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October 3, 2017

Peter Kahn
Costco Wholesale
999 Lake Drive
Pickering Place
Issaquah, WA 98027

RE: Costco – Issaquah Campus Expansion – Critical Areas Report
CW #15-0097Project
SWC Job#-17-174

1.0 INTRODUCTION

This report describes jurisdictional wetlands on the site of the proposed Costco Campus expansion project located on portions of Parcel #s 355750-02760 & 0020 located on the east and west sides of Lake Drive in the City of Issaquah, Washington (the "site"). The "site" consists of an existing Costco office building, associated landscaping, as well as paved parking and driving areas. A small area of disturbed grass area lies to the east of the parking areas and between the City trail systems.

1.1 Proposed Project

Costco owns two legal building lots at the south end of their corporate campus located in Pickering Place that they intend to build on. These lots are currently developed with two surface parking lots. The southeast parcel will be redeveloped with a 9 story (125' tall) office building that provides roughly 600,000sf and 175 parking stalls under the building. On the southwest parcel, Costco proposes to build a 10 story (100' tall) parking structure that will have roughly 30,000 sf of exhibit space and campus amenity space on the ground floor. The remainder of the building will provide roughly 1,800 parking stalls.

Fill of the existing wetland on the site will mitigation using the King County Fee credit system is proposed.

Vicinity Map of the study area

2.0 METHODOLOGY

Ed Sewall of Sewall Wetland Consulting, Inc. inspected the site on September 12, 2017. The site was reviewed using methodology described in the ***Washington State Wetlands Identification Manual*** (WADOE, March 1997), which is the methodology currently recognized by the City of Issaquah and the State of Washington for wetland determinations and delineations. The site was also reviewed using the methodology described in the ***Corps of Engineers Wetlands Delineation Manual*** (Environmental Laboratory, 1987), and the ***Western Mountains, Valleys and Coast region Supplement (Version 2.0***) dated June 24, 2010, as required by the US Army Corps of Engineers. Soil colors were identified using the 1990 Edited and Revised Edition of the ***Munsell Soil Color Charts*** (Kollmorgen Instruments Corp. 1990).

The *Washington State Wetlands Identification and Delineation Manual* and the *Corps of Engineers Wetlands Delineation Manual* both require the use of the three-parameter approach in identifying and delineating wetlands. A wetland should support a predominance of hydrophytic vegetation, have hydric soils, and display wetland hydrology. To be considered hydrophytic vegetation, over 50% of the dominant species

in an area must have an indicator status of facultative (FAC), facultative wetland (FACW), or obligate wetland (OBL), according to the National List of Plant Species That Occur in Wetlands: Northwest (Region 9) (Reed, 1988). A hydric soil is "a soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part". Anaerobic conditions are indicated in the field by soils with low chromas (2 or less), as determined by using the Munsell Soil Color Charts; iron oxide mottles; hydrogen sulfide odor and other indicators. Generally, wetland hydrology is defined by inundation or saturation to the surface for a consecutive period of 12.5% or greater of the growing season. Areas that contain indicators of wetland hydrology between 5%-12.5% of the growing season may or may not be wetlands depending upon other indicators. Field indicators include visual observation of soil inundation, saturation, oxidized rhizospheres, water marks on trees or other fixed objects, drift lines, etc. Under normal circumstances, indicators of all three parameters will be present in wetland areas.

3.0 OBSERVATIONS

3.1 Existing Site Documentation.

Prior to visiting the site, Sewall Consulting conducted a review of several natural resource inventory maps. Resources reviewed included the NRCS Soil Mapper website, the US Fish and Wildlife Service National Wetlands Inventory website, and the WDNR Fpars Water Type mapping website. In addition, the critical areas report for the City of Issaquah Study for the 62nd Street improvements was reviewed.

3.1.1 Soil Survey

According to the NRCS soil aping website, the entire site is mapped as moderately well drained Sultan silt loam. Sultan silt loam is formed under grasses and hardwoods in alluvium and is not considered a wetland or “hydric” soil.

