CRITICAL AREA STUDY & WETLAND MITIGATION PLAN

FOR

ISSAQUAH SCHOOL DISTRICT -
HIGH SCHOOL #4 AND ELEMENTARY SCHOOL #17
ISSAQUAH, WA

Wetland Resources, Inc. Project #19183

Prepared By
Wetland Resources, Inc.
9505 19th Avenue SE, Suite 106
Everett, WA 98208
(425) 337-3174

Prepared For
Issaquah School District #411
Attn: Tom Mullins
5150 220th Ave SE
Issaquah, WA 98209

July 10, 2020

(this page intentionally left blank)

TABLE OF CONTENTS

1.0 INTRODUCTION 1
1.1 SITE DESCRIPTION 1
2.0 PROJECT DESCRIPTION 1
3.0 REVIEW OF EXISTING INFORMATION 2
4.0 WETLAND & STREAM CLASSIFICATION - COWARDIN SYSTEM 3
5.0 WETLAND & STREAM CLASSIFICATION – CITY OF ISSAQUAH 3
6.0 CRITICAL AREA DETERMINATION REPORT 3
6.1 METHODOLOGY 3
6.2 BOUNDARY DETERMINATION FINDINGS 5
6.2.1 Wetland B 5
6.2.2 Wetland C 6
6.2.3 Non-Wetland Areas 6
7.0 WILDLIFE 7
8.0 WETLAND FUNCTIONS AND VALUES ASSESSMENT 7
8.1 METHODOLOGY 7
8.2 EXISTING CONDITIONS 8
8.2.1 Wetland B 8
8.2.2 Wetland C 8
8.3 POST-MITIGATION FUNCTIONS AND VALUES 8
9.0 AVOIDANCE OF CRITICAL AREA IMPACTS 9
10.0 WETLAND IMPACT AND MITIGATION PLAN 9
11.0 USE OF THIS REPORT 11
12.0 REFERENCES 12

LIST OF APPENDICES

APPENDIX A: WETLAND RATING FORMS AND FIGURES

APPENDIX B: WETLAND DETERMINATION DATA FORMS

APPENDIX C: CRITICAL AREA STUDY MAPS (SHEETS 1-2/2)

1.0 INTRODUCTION

Wetland Resources, Inc. (WRI) conducted site visits on July 22, 2015 and September 8, 2016 to locate wetlands and streams occurring within and near the project site. An additional site visit was conducted on July 22, 2019 to review current site conditions. The subject site is a 40.8-acre property located at 4221 228th Avenue SE, in the City of Issaquah, Washington, (parcel #s: 1624069001, 1624069029, 1624069031) within a portion of Section 16, Township 24N, Range 6E, W.M. Two access points to the subject site are located on 228th Avenue SE along the east side of the site. The purpose of this report is to present information about the wetlands on the site and applicable critical area regulations. Other critical areas (such as erosion or landslide hazard areas) are not discussed within this report.

1.1 SITE DESCRIPTION

Surrounding land use consists primarily of high-density single and multi-family residential development. The site is adjacent on three sides to the Providence Point neighborhood (north, south, and west), and Sammamish Highlands to the east. A church and other buildings that were previously on the site have been removed. A water tower is located in the southeast area of the site.

Topography is variable. The center of the site is relatively flat, with the remainder generally sloping down away from the center. Although the center of the property contains little or no vegetation, the edges contain forested areas with a shrub and groundcover understory. The forested areas along the northern and eastern edges of the property are vegetated with native species and have experienced minimal disturbance. The forested area within the southwest portion of the site is comprised primarily of native species, with patches of Himalayan blackberry. Disturbance in this area includes a network of trails, the remnants of a ropes course, trenches (containing no water), and a man-made pond lined with riprap.

There are two small Category IV wetlands (Wetland B and Wetland C) present on the subject site. The aforementioned man-made pond does not meet the definition of a wetland, and is therefore not regulated. Wetland B is located in the southern portion of the subject site in close proximity to the man-made pond. Wetland C is also located in the southern portion of the site, along the southern access road within an existing unmaintained ditch.

2.0 PROJECT DESCRIPTION

The Issaquah School District is proposing to construct a combined elementary school and high school campus to meet the needs of increasing enrollment within the district. This combined high school and elementary school campus will include: two school buildings, play areas, multiple athletic fields/courts, access driveways, bus loop, parking, and associated utility infrastructure. In order to construct a cohesive combined elementary and high school campus of a sufficient size to serve the district, impact to Wetland C is unavoidable. The northern portion of Wetland C will be filled to accommodate the high school bus loop, parking, and the grading associated with this infrastructure. Details about the wetland impact and proposed mitigation are provided in Section 9 and 10 of this report.

3.0 REVIEW OF EXISTING INFORMATION

Prior to conducting the site investigation, public resource information was reviewed to gather background information on the subject property and the surrounding area in regards to wetlands, streams, and other critical areas.

- USDA/NRCS Web Soil Survey: The majority of the site is predicted to have Alderwood Gravelly Sandy Loam, 8 to 15 percent and 15 to 30 percent slopes. A relatively small area in the southeast corner of the site is predicted to have Beausite gravelly sandy loam, 15-30 slopes.

- King County iMap: Laughing Jacobs Creek is identified as unclassified where it flows nearest to the site (900 feet). However, approximately 900 feet further downstream (~1300 feet from the site) iMap identifies the stream as "2S," which is a non-shoreline salmon-bearing stream. Laughing Jacobs Creek flows southwest from Laughing Jacobs Lake, northeast of the site.

- Washington Department of Fish and Wildlife (WDFW) SalmonScape Interactive Mapping System: This public resource confirms that salmon use the downstream segment of Laughing Jacobs Creek. Both Coho and sockeye salmon have a documented presence. The upstream segment of the stream nearer to the site (~900 feet) does not have a documented or modeled salmon presence.

- WDFW Priority Habitat and Species (PHS) Interactive Map: Laughing Jacobs creek is associated with Coho and Sockeye in the downstream segment, and with resident coastal cutthroat through the entire run up to the lake. This explains the Type-F classification identified by DNR FPAMT. Additionally, a biodiversity corridor is identified approximately 900-feet to the southwest of the subject site. The site and surrounding areas are identified as potential Townsend's big-eared bat (*Corynorhinus townsendii)* habitat. However, no nearby roosts are identified on official PHS maps provided by WDFW. Wetlands associated with Laughing Jacobs Lake and part of the creek are mapped east and northeast of the subject site.

- United States Fish and Wildlife Service (USFWS) National Wetlands Inventory: Confirms the presence of the wetlands identified by the *WDFW PHS Interactive Map*. Likewise, it does not map the nearer wetland areas identified by *NWMaps.net*.

- Washington Department of Natural Resources Forest Practices Application Mapping Tool (FPAMT): This public resource identifies Laughing Jacobs Creek as Type-F (fish-bearing) along its entirety up to Laughing Jacobs Lake, which is also a Type-F water.

- WDNR Wetlands of High Conservation Value interactive map: No resources are depicted on or in the vicinity of the subject site.

4.0 WETLAND & STREAM CLASSIFICATION - COWARDIN SYSTEM

According to the Cowardin System, as described in *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin 1979), the classification for the on-site critical areas are as follows:

Wetland B: Palustrine, Forested Wetland, Evergreen, Seasonally Flooded

Wetland C: Palustrine, Non-persistent Emergent Wetland, Saturated

5.0 WETLAND & STREAM CLASSIFICATION – CITY OF ISSAQUAH

Under Chapter 18.10 of the IMC the on-site critical areas are classified as follows:

Wetland B
Category IV wetland: This wetland scores a total of 15 points on the Wetland Rating Form for Western Washington, which equates to a Category IV rating. Wetland B has a multi-stratum vegetation structure comprising its forested vegetation class. This wetland scores 4 points (low) for habitat functions. In the City of Issaquah, Category IV wetlands less than 2,500 square feet in size do not require buffers.

Wetland C
Category IV wetland: This wetland scores a total of 15 points on the Wetland Rating Form for Western Washington, which equates to a Category IV rating. This wetland scores 4 points (low) for habitat functions. In the City of Issaquah, Category IV less than 2,500 square feet in size do not require buffers.

6.0 CRITICAL AREA DETERMINATION REPORT

6.1 METHODOLOGY

The Washington State Department of Ecology document *Determining the Ordinary High Water Mark on Streams in Washington State (Second Review Draft)* (Olson and Stockdale 2010) was used to determine the presence of any streams on the subject site. No streams were identified on the subject site.

Wetland conditions were evaluated using routine methodology described in the *2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)*, (referred to as the 2010 Regional Supplement). The methodology in the 2010 Regional Supplement coincides with the methodology described in the Washington State Wetlands Identification and Delineation Manual (Washington State Department of Ecology Publication #96-94, March 1997). Our findings are consistent with both manuals.

