Attachment 10.A

WEST BAY DEVELOPMENT GROUP, LLC
WEST BAY YARDS PROJECT

CRITICAL AREAS REPORT

PREPARED FOR:

WEST BAY DEVELOPMENT GROUP
ATTN: BRANDON SMITH
PO BOX 1376
SUMNER, WA 98390

PREPARED BY:

GRETTE ASSOCIATES[LLC]
2102 NORTH 30TH STREET, SUITE A
TACOMA, WASHINGTON 98403
(253) 573-9300

SCOTT MAHARRY
SENIOR BIOLOGIST

FEBRUARY, 2022
DATE

Grette Associates LLC
ENVIRONMENTAL CONSULTANTS

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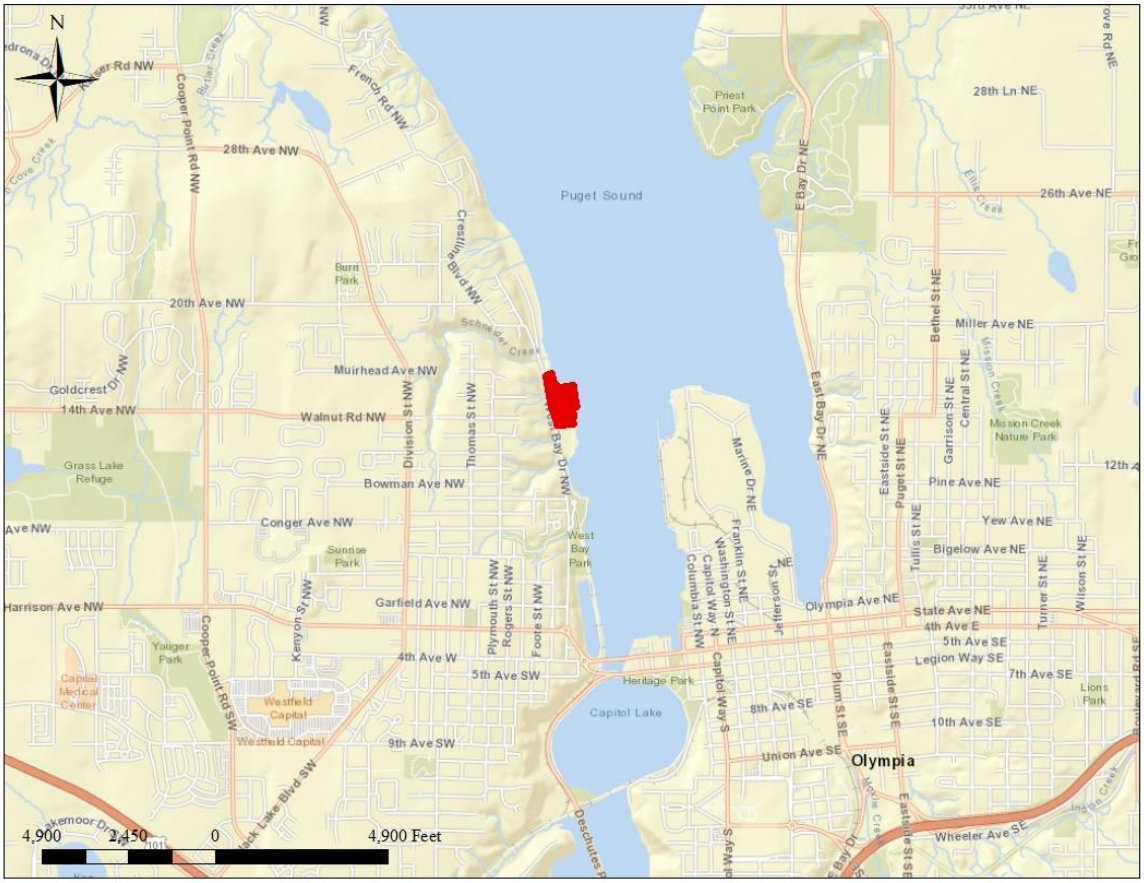
1 INTRODUCTION

Grette Associates has been contracted to conduct an assessment to identify any wetlands or streams at 1210 West Bay Drive in Olympia, WA (Thurston County Tax Parcel No. 72600200100). The subject property is located in Section 59, Township 18N, Range 02W, W.M. (Figure 1). The purpose of this assessment and report is to document wetlands and streams that are on or within 300 feet of the subject property, in accordance with the Olympia Municipal Code (OMC) Chapter 18.32. For priority habitats and species located on or neat the site, please refer to the Important Habitats and Species Report prepared for this site (Grette Associates 2022).

A Critical Areas Map of the site is presented in Appendix A, wetland rating forms are presented in Appendix B, and queried database figures are presented in Appendix C.

Figure 1. Vicinity map



2 FEATURE SUMMARY

A Grette Associates wetland specialist visited the assessment area on May 20th, 2020 to conduct an assessment to identify any wetlands or streams that are on or within 300 feet of the subject property.

Grette Associates collected soil, vegetation and hydrology data and compared it with the three wetland criteria defined in the U.S. Army Corps of Engineers' (USACE) *Federal*

Wetland Delineation Manual (1987), and the USACE's *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (2010), and the OMC. No wetlands were identified on the subject property.

One offsite wetland area was observed (Table 1). Wetland A is located west of West Bay Drive, and west of the subject property. The wetland, observed from West Bay Drive, appears to be a slope wetland contained within a shallow ravine. The wetland slopes down from the west where is backs up against the sidewalk along West Bay Drive. Due to private property concerns, the extent of the wetland up the slope to the west could not be ascertained. A culvert is present that conveys surface water from the wetland, along with stormwater from West Bay Drive, beneath the roadway and onto the subject property. While much of the wetland would be classified as a slope wetland due to its location along the slope, the wetland is impounded by the presence of West Bay Drive. Therefore, for rating purposes, the wetland is considered to be a depressional wetland.

Table 1. Offsite Wetland Summary

Feature	Size (Approximate)[1]	Cowardin Class	Hydrology Modifier	HGM Class	Wetland Category	Buffer Width[2]
A	0.11 acre	PSS/FO	Seasonally Flooded	Slope/ Depressional	III	140 ft.

[1] Wetland size is approximate, as it could not be accessed or surveyed due to trespassing concerns
[2] Wetland buffer per OMC Chapter 18.32.535 (wetland with 5 habitat points)

One non-wetland aquatic feature was identified within the subject property. A linear depression is present along the toe of fill associated with West Bay Drive and an old rail track line, along the west property boundary. This depression, which still contains the iron rail tracks and concrete retaining walls in places, appears to have been excavated from uplands for the purpose of placing the rail tracks below the grade of the subject property. This was likely done for ease of loading and unloading rail cars during industrial operations. Currently portions of this depression are inundated, and a small outfall present in the south end of the depression discharges stormwater runoff from West Bay Drive into the depression.

In addition, one off-site stream is located approximately 300 feet north of the subject property (Table 2). The outfall for Schneider Creek is located 300 feet north of the north property boundary. The outfall discharges the creek after it is conveyed beneath West Bay Drive in a culvert. Schneider Creek is mapped as a fish-bearing stream.

Table 2. Natural water feature identification summary

Feature	Water Type[1]	Buffer Width[2]
Schneider Creek	F	250 ft.

1 Water feature rated according to OMC Chapter 18.32.410.
[3] Stream buffer based on OMC 18.32.435. While the Schneider Creek channel west of West Bay Drive could not be accessed, for the purposes of assigning a preliminary buffer width for this report it is assumed to be greater than 5 feet in width.

