Critical Areas Report – Existing Conditions

East Harrison Street End

Seattle, Washington

1 November 2024

(Revised 11 December 2024)

[redacted]

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CONTENTS

TABLES

PHOTOS

APPENDICES

** Appendix I intentionally skipped.

DISCLAIMER

This report has been prepared by Wet.land, LLC based on our best professional judgment, and is intended for the use outlined in Section 1.3 below. Use of this report or its appendices outside of its intended purpose is a breach of the contract under which this document was prepared.

Any delineations, wetland ratings, stream typings, or general characterizations were completed in accordance with the applicable regulations at the time field work was completed. Where information was provided by Others and not collected directly by Wet.land, LLC, such is stated within the report.

Conclusions presented within this report are based on the information available at the time of report preparation, and are accurate and true to the best of our knowledge. The opinions and conclusions contained within this report are a reflection of our interpretation of applicable regulations and are not final until concurrence is provided by the appropriate agencies.

1. Report Purpose

1.1 Project Name and Purpose

This report will summarize the existing conditions of the East Harrison Street End ("Street End"). There is no project associated with this report. One (1) wetland was identified and delineated on the Street End property.

1.2 Applicant

This is not part of an application. This report was prepared at the request of Jonathan and Elizabeth Roberts that live immediately north of the East Harrison Street End.

Email: *e@EandJRoberts.com*

1.3 Report Purpose

This report has been prepared in response to feedback from the Seattle Department of Transportation (SDOT) requesting a formal report documenting the information previously provided through a series of memos. This report has been prepared in accordance with the requirements of the Seattle Municipal Code (SMC) Chapter 23.60A – *Seattle Shoreline Master Program Regulations* and Chapter 25.09 - *Regulations for Environmentally Critical Areas*. This report has also been prepared in light of applicable State and Federal regulations.

This report incorporates information previously documented in memos prepared by Wet.land, LLC, dated 17 June 2024 and 27 September 2024, as well as from an email from July 2024 that provided the onsite datasheet. Site visits were conducted on 20 March 2023, 12 September 2023, 16 May 2024, and 17 September 2024 to compare the site conditions over time.

1.4 Preparer Qualifications

Field investigations and reporting were completed by Jennifer Marriott, PWS and Kristen Numata, PWS (**Appendix A**).

Jennifer Marriott has a Bachelor's Degree and a Master's Degree in Biology from University of Central Florida, and a second Master's Degree in Soil and Environmental Science from the University of Florida. She has over 19 years of experience in wetland delineations and environmental permitting.

Kristen Numata has two Bachelor's Degrees in Biology and Environmental Science from Santa Clara University, and she has over seven years of experience in environmental consulting.

2. Project Site

2.1 Site Location

The Site is located just east of Lakeview Park off of 39th Avenue East in Seattle, Washington (**Appendix B, Figure 1**). The latitude/longitude coordinate for the center of the project is 47.6226, -122.2826. The Public Land Survey System is southwest Section 27, Township 25 North, Range 4 East, Willamette Meridian (W.M.).

The Site has no parcel number as this site is a street end under the ownership of the Seattle Department of Transportation (SDOT) (**Appendix B**).

2.2 Site Description

The Site is located along Lake Washington and has approximately 120 feet of lake shoreline. The Site ranges between approximately 140 and 180 feet deep because the lake shoreline curves slightly at this location. The west edge of the Street End is defined by the 39th Avenue East right-of-way. Single family homes abut the Site to the north and south.

Driveways from the homes to the immediate north and south encroach into this Street End. A review of all available aerial imagery shows that these homes with these driveway encroachments have been present since at least 1968. The current encroachment of the house to the north is substantially less than in the 1968 aerial image. The original dates of construction for both homes are no longer listed on the property appraiser website as both homes have undergone substantial remodeling in the past decade such that their build dates were updated.

Site topography is sloping down from 39th Avenue SE east to Lake Washington.

More detail on the existing conditions of these parcels is provided below in **Chapter 3**.

3. Existing Site Conditions

In-depth analysis of existing conditions within the Project Site is described below.

3.1 Methodology

Prior to field investigations of the Site, a thorough review of existing publicly available databases was completed to determine what has been previously mapped over the Site. These findings are outlined in Section 3.2 below. During field investigations, the routine approach described in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (U.S. Army Corps of Engineers, 2010) was used as a baseline for evaluating the Site for the presence of wetlands. This supplement is in addition to the 1987 Corps of Engineers Wetlands Delineation Manual, which serves as the baseline on which the regional supplements build. Wetlands were rated using the Washington State Wetland Rating System for Western Washington (Hruby 2014). The presence of streams onsite was determined using the methodology described in *Determining the Ordinary High Water Mark on Streams in Washington State* (Olson and Stockdale, 2010).

3.2 Previous Studies by Others

This wetland has been delineated twice in the last twelve years [The Watershed Company, 2011, **Appendix C**; Northwest Environmental Consulting, January 2017, **Appendix D;** March 2017, **Appendix F**]. Both studies were provided to the City of Seattle as part of larger applications at their time of drafting.

The Watershed Company (TWC) drafted their report on 18 October 2011 that was submitted to the City as part of Application MUP #3012786. They concluded there is a wetland contiguous to Lake Washington on the street end. The TWC report also noted that degradation of wetland vegetation was on-going. TWC identified the wetland as approximately 2,000 square feet in size. Vegetation present included bamboo, English ivy, yellow iris, Himalayan blackberry, giant horsetail, and soft rush. Yellow iris, Himalayan blackberry, giant horsetail, and soft rush are all wetland species. During the time frame of the report, the Site was being cleared of the bamboo and English ivy. The wetland was rated as a Category IV wetland based on the 2004 (revised 2008) wetland rating system in use at the time of this report.

Northwest Environmental Consulting initially submitted a *Technical Memorandum* on 31 January 2017 that concluded that no wetlands occurred onsite due to a lack of wetland hydrology based on their site visit on 17 January 2017. The memo noted that wetland vegetation and hydric soils were present. Species documented included yellow iris, red-osier dogwood, hardhack (Spirea), Himalayan blackberry, creeping buttercup, and creeping bentgrass. These are all wetland species. However, a comment letter by SDCI dated 14 February 2017 (**Appendix E**) accurately noted that evaluating wetland hydrology adjacent to Lake Washington in January would not accurately reflect growing season wetland hydrology given the managed nature of Lake Washington. A subsequent report in March 2017 (Furukawa Residence Wetland Delineation Report) by Northwest Environmental Consulting updated their conclusion in response to the below SDCI comment that this area was in fact wetland, and then rated as a Category IV lake fringe wetland. While the photos from the 2011 photos are hard to see due to

the black and white scanned copy of the report, the photos in the March 2017 report are in color and readily show the extent of wetland vegetation present within the onsite wetland.

An important distinction between these two (2) previous reports is that the March 2017 report identified the wetland as being less than 1,000 square feet in size while the earlier report showed a much larger wetland. Possible reasons for this discrepancy could be vegetative loss over time, a reflection of a shifting population of water lilies, or a difference in level of detail provided in the delineations. The TWC report from 2011 is 6-sided polygon that extends into the water further that hints that there was aquatic vegetation at the lake edge that was included in this report. The 2017 NEC report reflects a delineation that is a rectangle, that may indicate a focus more on the shoreline rather than accounting for any aquatic vegetation. The complete logic behind these delineations is only captured based on what is written in the reports, which may not address all of the considerations that went into the respective delineations.

The SDCI letter dated 14 February 2017 (Correction Notice #1, Project #6573736) noted the following:

> *I have reviewed the report and further documentation from the wetland consultant is needed to justify the conclusion that wetland hydrology is not present. As you will note from the report, sampling plots 1 and 2 contained wetland plants and wetland soils, but not wetland hydrology (all three are needed to be a wetland). Wetland soils, in particular, are typically only found where the soils are saturated for significant time periods. The suggestion that wetland (hydric) soils indicators observed may be relics is not explained thoroughly enough by the wetland consultant. Lake Washington was lowered approximately 100 years ago, so it seems very unlikely that these hydric soil indicators are simply relics from before the lake was lowered. Rather, based on the depth of the water table (30 inches below the surface) observed by the wetland consultant, it seems plausible that the hydric soils and wetland plants may be present because there is currently wetland hydrology in these areas for a significant part of the growing season. The wetland consultant's investigation occurred in the middle of the winter when the lake level is maintained at its lowest level. In February, the Army Corps of Engineers begins raising the lake level; by May it will be two feet higher and maintained at this level through the summer. Therefore, it seems likely the actual water table for much of the growing season would be expected to be about two feet higher than that which was observed in January. Taking into account how the water level of Lake Washington is managed, it seems that the water table at the two sampling points would likely be within 12 inches of the surface for a significant portion of the growing season, which would be a positive indicator of wetland hydrology. Please have the wetland consultant further address these points and his conclusion that wetland hydrology is not present.*

More recently, an evaluation of the Site was completed by Wetlands Northwest LLC on behalf of Friends of Hidden Beach with a letter of findings prepared dated 14 August 2024 (**Appendix N**). The site visit was conducted on 31 July 2024 during the timeframe when lake water levels are highest. The letter concluded that no wetland was present onsite with a single data point collected in the center of the property, roughly 40 feet inland from the edge of water. The determination of no lake fringe wetland present was based on the lack of hydrophytic vegetation with no further assessment or review of previous data provided. This letter of findings has no effect on the conclusions outlined in this report.

3.3 Database Review Summary

An in-depth review of Agency database results for this Project Site follows in **Table 2**, below. Databases were reviewed for features on the site and within 200 feet of the site. Copies of database results are provided in **Appendix G**. Databases referenced include:

- Natural Resource Conservation Service (NRCS), Websoils Survey (NRCS)
- US Fish and Wildlife (USFWS), Wetlands Online Mapper (National Wetlands Inventory, NWI) (USFWS)
- Washington State Department of Ecology (ECY) Water Quality Atlas
- Washington State Department of Fish and Wildlife (WDFW) Priority Species and Habitats
- Washington State Department of Natural Resources (WDNR) Forest Practices Application Mapping Tool (FPAMT)
- Statewide Integrated Fish Distribution (SWIFD) Web Map
- Salmonscape
- StreamNet
- Fish Passage Culverts Map
- Google Earth
- Historic Aerials, www.historicaerials.com

Table 1. *Summary of Critical Areas*

Database	Agency (Database Manager)	Website
Township, Range, Section Map	WSDOT	SW Section 27, Township 25 North, Range 4 East, Willamette Meridian (W.M.)
Watershed Boundaries	ECY	HUC 171100120400 Watershed name: Lake Washington-Sammamish River WRIA 8: Cedar-Sammamish
Websoils	NRCS	3057 – Urban land – Alderwood complex, 12-35% slopes
National Wetlands Inventory	USFWS	L1UBHh – Lacustrine-Limnetic-Unconsolidated Bottom-permanently flooded-diked/impounded *Lk WA mapped* L2USCh (NWI) - Lacustrine-Littoral-Unconsolidated Shore-Seasonally Flooded – diked/impounded *small shoreline wetland mapped*
Map Service Center	FEMA	No features mapped within Study Area landward of Lk WA shoreline.
Washington State Water Quality Atlas	ECY	Lake Washington mapped on 303(d) list for dioxin, 4-4'-DDD, 4-4'-DDE, mercury, PCBs, dieldrin, and chlordane. The project is not mapped within a TMDL. No outfalls mapped near Street End.

Database	Agency (Database Manager)	Website
Priority Habitats and Species (PHS)	WDFW	Aquatic Habitat –**This is a shoreline wetland separate from the main body of the lake**
Forest Practices Application Mapping Tool	WDNR	Lake Washington (Type S)
Statewide Integrated Fish Distribution (SWIFD) Web Map	NWIFC	Nothing mapped onsite; Lk WA is generally mapped for several species of salmon
Washington State Fish Passage	WDFW	No features mapped within Study Area.
Seattle GIS	City of Seattle	One wetland mapped that coincides with PHS mapped feature and NWI mapped

3.4 Field Investigation Results

The Site was evaluated for critical areas over multiple days: 20 March 2023, 12 September 2023, 16 May 2024, 17 September 2024, and 31 October 2024. Site photographs are included in **Appendix H**. The Photodocument has been updated from the previous report date based on data collected during the October 2024 field visit.