NRCS Soil Mapper website soil map of the site.

3.1.2 National Wetlands Inventory Map (NWI)

According to the NWI map for the site, there are no wetlands on the site. Issaquah Creek is depicted east of the site, and the created storm water pond is depicted as an unconsolidated bottom wetland west of the study site.

USFWS NWI Map of the site.

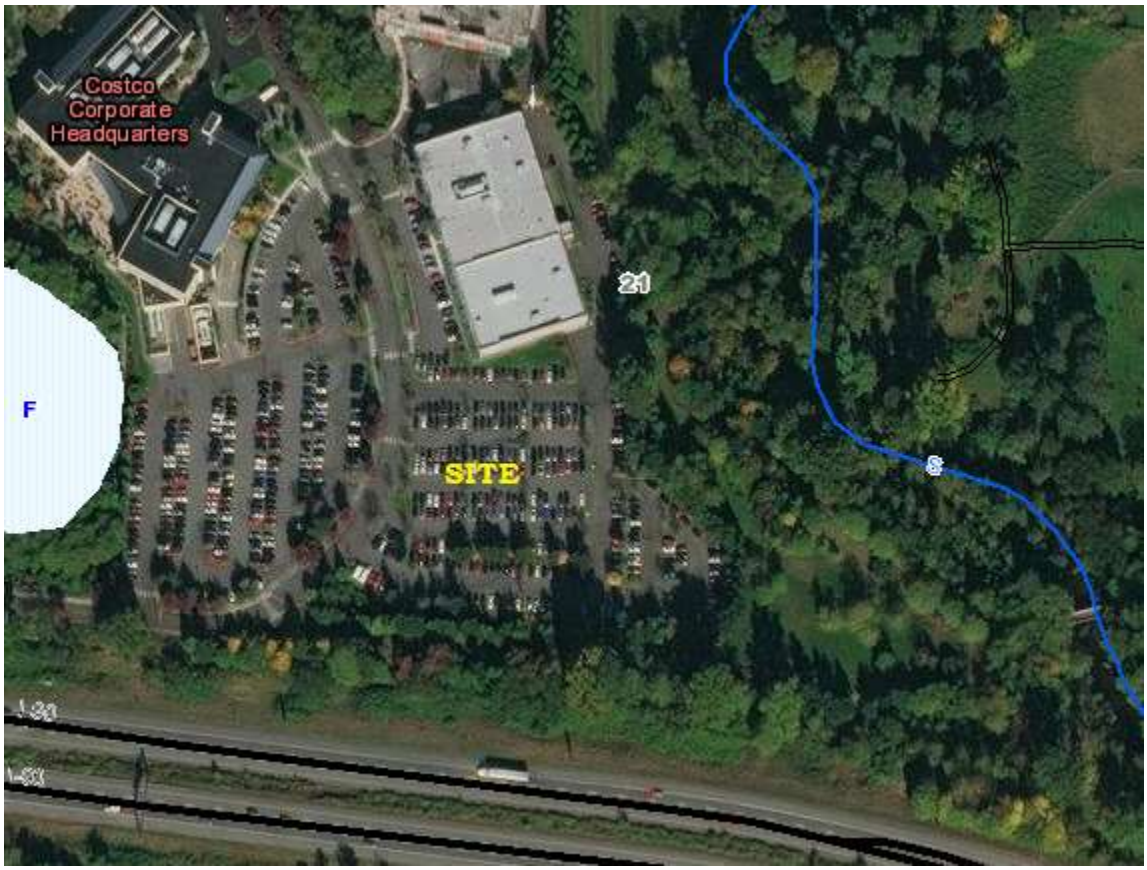
3.1.3 Washington Department of Fish and Wildlife Priority Habitat System

The Washington Department of Fish and Wildlife Priority Habitats System website indicates an overlay which covers this entire area of Issaquah for a communal roost of Townsend's big-eared bat (*Corynorhinus townsendii*) near this property which is indicated by the general shading covering the whole property and all surrounding properties. In addition Issaquah Creek and an associated wetland are depicted bordering the creek east of the site.

