31	30	1 - Excellent

The overall forest stand is generally healthy, however there are a number of dead or dying trees spread throughout. These trees likely declined because of competition for resources and relatively mature age. No pest infestations or obvious signs of widespread disease were observed during field investigations. Dead and dying trees and trees in poor condition are indicated in the Tree Inventory Table (Appendix B).

3.1.1 Tree Risk Assessment

None of the retained live trees within the study area are expected to pose high or severe risk to potential future park users or infrastructure, within a one-year time frame, based on the information available during this study. Removal recommendations (see Section 6) of all dead and dying trees and many trees in poor condition intend to eliminate the probable or imminent likelihood of tree (or tree part) failure at the site, post-construction. Once the site is developed as a dog park, the likelihood of a tree or tree part impacting a target would be medium (presuming a frequent occupancy rate) within the study area. The residual risk following the recommended removal would be low to moderate. Since there are not instances where high or severe tree risk is anticipated, formal tree risk assessment forms were not completed. After site construction, trees should be reassessed to avoid high or severe risk to park users.

3.2 Wetlands

Two small wetlands were delineated during March 2019 field investigations. They are very similar in size, shape, and character to Wetlands C and D, features previously delineated in the study area and described in the 1999 Tibbetts Valley Park Wetland Study (The Watershed Company 1999). To be consistent, wetland names established in 1999 were utilized for this study.

Wetlands C and D are summarized in the tables below (Table 5 and Table 6) and locations are approximated in the Wetland Delineation Sketch (see Appendix C) and the Existing Conditions Map (Appendix A). Consistent with the 1999 study, Wetlands C and D are small, slope wetlands that are relatively low functioning.

Table 5. Wetland C assessment summary.

WETLAND C – Assessment Summary

Location:	Northern end of study area near parking lot
WRIA / Sub-basin:	WRIA 8 / Tibbetts Creek drainage basin

View of Wetland C looking southwest from parking lot. Imagery source: Google Earth Streetview.

2014 Western WA Ecology Rating:	Category IV
Buffer Width and Buffer Setback:	None required
Wetland Size:	less than 2,500 square feet
Cowardin Classification(s):	Palustrine Forested Palustrine Scrub-shrub Palustrine Emergent
HGM Classification(s):	Slope
Wetland Data Sheet(s):	DP-1
Upland Data Sheet (s):	DP-2
Flag Color:	pink-and-black striped
Flag Numbers:	C-1 to C-9

Vegetation	Tree stratum:	Red alder
	Shrub stratum:	Himalayan blackberry
	Herb stratum:	Creeping buttercup, reed canarygrass, soft rush, grasses
Soils	Soil survey:	Kitsap silt loam (KpB)
	Field data:	Depleted Matrix (F3) and Redox Dark Surface (F6)
Hydrology	Source:	Groundwater seep; supplemented by surface water runoff and precipitation
	Field data:	Water table at seven inches; soils saturated to the surface

Wetland Functions

	Improving Water Quality			Hydrologic			Habitat			
Site Potential	H	M	(L)	H	M	(L)	H	M	(L)	
Landscape Potential	H	M	(L)	H	M	(L)	H	M	(L)	
Value	(H)	M	L	(H)	M	L	H	M	(L)	**TOTAL**
Score Based on Ratings	5			5			3			13

Description and Comments

Groundwater seeps supported a high groundwater table in at least two locations within wetland. In areas near seeps, soils were saturated. Outside of the wetland (DP-2), soils were dry and non-wetland plants like sword fern, dandelion, and bitter cherry increased in coverage. Approximated size of Wetland C according to 1999 report was 1,637 square feet.

Table 6. Wetland D assessment summary.

WETLAND D – Assessment Summary

Location:	Northern end of study area, south of Wetland C
WRIA / Sub-basin:	WRIA 8 / Tibbetts Creek drainage basin

View of Wetland D looking southwest, from the lower portion of the wetland up the swale (Photo date: 3/19/19).

2014 Western WA Ecology Rating:	Category IV
Buffer Width and Buffer Setback:	None required
Wetland Size:	less than 2,500 square feet
Cowardin Classification(s):	Palustrine Scrub-shrub Palustrine Emergent
HGM Classification(s):	Slope
Wetland Data Sheet(s):	DP-4
Upland Data Sheet (s):	DP-3 and DP-5
Flag Color:	pink-and-black striped
Flag Numbers:	D-1 to D-9

Vegetation	Tree stratum:	None (red alder near wetland edges)
	Shrub stratum:	Himalayan blackberry
	Herb stratum:	Reed canarygrass, giant horsetail
Soils	Soil survey:	Kitsap silt loam (KpB)
	Field data:	Redox Dark Surface (F6)
Hydrology	Source:	Surface water runoff and precipitation
	Field data:	Soils saturated to the surface in test pit; water table at four inches below surface observed downslope in unit

Wetland Functions

	Improving Water Quality			Hydrologic			Habitat			
Site Potential	H	M	(L)	H	M	(L)	H	M	(L)	
Landscape Potential	H	M	(L)	H	M	(L)	H	M	(L)	
Value	(H)	M	L	(H)	M	L	H	M	(L)	**TOTAL**
Score Based on Ratings	5			5			3			13

Description and Comments

Wetland located in relatively narrow swale feature in areas that have been disturbed in the past. Vegetation in the area is dominated by young red alder and Himalayan blackberry. Approximate size of Wetland D according to 1999 report was 861 square feet.

4. Tree Regulations

Minimum Tree Density Requirements IMC 18.12.1370

According to Issaquah Municipal Code, the minimum tree density requirement for Community Facilities is four significant trees per 5,000 square feet. Parcel #2924069056 is 791,049 square feet, making the minimum tree density 633 significant trees. The study area makes up approximately 118,416 square feet; if this was considered the total developable area it would require the retention of 95 trees (i.e., allow removal of 29 significant trees) to meet the tree density requirement. Without an exact count of significant trees on-site, project arborists estimate there are approximately 700 trees rooted on parcel. Based on this estimation, up to 67 significant trees could be removed while still meeting the minimum tree density requirement.

Tree Removal 18.12.1380

Pursuant to IMC 18.12.1380.B, removal of a significant tree would require a Tree Removal Permit. A Tree Removal Permit may be approved when certain criteria are met, per IMC 18.12.1380.B.3.a. In this case, applicable criteria may include one or both of the following:

> *(3) Removal of tree(s) for the purposes of thinning a heavily wooded area where remaining trees may benefit by thinning and the site's overall appearance or function is maintained.*
>
> *(4) Removal of tree(s) that are part of an approved landscape plan for the purpose of replacing unhealthy or diseased trees.*

The tree removals would not require significant ground disturbance; therefore, a Clear and Grade permit would not be needed.

Replacement Trees IMC 18.12.1390

If minimum tree density cannot be achieved through significant tree retention per IMC 18.12.1370, tree replacement is required at one replacement tree for every six inches DBH of trees removed below the minimum requirements. All replacement trees shall be a minimum two-inch caliper for deciduous and seven to eight feet tall for conifers.

5. Wetland Regulations

5.1 City of Issaquah

The City of Issaquah regulates wetlands under IMC 18.10.360 (Environmentally critical areas). Wetland buffers are determined based upon wetland classification. Wetlands in Issaquah are classified according to the 2014 Ecology Rating System (Hruby 2014). According to the Rating System, Wetlands C and D are Category IV wetlands.

Based on the 1999 delineated and surveyed wetland boundary, and the updated delineation study which resulted in very similar wetland sizes to those previously surveyed, Wetlands C and D appear to be less than 2,500 square feet. Category IV wetlands do not require wetland buffers if they are less than 2,500 square feet and not part of a wetland complex.

6. Recommendations

6.1 Tree Removal

Project arborists made recommendations for significant tree removal during field investigations based upon tree condition, likelihood of failure, expected longevity, and the location of a subject tree in relation to other trees. For example, trees that displayed poor health and were located in a grove of healthy trees are better candidates for retention than trees with poor health that stood alone throughout the study area. Additionally, trees rooted in locations that could be impacted following the proposed land use (e.g rootzone compaction, site clearing, proposed trails, etc.), were also recommended for removal. Notes regarding removal recommendations made in the field were then revisited and refined in the office. The Tree Inventory Table (Appendix B), provides recommendations for tree removal in the 'Notes' column for significant trees. A total of 26 trees have been recommended for removal.

Additional trees may be proposed for removal to achieve project goals, with consideration of tree condition and location on-site, and in accordance with applicable criteria in IMC 18.12.1380. If more than 29 trees are proposed for removal, the project team should coordinate with the City's Development Services Department to clarify how the tree density requirements in IMC 18.12.1370 would be applied to this portion of the Tibbetts Valley Park site.

To minimize tree removal impacts to habitat functions, trees proposed for removal that are at least 10-inches DBH could be maintained as standing snags. Suitability for snag creation should be determined on a tree-by-tree basis. Additionally, tree removal impacts could be minimized by incorporating large woody debris as play- or habitat-features throughout the site.

6.2 Tree Monitoring

Once the project has been constructed, retained trees should be monitored annually for signs of decline and reassessed for risk, if necessary, to avoid the development of hazardous site conditions.

6.3 Wetlands

Design of the dog park can likely avoid impacts to Wetlands C and D based on their relative locations, size, and regulatory context. Fencing is recommended to keep future park users away from wetland areas, thereby avoiding impacts. The specific location of fencing may be driven by maximizing unfenced area or determining the fence alignment based on topography and existing trees in the vicinity of wetlands. If the City intends to propose fencing very near the approximated wetland boundaries, then the updated delineated wetland boundary flag locations should be survey-located. If fencing can be set back from approximate wetland edges to include a larger area that encompasses wetland units toward the center, then more accurate (i.e., surveyed) wetland boundary locations may not be necessary. Wetlands C and D and their surrounding uplands are degraded. To improve wetland functions and on-site habitat, invasive species like Himalayan blackberry and reed canarygrass could be targeted for removal and replaced with native trees, shrubs, and ground cover suitable to site growing conditions.

7. Limitations of this Study

The findings of this report are based on the best available science and are limited to the scope, budget and site conditions at the time of the assessment. Although the information in this report is based on sound methodology, internal physical flaws (such as cracking or root rot) or other conditions that are not visible cannot be detected with this limited basic visual screening. Trees are inherently unpredictable. Even vigorous and healthy trees can fail due to high winds, heavy snow, ice storms, rain, age or other causes.

This report is based on the current observable conditions and may not represent future conditions of the trees. Changes in site conditions, including clearing and grading, will alter the condition of remaining trees in a way that is not predictable.