3 EXISTING SITE CONDITIONS

3.1 Upland Site Conditions

The subject property is approximately 7 acres in size and has been previously developed as a commercial property (Figure 2). The surrounding neighborhood consists predominantly of residential and commercial properties. The property is bordered to the east by West Bay of Budd Inlet (Puget Sound), and the shoreline has been stabilized with riprap. The subject property's west boundary is adjacent to West Bay Drive. The topography of the subject property is generally flat, though prior surface soil disturbances have left small depressions and mounds throughout the site. except for the west site boundary, a portion of which was operated as a rail line which sits approximately four feet lower in elevation. Most of the property has been previously paved and/or developed and vegetation is primarily composed of nonnative species such as yellow sweet clover (*Melilotis inducus*) and Himalayan blackberry (*Rubus armeniacus*).

Google Earth historic satellite photos indicate that the subject property has been relatively undisturbed for the last decade.

Figure 2. Site map

3.2 Shoreline Habitat Conditions

Jurisdiction under the City's Shoreline Master Program extends 200 feet landward on the site from the ordinary high-water mark (OHWM). The shoreline of the subject property is degraded, and is entirely stabilized by riprap. The top portion of the bank is characterized by invasive plant species growing through fill and riprap. Invasive shrub species such as Himalayan blackberry (*Rubus armeniacus*) and Scotch broom (*Cytisus scoparius*) are

present along portions of the top of the slope, with occasional larger shrubs such as red elderberry (*Sambucus racemosa*) also present. In addition, various invasive and non-native forbs are present.

Below the top of the slope, the upper shoreline consists entirely of riprap and is almost entirely unvegetated. The slope is approximately 1:1. At the base of the riprap slope, the lower shoreline flattens to a more gentle slope. The substrate immediately below the riprap slope consists of gravel and shell hash. Below, the middle intertidal substrate consists of unconsolidated silt, with sparse wood waste and gravel.

Habitat quality along the shoreline, both marine riparian and aquatic, is low. Vegetation along the shoreline is limited and consists mostly of invasive and non-native species. Habitat along the base of the slope is also limited. Small pockets of gravel and shell hash are present at the base of the riprap, and these pockets could provide spawning habitat for forage fish depending on the elevation. No saltmarsh or other beneficial marine aquatic vegetation was observed along the mid-to lower intertidal shoreline. As such, the site does not provide quality habitat for juvenile or adult salmonids.

4 BACKGROUND INFORMATION REVIEW

4.1 Local Critical Areas Inventory

A review of the Thurston County's GeoData website portal was conducted to identify any known critical areas with the vicinity of the subject property (Geodata 2020). According to the Geodata Map, there is a stream (Schneider Creek) approximately 300 feet to the north of the subject property. (Appendix D). No additional critical areas are mapped within 300 feet. Additionally, the City of Olympia's Environmentally Sensitive Areas Map was also reviewed (Olympia 2020). No critical areas are mapped within 300 feet of the subject property. The only feature mapped near the site is a small area to the southeast of the subject property noted as 100-year floodplain.

4.2 National Wetlands Inventory

The U.S. Fish and Wildlife Service's National Wetlands Inventory (NWI) was queried to determine if previously-identified wetlands are present on or near the subject property (USFWS 2020). According to the NWI Interactive Online Mapper, there are no wetlands identified on or near the subject property by the NWI (Appendix D). The nearest identified feature are estuarine wetlands associated with Puget Sound approximately 300 feet to the east of the subject property.

4.3 Sensitive Wildlife and Plants

The Washington Department of Fish and Wildlife's (WDFW) Priority Habitats and Species (PHS) database on-line mapper was queried to determine if state or federally listed fish or wildlife species occur on or near the subject property (WDFW 2020a). According to the PHS database, the east border of the subject property is mapped as estuarine and marine habitat. The PHS database also maps the entire township that the subject property resides in as having little brown bat (*Myotis lucifugus*), big brown bat (*Eptesicus fuscus*), and Yuma myotis (*Myotis yumanensis*). None of the habitat associated with these bat species was observed on the subject property.

The PHS mapper also identifies two small breeding colonies (i.e., rookeries) of great blue heron (*Ardea herodias*) located southeast of the subject property (Appendix D). These areas are located on the forested slope above West Bay Drive approximately 720 feet southwest of the southwest property corner of the subject property. This distance exceeds the 200-foot year-round buffer plus 300-ft seasonal buffer (500-foot total buffer) applied to heron rookeries by OMC 18.32.320.

Additionally, WDFW's SalmonScape on-line mapper was queried to determine if salmonids are known to use any streams near the subject property (WDFW 2020b). According to SalmonScape, the nearest fish bearing stream is Schneider Creek, approximately 300 to the north of the subject property. SalmonScape lists Schneider Creek has having coho (*Oncorhynchus kisutch*) salmon present.

The Washington Department of Natural Resources' (WDNR) Natural Heritage Information System was queried to determine if the Project site occurs in a location reported to contain high quality natural heritage wetland occurrences or occurrences of natural heritage features commonly associated with wetlands. According to the WDNR WA Wetlands of High Conservation Value online mapper, there are no records of rare plants or high-quality native ecosystems occurring on or in the vicinity of the subject property.

Several important and listed aquatic species are mapped and known to occur within West Bay and Budd Inlet east of the site. These species, their habitat requirements, and presence information are described in the Important Habitats and Species Report prepared for this property (Grette Associates, 2021).

4.4 Forest Practice Rules

The Washington Department of Natural Resources' (WDNR) Forest Practice Application Mapping Tool on-line mapper was queried to identify the water typing of any streams mapped by WDNR (WDNR 2020). According to WDNR, besides Schneider Creek to the north (Type F), there is one stream located approximately 700 feet to the south of the subject property (Appendix D). This unnamed stream is typed as a fish bearing stream according to WDNR.

4.5 Soil Information

According to the Natural Resources Conservation Service's (NRCS) Web Soil Survey (NRCS 2020), the soils within the subject property are composed of xerothents. Xerothents are composed of sandy and loamy cut and fill material and are not listed as being hydric soils.

5 WETLAND ASSESSMENT METHODS

The assessment area was traversed and data were collected to confirm wetland presence or absence. The procedures described in the USACE *Federal Wetland Delineation Manual* (1987), and the Corps' Regional Supplement were used to evaluate the data collected (2010). Data plots and soil test pits were excavated to evaluate the conditions on the site with respect to vegetation, hydrology and soils.

Plants were determined to be more or less associated with wetlands based on their wetland indicator (FAC) status. The percent dominance for each plant strata was determined using the 50-20 Rule, which is the recommended method for selecting dominant species from a

plant community in instances where quantitative data are available (USACE 2010). In utilizing this rule, dominants are the most abundant species that individually or collectively accounts for more than 50 percent of the total coverage of vegetation in the stratum plus any other species that, by itself accounts for at least 20 percent of the total.

Additionally, the area within 300 ft of the parcel boundary was inspected either visually or through aerial photograph interpretation to determine if other critical areas are within the assessment area.

5.1 Hydrophytic Vegetation

The U.S. Fish and Wildlife Service (USFWS) and the NWI have established a rating system that has been applied to commonly occurring plant species on the basis of their frequency of occurrence in wetlands (Table 1). Species indicator status expresses the range in which plants may occur in wetlands and non-wetlands (uplands). Under this system, vegetation is considered hydrophytic when there is an indicator status of facultative (FAC), facultative wetland (FACW) or obligate wetland (OBL) (Table 3). The hydrophytic vegetation criterion for wetland determination is met when ***more than*** 50 percent of the dominant species in the plant community are FAC or wetter. The Corps' *National Wetland Plant List* (Lichvar 2016) was used to determine vegetation indicator status.