WDFW Priority Habitat System depiction of the site.

3.1.4 WADNR Fpars

According to the Washington State Department of Natural Resources Fpars Water Typing maps, Issaquah Creek, located east of the site, is mapped as a Shoreline of the State (Type S water).



Above: WADNR Fpars mapping for the area of the site.

3.1.5 ESA "City of Issaquah SE 62nd Street Extension Project – Critical Areas Report dated November 2015.

As part of the City of Issaquah's SE 62nd Street critical areas study, several wetlands near the site were identified (see ESA Figure 2). All but Wetland X in the vicinity of the site have been filled as part of this project. Wetland X is described as a 561sf slope type emergent wetland that was rated using the 2014 WADOE Wetland Rating System as a Category IV wetland (see ESA Figure 4)..

Wetland X is the only critical area on the Costco site.

Above: ESA Figure 2

Above: ESA Figure 4

3.2 Field Observations

3.2.1 Uplands

As previously described, the entire site is developed with existing office buildings and associated paved parking areas with the exception of the southeast corner of the site. The

southeast corner of the site consists of a row of older landscape trees as well as an area of blackberry and reed canary grass on the slope extending east of the parking area.

3.2.2 Wetlands

As identified in the ESA SE 62nd Street Extension Critical Areas Report, a 561sf emergent slope wetland was found on the southeast side of the site. To be consistent with the ESA study (which was reviewed and approved by the City, Corps of Engineers and WADOE), this wetland will continue to be referred to as "Wetland X". Wetland X appears to be a man-made wetland possibly from old leaking irrigation lines or an anomaly in the soil layering when the parking lot to the west was originally graded. Wetland X is located along a man-made slope, but has not evolved into a wetland and is the normal circumstances.

Vegetation within this wetland was observed to be a monotypic stand of reed canary grass growing on a slope. Tis area has been periodically mowed.

Soil pits excavated along the edge of this wetland revealed a gravelly loam with a soil color of 10YR 22 with common, medium distinct redoximorphic concentrations. Soils were dry during our September review of the wetland, although the ESA study observed this wetland to be saturated in the growing season.

Using the USFWS wetland rating system, Wetland X would be classified as PEM1C (palustrine, emergent, persistent, saturated).

Wetland X was rated using the Washington State Wetlands rating form for Western Washington (WADOE 2014) as slope wetland. The wetland received a total score of 15 points with 4 points for habitat. This indicates a Category IV wetland. According to IMC 18.10.640.C, Category IV wetlands <2,500sf have no buffers.

4.0 FUNCTIONS AND VALUES

Wetland X, as indicated by the Category IV classification is a low value or function wetland. The wetland is an isolated feature surrounded by existing development and a trail.

5.0 REGULATIONS

In addition to the wetland regulations previously described for wetlands, certain activities (filling and dredging) within "waters of the United States" may fall under the jurisdiction of the U.S. Army Corps of Engineers (USACOE). The USACOE regulates all discharges into "waters of the United States" (wetlands) under Section 404(b) of the Clean Water

Act. Wetlands that are hydrologically isolated are not regulated by the USACOE, per the SWANCC and as interpreted by the Corps and EPA in their Regulatory Guidance Letter. Discharges (fills) into any wetlands that are not considered "isolated" are regulated by the Corps. However, only the Corps can make that determination.

6.0 PROPOSED PROJECT

The proposed project is to expand the current corporate campus through expansion over existing paved parking lots. The southeast parcel will be redeveloped with a 9 story (125' tall) office building that provides roughly 600,000sf and 175 parking stalls under the building. On the southwest parcel, Costco proposes to build a 10 story (100' tall) parking structure that will have roughly 30,000 sf of exhibit space and campus amenity space on the ground floor. The remainder of the building will provide roughly 1,800 parking stalls. As part of the expansion, Wetland X will be impacted for the expansion.