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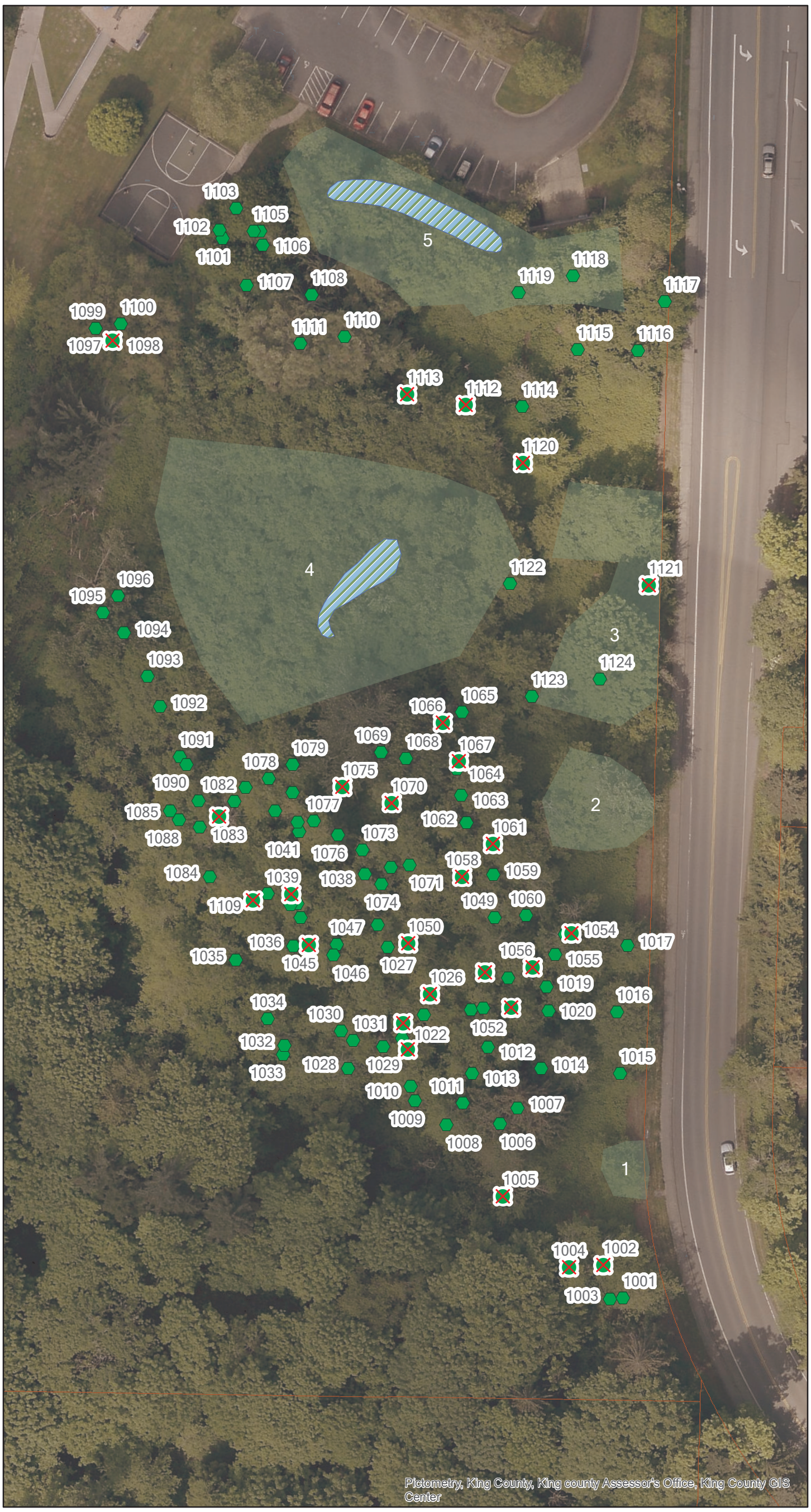
Appendix A

EXISTING CONDITIONS MAP



0 20 40 80 120 160 Feet

Legend

- Trees recommended for removal
- Inventoried trees
- Wetlands (approximate)
- Tree groupings
- King County parcels

NOTES

- WETLAND LOCATIONS ARE APPROXIMATE AND WERE NOT GEO-REFERENCED.
- ALL SIGNIFICANT TREES LOCATED IN THE STUDY AREA WERE TAGGED WITH A NUMBERED ROUND ALUMINUM TAG BETWEEN 1001 - 1124 ON THE SIDE OF THE TRUNK AT OR NEAR EYE-LEVEL.
- FOR QUESTIONS ON TREE LOCATIONS CONTACT KYLE BRAUN AT THE WATERSHED COMPANY.
  PHONE: (425) 822-5242.

TIBBETTS VALLEY PARK

EXISTING CONDITIONS MAP

Issaquah, WA

THE WATERSHED COMPANY

April 2019

Appendix B

TREE INVENTORY TABLE

THE WATERSHED COMPANY

Tibbetts Valley Park
City of Issaquah
Future off-leash dog park

Tree Inventory Table
Table Issued: 4/29/2019
Site Visit: 4/05/2019

TAG #	TREE NAME	EV / DEC	# STEMS	COMB DBH (IN)	HEIGHT (FT)	RADIUS (FT)	CONDITION	SIGNIFICANT	NOTES
1001	Alnus rubra (Red alder)	D	1	**13.0**	14	3	Fair	Y	
1002	Alnus rubra (Red alder)	D	1	**17.7**	18	4	Poor	Y	Remove
1003	Alnus rubra (Red alder)	D	1	**9.3**	8	3	Fair	Y	
1004	Alnus rubra (Red alder)	D	1	**10.0**	10	3	Fair	Y	Remove
1005	Alnus rubra (Red alder)	D	1	**14.0**	18	5	Dead/Dying	Y	Remove
1006	Prunus emarginata (Bitter cherry)	D	1	**14.0**	25	2	Good	Y	
1007	Thuja plicata (Western red cedar)	E	1	**58.0**	25	2	Good	Y	Co-dom at 14' - retain as focal point tree
1008	Alnus rubra (Red alder)	D	1	**14.8**	12	3	Fair	Y	
1009	Alnus rubra (Red alder)	D	1	**10.8**	14	2	Good	Y	
1010	Alnus rubra (Red alder)	D	3	**34.0**	12	3	Fair	Y	
1011	Alnus rubra (Red alder)	D	1	**10.5**	8	2	Good	Y	
1012	Alnus rubra (Red alder)	D	1	**9.0**	14	3	Fair	Y	
1013	Alnus rubra (Red alder)	D	1	**11.0**	10	3	Fair	Y	
1014	Alnus rubra (Red alder)	D	1	**10.4**	18	2	Good	Y	
1015	Alnus rubra (Red alder)	D	1	**8.3**	8	2	Good	Y	
1016	Alnus rubra (Red alder)	D	1	**12.0**	15	2	Good	Y	
1017	Alnus rubra (Red alder)	D	1	**10.0**	14	2	Good	Y	
1018	Alnus rubra (Red alder)	D	1	**18.0**	15	2	Good	Y	
1019	Alnus rubra (Red alder)	D	1	**9.0**	10	3	Fair	Y	
1020	Alnus rubra (Red alder)	D	1	**12.2**	14	3	Fair	Y	
1021	Alnus rubra (Red alder)	D	1	**10.0**	8	4	Poor	Y	Remove
1022	Alnus rubra (Red alder)	D	1	**9.0**	10	3	Fair	Y	
1023	Alnus rubra (Red alder)	D	1	**9.0**	8	4	Poor	Y	Remove
1024	Alnus rubra (Red alder)	D	1	**9.0**	5	4	Poor	Y	Remove
1025	Alnus rubra (Red alder)	D	1	**11.0**	14	3	Fair	Y	
1026	Alnus rubra (Red alder)	D	1	**15.5**	8	4	Poor	Y	Remove
1027	Alnus rubra (Red alder)	D	1	**13.5**	20	2	Good	Y	
1028	Alnus rubra (Red alder)	D	1	**14.0**	15	3	Fair	Y	
1029	Alnus rubra (Red alder)	D	1	**12.0**	10	3	Fair	Y	
1030	Alnus rubra (Red alder)	D	1	**15.5**	16	2	Good	Y	
1031	Alnus rubra (Red alder)	D	1	**10.5**	12	3	Fair	Y	
1032	Alnus rubra (Red alder)	D	1	**14.2**	15	2	Good	Y	
1033	Alnus rubra (Red alder)	D	1	**10.0**	18	3	Fair	Y	
1034	Alnus rubra (Red alder)	D	1	**12.5**	15	2	Good	Y	
1035	Alnus rubra (Red alder)	D	1	**13.0**	14	2	Good	Y	
1036	Alnus rubra (Red alder)	D	2	**15.5**	12	2	Good	Y	
1037	Alnus rubra (Red alder)	D	1	**14.5**	15	3	Fair	Y	
1038	Alnus rubra (Red alder)	D	1	**9.1**	10	3	Fair	Y	
1039	Alnus rubra (Red alder)	D	1	**10.6**	10	3	Fair	Y	Remove
1040	Alnus rubra (Red alder)	D	1	**11.8**	18	2	Good	Y	
1041	Alnus rubra (Red alder)	D	1	**12.0**	20	3	Fair	Y	
1042	Alnus rubra (Red alder)	D	1	**12.4**	18	3	Fair	Y	