The following criteria descriptions were used in the boundary determination:

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

Hydrophytic Vegetation Criteria

The *2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* defines hydrophytic vegetation as the sum total of macrophytic plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present. One of the most common indicators for hydrophytic vegetation is when more than 50 percent of a plant community consists of species rated "Facultative" and wetter on lists of plant species that occur in wetlands.

Soils Criteria and Mapped Description

The *2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* defines hydric soils as those that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part. Field indicators are used for determining whether a given soil meets the definition for hydric soils.

According to NRCS Web Soil Survey, the soil map unit Alderwood Gravelly Sandy Loam, 8 to 15 and 15 to 30 percent slopes; and Beausite gravelly sandy loam, 15-30 slopes are predicted to occur on the subject property.

Alderwood Gravelly Sandy Loam, 8 to 15 percent slopes (AgC), is described as rolling with irregularly shaped areas ranging from 10 to about 600 acres in size. The A horizon ranges from very dark brown to dark brown. The B horizon is dark brown, grayish brown, and dark yellowish brown. Permeability is moderately rapid in the surface layer and subsoil and very slow in the substratum. Available water capacity is described as low. Included within this soil unit are the poorly drained Norma, Bellingham, Seattle, Tukwila, Shalcar soils, and Alderwood soils that have slopes more gentle or steeper than 8 to 15 percent. Included soil units make up no more than 30 percent of the total acreage.

Alderwood Gravelly Sandy Loam, 15 to 30 percent slopes (AgD), is made up of moderately well drained soils that have a weakly consolidated substratum at a depth of 24 to 40 inches. In a representative profile, the surface layer and subsoil are very dark brown, dark brown, and grayish brown gravelly sandy loam about 27 inches thick. The substratum is grayish-brown, weakly consolidated to strongly consolidated glacial till that extends to a depth of 60 inches and more. Soils included with this soil mapping make up no more than 30 percent of the total acreage. Some areas are up to 25 percent Everett soils that have slopes of 15 to 30 percent, and some areas are up to 2 percent Bellingham, Norma, and Seattle soils, which are in depressions. Runoff is medium, and the erosion hazard is severe.

Beausite Gravelly Sandy Loam, 15 to 30 percent slopes, is made up of well-drained soils that are underlain by sandstone at a depth of 20 to 40 inches. These soils formed in the glacial deposits. They are rolling to very steep. Slopes are 6 to 75 percent. Elevation is 600 to 2,000 feet. In a

representative profile, the surface layer and the upper part of the subsoil are dark-brown to dark yellowish-brown gravelly sandy loam that extends to a depth of about 19 inches. The lower part of the subsoil is olive-brown, very gravelly sandy loam. Fractured sandstone is at a depth of about 38 inches. Areas of this soil are 40 acres or more in size. Slopes are long. Some areas are up to 20-percent included Alderwood soils, which are underlain by andesite; some are 5-percent wet Norma and Seattle soils; some are up to 5-percent Beausite soils that have a gravelly loam surface layer and subsoil; and some are up to 10-percent soils that are similar to Beausite soils, but are more than 40 inches deep over sandstone. Runoff is rapid, and the hazard of erosion is severe.

Hydrology Criteria

The *2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* states that "areas which are seasonally inundated and/or saturated to the surface for a consecutive number of days ≥12.5 percent of the growing season are wetlands, provided the soil and vegetation parameters are met. Areas inundated or saturated between 5 and 12.5 percent of the growing season in most years may or may not be wetlands. Areas saturated to the surface for less than 5 percent of the growing season are non-wetlands." Field indicators are used for determining whether wetland hydrology parameters are met.
Based on the results of the site investigation, three wetlands were identified on the subject property.

6.2 Boundary Determination Findings

During the July 2019 site visit, WRI confirmed that there were no changes to the wetland boundaries delineated in July 2015 and September 2016.

6.2.1 Wetland B

This wetland is located in the southern portion of the subject site. Wetland B is a small, depressional wetland, 280 square feet in size.

Dominant vegetation in Wetland B is represented by black cottonwood (*Populus balsamifera*; FAC) and salmonberry (*Rubus spectabilis*; FAC). All of the dominant species rate "facultative" or wetter, indicating that a hydrophytic vegetative community is present in the areas mapped as wetland.

Soils in this wetland from 0 to 10 inches below the surface have a Munsell color of very dark grayish brown (10YR 3/2) with a silt loam texture. From 10 to 11 inches below the surface, the soil is light brownish gray (10YR 6/2) with prominent yellowish brown (10YR 5/8) redoximorphic features, and has a fine sandy loam texture. The soil became restrictive at a depth of 11 inches. This soil profile meets the Depleted Below Dark Surface (A11) and Depleted Matrix (F3) hydric soil indicators. Soils were dry at the time of our July 2015 site visit, which is not unusual given the season and the particularly low rainfall experienced earlier in the year. However, an algal mat (B4) was present, which is a primary indicator of hydrology.

Field observations indicate that the area mapped as wetland is flooded, ponded, or saturated long enough during the growing season to develop anaerobic conditions in the upper part of the soils. Therefore, the vegetation, soil, and hydrologic criteria are all met for the on-site portion of Wetland B.

Wetland B scored a total of 15 points on the Wetland Rating Form for Western Washington, which equates to a Category IV rating. In the City of Issaquah, Category IV wetlands less than 2,500 square feet in size do not require buffers.

6.2.2 Wetland C

This wetland is a slope wetland located along an existing access road within a roadside ditch, in the southern portion of the subject site. Wetland C is 1,806 square feet in size. Water leaving Wetland C flows into a culvert and under the access road, where it enters a catch basin on the south side of the road. There is another stormdrain downslope of the southern access road within the residential development adjacent to the subject site. It appears the water from Wetland C enters the stormwater system associated with the adjacent development after leaving the catch basin on the site.

Dominant vegetation in the on-site portion of Wetland C is represented by reed canarygrass (*Phalaris arundinacea*; FACW) and soft rush (*Juncus effusus*; FACW). All of the dominant species rate "facultative" or wetter, indicating that a hydrophytic vegetative community is present in the areas mapped as wetland.

Soils in this wetland from 0 to 7 inches below the surface have a Munsell color of very dark grayish brown (10YR 3/2) with a sandy clay loam texture with redoximorphic features of dark yellowish brown (10YR 4/6). From 10 to 11 inches below the surface, the soil is dark grayish brown (10YR 4/2) with dark yellowish brown (10YR 4/6) redoximorphic features, and has a clay loam texture. Soils were moist at the time of our September 20, 2016 site visit.

Field observations indicate that the area mapped as wetland is flooded, ponded, or saturated long enough during the growing season to develop anaerobic conditions in the upper part of the soils. Therefore, the vegetation, soil, and hydrologic criteria are all met for the on-site portion of Wetland C.

Wetland C scored a total of 15 points on the Wetland Rating Form for Western Washington, which equates to a Category IV rating. In the City of Issaquah, Category IV less than 2,500 square feet in size do not require buffers.

6.2.3 Non-Wetland Areas

In the non-wetland areas adjacent to Wetlands B and C, dominant vegetation is represented by big-leaf maple (*Acer macrophyllum*; FACU), black cottonwood (*Populus balsamifera*; FAC), cascara (*Frangula purshiana*; FAC), bracken fern (*Pteridium aquilinum*; FACU), and trailing blackberry (*Rubus ursinus*; FACU). The majority of the dominant species do not rate "facultative" or wetter, indicating that a hydrophytic vegetative community is absent.

Typical soils in the areas adjacent to Wetlands B and C that are mapped as non-wetland have a Munsell color of very dark grayish brown (10YR 3/2), with a silt texture, for 0 to 5 inches beneath the soil surface. The underlying soil layer is olive brown (2.5YR 4/3) sandy loam, to at least 12 inches beneath the surface. This soil profile does not meet any hydric soil indicators. Soils were dry at the time of our July 2019 site investigation.

Hydrophytic vegetation and hydric soils are absent in these areas, and direct hydrologic indicators are lacking. Therefore, the areas adjacent to Wetlands B and C do not meet wetland criteria.

7.0 WILDLIFE

The on-site critical areas and their associated edges are continuous with a forested corridor located within the western portion of the subject site. However, the forested portions of the site are completely surrounded by neighboring high-intensity development, which effectively bisects potential movement corridors for wildlife; cutting them off. Nevertheless, the critical areas and their buffers do provide important habitat elements in the form of resources such as food, water, thermal cover, and hiding cover in close proximity. Given their small size, as well as the disturbance created by nearby development, the on-site critical areas provide relatively low quality wildlife habitat.

