J. S. Jones and Associates, Inc.

Critical Area Study
and
Watercourse and Wetland Buffer Reduction

of the

Valentin Property
East of 4346 E. Mercer Way
Mercer Island, WA 98046

Tax Parcel Numbers: 004610-0150 and 004610-0151
Southeast Quarter of the Northeast Quarter of Section 18,
Township 24N, Range 5E

Prepared for:
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2 Project Description

The applicant proposes to construct a single-family residence on parcel 004610-0150. Parcel 0150 is within the shoreline of Lake Washington. The existing single-family residence and detached garage will not be modified. The applicants are the owner of the subject properties.

This Critical Area Study has been prepared in accordance with 19.07.050 of the Mercer Island City Code (MICC) for wetlands and watercourses. Shorelines and geological hazard areas are not addressed in this report. The temporary erosion and sediment control plan (TESCP) is not part of this critical area study.

3 Parcel Identification Nos. & Abbreviated Legal Descriptions

The tax parcel numbers are 004610-0150 and 004610-0151. The subject study area is located in the northeast quarter Section 18, Township 24 North, Range 5 East, of the Willamette Meridian. The parcel locations are shown on Figure 1. The private paved access road, off of East Mercer Way, is unnamed. The subject properties are legally described as follows:

1. 004610-0150
    - ADAMS LAKE WASHINGTON TRS POR OF N 20 FT OF 3 & S 55 FT OF 2 ELY OF TR OF LAND DESC IN CONT RECD 9/10/49 IN VOL 2873 OF DEEDS PG 423 & 2ND C SH LDS ADJ
2. 004610-0151
    - ADAMS LAKE WASHINGTON TRS POR WLY OF LN BEG AT NW COR OF 2 TH E 1239.90 FT TH S 80 DEG 14 MIN 00 SEC E 465.90 FT TH S 16 DEG 58 MIN 00 SEC W 15.11 FT TH S 80 DEG 14 MIN 00 SEC E 42.54 FT TH ON CURVE TO RT RAD 36.15 FT DIST OF 31.78 FT TH ON CURVE TO LFT RAD 38 FT DIST OF 53.86 FT WH IS SLY LN OF TURN AROUND TO TPOB TH S 36 DEG 48 MIN 30 SEC E 65.05 FT TH S 14 DEG 51 MIN 30 SEC E 36.77 FT TH S 08 DEG 30 MIN 00 SEC W 46.75 FT TH S 39 DEG 38 MIN 00 SEC W & ELY OF LN BEG AT PT ON SLY MGN OF TURN AROUND S 10 DEG 53 MIN 34 SEC W 38 FT FR CEN OF SD TURN AROUND TH S 36 DEG 52 MIN 13 SEC E 72.74 FT TH S 14 DEG 55 MIN 13 SEC E 38.66 FT TH S 01 DEG 14 MIN 23 SEC W 50.01 FT TO ELY LN FIRST DESC & SLY OF SLY LN OF TURN AROUND
    -

4 Methodology

The wetland assessment and delineation were performed using the 1997 Washington State Wetlands Identification and Delineation Manual (DOE, 1997); and U.S. Army Corps of Engineers, Technical Report Y-87-1 (on-line edition), Corps of Engineers Wetlands Delineation Manual by Environmental Laboratory January 1987 - Final Report (COE, 1987); and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0), Environmental Laboratory U.S. Army Corps of Engineers May 2010 (COE, 2010). The wetland determination was based on the presence of the three criteria for jurisdictional wetlands: hydric soils, wetland hydrology, and hydrophytic vegetation. All three criteria must be present in order to classify an area as wetland. Wetlands were rated with the Washington State Wetland Rating System for Western Washington: 2014 Update. (Publication #14-06-029). Olympia, WA: Washington Department of Ecology (Hruby, T., 2014).

The assessment included a review of the National Wetland Inventory, the Department of Natural Resources Forest (DNR) FPARS stream mapping, the City of Mercer Island Critical Area Maps, and the USDA National Resource Conservation Service's online soil survey, https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx.

The field delineations were performed on November 24, 2016 and February 17, 2017. The weather was raining on both days. February 15, 2017 was the wettest Feb 15th on record. The delineator was Jeffery S. Jones, SWS Professional Wetland Scientist No. 1025. The wetland boundary was flagged with consecutive numbered orange survey flagging. The wetland flag numbers are A-1 to A-6 (see Critical Area Map). There are four sample locations identified as SL-1, SL-2, SL-3, and SL-4.

5 General Site Description

The two parcels adjoin one another. Parcel 004610-0151 is a vacant property with landscaping. Parcel 004610-0150 is a vacant property that is lawn, landscaping and beach. See attached photos and parcel map.

There is a partially piped stream running from near the west property line to Lake Washington. The pipeline is a 12-inch diameter concrete pipe. The location of the pipe and open sections are provided on the site plan.

Adjacent properties to the north and west have single-family residences. The property to the south is community property. The properties are served by sewer, water, gas, cable and electricity.

6 Vegetation

6.1 Vegetation Methodology

Hydrophytic vegetation has adaptations that allow these species to survive in saturated or inundated environments. These environments are classified according to the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin, 1979). The probability of species being found in wetland environments has been determined by the 2016 National Wetland Plant List, v. 3.3 (http://wetland-plants.usace.army.mil/nwpl_static/index.html) (COE, 2016). An indicator status was applied to each species according to its probability of occurring in wetlands (see Plant Indicator Status Table below).

Table 1: Plant Indicator Status

Indicator Category	Symbol	Occurrence in Wetlands
Obligate Wetland	OBL	> 99%
Facultative Wetland	FACW	67-99%
Facultative	FAC	34-67%
Facultative Upland	FACU	1-33%
Upland	UPL	< 1%

Vegetation data was recorded in four sample locations. At each sample location, the dominant species were assessed by indicator status to determine if the plant community was predominantly hydrophytic. Rules for determining dominant species are from the Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (USACOE, 2008). Dominants were determined using the 50/20 rule. Using this rule, percent cover for each stratum was added by order of descending cover until 50% cover was reached. These species were considered dominants. The next most common species was also included as a dominant if it had over 20% cover.

6.2 Vegetation Results

- Sample location-1 (SL-1) is situated 6 feet northeast of the flag pole, above the bulkhead. At sample location 1 (SL-1), the plant community is dominated by Nootka rose (*Rosa nutkana*, FAC), yellow iris (*Iris pseudacorus*, OBL) and unidentified lawn grasses (*Gramineae* spp., FAC). The plant community is hydrophytic because 50% or more of the dominant species are OBL, FACW, or FAC.
- SL-2 is situated 24 feet northwest of the flag pole, above the bulkhead. The plant community is dominated by red-osier dogwood (Cornus nuttalli, FACW), Nootka rose (*Rosa nutkana*, FAC), small-fruited bulrush (Scirpus microcarpus, OBL), unidentified lawn grasses (*Gramineae* spp., FAC) and morning glory (*Ipomoea* spp., FACW-FACU). The plant community is hydrophytic because 50% or more of the dominant species are OBL, FACW, or FAC.
- SL-3 is situated 30 feet southeast of the flag pole, above the bulkhead. The plant community is dominated by unidentified lawn grasses (*Gramineae* spp., FAC). The plant community is hydrophytic because 50% or more of the dominant species are OBL, FACW, or FAC.
- SL-4 is situated 15 feet east of a large Douglas fir tree between the existing house and bulkhead, approximately 100 feet west of the shoreline. The plant community is dominated by Douglas fir (*Pseudotsuga menziesii*, FACU), and unidentified lawn grasses (*Gramineae* spp., FAC). The plant community is hydrophytic because 50% or more of the dominant species are OBL, FACW, or FAC.

7 Hydrology

7.1 Hydrology Methodology

The *Corps of Engineers Wetlands Delineation Manual* (USACOE, 1987) and the *Washington State Wetlands Identification and Delineation Manual* (WADOE, 1997) require inundation, flooding, or saturation to the surface for at least 5% of the growing season to satisfy the hydrology requirements for jurisdictional wetlands. Areas that are saturated between 5% and 12.5% of the growing season may or may not be wetlands. The growing season can either be defined by the number of frost-free days (temperatures above 28^{o}F), or the period during which the soil temperature at a depth of 19.7 inches is above biological zero (41^{o}F). The presence of primary and secondary wetland hydrologic indicators was determined at each sample location by evaluating a variety of direct and indirect indicators. In addition to direct visual observation of inundation or saturation, secondary hydrologic indicators were used to infer wetland hydrology. Secondary indicators include oxidized channels (rhizospheres) associated with living roots and rhizomes, water marks on vegetation or fixed objects, drift lines, water-borne sediment deposits, water stained leaves, surface scoured areas, wetland drainage patterns, morphological plant adaptations, and hydric soil characteristics.

7.2 Hydrology Results

- SL-1 meets the hydrology criteria for wetlands. The upper soils profile was saturated to the soil surface.
- SL-2 meets the hydrology criteria for wetlands. The upper soils profile was saturated to the soil surface.
- SL-3 meets the hydrology criteria for wetlands. The upper soils profile was saturated at 10 inches below the soil surface.

- SL-4 does not meet the hydrology criteria for wetlands. The upper soils profile, 0-18", was not saturated.

8 Soils

8.1 Soils Methodology

The procedures for soil sampling are provided in the Corps of Engineers Wetlands Delineation Manual (USACOE, 1987) and the Washington State Wetlands Identification and Delineation Manual (WADOE, 1997).

Hydric soils are soils that are "saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part (U.S. Army COE, 1987)". They are either organic soils (peats and mucks), or are mineral soils that are saturated long enough to produce soil properties associated with a reducing environment. These soils have hydric characteristics such as a reduced matrix (a matrix that changes color when exposed to air), redox depletions (gleying), or redox concentrations (mottles).

8.2 Soil Series

The USDA Soil Conservation Service (SCS) mapped the on-site soils as Kitsap silt loam, 2 to 8 percent slopes (Kb) and Kitsap silt loam, 15 to 30 percent slopes (Kd) (see attached Soils Map). Kitsap silt loan is not a hydric soil series.

8.3 Soils Results

The soils on the lake side of the residence have been altered by grading and landscaping activities that occurred prior to critical area regulations. Investigation of the soils found a texture and profile most like the Kitsap soil series and sandy loams that are fill material adjacent the bulkhead.