Table 3. Definitions for USFWS plant indicator status

Plant Indicator Status Category	Indicator Status Abbreviation	Definition (Estimated Probability of Occurrence)
Obligate Upland	UPL	Occur rarely (<1 percent) in wetlands, and almost always (>99 percent) in uplands
Facultative Upland	FACU	Occur sometimes (1 percent to <33 percent) in wetlands, but occur more often (>67 percent to 99 percent) in uplands
Facultative	FAC	Similar likelihood (33 percent to 67 percent) of occurring in both wetlands and uplands
Facultative Wetland	FACW	Occur usually in wetlands (>67 percent to 99 percent), but also occur in uplands (1 percent to 33 percent)
Obligate Wetland	OBL	Occur almost always (>99 percent) in wetlands, but rarely occur in uplands (<1 percent)
Not Listed	NL	Not listed due to insufficient information to determine status

5.2 Wetland Hydrology

Evidence of permanent or periodic inundation (water marks, drift lines, drainage patterns), or soil saturation to the surface for 12 consecutive days or more during the growing season meets the hydrology criterion. Oxidized root channels in the top 12 inches and hydrogen sulfide are primary indicators and water-stained leaves and geomorphic position are secondary indicators of wetland hydrology.

5.3 Hydric Soils

Soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper soil horizons are considered hydric soils. Field indicators include histosols, the presence of a histic epipedon, a sulfidic odor, low soil chroma, and gleying. Soil conditions were compared to the Field Indicators of Hydric Soils detailed in the Corps' *Regional Supplement*.

6 PRECIPITATION ANALYSIS

During the site assessment, the Olympia Airport National Weather Station (NWS Station 456114) recorded 0.00 inches of rainfall (NOAA 2020a). In the 14 days preceding the site assessment, 1.69 inches of rainfall was recorded at the station (NOAA 2020a).

The total precipitation recorded at the Tacoma station from May 1, 2019 through April 30, 2020 (46.66 inches) was approximately 93 percent of the normal rainfall (50.00 inches) that occurs during a typical water year (NOAA 2020b and NRCS 2020a). Table 4 below presents an analysis of the appropriate NRCS WETS table (NRCS 2020b) for the three months preceding the field investigation.

Table 4. WETS precipitation analysis

Preceding Month	WETS Rainfall Percentile (inches)		Measured Rainfall[1] (inches)	Conditions[2]	Condition Value[3]	Month Weight	Value
	30%	70%					
April	2.53	4.24	1.40	Dry	1	3	3
March	3.91	6.20	3.35	Dry	1	2	2
February	3.92	7.44	3.38	Dry	1	1	1
						Sum:	6

[1] Observed rainfall for the month (NOAA 2016b)
[2] Dry conditions are below 30% WETS table value, Normal conditions are between 30% and 70% of the WETS table values, Wet conditions are above 70% of the WETS table value.
[3] Dry equals a value of 1, normal equals a value of 2, wet equals a value of 3

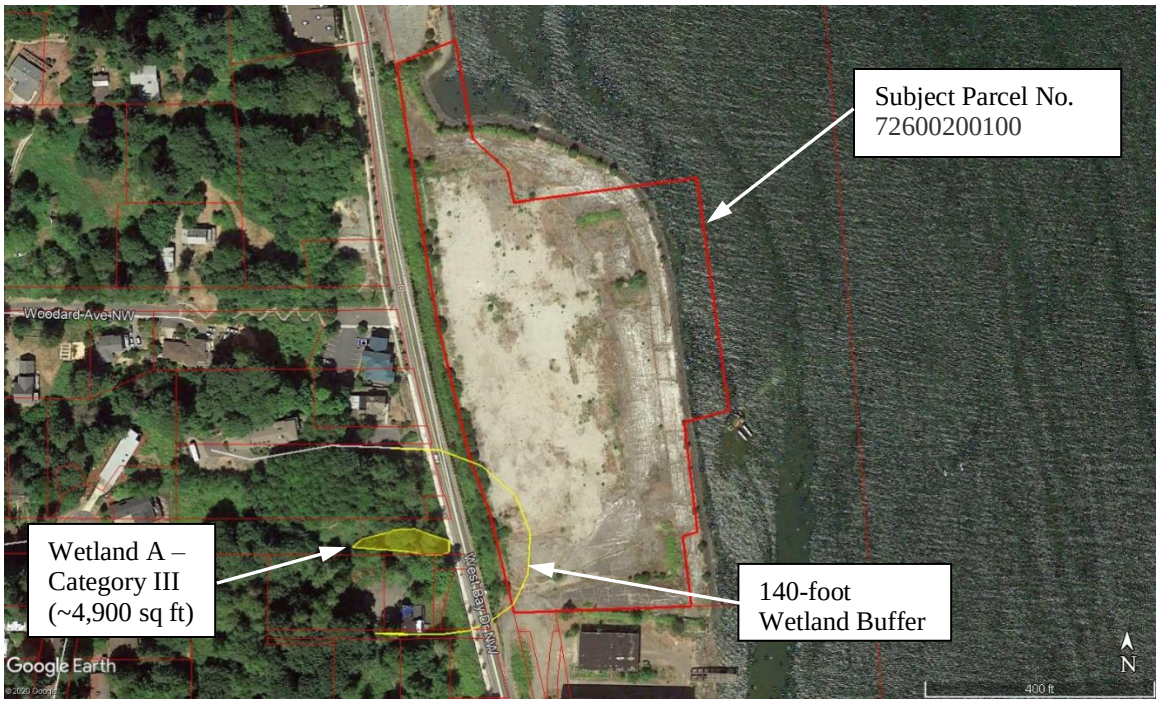
Bins were established to evaluate the overall rainfall period during the field investigation; dry (sum in 6-9), normal (sum is 10-14), and wet (sum is 15-18). A sum of 6 indicates that hydrologic conditions on the site were drier than normal at the time of the site investigation.

7 RESULTS

The site assessment revealed there are no jurisdictional wetlands on the subject property. Informal data were collected to document the conditions on the site. A non-wetland linear depression was observed along the west property boundary below West Bay Drive. This feature is located along the toe of West Bay Drive and is in the location of an historic railroad bed utilized by the former industrial properties along the west shore of West Bay and Budd Inlet.

Schneider Creek is located north and northwest of the subject property. Additionally, a small seasonal drainage is located west of the property, associated with Wetland A.

Figure 3. Offsite Wetland Map



7.1 Wetland A (Offsite)

Wetland A is a Palustrine Forested/Emergent (PFO/EM), Seasonally-Flooded wetland that is approximately 4,900 square feet in size (0.11 acre) and is situated offsite in a shallow ravine (Appendix A). The offsite wetland area is located west of West Bay Drive at the base of the forested slope west of the subject property (Figure 3).

7.1.1 Vegetation

The vegetation within the wetland is largely dominated by reed canarygrass (*Phalaris arundinacea*; FACW), English ivy (*Hedera helix*; UPL) and field horsetail (*Equisetum arvense*; FAC). Upland areas surrounding the wetland are dominated by big-leaf maple (*Acer macrophyllum*), Himalayan blackberry, Douglas hawthorn (*Crataegus douglasii*) and dense English ivy.

7.1.2 Hydrology

Hydrologic support for Wetland A appears to be from groundwater and direct precipitation from the adjacent hillside. There may be small outfalls from above the hillside, though non were observed from West Bay Drive. It's likely that lawn and landscaping irrigation from the surrounding residential areas above the wetland contribute to the groundwater discharges along the slope. Additionally, groundwater seeps along the side slopes further up the ravine likely contribute to the hydrology of Wetland A.