750 6th Street South, Kirkland, WA 98033
(425) 822-5242

TAG #	TREE NAME	EV / DEC	# STEMS	COMB DBH (IN)	HEIGHT (FT)	RADIUS (FT)	CONDITION	SIGNIFICANT	NOTES
1043	Alnus rubra (Red alder)	D	1	**11.4**	16	3	Fair	Y	
1044	Alnus rubra (Red alder)	D	1	**10.8**	18	2	Good	Y	
1045	Alnus rubra (Red alder)	D	1	**9.5**	12	4	Poor	Y	Remove
1046	Alnus rubra (Red alder)	D	1	**12.0**	18	3	Fair	Y	
1047	Alnus rubra (Red alder)	D	2	**21.8**	14	3	Fair	Y	
1048	Alnus rubra (Red alder)	D	1	**11.5**	15	2	Good	Y	
1049	Alnus rubra (Red alder)	D	1	**8.0**	5	3	Fair	Y	
1050	Alnus rubra (Red alder)	D	2	**22.0**	18	4	Poor	Y	Remove
1051	Alnus rubra (Red alder)	D	1	**14.0**	14	3	Fair	Y	
1052	Alnus rubra (Red alder)	D	1	**14.0**	16	2	Good	Y	
1053	Alnus rubra (Red alder)	D	1	**13.3**	12	2	Good	Y	
1054	Alnus rubra (Red alder)	D	1	**15.2**	15	4	Poor	Y	Remove
1055	Alnus rubra (Red alder)	D	1	**14.2**	12	3	Fair	Y	
1056	Alnus rubra (Red alder)	D	1	**9.0**	8	4	Poor	Y	Remove
1057	Alnus rubra (Red alder)	D	1	**11.0**	8	4	Poor	Y	Remove
1058	Alnus rubra (Red alder)	D	1	**10.0**	12	4	Poor	Y	Remove
1059	Alnus rubra (Red alder)	D	1	**16.0**	18	2	Good	Y	
1060	Alnus rubra (Red alder)	D	1	**9.5**	10	3	Fair	Y	
1061	Alnus rubra (Red alder)	D	1	**10.0**	12	5	Dead/Dying	Y	Remove
1062	Alnus rubra (Red alder)	D	1	**14.0**	20	3	Fair	Y	
1063	Alnus rubra (Red alder)	D	2	**21.0**	20	2	Good	Y	
1064	Alnus rubra (Red alder)	D	1	**10.2**	12	3	Fair	Y	
1065	Alnus rubra (Red alder)	D	1	**13.3**	15	2	Good	Y	
1066	Alnus rubra (Red alder)	D	1	**12.0**	0	5	Dead/Dying	Y	Remove
1067	Alnus rubra (Red alder)	D	1	**9.8**	18	4	Poor	Y	Remove
1068	Populus balsamifera (Black cottonwood)	D	1	**28.5**	30	1	Excellent	Y	
1069	Populus balsamifera (Black cottonwood)	D	1	**35.0**	30	1	Excellent	Y	
1070	Alnus rubra (Red alder)	D	1	**12.2**	10	5	Dead/Dying	Y	Remove
1071	Alnus rubra (Red alder)	D	1	**10.5**	12	3	Fair	Y	
1072	Alnus rubra (Red alder)	D	1	**11.0**	12	3	Fair	Y	
1073	Alnus rubra (Red alder)	D	1	**11.0**	15	3	Fair	Y	
1074	Alnus rubra (Red alder)	D	1	**12.0**	12	2	Good	Y	
1075	Alnus rubra (Red alder)	D	1	**8.0**	8	5	Dead/Dying	Y	Remove
1076	Alnus rubra (Red alder)	D	1	**15.0**	25	3	Fair	Y	
1077	Alnus rubra (Red alder)	D	1	**9.0**	14	3	Fair	Y	
1078	Alnus rubra (Red alder)	D	1	**9.0**	8	3	Fair	Y	
1079	Alnus rubra (Red alder)	D	1	**10.0**	14	3	Fair	Y	
1080	Alnus rubra (Red alder)	D	1	**13.0**	14	3	Fair	Y	
1081	Alnus rubra (Red alder)	D	1	**12.0**	14	2	Good	Y	
1082	Alnus rubra (Red alder)	D	1	**10.0**	12	2	Good	Y	
1083	Alnus rubra (Red alder)	D	1	**9.5**	9	4	Poor	Y	Remove
1084	Alnus rubra (Red alder)	D	1	**15.2**	18	2	Good	Y	

TAG #	TREE NAME	EV / DEC	# STEMS	COMB DBH (IN)	HEIGHT (FT)	RADIUS (FT)	CONDITION	SIGNIFICANT	NOTES
1085	Alnus rubra (Red alder)	D	1	**10.0**	14	2	Good	Y	
1086	Alnus rubra (Red alder)	D	1	**10.0**	12	3	Fair	Y	
1087	Alnus rubra (Red alder)	D	1	**8.1**	5	3	Fair	Y	
1088	Alnus rubra (Red alder)	D	1	**8.6**	5	3	Fair	Y	
1089	Alnus rubra (Red alder)	D	1	**12.5**	20	2	Good	Y	
1090	Alnus rubra (Red alder)	D	1	**13.7**	15	3	Fair	Y	
1091	Alnus rubra (Red alder)	D	1	**15.8**	18	2	Good	Y	
1092	Alnus rubra (Red alder)	D	1	**10.3**	12	2	Good	Y	
1093	Alnus rubra (Red alder)	D	1	**9.2**	14	3	Fair	Y	
1094	Alnus rubra (Red alder)	D	1	**8.8**	14	2	Good	Y	
1095	Populus balsamifera (Black cottonwood)	D	1	**38.5**	35	3	Fair	Y	Broken top
1096	Robinia pseudoacacia (Black locust)	D	1	**8.3**	12	4	Poor	Y	
1097	Robinia pseudoacacia (Black locust)	D	1	**19.3**	25	3	Fair	Y	Remove
1098	Robinia pseudoacacia (Black locust)	D	1	**34.0**	20	3	Fair	Y	
1099	Robinia pseudoacacia (Black locust)	D	1	**24.0**	25	4	Poor	Y	
1100	Robinia pseudoacacia (Black locust)	D	1	**20.2**	25	3	Fair	Y	
1101	Prunus emarginata (Bitter cherry)	D	2	**14.2**	15	2	Good	Y	
1102	Prunus emarginata (Bitter cherry)	D	1	**12.3**	12	2	Good	Y	
1103	Prunus emarginata (Bitter cherry)	D	1	**10.1**	12	2	Good	Y	
1104	Prunus emarginata (Bitter cherry)	D	1	**20.2**	20	2	Good	Y	
1105	Prunus emarginata (Bitter cherry)	D	1	**7.6**	14	2	Good	Y	
1106	Prunus emarginata (Bitter cherry)	D	1	**10.0**	14	2	Good	Y	
1107	Alnus rubra (Red alder)	D	1	**9.4**	14	2	Good	Y	
1108	Thuja plicata (Western red cedar)	E	2	**53.0**	25	3	Fair	Y	Dieback. Top is sparse. Self corrected lean
1109	Betula pendula (European white birch)	D	1	**14.6**	25	4	Poor	Y	Borer. Lean towards lot. Remove
1110	Betula pendula (European white birch)	D	1	**24.8**	25	2	Good	Y	
1111	Betula pendula (European white birch)	D	1	**29.3**	25	2	Good	Y	
1112	Malus domestica (Apple)	D	1	**12.1**	12	4	Poor	Y	Remove
1113	Malus domestica (Apple)	D	2	**19.5**	12	4	Poor	Y	Remove
1114	Malus domestica (Apple)	D	1	**17.8**	15	4	Poor	Y	
1115	Malus domestica (Apple)	D	2	**22.0**	20	4	Poor	Y	
1116	Malus domestica (Apple)	D	2	**26.0**	20	4	Poor	Y	
1117	Alnus rubra (Red alder)	D	1	**13.2**	15	2	Good	Y	
1118	Cedrus deodara (Deodar cedar)	E	1	**8.5**	10	1	Excellent	Y	
1119	Cedrus deodara (Deodar cedar)	E	1	**8.5**	10	1	Excellent	Y	
1120	Malus domestica (Apple)	D	1	**22.0**	12	5	Dead/Dying	Y	Remove
1121	Malus domestica (Apple)	D	1	**20.0**	18	5	Dead/Dying	Y	Remove
1122	Populus balsamifera (Black cottonwood)	D	2	**23.0**	18	1	Excellent	Y	
1123	Alnus rubra (Red alder)	D	1	**18.1**	20	4	Poor	Y	
1124	Acer macrophyllum (Bigleaf maple)	D	1	**31.0**	30	1	Excellent	Y	

Appendix C

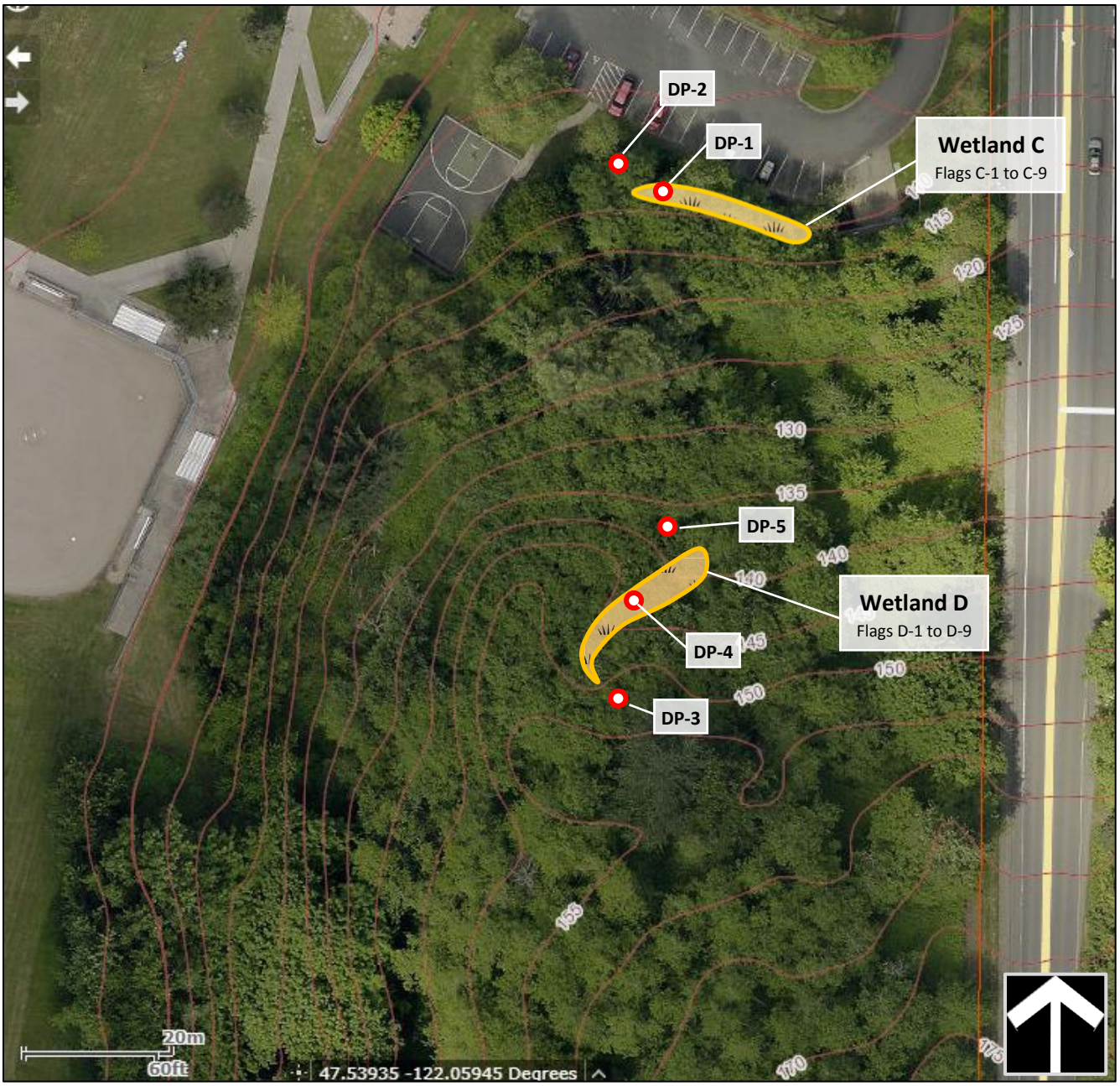
WETLAND DELINEATION SKETCH

THE WATERSHED COMPANY

750 Sixth Street South | Kirkland | WA 98033
p 425.822.5242 f 425.827.8136

Delineation Sketch – Tibbetts Valley Park

Site Address:	965 12th Ave NW Issaquah, WA 98027	Prepared for:	Jennifer Fink, Chante Floreani City of Issaquah Parks & Recreation Department
Parcel Number:	2924069056		
Site Visit Date:	April 5, 2019	TWC Ref. No.:	190220



Note: Field sketch only. Features depicted are approximate and not to scale. Wetland boundary is marked with pink- and black-striped flags. Data points are marked with yellow- and black-striped flags.