According to IMC 18.10.620.A.1.e;

e. Category IV Wetlands Less Than Two Thousand Five Hundred (2,500) Square Feet: Category IV wetlands less than two thousand five hundred (2,500) square feet in size, that are not part of a wetland complex, do not require wetland buffers and may be altered if mitigation is provided to demonstrate no net loss of functions or values, consistent with IMC 18.10.720(B)(3). (Ord. 2790 § 1 (Exh. A), 2016; Ord. 2669 § 1 (Exh. A), 2013; Ord. 2455 § 7, 2006; Ord. 2301 § 3, 2001; Ord. 2108 § 10.2.27 – 10.2.27.3, 1996).

Wetland X meets this criteria s it is a Category IV wetland that is not part of a complex and to leave Wetland X or a portion of Wetland X would not allow a reasonable building site to be established. The entire wetland needs to be filled to make a feasible building pad.

According to IMC 10.10.720.B.3;

3. Category IV Wetlands Less Than Two Thousand Five Hundred (2,500) Square Feet: Category IV wetlands less than two thousand five hundred (2,500) square feet in size, that are not part of a wetland complex, may be altered if mitigation is provided to demonstrate no net loss of functions or values. No buffer is required for these wetlands. The following criteria shall apply in preferential order to avoid or mitigate impacts to Category IV wetlands less than two thousand five hundred (2,500) square feet in size:

a. Preserve the wetland or demonstrate through mitigation sequencing that avoidance or minimization of impacts have been considered; or

It is not possible to preserve the wetland and develop the site plan for the proposed expansion. The degree or magnitude of the proposed project cannot be limited. To leave Wetland X or a portion of Wetland X would not allow a reasonable building site to be established. The entire wetland needs to be filled to make a feasible building pad.

b. Relocate the wetland on site by creating, re-establishing or rehabilitating a new, equal size wetland; or

This is not possible as the wetland is in the only building site that can be used that is not already developed and there are no other areas on the site where a wetland could be created.

c. Enhance an equal area of another existing wetland on site, demonstrating equivalent or greater functions; or

There are no other wetlands on the site to enhance.

d. Protect significant on-site trees. Protect an area of significant trees equal to the wetland area or enhance an equal upland area with native tree planting. This shall not apply to areas already protected as critical area buffers and shall be in addition to the tree retention requirements in IMC 18.12.1385; or

There are no significant trees that meet this criteria that are not already protected on the site.

e. Off-site mitigation opportunities may be considered.

The proposed mitigation for this small wetland impact of 561 sf of Category IV wetland is to use the King County Mitigations Reserves Program, which takes the money that would be spend on mitigation and constructs a mitigation project within the same Issaquah drainage as the sites wetland. A site has been selected along Issaquah Creek near Cedar Grove road which would provide a high value, high function mitigation replacement for the functions and wetland lost from this project.

The proposed off-site mitigation through King County will be within the same drainage basin as the impact. The proposed mitigation will create the required amount of wetland as well as restore floodplain storage that will in the end reduce downstream impacts from flooding within this basin.

The proposed off-site mitigation is along Issaquah Creek within the same basin as the impacted wetland.

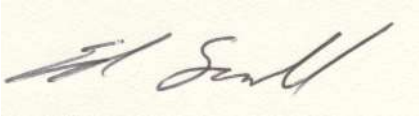
The King County off-site mitigation site would occur on Parcel # 2223069015 located near Cedar Grove Road was selected by King County due to its high value and availability of potential mitigation as well as adjacency to Issaquah Creek.

Above: Proposed location of King County off-site mitigation project to be constructed with fee credits from this project.

Once this concept for use of the King County Mitigation Reserves Program has been approved by the City, a Bank Use Plan will be prepared and submitted to the City and King County for calculation of the mitigation fee using this mitigation method.