7.1.3 Hydric Soils

As discussed above, the wetland occurs on private property and was not physically accessed. However, based on the hydrophytic vegetation, surface hydrology, and the geomorphic position of Wetland A, the presence of hydric soil indicators was presumed.

7.1.4 Wetland Categorization

To determine the categorization of Wetland A, the wetland classification guidelines in Ecology's wetland rating system (Hruby 2014) were used (OMC 18.32.510). Based on this guidance, the wetland was given a score for each of three functions: Water Quality, Hydrology, and Habitat (Table 5, Appendix C).

Table 5. Wetland rating and categorization summary

Feature	Size (sq. ft.)[1]	Cowardin Class	HGM Class	Water Quality	Hydrology	Habitat	Total	Category
A	4,900	PSS/FO	Slope/ Depressional[2]	7	5	5	17	III

[1] Size approximate, as located offsite.
[2] Per Hruby 2014, Wetland A rated using Depressional Rating Forms

Based on the rating system scores for Wetland A, the wetland was determined to provide moderate water quality function and low hydrology and habitat functions, due primarily to its small size and location within a highly urbanized landscape. As a result, Wetland A is classified as a Category III wetland with 5 habitat points and is subject to a 140-foot buffer according to OMC 18.32.535.

7.1.5 Functions and Values

Wetland A provides a moderate level of water quality function, largely due to its position near the base of a slope in an urbanized environment. This landscape position provides ample opportunity to provide water quality functions such as filtering out sediment and toxins from stormwater runoff and shallow groundwater. Hydrologic functions provided by Wetland A are somewhat low, again due to the wetland's position in the landscape. The wetland is not located in an area that experiences flooding, and does not receive direct inputs of stormwater runoff. The wetland also does not have the capacity to store large quantities of storm flows. Habitat functions are also low due to the highly urbanized environment surrounding the wetland. The large wooded slope above West Bay Drive along with the wooded ravine associated with Schneider Creek does provide a significant undisturbed habitat corridor, and likely meets the criteria to be designated as a Biodiversity Corridor given that it provides habitat to nesting great blue heron. The wetland also likely provides some foraging and refuge for small mammals as well as passerine foraging and refuge.

7.1.6 Buffer Conditions

The buffer surrounding Wetland A is primarily forested with big-leaf maple and dense English ivy west of the subject property. An asphalt driveway is present south of the wetland, and the paved sidewalk adjacent to West Bay Drive is adjacent to the wetland to the east. East of Wetland A, the buffer contains West Bay Drive and extends onto a small (~555 sq ft) portion of the southwest corner of the subject property (Figure 3). This buffer area that extends onto the subject property is highly disturbed, consisting of abandoned pavement, cleared gravel areas, and weedy shrubs and herbaceous vegetation. This portion of buffer is below the elevation of Wetland A, and is therefore functionally separated from Wetland A. It is separated from Wetland A by West Bay Drive and cannot provide any of the functions typical of wetland buffers.

7.2 Streams and Drainages

There is one stream near the subject site that discharges into Puget Sound. Additionally, a drainage associated with Wetland A is discharged onto the site and then into Puget Sound through an outfall.

7.2.1 Schneider Creek

Schneider Creek flows through a steeply-sloped ravine northwest of the subject property, and west of West Bay Drive. The stream originates from wetlands and seeps atop the ridgeline west of the site. For a complete discussion of the stream, please refer to the Important Habitat and Species Report prepared for the property (Grette Associates, 2021). The outfall of the mouth of Schneider Creek is approximately 300 feet north of the north parcel boundary of the site.

7.2.2 Unnamed Drainage

A small, unnamed drainage is located within the ravine containing Wetland A to the west of the site. The ravine extends west from West Bay Drive into West Bay Park. The drainage feature is not identified on any of the state or local GIS data mappers, such as WA DNR's Forest Practices Application Mapping Tool, Thurston County's GeoData Center Online Permitting Map, or WDFW's PHS Mapper.

The drainage appears to receive water from seeps further up the ravine, and flows downslope toward Wetland A and West Bay Drive. The water is carried beneath West Bay Drive by a 12-inch PVC culvert, which discharges onto the subject property and into Puget Sound.

The floor of the ravine is covered by dense English ivy and no scour or channel are present. Additionally, no scour or evidence of ponding are present uphill from the culvert. No exposed gravels or other evidence of a channel or bank was observed (Figure 4). As such, the unnamed drainage within the ravine does not meet the criteria in OMC 18.32.405.A to be classified as a stream.

While this seasonal drainage may have historically emptied into Puget Sound, it's path was interrupted long ago by development of the industrial uses on the subject property in the early 1900's as well as construction of West Bay Drive. Development of the subject property as well as West Bay Drive occurred prior to the adoption of the Growth Management Act in 1990, and predates the adoption of the City of Olympia's Critical Areas Ordinance. As such, this feature should not be regulated as a natural stream within the subject property, as it has been conveyed to Puget Sound through a culvert since before adoption of the Growth Management Act.

Figure 4. Photographs of the ravine within and above Wetland A. Note lack of defined channel or bed.

8 DISCUSSION

Grette Associates identified one offsite wetland feature and rated it according to the requirements defined in OMC 18.32.510. Based on these requirements, the wetland feature is considered a Category III wetland. According to OMC 18.32.535, Category III wetlands with a habitat score of 5 points are subject to a 140-foot buffer. A portion of the Wetland A buffer extends onto the subject property (Figure 3).

All other critical areas (except landslide hazards and geologic hazards) identified during this assessment were identified offsite, however their buffers did not extend onto the subject property. This includes Schneider Creek to the north and ravine wetlands to the south along West Bay Drive (beyond 300 feet from the subject property).

The unnamed drainage within the ravine containing Wetland A does not exhibit a defined channel or bed/bank morphology, and therefore does not meet the definition of a stream in OMC 18.32.405.A.

9 BIOLOGIST QUALIFICATIONS

9.1 Scott Maharry

Scott Maharry is a Senior Biologist with extensive experience and training in wetland science and ecological restoration, and has been conducting critical areas assessments in the Puget Sound region for over 20 years. Scott also has extensive professional experience in fisheries and marine ecology, mitigation planning, design and monitoring, and fish and wildlife habitat assessments. Scott is a Pierce County Qualified Wetland, Fisheries and Wildlife Specialist, and earned a Bachelor's degree in Biology from Central Washington University. For a list of representative projects, please contact him at Grette Associates.

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WEST BAY DRIVE- OLYMPIA, WA

CRITICAL AREAS REPORT
APPENDIX A: CRITICAL AREAS MAP

Attachment 10.A

Project Site

140-ft Buffer

Wetland A

On-Site Buffer Area

Woodard Ave NW

West Bay Dr NW

Google Earth

© 2020 Google

N

400 ft

WEST BAY DRIVE- OLYMPIA, WA

CRITICAL AREAS REPORT
APPENDIX B: WETLAND RATING FORMS

Attachment 10.A

Wetland name or number A

RATING SUMMARY – Western Washington

Name of wetland (or ID #): West Bay Drive - Wetland A Date of site visit: May 2020

Rated by S. Maharry Trained by Ecology? ☑ Yes ☐ No Date of training 10/2014

HGM Class used for rating Depressional 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 III (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	7	5	5	17

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 A

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 A

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 A

☑ 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 A

DEPRESSIONAL AND FLATS WETLANDS

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

D 1.0. Does the site have the potential to improve water quality?	
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 ☐ Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 ☑ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 ☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1 ☐	2
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic *(use NRCS definitions)*. Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 ☐ Wetland has persistent, ungrazed, plants > ½ of area points = 3 ☑ Wetland has persistent, ungrazed plants > $^1/_{10}$ of area points = 1 ☐ Wetland has persistent, ungrazed plants < $^1/_{10}$ of area points = 0 ☐	3
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of wetland points = 4 ☑ Area seasonally ponded is > ¼ total area of wetland points = 2 ☐ Area seasonally ponded is < ¼ total area of wetland points = 0 ☐	4
Total for D 1 Add the points in the boxes above	9

Rating of Site Potential If score is: ☐ **12-16 = H** ☑ **6-11 = M** ☐ **0-5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?	
D 2.1. Does the wetland unit receive stormwater discharges? Yes = 1 No = 0	0
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland? Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? Source_____ Yes = 1 No = 0	0
Total for D 2 Add the points in the boxes above	1

Rating of Landscape Potential If score is: ☐ **3 or 4 = H** ☑ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?	
D 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	1
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list? Yes = 1 No = 0	1
D 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 the unit is found*)? Yes = 2 No = 0	0
Total for D 3 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*

Wetland name or number A

DEPRESSIONAL AND FLATS WETLANDS

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

D 4.0. Does the site have the potential to reduce flooding and erosion?

