



**CRITICAL AREAS REPORT
AND
MITIGATION PLAN**

FOR

**33401 E LAKE HOLM DR SE
KING COUNTY, WA**

Wetland Resources, Inc. Project #22289

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1.0 INTRODUCTION

Wetland Resources, Inc. (WRI) conducted a site investigation on December 8, 2022, to locate and evaluate wetlands and streams on and near the 0.30-acre subject property (Parcel # 3410600105). The site is located at 33401 E Lake Holm Dr SE, in unincorporated King County, Washington (Section 14, Township 21N, Range 5E, W.M.). The applicant is applying for a Critical Areas Determination (CAD) and Critical Area Alteration Exception (CAAE) for construction of a single-family residence on the subject site.



Figure 1 - Aerial view of the subject property (Not to scale)

1.1 SITE DESCRIPTION

The site is an undeveloped waterfront lot. Access to the property is from the northeast via E Lake Holm Drive SE. Surrounding land use is primarily single-family residential with high-density single-family residential developments to the north and southeast. Topography of the subject property slopes southwest from E Lake Holm Drive SE to the shoreline of Lake Holm.

Vegetation within the southwest portion of the site consists of western white pine (*Pinus monticola*), paper birch (*Betula papyrifera*), black locust (*Robinia pseudoacacia*), western red cedar (*Thuja plicata*),

Douglas fir (*Pseudotsuga menziesii*), vine maple (*Acer circinatum*), Himalayan blackberry (*Rubus armeniacus*), salal (*Gaultheria shallon*), sword fern (*Polystichum munitum*), bracken fern (*Pteridium aquilinum*), English holly (*Ilex aquifolium*), and English ivy (*Hedera helix*). The northeastern portion consists of Himalayan blackberry (*Rubus armeniacus*), Scot's broom (*Cytisus scoparius*), and unknown grasses.

One wetland (Wetland A) and Lake Holm were identified on the site. One wetland (Wetland B) is located off-site, south of the subject property, across SE Lake Holm Road.

2.0 WETLAND DETERMINATION

2.1 REVIEW OF EXISTING INFORMATION

Prior to conducting the site investigation, publicly available information was reviewed to gather background information on the subject property and the surrounding area in regards to wetlands, streams, and other critical areas. These sources include the following:

- United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI): The NWI map illustrates Lake Holm along the southwest portion of the subject property. A palustrine forested wetland is shown along the western portion of the lake. A large palustrine scrub-shrub wetland is mapped south of Lake Holm, across SE Lake Holm Road.
- USDA/Natural Resources Conservation Service (NRCS) Web Soil Survey: The Web Soil Survey indicates that the subject property is underlain by Neilton very gravelly loamy sand, 2 to 15 percent slopes.
- Washington Department of Fish and Wildlife (WDFW) SalmonScape Interactive Mapping System: The SalmonScape interactive map depicts Lake Holm along the southwest portion of the subject property. No fish species are depicted in Lake Holm.
- WDFW Priority Habitat and Species (PHS) Interactive Map: The PHS Interactive Map shows no features on the subject property. The map depicts an off-site wetland, south of the site.
- WA DNR Forest Practices Application Mapping Tool (FPAMT): The FPAMT shows Lake Holm along the southern portion of the subject property and depicts the lake as a Type F water.
- King County iMap: iMap depicts a large wetland along the southern portion of the subject property. The mapper also depicts an off-site wetland, south of the site.

3.0 METHODOLOGY

Wetland areas were determined using the routine determination approach described in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (U.S. Army Corps of Engineers 2010). Under the routine methodology, the process for making a wetland determination is based on three steps:

- 1.) Examination of the site for hydrophytic vegetation (species present and percent cover);
- 2.) Examination of the site for hydric soils;
- 3.) Determining the presence of wetland hydrology

Wetlands were rated using the *Washington State Wetland Rating System for Western Washington: 2014 Update*, as required by King County Code (KCC) 21A.24.318.

The ordinary high water marks (OHWM) of watercourses and waterbodies were identified using the methodology described in *Determining the Ordinary High Water Mark for Shoreline Management Act Compliance in Washington State* (Anderson et al. 2016). Watercourses were classified according to the water typing system provided in the Washington Administrative Code (WAC), section 222-16-030, KCC 21A.24.355, and KCC 21A.06.043.

3.1 BOUNDARY DETERMINATION FINDINGS

3.1.1 Wetland A

Cowardin Classification: Palustrine, Forested Wetland, Broad-Leaved Deciduous, Permanently Flooded

King County Classification: Category II (7 habitat points)

King County Moderate Impact Buffer: 110-feet

Wetland A is a lake fringe wetland, located in the southwest portion of the subject property. Vegetation within the wetland includes red alder (*Alnus rubra*; FAC), western red cedar (*Thuja plicata*; FAC), rose (*Rosa* sp; FAC), red-osier dogwood (*Cornus sericea*; FACW), and slough sedge (*Carex obnupta*; OBL).

Soils within the wetland are generally very dark brown (10YR 2/2) sandy loam from 0 to 6 inches. From 6 to 16 inches below the surface, soils are dark grayish brown (10YR 4/2) sandy loam with 5 percent dark yellowish brown (10YR 3/4) redoximorphic features. These soil characteristics are consistent with the Depleted Matrix (F3) hydric soil indicator listed in the 2010 Regional Supplement. During the December 2022 site investigation, soils were saturated (A3) at 10 inches.

Wetland A received an overall score of 21 points on the DOE Rating System, with a habitat functions score of 7 points. Wetlands with overall scores between 20 and 22 are classified as Category II wetlands. In King County, Category II wetlands with 7 habitat points adjacent to moderate-intensity impacts receive buffers of 110 feet.



Figure 2 - Wetland A, looking west



Figure 3 - Wetland A, looking southwest

3.1.2 Wetland B (Off site)

Cowardin Classification: Palustrine, Forested Wetland, Broad-Leaved Deciduous, Seasonally Flooded/ Saturated

King County Classification: Category II (7 habitat points)

King County Moderate Impact Buffer: 110-feet

Wetland B is a depressional wetland located off-site, south of the subject property. It received an overall score of 20 points on the DOE Rating System, with a habitat functions score of 7 points. Wetlands with overall scores between 20 and 22 are classified as Category II wetlands. In King County, Category II wetlands with 7 habitat points adjacent to moderate-intensity impacts receive buffers of 110 feet.

3.1.3 Non-wetland Area

Vegetation in non-wetland areas includes paper birch (*Betula papyrifera*; FAC), black locust (*Robinia pseudoacacia*; FACU), vine maple (*Acer circinatum*; FAC), Himalayan blackberry (*Rubus armeniacus*; FAC), rose (*Rosa* sp.; FAC), Sitka spruce (*Picea sitchensis*; FAC), and sword fern (*Polystichum munitum*; FACU).

Soils in the non-wetland areas were generally very dark brown (10YR 2/2) sandy loam in the upper layer, underlain by dark brown (7.5YR 3/3) sandy loam. Soils were dry at the time of the site investigation. Non-wetland soils did not meet any hydric soil indicators or any wetland hydrology indicators.

3.1.4 Lake Holm

Cowardin Classification: Lacustrine, Limnetic, Unconsolidated Bottom, Mud, Permanently Flooded

King County Classification: Type S

King County Standard Buffer: 165 Feet

Lake Holm is an approximately 20-acre waterbody (King 2022) located within a 166-acre watershed. The lake drains to the northwest, eventually outletting to Big Soos Creek. Lake Holm is identified by King County as a Shoreline of the State per KCC 21A.24.355(A)(1). Shoreline designations on the property includes Aquatic Shoreline and Rural Shoreline. Type S waters outside of the Urban Growth Area typically receive standard protective buffers of 165 feet per KCC 21A.24.358.

4.0 SHORELINES

Shorelines are defined in KCC 21A.06.1082 as: “*all of the water areas of the state, including reservoirs, and their associated shorelands, together with the lands underlying them; except (A) Shorelines of Statewide Significance; (B) Shorelines on segments of streams upstream of a point where the mean annual flow is twenty cubic feet per second or less and the wetlands associated with such upstream segments; and (C) Shorelines on lakes less than twenty acres in size and wetlands associated with such small lakes.*”

Shorelands are defined in KCC 21A.06.1081 as: “*(A) Lands extending landward two hundred feet in all*

directions as measured on a horizontal plane from the ordinary high water mark; (B) Floodways and contiguous floodplain area landward two hundred feet from such floodways; (C) All wetlands and river deltas associated with streams, lakes and tidal waters; and (D) The one-hundred-year floodplain.”

Lake Holm is designated as a Shoreline of the State and a portion is located on the subject property. Wetland A is a lake fringe wetland and is considered to be an “associated wetland” and part of the Shorelands associated with the lake.

The proposed project is to construct a single-family residence. Single-family residential use is allowed in areas designated as Rural Shoreline in KCC 21A.25.100.B. Per KCC 21A.25.140.E, a trail through the buffer is allowed provided it is no more than three feet wide and is constructed of pervious material.

5.0 WILDLIFE ASSESSMENT

WRI conducted a wildlife habitat assessment on December 8, 2022. The purpose of the assessment was to determine if any species with a protected designation utilize the subject site, and if any habitats are present that require protection under King County Code. This section presents the findings of the investigation, as well as an analysis of how King County wildlife protections apply to the subject site.

5.1 KING COUNTY WILDLIFE HABITAT PROTECTIONS

King County Code (KCC) provides protections for certain habitat elements important to the life history requirements of priority wildlife species. In particular, Wildlife Habitat Conservation Areas and Wildlife Habitat Networks comprise the primary critical areas that legally afford protection for important wildlife species. Additionally, King County may increase the width of wetland buffers to ensure adequate protection for habitat of priority species.

KCC 21A.06.1423 defines a Wildlife Habitat Conservation Area (HCA) as “an area for a species whose habitat the King County Comprehensive Plan requires the county to protect that include an active breeding site and the area surrounding the breeding site that is necessary to protect breeding activity.” Breeding sites are those associated with specific life history requirements of a species breeding ecology, such as nesting, hatching, birthing, nursing, rearing, or fledging of young. A list of Species of Local Importance is included in section E-435 of the *2016 King County Comprehensive Plan - Updated December 6, 2022* (King 2022).

Development standards for HCAs of specific species are described in KCC 21A.24.382. Per KCC 21A.24.382(K) the protection of an active breeding site of any King County species of local importance, or of federal or state listed endangered, threatened, sensitive, or candidate species shall require protection.

A Wildlife Habitat Network is defined in KCC 21A.06.1424 as “the official wildlife habitat network defined and mapped in the King County Comprehensive Plan that links wildlife habitat with critical areas, critical area buffers, priority habitats, trails, parks, open space and other areas to provide for wildlife movement and alleviate habitat fragmentation.” KCC 21A.24.385 requires the

protection of segments of the designated wildlife network adopted by the King County Comprehensive Plan. King County iMap (King 2023a) serves as the official map of these network segments and reveals that none are present on or near the subject site.

Pursuant to KCC 21A.24.325(C)(1), wetland buffer widths can be modified when wetlands contain documented habitat for endangered, threatened or species of local importance. Habitat is defined as “the locality, site, and particular type of environment occupied by an organism at any stage in its life cycle” (KCC 21A.06.577).

5.2 HABITAT ASSESSMENT

On-site Habitat - Disturbed Scrub-Shrub

The majority of the property has been historically disturbed and is currently dominated by invasive shrubs and a few sparse trees. Vegetation includes western red cedar (*Thuja plicata*), black locust (*Robinia pseudoacacia*), red alder (*Alnus rubra*), Himalayan blackberry (*Rubus armeniacus*), salmonberry (*Rubus spectabilis*), English ivy (*Hedera helix*), creeping buttercup (*Ranunculus repens*), salal (*Gaultheria shallon*), sword fern (*Polystichum munitum*), English holly (*Ilex aquifolium*), Scot’s broom (*Cytisus scoparius*), and bracken fern (*Pteridium aquilinum*).



Figure 4 - Disturbed scrub-shrub, looking west



Figure 5 - Disturbed scrub-shrub, looking northeast

This habitat type provides some perches, hiding and thermal cover, and food resources. However, the quality of the habitat is limited by the prevalence of invasive species (Himalayan blackberry and Scot’s broom), which preclude native species. No wildlife sign was detected within this habitat type during the site investigation.

On-site Habitat – Wetland

The southwestern portion of the subject property consists of a lake fringe wetland associated with Lake Holm. Vegetation is dominated by black cottonwood (*Populus balsamifera*), Pacific willow (*Salix lasiandra*), red alder (*Alnus rubra*), red-osier dogwood (*Cornus sericea*), hardhack (*Spiraea douglasii*), rose (*Rosa* sp.), Himalayan blackberry (*Rubus armeniacus*), slough sedge (*Carex obnupta*), and common cattail (*Typha latifolia*).



Figure 6 - Wetland and Lake Holm, looking southwest



Figure 7 - Wetland and Lake Holm, looking northwest

The on-site portion of the wetland includes special habitat features, such as perches, large woody debris, and a large snag. This habitat does not support many opportunities for refuge and thermal cover due to its small size and surrounding development. This habitat type extends further off-site and is part of a larger wetland system. This habitat type will be permanently protected.

5.3 WILDLIFE FINDINGS

The field investigation evaluated habitat conditions and potential wildlife presence. All on-site areas were assessed. Use of the subject site by at least nine (9) avian species and one (1) mammalian species was detected. Other species and groups that may use the site are predicted and described below.

5.3.1 Wildlife Species Detections

Direct and indirect species observations were employed during the site visit conducted in December 2022. Direct species observations included visual and auditory observations of species. Indirect observations included evidence of use by species, such as tracks, scat, and signs of behavioral interactions with habitat features (example: woodpecker holes in standing snags).

Direct Observations

The site was well used by a variety of avian species including Golden-crowned Kinglet (*Regulus satrapa*), Dark-eyed Junco (*Junco hyemalis*), Red-breasted Nuthatch (*Sitta canadensis*), Black-capped Chickadee (*Poecile atricapillus*), Spotted Towhee (*Pipilo maculatus*), Canada Goose (*Branta canadensis*), Northern Flicker (*Colaptes auratus*), Anna's Hummingbird (*Calypte anna*), and American Crow (*Corvus brachyrhynchos*).

No mammals were directly observed during the site investigation.

Indirect Observations

Indirect signs of wildlife on the site included Columbian black-tailed deer (*Odocoileus hemionus columbianus*) scat. No other wildlife tracks or sign were observed.