If you have any questions regarding this report, please call us at (253) 859-0515 or at esewall@sewallwc.com .

Sincerely,
Sewall Wetland Consulting, Inc.



Ed Sewall
Senior Wetlands Ecologist

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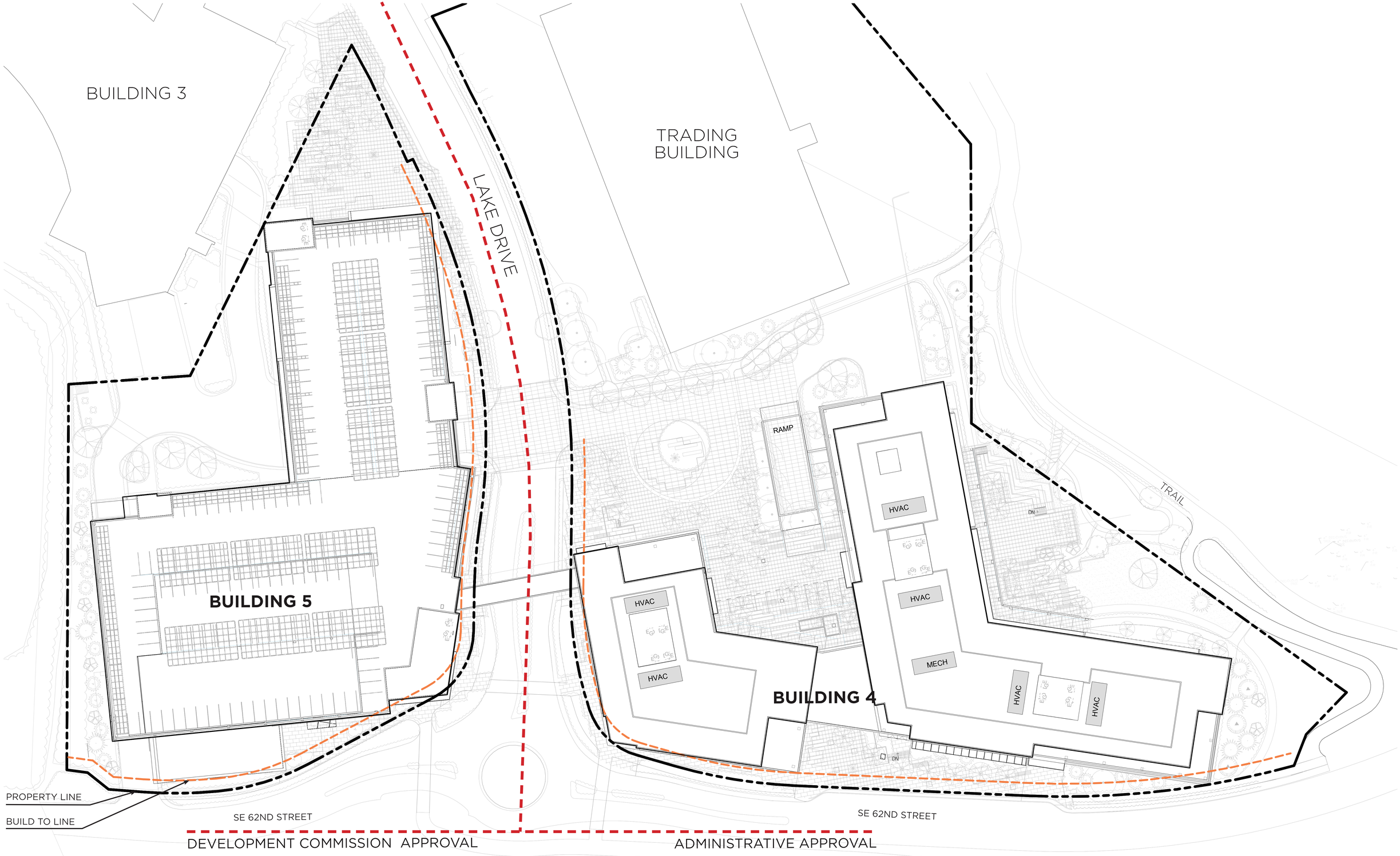
BUILDING 3
TRADING BUILDING
LAKE DRIVE
BUILDING 5
BUILDING 4
RAMP
HVAC
HVAC
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MECH
TRAIL
PROPERTY LINE
BUILD TO LINE
SE 62ND STREET
SE 62ND STREET
DEVELOPMENT COMMISSION APPROVAL
ADMINISTRATIVE APPROVAL