D 4.1. Characteristics of surface water outflows from the wetland:

Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	☐
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	points = 2	☑ 2
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch	points = 1	☐
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	☐

D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.*

Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	☐
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	☐
Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet	points = 3	☑ 3
The wetland is a "headwater" wetland	points = 3	☐
Wetland is flat but has small depressions on the surface that trap water	points = 1	☐
Marks of ponding less than 0.5 ft (6 in)	points = 0	☐

D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.*

The area of the basin is less than 10 times the area of the unit	points = 5	☐
The area of the basin is 10 to 100 times the area of the unit	points = 3	☑ 3
The area of the basin is more than 100 times the area of the unit	points = 0	☐
Entire wetland is in the Flats class	points = 5	☐

Total for D 4	Add the points in the boxes above	8

Rating of Site Potential If score is: ☐ **12-16 = H** ☑ **6-11 = M** ☐ **0-5 = L** *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support hydrologic functions of the site?

D 5.1. Does the wetland receive stormwater discharges?	Yes = 1 No = 0	0
D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	Yes = 1 No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0	1
Total for D 5	Add the points in the boxes above	2

Rating of Landscape Potential If score is: ☐ **3 = H** ☑ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

D 6.0. Are the hydrologic functions provided by the site valuable to society?

D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.*

The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):

• Flooding occurs in a sub-basin that is immediately down-gradient of unit.	points = 2	☐
• Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	☐
Flooding from groundwater is an issue in the sub-basin.	points = 1	☐
The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. *Explain why* _____	points = 0	☐
There are no problems with flooding downstream of the wetland.	points = 0	☑

D 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 D 6	Add the points in the boxes above	0

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

Wetland name or number A

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**

2

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.

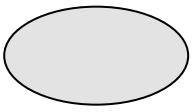
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

If you counted: > 19 species	points = 2
5 - 19 species	points = 1
< 5 species	points = 0

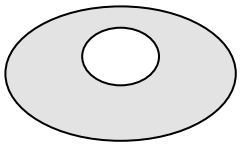
1

H 1.4. Interspersion of habitats

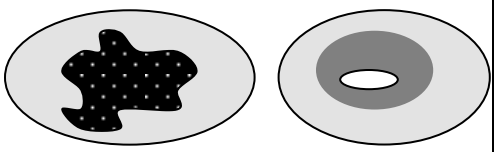
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*



None = 0 points ☐

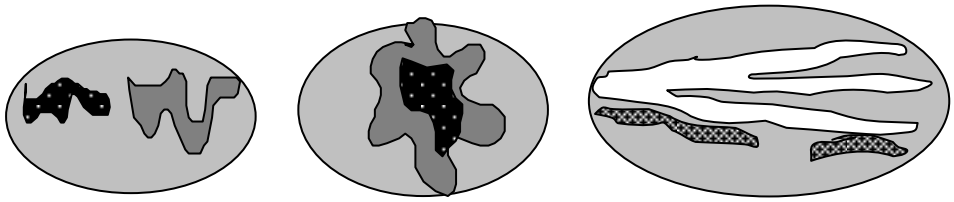


Low = 1 point ☑



Moderate = 2 points ☐

All three diagrams in this row are **HIGH** = 3points ☐



1

Wetland name or number A

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*)	2
Total for H 1 Add the points in the boxes above	7

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 2.30 **+** [(% moderate and low intensity land uses)/2] 0.00 **=** 2.30 % 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 2.30 **+** [(% moderate and low intensity land uses)/2] 5.25 **=** 7.55 % 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	0
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	-2

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 A

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).

X **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 A

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 A

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	N/A

Wetland name or number A

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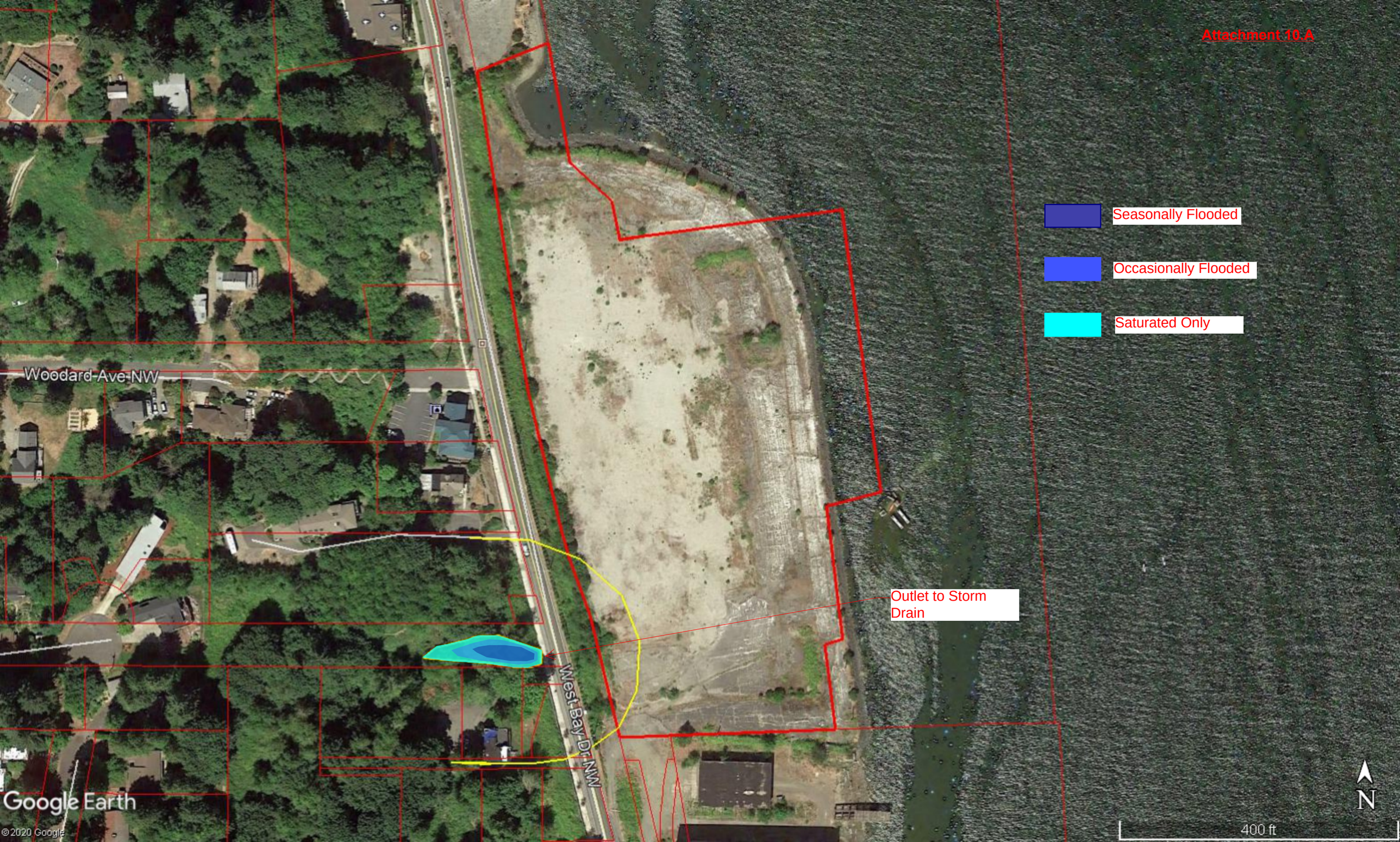
Attachment 10.A