5.3.2 General Wildlife Predictions

Based on the available habitat, other avian species that are likely to occur within the on-site forested area includes American Robin (*Turdus migratorius*), Song Sparrow (*Melospiza melodia*), Bewick's Wren (*Thryomanes bewickii*), Stellar's Jay (*Cyanocitta stelleri*), and Cedar Waxwing (*Bombycilla cedrorum*). Avian species likely to utilize the lake includes Osprey (*Pandion haliaetus*), Great Blue Heron (*Ardea herodias*), Mallard (*Anas platyrhynchos*), Wood Duck (*Aix sponsa*), and American Coot (*Fulica americana*).

Other possible mammalian species that may utilize this site include coyote (*Canis latrans*), bobcat (*Lynx rufus*), Virginia opossum (*Didelphis virginiana*), skunks (*Mephitis* spp.), mink (*Mustela vison*), deer mouse (*Peromyscus maniculatus*), moles (*Scapanus* spp.), and bats (*Myotis* spp.).

Reptilian and amphibian species likely to use this site include northwestern garter snake (*Thamnophis ordinoides*), rough-skinned newt (*Taricha granulosa*), northwestern salamander (*Ambystoma gracile*), American bullfrog (*Lithobates catesbeianus*), and pacific tree frog (*Hyla regilla*).

WDFW SalmonScape and PHS web applications do not depict any fish species within Lake Holm. WDFW Fishing and Shellfishing states that the lake contains Rainbow Trout (*Oncorhynchus mykiss*) that is stocked and Largemouth Bass (*Micropterus salmoides*).

5.3.3 Use by Special Status Wildlife Species

The wildlife species detected on-site, either directly or indirectly, that are on the King County's Species of Local Importance list (Sec E-435 of the 2016 King County Comprehensive Plan) includes Columbian black-tailed deer, which is also a Priority Species.

Species of Local Importance that were not detected during the site investigation but may utilize the habitat present within the on-site wetland and lake area include: Mink.

Species that were not detected that are both Species of Local Importance and Priority Species that may utilize the habitat present within the on-site wetland and lake area include: Great Blue Heron, Wood Duck, and Hooded Merganser.

5.4 SUMMARY OF SITE INVESTIGATION AND WILDLIFE PROTECTIONS

A thorough investigation of the subject site revealed minimal use by wildlife. No federal- or state-listed endangered, threatened, candidate, or sensitive species were observed on site. Signs of only one Species of Local Importance and Priority species was observed, and four are predicted to possibly utilize the on-site wetland and lake area. Neither active breeding areas nor areas necessary to protect breeding areas (KCC 21A.06.1423) of these species were identified during the site investigation. Therefore, no HCAs, as defined by KCC, are present, and the associated protections within KCC 21A.24.382 do not apply.

6.0 PROJECT DESCRIPTION

The applicant proposes to construct a single-family residence within the subject property. Due to complete encumbrance of the parcel by critical area buffers and setbacks, the Critical Area Alteration Exception (CAAE) process is necessary to develop the property in a manner consistent with the zoning designation. Strict application of all Shoreline Master Program (SMP) development standards would also not allow development on-site. This report is intended to support a Critical Area Alteration Exception application and a shoreline variance.

The proposed development requires impacts to the 165-foot buffer associated with Lake Holm and the 110-foot buffer associated with Wetland A. The proposed buffer reductions will allow for the house, deck, driveway, building setbacks, septic transport line, and the drainfield/reserve to occur outside of buffers. A three-foot wide trail from the residence to the edge of the wetland is proposed. The trail will be within the buffer area and will be composed of a pervious material, as allowed by KCC 21A.24.045.D.47 and 21A.25.140.E. The portions of buffer remaining that consist of non-native vegetation will be enhanced. An area of wetland will also be enhanced. The applicant proposes to mitigate for the remaining impacts by purchasing credits via the King County Mitigation Reserves Program (MRP), as allowed by KCC 21A.24.137.

6.1 ALTERATION EXCEPTION REQUIREMENTS (KCC 21A.24.070)

Text from the KCC below is in italics, with applicant responses immediately following each in normal font.

A. The director may approve alterations to critical areas, critical area buffers and critical area setbacks, except for flood hazard areas, not otherwise allowed by this chapter as follows:

3. For nonlinear alterations the director may approve alterations to critical areas except wetlands, unless otherwise allowed under subsection A.3.h. of this section, aquatic areas and wildlife habitat conservation areas, and alterations to critical area buffers and critical area setbacks, when all of the following criteria are met:

a. there is no feasible alternative to the development proposal with less adverse impact on the critical area;

No direct critical area impacts are proposed. The site is nearly entirely encumbered with critical area buffers, so there is no opportunity to avoid buffer impacts while allowing development of the parcel. The drainfield and reserve areas are required to be set back at least 100 feet from surface water and at least 30 feet from the proposed house. Based on these setbacks, the drainfield and reserve can only be placed in the northeastern portion of this parcel and the only location for the house is between the drainfield/reserve and the wetland/lake.

The proposed house is footprint is 1,320 square feet, which is smaller than a typical house in the area. The footprint is limited to the small area between the drainfield/reserve and the wetland/lake, so there is no potential to shift the house to another location with less impacts on the buffer.

No development proposal with less adverse impacts on the critical area buffers is possible.

b. the alteration is the minimum necessary to accommodate the development proposal;

The applicant is proposing a small house and the minimum areas required for the drainfield and reserve. This is the minimum necessary to accommodate the development of a single-family home on this site.

c. the approval does not require the modification of a critical area development standard established by this chapter;

No critical area development standards are proposed for modification.

d. the development proposal does not pose an unreasonable threat to the public health, safety or welfare on or off the development proposal site and is consistent with the general purposes of this chapter and the public interest;

The applicant's proposal for a single-family residence is consistent with surrounding development. It does not pose an unreasonable threat to the public health, safety, or welfare on or off the development site. It is consistent with the general purposes of KCC Chapter 21A.24 and the public interest.

e. for dwelling units, no more than five thousand square feet or ten percent of the site, whichever is greater, may be disturbed by structures, building setbacks or other land alteration, including grading, utility installations and landscaping, but not including the area used for a driveway or for an on-site sewage disposal system. When the site disturbance is within a critical area buffer, the building setback line shall be measured from the building footprint to the edge of the approved site disturbance;

The proposed buffer disturbance includes 3,553 square feet for the house, deck, and building setbacks. This falls below the 5,000 square foot allowance. The proposed buffer disturbance for the driveway and septic system is 3,611 square feet. Total proposed buffer disturbance is 7,164 square feet.

f. to the maximum extent practical, access is located to have the least adverse impact on the critical area and critical area buffer;

The proposed access from E Lake Holm Drive SE is the shortest and most direct access available to the proposed house. It has no direct impact to the critical area and is minimized in width to have the least adverse impact on the critical area buffer.

g. the critical area is not used as a salmonid spawning area;

No direct impacts to critical areas or salmonid spawning areas are proposed.

h. the director may approve an alteration in a category II, III and IV wetland for development of a public school facility; and

No wetland alterations are proposed.

D. Alteration exceptions approved under this section shall meet the mitigation requirements of this chapter.

Mitigation for the 7,164 square foot permanent buffer impact is proposed through a combination of on-site mitigation, in the form of buffer and wetland enhancement, and the purchase of in-lieu fee credits from the MRP.

E. An applicant for an alteration exception shall submit a critical area report, as required by K.C.C. 21A.24.110.

This report is the critical area report required by KCC 21A.24.110.

6.2 ALTERNATIVES ANALYSIS

The parcel is nearly entirely encumbered by critical areas and buffers. Due to the open water aspects of the lake, the drainfield and reserve are required to be placed to the northeast, covering over half of the parcel. A minimum 20-foot setback is required between the drainfield and the house, pushing the house further southwest. Due to the location of the wetland/lake, only one small area remains to place a house. The proposed house cannot shift north due to the drainfield/reserve. It cannot shift south due to the wetland/lake. It cannot shift east or west due to side-yard setbacks. Rotating the house is also not feasible due to the geometry of the parcel and required setbacks. The only alternative would be to make the footprint smaller, which would place an undue burden on the applicant as the proposed footprint is already smaller than those on surrounding properties. Based on the geometry of the site and required setbacks, a smaller footprint would still yield a similar square footage of impacts from the building and building setbacks.

The proposed 1,320 square foot house footprint and 3,553 square feet of buffer impact from the building and building setback are modest relative to the existing impacts on adjacent properties and on development sites throughout King County. The size of the proposed disturbed area results from the constraints of the site, including the wetland/lake and the drainfield/reserve. A larger home would be preferred but is infeasible due to the site constraints. The deck that was previously proposed across the southwest side of the house has been reduced to less than half of its previous size to avoid impacts. Careful and deliberate site design results in complete avoidance of direct critical area impacts and the minimum buffer impacts feasible. Long-term impacts will be minimized through enhancement of the on-site wetland and buffer areas with native trees and shrubs. Fencing around the enhancement areas and construction of a trail through the buffer will further minimize impacts by concentrating access to one area and discouraging access to the rest of the protected area.

The site is sloped moderately downward to the lake. The site plan shows a silt fence along the buffer boundary to keep all clearing and grading from occurring within these areas.

6.3 VARIANCE CRITERIA COMPLIANCE DISCUSSION

KCC 21A.44.090 allows for a shoreline variance when the following criteria are met. The language below in italics is taken directly from KCC 21A.44.090, with applicant responses in normal font.

A. *A shoreline variance shall be granted by the county from the bulk, dimensional or performance standards set forth in K.C.C. 21A.25.220 only if the applicant demonstrates that:*

1. *The review criteria of WAC 173-27-170 have been met;*

See Section 6.4 below.

2. *The shoreline variance does not permit a use that is specifically prohibited in the environmental designation; and*

The proposed single-family residence is an allowed use within the Rural Shoreline environment.

3. *Views from nearby roads and public areas are protected.*

Views of the lake from E Lake Holm Drive SE will not be totally obstructed by the proposed house and views from public areas will not be impacted.

6.4 WAC 173.27.170 COMPLIANCE DISCUSSION

Shoreline variances require demonstrated compliance with section 173-27-170 of the Washington Administrative Code (WAC). The language below in italics is taken directly from WAC 173-27-170, with applicant responses in normal font.

(1) Variance permits should be granted in circumstances where denial of the permit would result in a thwarting of the policy enumerated in RCW 90.58.020. In all instances the applicant must demonstrate that extraordinary circumstances shall be shown and the public interest shall suffer no substantial detrimental effect.

The project requires relief from the standard requirements of the SMP due to the encumbrance of the parcel by the on-site wetland, its associated buffer, Lake Holm, its shoreline setback, location of the drainfield/reserve, and by required front- and side-yard setbacks. Strict adherence to the SMP would preclude development of a single-family house on the site, which represents an extraordinary circumstance relating to the physical character and configuration of the property.

Further, public opportunity to enjoy the shoreline is not diminished because the proposed project will not directly impact any portion of the lake, the associated wetland, public access, recreation, or view potential. This project is consistent with all applicable development regulations.

(2) Variance permits for development and/or uses that will be located landward of the ordinary high water mark (OHWM), as defined in RCW 90.58.030 (2)(c), and/or landward of any wetland as defined in RCW 90.58.030 (2)(h), may be authorized provided the applicant can demonstrate all of the following:

(a) That the strict application of the bulk, dimensional or performance standards set forth in the applicable master program precludes, or significantly interferes with, reasonable use of the property;

Nearly the entirety of the site is encumbered by Wetland A, Lake Holm, and associated buffers. The 200-foot limit of shoreline jurisdiction extends across the entire parcel. As

such, there is not enough space on the property to utilize the buffer averaging provisions in KCC 21A.24.325.B. It is not possible to access or utilize the site without constructing within shoreline jurisdiction and impacting the wetland/lake buffer.

(b) That the hardship described in (a) of this subsection is specifically related to the property, and is the result of unique conditions such as irregular lot shape, size, or natural features and the application of the master program, and not, for example, from deed restrictions or the applicant's own actions;

The restrictions on this site are related to the locations of Lake Holm, Wetland A, and the extent of shoreline jurisdiction on the parcel. These are natural features and are not a result of the applicant's actions.

(c) That the design of the project is compatible with other authorized uses within the area and with uses planned for the area under the comprehensive plan and shoreline master program and will not cause adverse impacts to the shoreline environment;

The proposed project is to construct a single-family residence in a rural zone. The lot is zoned RA-5 and single-family residential use is allowed in areas designated as Rural Shoreline in KCC 21A.25.100. The project is consistent with the existing development on surrounding lots.

(d) That the variance will not constitute a grant of special privilege not enjoyed by the other properties in the area;

The proposed project is to construct a single-family residence in a rural zone. The lot is zoned RA-5 and single-family residential use is allowed in areas designated as Rural Shoreline in KCC 21A.25.100. Allowing construction of a single-family home will not grant a special privilege to the applicant.

(e) That the variance requested is the minimum necessary to afford relief; and

There will be no direct impacts to Wetland A or Lake Holm.

Nearly the entirety of the site is encumbered by Wetland A, Lake Holm, and associated buffers. As such, there is not enough space on the property to utilize the buffer averaging provisions in KCC 21A.24.325.B. It is not possible to access or utilize the site without impacting the wetland/lake buffer. The house, driveway, and drainfield/reserve are all proposed northeast of the wetland/lake, with the drainfield as far from the wetland and lake as possible. Given the necessary location and size of the drainfield and reserve, it is not possible to locate the house further to the northeast. Roof water will be collected and directed to a dispersion trench that will direct water towards the enhanced buffer and Wetland A in order to maintain the hydrologic input from the development into the wetland post-construction.

Siting the development as far from Lake Holm and Wetland A, which is limited by the required location of the drainfield/reserve, allows for the minimum amount of buffer

impact feasible while accommodating the necessary infrastructure for a single-family residence.

(f) That the public interest will suffer no substantial detrimental effect.

The proposed development is a single-family residence in a rural zone, consistent with surrounding development. No threat to public health or safety will occur as a result of this development. The proposed development has a small footprint, is consistent with current land use in the area, and is an allowed use per King County zoning and shoreline designations. The project will not alter public access to or enjoyment of the shoreline. Purchasing of mitigation bank credits to offset project impacts will ensure that no net loss of ecological functions occurs. These measures will result in no substantial detrimental effect.