Table 2. *Summary of Critical Areas*

Critical Area ID	Wetland Category/Stream Typing	Standard Buffer (feet) (SMC 25.09)	Feature Type (Cowardin/Flow)
Wetland A	Category II/Habitat 6	110	PEM
Lake Washington	Type S	35	

3.4.1 Lake Washington

Normal precipitation is normally calculated for sites to determine if normal rainfall occurred during the time of the site visit. Given this is a lake fringe wetland on Lake Washington with minimal inputs from anyplace else, calculating normal precipitation is not pertinent to the wetland's hydrology. Whether hydrology is present within this wetland is determined by the control elevation of lake water levels as established by the Ballard locks. Water levels within Lake Washington are higher in the summer months, but are significantly lower during the winter months so that the lake has capacity for winter rainfall. The OHWM for Lake Washington is maintained at a known elevation ranging between elevations 20 to 22 feet (Corps Datum) as dictated by the USACE.

It was determined that the physical ordinary high water mark (OHWM) of the lake was consistent with the upper limits of the wetland at a prominent topographic break onsite that is also consistent with the upper limit of the summer lake water levels.

3.4.2 Wetlands

One (1) wetland was observed within the project area. The wetland does not extend offsite to the north or south due to the presence of rockeries and retaining walls adjacent to the developed properties. The purpose of our visits to the Site was to determine whether a wetland was present onsite and document conditions to inform best practices management. We established that a wetland is present onsite, though it has been disturbed. A draft map had been provided to show the approximate location of the wetland onsite. The wetland had not been formally delineated previously as part of these site visits as that was beyond the scope of the contract at that time, and later, the summer was inappropriate for an accurate delineation of this particular feature because of high lake water levels. In October 2024 we formally delineated the onsite wetland. Details of that delineation are below.

The wetland has been formally delineated twice before in 2011 & 2017. Our review is consistent with the 2017 delineation that is already documented with SDCI. There is a clear topographic break just downhill from the tree line that marks the summer high water levels that is also generally consistent with the upper limits of the wetland.

USACE Disturbed Sites Test

We have prepared a datasheet to document conditions within the wetland as requested consistent with the USACE protocols (**Appendix J**). Please note that this is an atypical situation (problematic hydrophytic vegetation) because of the controlled hydrology and heavily disturbed vegetation which has happened with more intensity in the last several years based on a review of available photos. Sites that lack one or more of the three wetland parameters are addressed under Chapter 5 of the regional supplement (USACE 2010), *Difficult Wetland Situations in the Western Mountains, Valleys, and Coast Region*. This wetland can be evaluated under both wetlands that have problematic hydrophytic vegetation, as well as wetlands that periodically lack indicators of wetland hydrology. Given that the hydrology is a variable that fluctuates annually in a known fashion, the disturbed sites test to evaluate the wetland while accounting for the problematic hydrophytic vegetation was used. Accordingly, the datasheet reflects those atypical components.

Per the problematic hydrophytic vegetation test, a wetland can be identified based on a combination of field observations and/or supplemental information, and is appropriate when hydric soils and wetland hydrology are present, but hydrophytic vegetation is not. The procedure recommends several steps, outlined below:

1. *Verify that at least one indicator of hydric soil and one primary or two secondary indicators of wetland hydrology are present. If indicators of either hydric soil or wetland hydrology are absent, the area is likely nonwetland unless soil and/or hydrology are also disturbed or problematic. If indicators of hydric soil and wetland hydrology are present (or are absent due to disturbance or other problem situations), proceed to step 2.*

   Hydric soils are present onsite. Hydric soil indicators were present in the 2011 report, in the 2017 reports, and in the current 2023-2024 site assessments. A detailed discussion on hydric soils onsite is provided below.

2. *Verify that the area is in a landscape position that is likely to collect or concentrate water.*

   This location is adjacent to a lake at a landscape position where lake fringe/littoral vegetation is often present.

3. *Use one or more of the approaches described in step 4 (Specific Problematic Vegetation Situations below) or step 5 (General Approaches to Problematic Hydrophytic Vegetation on page 108) to determine whether the vegetation is hydrophytic.*
4. *Specific Problematic Vegetation Situations*
5. *General Approaches to Problematic Hydrophytic Vegetation. The following general procedures are provided to identify hydrophytic vegetation in difficult situations not necessarily associated with specific vegetation types or management practices, including wetlands dominated by FACU, NI, NO, or unlisted species that are functioning as hydrophytes.*

Steps 3-5 above list a number of scenarios that may cause onsite vegetation to be disturbed. The intent is to use all available data to establish whether hydrophytic vegetation would grow in this location if the opportunity were present. The previous reports prepared by others document the onsite vegetation, including the presence of a dominance of hydrophytic vegetation that is currently lacking due to the high foot traffic by people and pets as well as selective clearing of vegetation by local volunteers primarily during the growing season months of spring to summer. Some of the previous wetland vegetation present were invasive species that were removed by volunteers at the park (documented in 2011 & 2017 reports). However, despite hydrophytic vegetation being removed from within a wetland, no native hydrophytic vegetation was ever planted to compensate for the vegetation removal as would be consistent with general mitigation guidelines. While a less disturbed (less urban) site may recruit native vegetation naturally, this is often not the case in urban settings like this one, especially where pedestrian traffic during the growing season is so high. Thus, the vegetation in the wetland is suffering because of uses that are inconsistent with best management practices for wetlands, and a lack of mitigation where vegetation removal has occurred.

Onsite Characterization

Site visits confirmed the presence of hydric soils (redoximorphic features present in the upper 6" of the sandy soils onsite at the south end of the beach) as well as wetland hydrology. Site visits were completed at three (3) different times of year, and lake water levels are significantly different. In addition to variations in lake water levels, normal rainfall was only present during the September 2023 site visit, and were drier than normal during the March 2023 and May 2024 visits. Wetland conditions were identified within this Site even with drier than normal conditions. **Photo 1** below shows photos between March 2023 and May 2024 on two (2) different portions of the shoreline that clearly reflect the variability of water levels within Lake Washington. It is also important to note that surface inundation is not required to meet the wetland hydrology indicators. Saturation below grade within 12" of the soil surface for a minimum of two (2) weeks of the growing season also qualifies as wetland hydrology. Many wetlands retain saturated soils for many weeks to months but lack regular inundation. Given the coarse material of the

shoreline, it is likely that the lake water moves laterally to saturate soils further landward than the visible surface water of the lake.

Photo 1. *Comparison of shoreline (March vs May) – note red & yellow lines are same feature between photos for ease of comparison.*

Photos from 2019 of the street end show the wetland area of street vegetated with sedges and grasses, as discussed further below. But over the last few years, visitors have heavily disturbed vegetation through foot traffic and general use of the Site, selective vegetation clearly, and pets. Based on what I saw during my sight visits in 2023 and 2024, and what can be seen from review of pictures that depict changes in vegetation over the past few years as well as photos and datasheets from the above previously prepared critical area reports, the site has continues to reflect impacts from human uses. The 2011 report by The Watershed Company described the wetland as containing bamboo, English ivy, yellow iris, Himalayan blackberry, giant horsetail, and soft rush. This reflects a common urban wetland with significant invasive species encroachment. This report noted that about half the wetland was unvegetated as a result of volunteers removing invasive species. The 2017 report identified the wetland as containing yellow iris, red-osier dogwood, hardhack (*Spirea douglasii*), Himalayan blackberry, creeping buttercup, and creeping bentgrass. Photos posted publicly on Google Maps at the shoreline reflect significant coverage of a groundcover/grass that has since been reduced to small patches. A comparison of photos over the years shows degradation of the remaining vegetation. Today there is only limited wetland vegetation near the edge of the shoreline. Even a small wetland requires a buffer, and both the wetland and its buffer have been affected by the human uses of the street end.

A comparison of photos submitted by users to Google Maps of this street end shows a substantial reduction in shoreline vegetation between May 2019 and June 2022:

Photo 2. *Photo of East Harrison Street End shoreline (facing north) [Source: Google Maps, May 2019]*

Photo 3. *Photo of East Harrison Street End shoreline (facing north) [Source: Google Maps, June 2022]*

Sedges and/or grasses are clearly visible in the 2019 photograph that provided rather significant ground coverage. However, the early signs of human intrusions can be seen in the path worn through the vegetation to the shoreline and the lack of shoreline vegetation at the water's edge. Most sedges and many shoreline grasses in Washington are facultative or wetter plants and readily identified as common wetland plants. The June 2022 photo shows the same area of the shoreline (based on the single large log that is present on this shoreline and seen in many photos observed online). Note the significant reduction of sedge and grass coverage in the June 2022 photo. Similar loss of vegetation is apparent in the uplands onsite, including the wetland and shoreline buffer, where the understory is less dense, suggesting damage from excessive summer foot traffic that does not remain on the designated paths onsite. Upland/buffer impacts have also resulted from selective clearing that has occurred onsite without the dense plantings that typically follow where critical areas are present. Commonly, where vegetative restoration occurs within a critical area, native woody species are planted to fill in gaps resulting from invasive species removal, and large woody debris is retained within the buffer as habitat features and for soil health.

Wetland Delineation – Fall 2024

The wetland was formally delineated to the best of our ability given the lack of hydrophytic vegetation and wetland hydrology being directly connected to the managed water levels of Lake Washington. In light of these disturbed conditions, described in detail above, the delineation focused on the presence or absence of hydric soils. Hydric soils are difficult to assess in sub-aqueous conditions as collecting soil samples is challenging, requiring special tools, and soils do not behave the same under permanently inundated conditions compared to where inundation is cyclical. This was the reason for waiting on this delineation until lake water levels had receded sufficiently for an accurate assessment of the onsite soils within the shoreline of the Street End property.

Fundamentally, the hydric soil manual *Field Indicators of Hydric Soils* (USDA 2024) notes that *the failure to meet the requirements of an indicator does not prevent classification of the soil as hydric* and clearly states that the hydric soil indicators were developed primarily to identify boundaries, the upper limits of a hydric soil. Hydric soil indicators are formed through the active movement of manganese, iron and other minerals through the soil. Locations that have permanent or near-permanent saturation do not form hydric soil indicators as clearly as locations without that level of soil saturation, if at all.

As a result of this, where hydric soil indicators would not be expected to form where constant saturation or inundation are present, we would not expect a semi permanently (or greater) saturated area with hydrophytic vegetation (typical of a lake fringe wetland) to reflect hydric soil indicators. These are areas that, if they possess both wetland hydrology and hydrophytic vegetation, would be considered wetland despite the lack of hydric soil indicators by virtue of their specific location.

The onsite soils within the wetland are coarse sands that require use of the sandy (S) or all (A) indicators. Redoximorphic features occurring in sand can appear a little different than in finer soils (loamy or clayey soils). The hydric soil indicator sandy redox (S5) occurred at multiple locations throughout the northern end of the Site. As a result of this analysis, the estimated delineation was reduced from the entire shoreline to the northern half of the shoreline. The wetland limit is not precise due to the disturbed conditions onsite, but do support definitively that hydric soils continue to persist in at least part of this shoreline. **Appendix J** has been expanded to include additional datasheets that were collected during this delineation effort.

Wetland hydrology was never absent except seasonally, which is fully supported by the USACE delineation manual as wetland hydrology is noted as the most transitory of the wetland indicators. The USACE technical standard for a feature being positive for wetland hydrology if onsite testing is used includes one of the following: 14 or more consecutive data of flooding or ponding [met as this area is at or below the lake OHWM], or a water table within 12" of the soil surface during the growing season at a minimum frequency of 5 years in 10… [standard would also be met] (USACE 2010).