Wetlands C and D very similar in shape and size to features previously delineated and surveyed. See next page.

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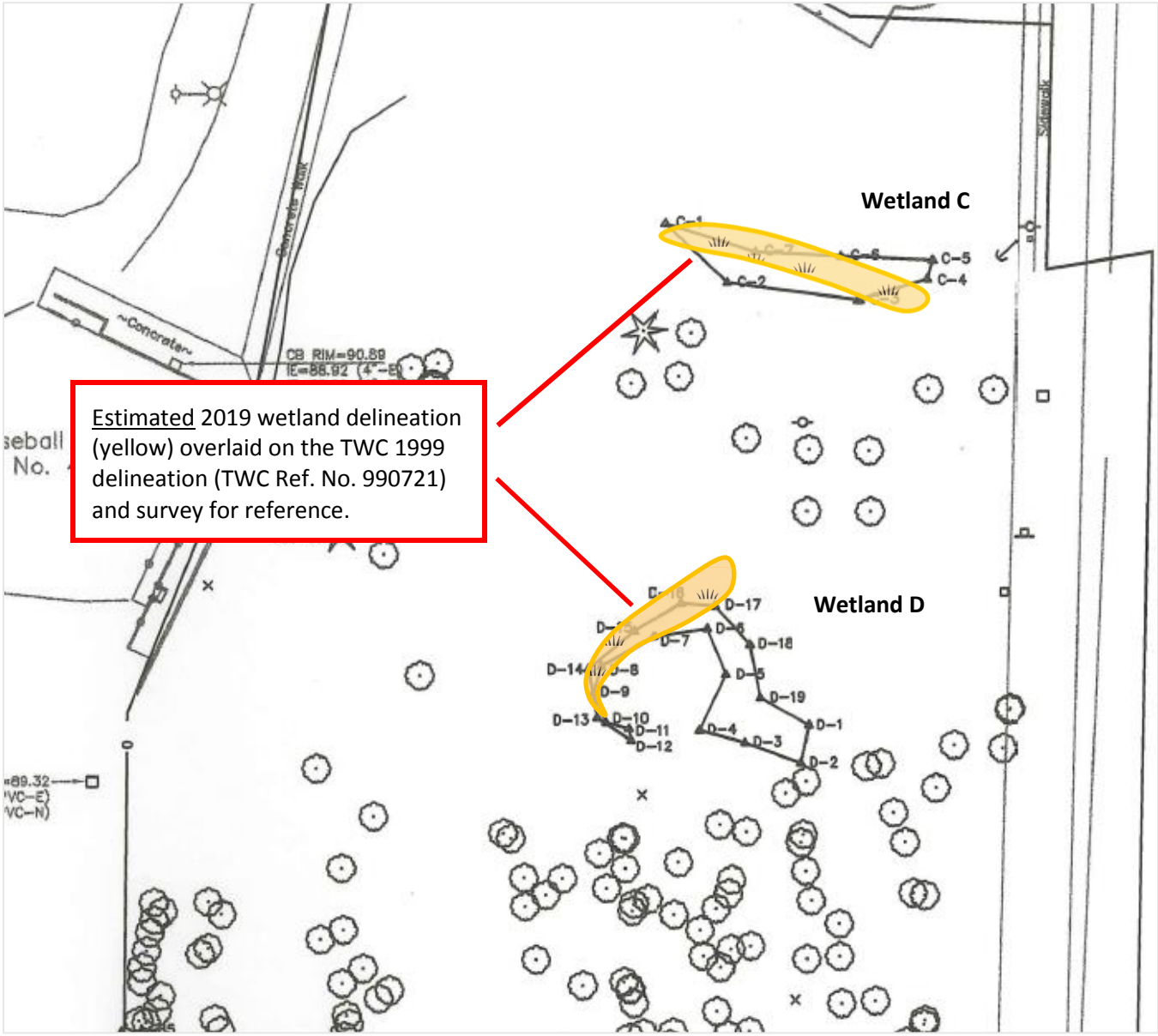


Appendix D

WETLAND DETERMINATION DATA FORMS

THE WATERSHED COMPANY

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

DP-1

Project/Site: Tibbetts Valley Park – potential dog park City/County: Issaquah Sampling date: 4/6/2019

Applicant/Owner: City of Issaquah State: WA Sampling Point: 1

Investigator(s): K. Crandall Section, Township, Range: T24N, R06E, S29

Landform (hillslope, terrace, etc): hillslope Local relief (concave, convex, none): none Slope (%): 20

Subregion (LRR): A Lat: - Long: - Datum: -

Soil Map Unit Name: KbP – Kitsap silt loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present on the site? ☒ Yes ☐ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?** **Yes ☒ No ☐**
Hydric Soils Present?	Yes	☒	No	☐	
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks: **Wetland C in-pit.**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5-m diameter)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	90	Y	FAC
2.			
3.			
4.			
	90	= Total Cover	

Sapling/Shrub Stratum (Plot size: 3-m diameter)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Herb Stratum (Plot size: 1-m diameter)			
1. *Ranunculus repens*	70	Y	FAC
2. *Phalaris arundinacea*	5	N	FACW
3. *Unknown grass*	<5	N	FAC*
4. *Taraxacum officinale*	trace	N	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	<80	= Total Cover	

Woody Vine Stratum (Plot size: 3-m diameter)		
1.		
2.		
	0	= Total Cover

% Bare Ground in Herb Stratum:

Dominance Test worksheet:

Number of Dominant Species that are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across all Strata:	2	(B)
Percent of Dominant Species that are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 – Dominance Test is > 50%
- ☐ 3 – Prevalence Index is ≤ 3.0[1]
- ☐ 4 – Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 – Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks:

SOIL

Sampling Point: DP-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	2.5Y 3/2	95	10YR 4/6	5	C	M	Clay loam	
8-13	5Y 5/1	75	10YR 5/6	25	C	M	Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Loc: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches):

Hydric soil present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required: check all that apply)

- ☐ Surface water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ ~~Water Stained Leaves (**except MLRA 1, 2, 4A & 4B**) (B9)~~
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (explain in remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A & 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks

Field Observations:

Surface Water Present?	Yes ☐	No ☒	Depth (in):	
Water Table Present?	Yes ☒	No ☐	Depth (in):	**7**
Saturation Present? (includes capillary fringe)	Yes ☒	No ☐	Depth (in):	**0**

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

THE WATERSHED COMPANY

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

DP-2

Project/Site: Tibbetts Valley Park – potential dog park City/County: Issaquah Sampling date: 4/6/2019

Applicant/Owner: City of Issaquah State: WA Sampling Point: 2

Investigator(s): K. Crandall Section, Township, Range: T24N, R06E, S29

Landform (hillslope, terrace, etc): hillslope Local relief (concave, convex, none): none Slope (%): 15

Subregion (LRR): A Lat: - Long: - Datum: -

Soil Map Unit Name: KbP – Kitsap silt loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present on the site? ☒ Yes ☐ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Hydric Soils Present?	Yes ☒	No ☐		
Wetland Hydrology Present?	Yes ☐	No ☒		

Remarks: **Out-pit near Wetland C.**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5-m diameter)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	80	Y	FAC
2. *Prunus emarginata*	40	Y	FACU
3.			
4.			
		= Total Cover	

Sapling/Shrub Stratum (Plot size: 3-m diameter)			
1. *Rubus armeniacus*	60	Y	FAC
2.			
3.			
4.			
5.			
		= Total Cover	

Herb Stratum (Plot size: 1-m diameter)			
1. *Ranunculus repens*	20	Y	FAC
2. *Polystichum munitum*	10	Y	FACU
3. *Phalaris arundinacea*	5	N	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	35	= Total Cover	

Woody Vine Stratum (Plot size: 3-m diameter)		
1.		
2.		
		= Total Cover

% Bare Ground in Herb Stratum:

Dominance Test worksheet:

Number of Dominant Species that are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across all Strata:	5	(B)
Percent of Dominant Species that are OBL, FACW, or FAC:	60	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 – Dominance Test is > 50%
- ☐ 3 – Prevalence Index is ≤ 3.0[1]
- ☐ 4 – Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 – Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks:

SOIL

Sampling Point: DP-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 2/2	100					loam	
9-16	5Y 6/2	75	10YR 4/6	25	C	M	Sandy clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Loc: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches):

Hydric soil present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required: check all that apply)

- ☐ Surface water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ ~~Water Stained Leaves (**except MLRA 1, 2, 4A & 4B**) (B9)~~
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (explain in remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A & 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks

Field Observations:

Surface Water Present?	Yes ☐	No ☒	Depth (in):	
Water Table Present?	Yes ☐	No ☒	Depth (in):	
Saturation Present? (includes capillary fringe)	Yes ☐	No ☒	Depth (in):	

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

THE WATERSHED COMPANY

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

DP-3

Project/Site: Tibbetts Valley Park – potential dog park City/County: Issaquah Sampling date: 4/6/2019

Applicant/Owner: City of Issaquah State: WA Sampling Point: 3

Investigator(s): K. Crandall Section, Township, Range: T24N, R06E, S29

Landform (hillslope, terrace, etc): hillslope/swale Local relief (concave, convex, none): concave Slope (%): 5