Attachment 10.A



Attachment 10.A

Woodard Ave NW

150-Ft Boundary

West Bay Dr NW

Google Earth

© 2020 Google

N

400 ft

Wetland A Contributing Basin

Attachment 10.A


Wetland A 1 Km Map
Accessible/ Undisturbed
Moderate/Low Intensity
Burbank Ave NW
Burbank
East End Street NW
Elliott Ave NW
Harbor View Dr NW
West Bay Dr NW
Muirhead Ave NW
Farwell Ave NW
West Bay Drive
Northwest Olympia
East Bay
Bowman Ave NW
Division St NW
Thomas St NW
Brawne Ave NW
Giles Ave NW
Conger Ave NW
Madison Ave NW
Bush Ave NW
Jackson Ave NW
West Bay
Market St NE
Marine Dr NE
B Ave NE
A Ave NE
Google Earth
© 2021 Google
3000 ft
N


Legend:
Assessed water
Category 5 - 303(d)
Basemap
Raft Ave NW
Muirhead Ave NW
Rogers St NW
Woodard Ave NW
West Bay Dr NW
Farwell Ave NW
Thomas St NW
Hays Ave NW
Langridge Ave NW
Milroy St NW
Bowman Ave NW
Washington St NE
Add map data
Change transparency
10%
0
300
600ft
bing
POWERED BY esri

DEPARTMENT OF ECOLOGY
State of Washington

Thurston County

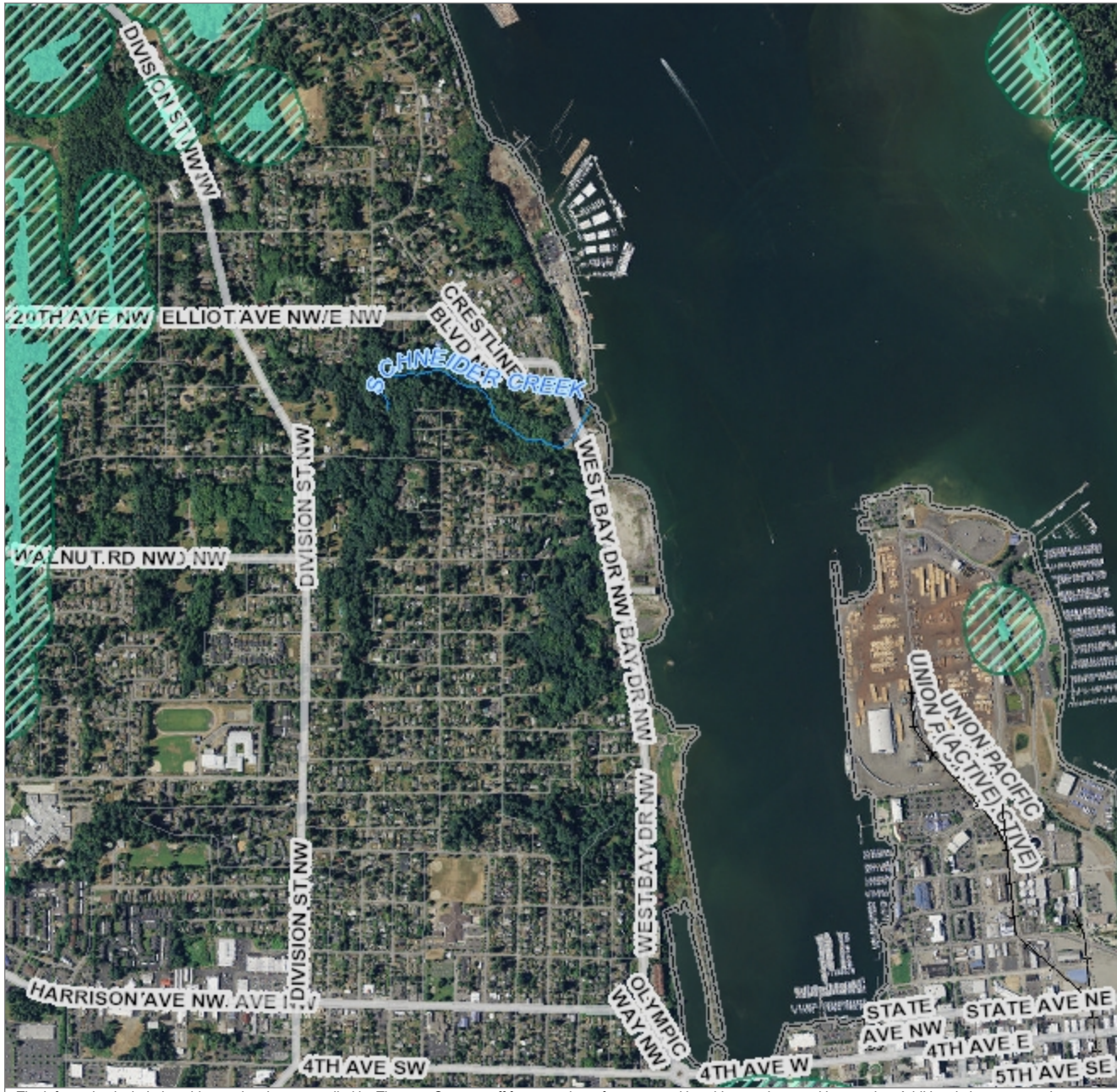
Water quality improvement projects

Select the waterbody or pollutant name to find more information about the specific project.

Waterbody Name(s)	Pollutant(s)	Status	Project Lead(s)
Deschutes River	Temperature	EPA Approved and Has an implementation plan	Leanne Weiss 360-407-0243
Deschutes River	Dissolved Oxygen pH Sediment Fecal Coliform	Pending	Leanne Weiss 360-407-0243
Budd Inlet	Dissolved Oxygen	Under development	Leanne Weiss 360-407-0243
Upper Chehalis River Watershed	Ammonia-N BOD (5-day) Dissolved Oxygen Fecal Coliform Temperature	EPA Approved	Devan Rostorfer 360-690-4665
Henderson Inlet Watershed	Multi-parameter	EPA approved and Has an implementation plan	Donovan Gray 360-407-6407
Nisqually Watershed	Dissolved Oxygen Fecal Coliform	EPA approved and Has an implementation plan	Donovan Gray 360-407-6407
Totten/Eld Inlets Tributaries	Fecal Coliform Temperature	EPA approved Has an implementation plan	Lawrence Sullivan 360-407-6389

WEST BAY DRIVE- OLYMPIA, WA

CRITICAL AREAS REPORT
APPENDIX C: QUERIED DATABASE FIGURES



West Bay

Legend

- Streams
- Wetlands
- Wetlands Review Areas
- Roads - Major
  - Major Roads
  - Ramp
  - I 5; US 101
- Roads (Large Scale)
- Railroads
- County Border

Scale 1: 25,962

0 1000 2000

Feet

Map Created Using GeoData Public Website

Published: 6/8/2020

Note:

THURSTON COUNTY
WASHINGTON
SINCE 1852

Thurston County GeoData Center

Forest Practices Activity Map - Application #_____ Attachment 10.A

Map Symbols

- Harvest Boundary
- Road Construction
- Stream
- RMZ / WMZ Buffers
- Rock Pit
- Landing
- Waste Area
- Clumped WRTS/GRTS
- Existing Structure

Additional Information

Legal Description

S37 T18.0N R02.0W, S48 T18.0N R02.0W
S15 T18.0N R02.0W, S47 T18.0N R02.0W
S62 T18.0N R02.0W, S53 T18.0N R02.0W
S46 T18.0N R02.0W, S42 T18.0N R02.0W
S57 T18.0N R02.0W, S59 T18.0N R02.0W
S49 T18.0N R02.0W

WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES

Extreme care was used during the compilation of this map to ensure its accuracy. However, due to changes in data and the need to rely on outside information, the Department of Natural Resources cannot accept responsibility for errors or omissions, and therefore, there are no warranties that accompany this material.