Vegetation is lacking due to the long-term issues described above regarding the repeat disturbances from human and dog uses on the shoreline, and the previous vegetation management activities to remove invasive species without the replanting of native species that would be required for a similar mitigation area.

It is expected that the wetland limits could shift over time as natural fluctuations occur, and changes to the regulations on how we define wetlands may change. However, wetlands often persist naturally even as the jurisdictional limits shift, but rarely disappear fully without human interference. Based on the disturbed sites test outlined above, this feature continues to contain both wetland hydrology and hydric soils though the vegetation is heavily disturbed. Hydrophytic vegetation would persist at this site if planted based on the presence of the other two (2) wetland parameters.

The current delineation was based on where the very limited undamaged hydrophytic vegetation was present (soft rush at the north end) and the presence of hydric soil indicators just below the lake OHWM. The presence of hydric soil indicators was not evaluated below the water line. The delineation could be larger than shown but without undisturbed hydrophytic vegetation present to base the delineation on because of unmitigated human disturbances, this would be difficult to establish. The only way to establish the potential reach of the wetland beyond the current delineated limits shown in Figure 4 would be to restore the wetland through plantings of appropriate native species and see where hydrophytic vegetation can be established. These areas would then require protection against further human disturbance to allow vegetation to reestablish. As a practical matter for restoration and protection of the wetland consistent with best management practices, all of the shoreline on this Site falls within the buffer of the wetland.

3.4.3 Streams

No streams were located on or adjacent to the project area.

3.4.4 Native Vegetation

There is a native canopy with some native understory species present within the Site.

3.5 Wildlife

General observations on expected and observed wildlife usage is below.

3.5.1 General Wildlife Usage

Common urban wildlife such as small to medium mammals and birds are expected to use the Site. Connectivity for land-based wildlife generally and any larger mammal is low due to the very urban surrounding area.

3.5.2 Federally Listed Species

Salmonids are known to occur in Lake Washington adjacent to the Site. Wetland vegetation is important to juvenile fish in the lake.

Bald Eagles do occur around Lake Washington and have been observed in this area. There is the potential of Bald Eagle flyovers or perching on trees within or near the Site, but no evidence of nesting or roosting was observed adjacent to the Site.

3.5.3 State Listed Species

Lake Washington is known to contain numerous species of fish, some of which are listed by the State. Wetland vegetation is important to juvenile fish in the lake.

State priority habitats within the study area include wetlands and Lake Washington.

3.5.4 Local Species

Common urban wildlife are expected to use the Site, though the City of Seattle does not have its own list of local species of importance.

4. Regulatory Review

The Site falls under the jurisdiction of the City of Seattle, State of Washington, and the US Army Corps of Engineers. A summary of the relevant regulations follows.

4.1 Federal Regulations

Waters of the US, including the wetlands and watercourses, occur on or adjacent to the Site and may be subject to applicable Federal regulations. The USACE takes jurisdiction over wetlands abutting navigable waters so the onsite wetland would be jurisdictional to the USACE. Wetland and stream impacts are regulated at the Federal level by Sections 404 and 401 of the Clean Water Act. The US Army Corps of Engineers (USACE) is responsible for administering compliance with Section 404 via the issuance of Nationwide or Individual Permits for any fill or dredging activities within wetlands under Corps jurisdiction. If no actions are proposed that would directly impact a wetland or stream, then no coordination with the USACE is necessary for Section 404 compliance. If an action is taken that would result in dredging or filling of a wetland, coordination with the USACE would become necessary.

4.2 State Regulations

Wetlands on the Site are subject to applicable State regulations. However, City regulations retaining to wetlands and streams are based on state guidelines and will dictate critical areas protections. Any action that triggers the need for a permit would require coordination with these agencies.

4.2.1 Washington State Department of Ecology (ECY)

Any project that is subject to Section 404 permitting is also required to comply with Section 401 Water Quality Certification, which is administered by the Washington State Department of Ecology (DOE). If no actions are proposed that would directly impact a wetland or stream, then no coordination with the USACE is necessary for Section 404 compliance, which would also include Section 401 compliance.

4.2.2 Washington State Department of Fish and Wildlife (WDFW)

The Project does not proposed work in or adjacent to streams or Lake Washington. Therefore, no coordination with WDFW is anticipated.

4.3 Local Regulations

The Site falls within the City of Seattle limits and is subject to the regulations of SMC Chapter 23.60A – *Seattle Shoreline Master Program [SMP] Regulations* and Chapter 25.09 – *Regulations for Environmentally Critical Areas*.

4.3.1 Shoreline Jurisdiction

The East Harrison Street End is on the shore of Lake Washington, a state-designated Shoreline of the State. Under the SMP, the shoreline environment waterward of the Ordinary High Water Mark (OHWM) is Conservancy Recreation (CR), and the shoreline environment for 200 feet landward of the OHWM is Urban Residential (UR). A 35-foot setback off Lake Washington is required per SMC 23.60A.275.A that is modifiable with conditions.

4.3.2 Non-Shoreline Jurisdiction

Critical areas on the Site are subject to the regulations of SMC Chapter 25.09 – *Regulations for Environmentally Critical Areas*.

Wetlands

One (1) wetland occurs within the Study Area, Wetland A. A wetland rating is provided in **Appendix K**. This wetland occurs fully within the shoreline environment. Wetland A rated as a Category II lake fringe wetland, even with the degraded vegetation, with a Habitat Score of 6, which requires a 110-foot standard buffer. This rating deviates from the previous reports that only rated this wetland as a Category IV wetland because of changes in the rating system since these previous wetland ratings. Both previous delineations used the 2004 wetland rating system, as updated in 2006 and 2008. The current wetland rating uses the 2014 rating system as updated by ECY and adopted by the City of Seattle.

Several pre-existing conditions exist within the wetland buffer, including portions of the adjacent homes and driveways that, as discussed above, have existed since at least 1968. The Roberts home was built in 1952.

Per 25.09.160.C.4, altering existing wetlands or their buffers is allowed pursuant to 25.09.160.F, which in turn allows wetland and buffer disturbance for the intent of increasing the size or function of either the wetland or its buffer. This would allow land disturbing activities, such as vegetation clearing or tree trimming, assuming the effort results in the increase of either the size and/or function of the wetland and/or its buffer. This clarifies that any work must meet the methods referenced in the *Interagency Wetland Mitigation Guidance* report published by Ecology (Ecology Publication #06-06-011a/11b).

Buffer reductions or other modifications may be allowed, but variances are only available for Category IV wetlands.

Development of any kind, including an action that would alter the function and value of the wetland *including but not limited to negative impacts on trees and vegetation, habitat…is prohibited* (25.09.160.C.1).

Lake Washington

The required setback for Lake Washington is defined by the Shoreline Management Program, and was discussed above in Chapter 4.3.1.

4.3.3 Flood Hazard Area

No 100-year floodplains are mapped on the Site since Lake Washington is a managed waterbody.

4.3.4 Steep Slope

No steep slopes are mapped onsite.

5. Wetland Functions, Values, and Impacts

Two (2) memos over the past year were prepared and provided to SDOT documenting the below concerns. The contents of these memos were incorporated into this section so that all documentation would be centralized into a single comprehensive document, and are also provided as **Appendices L** and **M**. The 27 September 2024 memo that summarized my findings from the 17 September 2024 site visit (**Appendix M**) includes a summary of a very negative interaction had with an unnamed park user regarding off-leash dogs.

5.1 SMP and Projection of Environmental Functions & Values

The purpose of the CR environment is to provide public access and recreational use of shorelines while protecting ecological functions (SMC 23.60A.220). The location criteria tie back to protecting natural resources while allowing water access. However, there are different types of public access and recreational uses with varying levels of land use intensity. Shorelines that balance critical areas against shoreline access must also keep carrying capacity of the property in mind. As the below photo shows, current uses at this street end can quickly exceed compatible densities of people and uses.

Photo 4. *Photo from Friends of Hidden Beach website (photo dated June 27, 2021)*

In the upland UR environment, a shoreline "park and open space use" is allowed, but only with a shoreline substantial development permit, which I understand has not been applied for by SDOT or by the people who are encouraging and participating in the high-volume use of this street end for park purposes. As a wetland scientist, I can say that this shoreline environment cannot support such a park use without degradation of the natural environment, which has already taken place and is currently taking place. Ecological functions have not been protected as required by SMC 23.60A.220, and such harm to the shoreline environment violates the SMP (discussion continued below on the shoreline damage to date).

5.2 Changes to vegetation within shoreline jurisdiction must comply with SMP

For example, the first 35 feet landward of the OHWM is within the "shoreline setback." Within this shoreline setback, per 23.60A.190.F, "any land disturbing activity, and any action detrimental to aquatic or wildlife habitat, vegetation or trees is prohibited," except as expressly authorized by the SMP. The SMP requires supervision by a "qualified professional" for pruning and vegetation management. However, recent pruning of trees & shrubs was completed

on a variety of limb/branch sizes above as well as below the threshold for which permits are required. At a minimum, land management activities are being done within a critical area without the correct authorizations and/or awareness of the regulations protecting critical areas, including shorelines.

5.3 SMP does not permit damage to wetlands without permitting and mitigation

The SMP also does not allow the damage to the small wetland near the shore that has taken place. This wetland is depicted on SDCI's GIS map. The Washington State Department of Fish and Wildlife recognizes the property as a "Priority Area" for "Aquatic Habitat", and the wetland is shown on the U.S. Fish and Wildlife Service National Wetlands Inventory. The wetland is directly adjacent to waters of the United States, Lake Washington, meeting the definition of a jurisdictional wetland under the federal Clean Water Act.

Wetlands, and shorelines in general, provide important ecological functions. Lake Washington provides habitat for salmon, among other species, that rely on healthy shoreline ecology to survive. Lake Washington is identified by the National Marine Fisheries Service as Essential Fish Habitat for species of salmon and non-salmonid fish.

Shoreline vegetation provides shading over lake water that in turn lowers water temperatures in these shallow water portions of the lake. Wetland vegetation in lake fringe wetlands also provide refugia for juveniles of many aquatic species. The degradation of the wetland and shoreline by dense, unregulated crowds is detrimental to wildlife, particularly to those that depend on these shoreline environments.

5.4 Unpermitted impacts to the shoreline/wetland violates federal and state permitting requirements

A June 2022 photo hints that sand may have been imported to replace dirt that has eroded from the shoreline. Sediment erosion is clearly a problem the site is currently having that is common to Lakes Washington and Sammamish where natural shorelines alternate with managed shorelines. Sediment erosion is also a common impact from unsustainable pedestrian traffic that causes loss of vegetation and soil compaction. Importation of soil into a wetland or the lake requires permits from other agencies including the Army Corps of Engineers and the Department of Ecology, regardless of quantity. And any work at or below the OHWM would also require a Hydraulic Project Approval (HPA) from the Department of Fish and Wildlife, in addition to the previously listed state and federal agencies. I am not aware of any jurisdictional determinations by the United States Army Corp of Engineers, but the wetland meets the definition of a jurisdictional wetland under the federal Clean Water Act given its location adjacent to Lake Washington.

5.5 Off-leash dog users of the shoreline is harmful to ecological functions and degrades the wetland & shoreline

The shoreline, including the wetland area, also is being used as an off-leash area for dogs, which is harmful to the ecological function of this area given the bacteria they carry as well as the damage to vegetation caused by their paws. Additionally, signage at the front of the street end clearly states that dogs must remain on leashes. An

exchange on 17 September 2024 that occurred during a site visit is documented in the 27 September 2024 memo (**Appendix M**) where a person was verbally aggressive when asked to not let their dog off-leash.

***Photo 5**. Photo from 13 March 2023 [Source: Mr. & Mrs. Roberts]*

5.6 Protecting ECAs

While the SMP supports mixed uses of the shoreline, a plan is typically required that clearly separates environmentally sensitive areas from areas used for shoreline access so that these types of critical area impacts are avoided. It is a violation of the SMP and the City's Regulations for Critical Areas (Chapter 25.09) to fail to comply with the requirements of both (see SMC 25.09.400; SMC 23.60A.012; SMC 23.60A.082).