Subregion (LRR): A Lat: - Long: - Datum: -

Soil Map Unit Name: KbP – Kitsap silt loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present on the site? ☒ Yes ☐ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Hydric Soils Present?	Yes ☐	No ☒		
Wetland Hydrology Present?	Yes ☐	No ☒		

Remarks: **Top of swale feature on mounded dirt.**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5-m diameter)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	80	Y	FAC
2.			
3.			
4.			
		= Total Cover	

Sapling/Shrub Stratum (Plot size: 3-m diameter)			
1. *Rubus armeniacus*	60	Y	FAC
2.			
3.			
4.			
5.			
		= Total Cover	

Herb Stratum (Plot size: 1-m diameter)			
1. *Polystichum munitum*	<5	N	FACU
2. -just upslope			
3. *Equisetum telmateia*	trace	N	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
		= Total Cover	

Woody Vine Stratum (Plot size: 3-m diameter)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum:

Dominance Test worksheet:

Number of Dominant Species that are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across all Strata:	2	(B)
Percent of Dominant Species that are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 – Dominance Test is > 50%
- ☐ 3 – Prevalence Index is ≤ 3.0[1]
- ☐ 4 – Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 – Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks:

SOIL

Sampling Point: DP-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-15	10YR 2/2	100					loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Loc: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches):

Hydric soil present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required: check all that apply)

- ☐ Surface water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ ~~Water Stained Leaves (**except MLRA 1, 2, 4A & 4B**) (B9)~~
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (explain in remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A & 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (in): _____

Water Table Present? Yes ☐ No ☒ Depth (in): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (in): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

THE WATERSHED COMPANY

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

DP-4

Project/Site: Tibbetts Valley Park – potential dog park City/County: Issaquah Sampling date: 4/6/2019

Applicant/Owner: City of Issaquah State: WA Sampling Point: 4

Investigator(s): K. Crandall Section, Township, Range: T24N, R06E, S29

Landform (hillslope, terrace, etc): hillslope/swale Local relief (concave, convex, none): concave Slope (%): 15

Subregion (LRR): A Lat: - Long: - Datum: -

Soil Map Unit Name: KbP – Kitsap silt loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present on the site? ☒ Yes ☐ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Hydric Soils Present?	Yes	☒	No	☐	
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks: **Wetland D in-pit.**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5-m diameter)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	80	Y	FAC
2. -trees slightly upslope			
3.			
4.			
	80	= Total Cover	

Sapling/Shrub Stratum (Plot size: 3-m diameter)			
1. *Rubus armeniacus*	50	Y	FAC
2.			
3.			
4.			
5.			
	50	= Total Cover	

Herb Stratum (Plot size: 1-m diameter)			
1. *Phalaris arundinacea*	trace	N	FACW
2. *Polystichum munitum*	trace	N	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
		= Total Cover	

Woody Vine Stratum (Plot size: 3-m diameter)		
1.		
2.		
		= Total Cover

% Bare Ground in Herb Stratum:

Dominance Test worksheet:

Number of Dominant Species that are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across all Strata:	2	(B)
Percent of Dominant Species that are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 – Dominance Test is > 50%
- ☐ 3 – Prevalence Index is ≤ 3.0[1]
- ☐ 4 – Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 – Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: DP-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 3/1	85	7.5YR 3/4	15	C	M	loam	some angular gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Loc: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches):

Hydric soil present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required: check all that apply)

- ☐ Surface water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ ~~Water Stained Leaves (**except MLRA 1, 2, 4A & 4B**) (B9)~~
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (explain in remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A & 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks

Field Observations:

Surface Water Present?	Yes ☐	No ☒	Depth (in):		
Water Table Present?	Yes ☐	No ☒	Depth (in):		
Saturation Present? (includes capillary fringe)	Yes ☒	No ☐	Depth (in):	**0**	

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Water table at 4 inches below ground surface just downslope.

THE WATERSHED COMPANY

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

DP-5

Project/Site: Tibbetts Valley Park – potential dog park City/County: Issaquah Sampling date: 4/6/2019

Applicant/Owner: City of Issaquah State: WA Sampling Point: 5

Investigator(s): K. Crandall Section, Township, Range: T24N, R06E, S29

Landform (hillslope, terrace, etc): hillslope/swale Local relief (concave, convex, none): concave Slope (%): 5

Subregion (LRR): A Lat: - Long: - Datum: -

Soil Map Unit Name: KbP – Kitsap silt loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present on the site? ☒ Yes ☐ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?** **Yes** ☐ **No** ☒
Hydric Soils Present?	Yes	☐	No	☒	
Wetland Hydrology Present?	Yes	☐	No	☒	

Remarks: **Out-pit downslope of Wetland D.**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5-m diameter)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	80	Y	FAC
2.			
3.			
4.			
	80	= Total Cover	

Sapling/Shrub Stratum (Plot size: 3-m diameter)			
1. *Rubus armeniacus*	40	Y	FAC
2.			
3.			
4.			
5.			
	40	= Total Cover	

Herb Stratum (Plot size: 1-m diameter)			
1. *Phalaris arundinacea*	60	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	60	= Total Cover	

Woody Vine Stratum (Plot size: 3-m diameter)		
1.		
2.		
		= Total Cover

% Bare Ground in Herb Stratum:

Dominance Test worksheet:

Number of Dominant Species that are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across all Strata:	3	(B)
Percent of Dominant Species that are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 – Dominance Test is > 50%
- ☐ 3 – Prevalence Index is ≤ 3.0[1]
- ☐ 4 – Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 – Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: DP-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 3/1	95					loam	
	10YR 4/3	5						inclusions/ mixed matrix
9-14	10YR 4/3	80	7.5YR 4/4	2	C	M	loam	mixed matrix
	10YR 3/1	18						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Loc: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches):

Hydric soil present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

etland Hydrology Indicators:

Primary Indicators (minimum of one required: check all that apply)

- ☐ Surface water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ ~~Water Stained Leaves (**except MLRA 1, 2, 4A & 4B**) (B9)~~
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (explain in remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A & 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (in): _____

Water Table Present? Yes ☐ No ☒ Depth (in): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (in): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Appendix E

WETLAND RATING FORMS & FIGURES

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland C Date of site visit: 4/5/2019

Rated by: K. Crandall Trained by Ecology? ☒ Y ☐ N Date of training: 09/2014

HGM Class used for rating: Slope Wetland has multiple HGM classes? ☐ Y ☒ N

NOTE: **Form is not complete without the figures requested** *(figures can be combined)*.
Source of base aerial photo/map: Google Earth

OVERALL WETLAND CATEGORY (based on functions ☒ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

- ☐ **Category I** – Total score = 23 - 27
- ☐ **Category II** – Total score = 20 - 22
- ☐ **Category III** – Total score = 16 - 19
- ☒ **Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	Circle the appropriate ratings			
Site Potential	H M (L)	H M (L)	H M (L)	
Landscape Potential	H M (L)	H M (L)	H M (L)	
Value	(H) M L	(H) M L	H M (L)	**TOTAL**
Score Based on Ratings	5	5	3	13

Score for each function based on three ratings *(order of ratings is not important)*

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	☒

Wetland C

Maps and figures required to answer questions correctly for Western Washington

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	1
Hydroperiods	H 1.2	2
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	1
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to figure above)*	S 4.1	1
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	2
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	4
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	6
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	6

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

   ☒ NO – go to 2 ☐ **YES** – the wetland class is **Tidal Fringe** – go to 1.1

   1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

   ☐ **NO – Saltwater Tidal Fringe (Estuarine)** ☐ **YES – Freshwater Tidal Fringe**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

   ☒ NO – go to 3 ☐ **YES** – The wetland class is **Flats**
   *If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
   ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
   ☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

   ☒ NO – go to 4 ☐ **YES –** The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
   ☒ The wetland is on a slope (*slope can be very gradual*),
   ☒ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
   ☒ The water leaves the wetland **without being impounded**.

   ☐ NO – go to 5 ☒ **YES –** The wetland class is **Slope**

   NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
   ☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
   ☐ The overbank flooding occurs at least once every 2 years.

Wetland C

☐ NO – go to 6 ☐ **YES** – The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO – go to 7 ☐ **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO – go to 8 ☐ **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated		HGM class to use in rating
☐	Slope + Riverine	Riverine
☐	Slope + Depressional	Depressional
☐	Slope + Lake Fringe	Lake Fringe
☐	Depressional + Riverine along stream within boundary of depression	Depressional
☐	Depressional + Lake Fringe	Depressional
☐	Riverine + Lake Fringe	Riverine
☐	Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

☐ More than 2 HGM classes

SLOPE WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

S 1.0. Does the site have the potential to improve water quality?	
S 1.1. Characteristics of the average slope of the wetland: *(a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance)* ☐ Slope is 1% or less points = 3 ☐ Slope is > 1%-2% points = 2 ☒ Slope is > 2%-5% points = 1 ☐ Slope is greater than 5% points = 0	1
S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic *(use NRCS definitions)*: ☐ Yes = 3 ☒ No = 0	0
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. *Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.* ☐ Dense, uncut, herbaceous plants > 90% of the wetland area points = 6 ☒ Dense, uncut, herbaceous plants > ½ of area points = 3 ☐ Dense, woody, plants > ½ of area points = 2 ☐ Dense, uncut, herbaceous plants > ¼ of area points = 1 ☐ Does not meet any of the criteria above for plants points = 0	3
Total for S 1 Add the points in the boxes above	4

Rating of Site Potential If score is: ☐ **12 = H** ☐ **6-11 = M** ☒ **0-5 = L** *Record the rating on the first page*

S 2.0. Does the landscape have the potential to support the water quality function of the site?	
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants? ☐ Yes = 1 ☒ No = 0	0
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1? Other sources:_____ ☐ Yes = 1 ☒ No = 0	0
Total for S 2 Add the points in the boxes above	0

Rating of Landscape Potential If score is: ☐ **1-2 = M** ☒ **0 = L** *Record the rating on the first page*

S 3.0. Is the water quality improvement provided by the site valuable to society?	
S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? ☐ Yes = 1 ☒ No = 0	0
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? *At least one aquatic resource in the basin is on the 303(d) list*. ☒ Yes = 1 ☐ No = 0	1
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? *Answer YES if there is a TMDL for the basin in which unit is found.* ☒ Yes = 2 ☐ No = 0	2
Total for S 3 Add the points in the boxes above	3

Rating of Value If score is: ☒ **2-4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

SLOPE WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream erosion

S 4.0. Does the site have the potential to reduce flooding and stream erosion?	
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. *Stems of plants should be thick enough (usually >1/8 in), or dense enough, to remain erect during surface flows.* ☐ Dense, uncut, **rigid** plants cover > 90% of the area of the wetland points = 1 ☒ All other conditions points = 0	0