Wetland name or number ____

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland X – Costco Date of site visit: 9-12-17

Rated by Ed Sewell Trained by Ecology? ✓Yes ___No Date of training_____

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 _____

OVERALL WETLAND CATEGORY IV (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	6	4	15

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 name or number X

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
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	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
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	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
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	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to figure above*)	S 4.1	
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	
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	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

Wetland name or number X

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 name or number X

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.*

Wetland name or number X

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	1
Slope is greater than 5%	points = 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	6
Total for S 1	Add the points in the boxes above	7

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	0
Total for S 3	Add the points in the boxes above	1

Rating of Value If score is: ___2-4 = H ✓1 = M ___0 = L *Record the rating on the first page*

open slopes away from wetland

Wetland name or number X

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	1
All other conditions	points = 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	

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	2
No flooding problems anywhere downstream	points = 0	
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:

Wetland name or number X

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~~

0

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

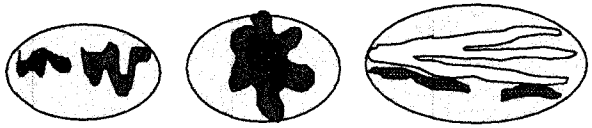
0

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** = 3points



0

Wetland name or number X

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)~~

0

Total for H 1 Add the points in the boxes above 0

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: 16 % undisturbed habitat 10 + [(% moderate and low intensity land uses)/2] 5 = 15 %

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

1

H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.

Calculate: % undisturbed habitat___ + [(% moderate and low intensity land uses)/2]___ = _____%

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 0

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

1

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

Wetland name or number ____

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 name or number X

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? Yes = **Category I** No = **Not a WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf 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

Wetland name or number X

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**~~	**Cat. I**
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. 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**~~	**Cat I**
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**	**Cat. II**
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**	**Cat. III**
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. 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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Line Path Polygon Circle 3D path 3D polygon

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Ground Length: 150.29

Heading: 96.88 degrees

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Tour Guide

Seattle 00:31

University of Washi... 00:49

Washington

KeyArena 00:44

CenturyLink Field 00:44

Safeco Field 00:44

Northgate Mall 00:37

Mount Rainier 00:47

Naval Base Kitsap - ... 00:29

Mount Rainier 00:41

Husky Stadium 00:44

EMP Museum 00:44

Space Needle 00:44

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Water Quality Atlas Map Pa...

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Legend | Filter Data | Zoom To | Tools