0 0.25 Miles

Date: 6/8/2020 Time: 12:17:50 PM

U.S. Fish and Wildlife Service
National Wetlands Inventory

Wetlands

Attachment 10.A

June 8, 2020

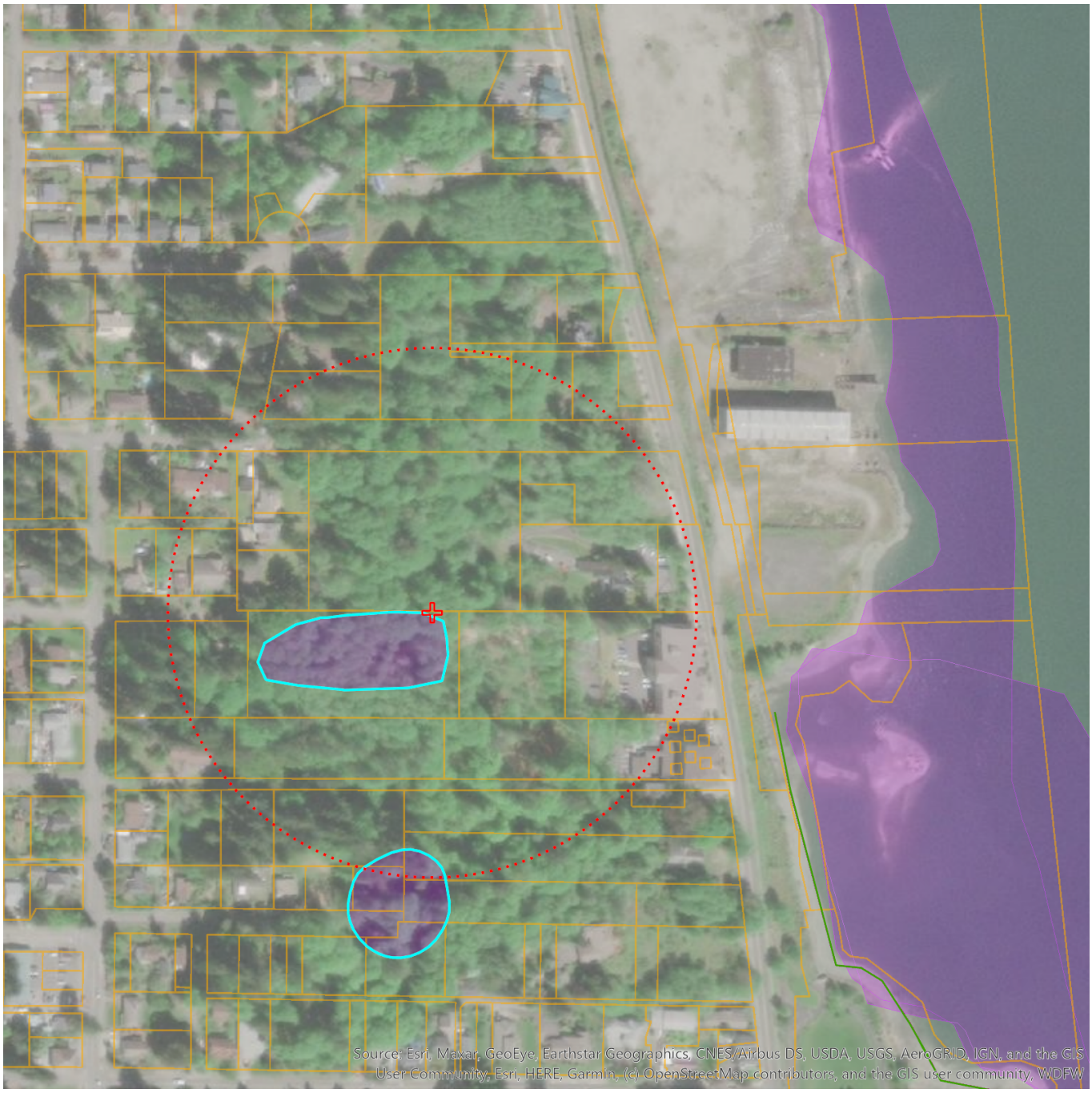
Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

Priority Habitats and Species on the Web



Buffer radius: 500 Feet

Report Date: 11/19/2020

User Comments/Notes:

500-foot buffer from nearest GBH breeding area represents the 200-ft year-round buffer and 300-ft seasonal buffer required by OMC 18.32.328. Note the 500-ft buffer does not reach the subject property.

Attachment 10.A

PHS Species/Habitats Overview:

Occurence Name	Federal Status	State Status	Generalized Location
Great blue heron	N/A	N/A	No
Big brown bat	N/A	N/A	Yes
Little Brown Bat	N/A	N/A	Yes
Yuma myotis	N/A	N/A	Yes

PHS Species/Habitats Details:

Great blue heron	
Scientific Name	*Ardea herodias*
Priority Area	Breeding Area
Site Name	WEST BAY
Accuracy	GPS
Notes	GREAT BLUE HERON COLONY REPORTED OCCUPIED BY NEIGHBORS 3 YEARS PRIOR TO MAPPING. NESTS IN ALDERS/ACME ~ 300 FT S. OF END OF DICKINSON NW. TRAIL BENEATH NESTS. MARKED FOR DVLPMNT, ROAD CUT INTO COLONY WINTER 2009/2010, MORE CLEARING WINTER 2010.
Source Record	3673
Source Dataset	WS_OccurPolygon
Source Date	WS_OccurPolygon
Source Name	BLATZ, G./WDFW
Source Entity	WA Dept. of Fish and Wildlife
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS LISTED OCCURRENCE
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://wdfw.wa.gov/publications/pub.php?id=00026
Geometry Type	Polygons

Great blue heron	
Scientific Name	*Ardea herodias*
Priority Area	Breeding Area
Site Name	WEST BAY
Accuracy	Map 1:12,000 <= 33 feet
Notes	RE-ESTABLISHED NESTING AREA FOR WEST BAY COLONY FOLLOWING REPEATED EAGLE PREDATION AT 475-1 & ABANDONMENT EARLY IN 2015 BREEDING SEASON. NESTS ~500FT FROM 475-1 IN ACER, THPL & ALBE. LOC NOT PRECISE. VERIFICATION NEEDED.
Source Record	4770
Source Dataset	WS_OccurPolygon
Source Date	WS_OccurPolygon
Source Name	BLATZ, G./WDFW
Source Entity	WA Dept. of Fish and Wildlife
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS LISTED OCCURRENCE
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://wdfw.wa.gov/publications/pub.php?id=00026
Geometry Type	Polygons