Rating of Site Potential If score is: ☐ **1 = M** ☒ **0 = L** *Record the rating on the first page*

S 5.0. Does the landscape have the potential to support the hydrologic functions of the site?	
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff? ☐ Yes = 1 ☒ No = 0	0

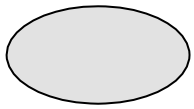
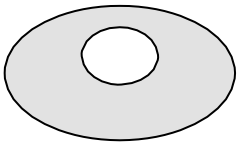
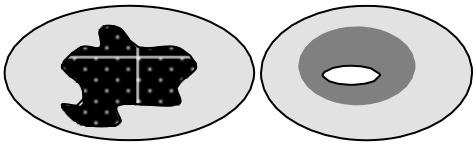
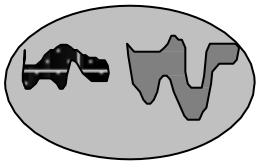
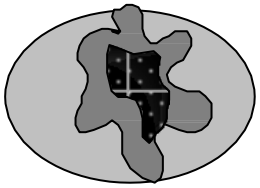
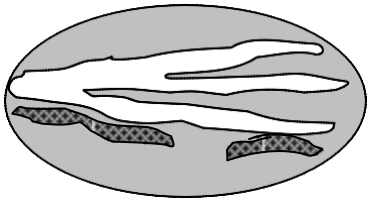
Rating of Landscape Potential If score is: ☐ **1 = M** ☒ **0 = L** *Record the rating on the first page*

S 6.0. Are the hydrologic functions provided by the site valuable to society?	
S 6.1. Distance to the nearest areas downstream that have flooding problems: ☒ The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) points = 2 ☐ Surface flooding problems are in a sub-basin farther down-gradient points = 1 ☐ No flooding problems anywhere downstream points = 0	2
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? ☐ Yes = 2 ☒ No = 0	0
Total for S 6 Add the points in the boxes above	2

Rating of Value If score is: ☒ **2-4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

NOTES and FIELD OBSERVATIONS:

These questions apply to wetlands of all HGM classes.
Habitat Functions - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?	
H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☒ Emergent — 3 structures: points = 2 ☒ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points = 1 ☒ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if:* ☐ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	2
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☐ Permanently flooded or inundated — 4 or more types present: points = 3 ☐ Seasonally flooded or inundated — 3 types present: points = 2 ☐ Occasionally flooded or inundated — 2 types present: points = 1 ☒ Saturated only — 1 type present: points = 0 ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	0
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: ☐ > 19 species — points = 2 ☒ 5 - 19 species — points = 1 ☐ < 5 species — points = 0	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  ☐ **None** = 0 points  ☒ **Low** = 1 point  ☐ **Moderate** = 2 points All three diagrams in this row are ☐ **HIGH** = 3 points   	1

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☒ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). ☐ Standing snags (dbh > 4 in) within the wetland ☐ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed)* ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ☐ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	1
Total for H 1 Add the points in the boxes above	5

Rating of Site Potential If score is: ☐ **15-18 = H** ☐ **7-14 = M** ☒ **0-6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat + [(% moderate and low intensity land uses)/2] = **<u>3.3 + 5.4/2 = 6%</u>** If total accessible habitat is: ☐ > 1/3 (33.3%) of 1 km Polygon points = 3 ☐ 20-33% of 1 km Polygon points = 2 ☐ 10-19% of 1 km Polygon points = 1 ☒ < 10% of 1 km Polygon points = 0	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* % undisturbed habitat + [(% moderate and low intensity land uses)/2] = **<u>16.5 + 7.0/2 = 20%</u>** ☐ Undisturbed habitat > 50% of Polygon points = 3 ☐ Undisturbed habitat 10-50% and in 1-3 patches points = 2 ☒ Undisturbed habitat 10-50% and > 3 patches points = 1 ☐ Undisturbed habitat < 10% of 1 km Polygon points = 0	1
H 2.3. Land use intensity in 1 km Polygon: If ☒ > 50% of 1 km Polygon is high intensity land use points = (- 2) ☐ ≤ 50% of 1 km Polygon is high intensity points = 0	-2
Total for H 2 Add the points in the boxes above	-1

Rating of Landscape Potential If score is: ☐ **4-6 = H** ☐ **1-3 = M** ☒ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.* Site meets ANY of the following criteria: points = 2 ☐ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan ☐ Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1 ☒ Site does not meet any of the criteria above points = 0	0

Rating of Value If score is: ☐ **2 = H** ☐ **1 = M** ☒ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here: http://wdfw.wa.gov/conservation/phs/list/)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE:*** *This question is independent of the land use between the wetland unit and the priority habitat.*

☐ **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

☐ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

☐ **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

☐ **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

☐ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

☐ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

☐ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

☐ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

☐ **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

☐ **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

☐ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland C

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes –Go to **SC 1.1** ☒ No= **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	☐ **Cat. I**
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	☐ **Cat. I** ☐ **Cat. II**
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☒ Yes – Go to **SC 2.2** ☐ No – Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? https://www.dnr.wa.gov/NHPwetlandviewer ☐ Yes **= Category** I ☒ No **= Not a WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? https://www.dnr.wa.gov/NHPdata ☐ Yes **– Contact WNHP/WDNR and go to SC 2.4** ☐ No **= Not a WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes **= Category I** ☐ No **= Not a WHCV**	☐ **Cat. I**
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes – Go to **SC 3.3** ☒ No – Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes – Go to **SC 3.3** ☒ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No – Go to **SC 3.4** **NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No **= Is not a bog**	☐ **Cat. I**

SC 4.0. Forested Wetlands Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.*** ☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. ☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). ☐ Yes **= Category I** ☒ No **= Not a forested wetland for this section**	☐ **Cat. I**
SC 5.0. Wetlands in Coastal Lagoons Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks ☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)* ☐ Yes – Go to **SC 5.1** ☒ No = **Not a wetland in a coastal lagoon** SC 5.1. Does the wetland meet all of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2) ☐ Yes = **Category I** ☐ No = **Category II**	☐ **Cat. I** ☐ **Cat. II**
SC 6.0. Interdunal Wetlands Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.*** In practical terms that means the following geographic areas: ☐ Long Beach Peninsula: Lands west of SR 103 ☐ Grayland-Westport: Lands west of SR 105 ☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109 ☐ Yes – Go to **SC 6.1** ☒ No = **not an interdunal wetland for rating** SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? ☐ Yes = **Category I** ☐ No – Go to **SC 6.2** SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? ☐ Yes = **Category II** ☐ No – Go to **SC 6.3** SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? ☐ Yes = **Category III** ☐ No = **Category IV**	☐ **Cat I** ☐ **Cat. II** ☐ **Cat. III** ☐ **Cat. IV**
Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	NA

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RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland D Date of site visit: 4/5/2019

Rated by: K. Crandall Trained by Ecology? ☒ Y ☐ N Date of training: 09/2014

HGM Class used for rating: Slope Wetland has multiple HGM classes? ☐ Y ☒ N

NOTE: **Form is not complete without the figures requested** *(figures can be combined)*.
Source of base aerial photo/map: Google Earth

OVERALL WETLAND CATEGORY (based on functions ☒ or special characteristics ☐)

3. Category of wetland based on FUNCTIONS

- ☐ **Category I** – Total score = 23 - 27
- ☐ **Category II** – Total score = 20 - 22
- ☐ **Category III** – Total score = 16 - 19
- ☒ **Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	Circle the appropriate ratings			
Site Potential	H M (L)	H M (L)	H M (L)	
Landscape Potential	H M (L)	H M (L)	H M (L)	
Value	(H) M L	(H) M L	H M (L)	**TOTAL**
Score Based on Ratings	5	5	3	13

Score for each function based on three ratings *(order of ratings is not important)*

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

4. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	☒

Wetland D

Maps and figures required to answer questions correctly for Western Washington

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	1
Hydroperiods	H 1.2	3
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	1
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to figure above)*	S 4.1	1
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	3
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	5
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	6
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	6

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

   ☒ NO – go to 2 ☐ **YES** – the wetland class is **Tidal Fringe** – go to 1.1

   1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

   ☐ **NO – Saltwater Tidal Fringe (Estuarine)** ☐ **YES – Freshwater Tidal Fringe**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

   ☒ NO – go to 3 ☐ **YES** – The wetland class is **Flats**
   *If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
   ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
   ☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

   ☒ NO – go to 4 ☐ **YES –** The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
   ☒ The wetland is on a slope (*slope can be very gradual*),
   ☒ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
   ☒ The water leaves the wetland **without being impounded**.

   ☐ NO – go to 5 ☒ **YES –** The wetland class is **Slope**

   NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
   ☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
   ☐ The overbank flooding occurs at least once every 2 years.

Wetland D

☐ NO – go to 6 ☐ **YES** – The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO – go to 7 ☐ **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO – go to 8 ☐ **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated		HGM class to use in rating
☐	Slope + Riverine	Riverine
☐	Slope + Depressional	Depressional
☐	Slope + Lake Fringe	Lake Fringe
☐	Depressional + Riverine along stream within boundary of depression	Depressional
☐	Depressional + Lake Fringe	Depressional
☐	Riverine + Lake Fringe	Riverine
☐	Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

☐ More than 2 HGM classes

SLOPE WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

S 1.0. Does the site have the potential to improve water quality?	
S 1.1. Characteristics of the average slope of the wetland: *(a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance)* ☐ Slope is 1% or less points = 3 ☐ Slope is > 1%-2% points = 2 ☐ Slope is > 2%-5% points = 1 ☒ Slope is greater than 5% points = 0	0
S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic *(use NRCS definitions)*: ☐ Yes = 3 ☒ No = 0	0
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. *Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.* ☐ Dense, uncut, herbaceous plants > 90% of the wetland area points = 6 ☐ Dense, uncut, herbaceous plants > ½ of area points = 3 ☐ Dense, woody, plants > ½ of area points = 2 ☐ Dense, uncut, herbaceous plants > ¼ of area points = 1 ☒ Does not meet any of the criteria above for plants points = 0	0
Total for S 1 Add the points in the boxes above	0

Rating of Site Potential If score is: ☐ **12 = H** ☐ **6-11 = M** ☒ **0-5 = L** *Record the rating on the first page*

S 2.0. Does the landscape have the potential to support the water quality function of the site?	
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants? ☐ Yes = 1 ☒ No = 0	0
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1? Other sources:_____ ☐ Yes = 1 ☒ No = 0	0
Total for S 2 Add the points in the boxes above	0

Rating of Landscape Potential If score is: ☐ **1-2 = M** ☒ **0 = L** *Record the rating on the first page*