6.5 BUILDING SETBACKS

Pursuant to KCC 21A.24.200:

Unless otherwise provided, an applicant shall set buildings and other structures back a distance of fifteen feet from the edges of all critical area buffers or from the edges of all critical areas if no buffers are required. The following are allowed in the building setback area:

- A. Landscaping;*
- B. Uncovered Decks;*
- C. Building overhangs if the overhangs do not extend more than eighteen inches into the setback area;*
- D. Impervious ground surfaces, such as driveways and patios, but the improvements are required to meet and special drainage provisions specified in public rules adopted for the various critical areas;*
- E. Utility service connections as long as the excavation for installation avoids impacts to the buffer; and*
- F. Minor encroachments if adequate protection of the buffer will be maintained.*

The proposed development will observe a 15-foot building setback from the modified buffer line.

6.6 CRITICAL AREA FENCING AND SIGNS

Fencing and a Critical Area sign will be installed along the edge of the 15-foot building setback. The sign will be obtained from King County Permitting Division. The type of fencing and method of installation will allow for wildlife to pass under or over the fence. The fence may be constructed of wood, such as a split-rail fence, or from metal posts and wire. The bottom rail or wire must be at least 16 inches above the ground, and a wood or solid rail cannot exceed 40 inches from the ground. All materials must be non-toxic to fish and wildlife and fence posts must be set in native material.

7.0 MITIGATION PLAN

7.1 BUFFER ENHANCEMENT PLANTING PLAN

An area of buffer (311 square feet) outside the proposed disturbed area is dominated by invasive species. Enhancement will include removal of all invasive species, including but not limited to Himalayan blackberry (*Rubus armeniacus*) and Scot's broom (*Cytisus scoparius*). All existing native trees and shrubs within the buffer shall be retained and protected. Once invasive species have been removed, the following plantings plants will be installed.

Buffer Enhancement Planting Area (311 square feet)

Common Name	Latin Name	Size	Spacing	Quantity
Oceanspray	<i>Holodiscus discolor</i>	1 gallon	6'	2
Mock orange	<i>Philadelphius lewisii</i>	1 gallon	6'	2
Pacific rhododendron	<i>Rhododendron macrophyllum</i>	1 gallon	6'	2
Red-flowering currant	<i>Ribes sanguineum</i>	1 gallon	6'	2

7.2 WETLAND ENHANCEMENT PLANTING PLAN

Wetland enhancement will include removal of all invasive species. All existing native trees and shrubs within the wetland shall be retained and protected. Once invasive species have been removed, the following plantings plants will be installed.

Wetland Enhancement Planting Area (799 square feet)

Common Name	Latin Name	Size	Spacing	Quantity
Sitka willow	<i>Salix sitchensis</i>	1 gallon	6'	11
Salmonberry	<i>Rubus spectabilis</i>	1 gallon	6'	6
Red-osier dogwood	<i>Cornus sericea</i>	1 gallon	6'	5

7.3 IN-LIEU FEE CREDIT PURCHASE

The proposed development requires 7,164 square feet (0.16 acres) of buffer impacts. The applicant is proposing to utilize on- and off-site mitigation to mitigate for unavoidable impacts. Due to the small size of the subject parcel, on-site mitigation is limited. A total of 1,110 square feet (0.03 acres) of on-site mitigation is proposed at a 1:1 mitigation ratio. The applicant is proposing to mitigate for the remaining impacts (8,274 square feet) via the MRP allowed by KCC 21A.24.137. Per KCC 21A.24.380.E, mitigation at a 2:1 mitigation to impact ratio for Type S aquatic area buffers is required when mitigation utilizes the MRP. A total of 16,548 square feet (0.38 acres) credits will be purchased to compensate for buffer impacts. The required mitigation is summarized in the table below.

Table 1 - Mitigation Credit Calculations

Buffer Impact Area (square feet)	Mitigation Type	Mitigation Ratio	On-site Mitigation (SF)	Off-site Mitigation (SF)
7,164 (0.16 acres)	On-site Buffer Enhancement	1:1	311 (0.01 acres)	
	On-site Wetland Enhancement	1:1	799 (0.02 acres)	
	In-lieu Fee Credits	2:1		16,548 (0.38 acres)
	Total:		1,110 (0.03 acres)	16,548 (0.38 acres)

Purchase of credits shall occur as soon as feasible after all regulatory agencies/jurisdictions have: 1.) issued the permits relevant to the project-related aquatic resource impact; or 2.) completed review and informed the applicant in writing that the relevant permits will be issued upon proof of credit purchase. The applicant shall submit proof of purchase of In-Lieu Fee credits to the County prior to site clearing/grading.

8.0 PROJECT NOTES

Pre-Construction Meeting

Mitigation projects are typically more complex to install than to describe in plans. Careful monitoring by a wetland biologist for all portions of this project is strongly recommended. Construction timing and sequencing is important to the success of this type of project. There will be a pre-construction meeting on this site between the Permittee, the consulting wetland biologist, equipment operator(s), and a King County representative. The objective will be to verify the location of erosion control facilities, verify the location of mitigation areas, and to discuss project sequencing.

Inspections

A wetland biologist shall be contracted to periodically inspect the mitigation installation described in this plan. Minor adjustments to the original design may be necessary prior to and during construction due to unusual or hidden site conditions. A King County representative and/or the consulting biologist will make these decisions during construction. The As-built report should be provided to King County within 60 days of planting completion.

Erosion and Disturbance Control Measures

The edge of the buffers and/or clearing limits will be staked and a silt fence will be installed.

9.0 PROJECT MONITORING PROGRAM

Requirements for the monitoring project:

1. Initial compliance/as-built report
2. Semi-annual site inspection (in the spring and in the fall) for years 1-3

3. Annual site inspection (in the fall) for years 4-5
4. Annual reports including final report (one report submitted in the fall of each monitored year)

Purpose for Monitoring

The purpose of monitoring this mitigation project shall be to evaluate its success. Success will be determined if monitoring shows at the end of three years that the definitions of success stated below are being met. The property owner shall grant access to the mitigation area for inspection and maintenance to the contracted landscaper and/or wetland specialist and King County during the period of the bond or until the project is evaluated as successful.

Monitoring

Monitoring shall be conducted annually for five years in accordance with the approved Mitigation Plan. The monitoring period will begin once the County receives written notification from a wetland professional confirming the mitigation plan has been implemented and County staff inspects the site, and issues approval of the installation.

Vegetation Monitoring

Sampling points or transects will be established for vegetation monitoring, and photo points will be established from which photos will be taken throughout the monitoring period. Permanent sampling points must be identified on the mitigation site plans in the first monitoring report (they may be drawn on approved enhancement plans by hand). Each sampling point shall detail herbaceous, shrub, and tree coverage in accordance with the King County Critical Area Mitigation Guidelines (2012). Monitoring of vegetation sampling points shall occur annually between May 15 and September 30 (prior to leaf drop), unless otherwise specified.

Photo points

No less than two permanent photo points will be established within the enhancement areas. Photographs will be taken from these points to visually record conditions of the enhancement area. Photos shall be taken annually between May 15 and September 30 (prior to leaf drop), unless otherwise specified.

Monitoring Report Contents

Monitoring reports shall be submitted by October 31 of each year during the monitoring period. As applicable, monitoring reports must include descriptions / data for:

1. Site plan and vicinity map
2. Historic description of project, including date of installation, current year of monitoring, restatement of mitigation / restoration goals, and performance standards
3. Plant survival, vigor, and areal coverage for every plant community (transect or sampling point data), and explanation of monitoring methodology in the context of assessing performance standards
4. Slope condition, site stability, and any structures or special features
5. Wetland and buffer conditions, e.g., surrounding land use, use by humans, and/or wild and domestic creatures
6. Observed wildlife, including amphibians, avians, and others

7. Assessment of nuisance / exotic biota and recommendations for management
8. Color photographs taken from permanent photo-points that shall be depicted on the monitoring report map

10.0 PROJECT SUCCESS AND COMPLIANCE

10.1.1 Goals, Objectives, and Performance Standards

Criteria for Success

Upon completion of the proposed mitigation project, an inspection by a qualified biologist will be made to determine plan compliance. A compliance report will be supplied to King County within 30 days after the completion of planting. A landscape professional or wetland biologist will perform condition monitoring of the plantings annually in the fall. A written report describing the monitoring results will be submitted to King County after each site inspection of each monitored year. Final inspection will occur five years after completion of this project, provided the project meets the definition of success. The contracted consultant will prepare a report as to the success of the project.

King County Contact

Certain actions within the wetland and buffer mitigation areas require inspection or approval by King County staff. Requests for inspection / approval shall be coordinated with the County.

Goal

To enhance the functions and values provided by the buffer and wetland.

Objective

Enhance 311 square feet of buffer area and 799 square feet of wetland with native shrubs.

Definition of Success

The planting areas shall be considered successful if they meet the following performance standards:

	Year 1	Year 2	Year 3	Year 5
Survivorship*	100%	90%	85%	80%
Native species cover**	>20%	>30%	>60%	>65%
Invasive species cover	<10%	<10%	<10%	<10%

*Only applies to installed native plantings.

**Up to 20% of any stratum can be composed of native volunteer species when measuring native cover requirements.

If the performance standards for Year 3 are met, the monitoring period may be deemed complete by the County.

10.1.2 Performance Bond

Per KCC 21A.24.140, a financial guarantee is required to ensure that the mitigation plan is fully implemented. The financial guarantee shall be posted in accordance with KCC title 27A. The King County Bond Quantity Worksheet (Appendix D) was used to calculate the appropriate bond amount for this project.

11.0 MAINTENANCE

The mitigation areas will require periodic maintenance to remove undesirable species and replace vegetation mortality. Maintenance shall occur in accordance with King County Critical Area Mitigation Guidelines (2012) and approved plans. Maintenance may include but will not be limited to: removal of competing grasses (by hand if necessary), irrigation, fertilization (only if necessary), replacement of plant mortality, and the replacement of mulch for each maintenance period. Chemical control, only if approved by County staff, shall be applied by a licensed applicator following all label instructions.

Duration and Extent

In order to achieve performance standards, the permittee shall have the mitigation area maintained for the duration of the three-year monitoring period. Maintenance will include: watering, weeding around the base of installed plants, pruning, replacement, re-staking, removal of all classes of noxious weeds (see Washington State Noxious Weeds List, WAC 16-750-005) as well as Himalayan blackberry, and any other measures needed to ensure plant survival. The landscape designer and/or wetland biologist shall direct all maintenance.

Survival

The permittee shall be responsible for the health of 100 percent of all newly installed plants for *one growing season* after installation has been accepted by King County. A growing season for these purposes is defined as occurring from spring to spring (March 15 to March 15 of the following year). For fall installation (often required), the growing season will begin the following spring. The permittee shall replace any plants that are failing, weak, defective in manner of growth, or dead during this growing season, as directed by the landscape designer, wetland biologist, and/or King County staff.

Installation Timing for Replacement Plants

Replacement plants shall be installed between September 15 and January 15, unless otherwise determined by the landscape designer, wetland biologist, and/or King County staff.

Standards for Replacement Plants

Replacement plants shall meet the same standards for size and type as those specified for the original installation unless otherwise directed by the landscape designer, wetland biologist, and/or King County staff.

Replanting

Plants that have settled in their planting pits too deep, too shallow, loose, or crooked shall be replanted as directed by the landscape designer, wetland biologist, and/or King County staff.

Herbicides / Pesticides

Chemical controls shall not be used in the mitigation area, sensitive areas, or their buffers. However, limited use of herbicides may be approved depending on site-specific conditions, only if approved by King County staff.

Irrigation / Watering

Water should be provided during the dry season (July 1 through October 15) for the first two years after installation to ensure plant survival and establishment. A temporary above ground irrigation system and/or water truck should provide water. Water should be applied at a rate of 1 inch of water twice per week for year one and 1 inch per week during year two.

General

The permittee shall include in general maintenance activities the replacement of any vandalized or damaged signs, habitat features, fences, or other structural components of this mitigation site.

11.1 CONTINGENCY PLAN

If 20 percent of the plants are severely stressed during any of the inspections, or it appears 20 percent may not survive, additional plantings of the same species may be added to the planting area. Elements of a contingency plan may include but will not be limited to: more aggressive weed control, pest control, mulching, replanting with larger plant material, species substitution, fertilization, soil amendments, and/or irrigation.

12.0 PLANTING NOTES

Planting shall occur in the early spring or late fall and plants shall be obtained from a reputable nursery. Care and handling of all plant materials is extremely important to the overall success of the project. The origin of all plant materials specified in this plan shall be native plants, nursery grown in the Puget Sound region of Washington. Some limited species substitution may be allowed, only with the agreement of the landscape designer, wetland biologist, and/or King County staff.

Pre-Planting Meeting

Prior to control of invasive species or installation of mitigation plantings, a site meeting between the contracted landscaper and the consulting biologist shall occur to resolve any questions that may arise. During this meeting, a discussion regarding plant spacing and locations of plant species including wetland versus buffer species shall occur between the landscape contractor and the consulting biologist.

Handling

Plants shall be handled so as to avoid all damage, including: breaking, bruising, root damage, sunburn, drying, freezing or other injury. Plants must be covered during transport. Plants shall not be bound with wire or rope in a manner that could damage branches. Plant roots will be protected with shade and wet soil in the time period between delivery and installation. Container stock must not be lifted by trunks, stems, or tops. Plants shall only be removed from containers when ready to plant. Water all plants as necessary to keep moisture levels appropriate to the species horticultural requirements. Plants shall not be allowed to dry out. All plants shall be watered thoroughly immediately upon installation. Plants whose roots have dried out from exposure will not be accepted at installation inspection.

Storage

Plants stored by the Permittee for longer than one month prior to planting shall be planted in nursery rows and treated in a manner suitable to those species' horticultural requirements. Plants must be re-inspected by the wetland biologist and/or landscape designer prior to installation.

Damaged plants

Damaged, dried out, or otherwise mishandled plants will be rejected at installation inspection. All rejected plants shall be immediately removed from the site.

Plant Names

Plant names shall comply with those generally accepted in the native plant nursery trade. Any question regarding plant species or variety shall be referred to the landscape designer, wetland biologist, or King County staff. All plant materials shall be true to species and variety and legibly tagged.

Quality and condition

Plants shall be normal in pattern of growth, healthy, well-branched, vigorous, with well-developed root systems, and free of pests and diseases. Damaged, diseased, pest-infested, scraped, bruised, dried out, burned, broken, or defective plants will be rejected. Plants with pruning wounds over 1" in diameter will be rejected.