- SL-1 is a sandy loam fill material placed above the rock bulkhead. From 0 to 16+ inches, the soil is a very dark brown (10YR 3/2) sandy loam. The soil is non-hydric because it is not a one chroma or a two-chroma with mottles.
- SL-2 is a sandy loam fill material placed above the rock bulkhead. From 0 to 16+ inches, the soil is a very dark brown (10YR 2/2–10YR 3/2) sandy loam. From 12 to 18+ inches, the soil is non-hydric because it is not a one chroma or a two-chroma with mottles.
- SL-3 is a sandy loam fill material placed above the rock bulkhead. From 0 to 4 inches, the soil is a very dark brown (10YR 2/2) sandy loam. From 4 to 16+ inches, the soil is a gray (10YR 6/1) sandy loam with prominent (10YR 5/8) mottles. The soil is hydric because has a one chroma matrix and prominent mottling (WADOE, 1997)
- SL-4 is a Kitsap gravel silt loam. From 0 to 6 inches, the soil is black (10YR 2/1) gravelly sandy loam. From 6 to 16+ inches, the soil is a dark grayish brown (10YR 2/2) gravelly sandy loam. The soil is non-hydric because it lacks a two-chroma with mottling.

9 Wetland Determination, Rating and Buffer

The eastern portion of the lawn on parcel 004610-0150 is wetland, identified as Wetland A. Soils were observed to be saturated with a shallow perched water table. Prominent mottling and gleyed soils was observed at SL-3. The plant community is dominated by grasses, red-osier dogwood, and non-native shrubs. SL-1 and SL-2 lack hydric soils characteristics. The wetland boundary is

defined by the extent of saturated soils, topography and a low rock bulkhead. Below the bulkhead is a sand beach.

The wetland is rated as a Category IV, with a standard 35-foot buffer requirement, according to Section 19.07.080.C of the MICC.

Figure 1: Wetland

10 Stream Determination, Rating, and Buffer

The Mercer Island stream inventory identifies the potential presence of a stream on the subject parcel (see attached Mercer Island Stream Inventory Map). The stream is an open trench, from the 12" concrete pipe outfall to the lake. This was not the natural location of a stream, but was previously channelized, meaning the final section was trenched.

There is a rock drop at the lake. The water level of the lake rarely extends to the rock drop. Fish have never been observed in the trench, including during October of 2016 and February of 2017, which had peak precipitation events. Even if fish could enter this open trench, the trench is not a safe refuge, provides no habitat, and does not provide access to habitat upstream.

From the lowest pipe outlet, the stream is piped 80 feet; then there is a section that is 15 lineal feet long; immediately upstream there is a 3-foot vertical concrete drop structure; upstream from the vertical drop the stream is mostly piped with an open section between the garage and house entry walkway, see photos.

The lower section may have been previously piped. The very highest rating would be a Type 2, because it is “not used by fish”. However, the City’s peer review rates the unpiped portion of the trench, as a Type 1 along the lower watercourse that is closest to Lake Washington. For buffer reduction purposes, a Type 1 rating for the lower watercourse will be assumed in this Critical Areas Study. The two open sections of the stream between the piped sections are opened previously piped and therefore considered Restored. Type 1 watercourses require a 75-foot, Restored watercourses require a 25-foot and the piped sections require a 25-foot standard buffer width according to Section 19.07.070.B.1.b of the MICC. A Type 1 watercourse buffer can be reduced to 37 feet with vegetative enhancement. A Restored watercourse buffer can be reduced to an amount determined by the Code official. A buffer for a restored or piped watercourse can be reduced from the standard 25 feet to an amount determined by the code official.

The 12-inch concrete pipeline constitutes a piped watercourse, although there are several short concrete rocked open sections and two short open sections. The pipe is not fish passable. The high velocity of flows in the pipe during peak runoff events, drop structures, and small pipe diameter are significant impediments to fish passage. The Mercer Island City Code, Section 19.07.070.B.4.a, does not allow piped conveying watercourses to be removed that may result in an increased threat of erosion. The standard buffer for a restored or piped watercourse is 25 feet, according to Section 19.07.070.B.1.b of the MICC.

Lake Washington is a shoreline of the state. The required setback from the ordinary high water mark is 25 feet, per MICC 9.07.110.E.1.Table C. Row A.

11 Critical Area Buffers

The critical areas serving the wetland and watercourse are mostly surrounded by lawn or landscaped areas. The north portion of the critical area buffer consists of trees forming a natural barrier to the adjacent property. Tree species include white paper birch, plum, western red cedar as well as pacific rhododendron, roses and holly. There is an English laurel hedge along this area. See picture below. The understory consists of English ivy and ornamental plantings. Closest to the lake there is a significant weeping willow. Existing buffer intrusions include a 92 square feet large permanent coal-fired brick/stone/steel BBQ structure within the watercourse buffer and a 330 square feet large brick patio on top of the piped watercourse (See pictures below).

Figure 2: Natural Vegetation Barrier

Figure 3: Permanent coal-fired brick/stone/steel BBQ Structure, 92 sqf

Figure 4: Brick Patio ~330 sqf large

12 Proposed Project, Wetland and Stream Buffers

The purpose of the project is to construct a single-family residence while at the same time increase protection of the critical areas. A proposed site plan has been designed with wetland and stream buffers reduced to:

- Category IV wetland: 25 feet
- Type 1 watercourse: 37 feet
- Restored watercourse: 16 feet
- Piped watercourse (limited section of total 80 ft): 3 feet

The existing buffer along the watercourse and wetland consist mainly of large open , non-native grass areas and provide for almost nonexistent buffer or habitat functions. This is an opportunity to be enhanced. Any potential impacts of the project where buffer enhancement is not possible (such as drive way access) will be mitigated by using a combination of approved mitigation options (criterion for approval in 19.07.**070**.B.2.a and 19.07.**080**.C.2.

13 Buffer Reduction Criteria and Mitigation Measures

13.1 Buffer Reduction Criteria

A. Watercourse Buffer Reduction

MICC 19.07.070.B.2.a language *(in italics)* states the following for *the standard* ***buffer*** *width to be reduced to not less than the above listed minimum width*, within MICC 19.07.070.B.1, *in accordance with an approved* ***critical area study*** *when he/she determines that*

i) a smaller area is adequate to protect the ***watercourse****,*

Analysis:

The definition of buffer is "A designated area adjoining a critical area intended to protect the critical area from degradation." The definition of "degrade" is "to wear down by erosion" (Merriam-Webster). The existing buffer consists almost entirely of lawn. The buffer will be enhanced with additional native vegetation. The enhanced vegetation will protect the watercourse from degradation, or erosion, by (a) slowing storm water, which allows infiltration into the soil mantle prior to reaching the existing bank of the watercourse. Additional storm water created by impervious surfaces will be directed into a storm water management system, which further prevents any degradation, or erosion, from occurring.

ii) the impacts will be mitigated by using combinations of the below mitigation options, and

Analysis:

MICC 19.07.070.B.2.b lists approved mitigation options to meet the criteria of approval. The proposal will meet the requirement with "habitat enhancement within the watercourse such as…creating enhanced wetlands,…", and "habitat enhancement within the watercourse such as log structure placement…" These mitigation measures are options approved by MICC 19.07.070.B.2.b.ii & iv.

iii) the proposal will result in ***no net loss*** *of* ***watercourse*** *and* ***buffer*** *functions.*

Analysis:

MICC 19.16.010.N defines "no net loss" as "an ecological concept whereby conservation losses in one geographic or otherwise defined area are equaled by conservation gains in function in another area."

The current functions of the watercourse buffers are limited to human, small migratory birds, small to medium size mammals, amphibians, and insects. No habitat features are present other than the stream.

The table below analyses the existing functions, proposed functions, and no net loss analysis of each function for the watercourse and wetland.

Table 2: Net Loss Analysis

FUNCTIONS OF CRITICAL AREA AND ASSOCIATE BUFFER	EXISING CONDITIONS	PROPOSED CONDITIONS	NO NET LOSS ANALYSIS
Terrestrial Animalia Functions	Used for human activity, small migratory birds, small to medium size mammals, amphibians, and insects.	Native vegetation will reduce human activity, and increase use by migratory birds, small to medium size mammals, amphibians, and insects.	Planting native groundcover and tall shrubs will decrease the barriers of human activity, while increasing the use by native terrestrial animals.

			This results in a net increase in the native function.
Water Quality Functions	The current buffer provides little to no water quality functions and encourages the use of pesticides.	Native vegetation will be established in the critical area buffers through planting of native trees, shrubs, and groundcovers.	Establishing dense, rigid native vegetation will improve the ability to slow surface water flowing towards the stream and wetland. The slowing will help filter and capture nutrients and sediments that would enter the critical area. This reduction in nutrients reduces eutrophication and increases in water visibility. Therefore, there would be a net increase in the water quality functions.
Hydrology Functions	The current hydrologic function of the critical area buffers is limited by sparsely vegetated areas, non-native grass, and buffer intrusions.	Native vegetation will be established in the critical area buffers through planting of native trees, shrubs, and groundcovers.	The addition of trees, shrubs, and groundcover plants will help attenuate flood flow during heavy rain events.
Habitat Functions	The habitat function of the critical area buffers is limited by low understory vegetative density, low structural diversity, and prevalence on non-native plant species.	All non-native plant species will be removed. Native vegetative density will be established in the critical area buffers through planting of native trees, shrubs, and groundcovers. In addition, the stream outlet will be lowered to remove blockage.	Understory planting of trees, shrubs, and groundcover plants will increase vegetative density and structural diversity, improving cover, forage opportunities for wildlife, and nutrients into the watercourse. The lowering of stream outlet will provide a net gain in habitat.
Overall Functions	No to moderate functioning critical area buffers in the project area currently exist. Existing buffers are characterized by a relatively open or sparsely vegetated understory.	Planting of native trees, shrubs, and groundcovers in existing non-vegetated stream buffer areas. Lowering of the stream outlet (see above).	The proposed project is expected to improve ecological functions over existing conditions. This includes terrestrial habitat, hydrology, and water quality functions of the critical area buffers. Overall no net loss of functions is expected.

iv) However, in no case shall a reduced buffer contain a steep slope.

Analysis:

A steep slope is defined by MICC 19.16.010.L *as any slope of 40 percent or greater calculated by measuring the vertical rise over any 30-foot horizontal run*. Per the topographic map submitted with the application, no portion of the existing or proposed buffer would have a slope of 40 percent or greater calculated by measuring the vertical rise over any 30-foot horizontal run.