The most recent site visit on 17 September 2024 documented additional erosion that has occurred between September 2023 and September 2024. Conditions at the street end continue to deteriorate though the erosion is less obvious in the last year than when comparing to previous years. The little bit of vegetation that was left during our September 2023 site visit within the shoreline area is mostly gone now (Photos 6 & 7 below). Note the clumps of grass in Photo 6 that are significantly reduced in size/area within Photo 2. While small areas of erosion aren't significant, every area of lost vegetation increases the rate of shoreline erosion over time, and the loss of vegetation is continuing.

The wetland vegetation from previous years' delineations is gone, so tracking the grasses that are left and general erosion exposing roots and large wood on the shoreline are the only remaining features that can be documented for habitat condition on this specific segment of shoreline.

Shoreline erosion is a natural process that is hindered along Lake Washington broadly as a baseline current condition given the many docks on the shoreline have varying effects on natural shoreline sediment transport processes. Typically, new sediment is deposited on a shoreline to offset sediment loss. Wetland vegetation on a shoreline, even invasive species, can serve to protect shorelines from this net sediment loss that is consistent with observations on this street end. Decreased shoreline vegetation will increase shoreline erosion as the lake water levels shift or boat wakes hit the shore. Shoreline erosion has many causes with vegetation being the primary protector against excessive erosion. The continued excessive summer foot traffic, that coincides with the majority

of the growing season for the plants within these sensitive areas, will continue to erode the soil at the lakeshore regardless of the wave action from the lake. The SMP does not allow a lake fringe wetland to be used as an entry point to a waterbody, especially when alternate locations are available nearby.

Photos 8-11 below document erosion occurring from behind a large wood railroad tie that has been a constant feature on this shoreline since our site visits started in early 2023. This erosion is occurring from the landward side of the shoreline, beyond the ordinary high water mark of the lake, so is unlikely the result of wave/water action. The location of the erosion suggests pedestrian traffic as the likely cause of this erosion rather than shifting water levels in Lake Washington.

Photo 6. *East Harrison Street End - facing south (12 September 2023)*

Photo 7. *East Harrison Street - facing south (17 September 2024)*

***Photo 8**. 20 March 2023*

***Photo 10.** 16 May 2024*

***Photo 9.** 12 September 2023*

***Photo 11.** 17 September 2024*

Any impact to a critical area, including wetlands and their buffers, as well as the shoreline itself, requires application of avoidance and minimization measures. These avoidance and minimization measures include documenting that the impact was avoided as much as possible, then minimized, and finally, where impacts to critical areas cannot be fully avoided and have been minimized to the greatest extent possible, any remaining impacts must be mitigated appropriately. Mitigation can take the form of wetland creation to offset direct and permanent wetland impacts, or purchase of credits through an approved mitigation bank or in lieu fee program, such as the King County In Lieu Fee program. Other options include restoration of impacted areas with long-term protection provided to protect against future impacts.

The heavy park use of the shoreline depicted in Photo 4 above, from the Friends of Hidden Beach website, is inconsistent with the environmentally sensitive nature of this site and the requirements of the SMP. No critical area fencing or signage is located onsite to reflect the City's mapped wetland in this location and the associated buffer, to identify these sensitive areas and demarcate where people should and should not pass, as would be considered best management practices where people and critical areas occur in tandem.

SDOT's Shoreline Street End Map clearly identifies parks, two nearby, that are designated for swimming and beach access, and this street end was not identified as such [https://seattlecitygis.maps.arcgis.com/apps/webappviewer/index.html?id=118355cfdc4b4931bbec0b67f6b750fc]. The current uses of the street end, in particular in the shoreline, are not consistent with regulations protecting ecological functions and are ultimately detrimental to the shoreline environment at this location.

6. Summary

The East Harrison Street End is located east of Lakeview Park off of 39th Avenue East in Seattle, Washington. The Site contains a very disturbed lake fringe wetland that rated as a Category II wetland with a 110-foot standard buffer based on current regulations and guidance. This wetland was previously identified by two (2) other consultants in 2011 and 2017. The wetland vegetation is significantly disturbed when compared against the previous studies completed on this specific feature, likely due to pedestrian use of the Street End. Signage and critical area fencing is lacking around the onsite wetland such that its condition has eroded over time and use. Normal shoreline processes cause erosion, but anthropogenic factors are exacerbating the natural process on this shoreline where proper critical area protections are lacking.

7. References

1. Anderson, P. S., Meyer, S., Olsen, P., & Stockdale, E. (2016). *Determining the Ordinary High Water Mark for Shoreline Management Act Compliance in Washington State*. Lacey, WA: Washington Department of Ecology, Shorelines & Environmental Assistance Program.
2. Cowardin, L. M., Carter, V., Golet, F. C., & LaRoe, E. T. (1979). *Classification of Wetlands and Deepwater Habitats of the United States*. Washington, DC: U.S. Department of the Interior, Fish and Wildlife Service.
3. Environmental Laboratory. (1987). "*Corps of Engineers Wetlands Delineation Manual*," Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.
4. Hruby, T. (2014). *Washington State Wetland Rating System for Western Washington*: 2014 Update (Publication #14-06-029). Olympia, WA: Washington Department of Ecology.
5. Lichvar, R. (2012). The National Wetland Plant List. Hanover, NH: U.S. Army Corps of Engineers, Cold Regions Research and Engineering Laboratory. Retrieved from http://acwc.sdp.sirsi.net/client/search/asset:asset?t:ac=$N/1012381
6. Seattle Municipal Code (SMC) (accessed 27 January 2023).
7. U.S. Army Corps of Engineers. (2010, May). Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0). U. S. Army Corps of Engineers. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

APPENDIX A

Jennifer Marriott, PWS – Resume

Kristen Numata, PWS – Resume

Jennifer M. Marriott, PWS

8201 164th Avenue Northeast, Suite 200, PMB 141, Redmond, WA 98052
jen@wet.land
Work: 206-309-8100 | Cell: 813-846-1684

QUALIFICATIONS

- Master of Science, Soil Science, University of Florida, Gainesville, FL, 2010
- Master of Science, Biology (Ecology), University of Central Florida, Orlando, FL, 2003
- Bachelor of Science, Biology, University of Central Florida, Orlando, FL, 2001
- Professional Wetland Scientist (No. 1891)

FOCUS AND EXPERTISE

- Project Management
- Project Summaries and Rapid Environmental Due Diligence Reports
- Wetland and Stream Delineations/Habitat Evaluation
- Wetland (Critical Areas) Permitting
- Mitigation Planning
- Wetland Functional Assessment
- Hydric Soil Determinations
- Training and mentoring of Junior staff.

EXPERIENCE

- Senior Ecologist/Owner; Wet.land, LLC; March 2020 - Present
- Senior Ecologist/Project Manager; Talasaea Consultants, Inc.; June 2015 – March 2020
- Senior Project Scientist; BL Companies, Inc.; July 2012 – July 2014
- Environmental Scientist 3; RETTEW Associates, Inc.; March 2011 – February 2012
- Ecologist; Cardno-ENTRIX, Inc. (formerly known as ENTRIX, Inc., fka Biological Research Associates); July 2003 – March 2011

SKILLS, TRAINING & PROFESSIONAL MEMBERSHIPS

- Washington (Coastal Training Program Workshops)
    - Revised Washington State Wetland Rating System, 2014 (April 2015)
    - Using the Credit-Debit Method for Estimating Mitigation Needs (October 2015)
    - Using Field Indicators for Hydric Soils (November 2015)
    - Grass, Sedge, and Rush Identification for Western WA Puget Lowland Habitats (March 2016)
    - How to Determine the Ordinary High Water Mark (September 2016)
- Other Technical Training
    - Soil Workshop, PAPSS, 2011
    - Hydric Soils Workshops, 2004, 2008, 2009
    - FAESS Florida State Certification Short Course, March 12-13, 2009

Kristen Numata, PWS

8201 164th Avenue Northeast, Suite 200, PMB 141, Redmond, WA 98052
kristen@wet.land
Work: 206-309-8100 | Cell: 206-930-4845

QUALIFICATIONS

- Wetland Science and Management Certificate, University of Washington Professional Continuing Education, Seattle, WA, 2016
- Bachelor of Science, Biology, Santa Clara University, Santa Clara, CA, 2014
- Bachelor of Science, Environmental Science, Santa Clara University, Santa Clara, CA, 2014
- Professional Wetland Scientist (No. 3412)
- Certified Erosion and Sediment Control Lead (No. 70592)

FOCUS AND EXPERTISE

- Critical Areas Delineations and Site Assessments
- Wetland Functional Assessment
- Geographic Information Systems
- Critical Area Permitting
- Mitigation Planning and Performance Monitoring
- Environmental Compliance and Construction Oversight

EXPERIENCE

- Ecologist/Owner; Wet.land, LLC; January 2022 – Present
- Project Biologist; PBS Engineering and Environmental, Inc.; July 2019 – December 2021
- Biologist/Environmental Scientist; David Evans and Associates, Inc.; July 2018 – July 2019
- Ecologist; Talasaea Consultants, Inc.; July 2015 – July 2018