Roots

All plants shall be balled and burlapped or containerized, unless explicitly authorized by the landscape designer and/or wetland biologist. Rootbound plants or B&B plants with damaged, cracked, or loose rootballs (major damage) will be rejected. Immediately before installation, plants with minor root damage (some broken and / or twisted roots) must be root-pruned. Matted or circling roots of containerized plantings must be pruned or straightened, and the sides of the root ball must be roughened from top to bottom to a depth of approximately half an inch in two to four places. Bare root plantings of woody material are allowed only with permission from the landscape designer, wetland biologist and/or King County staff.

Sizes

Plant sizes shall be the size indicated in the plant schedule in approved plans. Larger stock may be acceptable provided that it has not been cut back to the size specified, and that the root ball is

proportionate to the size of the plant. Smaller stock may be acceptable, and preferable under some circumstances, based on site-specific conditions. Measurements, caliper, branching, and balling and burlapping shall conform to the American Standard of Nursery Stock by the American Association of Nurserymen (latest edition).

Form

Evergreen trees shall have single trunks and symmetrical, well-developed form. Deciduous trees shall be single trunked unless specified as multi-stem in the plant schedule. Shrubs shall have multiple stems and be well-branched.

Timing of Planting

Unless otherwise approved by King County staff, all planting shall occur between November 1 and March 1. Overall, the earlier plants go into the ground during the dormant period, the more time they have to adapt to the site and extend their root systems before the water demands of spring and summer.

Weeding

Existing and exotic vegetation in the mitigation areas will be hand weeded from around all newly installed plants at the time of installation and on a routine basis throughout the monitoring period. No chemical control of vegetation on any portion of the site is allowed without the written permission of King County staff.

Site Conditions

The contractor shall immediately notify the landscape designer and/or wetland biologist of drainage or soil conditions likely to be detrimental to the growth or survival of plants. Planting operations shall not be conducted under the following conditions: freezing weather, when the ground is frozen, excessively wet weather, excessively windy weather, or in excessive heat.

Soil Amendments

Unless otherwise specified and approved by King County, organic matter (compost or approved equal) will be incorporated into the entire planting area, not including areas inside the dripline of existing trees and shrubs. One unit of loose, well-composted organic material should be incorporated with two units of silt loam topsoil to a depth of eight to ten inches (only three to four inches within three feet of existing drip lines) and mixed thoroughly. No soil amendment or fertilizer will be placed within planting pits.

Planting Pits

Planting pits shall be circular or square with vertical sides and shall be 6” deeper and 12” larger in diameter than the root ball of the plant. Break up the sides of the pit in compacted soils. Set plants upright in pits. Burlap shall be removed from the planting pit. Backfill shall be worked back into holes such that air pockets are removed without adversely compacting down soils.

Fertilizer

Slow release fertilizer may be used if pre-approved by King County. Fertilizers shall be applied only at the base of plantings underneath the required covering of mulch (that does not contact stems of the plants). No soil amendment or fertilizers will be placed in planting pits.

Staking

Most shrubs and many trees DO NOT require any staking. If the plant can stand alone without staking in a moderate wind, do not use a stake. If the plant needs support, then strapping or webbing should be used as low as possible on the trunk to loosely brace the tree with two stakes. Do not brace the tree tightly or too high on the trunk. If the tree is unable to sway, it will further lose the ability to support itself. Do not use wire in a rubber hose for strapping as it exerts too much pressure on the bark. As soon as supporting the plant becomes unnecessary, remove the stakes. All stakes must be removed within two (2) years of installation.

Plant Markers

Colored surveyors' ribbon or other appropriate marking shall be attached to the installed plants to assist in locating the plants while removing the competing non-native vegetation and during the monitoring period.

Arrangement and Spacing

The plants shall be arranged in a pattern with the appropriate numbers, sizes, species, and distribution that are required in accordance with the approved plans. The actual placement of individual plants shall mimic natural, asymmetric vegetation patterns found on similar undisturbed sites in the area. Spacing of the plantings may be adjusted to maintain existing vegetation with the agreement of the wetland biologist and/or King County staff.

Inspection(s)

A wetland biologist shall be present on site to inspect the plants prior to planting. Minor adjustments to the original design may be required prior to and during construction.

Mulch

Mulch rings shall be applied to all plantings after installation. Each plant shall receive no less than 3 to 4 inches of wood chip/arborist mulch in 2-foot diameter rings. Mulch shall be kept 2 inches away from the trunks and stems of woody plants to prevent damage.

13.0 WETLAND AND SHORELINE FUNCTIONS AND VALUES ASSESSMENT

13.1 METHODOLOGY

The methodology for this functions and values assessment is based on professional opinion developed through past field analyses and interpretation. This assessment pertains specifically to on-site wetlands and shorelines, but is typical for assessments of similar systems common to western Washington.

Wetlands in Western Washington perform a variety of ecosystem functions. Included among the most important functions provided by wetlands are stormwater storage and flood flow attenuation, water quality improvement, and fish and wildlife habitat. An assessment of these functions for the project site is provided below.

Shoreline environments provide both hydrologic and habitat connections throughout the Western Washington Region. Waterbodies such as Lake Holm serve as habitat for a variety of fish species, including salmonids. Many wildlife species make use of the resources provided by shoreline ecosystems.

13.2 EXISTING CONDITIONS

13.2.1 Wetland A

Hydrologic/Water Quality Functions

Wetland A is a lake fringe wetland along Lake Holm that includes forested, scrub-shrub, and aquatic bed vegetation types. Since the wetland is along the shore of Lake Holm, it is hydrologically influenced by lake water fluctuations. In general, lake-fringe wetlands with dense vegetation help collect and temporarily store precipitation as well as runoff from the surrounding area during storm events. However, density of vegetation along the lake shore has been limited by development. Overall, Wetland A provides a low value in hydrological functions.

This wetland provides water quality benefits as water moves through the system. Since this wetland is along the lakeshore, residence time is relatively low. However, densely vegetated lake-fringe wetlands do improve water quality by allowing sediment to settle out of the sequestered stormwater due to the reduction in flow velocity. Therefore, pollutants in the water are extracted prior to entering the lake. This sediment can bond with pollutants such as phosphorous. The majority of Wetland A receives hydrology from the lake. Given the landscape position and surrounding development the wetland has a strong opportunity to provide a valuable water quality improvement function. Overall, Wetland A provides a high-value water quality improvement function.

Wildlife Habitat

Wetland A has potential to perform functions specific to wildlife habitat. This wetland is large in size and has high structural complexity and multiple vegetation classes. There is moderate species diversity and a single hydrologic regime. The wetland contains dense vegetation, which provides resources such as food, water, thermal cover and hiding cover in close proximity, which wildlife species need to thrive. High intensity land uses such as roads and residential development surrounding the subject property disturb the continuity of the corridor. Overall, Wetland A provides a moderate-value wildlife habitat function.

13.2.2 Lake Holm

Lake Holm provides habitat for both waterfowl and fish. Although no state or federally listed threatened or endangered species are known to be present within the lake (per WDFW, King County iMAP, and SalmonScape data), resident game fish are known to be present. According to WDFW, the following fish species are expected to use Lake Holm: Largemouth Bass (*Micropterus salmoides*) and Rainbow Trout (*Oncorhynchus mykiss*). The lake provides floodwater retention during

storm events and times of high flow within the streams. Lake Holm also provides aesthetic functions to nearby residents as well as recreational opportunities such as swimming, boating, and fishing.

13.3 POST-DEVELOPMENT FUNCTIONS AND VALUES

Replacing existing native vegetation with structures and impervious surfaces will reduce the effectiveness of the on-site buffer. Areas remaining that consist of non-native vegetation will be replaced with native vegetation, which will increase the function of remaining buffer areas and on-site wetland area. This will increase the diversity of vegetation in these areas as well as slow the rate of overland flow and improve water quality. Due to size constraints of the subject parcel, entire on-site mitigation is not feasible. To compensate for the remaining permanent buffer impacts, the applicant will purchase mitigation credits from the MRP. The in-lieu fee program was designed to mitigate for the proposed impacts based on a stakeholder process and in consideration of best available science. Enhancement of the remaining on-site buffer areas, wetland, and the purchase of in-lieu fee credits will ensure that no net loss of functions or adverse effects will occur.

14.0 USE OF THIS REPORT

This Critical Areas Report and Mitigation Plan is supplied to Jeremy and Janice Nordland as a means of determining the presence of on-site and nearby critical areas. This report is based largely on readily observable conditions and, to a lesser extent, on readily ascertainable conditions. No attempt has been made to determine hidden or concealed conditions.

The laws applicable to critical areas are subject to varying interpretations and may be changed at any time by the courts or legislative bodies. This report is intended to provide information deemed relevant in the applicant's attempt to comply with the laws now in effect.

This report conforms to the standard of care employed by ecologists. No other representation or warranty is made concerning the work or this report and any implied representation or warranty is disclaimed.

Wetland Resources, Inc.



Alia Richardson, PWS
Senior Ecologist & Senior Wildlife Biologist

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APPENDIX A

WETLAND DETERMINATION DATA FORMS

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

Project/Site: 33401 E Lake Holm Dr SE City/County: King County Sampling Date: 12/8/22
 Applicant/Owner: Jeremy Nordland State: WA Sampling Point: S1
 Investigator(s): MK, AR Section, Township, Range: S14, T21N, R5E W.M.
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): concave Slope (%): 1%
 Subregion (LRR): LRR-A Lat: 47.3020133 Long: -122.1232922 Datum: NAD83
 Soil Map Unit Name: Neilton very gravelly loamy sand, 2 to 15 percent slopes NWI classification: L1UBH

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: In WLA near WRA1	

VEGETATION – Use scientific names of plants.

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Notes	
Tree Stratum (Plot size: 5m ^2)					
1. <u>Alnus rubra</u>	35	Y	FAC	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)	
2. <u>Thuja plicata</u>	10	Y	FAC		
3. _____					
4. _____					
_____	45	= Total Cover			
Sapling/Shrub Stratum (Plot size: 3m ^2)					
1. <u>Rosa sp.</u>	55	Y	FAC	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = <u>0</u> FACW species _____ x 2 = <u>0</u> FAC species _____ x 3 = <u>0</u> FACU species _____ x 4 = <u>0</u> UPL species _____ x 5 = <u>0</u> Column Totals: <u>0</u> (A) <u>0</u> (B) Prevalence Index = B/A = _____	
2. <u>Cornus sericea</u>	50	Y	FACW		
3. _____					
4. _____					
5. _____					
_____	105	= Total Cover			
Herb Stratum (Plot size: 1m ^2)					
1. <u>Carex obnupta</u>	50	Y	OBL		
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
11. _____					
_____	Y	= Total Cover			
Woody Vine Stratum (Plot size: _____)					
1. _____					
2. _____					

% Bare Ground in Herb Stratum _____ = Total Cover					

Remarks:

SOIL

Sampling Point: S1

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

Depth (inches)	Matrix		Redox Features			Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹			
0 - 6	10YR 2/2	100					Sandy loam	
6 - 16	10YR 4/2	95	10YR 3/4	5	C	M	Sandy loam	

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

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

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

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

Restrictive Layer (if present):
 Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A) <input type="checkbox"/> Other (Explain in Remarks)
	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6) (LRR A) <input type="checkbox"/> Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): 10"	

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

Remarks:

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

Project/Site: 33401 E Lake Holm Dr SE City/County: King County Sampling Date: 12/8/22
 Applicant/Owner: Jeremy Nordland State: WA Sampling Point: S2
 Investigator(s): MK, AR Section, Township, Range: S14, T21N, R5E W.M.
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 1%
 Subregion (LRR): LRR-A Lat: 47.3020133 Long: -122.1232922 Datum: NAD83
 Soil Map Unit Name: Neilton very gravelly loamy sand, 2 to 15 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Out of WLA near WRA1	

VEGETATION – Use scientific names of plants.

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Notes	
Tree Stratum (Plot size: .)					
1. <u>Betula papyrifera</u>	40	Y	FAC	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)	
2. <u>Robinia pseudoacacia</u>	30	Y	FACU		
3. <u>Acer circinatum</u>	15	N	FAC		
4. _____					
85 = Total Cover					
Sapling/Shrub Stratum (Plot size: .)					
1. <u>Rubus armeniacus</u>	65	Y	FAC	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = 0 FACW species _____ x 2 = 0 FAC species _____ x 3 = 0 FACU species _____ x 4 = 0 UPL species _____ x 5 = 0 Column Totals: <u>0</u> (A) <u>0</u> (B) Prevalence Index = B/A = _____	
2. <u>Rosa sp</u>	10	N	FAC		
3. <u>Picea sitchensis</u>	5	N	FAC		
4. _____					
5. _____					
80 = Total Cover					
Herb Stratum (Plot size: .)					
1. <u>Polystichum munitum</u>	20	Y	FACU		
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
11. _____					
20 = Total Cover					
Woody Vine Stratum (Plot size: .)					
1. _____					
2. _____					
_____ = Total Cover					
% Bare Ground in Herb Stratum _____					

Remarks:

SOIL

Sampling Point: S2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features			Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹			
0 - 6	10YR 2/2	100					Sandy loam	Dry
6 -16	7.5YR 3/3	100					Sandy loam	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)
	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6) (LRR A) <input type="checkbox"/> Frost-Heave Hummocks (D7)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)		Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

APPENDIX B

DEPARTMENT OF ECOLOGY WETLAND RATING FORMS AND FIGURES

Wetland name or number A

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland A Date of site visit: 12/8/22

Rated by AR Trained by Ecology? Yes No Date of training 10/18

HGM Class used for rating LAKE FRINGE 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 King County

OVERALL WETLAND CATEGORY II (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	
<i>Circle the appropriate ratings</i>				
Site Potential	<input type="checkbox"/> H <input type="checkbox"/> M <input type="checkbox"/> L	H <input type="checkbox"/> M <input type="checkbox"/> L	H <input type="checkbox"/> M <input type="checkbox"/> L	
Landscape Potential	<input type="checkbox"/> H <input type="checkbox"/> M <input type="checkbox"/> L	H <input type="checkbox"/> M <input type="checkbox"/> L	<input type="checkbox"/> H <input type="checkbox"/> M <input type="checkbox"/> L	
Value	<input type="checkbox"/> H <input type="checkbox"/> M <input type="checkbox"/> L	<input type="checkbox"/> H <input type="checkbox"/> M <input type="checkbox"/> L	H <input type="checkbox"/> M <input type="checkbox"/> L	TOTAL
Score Based on Ratings	9	5	7	21

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	<input checked="" type="checkbox"/>

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 (<i>can be added to map of hydroperiods</i>)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	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 (<i>can be added to another figure</i>)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (<i>can be added to another figure</i>)	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 (<i>can be added to another figure</i>)	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 (<i>can be added to figure above</i>)	S 4.1	
Boundary of 150 ft buffer (<i>can be added to another figure</i>)	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	