B. Wetland Buffer Reduction

MICC 19.07.080.C.2 language *(in italics)* states the following for *the standard wetland buffer width to be reduced to not less than the minimum buffer width in accordance with an approved critical area study when he/she determines that*

i) a smaller area is adequate to protect the wetland functions,

Analysis:

Please see Table: Net Loss Analysis for an analysis of the wetland functions.

ii) the impacts will be mitigated consistent with MICC 19.07.070(B)(2), and

Analysis:

MICC 19.07.070.B.2.b lists approved mitigation options to meet the criteria of approval. The proposal will meet the requirement with "habitat enhancement within the watercourse such as…creating enhanced wetlands,…", and "habitat enhancement within the watercourse such as log structure placement…" These mitigation measures are options approved by MICC 19.07.070.B.2.b.ii & iv.

iii) the proposal will result in no net loss of wetland and buffer functions.

Analysis:

Previously mentioned, MICC 19.16.010.N defines "no net loss" as "an ecological concept whereby conservation losses in one geographic or otherwise defined area are equaled by conservation gains in function in another area."

As provided in Table: Net Loss Analysis, there will be no net loss to the existing functions. The proposal will result in wetland and buffer functions improved by vegetative enhancement.

13.2 Mitigation Measures

Buffer function will be enhanced within the reduced 25 feet wetland buffer, the 16 feet Restored watercourse buffer and the 37 feet Type 1 watercourse buffer to offer equal or better protection than existing conditions. Because the buffer bisects the only ingress/egress, access to the property will not be possible to locate outside of the reduced buffers. The original proposal placed a large portion of the driveway and parking in the buffer. Although this is allowed per the code it is not best available science. Best available science suggests to have the driveway cross the critical area perpendicular. As such, I have recommended the applicant reposition the driveway to a) cross the critical area perpendicular and to b) redesign the site such that the driveway and parking area is completely outside the reduced buffer. Our assessment is that the impact on the watercourse function will be a net benefit as a) this revised area is relatively small and adjacent to the closed piped section of the watercourse and b) the applicant is proposing to remove a 330 sqf area of paved patio that currently is positioned on top of and between the two open Restored sections of the watercourse. To mitigate further for the impact of increased traffic in the area, the following mitigation actions will implemented:

1. The 92 sqf permanent coal-fired brick/stone/steel BBQ structure that is currently within the watercourse buffer will be removed.
2. The 330 square feet large brick patio that is currently on top of the piped watercourse will be removed and replaced with native vegetation as part of the 5,788 square feet enhanced buffer.
3. Install split rail fence along the perimeter of the 16 foot reduced watercourse buffer and house-ward of the piped watercourse adjacent to the pipe along the 3 foot buffer.
4. Install vegetative screen from the east end of the 3 foot buffer segment to the enhanced wetland area to the east to minimize disturbance to the enhancement area.

14 Wetland and Stream Buffer Functions

The wetland and stream buffers are landscaping, lawn, shrubs, structures, walkways and pavement. The stream appears to be an excavated trench to control the location of surface water flow. Wildlife use in the buffer is limited by human activities and a lack of a native plant

community. Wildlife species include common passiformes (small migratory birds), small to medium size mammals, amphibians, and insects. No habitat features are present other than the stream.

Wetland and stream buffer functions will be improved by vegetative enhancement (see Appendix - Buffer Enhancement and Mitigation map for details and planting schedule). Existing trees and shrubs along the property lines of the buffer will be retained. Non-native plants, in the proposed enhancement, will be removed. Native trees, shrubs and groundcovers will be planted and maintained (see Section 15 below for details).

15 Buffer Enhancement and Mitigation Implementation & Maintenance Plan

15.1 Executive Summary

The applicant proposes to build a new single-family residence on the subject property. A regulated wetland and watercourse is present on the subject property. The applicant proposes to reduce the wetland and watercourse standard buffers per chapter 13 above. As a condition of the reduction, a 5,841 square feet of the remaining buffer and 2,000 square feet of wetland will be enhanced with native vegetation. Native plant species will increase plant diversity, improve wildlife habitat and prevent the establishment of invasive species. Furthermore, to address any negative impacts, mitigation will be implemented to address an onsite permanent coal-fired brick/stone/steel BBQ structure and removal of brick patio.

15.2 Goals and Objectives

The goal of enhancement is to increase the functions and values of the existing watercourse buffer through enhancement. Currently the watercourse buffer is ornamental landscaping, mostly open lawn and hardscapes. Enhancements will provide greater protection for the watercourse and habitat diversity. The objectives necessary to meet the above stated goal are as follows:

- Install native vegetation within the reduced watercourse buffer
- Enhance the wetland with native vegetation
- Remove ornamental landscaping, structures and hardscapes
- Maintain and monitor the enhancement areas for a period of five years or until the site meets the specified performance standards
- Record the sensitive area in a “Notice on Title”
- If the enhancement area fails to meet performance standards provide a contingency plan to rectify the situation.

15.3 Project Location

Property is located directly East of current residence, 4346 East Mercer Way, Mercer Island, WA.

15.4 Responsible Parties

Applicant

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Environmental Consultant

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15.5 Standards

All work and materials shall conform to City of Mercer Island standards and specifications, and to the specifications and details shown on these plans.

15.6 City of Mercer Island Contact

Certain actions within this enhancement/restoration plan require inspection or approval by City of Mercer Island staff. Requests for inspection/approval shall be coordinated through City of Mercer Island Development Services - Building & Land, (206) 275-7605

15.7 Contractor Information

When it is available, contact information shall be provided to the City of Mercer Island that includes names, addresses and phone numbers of persons/firms that will be responsible for the enhancement/restoration area, installing required plants, and performing required maintenance and monitoring.

15.8 Contractor's Qualifications

Contractor/Landscape Installer must be experienced in enhancement and restoration work. The Permittee shall provide that there is one person on the site at all times during work and installation who is thoroughly familiar with the type of materials being installed and the best methods for their installation, and who shall direct all work being performed under these specifications. This person shall be experienced in installing plant materials for native enhancement or restoration projects, unless otherwise allowed by the Wetland Biologist and City of Mercer Island staff.

15.9 Site Conditions

The Contractor shall immediately notify the Landscape Designer and Wetland Biologist of drainage or soil conditions likely to be detrimental to the growth or survival of plants. Locations shall be as depicted on the approved plan set. The Wetland Biologist may adjust the locations of plantings shown on plans based on field conditions. Planting operations shall not be conducted under the following conditions: freezing weather, when the ground is frozen, excessively wet weather, excessively windy weather, or in excessive heat. Changes should be documented and as-built drawings submitted to the City of Mercer Island upon request for formal construction approval.

15.10 Plants

Origin: Plant materials shall be Northwest native plants, nursery grown in the Puget Sound region of Washington.

Plant Names: Plant names shall comply with those generally accepted in the native plant nursery trade. All plant materials shall be true to species and variety.

Plant Substitutions: Plant substitutions are not permitted without the permission of the City of Mercer Island staff. Same species substitutions of larger size do not require permission. However, small plants often experience less transplant shock and adapt more

quickly to site conditions, resulting in a higher success rate. As such, smaller plants will be approved as substitutions based on certain site-specific conditions (trees not less than 1-gallon size however).

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

Intermediate Inspections: All plants shall be inspected prior to installation. Condition of roots of a random sample of plants will be inspected, as well as all above ground growth on all plants. Roots of any bare root plants, if permitted for use, will be inspected. Plant material may be approved at the source,
but all material must be re-inspected and approved on the site prior to installation.

Handling: Plants shall be handled so as to avoid all damage, including breaking, bruising, root damage, sunburn, drying, freezing or other injury. Plants shall not be bound with wire or rope in a manner that could damage branches. Protect plant roots with shade and wet soil in the time period between delivery and installation. Do not lift container stock by trunks, stems, or tops. Do not remove from containers until ready to plant. Water all plants as necessary to keep moisture levels appropriate to the species horticultural requirements. Plants shall not be allowed to dry out. All plants shall be watered thoroughly immediately upon installation. Soak all containerized plants thoroughly prior to installation. Bare root plants are subject to the following special requirements, and shall not be used unless planted between November 1 and March 1, and only with the permission of the Landscape Designer and City of Mercer Island staff. Bare root plants must have enough fibrous root to insure plant survival. Roots must be covered at all times with mud and wet straw, moss, or other suitable packing material until time of installation. Plants whose roots have dried out from exposure will not be accepted at installation inspection.

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

Roots: All plants shall be balled and burlapped or containerized, unless explicitly authorized by the Wetland Biologist. Root bound plants or B&B plants with damaged, cracked or loose rootballs (major damage) will be rejected. Immediately before installation, plants with minor root damage (some broken and twisted) must be root-pruned. Matted or circling roots of containerized plantings must be pruned or straightened and the sides of the root ball must be roughened from top to bottom to a depth of approximately half an inch in two to four places. Bare root plantings of woody material is allowed only with permission from the Wetland Biologist, and City of Mercer Island staff.

Sizes: Plant sizes shall be the size indicated in the plant schedule. Larger stock may be acceptable provided that it has not been cut back to size specified, and that the root ball is proportionate to the size of the plant. Smaller stock may be acceptable, and under some circumstances preferable, based on site-specific conditions. Measurements, caliper, ranching and balling and burlapping shall conform to the American Standard of Nursery Stock by the American Association of Nurserymen (latest edition).

Form: Shrubs shall have multiple stems and be well-branched.

Planting: Planting shall be done in accordance with illustrated details in the enhancement/restoration plan set and accepted industry standards. Plant locations shall also be inspected and approved prior to planting.

Timing of Planting: Unless otherwise approved by City of Mercer Island staff, all planting shall occur between September 1 and March 31, unless irrigation is provided.

Planting in Pits: Planting pits shall be circular or square with vertical sides, and shall be 6" larger in diameter than the root ball of the plant. Break up the sides of the pit in compacted soils. Set plants upright in pits, as illustrated in planting detail. Burlap shall be removed from the planting pit. Backfill shall be worked back into holes such that air pockets are removed without adversely compacting soils.
Soil Amendments: Unless otherwise specified and approved by City of Mercer Island, native soil will be incorporated into the planting pits.
Mulch: The entire mitigation area shall receive no less than 1"-4" of medium bark mulch after planting. Mulch shall be kept well away (at least 2") from the trunks and stems of woody plants.
Fertilizer: Slow release fertilizer may be used if pre-approved by City of Mercer Island staff. Fertilizers shall be applied only at the base of plantings underneath the required covering of mulch (that does not make contact with stems of the plants). No fertilizers will be placed in planting holes.
Water: Plants shall be watered upon completion of backfilling. Plants shall be watered a second time within 24-48 hours after installation. The earthen rim/dam should be leveled prior to the second growing season.
Weeding: Existing and exotic vegetation in the enhancement and buffer areas will be hand weeded from around all newly installed plants on routine basis throughout the monitoring period. No chemical control of vegetation on any portion of the site is allowed without the written permission of City of Mercer Island staff.