Black tailed deer (*Odocoileus hemionus columbianus*) were visually detected during our on-site investigations in July 2015 and September 2016. Other mammalian species expected to occur on the subject site include gray squirrels (*Sciurus* spp.), Douglas squirrels (*Tamiasciurus douglasii*), and raccoon (*Procyon lotor*). Avian activity (bird song) was strongly detected. Given the habitat available nearby, it is expected that the following avian species use the area: American Crow (*Corvus brachyrhynchos),* American Robin (*Turdus migratorius*), Steller's Jay (*Cyanocitta stelleri*), Black-capped Chickadee (*Poecile atricapilla)*, Dark-eyed Junco (*Junco hyemalis*), Song Sparrow (*Melospiza melodia*), Pacific Wren (*Troglodytes pacificus*), and Spotted Towhee (*Pipilo maculatus*).

These lists are not meant to be all-inclusive and may omit species that currently utilize or could utilize the site.

8.0 WETLAND FUNCTIONS AND VALUES ASSESSMENT

8.1 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 the on-site wetlands, but is typical for assessments of similar systems common to western Washington.

Functions and Values Components
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.

8.2 Existing Conditions

8.2.1 Wetland B

This 280 square foot Category IV wetland is located just southeast of the man-made pond, in the southern portion of the subject site. Wetland B is a forested depressional wetland with no outlet. This wetland is able to provide storage during times of increased stormwater runoff, but storage capacity is limited by the wetland's small size. The water quality functions provided by Wetland B are limited by its lack of persistent vegetation cover. Wetland B provides a low value for water quality and hydrologic functions. Wetland B only contains a fringe of forested vegetation around the perimeter, but has little or no vegetation within the interior of the wetland. The wetland's small size, lack of vegetation diversity and native food sources, as well as the lack of an undisturbed connection to other wetlands, limits the level of wildlife functions provided. Wetland B provides a low value for wildlife functions.

8.2.2 Wetland C

This 1,806 square foot Category IV wetland is located in a roadside ditch, in the southern portion of the subject site. Wetland C is a small, emergent wetland, with only one hydro period. Given that it's on a slope, it is able to provide very minimal live storage during periods of increased stormwater runoff. Its limited capacity for live storage provides a low value for water quality and hydrologic functions. Wetland C only contains emergent vegetation and is located alongside a road. The wetland's small size, lack of vegetation diversity, and lack of an undisturbed connection to other wetlands limits the level of wildlife functions provided. Wetland C provides a low value for wildlife functions.

8.3 Post-Mitigation Functions and Values

The entirety of Wetland C will be impacted by the proposed development. As mitigation for the impact to Wetland C, 10,800 square feet of forested area containing significant trees will be protected. This protected forested area is adjacent to Wetland B.

All water exiting Wetland C currently goes into a stormwater system. After development of the site, all stormwater runoff within the area of Wetland C will also be collected by existing or proposed stormwater infrastructure. The proposed stormwater plan is designed to meet current water quality standards. No loss of hydrologic or water quality functions will occur as stormwater runoff within the area of Wetland C currently enters stormwater infrastructure and will be managed by stormwater infrastructure after development as well. Also, protecting forested area adjacent to Wetland B will allow for water velocity reduction and filtration of stormwater runoff prior to entering Wetland B. This will maintain the level of functions provided by Wetland B.

The impact to Wetland C will affect herbaceous vegetation. The mitigation area is forested, and contains native trees, shrubs, and herbaceous vegetation. This forested area provides greater vegetation diversity and structure than Wetland C currently does. Additionally, this forested area provides native food sources and opportunity for refuge for wildlife. The mitigation area will provide a greater value for wildlife functions than Wetland C currently provides.

9.0 AVOIDANCE OF CRITICAL AREA IMPACTS

Per IMC 18.10.490, proposed development on sites containing critical areas shall address mitigation sequencing. Mitigation sequencing steps from IMC 18.10.490.A are listed below in italics with WRI discussion following.

1. Avoid impacts altogether by not taking a certain action or parts of an action;

The two school buildings proposed are sized to accommodate the increasing enrollment in the Issaquah School District as well as programmatic needs and requirements. Internal driveways and the bus loop were designed to facilitate cueing and proper traffic circulation for drop-off and pick-up times. The sports fields and play areas are essential elements of elementary and high school campuses. In order to construct a cohesive combined elementary and high school campus with adequate parking, impact to Wetland C is unavoidable. No impact to Wetland B is proposed.

2. Minimize impacts by limiting the degree or magnitude of the action and its implementation by using appropriate technology, or by taking affirmative steps to avoid or reduce impacts;

No impact to Wetland B is proposed. Given the location and linear nature of Wetland C, it is not possible to reduce the impact to the wetland. The proposed impact to Wetland C is the minimum impact necessary to construct the combined elementary and high school campus.

3. Rectify impacts by repairing, rehabilitating or restoring the affected environment;

The impact to Wetland C will be permanent and cannot be restored.

4. Compensate for the impact by replacing, restoring, creating, enhancing or providing substitute resources or environments;

As compensation for the impact to Wetland C, a 10,800 square foot area of significant trees will be retained and protected in perpetuity. This is a 6:1 mitigation to impact ratio. Please see Section 10 below for further details of the wetland mitigation plan.

5. Monitor the impact and the compensation projects and taking appropriate corrective measures.

Since the mitigation proposed is retention of existing significant trees per IMC 18.10.720.B.3.d, no monitoring is proposed.

10.0 WETLAND IMPACT AND MITIGATION PLAN

The proposed project will impact the entirety of Wetland C, which is 1,806 square feet in size. Per IMC 18.10.720.B.3, *Category IV wetlands less than two thousand five hundred (2,500) square feet in size, that are not part of a wetland complex, may be altered if mitigation is provided to demonstrate no net loss of functions or values.* A discussion of functions and values is provided above, in Section 8 of this report. The code

lists criteria that shall apply in preferential order to avoid or mitigate impacts to these small Category IV wetlands. These criteria are listed below in italics with WRI discussion following.

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

Mitigation sequencing has been addressed above, in Section 9 of this report.

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

To create a wetland, a source of natural hydrology is necessary. Generally, wetland creation is done adjacent to an existing wetland. On this site, the only other wetland is Wetland B, which is very small in size and is surrounded by trees. In order to create a wetland in this area, established vegetation would have to be removed. This would reduce the overall number of significant trees on the site and reduce the wildlife habitat quality in the area around Wetland B.

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

No other wetland area of equal size exists on the subject site.

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

The proposed mitigation plan protects significant trees in an area 10,800 square feet in size. The proposed protected area is adjacent to Wetland B. This is a 6:1 mitigation to impact ratio.

e. Off-site mitigation opportunities may be considered.

On-site mitigation is proposed.

11.0 USE OF THIS REPORT

This Critical Area Study and Wetland Mitigation Plan is supplied to Issaquah School District as a means of determining on-site wetland and stream conditions, as required by the City of Sammamish during the permitting process. 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 wetlands 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.

The work for this report has conformed to the standard of care employed by wetland 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.

Meryl A. Kamowski

Meryl Kamowski
Senior Ecologist

12.0 REFERENCES

Cowardin, et al., 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Department of the Interior. FWS/OBS-79/31. December 1979.

King County. 1973. Soil Survey of King County Area Washington.

King County. Accessed July 2020. King County iMap Internet Mapping Tool. http://www5.kingcounty.gov/iMAP/viewer.htm?mapset=kcproperty.

Lichvar, R.W, M. Butterwick, N.C. Melvin, and W.N. Kirchner. 2014. Western Mountains, Valleys, and Coast 2014 Regional Wetland Plant List. Phytoneuron 2014-41: 1-42.

NRCS. Accessed July 2020. Web Soil Survey. United States Department of Agriculture. http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx.

US Army Corps of Engineers. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0). Vicksburg, MS

U.S. Fish & Wildlife Service. 2020a. *IPaC: Information for Planning and Conservation project planning tool*. http://ecos.fws.gov/ipac/.

USFWS. 2019. National Wetlands Inventory (NWI) Online Mapper. http://www.fws.gov/wetlands/Data/Mapper.html.

WA Department of Natural Resources. 2020a. *Forest Practices Activity Mapping Tool*. http://fortress.wa.gov/dnr/app1/fpars/viewer.htm

WA Department of Natural Resources. 2020b. *Wetlands of High Conservation Value Map Viewer*. https://www.dnr.wa.gov/NHPwetlandviewer

WDFW. Accessed July 2020. Priority Habitat and Species (PHS) Interactive Map. http://apps.wdfw.wa.gov/phsontheweb/.

WDFW. Accessed July 2020. SalmonScape Online Mapping Application. http://apps.wdfw.wa.gov/salmonscape/map.html.