S 3.0. Is the water quality improvement provided by the site valuable to society?	
S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? ☐ Yes = 1 ☒ No = 0	0
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? *At least one aquatic resource in the basin is on the 303(d) list*. ☒ Yes = 1 ☐ No = 0	1
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? *Answer YES if there is a TMDL for the basin in which unit is found.* ☒ Yes = 2 ☐ No = 0	2
Total for S 3 Add the points in the boxes above	3

Rating of Value If score is: ☒ **2-4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

SLOPE WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream erosion

S 4.0. Does the site have the potential to reduce flooding and stream erosion?	
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. *Stems of plants should be thick enough (usually >1/8 in), or dense enough, to remain erect during surface flows.* ☐ Dense, uncut, **rigid** plants cover > 90% of the area of the wetland points = 1 ☒ All other conditions points = 0	0

Rating of Site Potential If score is: ☐ **1 = M** ☒ **0 = L** *Record the rating on the first page*

S 5.0. Does the landscape have the potential to support the hydrologic functions of the site?	
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff? ☐ Yes = 1 ☒ No = 0	0

Rating of Landscape Potential If score is: ☐ **1 = M** ☒ **0 = L** *Record the rating on the first page*

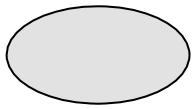
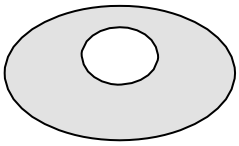
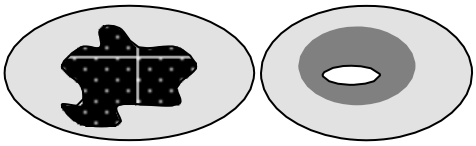
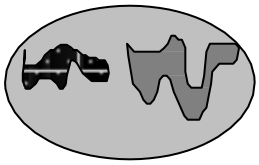
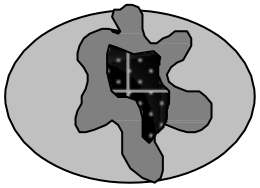
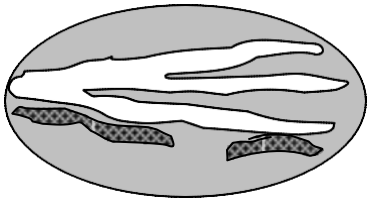
S 6.0. Are the hydrologic functions provided by the site valuable to society?	
S 6.1. Distance to the nearest areas downstream that have flooding problems: ☒ The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) points = 2 ☐ Surface flooding problems are in a sub-basin farther down-gradient points = 1 ☐ No flooding problems anywhere downstream points = 0	2
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? ☐ Yes = 2 ☒ No = 0	0
Total for S 6 Add the points in the boxes above	2

Rating of Value If score is: ☒ **2-4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

NOTES and FIELD OBSERVATIONS:

These questions apply to wetlands of all HGM classes.
Habitat Functions - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☒ Emergent — 3 structures: points = 2 ☒ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points = 1 ☐ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if:* ☐ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	1
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☐ Permanently flooded or inundated — 4 or more types present: points = 3 ☐ Seasonally flooded or inundated — 3 types present: points = 2 ☐ Occasionally flooded or inundated — 2 types present: points = 1 ☒ Saturated only — 1 type present: points = 0 ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	0
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: ☐ > 19 species — points = 2 ☒ 5 - 19 species — points = 1 ☐ < 5 species — points = 0	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  ☐ **None** = 0 points  ☒ **Low** = 1 point  ☐ **Moderate** = 2 points All three diagrams in this row are ☐ **HIGH** = 3 points   	1

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☒ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). ☐ Standing snags (dbh > 4 in) within the wetland ☐ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed)* ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ☐ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	1
Total for H 1 Add the points in the boxes above	4

Rating of Site Potential If score is: ☐ **15-18 = H** ☐ **7-14 = M** ☒ **0-6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat + [(% moderate and low intensity land uses)/2] = **<u>3.3 + 5.4/2 = 6%</u>** If total accessible habitat is: ☐ > 1/3 (33.3%) of 1 km Polygon points = 3 ☐ 20-33% of 1 km Polygon points = 2 ☐ 10-19% of 1 km Polygon points = 1 ☒ < 10% of 1 km Polygon points = 0	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* % undisturbed habitat + [(% moderate and low intensity land uses)/2] = **<u>17.5 + 7.2/2 = 21%</u>** ☐ Undisturbed habitat > 50% of Polygon points = 3 ☐ Undisturbed habitat 10-50% and in 1-3 patches points = 2 ☒ Undisturbed habitat 10-50% and > 3 patches points = 1 ☐ Undisturbed habitat < 10% of 1 km Polygon points = 0	1
H 2.3. Land use intensity in 1 km Polygon: If ☒ > 50% of 1 km Polygon is high intensity land use points = (- 2) ☐ ≤ 50% of 1 km Polygon is high intensity points = 0	-2
Total for H 2 Add the points in the boxes above	-1

Rating of Landscape Potential If score is: ☐ **4-6 = H** ☐ **1-3 = M** ☒ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.* Site meets ANY of the following criteria: points = 2 ☐ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan ☐ Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1 ☒ Site does not meet any of the criteria above points = 0	0

Rating of Value If score is: ☐ **2 = H** ☐ **1 = M** ☒ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here: http://wdfw.wa.gov/conservation/phs/list/)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE:*** *This question is independent of the land use between the wetland unit and the priority habitat.*

☐ **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

☐ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

☐ **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

☐ **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

☐ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

☐ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

☐ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

☐ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

☐ **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

☐ **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

☐ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland D

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes –Go to **SC 1.1** ☒ No= **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	☐ **Cat. I**
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	☐ **Cat. I** ☐ **Cat. II**
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☒ Yes – Go to **SC 2.2** ☐ No – Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? https://www.dnr.wa.gov/NHPwetlandviewer ☐ Yes = **Category** I ☒ No = **Not a WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? https://www.dnr.wa.gov/NHPdata ☐ Yes – **Contact WNHP/WDNR and go to SC 2.4** ☐ No = **Not a WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not a WHCV**	☐ **Cat. I**
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes – Go to **SC 3.3** ☒ No – Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes – Go to **SC 3.3** ☒ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No – Go to **SC 3.4** **NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	☐ **Cat. I**

SC 4.0. Forested Wetlands Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.*** ☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. ☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). ☐ Yes **= Category I** ☒ No **= Not a forested wetland for this section**	☐ **Cat. I**
SC 5.0. Wetlands in Coastal Lagoons Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks ☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)* ☐ Yes – Go to **SC 5.1** ☒ No = **Not a wetland in a coastal lagoon** SC 5.1. Does the wetland meet all of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2) ☐ Yes = **Category I** ☐ No = **Category II**	☐ **Cat. I** ☐ **Cat. II**
SC 6.0. Interdunal Wetlands Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.*** In practical terms that means the following geographic areas: ☐ Long Beach Peninsula: Lands west of SR 103 ☐ Grayland-Westport: Lands west of SR 105 ☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109 ☐ Yes – Go to **SC 6.1** ☒ No = **not an interdunal wetland for rating** SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? ☐ Yes = **Category I** ☐ No – Go to **SC 6.2** SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? ☐ Yes = **Category II** ☐ No – Go to **SC 6.3** SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? ☐ Yes = **Category III** ☐ No = **Category IV**	☐ **Cat I** ☐ **Cat. II** ☐ **Cat. III** ☐ **Cat. IV**
Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	NA

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2014 Ecology Wetland Rating Form Figures

TIBBETTS VALLEY PARK

Wetlands C & D (Slope) 1

Figure 1. Cowardin plant classes and plant cover of dense and rigid trees, shrubs, and herbaceous plants – S1.3, S4.1, H1.1, H1.4 1

Figure 2. Hydroperiods and 150-foot area for Wetland C – H1.2, S2.1, S5.1 2

Figure 3. Hydroperiods and 150-foot area for Wetland D – H1.2, S2.1, S5.1 3

Figure 4. Undisturbed habitat and moderate-low intensity land uses within 1 km from the edge of Wetland C, including polygon for accessible habitat – H2.1, H2.2, H2.3 4

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Figure 6. Screen-capture of 303(d) listed waters and Water Quality Improvement Projects (TMDLs) in basin – S3.1, S3.2 6

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WETLANDS C & D (SLOPE)

Figure 1. Cowardin plant classes and plant cover of dense and rigid trees, shrubs, and herbaceous plants – S1.3, S4.1, H1.1, H1.4

Features depicted are not to scale. Sketches are based on available data and best professional judgment.

Figure 2. Hydroperiods and 150-foot area for Wetland C – H1.2, S2.1, S5.1

Features depicted are not to scale. Sketches are based on available data and best professional judgment.

Figure 3. Hydroperiods and 150-foot area for Wetland D – H1.2, S2.1, S5.1

Features depicted are not to scale. Sketches are based on available data and best professional judgment.