15.11 Maintenance

Maintenance shall be required in accordance with City of Mercer Island guidelines and approved plans.

15.12 Duration and Extent

In order to achieve performance standards, the Permittee shall have the enhancement/restoration area maintained for the duration of the monitoring period, **5** years. All maintenance shall include:

- watering (see 15.18 for details)
- weeding around base of installed plants
- pruning
- replacement (see 15.14 for details)
- restaking
- removal of all classes of noxious weeds (see Washington State Noxious Weeds List, WAC 16-7150-005) as well as Himalayan blackberry
- any other measures needed to insure plant survival (see 15.19 for details)
- general maintenance activities which include the replacement of any vandalized or damaged signs, habitat features, fences or other structural component of the enhancement site.

15.13 Survival

The Permittee shall be responsible for the health of 100% of all newly installed plants for one growing season after installation has been accepted by City of Mercer Island staff (see Performance Standards). A growing season for these purposes is defined as occurring from spring to spring (March 15 to October 15, following year). The Permittee shall replace any plants that are failing, weak, defective in a manner of growth, or dead during this growing season.

15.14 Installation Timing for Replacement Plants

Replacement plants shall be installed between September 1 and March 31, unless otherwise determined by City of Mercer Island staff.

15.15 Standards for Replacement Plants

Replacement plants shall meet the same standards for size and type as those specified for original installation unless otherwise directed by the City of Mercer Island staff. Replacement plants shall be inspected as described above for the original installation.

15.16 Replanting

Plants that have settled in their planting pits too deep, too shallow, loose, or crooked shall be replanted as directed by City of Mercer Island staff.

15.17 Herbicides/Pesticides

Chemical controls shall not be used in the enhancement/restoration area, sensitive areas or their buffers. However, limited use of herbicides may be approved depending on site specific conditions, only if approved by City of Mercer Island staff.

15.18 Irrigation/Watering

Water may be necessary during the dry season (June 1-October 15) for the first two years after installation to ensure plant survival and establishment. Water should be provided by a temporary above ground or permanent below ground irrigation system. It is the responsibility of the applicant to have the temporary irrigation designed, installed and maintained so that the necessary water amounts are provided. Water should be applied at a rate of 1" of water two times a week for Year 1 and 1" of water one time a week during Year 2.

15.19 Performance Standards - Plant Cover and Survival

Plant survival and cover standards are established to measure enhancement success as follows:

	Year 1	**Year 3**	**Year 5**
Shrub and Herbaceous Cover*	30%	50%	75%
Shrub and Herbaceous Survival	100%	>90%	>80%

* Includes beneficial native plants in that category that are naturally recruiting volunteers

- Less than 10% invasive vegetation during any monitoring event.
- The establishment of **5** species of native shrubs and **3** species of native groundcovers at the end the 5 years of monitoring.

15.20 Monitoring

Monitoring shall be conducted annually for **five** years in accordance with the approved enhancement/restoration monitoring plan. Monitoring reports shall be submitted to the City of Mercer Island.

Vegetation Monitoring

Sample plots will be established for vegetation monitoring, and photo-points established from which photos will be taken throughout the monitoring period. Permanent plot location(s) must be identified on enhancement/restoration site plans in the first monitoring report (they may be drawn on approved enhancement/restoration plans by hand). Plots shall detail herb, shrub, and tree aerial cover at radii of 1m, 5m, and 10m respectively,

using the Braun-Blanquet releve method or other acceptable field method. Monitoring of vegetation transects shall occur annually between August 1 and October 30 (prior to leaf drop), unless otherwise specified.

Photopoints

Two permanent photo points will be established within the enhancement/restoration area. Photographs will be taken from these points to visually record the condition of the enhancement/restoration area. Photos shall be taken annually between August 1 and October 30 (prior to leaf drop), unless otherwise specified.

Reports

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

- Site plan and location map
- Historic description of project, including date of installation, current year of monitoring, restatement of enhancement/restoration goals, and performance standards
- Plant survival, vigor, and aerial coverage from every plant community (transect data), and explanation of monitoring methodology in the context of assessing performance standards
- Buffer conditions, e.g. surrounding land use, use by humans, wild and domestic creatures
- Observed wildlife, including amphibians, avians and others
- Assessment of nuisance/exotic biota and recommendations for removal
- Receipts for off-site disposal of any dumping, weeds, or invasive plants
- Receipts for any structural repair or replacement
- 4"x6" color photograph taken from permanent photo-points as shown on Monitoring/Restoration plan.
- Summary of maintenance and contingency measures proposed for next season and completed for past season

Deficiencies

Any deficiency discovered during any monitoring or inspection visit must be corrected within 60 days of approval by City of Mercer Island.

Contingency Plan

Should any monitoring report reveal the enhancement has failed in whole or in part, and should that failure be beyond the scope of routine maintenance, a Contingency Plan will be submitted. The Contingency Plan may range in complexity from a list of plants substituted, to cross-sections of proposed engineered structures. Once approved, it may be installed and will replace the approved enhancement/restoration plan. If the failure is substantial, the City of Mercer Island may extend the monitoring period for that enhancement.

15.21 Bond

Prior to beginning any work, the Permittee must provide a enhancement/restoration bond or assignment of funds per City of Mercer Island procedures. A bond quantity worksheet has been completed based on all elements of the enhancement/restoration plan. The total cost, plus contingency fees, have been determined to be $7,500, which will be the amount of the enhancement/restoration bond the Permittee is required to provide.

16 Proximity to Wildlife Habitat Conservation Areas and Priority

Species

According to MICC, Section 19.07.090, bald eagles are the only protected non-aquatic wildlife species to inhabit Mercer Island. The city defines "wildlife habitat conservation areas" as "those areas used by these species for nesting, breeding, feeding, and survival". "The provisions of this section do not apply to any habitat areas which come under the jurisdiction of the city's shoreline master program." The city's wetlands, watercourses and shorelines are protected under other sections of the code.

Bald eagles have been delisted federally, but their nests are still provided protection by the state. No bald eagle stick nests were observed within 660 feet of the site, per the city's on-line Eagle nest buffers. Therefore, state requirements for nest buffers and seasonal construction restrictions do not apply.

17 Conclusion

The proposed buffer enhancement and mitigation measures will improve the functions of the wetland, watercourse and associated buffers. Wildlife habitat and the lake shoreline will benefit from the establishment of a native plant community.

18 Limitations

Stream and wetland determinations and delineations are not final until approved by regulatory agencies and/or local jurisdictions. *J. S. Jones and Associates, Inc.* does not guarantee acceptance or approval by regulatory agencies, or that any intended use will be achieved.

19 References

City of Mercer Island, Mercer Island City Code.
http://www.codepublishing.com/wa/mercerisland/

COE. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1. U.S. Army Corps of Engineers Waterways Experiment Station, Environmental Laboratory, Vicksberg, MS.

COE, 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0), Environmental Laboratory U.S. Army Corps of Engineers May 2010.

COE, 2016. 2016 National Wetland Plant List, v. 3.3.
http://wetland-plants.usace.army.mil/nwpl_static/index.html

Cowardin, Lewis M. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Fish and Wildlife Service. Jamestown, North Dakota.

DOE 1997. Washington State Wetlands Identification and Delineation Manual. Publication # 96-94.

Federal Register. 1980. 40 CFR Part 230: Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material. Vol. 45, No. 249, 85352-85353. U.S. Government Printing Office, Washington D.C.

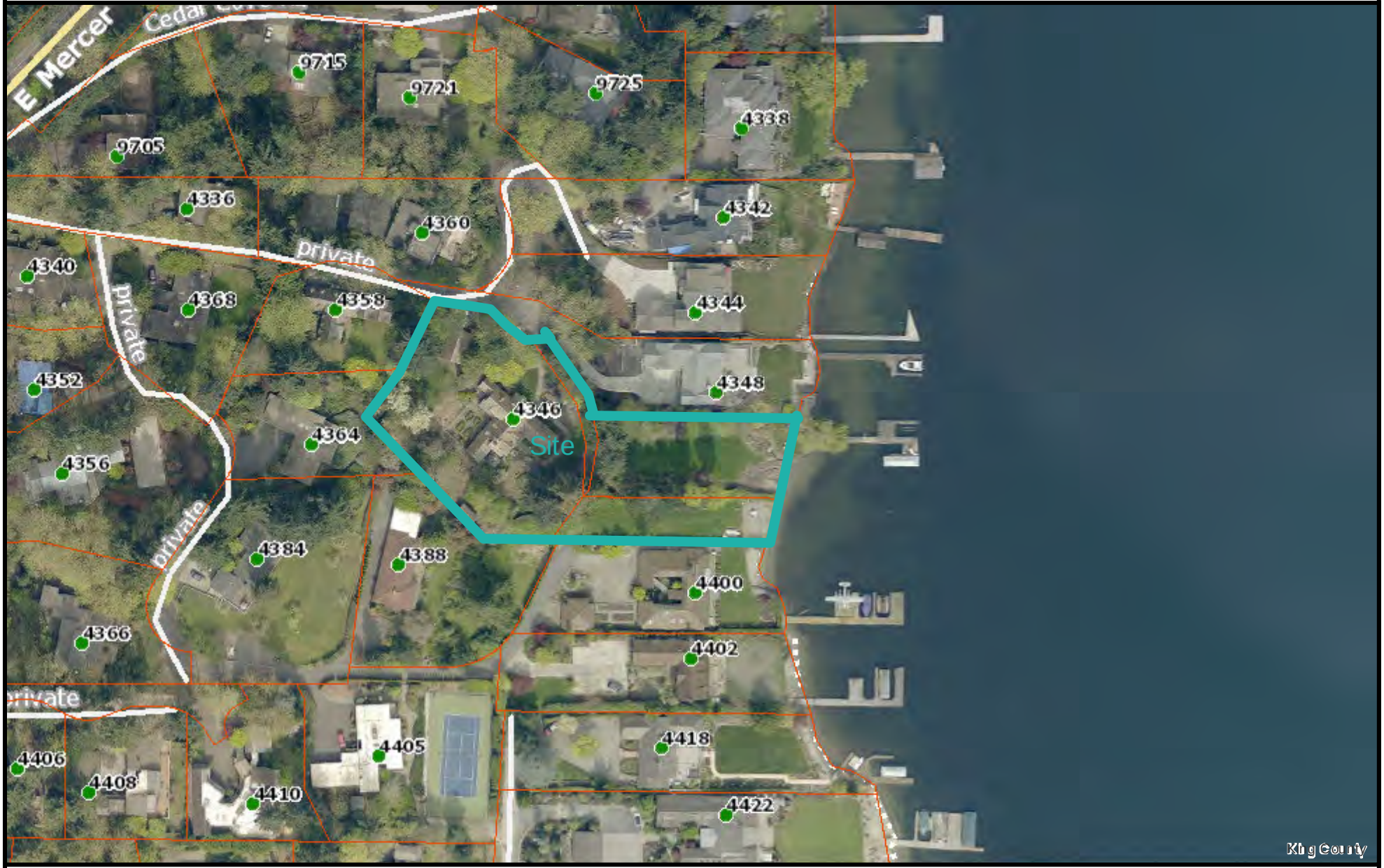
Federal Register. 1982. Title 33: Navigation and Navigable Waters; Chapter II, Regulatory Programs of the Corps of Engineers. Vol. 47, No. 138, p 31810. U.S. Government Printing Office, Washington D.C.