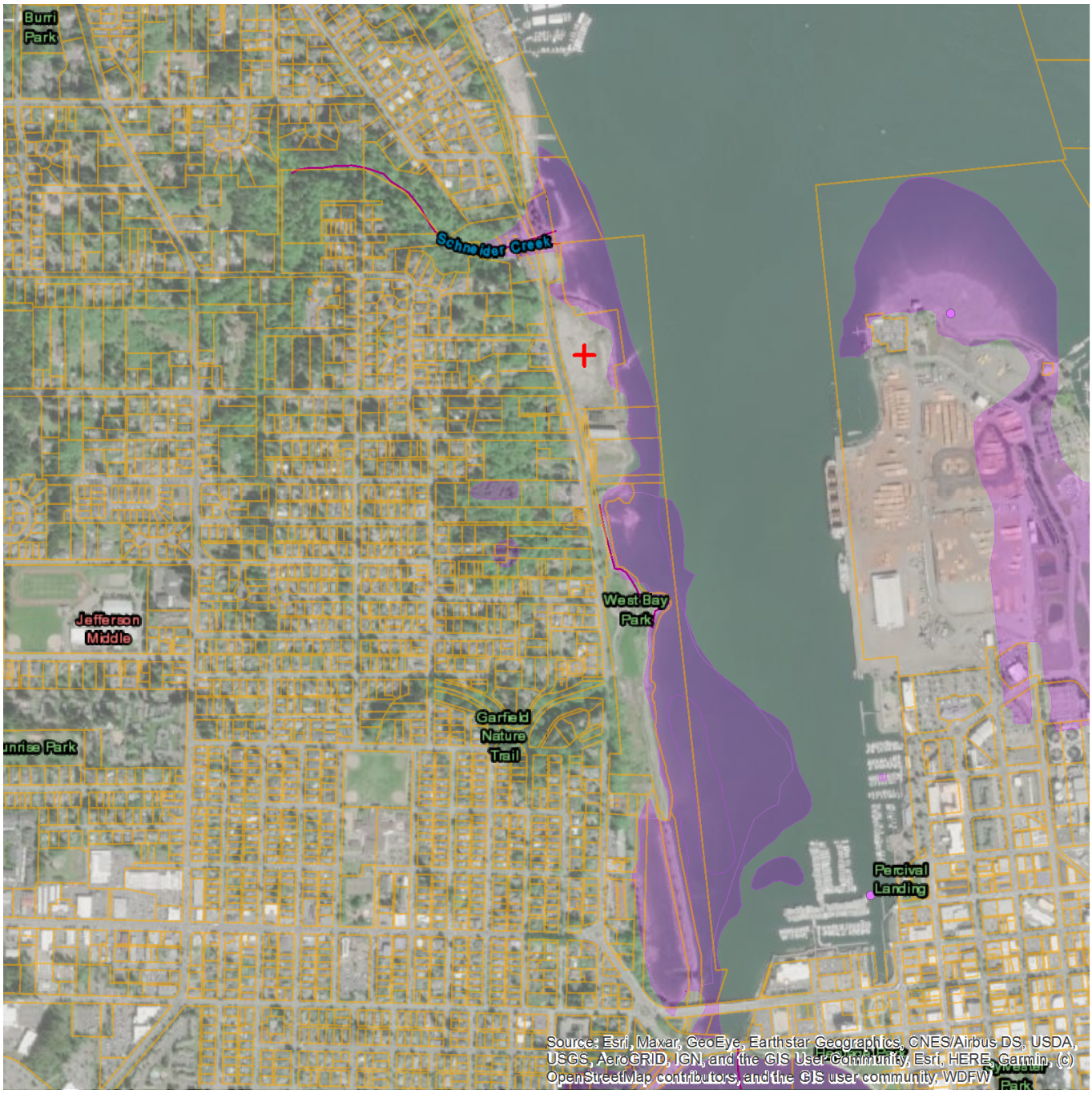
Big brown bat	
Scientific Name	*Eptesicus fuscus*
Notes	This polygon mask represents one or more records of the above species or habitat occurrence. Contact PHS Data Release (360-902-2543) for obtaining information about masked sensitive species and habitats.
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Y
SGCN	N
Display Resolution	TOWNSHIP
ManagementRecommendations	http://wdfw.wa.gov/publications/pub.php?id=00605

Little Brown Bat	
Scientific Name	*Myotis lucifugus*
Notes	This polygon mask represents one or more records of the above species or habitat occurrence. Contact PHS Data Release (360-902-2543) for obtaining information about masked sensitive species and habitats.
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Y
SGCN	N
Display Resolution	TOWNSHIP
ManagementRecommendations	http://wdfw.wa.gov/publications/pub.php?id=00605

Yuma myotis	
Scientific Name	*Myotis yumanensis*
Notes	This polygon mask represents one or more records of the above species or habitat occurrence. Contact PHS Data Release (360-902-2543) for obtaining information about masked sensitive species and habitats.
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Y
SGCN	N
Display Resolution	TOWNSHIP
ManagementRecommendations	http://wdfw.wa.gov/publications/pub.php?id=00605

Attachment 10.A

Priority Habitats and Species on the Web



Buffer radius: 300 Feet

Report Date: 06/15/2020

PHS Species/Habitats Overview:

Attachment 10.A

Occurence Name	Federal Status	State Status	Generalized Location
Little Brown Bat	N/A	N/A	Yes
Big brown bat	N/A	N/A	Yes
Yuma myotis	N/A	N/A	Yes

PHS Species/Habitats Details:

Little Brown Bat	
Scientific Name	*Myotis lucifugus*
Notes	This polygon mask represents one or more records of the above species or habitat occurrence. Contact PHS Data Release (360-902-2543) for obtaining information about masked sensitive species and habitats.
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Y
SGCN	N
Display Resolution	TOWNSHIP
ManagementRecommendations	http://wdfw.wa.gov/publications/pub.php?id=00605

Big brown bat	
Scientific Name	*Eptesicus fuscus*
Notes	This polygon mask represents one or more records of the above species or habitat occurrence. Contact PHS Data Release (360-902-2543) for obtaining information about masked sensitive species and habitats.
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Y
SGCN	N
Display Resolution	TOWNSHIP
ManagementRecommendations	http://wdfw.wa.gov/publications/pub.php?id=00605

Attachment 10.A

Yuma myotis	
Scientific Name	*Myotis yumanensis*
Notes	This polygon mask represents one or more records of the above species or habitat occurrence. Contact PHS Data Release (360-902-2543) for obtaining information about masked sensitive species and habitats.
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Y
SGCN	N
Display Resolution	TOWNSHIP
ManagementRecommendations	http://wdfw.wa.gov/publications/pub.php?id=00605

Attachment 10.A

June 8, 2020

1:9,028

0 0.05 0.1 0.2 mi

0 0.07 0.15 0.3 km

Coho Streams

- Documented Spawning
- Documented Rearing
- Documented Presence
- Documented-Artificial, Spawning
- Documented-Artificial, Rearing
- Documented-Artificial, Presence
- Transported Spawning
- Transported Rearing
- Transported Presence
- Presumed Presence

USGS/NHD, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, WDFW

Soil Map—Thurston County Area, Washington

Map Scale: 1:2,040 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 30 60 120 180

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Thurston County Area, Washington
Survey Area Data: Version 13, Sep 16, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 22, 2018—Jul 27, 2018

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
3	Alderwood gravelly sandy loam, 15 to 30 percent slopes	0.3	1.8%
30	Dystric Xerochrepts, 60 to 90 percent slopes	5.1	27.3%
125	Xerorthents, 0 to 5 percent slopes	10.4	55.8%
Totals for Area of Interest		**18.6**	**100.0%**