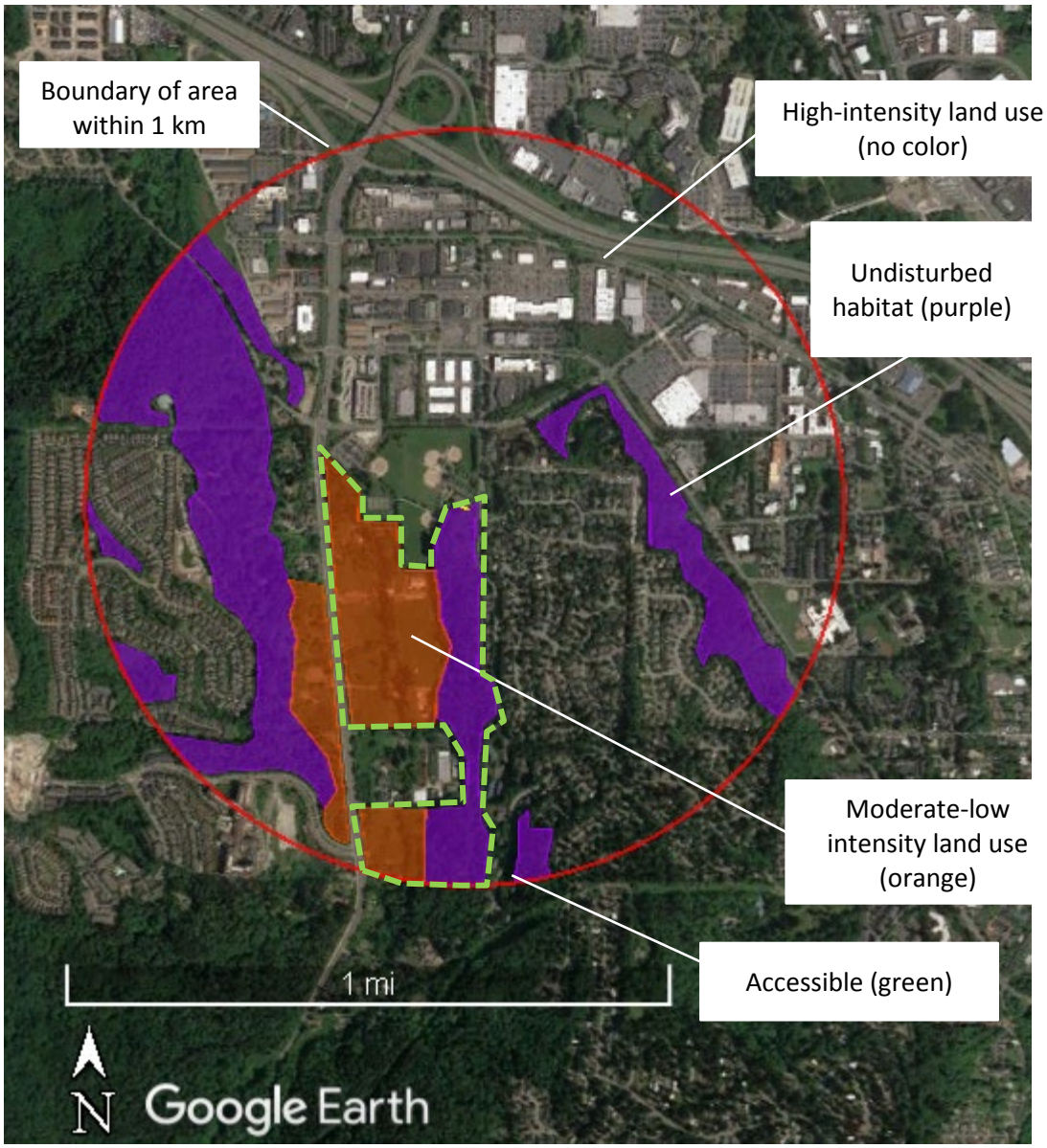

Figure 4. Undisturbed habitat and moderate-low intensity land uses within 1 km from the edge of Wetland C, including polygon for accessible habitat – H2.1, H2.2, H2.3

Features depicted are not to scale. Sketches are based on available data and best professional judgment.

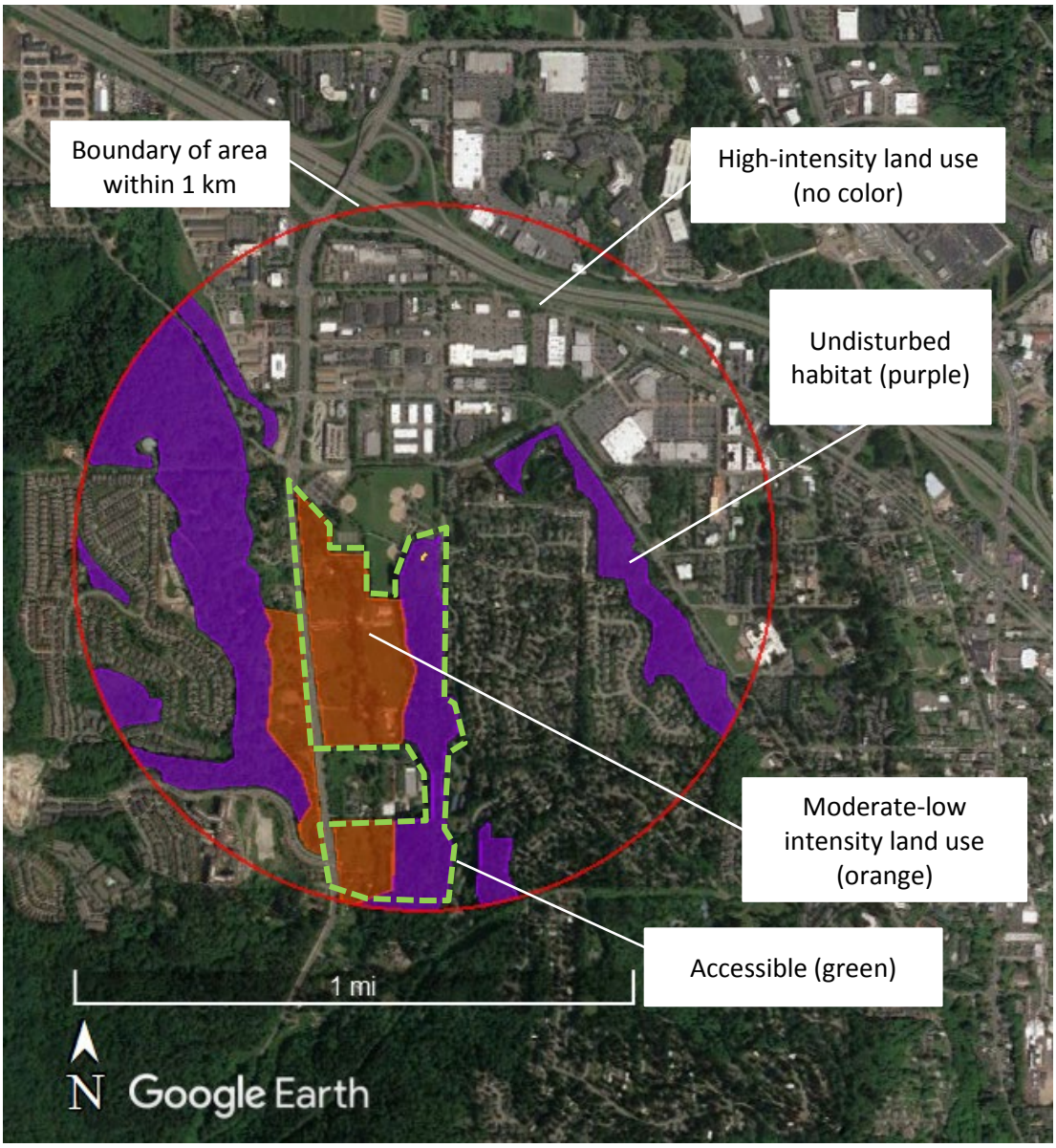

Figure 5. Undisturbed habitat and moderate-low intensity land uses within 1 km from the edge of Wetland D, including polygon for accessible habitat – H2.1, H2.2, H2.3

Features depicted are not to scale. Sketches are based on available data and best professional judgment.

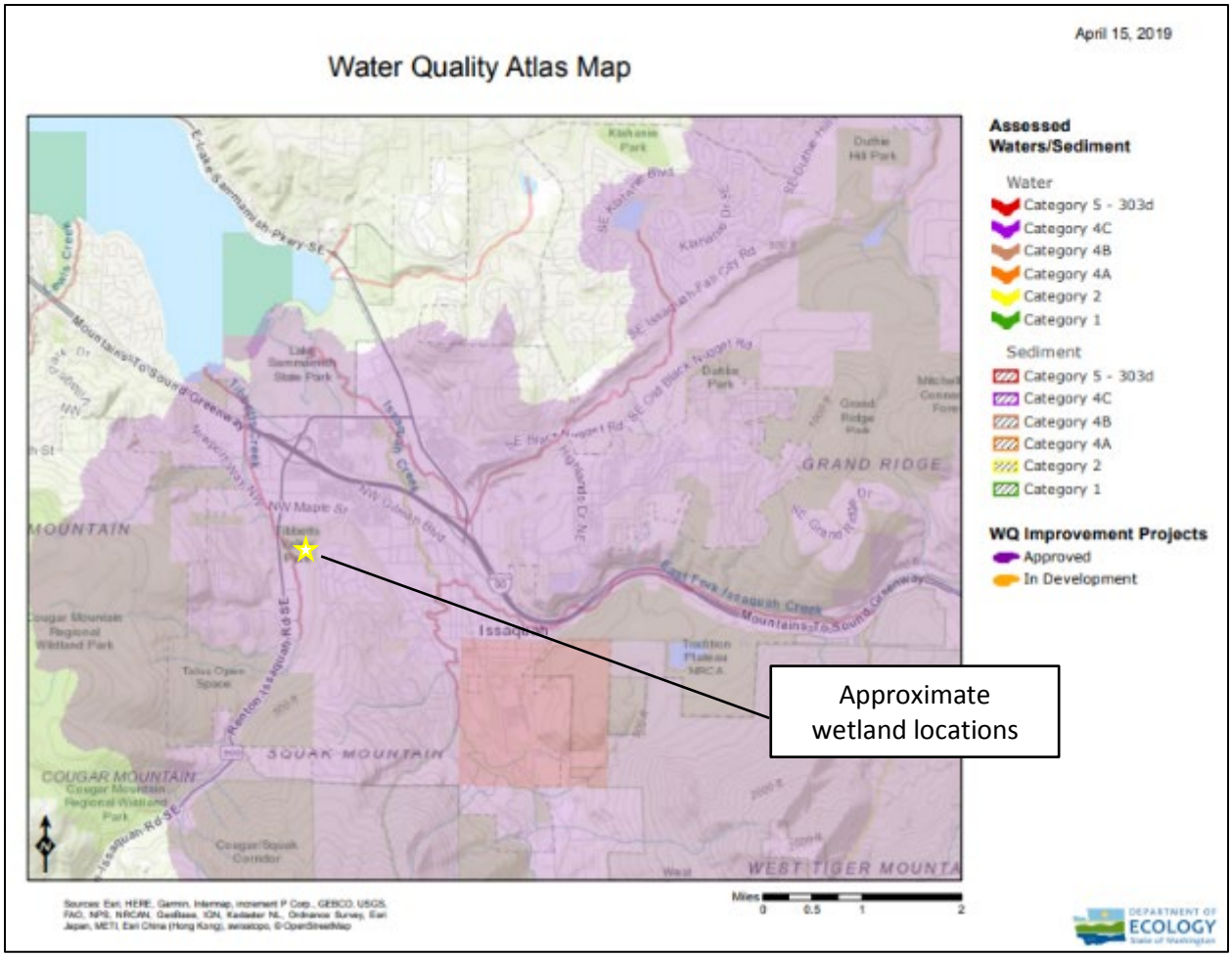

Figure 6. Screen-capture of 303(d) listed waters and Water Quality Improvement Projects (TMDLs) in basin – S3.1, S3.2

Note: Both Wetlands C and D are located within a basin that has 303d-listed water (Tibbetts Creek) and an approved Water Quality Improvement Project (Issaquah Creek Basin Bacteria TMDL).

Features depicted are not to scale. Sketches are based on available data and best professional judgment.