Hruby, T., 2014. Washington State Wetland Rating System for Western Washington: 2014 Update. (Publication #14-06-029). Olympia, WA: Washington Department of Ecology.

MacBeth. 2000. Munsell Soil Color Charts-Revised Washable Edition. 617 Little Britain Road, New Windsor, NY 12553. 10p + 9 charts.

Attachments

Vicinity Map

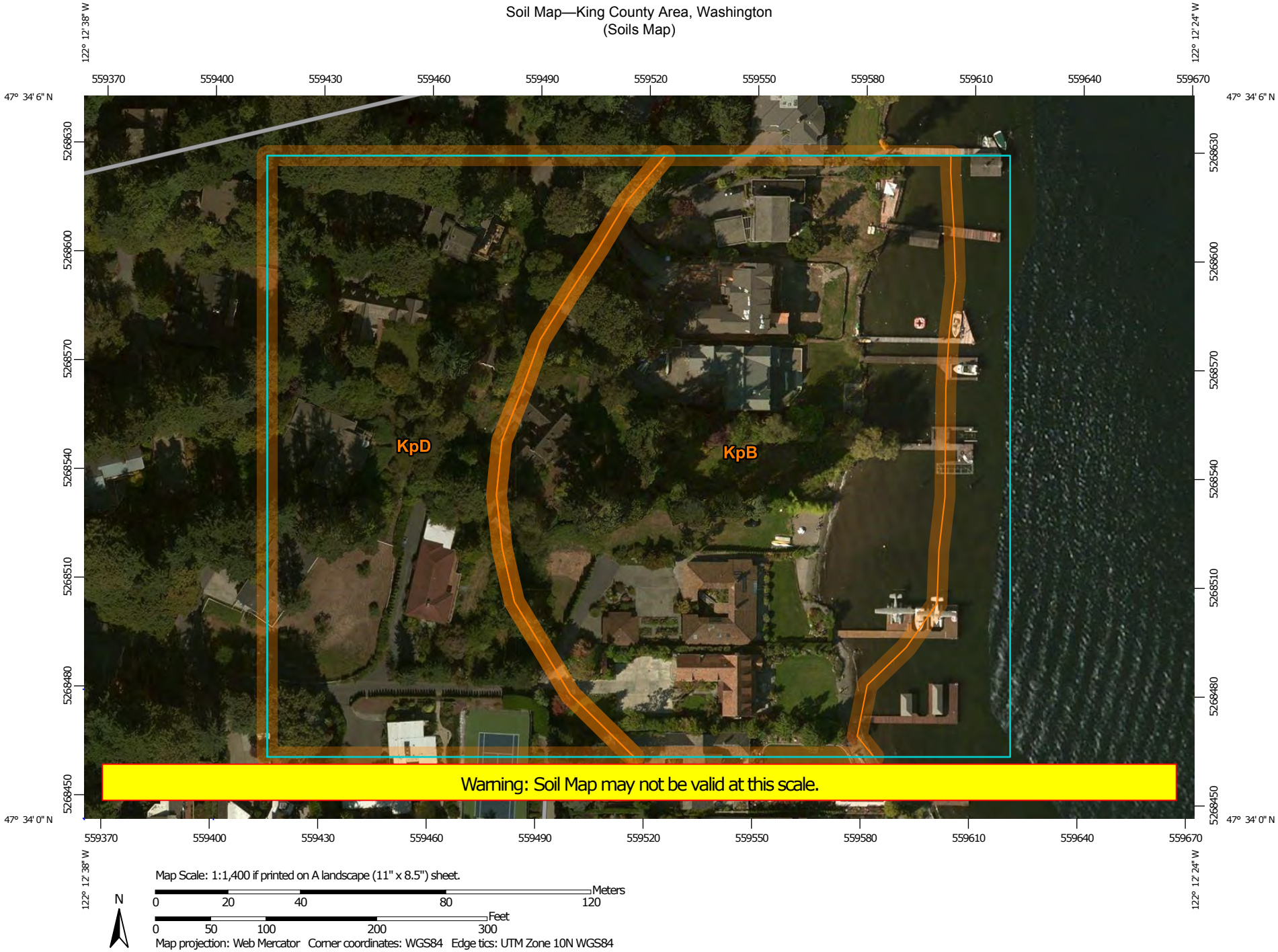


Date: 11/22/2016 Notes:

N

King County
GIS Center

Soil Map—King County Area, Washington
(Soils Map)



Map Scale: 1:1,400 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 20 40 80 120

Feet
0 50 100 200 300

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

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: King County Area, Washington
Survey Area Data: Version 12, Sep 8, 2016

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

Date(s) aerial images were photographed: Aug 1, 2011—Oct 6, 2013

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

Map Unit Legend

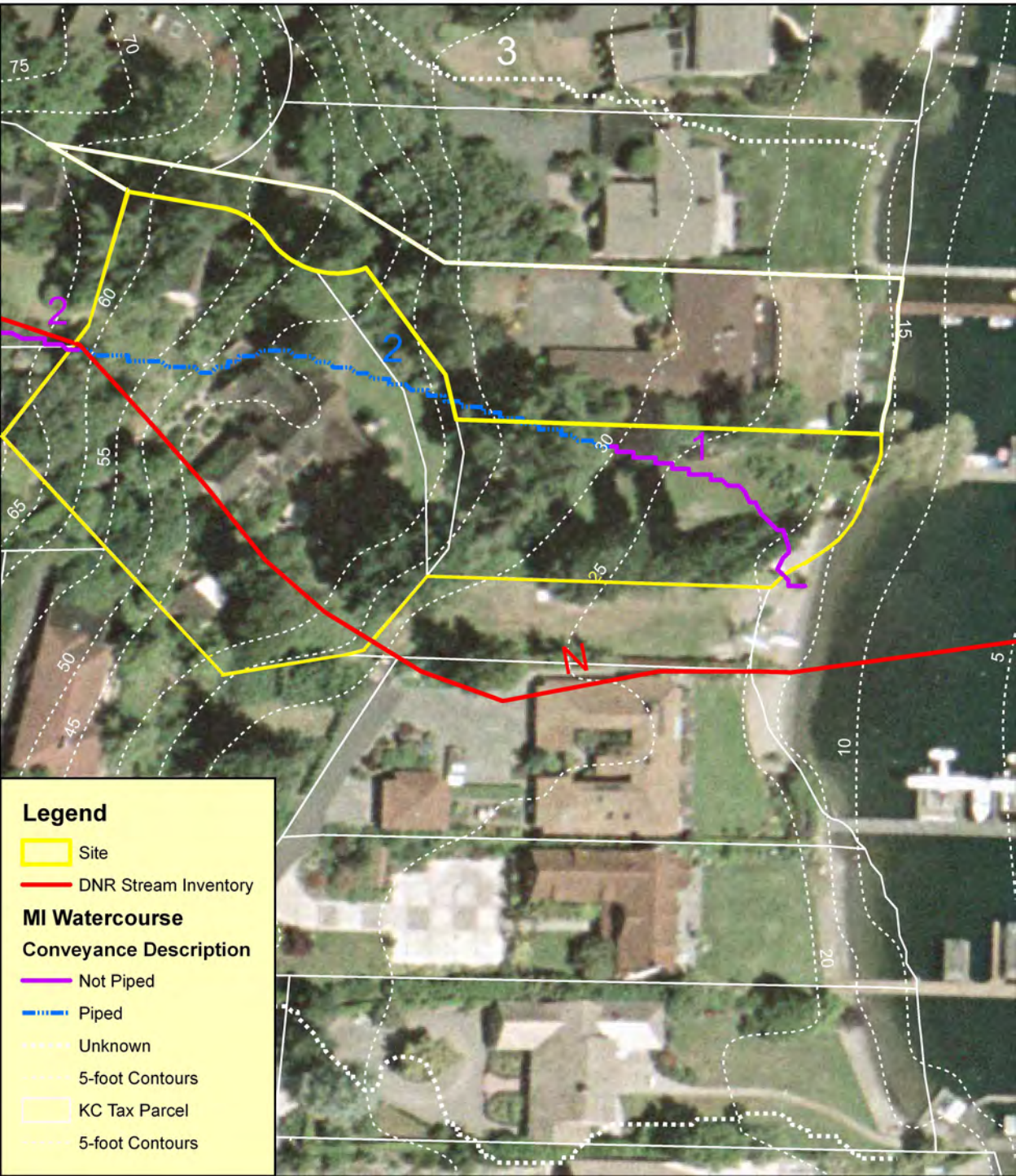
King County Area, Washington (WA633)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
KpB	Kitsap silt loam, 2 to 8 percent slopes	4.3	51.1%
KpD	Kitsap silt loam, 15 to 30 percent slopes	3.2	38.3%
Totals for Area of Interest		**8.5**	**100.0%**