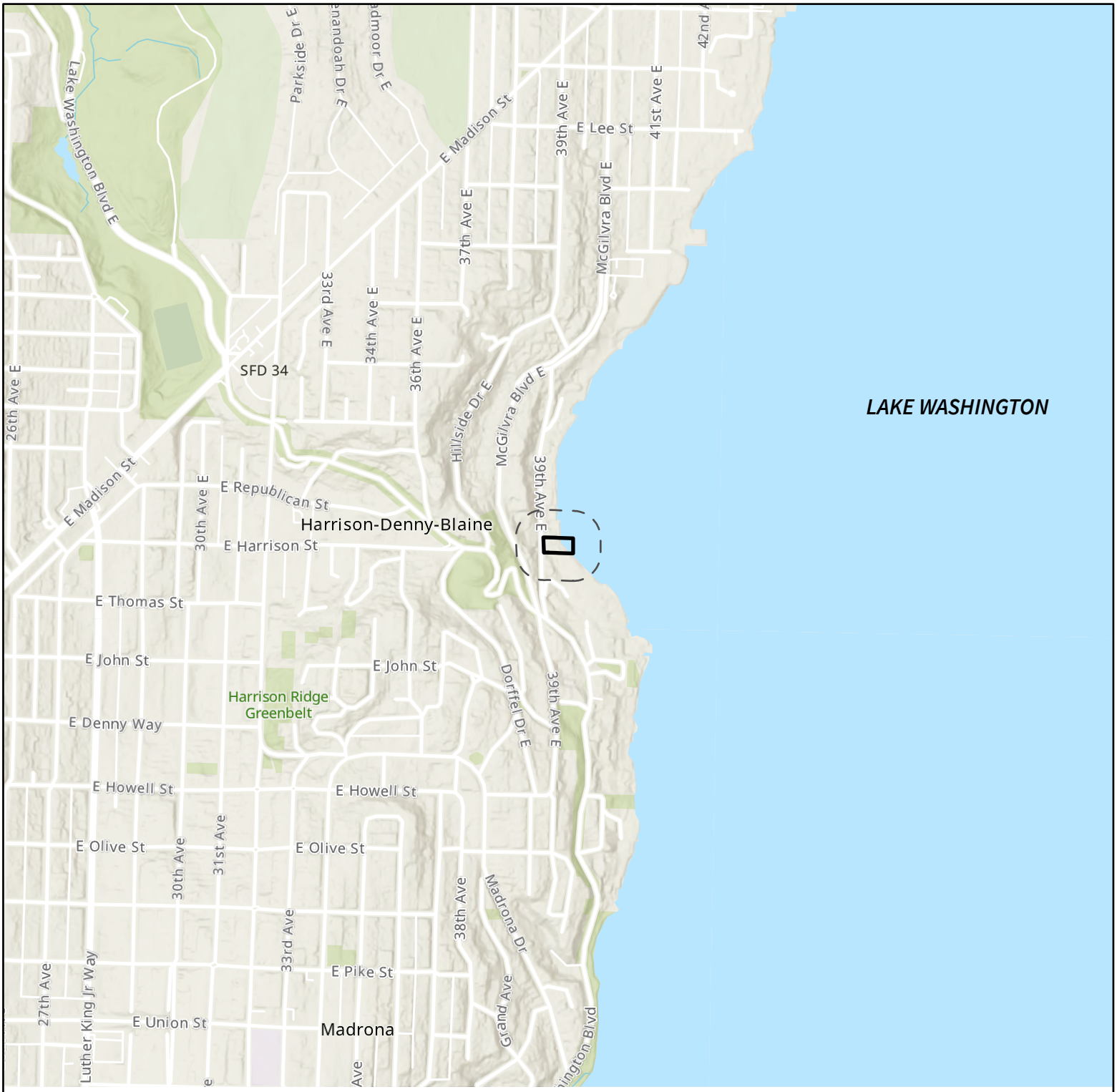
SKILLS, TRAINING & PROFESSIONAL MEMBERSHIPS

- Washington (Coastal Training Program Workshops)
    - Revised Washington State Wetland Rating System, 2014 (March 2016)
    - Using the Credit-Debit Method for Estimating Mitigation Needs (April 2017)
    - How to Determine Ordinary High Water Mark (June 2017)
    - Grass, Sedge, and Rush Identification for Western WA Puget Lowland Habitats (February 2018)
    - Winter Tree and Shrub Identification for Western WA Puget Lowland Habitats (February 2019)
    - Navigating SEPA (March 2019)
- Other Technical Training
    - Junior Author, Washington State Department of Transportation (WSDOT) Biological Assessment Preparation for Transportation Projects Training (March 2020)
    - Fish Passage: Inventory and Assessment, Washington Department of Fish and Wildlife, (WDFW) (August 2020)
    - Fish Passage: Habitat Survey, WDFW (August 2020)

APPENDIX B

Figures

1. Vicinity Map
2. Web Soil Survey Map
3. National Wetlands Inventory Map
4. Existing Conditions Map



N

Feet

0 500 1,000

SOURCE: ESRI WORLD TOPOGRAPHIC MAP AND HILLSHADE

wet.land

VICINITY MAP

Harrison Street End

Seattle, WA

#0121

OCT 2024

FIGURE 1

LEGEND

- Harrison Street End
- Study Area (200')
- Soil Map Units

Soil Map Units Within Study Area

3057 - Urban land-Alderwood complex, 12 - 35% slopes

3059 - Alderwood-Everett-Urban land complex, 12 - 35% slopes

N

0 50 100 Feet

SOURCE: KING COUNTY AERIAL 2023, WEB SOIL SURVEY GIS

wet.land

WEB SOIL SURVEY MAP

Harrison Street End

Seattle, WA

#0121

OCT 2024

FIGURE 2

LEGEND

Study Area (200')

Harrison Street End

NWI Wetlands

Lake

National Wetlands Inventory Wetlands Within Study Area

L1UBHh -lacustrine limnetic unconsolidated bottom permanently flooded diked/impounded

L2USCh - lacustrine littoral unconsolidated shore seasonally flooded diked/impounded

N

0 50 100 Feet

SOURCE: KING COUNTY AERIAL 2023, NATIONAL WETLANDS INVENTORY GIS

wet.land

NATIONAL WETLANDS INVENTORY MAP

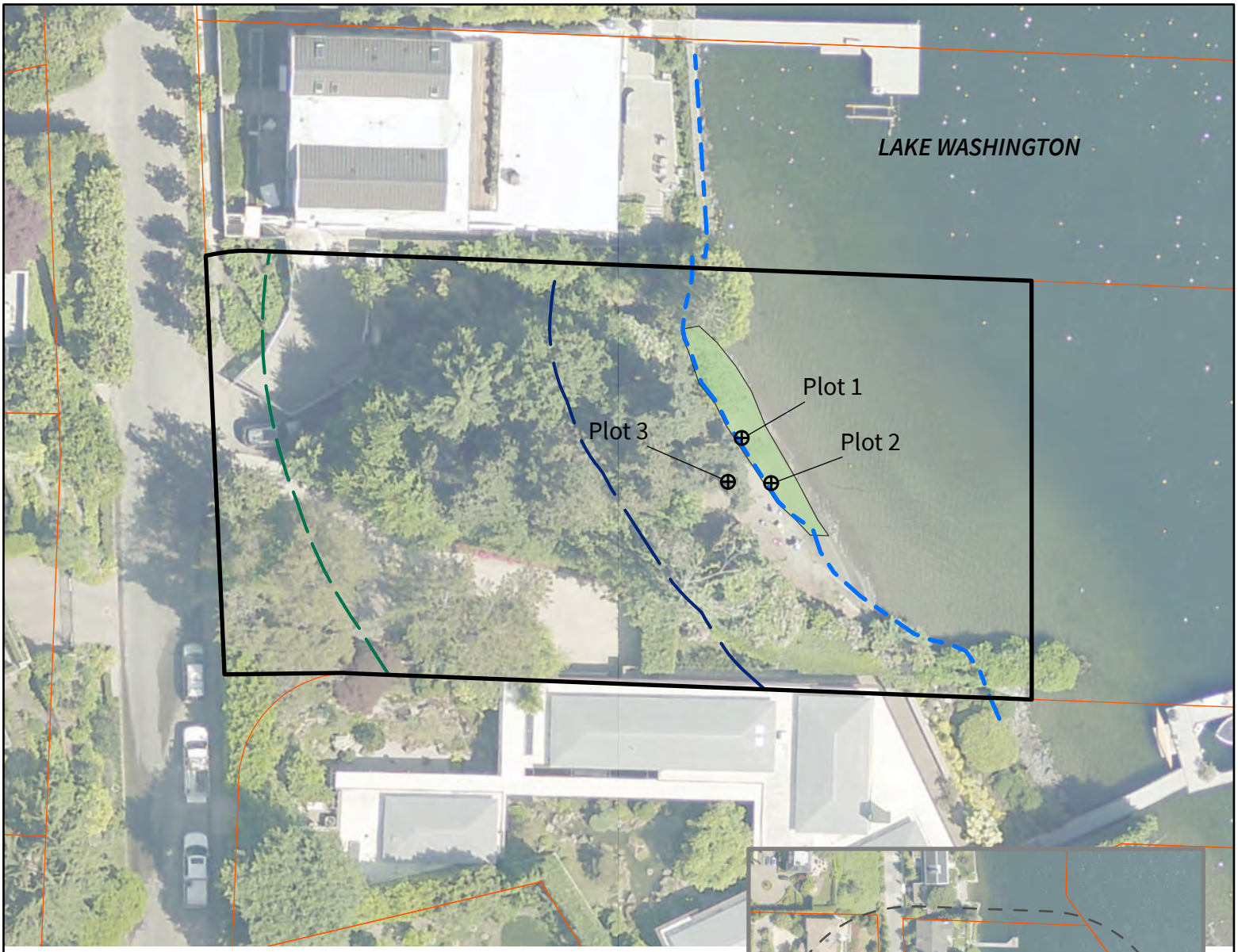
Harrison Street End

Seattle, WA

#0121

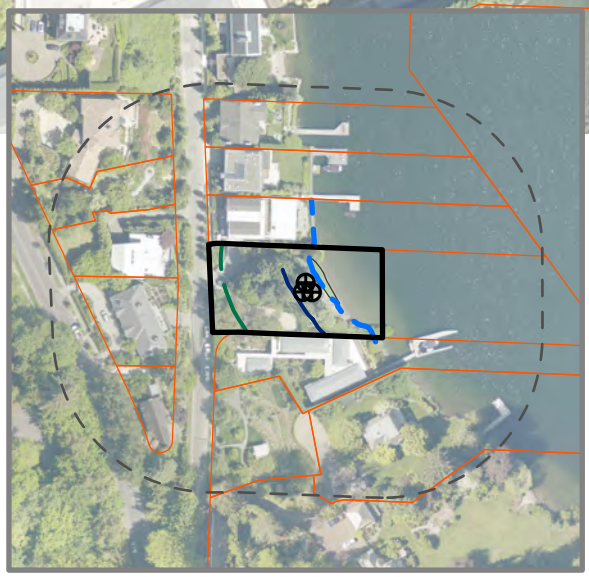
OCT 2024

FIGURE 3



LEGEND

- Harrison Street End
- Study Area (200')
- Parcels
- Plot
- Wetland Buffer (110')
- OHWM (Estimated)
- Shoreline Setback (35')
- Wetland Delineation



N

0 20 40 Feet

SOURCE: KING COUNTY AERIAL 2023

wet.land

EXISTING CONDITIONS MAP

Harrison Street End

Seattle, WA

#0121

NOV 2024

FIGURE 4

APPENDIX C

408-39th Ave E (Hanauer) Project, Wetland Delineation Study

Prepared by The Watershed Company

18 October 2011

THE WATERSHED COMPANY

SCIENCE & DESIGN

October 18, 2011

Adrian Hanauer
1130 Lakeside Ave. S.
Seattle, WA 98144

c/o Derek Santo
Olson Kundig Architects
159 South Jackson Street, Suite 600
Seattle, WA 98104

Re: 408 – 39th Ave. E (Hanauer) Project, Wetland Delineation Study
The Watershed Company Reference Number: 111007

Mr. Hanauer:

This letter summarizes the findings of this study and details applicable federal, state, and local regulations. The following attachments are included:

- Wetland Delineation Sketch
- Wetland Determination Data Forms
- Wetland Rating Form

Methods

Public-domain information on the subject property was reviewed for this delineation study. These sources include USDA Natural Resources Conservation Service Soil maps, U.S. Fish and Wildlife Service National Wetland Inventory (NWI) maps, King County's GIS mapping website (iMAP), and Seattle DPD's interactive GIS mapping.

Sarah Spilseth Sandstrom and Hugh Mortensen, from The Watershed Company, conducted a site visit on October 17, 2011. Wetland areas were evaluated using methodology from the *Washington State Wetlands Identification and Delineation Manual* (Manual) (Washington Department of Ecology [Ecology] 1997) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region Version 2.0* (Regional Supplement) (US Army Corps of Engineers [Corps] May 2010). Wetland boundaries were determined on the basis of an examination of vegetation, soils, and hydrology. Areas meeting the criteria set forth in the Manual and Regional Supplement were determined to be wetland. Soil, vegetation, and hydrologic parameters were sampled at several locations along the wetland boundaries to make the determination. Data points on-site are marked with yellow- and

CONSTRUCTN FULL C SF/D NEW $730148 408 39TH AVE E
Appl:11/17/2011 Proj: Filed as:408 39TH AVE E Use:Y
Establish use and construct new single family residence with attached garage, per plans
Parent: Related MUP:3012786 Build ID: 6248039

750 Sixth Street South | Kirkland, WA 98033
p 425.822.5242 | f 425.827.8136 | watershedco.com

black-striped flags. We recorded data at two of these locations. The on-site wetland boundary was marked with 5 pink- and black-striped flags.

The wetland was classified using the Revised Washington State Wetland Rating System for Western Washington (2006).

Findings

The study area includes a single-family residential property located in the City of Seattle on the western shoreline of Lake Washington. The subject property address is 408 – 39th Avenue East. The study area also includes a small, street-end park one parcel south of the subject property. Both waterfront lots north of the park have bulkheads that extend to the edge of the lake, and no wetlands are present on either property. The street end park is a small, partially forested park with an open beach and a small wetland along the shoreline. This wetland is referred to in this report as Wetland A.