Appendix A: Wetland Rating Forms and Figures

Wetland name or number B

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland B (ISD HS #4 and ES #17) Date of site visit: 7/22/19

Rated by MK Trained by Ecology? ✔ Yes ___No Date of training 3/2015

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 IV (based on functions ✔ or special characteristics___)

1. Category of wetland based on FUNCTIONS

_____**Category I** – Total score = 23 - 27

_____**Category II** – Total score = 20 - 22

_____**Category III** – Total score = 16 - 19

✔ **Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	Circle the appropriate ratings			
Site Potential	H M [L]	H [M] L	H M [L]	
Landscape Potential	H [M] L	H [M] L	H M [L]	
Value	H [M] L	H [M] L	H [M] L	**TOTAL**
Score Based on Ratings	**5**	**6**	**4**	**15**

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

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

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

Wetland name or number **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 (*can be added to map of hydroperiods)*	D 1.1, D 4.1	1
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	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	3

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream *(can be added to another figure)*	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

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

Slope Wetlands

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

Wetland name or number **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	☐	Riverine
Slope + Depressional	☐	Depressional
Slope + Lake Fringe	☐	Lake Fringe
Depressional + Riverine along stream within boundary of depression	☐	Depressional
Depressional + Lake Fringe	☐	Depressional
Riverine + Lake Fringe	☐	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	☐	Treat as ESTUARINE

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

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

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

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

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

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

DEPRESSIONAL AND FLATS WETLANDS

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

D 4.0. Does the site have the potential to reduce flooding and erosion?	
D 4.1. Characteristics of surface water outflows from the wetland: ☑ Wetland is a depression or flat depression with no surface water leaving it (no outlet) points = 4 ☐ Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet points = 2 ☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch points = 1 ☐ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 0	**4**
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.* ☐ Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 ☐ Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 ☐ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 ☐ The wetland is a "headwater" wetland points = 3 ☐ Wetland is flat but has small depressions on the surface that trap water points = 1 ☑ Marks of ponding less than 0.5 ft (6 in) points = 0	**0**
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* ☐ The area of the basin is less than 10 times the area of the unit points = 5 ☑ The area of the basin is 10 to 100 times the area of the unit points = 3 ☐ The area of the basin is more than 100 times the area of the unit points = 0 ☐ Entire wetland is in the Flats class points = 5	**3**
Total for D 4 Add the points in the boxes above	**7**

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

D 5.0. Does the landscape have the potential to support hydrologic functions of the site?	
D 5.1. Does the wetland receive stormwater discharges? Yes = 1 No = 0	**0**
D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff? Yes = 1 No = 0	**1**
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)? Yes = 1 No = 0	**0**
Total for D 5 Add the points in the boxes above	**1**

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

D 6.0. Are the hydrologic functions provided by the site valuable to society?	
D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.* The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds): ☐ • Flooding occurs in a sub-basin that is immediately down-gradient of unit. points = 2 ☑ • Surface flooding problems are in a sub-basin farther down-gradient. points = 1 ☐ Flooding from groundwater is an issue in the sub-basin. points = 1 ☐ The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. *Explain why* _____ points = 0 ☐ There are no problems with flooding downstream of the wetland. points = 0	**1**
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	**0**
Total for D 6 Add the points in the boxes above	**1**

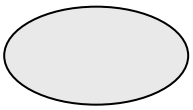
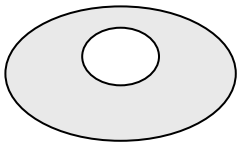
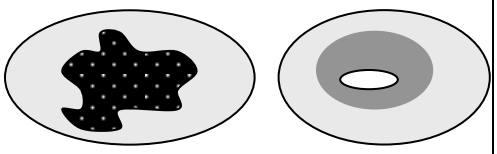
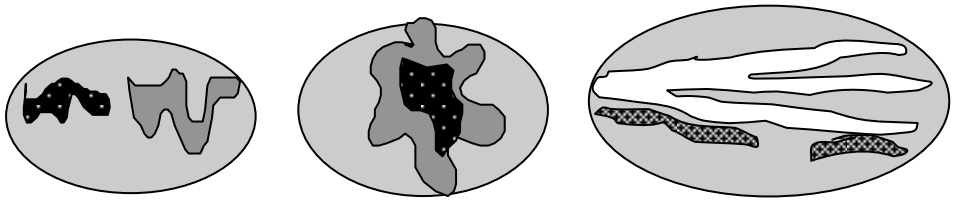
Rating of Value If score is: ___ **2-4 = H** ✔ **1 = M** ___ **0 = L** *Record the rating on the first page*

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	**0**
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ____Permanently flooded or inundated — 4 or more types present: points = 3 ✔___Seasonally flooded or inundated — 3 types present: points = 2 ✔___Occasionally flooded or inundated — 2 types present: points = 1 ✔___Saturated only — 1 type present: points = 0 ____Permanently flowing stream or river in, or adjacent to, the wetland ____Seasonally flowing stream in, or adjacent to, the wetland ____**Lake Fringe wetland** — **2 points** ____**Freshwater tidal wetland** — **2 points**	**2**
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	**1**
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points  **Low** = 1 point  **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3points 	**0**

Wetland name or number **B**

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ____Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). ____Standing snags (dbh > 4 in) within the wetland ____Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ____Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed)* ____At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ____Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	**0**
Total for H 1 — Add the points in the boxes above	**3**

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

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat 2 **+** [(% moderate and low intensity land uses)/2] 0 **=** 2 % If total accessible habitat is: ☐ > $^1/_3$ (33.3%) of 1 km Polygon — points = 3 ☐ 20-33% of 1 km Polygon — points = 2 ☐ 10-19% of 1 km Polygon — points = 1 ☑ < 10% of 1 km Polygon — points = 0	**0**
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* % undisturbed habitat 38 **+** [(% moderate and low intensity land uses)/2] 5 **=** 43 % ☐ Undisturbed habitat > 50% of Polygon — points = 3 ☐ Undisturbed habitat 10-50% and in 1-3 patches — points = 2 ☑ Undisturbed habitat 10-50% and > 3 patches — points = 1 ☐ Undisturbed habitat < 10% of 1 km Polygon — points = 0	**1**
H 2.3. Land use intensity in 1 km Polygon: If ☑ > 50% of 1 km Polygon is high intensity land use — points = (- 2) ☐ ≤ 50% of 1 km Polygon is high intensity — points = 0	**-2**
Total for H 2 — Add the points in the boxes above	**-1**

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

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.* Site meets ANY of the following criteria: — points = 2 ☐ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan ☑ Site has 1 or 2 priority habitats (listed on next page) within 100 m — points = 1 ☐ Site does not meet any of the criteria above — points = 0	**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 *Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt Yes –Go to **SC 1.1** No= **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? Yes = **Category I** No - Go to **SC 1.2**	**Cat. I**
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. Yes = **Category I** No = **Category II**	**Cat. I** **Cat. II**
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? Yes **–** Go to **SC 2.2** No **–** Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? Yes **= Category I** No **= Not a WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf Yes **– Contact WNHP/WDNR and go to SC 2.4** No **= Not a WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? Yes **= Category I** No **= Not a WHCV**	**Cat. I**
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? Yes – Go to **SC 3.3** No – Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes – Go to **SC 3.3** No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? Yes = **Is a Category I bog** No – Go to **SC 3.4** **NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? Yes = **Is a Category I bog** No **= Is not a bog**	**Cat. I**

Wetland name or number B

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

This page left blank intentionally

ISSAQUAH SD - HS #4 AND ES #17

WETLAND RATING FIGURE 1- WETLAND B

LEGEND

- FORESTED VEGETATION
- SATURATED ONLY
- SEASONALLY FLOODED
- OCCASIONALLY FLOODED
- 150' FROM WL BOUNDARY

Scale 1" = 60'