Figure 3 - Stream Inventory Map

N

0 37.5 75 150 Feet

1 inch equals 75 feet



Wetland Map

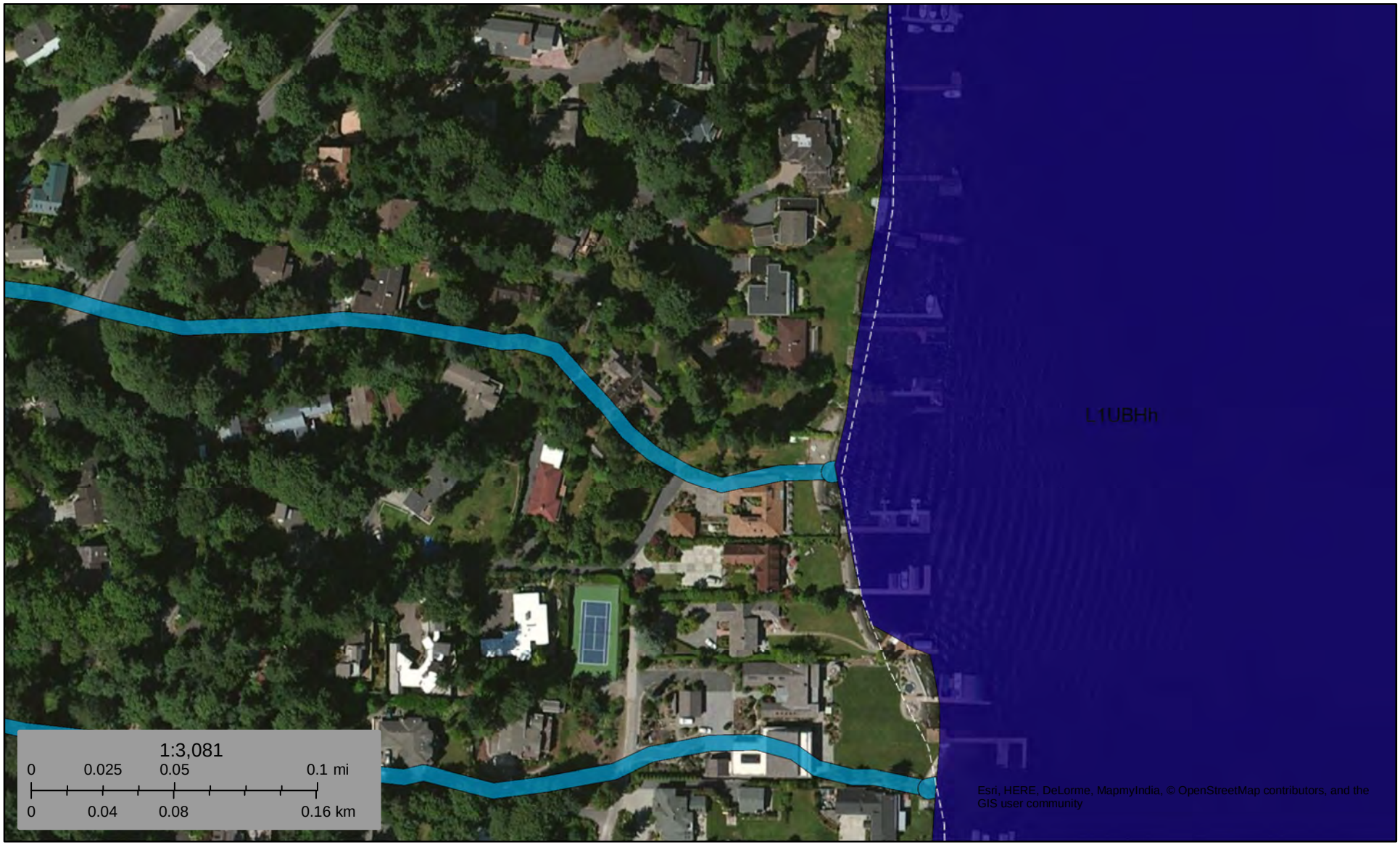
Date: 11/28/2016 Notes:

N

King County
GIS Center

U.S. Fish and Wildlife Service
National Wetlands Inventory

NWI Map



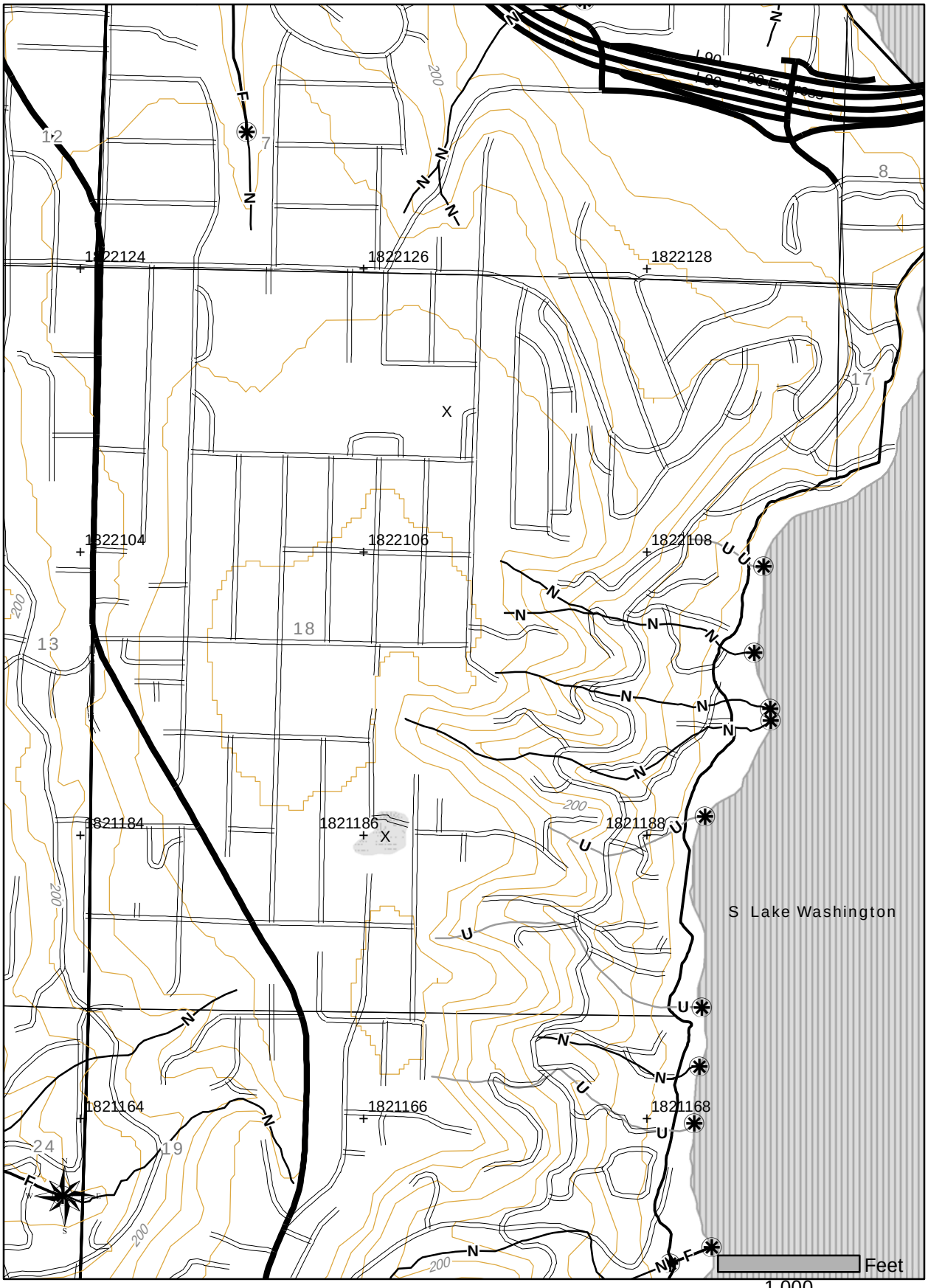
November 22, 2016

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

FOREST PRACTICE ACTIVITY MAP

TOWNSHIP 24 NORTH HALF 0, RANGE 05 EAST (W.M.) HALF 0, SECTION 18

Application #: _____



Please use the legend from the FPA Instruction or provide a list of symbols used.