Wetland A

Wetland A is approximately 2,000 square feet in size and contiguous with Lake Washington. The wetland is typical of most Lake Washington shorelines, having a mix of ornamental and invasive weed vegetation, disturbed soils and a long land use history. Wetland A contains emergent and scrub-shrub vegetation. The wetland is not identified in the National Wetlands Inventory, but it is identified by Seattle's Department of Planning and Development. Wetland A is characterized by bamboo, English ivy, yellow iris, Himalayan blackberry, giant horsetail, and soft rush. Groundcover is predominantly lawn grasses and creeping buttercup. Based on on-site observations and conversations with park users present during the fieldwork, much of the bamboo and English ivy within the wetland and upland areas of the park was cleared by a local volunteer one to two weeks prior to the site visit. As a result of the clearing, nearly half of the wetland area was either sparsely vegetated or unvegetated at the time of the site visit (see Photo 1).

Photo 1. View of Wetland A.

Sampled wetland soils are a sandy loam, meeting the definitions of both a Depleted Matrix and a Depleted Below Dark Surface soil (see DP-1). Soils were moist, but not saturated on the day of fieldwork; however, oxidized rhizospheres were present along living roots, and the wetland met two secondary hydrology indicators of geomorphic position and FAC-neutral test. Wetland hydrology (saturation of the root zone) is likely present only for the minimum time necessary to meet technical wetland parameters.

Non-wetland

The vegetated buffer west of the wetland contains shore pines, butterfly bush, and rhododendron, with little understory vegetation. As noted above, much of the park area had been recently cleared of ivy and bamboo. Sampled non-wetland soils are a sandy loam. Soils were moist, but not saturated on the day of our fieldwork, and no other indicators of hydrology were present (see DP-2).

Local Regulations

Wetlands in the City of Seattle are regulated under the Seattle Municipal Code Chapter 25.09 – Regulations for Environmentally Critical Areas. Wetland buffers are assigned based on the wetland rating, according to the Washington State Wetland Rating System for Western Washington. Based on the on-site review, the subject wetland is a Class IV wetland (see Rating Form attached). Class IV wetlands greater than 1,000 square feet or abutting any Type 1-5 water require a 50-foot standard buffer width. Since Wetland A is greater than 1,000 square feet and abuts Lake Washington (Type 1 water), the 50-foot standard buffer width applies. Activities on the subject property are not subject to wetland buffer restrictions since the property line of the subject property (408 39th Ave NE) is located at least 75 feet from the edge of Wetland A. This distance was derived

based on the position of the closest wetland boundary being south of the southern extent of the rockery bulkhead shown on the survey.

State and Federal Regulations

Wetlands are also regulated by the U.S. Army Corps of Engineers (Corps) under section 404 of the Clean Water Act. Any filling of Waters of the State, including wetlands (except isolated wetlands), would require notification and permits from the Corps. Wetland A would not be considered isolated. Federally permitted actions that could affect endangered species (i.e. salmon or bull trout) may also require a biological assessment study and consultation with the U.S. Fish and Wildlife Service and/or the National Marine Fisheries Service. Application for Corps permits may also require an individual 401 Water Quality Certification and Coastal Zone Management Consistency determination from Ecology.

In general, neither the Corps nor Ecology regulates wetland buffers, unless direct impacts are proposed. When direct impacts are proposed, mitigated wetlands may be required to employ buffers based on Corps and Ecology joint regulatory guidance.

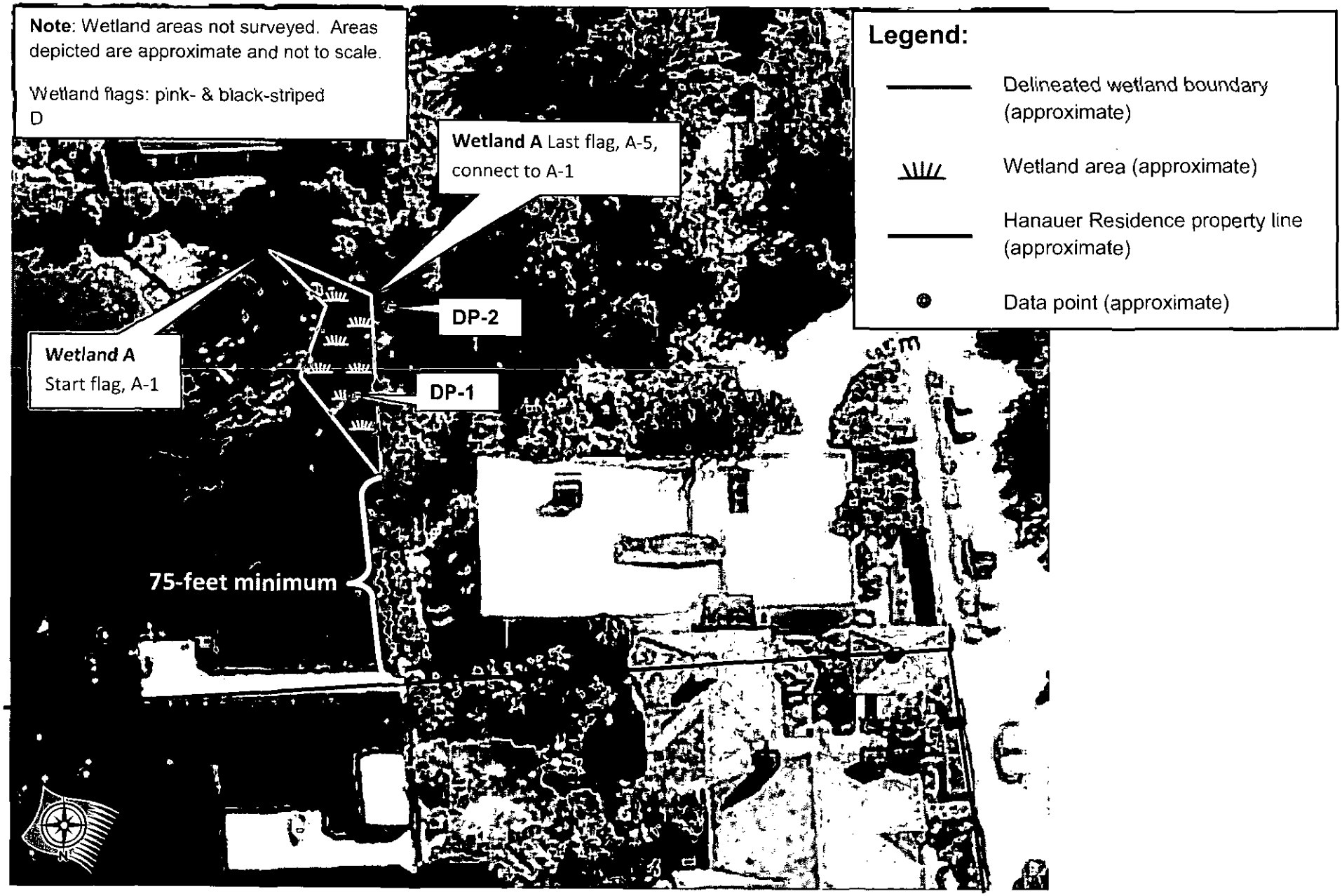
The information contained in this letter or report is based on the application of technical guidelines currently accepted as the best available science and in conjunction with the manuals and criteria outlined in the methods section. All discussions, conclusions and recommendations reflect the best professional judgment of the author(s) and are based upon information available to us at the time the study was conducted. All work was completed within the constraints of budget, scope, and timing. The findings of this report are subject to verification and agreement by the appropriate local, State and Federal regulatory authorities. No other warranty, expressed or implied, is made.

Please call if you have any questions or if we can provide you with any additional information.

Sincerely,

Sarah Spilseth Sandstrom
Fisheries Biologist

Hugh Mortensen, PWS
Principal
Senior Ecologist



Wetland Delineation Sketch
408 39th Ave. E. (Hanauer Residence)
Seattle, WA

THE WATERSHED COMPANY

750 Sixth Street South / Kirkland / WA 98033
p 425.822.5242 f 425.827.8136

THE WATERSHED COMPANY

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Kirkland, Washington 98033
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watershedco.com

WETLAND DETERMINATION DATA FORM

Western Mountains, Valleys, and Coast Supplement to the 1987 COE Wetlands Delineation Manual

DP- 1

Project Site:	408 – 39th Avenue E (parcel 5317100670)	Sampling Date:	10/17/11
Applicant/Owner:	Adrian Hanauer	Sampling Point:	DP- 1
Investigator:	H. Mortensen, S. Sandstrom	City/County:	Seattle/ King
Sect., Township, Range	S 27 T 25N R 4E	State:	WA
Landform (hillslope, terrace, etc.)	hillslope	Slope (%) <5%	Local relief (concave, convex, none) concave
Subregion (LRR)		Lat	Long Datum
Soil Map Unit Name	Not available		NWI classification NA

Are climatic/hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks.)
Are "Normal Circumstances" present on the site? ☒ Yes ☐ No
Are Vegetation ☒, Soil, ☐, or Hydrology ☐ significantly disturbed?
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 this Sampling Point within a Wetland?**	☒ Yes ☐ No
Hydric Soils Present?	☒ Yes	☐ No		
Wetland Hydrology Present?	☒ Yes	☐ No		

Remarks: **Vegetation at the site has been cleared within the past 1-2 weeks. Cleared vegetation was predominantly invasive species: English ivy and bamboo.**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size 5m diam.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Pinus contorta- rooted outside of plot*			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size 3m diam.)			
1. *Bambusa sp.*	15	Y	NI
2.			
3.			
4.			
5.			
	20 = Total Cover		
Herb Stratum (Plot size 1m diam.)			
1. *Iris psuedacorus*	10	Y	OBL
2. *Equisetum telmateia*	10	Y	FACW
3. *Geum macrophyllum*	Trace	N	
4. *Ranunculus repens*	Trace	N	
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	20 = Total Cover		
Woody Vine Stratum (Plot size)			
1. *Rubus armeniacus*	5	Y	FACU
2.			
	5 = Total Cover		

% Bare Ground in Herb Stratum

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species that are OBL, FACW, or FAC:	66	(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

Yes	Dominance test is > 50%
	Prevalence test is ≤ 3.0 *
	Morphological Adaptations * (provide supporting data in remarks or on a separate sheet)
	Wetland Non-Vascular Plants *
	Problematic Hydrophytic Vegetation * (explain)

* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

SOIL **Sampling Point – DP-1**

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

Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]		
0-3	10YR 2/1	100					Loamy Sand	
3-14	2.5Y 4/1	70	10YR 4/6	30			Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Loc: 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]

- ☐ 2cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ 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 **(except MLRA 1, 2, 4A & 4B)** (B9)
- ☐ 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 & 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

Field Observations

Surface Water Present?	☐ Yes	☒ No	Depth (in):	
Water Table Present?	☐ Yes	☒ No	Depth (in):	
Saturation Present? (includes capillary fringe)	☐ Yes	☒ No	Depth (in):	

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

THE WATERSHED COMPANY
750 Sixth Street South
Kirkland, Washington 98033
(425) 822-5242
watershedco.com

WETLAND DETERMINATION DATA FORM

Western Mountains, Valleys, and Coast Supplement to the 1987 COE Wetlands Delineation Manual

DP- 2

Project Site:	408 – 39th Avenue E (parcel 5317100670)	Sampling Date:	10/17/11
Applicant/Owner:	Adrian Hanauer	Sampling Point:	DP- Adrian Hanauer
Investigator:	H. Mortensen, S. Sandstrom	City/County:	Seattle/ King
Sect., Township, Range	S 27 T 25N R 4E	State:	WA
Landform (hillslope, terrace, etc)	Hillslope	Slope (%) ~5%	Local relief (concave, convex, none) convex
Subregion (LRR)	A	Lat	Long / Datum
Soil Map Unit Name	Not available		NWI classification NA

Are climatic/hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks.)
Are "Normal Circumstances" present on the site? ☒ Yes ☐ No
Are Vegetation ☒, Soil, ☐, or Hydrology ☐ significantly disturbed?
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 this Sampling Point within a Wetland?** ☐ Yes ☒ No
Hydric Soils Present?	☐ Yes	☒ No	
Wetland Hydrology Present?	☐ Yes	☒ No	