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	<input type="checkbox"/>	Riverine
Slope + Depressional	<input type="checkbox"/>	Depressional
Slope + Lake Fringe	<input type="checkbox"/>	Lake Fringe
Depressional + Riverine along stream within boundary of depression	<input type="checkbox"/>	Depressional
Depressional + Lake Fringe	<input type="checkbox"/>	Depressional
Riverine + Lake Fringe	<input type="checkbox"/>	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	<input type="checkbox"/>	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

LAKE FRINGE WETLANDS

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

L 1.0. Does the site have the potential to improve water quality?		
L 1.1. Average width of plants along the lakeshore (<i>use polygons of Cowardin classes</i>):		
<input checked="" type="checkbox"/> Plants are more than 33 ft (10 m) wide	points = 6	6
<input type="checkbox"/> Plants are more than 16 ft (5 m) wide and <33 ft	points = 3	
<input type="checkbox"/> Plants are more than 6 ft (2 m) wide and <16 ft	points = 1	
<input type="checkbox"/> Plants are less than 6 ft wide	points = 0	
L 1.2. Characteristics of the plants in the wetland: Choose the appropriate description that results in the highest points, and do not include any open water in your estimate of coverage. The herbaceous plants can be either the dominant form or as an understory in a shrub or forest community. <i>These are not Cowardin classes. Area of cover is total cover in the unit, but it can be in patches. Herbaceous does not include aquatic bed.</i>		
<input type="checkbox"/> Cover of herbaceous plants is >90% of the vegetated area	points = 6	3
<input type="checkbox"/> Cover of herbaceous plants is > ² / ₃ of the vegetated area	points = 4	
<input checked="" type="checkbox"/> Cover of herbaceous plants is > ¹ / ₃ of the vegetated area	points = 3	
<input type="checkbox"/> Other plants that are not aquatic bed > ² / ₃ unit	points = 3	
<input type="checkbox"/> Other plants that are not aquatic bed in > ¹ / ₃ vegetated area	points = 1	
<input type="checkbox"/> Aquatic bed plants and open water cover > ² / ₃ of the unit	points = 0	
Total for L 1	Add the points in the boxes above	9

Rating of Site Potential If score is: 8-12 = H ___ 4-7 = M ___ 0-3 = L

Record the rating on the first page

L 2.0. Does the landscape have the potential to support the water quality function of the site?		
L 2.1. Is the lake used by power boats?	Yes = 1 <input type="checkbox"/> No = 0 <input type="checkbox"/>	0
L 2.2. Is > 10% of the area within 150 ft of wetland unit on the upland side in land uses that generate pollutants?	<input type="checkbox"/> Yes = 1 <input type="checkbox"/> No = 0	1
L 2.3. Does the lake have problems with algal blooms or excessive plant growth such as milfoil?	<input type="checkbox"/> Yes = 1 <input type="checkbox"/> No = 0	1
Total for L 2	Add the points in the boxes above	2

Rating of Landscape Potential: If score is: 2 or 3 = H ___ 1 = M ___ 0 = L

Record the rating on the first page

L 3.0. Is the water quality improvement provided by the site valuable to society?		
L 3.1. Is the lake on the 303(d) list of degraded aquatic resources?	Yes = 1 <input type="checkbox"/> No = 0 <input type="checkbox"/>	0
L 3.2. Is the lake in a sub-basin where water quality is an issue (at least one aquatic resource in the basin is on the 303(d) list)?	<input type="checkbox"/> Yes = 1 <input type="checkbox"/> No = 0	1
L 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? <i>Answer YES if there is a TMDL for the lake or basin in which the unit is found.</i>	<input type="checkbox"/> Yes = 2 <input type="checkbox"/> No = 0	2
Total for L 3	Add the points in the boxes above	3

Rating of Value If score is: 2-4 = H ___ 1 = M ___ 0 = L

Record the rating on the first page

Wetland name or number A

LAKE FRINGE WETLANDS

Hydrologic Functions - Indicators that the wetland unit functions to reduce shoreline erosion

L 4.0. Does the site have the potential to reduce shoreline erosion?		
L 4.1. Distance along shore and average width of Cowardin classes along the lakeshore (do not include Aquatic bed): <i>Choose the highest scoring description that matches conditions in the wetland.</i>		
<input type="checkbox"/> > ¾ of distance is Scrub-shrub or Forested at least 33 ft (10 m) wide	points = 6	4
<input type="checkbox"/> > ¾ of distance is Scrub-shrub or Forested at least 6 ft (2 m) wide	points = 4	
<input checked="" type="checkbox"/> > ¼ distance is Scrub-shrub or Forested at least 33 ft (10 m) wide	points = 4	
<input type="checkbox"/> Plants are at least 6 ft (2 m) wide (any type except Aquatic bed)	points = 2	
<input type="checkbox"/> Plants are less than 6 ft (2 m) wide (any type except Aquatic bed)	points = 0	

Rating of Site Potential: If score is: 6 = M 0-5 = L

Record the rating on the first page

L 5.0. Does the landscape have the potential to support the hydrologic functions of the site?		
L 5.1. Is the lake used by power boats with more than 10 hp?	Yes = 1 <input type="checkbox"/> No = <input type="checkbox"/>	0
L 5.2. Is the fetch on the lake side of the unit at least 1 mile in distance?	Yes = 1 <input type="checkbox"/> No = <input type="checkbox"/>	0
Total for L 5	Add the points in the boxes above	0

Rating of Landscape Potential If score is: 2 = H 1 = M 0 = L

Record the rating on the first page

L 6.0. Are the hydrologic functions provided by the site valuable to society?		
L 6.1. Are there resources along the shore that can be impacted by erosion? If more than one resource is present, choose the one with the highest score.		
<input checked="" type="checkbox"/> There are human structures or old growth/mature forests within 25 ft of OHWM of the shore in the unit	points = 2	2
<input type="checkbox"/> There are nature trails or other paths and recreational activities within 25 ft of OHWM	points = 1	
<input type="checkbox"/> Other resources that could be impacted by erosion	points = 1	
<input type="checkbox"/> There are no resources that can be impacted by erosion along the shores of the unit	points = 0	

Rating of Value: If score is: 2 = H 1 = M 0 = L

Record the rating on the first page

NOTES and FIELD OBSERVATIONS:

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

4

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 ft².

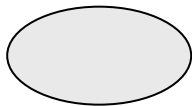
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle

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

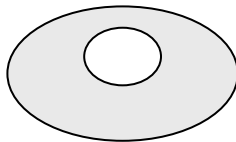
1

H 1.4. Interspersion of habitats

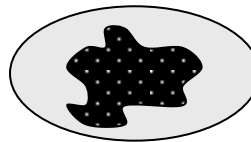
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always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



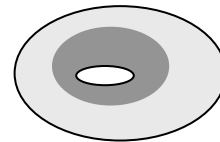
None = 0 points



Low = 1 point



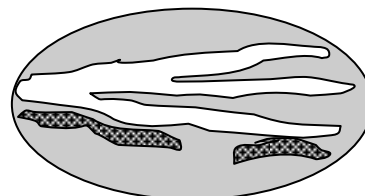
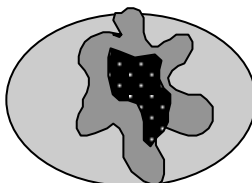
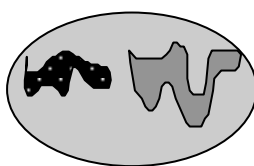
Moderate = 2 points



3

All three diagrams in this row are

HIGH = 3 points



Wetland name or number A

<p>H 1.5. Special habitat features: Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i></p> <p><input checked="" type="checkbox"/> Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).</p> <p><input checked="" type="checkbox"/> Standing snags (dbh > 4 in) within the wetland</p> <p><input type="checkbox"/> 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)</p> <p><input type="checkbox"/> 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 (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>)</p> <p><input type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>)</p> <p><input type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>)</p>		2
Total for H 1	Add the points in the boxes above	12

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?		
<p>H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>).</p> <p><i>Calculate:</i> % undisturbed habitat <u>16</u> + [(% moderate and low intensity land uses)/2] <u>6</u> = <u>23</u> %</p> <p>If total accessible habitat is:</p> <p><input type="checkbox"/> > 1/3 (33.3%) of 1 km Polygon points = 3</p> <p><input checked="" type="checkbox"/> 20-33% of 1 km Polygon points = 2</p> <p><input type="checkbox"/> 10-19% of 1 km Polygon points = 1</p> <p><input type="checkbox"/> < 10% of 1 km Polygon points = 0</p>		2
<p>H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.</p> <p><i>Calculate:</i> % undisturbed habitat <u>42</u> + [(% moderate and low intensity land uses)/2] <u>17</u> = <u>59</u> %</p> <p><input checked="" type="checkbox"/> Undisturbed habitat > 50% of Polygon points = 3</p> <p><input type="checkbox"/> Undisturbed habitat 10-50% and in 1-3 patches points = 2</p> <p><input type="checkbox"/> Undisturbed habitat 10-50% and > 3 patches points = 1</p> <p><input type="checkbox"/> Undisturbed habitat < 10% of 1 km Polygon points = 0</p>		3
<p>H 2.3. Land use intensity in 1 km Polygon: If</p> <p><input type="checkbox"/> > 50% of 1 km Polygon is high intensity land use points = (- 2)</p> <p><input checked="" type="checkbox"/> ≤ 50% of 1 km Polygon is high intensity points = 0</p>		0
Total for H 2	Add the points in the boxes above	5

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?		
<p>H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? <i>Choose only the highest score that applies to the wetland being rated.</i></p> <p>Site meets ANY of the following criteria: points = 2</p> <p><input type="checkbox"/> It has 3 or more priority habitats within 100 m (see next page)</p> <p><input type="checkbox"/> It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)</p> <p><input type="checkbox"/> It is mapped as a location for an individual WDFW priority species</p> <p><input type="checkbox"/> It is a Wetland of High Conservation Value as determined by the Department of Natural Resources</p> <p><input type="checkbox"/> 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</p> <p><input checked="" type="checkbox"/> Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1</p> <p><input type="checkbox"/> Site does not meet any of the criteria above points = 0</p>		0

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).
- 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	Category
<p><i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i></p>	
<p>SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? <input type="checkbox"/> The dominant water regime is tidal, <input type="checkbox"/> Vegetated, and <input type="checkbox"/> With a salinity greater than 0.5 ppt Yes –Go to SC 1.1 No= Not an estuarine wetland</p>	
<p>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</p>	<p>Cat. I</p>
<p>SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? <input type="checkbox"/> 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 <i>Spartina</i>, see page 25) <input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland. <input type="checkbox"/> 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</p>	<p>Cat. I Cat. II</p>
<p>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/wnhpwtlands.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</p>	<p>Cat. I</p>
<p>SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i> 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</p>	<p>Cat. I</p>

Wetland name or number _____

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33401 E LAKE HOLM DR SE
WETLAND RATING FIGURE 1- WETLAND A

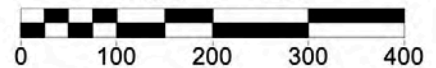


LEGEND

-  AQUATIC BED
-  EMERGENT VEGETATION
-  FORESTED VEGETATION
-  OPEN WATER
-  150' FROM WL BOUNDARY



Scale 1" = 200'

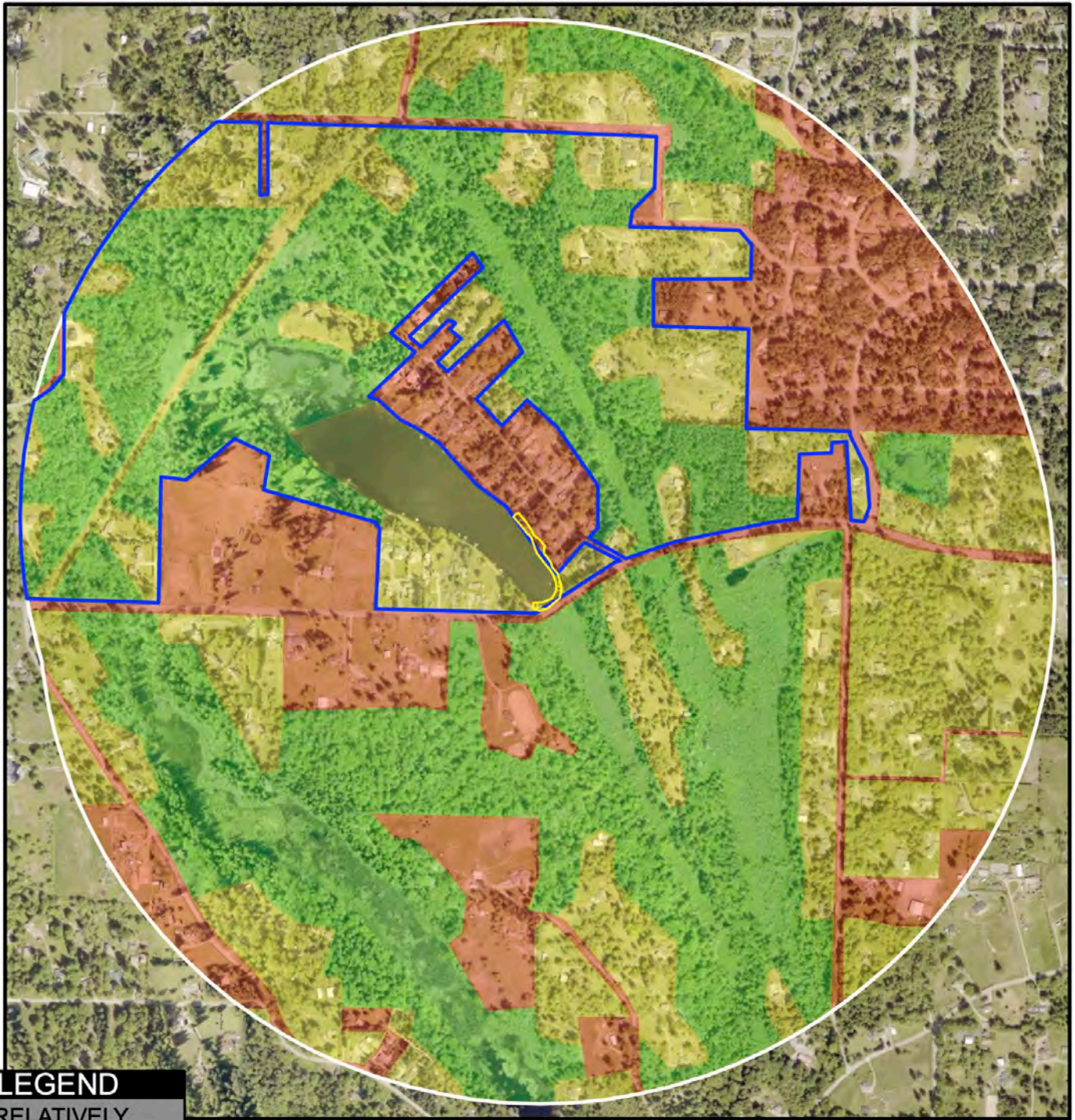


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Email: mailbox@wetlandresources.com