Add or remove map data

Assessed Waters/Sediment

Water

- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Sediment

- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

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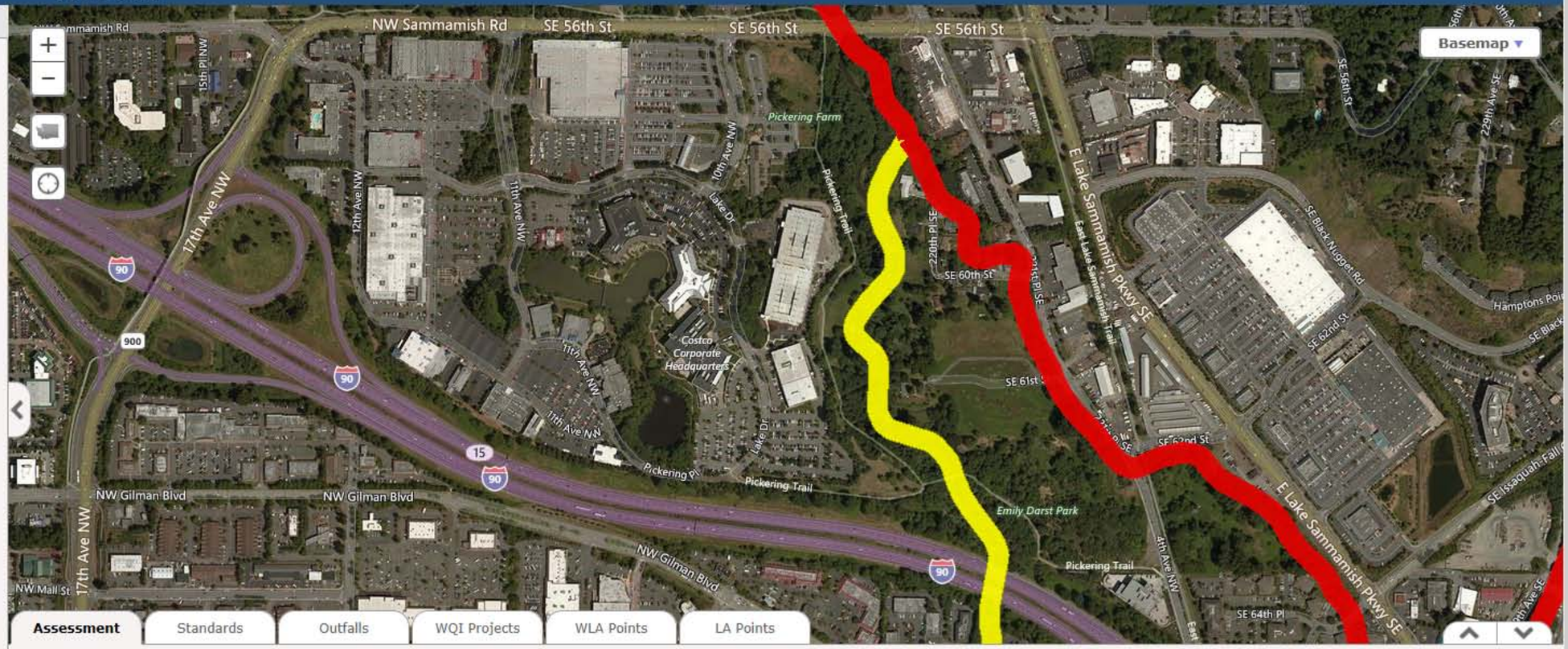

Assessment | Standards | Outfalls | WQI Projects | WLA Points | LA Points

Zoom to selection | Export to csv

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SE Newport Way

SE 45th Way

SE 47th St

SE 54th St

NW Sammamish Rd

NW Poplar Way

NW Village Park Dr

E 60th St

E 63rd St

Military Ridge Trail

Surprise Creek Trail

Shangri La Trail

Bear Rd

19th Ave NW

17th Ave NW

12th Ave NW

11th Ave NW

Lake Dr

East Lake Sammamish Trail

220th Ave SE

221st Pl SE

225th Ave SE

227th Pl SE

SE 48th St

SE 53rd St

231st Ave SE

SE 54th Pl

SE 58th St

Day Break

SE Black Nugget Rd

SE Issaquah-Fall City Rd

SE 62nd St

SE 64th Pl

NW Mall St

NW Maple St

NW Gilman Blvd

The Maple Trail

NW Holly St

NE Gilman Blvd

1st Ave NE

9th Ave NE

Highlands Dr NE

Issaquah-Pine Lake Rd SE

Ruler

Line Path Polygon Circle 3D path 3D polygon

Measure the distance between two points on the ground

Map Length: 3,202.50 Feet

Ground Length: 3,202.87

Heading: 92.03 degrees

Mouse Navigation Save Clear

Tour Guide

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