Remarks: **Vegetation has been cleared in the last week or two. Vegetation used to consist of invasive species: English ivy and bamboo.**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size 5m diam.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size 3m diam.)			
1. *Ornamental shrub*	70	Y	FACU*
2.			
3.			
4.			
5.			
	70	= Total Cover	
Herb Stratum (Plot size 1m diam.)			
1. *Hedera helix*	20	Y	NI
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	20	= Total Cover	
Woody Vine Stratum (Plot size)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum

Remarks:

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species that are OBL, FACW, or FAC:	0	(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

- ☐ Dominance test is > 50%
- ☐ Prevalence test is ≤ 3.0 *
- ☐ Morphological Adaptations * (provide supporting data in remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants *
- ☐ Problematic Hydrophytic Vegetation * (explain)

* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? Yes ☐ No ☒

SOIL **Sampling Point – DP-2**

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

Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]		
0-5	10YR 2/2	100					Sandy loam	
5-12	10YR3/2	97	10YR4/6	3	C		Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Loc: 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]

- ☐ 2cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ 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 **(except MLRA 1, 2, 4A & 4B)** (B9)
- ☐ 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 & 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

Field Observations

Surface Water Present?	☐ Yes	☒ No	Depth (in):	
Water Table Present?	☐ Yes	☒ No	Depth (in):	
Saturation Present? (includes capillary fringe)	☐ Yes	☒ No	Depth (in):	

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:

Wetland name or number __A____

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Wetland A Date of site visit: 10/17/11

Rated by: HM/SS Trained by Ecology? Yes ☒ No ☐ Date of Training 5/2005

SEC: 27 TWNSHP: 25N RNGE: 4E Is S/T/R in Appendix D? Yes ☐ No ☒

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I ☐ II ☐ III ☐ IV ☒

Category I = Score ≥70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score < 30

Score for Water Quality Functions	8
Score for Hydrologic Functions	4
Score for Habitat Functions	14
TOTAL score for functions	**26**

Category based on SPECIAL CHARACTERISTICS of wetland

I ☐ II ☐ Does not Apply ☒

Final Category (choose the "highest" category from above) **IV**

Check the appropriate type and class of wetland being rated.

Wetland Type		Wetland Class	
Estuarine		**Depressional**	
Natural Heritage Wetland		**Riverine**	
Bog		**Lake-fringe**	X
Mature Forest		**Slope**	X
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	X

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal** or **plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X[1]
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X[2]
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

[1] Threatened Chinook salmon, steelhead trout, and bull trout have been documented to use Lake Washington.

[2] Based on the WDFW Priority Species mapping website (http://wdfw.wa.gov/conservation/phs/list/) no priority species are found within the wetland; however, the following priority species are found in Lake Washington (Chinook, coho, and sockeye salmon, coast resident cutthroat trout, and bull trout) and its shorelines.

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. Classifying the wetland first simplifies the questions needed to answer how it functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number __A____

Classification of Wetland Units in Western Washington

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 wetland unit usually controlled by tides (i.e. except during floods)?

☒□ NO – go to 2 ☐□ **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*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 rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is 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 both** of the following criteria?

☒□ The vegetated part of the wetland is on the shores of a body of open water (without any vegetation on the surface) at least 20 acres (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**?

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

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

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 two years
   NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

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

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 your wetland. 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 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	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

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

Wetland name or number __A____

L	Lake-fringe Wetlands	Points
	WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality	
L	**L 1. Does the wetland have the potential to improve water quality?**	*(see p. 59)*
L	L 1.1 Average width of vegetation along the lakeshore: Vegetation is more than 33ft (10m) wide ..... points = 6 Vegetation is more than 16 (5m) wide and <33ft ..... points = 3 Vegetation is more than 6ft (2m) wide and <16 ft ..... points = 1 Vegetation is less than 6 ft wide ..... points = 0	1
L	L 1.2 Characteristics of the vegetation in the wetland: *choose the appropriate description that results in the highest points, \and do not include any open water in your estimate of coverage. In this case the herbaceous plants can be either the dominant form (called emergent class) or as an understory in a shrub or forest community. These are not Cowardin classes. Area of Cover is total cover in the unit, but it can be in patches. NOTE: Herbaceous does not include aquatic bed.* Herbaceous plants cover >90% of the vegetated area ..... points = 6 Herbaceous plants cover >2/3 of the vegetated area ..... points = 4 Herbaceous plants cover >1/3 of the vegetated area ..... points = 3 Other vegetation that is not aquatic bed in > 2/3 vegetated area ..... points = 3 Other vegetation that is not aquatic bed in > 1/3 vegetated area ..... points = 1 Aquatic bed cover > 2/3 of the vegetated area ..... points = 0	3
L	**Total for L 1** *Add the points in the boxes above*	4
L	**L 2. Does the wetland have the opportunity to improve water quality?** *(see p. 61)* Answer YES if you know or believe there are pollutants in the lake water, or surface water flowing through the wetland to the lake is polluted. *Note which of the following conditions provide the sources of pollutants.* ☐ Wetland is along the shores of a lake or reservoir that does not meet water quality standards ☐ Grazing in the wetland or within 150ft ☐ Polluted water discharges to wetland along upland edge ☒ Residential or urban areas are within 150 ft of wetland ☐ Parks with grassy areas that are maintained, ballfields, golf courses (all within 150 ft. of lake shore) ☐ Power boats with gasoline or diesel engines use the lake ☐ Other_____ **YES** multiplier is **2** **NO** multiplier is **1**	multiplier 2
L	**TOTAL - Water Quality Functions** Multiply the score from L 1 by L 2 ***Add score to table on p. 1***	**8**

Comments

Wetland name or number __A____

	Lake-fringe Wetlands	Points
	HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce shoreline erosion	
	L 3. Does the wetland have the potential to reduce shoreline erosion? *(see p. 62)*	
L	L 3 Average width and characteristics of vegetation along the lakeshore (**do not** include aquatic bed): *(choose the highest scoring description that matches conditions in the wetland)* > ¾ of fringe vegetation is shrubs or trees at least 33 ft (10m) wide ..... points = 6 > ¾ of fringe vegetation is shrubs or trees at least 6 ft. (2 m) wide ..... points = 4 > ¼ of fringe vegetation is shrubs or trees at least 33 ft (10m) wide ..... points = 4 Fringe vegetation is at least 6 ft (2m) wide ..... points = 2 Fringe vegetation is less than 6 ft (2m) wide ..... points = 0	2
L	*Record the points from the box above*	2
L	**L 4. Does the wetland have the opportunity to reduce erosion?** *(see p. 63)* Are there features along the shore that will be impacted if the shoreline erodes? *Note which of the following conditions apply.* ☒☐ There are human structures and activities along the upland edge of the wetland (buildings, fields) that can be damaged by erosion ☐☐ There are undisturbed natural resources along the upland edge of the wetland (e.g. mature forests other wetlands) than can be damaged by shoreline erosion ☐☐ Other_____ **YES** multiplier is 2 **NO** multiplier is 1	multiplier 2
L	**TOTAL - Hydrologic Functions** Multiply the score from L 3 by L 4 ***Add score to table on p. 1***	4

Comments

Wetland name or number __A____

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat

H 1. Does the wetland have the potential to provide habitat for many species?

H 1.1 Vegetation structure *(see p. 72)*

Check the types of vegetation classes present (as defined by Cowardin) if the class is ¼ acre or covers more than 10% of the area of the wetland if unit smaller than 2.5 acres.

- ☐ Aquatic bed
- ☒ Emergent plants
- ☒ Scrub/shrub (areas where shrubs have >30% cover)
- ☐ Forested (areas where trees have >30% cover)
- ☐ Forested areas have 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon

Add the number of vegetation types that qualify. If you have:

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

1

H 1.2. Hydroperiods *(see p. 73)*

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 acre to count. (see text for descriptions of hydroperiods)

- ☐ Permanently flooded or inundated
- ☐ Seasonally flooded or inundated
- ☐ Occasionally flooded or inundated
- ☐ Saturated only

4 or more types present ..... points = 3
3 types present ..... points = 2
2 types present ..... points = 1
1 types present ..... points = 0

- ☐ Permanently flowing stream or river in, or adjacent to, the wetland
- ☐ Seasonally flowing stream in, or adjacent to, the wetland
- ☒ ***Lake-fringe wetland* = 2 points**
- ☐ ***Freshwater tidal wetland* = 2 points**

2

H 1.3. Richness of Plant Species *(see p. 75)*

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)*

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

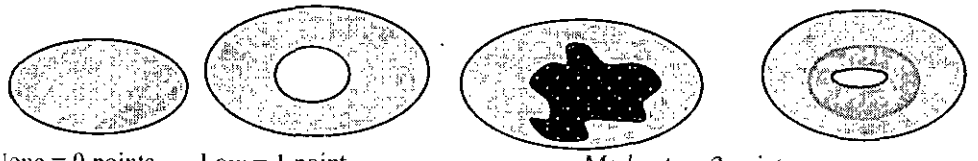
List species below if you want to:

Iris pseudacorus, Ranunculus repens, Juncus effusis, Equisetum telmateia, Geum macrophyllum, Rubus armeniacus, Ivy, Bamboo, lawn grasses

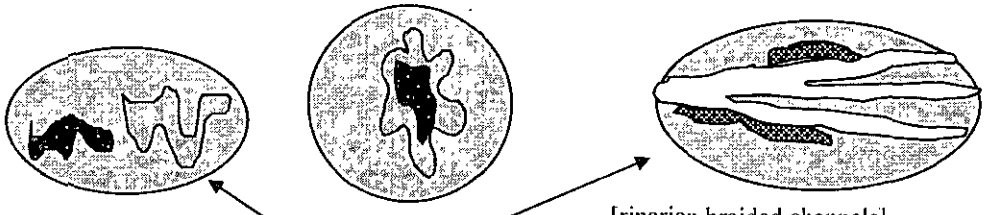
1

H 1.4. Interspersion of habitats *(see p. 76)*

Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.



None = 0 points Low = 1 point Moderate = 2 points



High = 3 points [riparian braided channels]

NOTE: If you have four or more vegetation types or three vegetation types and open water the rating is always "high".

1

H 1.5. Special Habitat Features: *(see p. 77)*

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

☐☐ Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).

☐☐ Standing snags (diameter at the bottom > 4 inches) in the wetland

☐☐ Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream for at least 33 ft (10m)

☐☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (*>30degree slope) OR signs of recent beaver activity are present*

☐☐ At least ¼ acre of thin-stemmed persistent vegetation 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 each stratum of plants

Note: The 20% stated in early printings of the manual on page 78 is an error.

0

H 1. TOTAL Score - potential for providing habitat

Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

5

Wetland name or number __A____

H 2. Does the wetland have the opportunity to provide habitat for many species?	
H 2.1 Buffers *(see p. 80)* *Choose the description that best represents condition of buffer of wetland. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* ☐☐ ..... 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No developed areas within undisturbed part of buffer. (relatively undisturbed also means no-grazing) ..... Points = 5 ☐☐ ..... 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference ..... Points = 4 ☐☐ ..... 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference ..... Points = 4 ☐☐ ..... 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference ..... Points = 3 ☐☐ ..... 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... Points = 3 **If buffer does not meet any of the criteria above** ☐☐ No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. ..... Points = 2 ☐☐ No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. ..... Points = 2 ☐☐ Heavy grazing in buffer. ..... Points = 1 ☐☐ Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland ..... Points = 0 ☒ Buffer does not meet any of the criteria above ..... Points = 1	1
H 2.2 Corridors and Connections *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor*). YES = **4 points** (*go to H 2.3*) **NO** = go to H 2.2.2 H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) **NO** = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	2

H 2.3 Near or adjacent to other priority habitats listed by WDFW *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)* Which of the following priority habitats are within 330ft (100m) of the wetland? *(NOTE: the connections do not have to be relatively undisturbed)* ☐☐ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acres). ☐ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full description in WDFW PHS report p. 152*) ☐ **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 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests.) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 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:** Woodlands 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.)* ☒☐ **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*) ☐ **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: pp. 167-169 and glossary in Appendix A.)* ☐☐ **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 7.6 m (25 ft) high and occurring below 5000 ft. ☐☐ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), 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 >51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30cm (12 in) in diameter at the largest end, and > 6m (20 ft) long. If wetland has **3 or more** priority habitats = **4 points** If wetland has **2** priority habitats = **3 points** If wetland has **1** priority habitat = **1 point** No habitats = **0 points** *Note: All vegetated wetland are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H2.4.*	3

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. ..... points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile ..... points = 5 There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed ..... points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile ..... points = 3 There is at least 1 wetland within ½ mile. ..... points = 2 There are no wetlands within ½ mile. ..... points = 0	3
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	9
TOTAL for H1 from page 14	5
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	14

Wetland name or number __A____

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate Category.