0 30 60 90 120

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 B

Issaquah School District #411

Attn: Tom Mullins

5150 220th Ave SE

Issaquah, WA 98029

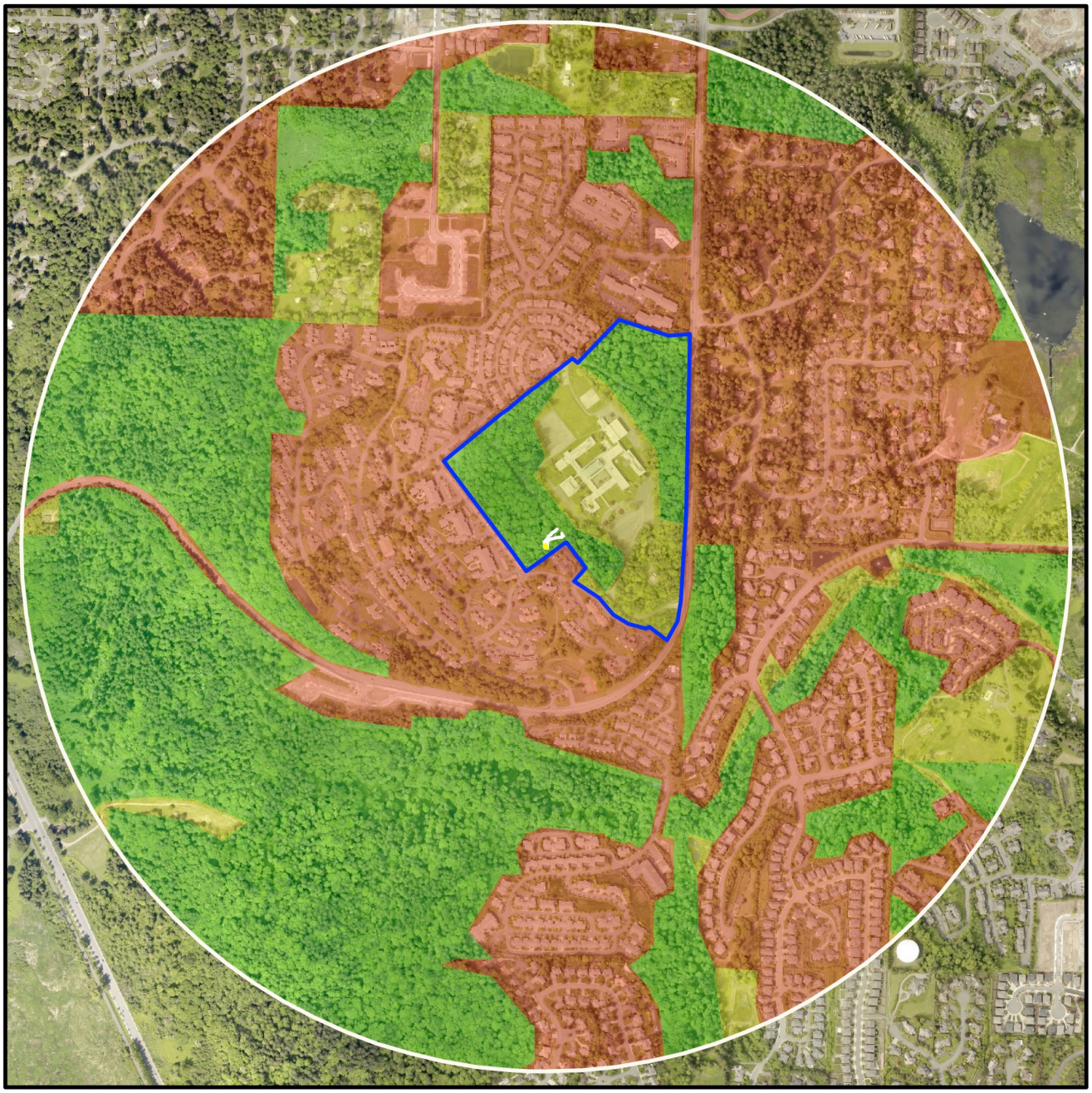
Figure B-1

WRI Job # 19183

Rated by: AR

ISSAQUAH SD - HS #4 AND ES #17

WETLAND RATING FIGURE 2- WETLAND B



CONTRIBUTING BASIN AREA RELATIVE TO WETLAND UNIT IS 15.9:1

LEGEND

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

Scale 1" = 1,000'

0 1,000 2,000

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 B

Issaquah School District #411

Attn: Tom Mullins

5150 220th Ave SE

Issaquah, WA 98029

Figure B-2

WRI Job # 19183

Rated by: AR

ISSAQUAH SD - HS #4 AND ES #17

WETLAND RATING FIGURE 3- WETLAND B

*There is no TMDL for the basin in which this wetland is found

LEGEND

- WETLAND LOCATION
- AQUATIC RESOURCES ON THE 303(d) LIST
- AQUATIC RESOURCES WITH A TMDL

Scale 1" = 1,500'

0 1,500 3,000

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 B

Issaquah School District #411
Attn: Tom Mullins
5150 220th Ave SE
Issaquah, WA 98029

Figure B-3
WRI Job # 19183
Rated by: AR

Wetland name or number C

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland C (ISD HS #4 and ES #17) Date of site visit: 7/22/19

Rated by MK Trained by Ecology? ✔ Yes ___No Date of training 3/2015

HGM Class used for rating SLOPE Wetland has multiple HGM classes?___Y ✔ N

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

OVERALL WETLAND CATEGORY IV (based on functions ✔ or special characteristics___)

1. Category of wetland based on FUNCTIONS

_____**Category I** – Total score = 23 - 27

_____**Category II** – Total score = 20 - 22

_____**Category III** – Total score = 16 - 19

✔ **Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
		Circle the appropriate ratings		
Site Potential	H [M] L	H M [L]	H M [L]	
Landscape Potential	H [M] L	H [M] L	H M [L]	
Value	H [M] L	H [M] L	H [M] L	**TOTAL**
Score Based on Ratings	**6**	**5**	**4**	**15**

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

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

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

Wetland name or number C

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods)*	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream *(can be added to another figure)*	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

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

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	1
Hydroperiods	H 1.2	1
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	4
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to figure above)*	S 4.1	4
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	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	2
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	3
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	3

Wetland name or number C

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 C

NO – go to 6 **YES** – The wetland class is **Riverine**
NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

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

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

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

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

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

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

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

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

Wetland name or number C

SLOPE WETLANDS

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

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

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

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

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

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

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

Wetland name or number C

SLOPE WETLANDS

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

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

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

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

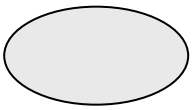
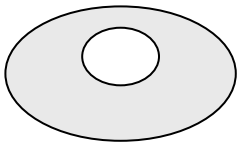
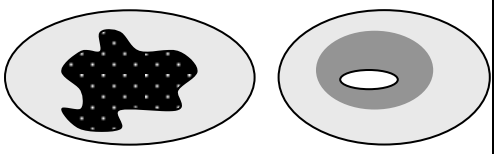
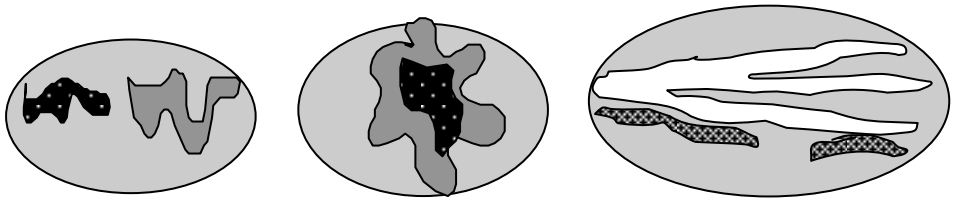
Rating of Landscape Potential If score is: ✔ **1 = M** ___ **0 = L** *Record the rating on the first page*

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

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

NOTES and FIELD OBSERVATIONS:

Wetland name or number C

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

Wetland name or number **C**

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ____Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). ____Standing snags (dbh > 4 in) within the wetland ____Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ____Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed)* ____At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ____Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	**0**
Total for H 1 — Add the points in the boxes above	**1**

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

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat 1 **+** [(% moderate and low intensity land uses)/2] 0 **=** 2 % If total accessible habitat is: ☐ > $^1/_3$ (33.3%) of 1 km Polygon — points = 3 ☐ 20-33% of 1 km Polygon — points = 2 ☐ 10-19% of 1 km Polygon — points = 1 ☑ < 10% of 1 km Polygon — points = 0	**0**
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* % undisturbed habitat 35 **+** [(% moderate and low intensity land uses)/2] 6 **=** 42 % ☐ Undisturbed habitat > 50% of Polygon — points = 3 ☐ Undisturbed habitat 10-50% and in 1-3 patches — points = 2 ☑ Undisturbed habitat 10-50% and > 3 patches — points = 1 ☐ Undisturbed habitat < 10% of 1 km Polygon — points = 0	**1**
H 2.3. Land use intensity in 1 km Polygon: If ☑ > 50% of 1 km Polygon is high intensity land use — points = (- 2) ☐ ≤ 50% of 1 km Polygon is high intensity — points = 0	**-2**
Total for H 2 — Add the points in the boxes above	**-1**

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

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

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

Wetland name or number C

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 C

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.*	Category
SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt Yes –Go to **SC 1.1** No= **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? Yes = **Category I** No - Go to **SC 1.2**	**Cat. I**
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. Yes = **Category I** No = **Category II**	**Cat. I** **Cat. II**
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? Yes **–** Go to **SC 2.2** No **–** Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? Yes **= Category I** No **= Not a WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf Yes **– Contact WNHP/WDNR and go to SC 2.4** No **= Not a WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? Yes **= Category I** No **= Not a WHCV**	**Cat. I**
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? Yes – Go to **SC 3.3** No – Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes – Go to **SC 3.3** No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? Yes = **Is a Category I bog** No – Go to **SC 3.4** **NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? Yes = **Is a Category I bog** No **= Is not a bog**	**Cat. I**