WETLAND RATING
Wetland

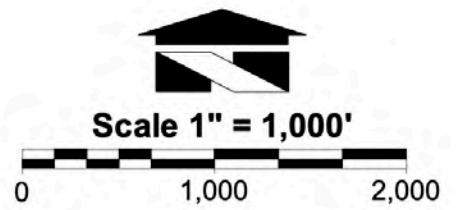
Figure A1
WRI Job #22289
Drawn by:AR

33401 E LAKE HOLM DR SE
 WETLAND RATING FIGURE 2 - WETLAND A



LEGEND

- RELATIVELY UNDISTURBED
- LOW/MOD. INTENSITY
- HIGH INTENSITY
- ACCESSIBLE HABITAT
- WETLAND
- 1 KM FROM WETLAND
- CONTRIBUTING BASIN

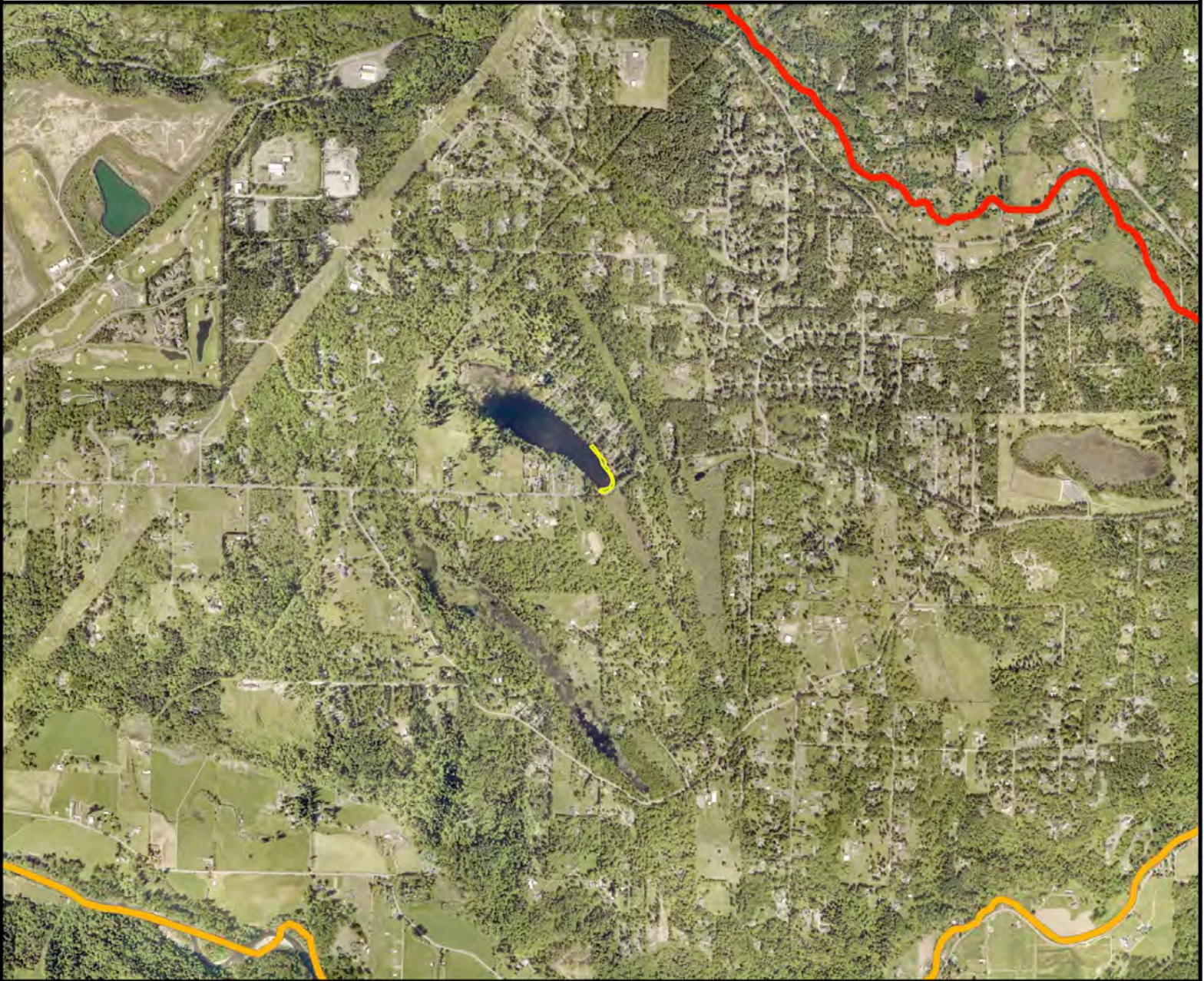


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WETLAND RATING
Wetland

Figure A2
 WRI Job #22289
 Drawn by:AR

33401 E LAKE HOLM DR SE
WETLAND RATING FIGURE 3 - WETLAND A



LEGEND



WETLAND



AQUATIC RESOURCES
ON THE 303(d) LIST



AQUATIC RESOURCES
WITH ACTIVE TMDL
LISTING



Scale 1" = 2,000'



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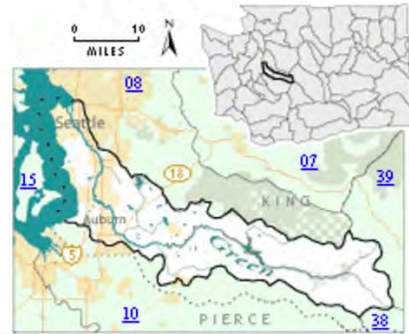
WETLAND RATING
Wetland

Figure A3
WRI Job #22289
Drawn by:AR

33401 E LAKE HOLM DR SE
WETLAND RATING FIGURE 4 - WETLAND A

WRIA 9: Duwamish-Green

The following table lists overview information for water quality improvement projects (including total maximum daily loads, or TMDLs) for this water resource inventory area (WRIA). Please use links (where available) for more information on a project.



Counties

- [King](#)

Waterbody Name	Pollutants	Status**	TMDL Lead
Duwamish and Lower Green River	Ammonia-N	Approved by EPA	Joan Nolan 425-649-4425
Fautleroy Creek	Fecal Coliform	Approved by EPA Has an implementation plan	Joan Nolan 425-649-4425
Fenwick Lake	Total Phosphorus	Approved by EPA (1993, Clean Lakes Program) Category 5, 2008 Water Quality Assessment	Tricia Shoblom 425-649-7288
Green River and Newaukum Creek	Temperature Dissolved Oxygen	Green River TMDL Approved by EPA Newaukum Creek TMDL Approved by EPA Has an implementation plan	Joan Nolan 425-649-4425
Lake Sawyer	Total Phosphorus	Approved by EPA Has an implementation plan	Tricia Shoblom 425-649-7288
Soos Creek	Fecal Coliform	Under development	Dave Garland 425-649-7031
	Aquatic Habitat Dissolved Oxygen Temperature		Joan Nolan 425-649-4425

** Status will be listed as one of the following: Approved by EPA, Under Development or Implementation

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**WETLAND RATING
Wetland**


Figure A4
WRI Job #22289
Drawn by:AR

33401 E LAKE HOLM DR SE
WETLAND RATING FIGURE 5 - WETLAND A

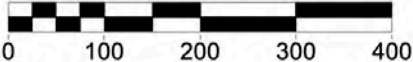


LEGEND

	WETLAND
	HERBACEOUS COVER
	OTHER PLANT COVER



Scale 1" = 200'



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WETLAND RATING
Wetland

Figure A5
WRI Job #22289
Drawn by:AR

Wetland name or number B

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland B Date of site visit: 12/8/22

Rated by AR Trained by Ecology? Yes No Date of training 10/18

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 King County

OVERALL WETLAND CATEGORY II (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	
<i>Circle the appropriate ratings</i>				
Site Potential	<input type="checkbox"/> H <input type="checkbox"/> M <input type="checkbox"/> L	H <input type="checkbox"/> M <input type="checkbox"/> L	H <input type="checkbox"/> M <input type="checkbox"/> L	
Landscape Potential	H <input type="checkbox"/> M <input type="checkbox"/> L	H M <input type="checkbox"/> L	<input type="checkbox"/> H M L	
Value	<input type="checkbox"/> H M L	H <input type="checkbox"/> M L	H <input type="checkbox"/> M L	TOTAL
Score Based on Ratings	8	5	7	20

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	<input checked="" type="checkbox"/>

Wetland name or number B

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	1
Hydroperiods	D 1.4, H 1.2	1
Location of outlet (<i>can be added to map of hydroperiods</i>)	D 1.1, D 4.1	1
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	D 2.2, D 5.2	1
Map of the contributing basin	D 4.3, D 5.3	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	2
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	3
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	4

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 (<i>can be added to another figure</i>)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (<i>can be added to another figure</i>)	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 (<i>can be added to another figure</i>)	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 (<i>can be added to figure above</i>)	S 4.1	
Boundary of 150 ft buffer (<i>can be added to another figure</i>)	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 **B**_____

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 B **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	<input type="checkbox"/>	Riverine
Slope + Depressional	<input type="checkbox"/>	Depressional
Slope + Lake Fringe	<input type="checkbox"/>	Lake Fringe
Depressional + Riverine along stream within boundary of depression	<input type="checkbox"/>	Depressional
Depressional + Lake Fringe	<input type="checkbox"/>	Depressional
Riverine + Lake Fringe	<input type="checkbox"/>	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	<input type="checkbox"/>	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 B

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. <u>Characteristics of surface water outflows from the wetland:</u> <input checked="" type="checkbox"/> Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). <div style="text-align: right;">points = 3</div> <input type="checkbox"/> Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. <div style="text-align: right;">points = 2</div> <input type="checkbox"/> Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing <div style="text-align: right;">points = 1</div> <input type="checkbox"/> Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. <div style="text-align: right;">points = 1</div>	3	
D 1.2. <u>The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions)</u> Yes = 4 No = 0	4	
D 1.3. <u>Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes):</u> <input checked="" type="checkbox"/> Wetland has persistent, ungrazed, plants > 95% of area <div style="text-align: right;">points = 5</div> <input type="checkbox"/> Wetland has persistent, ungrazed, plants > ½ of area <div style="text-align: right;">points = 3</div> <input type="checkbox"/> Wetland has persistent, ungrazed plants > 1/10 of area <div style="text-align: right;">points = 1</div> <input type="checkbox"/> Wetland has persistent, ungrazed plants < 1/10 of area <div style="text-align: right;">points = 0</div>	5	
D 1.4. <u>Characteristics of seasonal ponding or inundation:</u> <i>This is the area that is ponded for at least 2 months. See description in manual.</i> <input type="checkbox"/> Area seasonally ponded is > ½ total area of wetland <div style="text-align: right;">points = 4</div> <input checked="" type="checkbox"/> Area seasonally ponded is > ¼ total area of wetland <div style="text-align: right;">points = 2</div> <input type="checkbox"/> Area seasonally ponded is < ¼ total area of wetland <div style="text-align: right;">points = 0</div>	2	
Total for D 1	Add the points in the boxes above	14

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 <input type="checkbox"/> 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 <input type="checkbox"/> No = 0	0
D 2.3. Are there septic systems within 250 ft of the wetland?	<input type="checkbox"/> Yes = 1 <input type="checkbox"/> No = 0	1
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 <input type="checkbox"/> 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 <input type="checkbox"/> No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?	<input type="checkbox"/> Yes = 1 <input type="checkbox"/> 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)?	<input type="checkbox"/> Yes = 2 <input type="checkbox"/> No = 0	2
Total for D 3	Add the points in the boxes above	3

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

Wetland name or number B**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:		
<input checked="" type="checkbox"/> Wetland is a depression or flat depression with no surface water leaving it (no outlet) points = 4		4
<input type="checkbox"/> Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet points = 2		
<input type="checkbox"/> Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch points = 1		
<input type="checkbox"/> 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.		
<input type="checkbox"/> Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7		3
<input type="checkbox"/> Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5		
<input checked="" type="checkbox"/> Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3		
<input type="checkbox"/> The wetland is a "headwater" wetland points = 3		
<input type="checkbox"/> Wetland is flat but has small depressions on the surface that trap water points = 1		
<input type="checkbox"/> 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.		
<input type="checkbox"/> The area of the basin is less than 10 times the area of the unit points = 5		3
<input checked="" type="checkbox"/> The area of the basin is 10 to 100 times the area of the unit points = 3		
<input type="checkbox"/> The area of the basin is more than 100 times the area of the unit points = 0		
<input type="checkbox"/> Entire wetland is in the Flats class points = 5		
Total for D 4	Add the points in the boxes above	10

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 <input type="checkbox"/> No = <input type="text" value="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 <input type="checkbox"/> No = <input type="text" value="0"/>	0
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 <input type="checkbox"/> No = <input type="text" value="0"/>	0
Total for D 5	Add the points in the boxes above	0

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):		
<input type="checkbox"/> • Flooding occurs in a sub-basin that is immediately down-gradient of unit. points = 2		1
<input checked="" type="checkbox"/> • Surface flooding problems are in a sub-basin farther down-gradient. points = 1		
<input type="checkbox"/> Flooding from groundwater is an issue in the sub-basin. points = 1		
<input type="checkbox"/> 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		
<input type="checkbox"/> 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 <input type="checkbox"/> No = <input type="text" value="0"/>	0
Total for D 6	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

Wetland name or number B

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

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

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class. Check the Cowardin plant classes in the wetland. Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

- Aquatic bed 4 structures or more: points = 4
 - Emergent **3 structures: points = 2**
 - Scrub-shrub (areas where shrubs have > 30% cover) 2 structures: points = 1
 - Forested (areas where trees have > 30% cover) 1 structure: points = 0
- If the unit has a Forested class, check if:*
- The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

2

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

- Permanently flooded or inundated 4 or more types present: points = 3
- Seasonally flooded or inundated **3 types present: points = 2**
- Occasionally flooded or inundated 2 types present: points = 1
- Saturated only 1 type present: points = 0
- Permanently flowing stream or river in, or adjacent to, the wetland
- Seasonally flowing stream in, or adjacent to, the wetland
- Lake Fringe wetland** **2 points**
- Freshwater tidal wetland** **2 points**

2

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft².