Date: 11/22/2016 Time: 9:47:33 AM
NAD 83
Contour Interval: 40 Feet

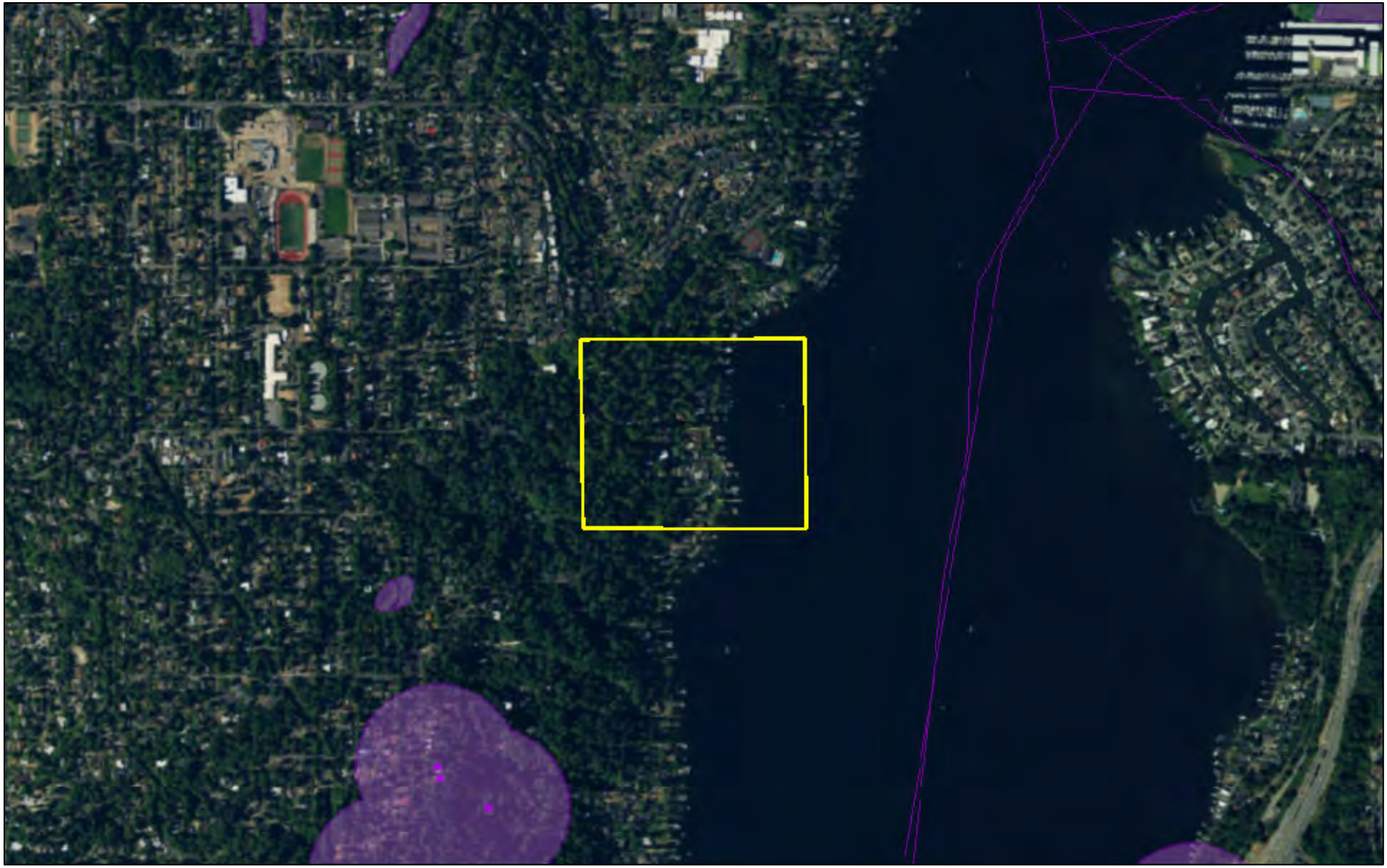
WASHINGTON DEPARTMENT OF FISH AND WILDLIFE
PRIORITY HABITATS AND SPECIES REPORT

SOURCE DATASET: PHSPlusPublic
REPORT DATE: 11/22/2016 9.44

Query ID: P161122094439

Common Name	Site Name	Priority Area	Accuracy	Federal Status	Sensitive Data	Source Entity
Scientific Name	Source Dataset	Occurrence Type		State Status	Resolution	Geometry Type
	Source Record	More Information (URL)		PHS Listing Status		
Notes	Source Date	Mgmt Recommendations				

WDFW Test Map



November 22, 2016

PHS Report Clip Area

POLY

PT

AS MAPPED

LN

SECTION

QTR-TWP

TOWNSHIP

1:19,842

0 0.15 0.3 0.6 mi

0 0.275 0.55 1.1 km

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

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

Project/Site: 4346 E Mercer Way City/County: Mercer Island Sampling Date: 11/23/16

Applicant/Owner: Johan Valentin State: WA Sampling Point: SL-1

Investigator(s): Jeff Jones Section, Township, Range: S18, T24N, R5E

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR): NW Forests Lat: 47.568 Long: -122.208 Datum: NAVD83

Soil Map Unit Name: Kitsap NWI classification: none

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

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

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

Hydrophytic Vegetation Present?	Yes ✓	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks: 6 Feet NE of Flagpole

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 10')			
1. Nootka Rose	20	Y	FAC
2.			
3.			
4.			
5.			
	20 = Total Cover		
Herb Stratum (Plot size: 10')			
1. Lawn Grasses	30	Y	FAC
2. Yellow Iris	10	Y	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	40 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 60

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: SL-1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-16	10YR 3/2	100						Sandy loam

[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: 4346 E Mercer Way City/County: Mercer Island Sampling Date: 11/23/16
Applicant/Owner: Johan Valentin State: WA Sampling Point: SL-2
Investigator(s): Jeff Jones Section, Township, Range: S18, T24N, R5E
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 2
Subregion (LRR): NW Forests Lat: 47.568 Long: -122.208 Datum: NAVD 83
Soil Map Unit Name: Kitsap NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ✓	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks: 24' NW of Flagpole

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: 10')			
1. Red Osier Dogwood	35	Y	FACW
2. Nootka Rose	10	Y	FAC
3.			
4.			
5.			
	45 = Total Cover		
Herb Stratum (Plot size: 10')			
1. Small Fruited Bullrush	5		FACW
2. Grass	50		FAC
3. Morning Glory	20		FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	75 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 25%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across All Strata: 5 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 80 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: SL-2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-16+	10YR 3/2-3/2	100					SL	stratified sand

[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:

Not Saturated

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

Project/Site: 4346 E Mercer Way City/County: Mercer Island / King Sampling Date: 11/23/16

Applicant/Owner: Johan Valentin State: WA Sampling Point: SL-3

Investigator(s): Jeff Jones Section, Township, Range: S18, T24N, R5E

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): NW Forests Lat: 47.568 Long: -122.208 Datum: NAVD83

Soil Map Unit Name: Kitsap NWI classification: none

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks: 30' SE of Flagpole

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: 10')			
1. grasses	50	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	50 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 50

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 _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: SL-3

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	100					sl	
4-16	10YR 6/1	95	10YR 5/8	5	D	M	sl	prom. mottling

[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): 10

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: 4346 E. Mercer Way City/County: Mercer Island/King Sampling Date: 11/23/16

Applicant/Owner: Johan Valentin State: WA Sampling Point: SL-4

Investigator(s): Jeff Jones Section, Township, Range: S18, T24N, R5E

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 8

Subregion (LRR): NW Forests Lat: 47.568 Long: -122.209 Datum: NAVD83

Soil Map Unit Name: Kitsap NWI classification: none

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

15' E of Doug Firs

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10')	Absolute % Cover	Dominant Species?	Indicator Status
1. Doug Fir	30	Yes	FACU
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 10')			
1. Grass	50	YES	FAC
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: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Assume Grasses Are FAC

SOIL

Sampling Point: SL-4

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-6	10YR 2/1	100					grsl	
6-14+	10YR 2/2	100					grsl	

[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:

Dry

Wetland name or number A

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland A Date of site visit: 11/23/16

Rated by Jeff Sorees Trained by Ecology? ✓ Yes ___ No Date of training 12/04

HGM Class used for rating Slope Wetland has multiple HGM classes? ___ Y ✓ N

NOTE: Form is not complete without the figures requested *(figures can be combined).*

Source of base aerial photo/map _____

OVERALL WETLAND CATEGORY IV (based on functions ✓ or special characteristics ___)

1. Category of wetland based on FUNCTIONS

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

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

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

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

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	Circle the appropriate ratings			
Site Potential	H M (L)	H M (L)	H M (L)	
Landscape Potential	H (M) L	H (M) L	H M (L)	
Value	(H) M L	H M (L)	H M (L)	TOTAL
Score Based on Ratings	6	4	3	13

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

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

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

Wetland name or number A

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

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

Riverine Wetlands

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

Lake Fringe Wetlands

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

Slope Wetlands

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

Wetland name or number A

HGM Classification of Wetlands in Western Washington

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

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

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

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

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

NO – Saltwater Tidal Fringe (Estuarine) **YES – Freshwater Tidal Fringe**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

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

NO – go to 3 **YES** – The wetland class is **Flats**

*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?

___The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;

___At least 30% of the open water area is deeper than 6.6 ft (2 m).

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

4. Does the entire wetland unit **meet all** of the following criteria?

___The wetland is on a slope (*slope can be very gradual*),

___The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,

___The water leaves the wetland **without being impounded**.

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

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

5. Does the entire wetland unit **meet all** of the following criteria?

___The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,

___The overbank flooding occurs at least once every 2 years.

Wetland name or number A

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

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

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

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

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

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

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

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

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

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

Wetland name or number A

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 (circled) Slope is > 2%-5% — points = 1 Slope is greater than 5% — points = 0	2
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 (circled)	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 (circled)	0
Total for S 1 — Add the points in the boxes above	2

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 (circled) 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 (circled)	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 (circled) No = 0	1
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 (circled) 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 (circled) No = 0	2
Total for S 3 — Add the points in the boxes above	4

Rating of Value If score is: ✓2-4 = H ___1 = M ___0 = L *Record the rating on the first page*

Wetland name or number A

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	0
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? — Yes = 2 No = 0	0
Total for S 6 — Add the points in the boxes above	0

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 A

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

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

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

- ____Aquatic bed
- ✓ Emergent
- ✓ Scrub-shrub (areas where shrubs have > 30% cover)
- ____Forested (areas where trees have > 30% cover)

4 structures or more: points = 4
3 structures: points = 2
2 structures: points = 1
1 structure: points = 0

If the unit has a Forested class, check if:

____The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

1

H 1.2. Hydroperiods

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

- ____Permanently flooded or inundated
- ____Seasonally flooded or inundated
- ✓ Occasionally flooded or inundated
- ✓ Saturated only
- ____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**

4 or more types present: points = 3
3 types present: points = 2
2 types present: points = 1
1 type present: points = 0

1

H 1.3. Richness of plant species

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

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

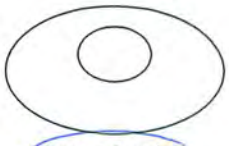
If you counted: > 19 species — points = 2
5 - 19 species — points = 1
< 5 species — points = 0

1

H 1.4. Interspersion of habitats

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

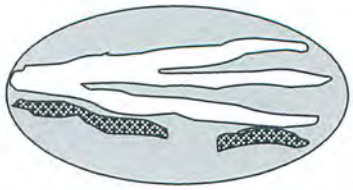
None = 0 points



Low = 1 point

Moderate = 2 points

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



1

Wetland name or number A

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

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

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

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

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

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

Wetland name or number A

WDFW Priority Habitats

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Wetland name or number A

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

Wetland name or number A

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

Wetland name or number A

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PROJECT INFORMATION

SURVEYOR:	SITE SURVEYING, INC. 21923 NE 11TH ST SAMMAMISH, WA 98074 PHONE: 425.298.4412
PROPERTY OWNER:	JOHAN VALENTIN
TAX PARCEL NUMBER:	004610-0150 004610-0151
PROJECT ADDRESS:	4346 E. MERCER WAY
ZONING:	R-15
JURISDICTION:	MERCER ISLAND
PARCEL ACREAGE:	14,113 SQF 1,794 SQF