Wetland name or number C

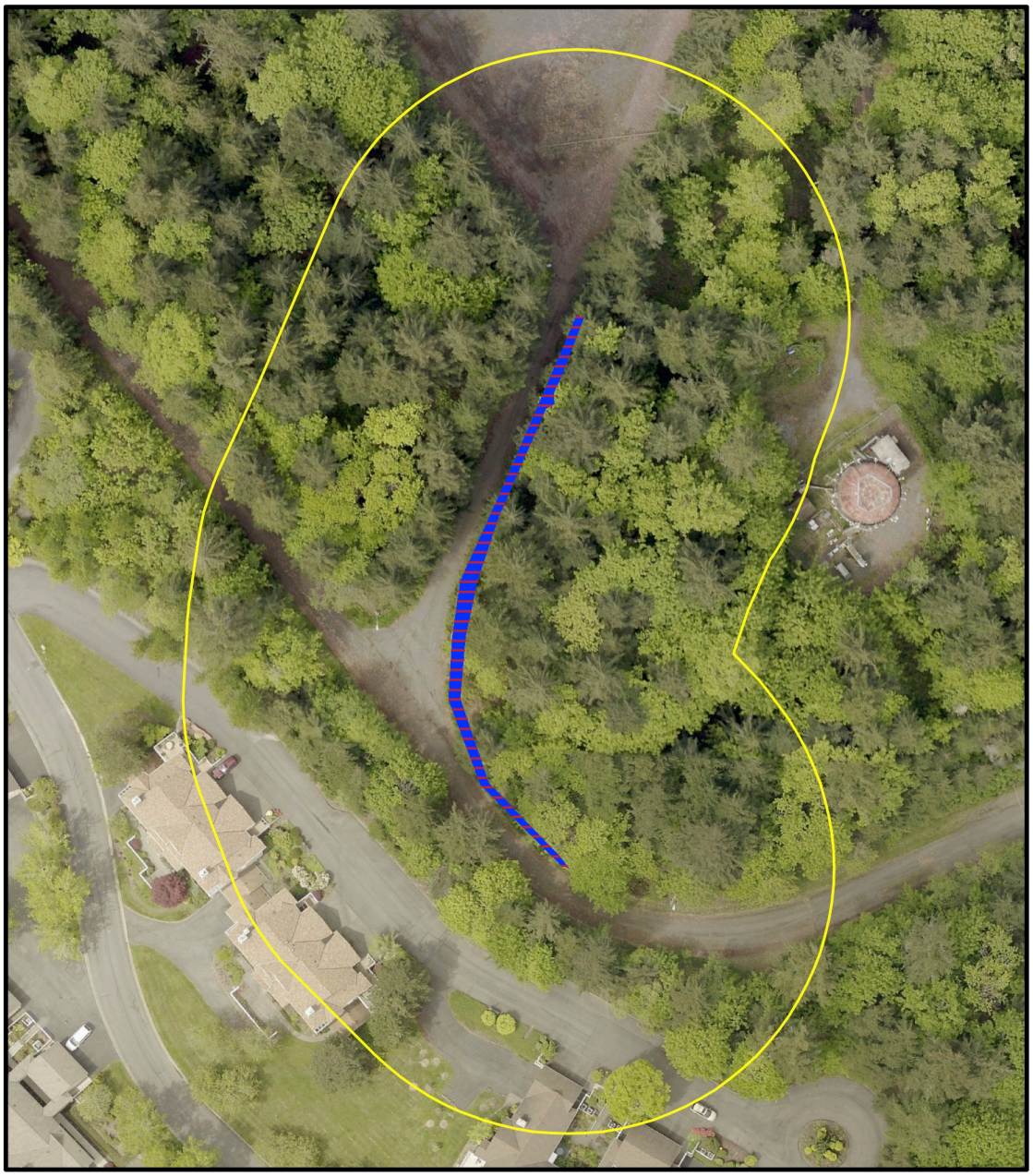
SC 4.0. Forested Wetlands Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.*** ☐ **Old-growth forests**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

Wetland name or number _____

This page left blank intentionally

ISSAQUAH SD - HS #4 AND ES #17

WETLAND RATING FIGURE 1- WETLAND C



Scale 1" = 100'

0 50 100 150 200

LEGEND

EMERGENT VEGETATION

PERMANENTLY FLOODED

150' FROM WL BOUNDARY

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 C

Issaquah School District #411
Attn: Tom Mullins
5150 220th Ave SE
Issaquah, WA 98029

Figure C-1
WRI Job # 19183
Rated by: AR

ISSAQUAH SD - HS #4 AND ES #17

WETLAND RATING FIGURE 2- WETLAND C

LEGEND

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

Scale 1" = 1,000'

0 1,000 2,000

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 C

Issaquah School District #411

Attn: Tom Mullins

5150 220th Ave SE

Issaquah, WA 98029

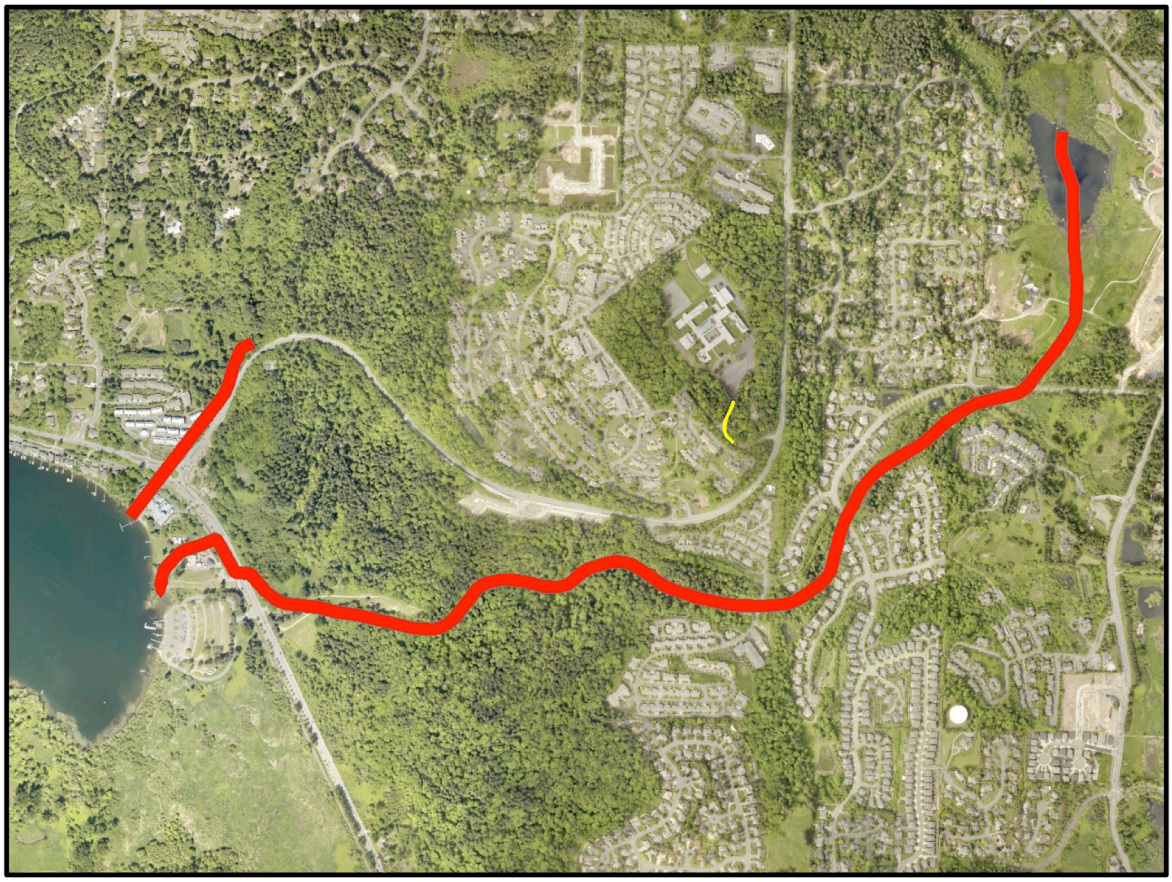
Figure C-2

WRI Job # 19183

Rated by: AR

ISSAQUAH SD - HS #4 AND ES #17

WETLAND RATING FIGURE 3- WETLAND C



*There is no TMDL for the basin in which this wetland is found

LEGEND

- WETLAND LOCATION
- AQUATIC RESOURCES ON THE 303(d) LIST
- AQUATIC RESOURCES WITH A TMDL

Scale 1" = 1,500'

0 1,500 3,000

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 C

Issaquah School District #411

Attn: Tom Mullins

5150 220th Ave SE

Issaquah, WA 98029

Figure C-3

WRI Job # 19183

Rated by: AR

ISSAQUAH SD - HS #4 AND ES #17
WETLAND RATING FIGURE 4 - WETLAND C

Scale 1" = 100'

0 50 100 150 200

LEGEND

WETLAND

DENSE UNCUT HERBACEOUS

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 C

Issaquah School District #411
Attn: Tom Mullins
5150 220th Ave SE
Issaquah, WA 98029

Figure C-4
WRI Job # 19183
Rated by: AR

APPENDIX B: WETLAND DETERMINATION DATA FORMS

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

Project/Site: 19183 Issaquah SD HS #4 and ES #17 City/County: Issaquah Sampling Date: 7/22/19

Applicant/Owner: Issaquah School District State: WA Sampling Point: S1

Investigator(s): Meryl Kamowski Section, Township, Range: S16, T24N, R6E, W.M.