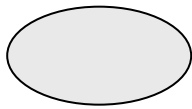
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle

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

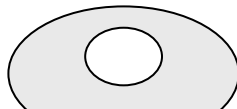
1

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.*



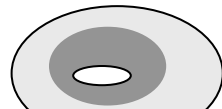
None = 0 points



Low = 1 point

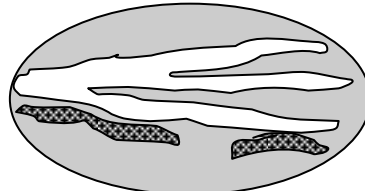
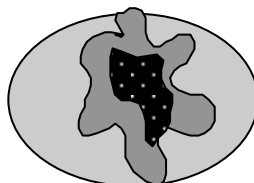
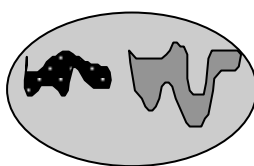


Moderate = 2 points



2

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



Wetland name or number B

<p>H 1.5. Special habitat features:</p> <p>Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i></p> <p><input checked="" type="checkbox"/> Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).</p> <p><input checked="" type="checkbox"/> Standing snags (dbh > 4 in) within the wetland</p> <p><input type="checkbox"/> 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)</p> <p><input type="checkbox"/> 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 (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>)</p> <p><input checked="" type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>)</p> <p><input type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>)</p>		3
Total for H 1	Add the points in the boxes above	10

Rating of Site Potential If score is: 15-18 = H 7-14 = M 0-6 = L

Record the rating on the first page

<p>H 2.0. Does the landscape have the potential to support the habitat functions of the site?</p>		
<p>H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>).</p> <p>Calculate: % undisturbed habitat <u>16</u> + [(% moderate and low intensity land uses)/2] <u>4</u> = <u>19</u> %</p> <p>If total accessible habitat is:</p> <p><input type="checkbox"/> > 1/3 (33.3%) of 1 km Polygon points = 3</p> <p><input type="checkbox"/> 20-33% of 1 km Polygon points = 2</p> <p><input checked="" type="checkbox"/> 10-19% of 1 km Polygon points = 1</p> <p><input type="checkbox"/> < 10% of 1 km Polygon points = 0</p>		1
<p>H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.</p> <p>Calculate: % undisturbed habitat <u>38</u> + [(% moderate and low intensity land uses)/2] <u>17</u> = <u>55</u> %</p> <p><input checked="" type="checkbox"/> Undisturbed habitat > 50% of Polygon points = 3</p> <p><input type="checkbox"/> Undisturbed habitat 10-50% and in 1-3 patches points = 2</p> <p><input type="checkbox"/> Undisturbed habitat 10-50% and > 3 patches points = 1</p> <p><input type="checkbox"/> Undisturbed habitat < 10% of 1 km Polygon points = 0</p>		3
<p>H 2.3. Land use intensity in 1 km Polygon: If</p> <p><input type="checkbox"/> > 50% of 1 km Polygon is high intensity land use points = (- 2)</p> <p><input checked="" type="checkbox"/> ≤ 50% of 1 km Polygon is high intensity points = 0</p>		0
Total for H 2	Add the points in the boxes above	4

Rating of Landscape Potential If score is: 4-6 = H 1-3 = M < 1 = L

Record the rating on the first page

<p>H 3.0. Is the habitat provided by the site valuable to society?</p>		
<p>H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? <i>Choose only the highest score that applies to the wetland being rated.</i></p> <p>Site meets ANY of the following criteria: points = 2</p> <p><input type="checkbox"/> It has 3 or more priority habitats within 100 m (see next page)</p> <p><input type="checkbox"/> It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)</p> <p><input type="checkbox"/> It is mapped as a location for an individual WDFW priority species</p> <p><input type="checkbox"/> It is a Wetland of High Conservation Value as determined by the Department of Natural Resources</p> <p><input type="checkbox"/> 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</p> <p><input checked="" type="checkbox"/> Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1</p> <p><input type="checkbox"/> Site does not meet any of the criteria above points = 0</p>		1

Rating of Value If score is: 2 = H 1 = M 0 = L

Record the rating on the first page

Wetland name or number B

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 B**CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS**

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? <input type="checkbox"/> The dominant water regime is tidal, <input type="checkbox"/> Vegetated, and <input type="checkbox"/> 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? <input type="checkbox"/> 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 <i>Spartina</i> , see page 25) <input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland. <input type="checkbox"/> 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? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i> 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 B

<p>SC 4.0. Forested Wetlands</p> <p>Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you answer YES you will still need to rate the wetland based on its functions.</i></p> <p><input type="checkbox"/> 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.</p> <p><input type="checkbox"/> 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).</p> <p style="text-align: right;">Yes = Category I No = Not a forested wetland for this section</p>	Cat. I
<p>SC 5.0. Wetlands in Coastal Lagoons</p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <p><input type="checkbox"/> 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</p> <p><input type="checkbox"/> 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 (<i>needs to be measured near the bottom</i>)</p> <p style="text-align: right;">Yes – Go to SC 5.1 No = Not a wetland in a coastal lagoon</p> <p>SC 5.1. Does the wetland meet all of the following three conditions?</p> <p><input type="checkbox"/> 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).</p> <p><input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland.</p> <p><input type="checkbox"/> The wetland is larger than 1/10 ac (4350 ft²)</p> <p style="text-align: right;">Yes = Category I No = Category II</p>	Cat. I Cat. II
<p>SC 6.0. Interdunal Wetlands</p> <p>Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <i>If you answer yes you will still need to rate the wetland based on its habitat functions.</i></p> <p>In practical terms that means the following geographic areas:</p> <p><input type="checkbox"/> Long Beach Peninsula: Lands west of SR 103</p> <p><input type="checkbox"/> Grayland-Westport: Lands west of SR 105</p> <p><input type="checkbox"/> Ocean Shores-Copalis: Lands west of SR 115 and SR 109</p> <p style="text-align: right;">Yes – Go to SC 6.1 No = not an interdunal wetland for rating</p> <p>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</p> <p>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</p> <p>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</p>	Cat I Cat. II Cat. III Cat. IV
<p>Category of wetland based on Special Characteristics</p> <p>If you answered No for all types, enter "Not Applicable" on Summary Form</p>	N/A








Wetland name or number _____

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33401 E LAKE HOLM DR SE
WETLAND RATING FIGURE 1 - WETLAND B

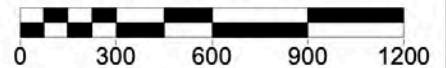


LEGEND

-  SCRUB-SHRUB
-  FORESTED VEGETATION
-  OPEN WATER
-  SATURATED ONLY
-  SEASONALLY FLOODED
-  PERMANENTLY FLOODED
-  150' FROM WL BOUNDARY



Scale 1" = 600'

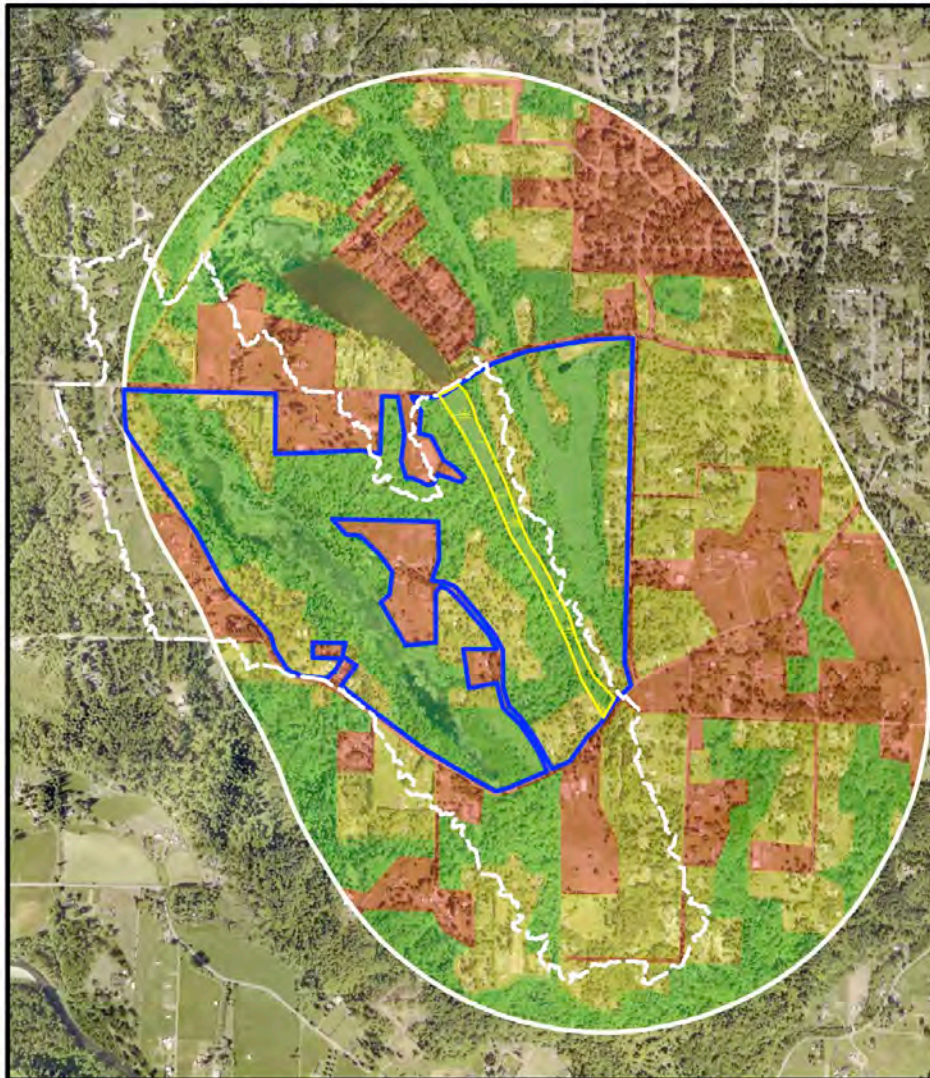


Wetland Resources, Inc.
Delineation / Mitigation / Restoration / Habitat Creation / Permit Assistance
9505 19th Avenue S.E. Suite 106 Everett, Washington 98208
Phone: (425) 337-3174
Fax: (425) 337-3045
Email: mailbox@wetlandresources.com

WETLAND RATING
Wetland

Figure B1
WRI Job #22289
Drawn by:AR

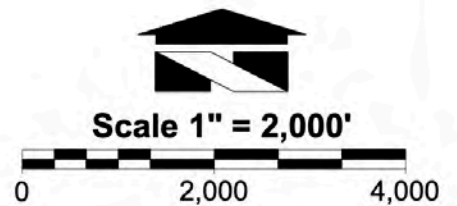
33401 E LAKE HOLM DR SE
 WETLAND RATING FIGURE 2 - WETLAND B



**CONTRIBUTING BASIN
 AREA RELATIVE TO
 WETLAND UNIT IS 38:1**

LEGEND

- RELATIVELY UNDISTURBED
- LOW/MOD. INTENSITY
- HIGH INTENSITY
- ACCESSIBLE HABITAT
- WETLAND
- 1 KM FROM WETLAND
- CONTRIBUTING BASIN



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**WETLAND RATING
 Wetland**

Figure B2
 WRI Job #22289
 Drawn by:AR

33401 E LAKE HOLM DR SE
WETLAND RATING FIGURE 3 - WETLAND B



LEGEND



WETLAND



AQUATIC RESOURCES
ON THE 303(d) LIST



AQUATIC RESOURCES
WITH ACTIVE TMDL
LISTING



Scale 1" = 2,000'



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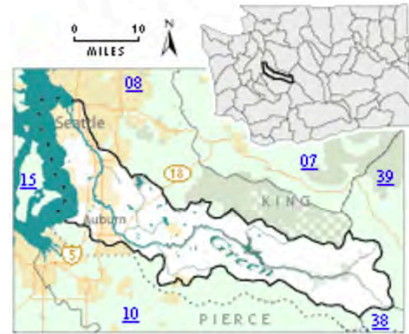
WETLAND RATING
Wetland

Figure B3
WRI Job #22289
Drawn by:AR

33401 E LAKE HOLM DR SE
WETLAND RATING FIGURE 4 - WETLAND B

WRIA 9: Duwamish-Green

The following table lists overview information for water quality improvement projects (including total maximum daily loads, or TMDLs) for this water resource inventory area (WRIA). Please use links (where available) for more information on a project.