LEGAL DESCRIPTION

PARCEL #S: 004610-0150 + 004610-0151

THAT PORTION OF TRACTS 2 AND 3 OF ADAMS LAKE WASHINGTON TRACTS, AS PER PLAT RECORDED IN VOLUME 11 OF PLATS, PAGE 80, RECORDS OF KING COUNTY, WASHINGTON, DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHWEST CORNER OF SAID TRACT 2;
THENCE ALONG THE NORTH LINE OF SAID TRACT 2, SOUTH 88°26'16" EAST 1,240 FEET, MORE OR LESS, TO AN IRON PIPE MONUMENT ON THE EASTERLY MARGIN OF EAST MERCER WAY, SAID IRON PIPE BEING ON THE CENTERLINE PRODUCED OF A 30 FOOT ROAD EASEMENT RECORDED FEBRUARY 19, 1953 UNDER RECORDING NUMBER 4316894;
THENCE SOUTH 80°23'50" EAST, ALONG SAID CENTERLINE, 560.83 FEET TO AN IRON PIPE MONUMENT WHICH IS THE CENTER POINT OF A CIRCULAR TURNAROUND, SAID TURNAROUND BEING THE EASTERLY TERMINUS OF SAID 30 FOOT ROAD EASEMENT;
THENCE SOUTH 24°30'23" EAST 38.00 FEET TO THE TRUE POINT OF BEGINNING OF THE TRACT HEREIN DESCRIBED;
THENCE SOUTH 36°52'13" EAST 65.05 FEET;
THENCE SOUTH 14°55'13" EAST 22.38 FEET TO A POINT IN A LINE WHICH IS PARALLEL WITH AND 185 FEET SOUTH OF THE NORTH LINE OF SAID TRACT 2;
THENCE SOUTH 88°26'16" EAST, ALONG SAID PARALLEL LINE, TO THE SHORE OF LAKE WASHINGTON;
THENCE SOUTHERLY, ALONG SAID SHORE, TO A POINT DRAWN PARALLEL WITH AND 20 FEET SOUTH OF THE EASTERLY EXTENSION OF THE NORTH LINE OF TRACT 3 IN ADAMS LAKE WASHINGTON TRACTS;
THENCE, ALONG SAID PARALLEL LINE, NORTH 88°26'16" WEST TO A POINT ON THE SOUTHEASTERLY BOUNDARY OF A TRACT OF LAND DESCRIBED IN CONTRACT SALE TO MILTON L. WITTENDALE RECORDED UNDER RECORDING NUMBER 3936791;
THENCE NORTH 01°14'23" EAST 50.01 FEET;
THENCE NORTH 14°55'13" WEST 38.66 FEET;
THENCE NORTH 36°52'13" WEST 72.74 FEET TO A POINT IN THE MARGIN OF THE TURNAROUND IN SAID ROAD EASEMENT FROM WHICH THE CENTER BEARS NORTH 10°53'34" EAST 38.00 FEET;
THENCE ON A CURVE TO THE LEFT WITH A RADIUS OF 38.00 FEET A DISTANCE OF 23.48 FEET TO THE TRUE POINT OF BEGINNING;

TOGETHER WITH SECOND CLASS SHORELANDS, AS CONVEYED BY THE STATE OF WASHINGTON, ADJACENT TO AND ABUTTING UPON THE PARCEL OF LAND HEREINABOVE DESCRIBED AND LYING BETWEEN THE NORTH AND SOUTH BOUNDARIES THEREOF EXTENDED EASTERLY.

PARCEL C:

NON-EXCLUSIVE EASEMENTS FOR INGRESS AND EGRESS, AS CREATED BY INSTRUMENTS RECORDED FEBRUARY 19, 1953, UNDER RECORDING NUMBER 4316894, RECORDED SEPTEMBER 24, 1953, UNDER RECORDING NUMBER 4382730, AND RECORDED MARCH 20, 1956, UNDER RECORDING NUMBER 4674377.

SITUATE IN THE CITY OF SEATTLE, COUNTY OF KING, STATE OF WASHINGTON.

LEGEND

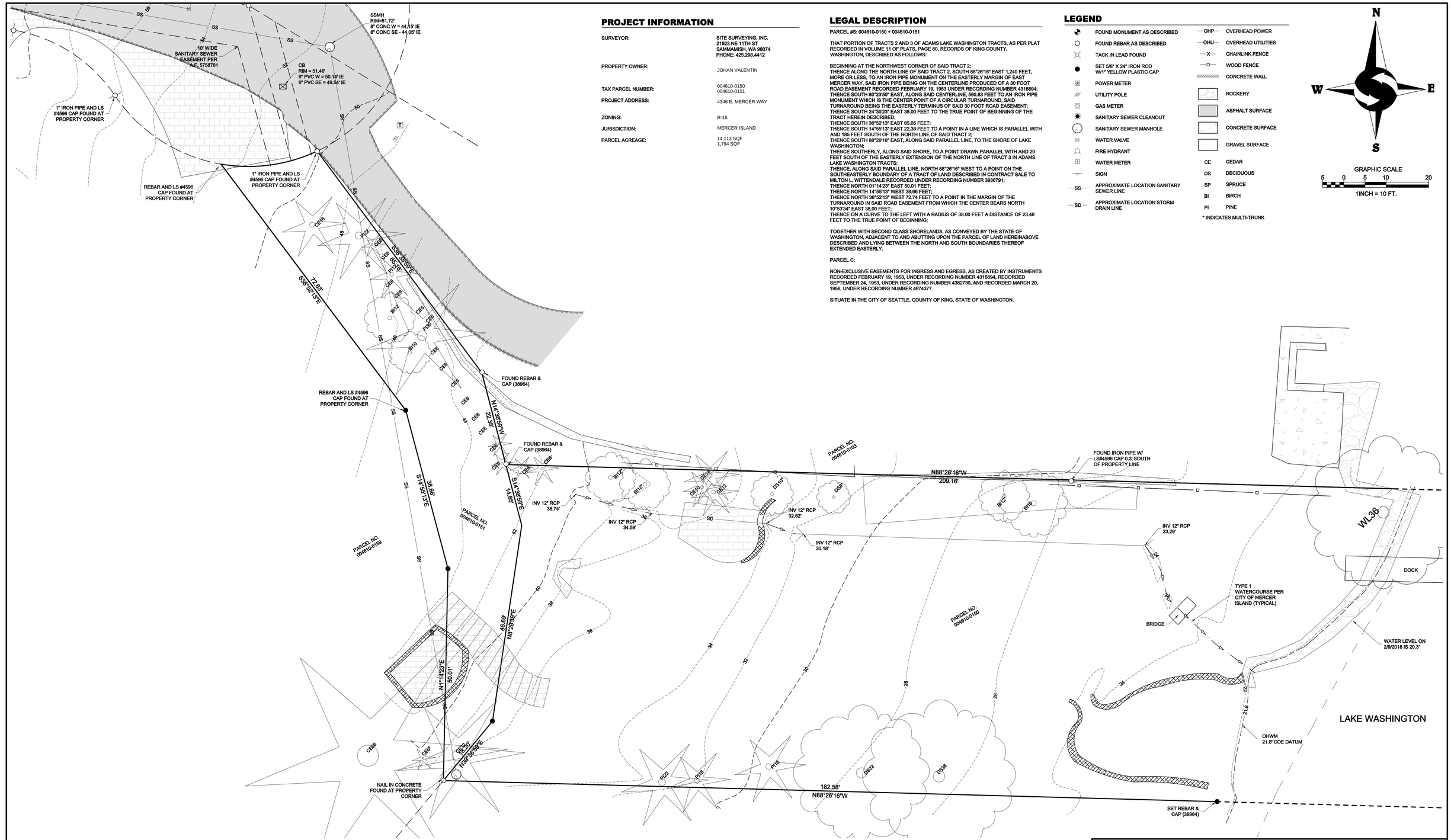
- FOUND MONUMENT AS DESCRIBED
- FOUND REBAR AS DESCRIBED
- TACK IN LEAD FOUND
- SET 5/8" X 24" IRON ROD W/1" YELLOW PLASTIC CAP
- POWER METER
- UTILITY POLE
- GAS METER
- SANITARY SEWER CLEANOUT
- SANITARY SEWER MANHOLE
- WATER VALVE
- FIRE HYDRANT
- WATER METER
- SIGN
- SS — APPROXIMATE LOCATION SANITARY SEWER LINE
- SD — APPROXIMATE LOCATION STORM DRAIN LINE
- OHP — OVERHEAD POWER
- OHU — OVERHEAD UTILITIES
- X — CHAINLINK FENCE
- WOOD FENCE
- CONCRETE WALL
- ROCKERY
- ASPHALT SURFACE
- CONCRETE SURFACE
- GRAVEL SURFACE

CE CEDAR
DS DECIDUOUS
SP SPRUCE
BI BIRCH
PI PINE

* INDICATES MULTI-TRUNK

N
W E
S

GRAPHIC SCALE
5 0 5 10 20
1INCH = 10 FT.



VERTICAL DATUM & CONTOUR INTERVAL

DATUM

ELEVATIONS SHOWN ON THIS DRAWING WERE DERIVED FROM INFORMATION PROVIDED BY US CORPS OF ENGINEERS AND ARE ON USCE CHITTENDEN LOCKS DATUM

WATER LEVEL = 20.00' ON 02/09/2018

2.0' CONTOUR INTERVAL - THE EXPECTED VERTICAL ACCURACY IS EQUAL TO 1/2 THE CONTOUR INTERVAL OR PLUS / MINUS 1.0' FOR THIS PROJECT.

BASIS OF BEARINGS

THE PLAT OF CROWN ADDITION TO THE CITY OF SEATTLE, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 2 OF PLATS, PAGE 38, RECORDS OF KING COUNTY, WASHINGTON.

GENERAL NOTES

1. THIS SURVEY WAS COMPLETED WITHOUT BENEFIT OF A CURRENT TITLE REPORT. EASEMENTS AND OTHER ENCUMBRANCES MAY EXIST ON THIS PROPERTY THAT ARE NOT SHOWN HEREON.
2. INSTRUMENTATION FOR THIS SURVEY WAS A 3-SECOND NIKON NIVO 5.C TOTAL STATION. PROCEDURES USED IN THIS SURVEY MEET OR EXCEED STANDARDS SET BY WAC 332-130-090.
3. THE INFORMATION ON THIS MAP REPRESENTS THE RESULTS OF A SURVEY MADE IN FEBRAURY 2018 AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME.
4. UTILITIES SHOWN ON THIS SURVEY ARE BASED UPON ABOVE GROUND OBSERVATIONS AND AS-BUILT PLANS WHERE AVAILABLE. ACTUAL LOCATIONS OF UNDERGROUND UTILITIES MAY VARY AND UTILITIES NOT SHOWN ON THIS SURVEY MAY EXIST ON THIS SITE.
5. ALL MONUMENTS WERE LOCATED DURING THIS SURVEY UNLESS OTHERWISE NOTED.

SE 1/4, NE 1/4, SEC 18, TWP 24N, RNG 5E, W.M.

PROJECT NO.	18-023
DRAWN BY:	EFJ
CHECKED BY:	TNW
DATE:	2/13/18
SHEET	1 OF 2

TOPOGRAPHIC SURVEY

JOHAN VALENTIN
4346 E MERCER WAY
MERCER ISLAND, WA
98040

DATE	REVISION	DRN

THOMAS N. WOLDENDORF
STATE OF WASHINGTON
38964
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