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

Subregion (LRR): LRR A Lat: 47.569597 Long: -122.039740 Datum: WGS 84

Soil Map Unit Name: Alderwood gravelly sandy loam, 15 to 30 percent slopes NWI classification: ____

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 ☐ No ☑	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐ No ☑	
Wetland Hydrology Present?	Yes ☐ No ☑	

Remarks:

Data pit taken within ditch by Wetland A

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 15 feet	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer macrophyllum	70	Y	FACU
2.			
3.			
4.			
	70	= Total Cover	
Sapling/Shrub Stratum (Plot size: 10 feet			
1. Rubus armeniacus	25	Y	FACU
2. Symphoricarpos albus	20	Y	FACU
3. Oemleria cerasiformis	10	N	FACU
4.			
5.			
	55	= Total Cover	
Herb Stratum (Plot size: 5 feet			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
		= Total Cover	
Woody Vine Stratum (Plot size:			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	125	x 4 =	500
UPL species	0	x 5 =	0
Column Totals:	125 (A)		500 (B)

Prevalence Index = B/A = 4.0

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks:

SOIL

Sampling Point: S1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	2.5Y 3/2	100	-	-	-	-	Cl Lo	
4-16	2.5Y 5/4	75	10YR 5/8	25	C	M	Cl Lo	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

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: 19183 Issaquah SD HS #4 and ES #17 City/County: Issaquah Sampling Date: 7/22/19

Applicant/Owner: Issaquah School District State: WA Sampling Point: S2

Investigator(s): Meryl Kamowski Section, Township, Range: S16, T24N, R6E, W.M.

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

Subregion (LRR): LRR A Lat: 47.569597 Long: -122.039740 Datum: WGS 84

Soil Map Unit Name: Alderwood gravelly sandy loam, 15 to 30 percent slopes NWI classification: ____

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 ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:

Data pit taken within Wetland B

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 15 feet	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus balsamifera	25	Y	FAC
2.			
3.			
4.			
	25	= Total Cover	
Sapling/Shrub Stratum (Plot size: 10 feet			
1. Rubus spectabilis	10	Y	FAC
2.			
3.			
4.			
5.			
	10	= Total Cover	
Herb Stratum (Plot size: 5 feet			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
		= Total Cover	
Woody Vine Stratum (Plot size:			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: S2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/2	100	-	-	-	-	Si Lo	
10-11	10YR 6/2	100	10YR 5/8	5	C	M	FSL	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Soil impenetrable after 11 inches of depth.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ☐	No ☑	Depth (inches): _____
Water Table Present?	Yes ☐	No ☑	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes ☐	No ☑	Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

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: 19183 Issaquah SD HS #4 and ES #17 City/County: Issaquah Sampling Date: 7/22/19

Applicant/Owner: Issaquah School District State: WA Sampling Point: S3

Investigator(s): Meryl Kamowski Section, Township, Range: S16, T24N, R6E, W.M.

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

Subregion (LRR): LRR A Lat: 47.569597 Long: -122.039740 Datum: WGS 84

Soil Map Unit Name: Alderwood gravelly sandy loam, 15 to 30 percent slopes NWI classification: ____

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 ☐ No ☑	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐ No ☑	
Wetland Hydrology Present?	Yes ☐ No ☑	

Remarks:

Data pit taken within a ditch near on-site wetland areas.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 15 feet	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer macrophyllum	35	Y	FACU
2. Frangula purshiana	25	Y	FAC
3. Populus balsimifera	15	Y	FAC
4.			
	75	= Total Cover	

Sapling/Shrub Stratum (Plot size: 10 feet			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	

Herb Stratum (Plot size: 5 feet			
1. Pteridium aquilinum	10	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	10	= Total Cover	

Woody Vine Stratum (Plot size:			
1. Rubus ursinus	10	Y	FACU
2.			
	10	= Total Cover	

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	40	x 3 =	120
FACU species	55	x 4 =	220
UPL species	0	x 5 =	0
Column Totals:	95 (A)		340 (B)

Prevalence Index = B/A = 3.58

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks:

SOIL

Sampling Point: S3

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/2	100	-	-	-	-	Si Lo	
5-12	2.5Y 4/3	100	-	-	-	-	Fi Sa Lo	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

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: 19183 Issaquah SD HS #4 and ES #17 City/County: Issaquah Sampling Date: 7/22/2019

Applicant/Owner: Issaquah School District State: WA Sampling Point: S4

Investigator(s): Meryl Kamowski Section, Township, Range: S16, T24N, R6E, W.M.

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

Subregion (LRR): LRR A Lat: 47.569597 Long: -122.039740 Datum: WGS 84

Soil Map Unit Name: Alderwood gravelly sandy loam, 15 to 30 percent slopes NWI classification: ____

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 ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:

Data pit taken within Wetland C

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		

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

Herb Stratum (Plot size: 5 feet)			
1. Phalaris arundinacea	90	Y	FacW
2. Juncus effusus	10	N	FacW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		

Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	0	x 3 = 0
FACU species	0	x 4 = 0
UPL species	0	x 5 = 0
Column Totals:	0 (A)	0 (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: S4

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 3/2	93	10YR 4/6	7	C	M	sacl	
7-15	10YR 4/2	90	10YR 4/6	5	C	M	sacl	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): 0

Wetland Hydrology Present? Yes ☑ No ☐

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: 19183 Issaquah SD HS #4 and ES #17 City/County: Issaquah Sampling Date: July 22, 2019

Applicant/Owner: Issaquah School District State: WA Sampling Point: S5

Investigator(s): Meryl Kamowski Section, Township, Range: S16, T24N, R6E, W.M.

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

Subregion (LRR): LRR A Lat: 47.569597 Long: -122.039740 Datum: WGS 84

Soil Map Unit Name: Alderwood gravelly sandy loam, 15 to 30 percent slopes NWI classification: ____

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 ☐ No ☑	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐ No ☑	
Wetland Hydrology Present?	Yes ☐ No ☑	

Remarks:

Data pit taken within a ditch near on-site wetland areas.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 15 feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer macrophyllum	65	Y	FACU
2. Pseudotsuga menziesii	20	Y	FACU
3.			
4.			
	85	= Total Cover	

Sapling/Shrub Stratum (Plot size: 10 feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Mahonia nervosa	25	Y	FACU
2. Pseudotsuga menziesii (sapling)	15	N	FACU
3. Oemleria cerasiformis	15	N	FACU
4.			
5.			
	55	= Total Cover	

Herb Stratum (Plot size: 5 feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Polystichum munitum	35	Y	FACU
2. Rubus ursinus	25	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	60	= Total Cover	

Woody Vine Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	100	x 4 =	400
UPL species	0	x 5 =	0
Column Totals:	100 (A)		400 (B)

Prevalence Index = B/A = 3.58

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks:

SOIL

Sampling Point: S5

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 2/2	100	-	-	-	-	Sa Lo	
5-12	10YR 3/3	100	-	-	-	-	Sa Lo	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

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

Remarks:

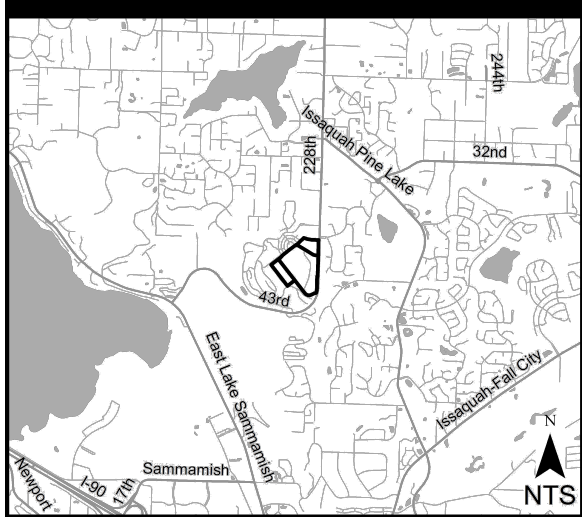
Appendix C: Critical Area Study Maps

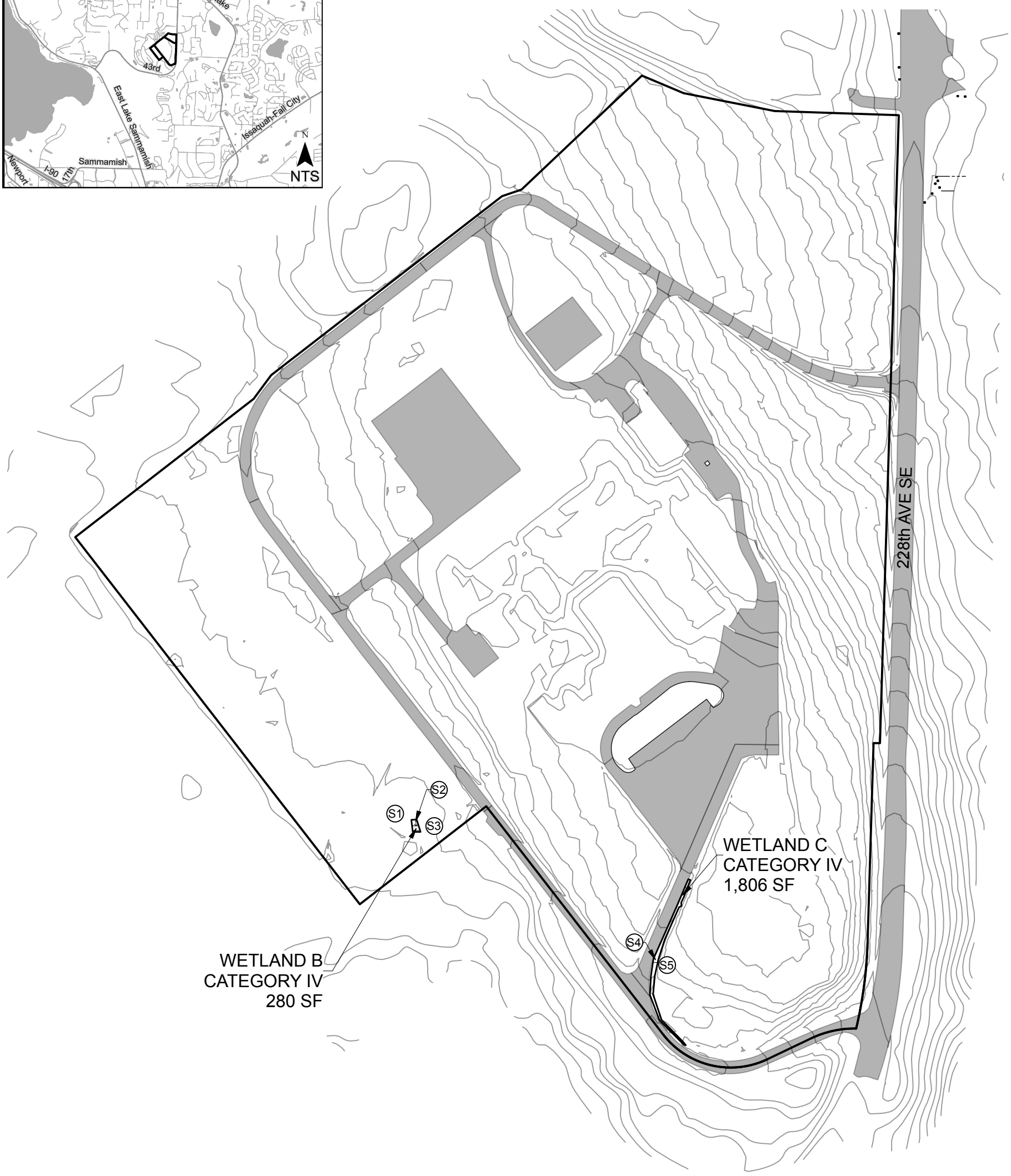
CRITICAL AREA STUDY - EXISTING CONDITIONS MAP

ISSAQUAH SCHOOL DISTRICT - HIGH SCHOOL #4 AND ELEMENTARY #17

PORTION OF SECTION 16, TOWNSHIP 24N, RANGE 6E, W.M.

VICINITY MAP





LEGEND

WETLAND

S1–S5 DATA SITES

Scale 1" = 200'

0 100 200 300 400

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

Critical Area Study - Existing Conditions Map
Issaquah School District - High School #4 and Elementary School #17
Jurisdiction

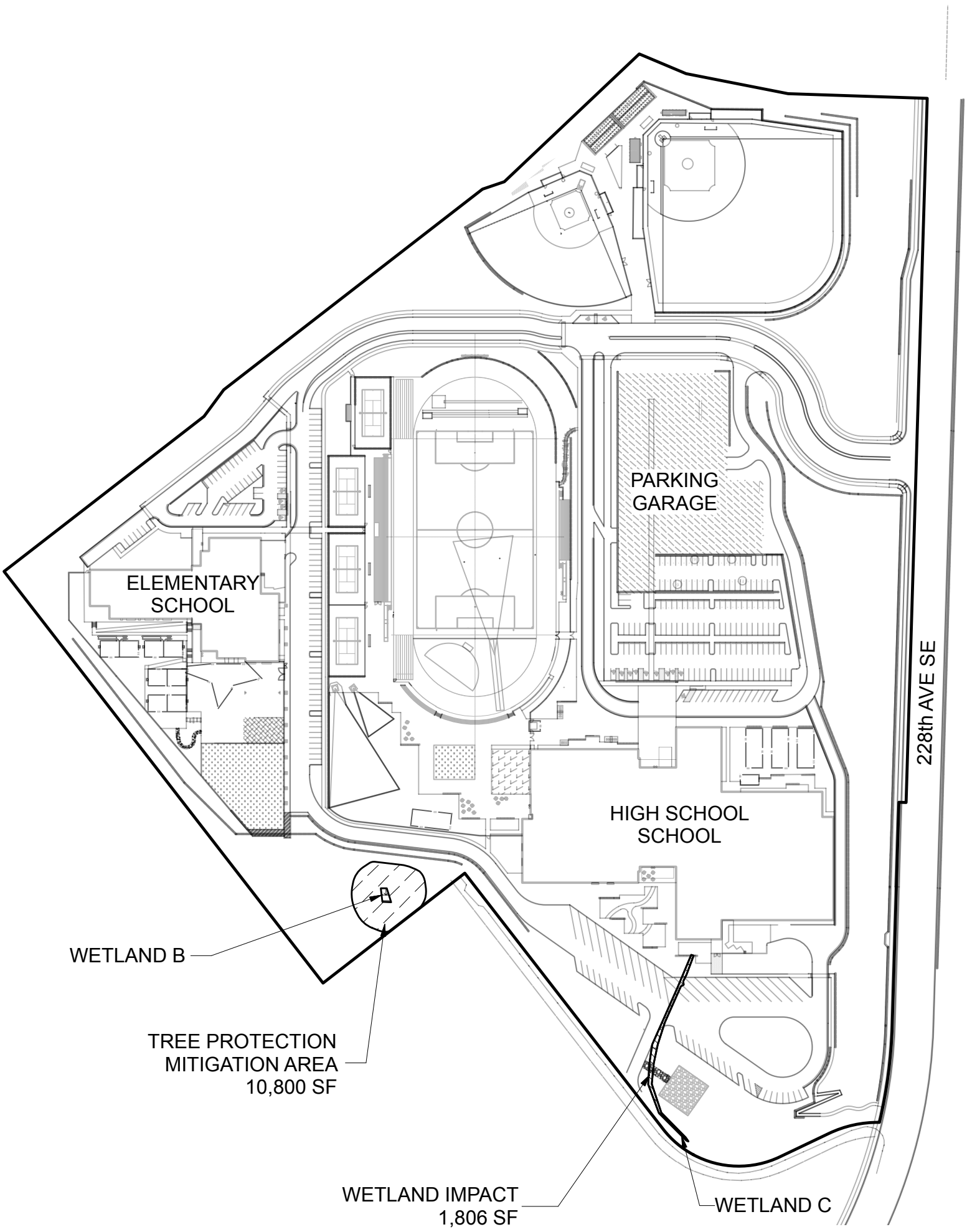
Issaquah School District
Attn: Tom Mullins
565 NW Holly Street
Issaquah, WA 98027

Sheet 1/2
WRI Job#: 19183
Drawn by: MK
Date: 7/10/2020

CRITICAL AREA STUDY - PROPOSED DEVELOPMENT AND MITIGATION MAP

ISSAQUAH SCHOOL DISTRICT - HIGH SCHOOL #4 AND ELEMENTARY #17

PORTION OF SECTION 16, TOWNSHIP 24N, RANGE 6E, W.M.



LEGEND	
	WETLAND
	WETLAND IMPACT
	MITIGATION AREA

Scale 1" = 200'

0 100 200 300 400

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

Critical Area Study - Proposed Development and Mitigation Map
Issaquah School District - High School #4 and Elementary School #17
City of Issaquah

Issaquah School District
Attn: Tom Mullins
565 NW Holly Street
Issaquah, WA 98027

Sheet 2/2
WRI Job#: 19183
Drawn by: MK
Date: 7/10/2020