Counties

- [King](#)

Waterbody Name	Pollutants	Status**	TMDL Lead
Duwamish and Lower Green River	Ammonia-N	Approved by EPA	Joan Nolan 425-649-4425
Fautleroy Creek	Fecal Coliform	Approved by EPA Has an implementation plan	Joan Nolan 425-649-4425
Fenwick Lake	Total Phosphorus	Approved by EPA (1993, Clean Lakes Program) Category 5, 2008 Water Quality Assessment	Tricia Shoblom 425-649-7288
Green River and Newaukum Creek	Temperature Dissolved Oxygen	Green River TMDL Approved by EPA Newaukum Creek TMDL Approved by EPA Has an implementation plan	Joan Nolan 425-649-4425
Lake Sawyer	Total Phosphorus	Approved by EPA Has an implementation plan	Tricia Shoblom 425-649-7288
Soos Creek	Fecal Coliform	Under development	Dave Garland 425-649-7031
	Aquatic Habitat Dissolved Oxygen Temperature		Joan Nolan 425-649-4425

** Status will be listed as one of the following: Approved by EPA, Under Development or Implementation

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 Email: mailbox@wetlandresources.com

**WETLAND RATING
Wetland**

Figure B4
WRI Job #22289
Drawn by:AR

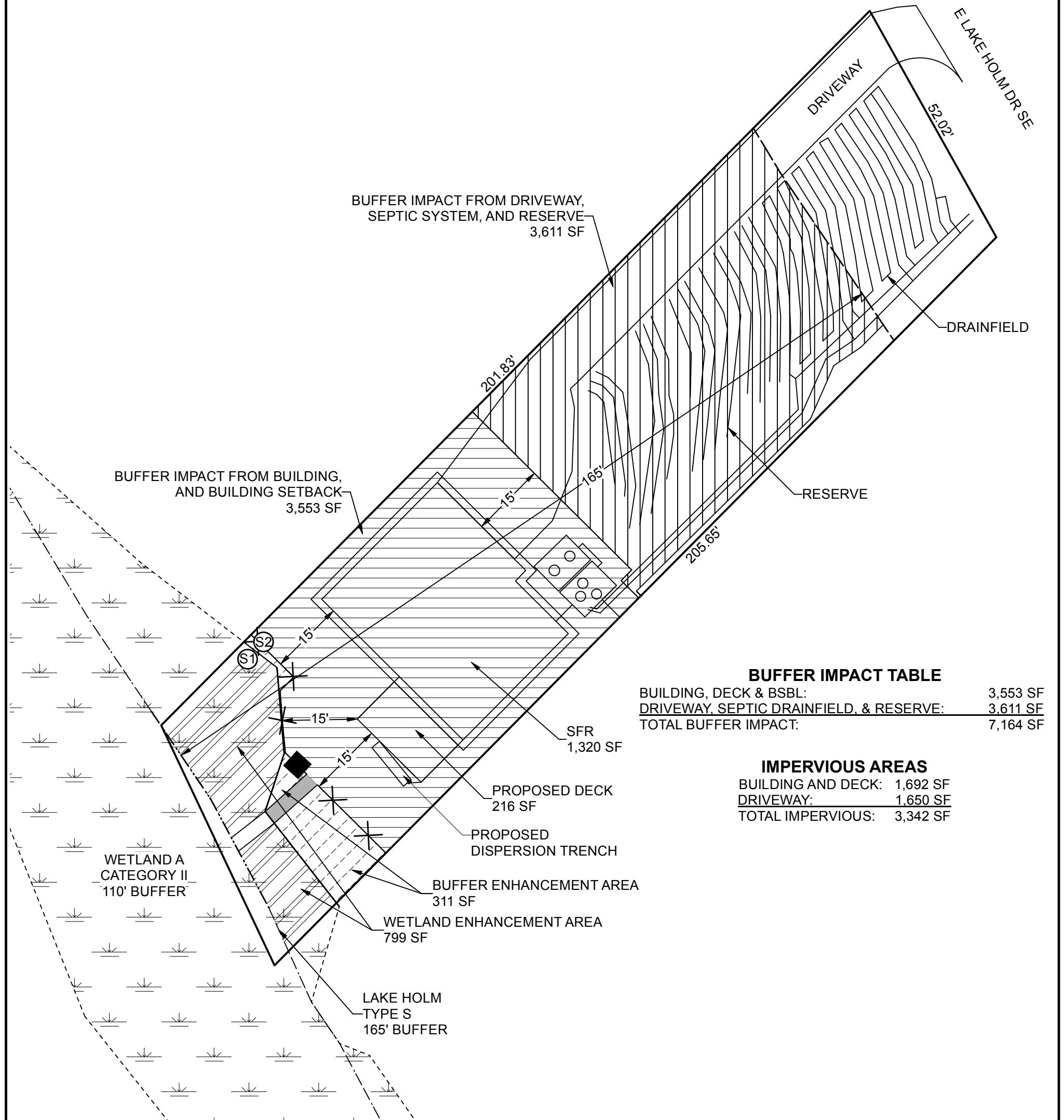
APPENDIX C

CRITICAL AREAS REPORT MAP

CRITICAL AREAS REPORT MAP

33401 E LAKE HOLM DR SE

PORTION OF SECTION 14, TOWNSHIP 21N, RANGE 5E, W.M.



BUFFER IMPACT FROM DRIVEWAY,
SEPTIC SYSTEM, AND RESERVE
3,611 SF

BUFFER IMPACT FROM BUILDING,
AND BUILDING SETBACK
3,553 SF

BUFFER IMPACT TABLE

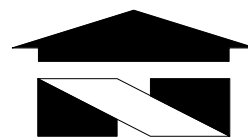
BUILDING, DECK & BSBL:	3,553 SF
DRIVEWAY, SEPTIC DRAINFIELD, & RESERVE:	3,611 SF
TOTAL BUFFER IMPACT:	7,164 SF

IMPERVIOUS AREAS

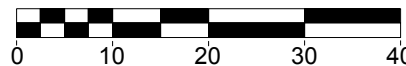
BUILDING AND DECK:	1,692 SF
DRIVEWAY:	1,650 SF
TOTAL IMPERVIOUS:	3,342 SF

LEGEND

	WETLAND (SURVEYED)		BUFFER IMPACTS FROM SFR & BLDG SETBACKS
	WETLAND (APPROX.)		BUFFER IMPACTS FROM DRIVEWAY & SEPTIC
	OHWM (GPS)		BUFFER ENHANCEMENT PLANTING AREA A
	OHWM (APPROX.)		BUFFER ENHANCEMENT PLANTING AREA B
	BUFFER		WETLAND ENHANCEMENT PLANTING AREA
	DATA SITES		PROPOSED BUFFER/ PROPOSED FENCE
	PROPOSED PERVIOUS TRAIL		CRITICAL AREA SIGN



Scale 1" = 20'



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CRITICAL AREAS REPORT MAP
33401 E LAKE HOLM DR SE
 Jeremy and Janice Nordland
 6315 Perry Avenue SE
 Auburn, WA 98092
 WRI #: 22289
 Drawn by: AR
 REV1: 12/19/23

APPENDIX D

KING COUNTY BOND QUANTITY WORKSHEET



Department of Permitting and
Environmental Review
35030 SE Douglas Str, Suite 210
Snoqualmie, WA 98065-9266
206-296-6600 TTY Relay: 711

King County

**Critical Areas Mitigation
Bond Quantity Worksheet**

C24 09/09/2015
Is-wks-sensareaBQ.xls
Is-wks-sensareaBQ.pdf

Project Name: Nordland SFR **Date:** 12.19.23 **Prepared by:** A. Richardson

Project Number: 22289 **Project Description:** SFR

Location: 33401 E Lake Holm Dr SE **Applicant:** Jeremy and Janice Nordl Phone: 253-951-0232

PLANT MATERIALS (includes labor cost for plant installation)					
Type	Unit Price	Unit	Quantity	Description	Cost
PLANTS: Potted, 4" diameter, medium	\$5.00	Each			\$ -
PLANTS: Container, 1 gallon, medium soil	\$11.50	Each	30.00		\$ 345.00
PLANTS: Container, 2 gallon, medium soil	\$20.00	Each			\$ -
PLANTS: Container, 5 gallon, medium soil	\$36.00	Each			\$ -
PLANTS: Seeding, by hand	\$0.50	SY			\$ -
PLANTS: Slips (willow, red-osier)	\$2.00	Each			\$ -
PLANTS: Stakes (willow)	\$2.00	Each			\$ -
PLANTS: Stakes (willow)	\$2.00	Each			\$ -
PLANTS: Flats/plugs	\$2.00	Each			\$ -
TOTAL					\$ 345.00

INSTALLATION COSTS (LABOR, EQUIPMENT, & OVERHEAD)					
Type	Unit Price	Unit	Quantity	Description	Cost
Compost, vegetable, delivered and spread	\$37.88	CY			\$ -
Decompacting till/hardpan, medium, to 6" depth	\$1.57	CY			\$ -
Decompacting till/hardpan, medium, to 12" depth	\$1.57	CY			\$ -
Hydroseeding	\$0.51	SY			\$ -
Labor, general (landscaping other than plant installation)	\$40.00	HR			\$ -
Labor, general (construction)	\$40.00	HR			\$ -
Labor: Consultant, supervising	\$55.00	HR			\$ -
Labor: Consultant, on-site re-design	\$95.00	HR			\$ -
Rental of decompacting machinery & operator	\$70.00	HR			\$ -
Sand, coarse builder's, delivered and spread	\$42.00	CY			\$ -
Staking material (set per tree)	\$7.00	Each			\$ -
Surveying, line & grade	\$250.00	HR			\$ -
Surveying, topographical	\$250.00	HR			\$ -
Watering, 1" of water, 50' soaker hose	\$3.62	MSF			\$ -
Irrigation - temporary	\$3,000.00	Acre			\$ -
Irrigation - buried	\$4,500.00	Acre			\$ -
Tilling topsoil, disk harrow, 20hp tractor, 4"-6" deep	\$1.02	SY			\$ -
TOTAL					\$ -

HABITAT STRUCTURES*					
ITEMS	Unit Cost	Unit	Quantity	Description	Cost
Fascines (willow)	\$ 2.00	Each			\$ -
Logs (cedar) w/ root wads, 16"-24" diam., 30' long	\$1,000.00	Each			\$ -
Logs (cedar) w/o root wads, 16"-24" diam., 30'	\$400.00	Each			\$ -
Logs, w/o root wads, 16"-24" diam., 30' long	\$245.00	Each			\$ -
Logs w/ root wads, 16"-24" diam., 30' long	\$460.00	Each			\$ -
Rocks, one-man	\$60.00	Each			\$ -
Rocks, two-man	\$120.00	Each			\$ -
Root wads	\$163.00	Each			\$ -
Spawning gravel, type A	\$22.00	CY			\$ -
Weir - log	\$1,500.00	Each			\$ -
Weir - adjustable	\$2,000.00	Each			\$ -
Woody debris, large	\$163.00	Each			\$ -
Snags - anchored	\$400.00	Each			\$ -
Snags - on site	\$50.00	Each			\$ -
Snags - imported	\$800.00	Each			\$ -
TOTAL					\$ -

* All costs include delivery and installation

EROSION CONTROL					
ITEMS	Unit Cost	Unit	Quantity	Description	Cost
Backfill and Compaction-embankment	\$ 4.89	CY			\$ -
Crushed surfacing, 1 1/4" minus	\$30.00	CY			\$ -
Ditching	\$7.03	CY			\$ -
Excavation, bulk	\$4.00	CY			\$ -
Fence, silt	\$1.60	LF			\$ -
Jute Mesh	\$1.26	SY			\$ -
Mulch, by hand, straw, 2" deep	\$1.27	SY			\$ -
Mulch, by hand, wood chips, 2" deep	\$3.25	SY	63.00		\$ 204.75
Mulch, by machine, straw, 1" deep	\$0.32	SY			\$ -
Piping, temporary, CPP, 6"	\$9.30	LF			\$ -

Piping, temporary, CPP, 8"	\$14.00	LF		\$	-
Piping, temporary, CPP, 12"	\$18.00	LF		\$	-
Plastic covering, 6mm thick, sandbagged	\$2.00	SY		\$	-
Rip Rap, machine placed, slopes	\$33.98	CY		\$	-
Rock Constr. Entrance 100'x15'x1'	\$3,000.00	Each		\$	-
Rock Constr. Entrance 50'x15'x1'	\$1,500.00	Each		\$	-
Sediment pond riser assembly	\$1,695.11	Each		\$	-
Sediment trap, 5' high berm	\$15.57	LF		\$	-
Sediment trap, 5' high berm w/spillway incl. riprap	\$59.60	LF		\$	-
Sodding, 1" deep, level ground	\$5.24	SY		\$	-
Sodding, 1" deep, sloped ground	\$6.48	SY		\$	-
Straw bales, place and remove	\$600.00	TON		\$	-
Hauling and disposal	\$20.00	CY		\$	-
Topsoil, delivered and spread	\$35.73	CY		\$	-
				TOTAL	\$ 204.75

GENERAL ITEMS					
ITEMS	Unit Cost	Unit			Cost
Fencing, chain link, 6' high	\$18.89	LF			\$ -
Fencing, chain link, corner posts	\$111.17	Each			\$ -
Fencing, chain link, gate	\$277.63	Each			\$ -
Fencing, split rail, 3' high (2-rail)	\$10.54	LF	46.00		\$ 484.84
Fencing, temporary (NGPE)	\$1.20	LF			\$ -
Signs, sensitive area boundary (inc. backing, post, install)	\$28.50	Each	1.00		\$ 28.50
TOTAL					\$ 513.34
OTHER				<i>(Construction Cost Subtotal)</i>	\$ 1,063.09
ITEMS	Percentage of Construction Cost	Unit			Cost
Mobilization	10%	1			\$ 106.31
Contingency	30%	1			\$ 318.93
TOTAL					\$ 425.24
<p>MAINTENANCE AND MONITORING</p> <p>NOTE: Projects with multiple permit requirements may be required to have longer monitoring and maintenance terms. This will be evaluated on a case-by-case basis for development applications. Monitoring and maintenance ranges may be assessed anywhere from 5 to 10 years.</p>					
Maintenance, annual (by owner or consultant)					
Less than 1,000 sq.ft. and buffer mitigation only	\$ 1.08	SF		(3 X SF total for 3 annual events; Includes monitoring)	\$ -
Less than 1,000 sq.ft. with wetland or aquatic area mitigation	\$ 1.35	SF		(3 X SF total for 3 annual events; Includes monitoring)	\$ -
Larger than 1,000 sq. ft. but less than 5,000 sq.ft. of buffer mitigation	\$ 180.00	EACH		(4hr @\$45/hr)	\$ -
Larger than 1,000 sq. ft. but less than 5,000 sq.ft. of wetland or aquatic area mitigation	\$ 270.00	EACH	10.00	(6hr @\$45/hr)	\$ 2,700.00
Larger than 5,000 sq.ft. but < 1 acre -buffer mitigation only	\$ 360.00	EACH		(8 hrs @ 45/hr)	\$ -
Larger than 5,000 sq.ft. but < 1 acre with wetland or aquatic area mitigation	\$ 450.00	EACH		(10 hrs @ \$45/hr)	\$ -
Larger than 1 acre but < 5 acres - buffer and / or wetland or aquatic area mitigation	\$ 1,600.00	DAY		(WEC crew)	\$ -
Larger than 5 acres - buffer and / or wetland or aquatic area mitigation	\$ 2,000.00	DAY		(1.25 X WEC crew)	\$ -
Monitoring, annual (by owner or consultant)					
Larger than 1,000 sq.ft. but less than 5,000 wetland or buffer mitigation	\$ 720.00	EACH	8.00	(8 hrs @ 90/hr)	\$ 5,760.00
Larger than 5,000 sq.ft. but < 1 acre with wetland or aquatic area impacts	\$ 900.00	EACH		(10 hrs @ \$90/hr)	\$ -
Larger than 1 acre but < 5 acres - buffer and / or wetland or aquatic area impacts	\$ 1,440.00	DAY		(16 hrs @ \$90/hr)	\$ -
Larger than 5 acres - buffer and / or wetland or aquatic area impacts	\$ 2,160.00	DAY		(24 hrs @ \$90/hr)	\$ -
TOTAL					\$ 8,460.00
Total					\$9,948.33