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 (*see p. 86*) Does the wetland unit 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 ☒	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-151? ☐YES = Category I ☒NO = go to SC 1.2	**Cat. I**
SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions? ☐YES = Category I ☒NO = Category II ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native Spartina spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II) The are aof Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed wetland. ☐ The wetland has at least 2 or the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual rating I/II**

SC 2.0 Natural Heritage Wetlands *(see p. 87)*

Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species.

SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a Natural Heritage wetland? *(this question is used to screen out most sites before you need to contact WNHP/DNR)*

S/T/R information from Appendix D ☐ or accessed from WNHP/DNR web site ☐

YES ☐ – contact WNHP/DNR (see p. 79) and go to SC 2.2 NO ☐

SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as or as a site with state threatened or endangered plant species?

YES = Category I NO ☒ Not a Heritage Wetland

Cat. I

SC 3.0 Bogs *(see p. 87)*

Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below to identify if the wetland is a bog. If you answer yes, you will still need to rate the wetland based on its functions.*

1. Does the wetland have organic soils horizons (i.e. layers of organic soil), either peats or mucks, that compose 16" or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils.)
   Yes - go to Q.3 NO - go to Q.2
2. Does the wetland have organic soils, either peats or mucks, that are less than 16 inches 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 Q.3 NO ☐ is not a bog for purpose of rating
3. Does the wetland have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists species in Table 3)?
   Yes – Is a bog for purpose of rating NO - go to Q.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" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog.
4. Is the wetland forested (>30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover (*>30% coverage of the total shrub/herbaceous* cover)?
   YES = Category I NO ☒ is not a bog for purpose of rating

Cat. I

SC 4.0 Forested Wetlands *(see p. 90)*

Does the wetland have at least 1 acre of forest that meet one of these criteria for the 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/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more.
Note: The criterion for dbh is based on measurements for upland forests. Two hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter.

☐ Mature forests: (west of the Cascade crest) Stands where the largest trees are 80-200 years old OR have average diameters (dbh) exceeding 21 in (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quanitity of large downed material is generally less than that found in old-growth

YES = Category I NO ☒ not a forested wetland with special characteristics

Cat. I

SC 5.0 Wetlands in Coastal Lagoons (see p. 91)

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 surgace water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

YES – Go to SC 5.1 NO ☒ not a wetland in a coastal lagoon

Cat. I

SC 5.1 Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).

☐ 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 wetalnd is larger than 1/10 acre (4350 square feet)

YES = Category I NO = Category II

Cat. II

SC 6.0 Interdunal Wetlands (see p. 93) Is the wetalnd unit west of the 1889 line (also called the Westarn Boundary of Upland Ownership or WBUO)? YES – go to SC 6.1 NO ☐ not an interdunal wetland for rating *If you answer yes you will still need to rate the wetland based on its 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 SC 6.1 Is the wetland 1 acre or larger, or is it in a mosaic of wetlands that is 1 acre or larger? YES = Category II NO – go to SC 6.2	**Cat. II**
SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III	**Cat. III**
Category of wetland based on Special Characteristics *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered NO for all types enter "Not Applicable" on p. 1.	

APPENDIX D

Furukawa Residence – Technical Memorandum

Prepared by Northwest Environmental Consulting, LLC

January 2017

Northwest
Environmental Consulting, LLC

3639 Palatine Avenue North
Seattle, Washington 98103
(206) 234-2520

TECHNICAL MEMORANDUM

To: **David Marchetti, Stuart Silk Architects**

From: Brad Thiele, Northwest Environmental Consulting, LLC

Date: January 31, 2017

Subject: **Wetland Determination**

Project: Furukawa Project.

This memorandum summarizes details of a document review and site visit made to determine if wetlands are present at a proposed residential site at 400 39th Ave E, Seattle, Washington, 98112. The project is located in Section 27, Township 25N, Range 4E. See attached Figure 1 - Vicinity Map. A wetland determination was completed on a City of Seattle street right of way adjacent and south of the Furukawa parcel. The City of Seattle is concerned that the City parcel may contain wetlands that would have a buffer that could effect construction on the adjacent Furukawa parcel to the North.

Document Review

National Wetland Inventory (NWI) maps and the Soil Survey, King County Area Washington (SCS 1973) were reviewed to see whether either source indicates the presence of wetlands or wetland soils. See Figure 2 – NWI.

The NWI indicates that no wetlands are present at the site but the site is along Lake Washington.

The Soil Survey map of King County does not have soil data available for this area.

Site Visit

The site is located on a street right-of-way that dead ends into Lake Washington. The City of Seattle has created a beach access on the right-of-way and the property has been planted with native trees and shrubs and is maintained. Along the beach two areas were dominated by yellow iris occur with red-osier dogwood, hardhack, Himalayan blackberry, creeping buttercup, and creeping bentgrass mixed in or adjacent to these areas. These species occur frequently in wetlands. These areas were approximately 5 to 10 feet wide and 15 to 20 feet long. See attached photos and Figure 3 – Aerial Photo.

The plant community along the lakeshore met the criteria for wetlands and included plants that typically grow in wetlands and along wetland edges in the Pacific Northwest. The plant community quickly switches to upland communities within 10 to 15 feet of the beach. Two test plots were completed in the wetland plant communities above the OHWM of Lake Washington.

Soils were sandy with mixtures of sandy silts and loams. Hydric soil indicators were present at both test plot locations. These test plots were immediately adjacent to the beach and could be relic features from historic changes in the surface water elevation of Lake Washington and have persisted over time.

TP-1 was excavated to 20-inches and no hydrology was present. Groundwater was present in TP-2 at about 30 inches below ground surface. Heavy rains were occurring during the site visit and the soil was well drained. Surface water was running down the center of the pathway between the test plots and infiltrating at the beach adjacent to both test plot locations. No standing water was present in the wetland plant communities. See attached Wetland Determination forms.

Conclusion

A wetland plant community existed along the lake edge and was investigated to determine if wetland conditions existed at the site. Soils met hydric criteria; however, both sample plots lacked positive indicators for wetland hydrology. Since the site lacked wetland hydrology, the site is not considered wetland since all three wetland parameters must be present for an area to meet wetland criteria. The plant community is likely supported by hydrology provided by Lake Washington during storms and a constant water table (about 30 inches below ground surface during the site visit). Hydric soils could be relic and are not indicative of current conditions along Lake Washington.

Yellow iris is an invasive plant that is often observed growing near the waters edge along lake Washington and can spread into adjacent uplands. The hard hack and red-osier dogwood plants may have been planted, so the wetland community observed may be partially due to plantings and an invasive species of plant that often spreads into uplands adjacent to Lake Washington.

The area was determined to be upland and no areas that met wetland criteria were present on the parcel.

Lake Washington is a water of the U.S. and any work below the Ordinary High Water Mark will require permits. Lake Washington is a shoreline of the state and any work within 200 feet of the shoreline will require shoreline permits.

References

USDA Soil Conservation Service (SCS)

2017 Web soil survey. https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm

Environmental Laboratory

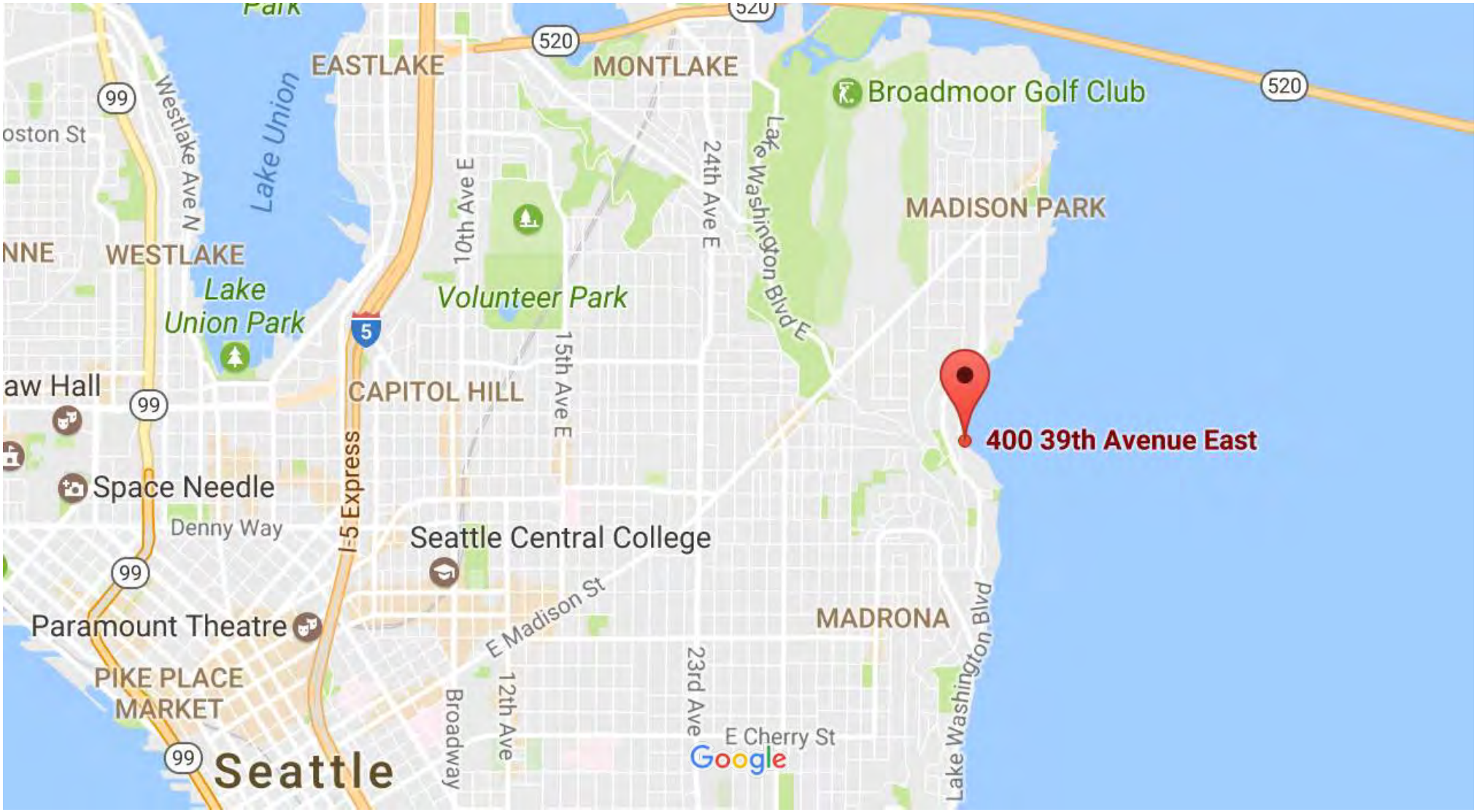
1987 Corps of Engineers Wetland Delineation Manual (1987 Manual). Technical Report Y-87-1, U.S. Army Engineers Waterways Experiment Station, Vicksburg, Mississippi.

Washington State Department of Ecology (Ecology)

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

Figures

Google Maps 400 39th Ave E



Map data ©2017 Google 2000 ft

Figure 1 - Vicinity Map

U.S. Fish and Wildlife Service
National Wetlands Inventory

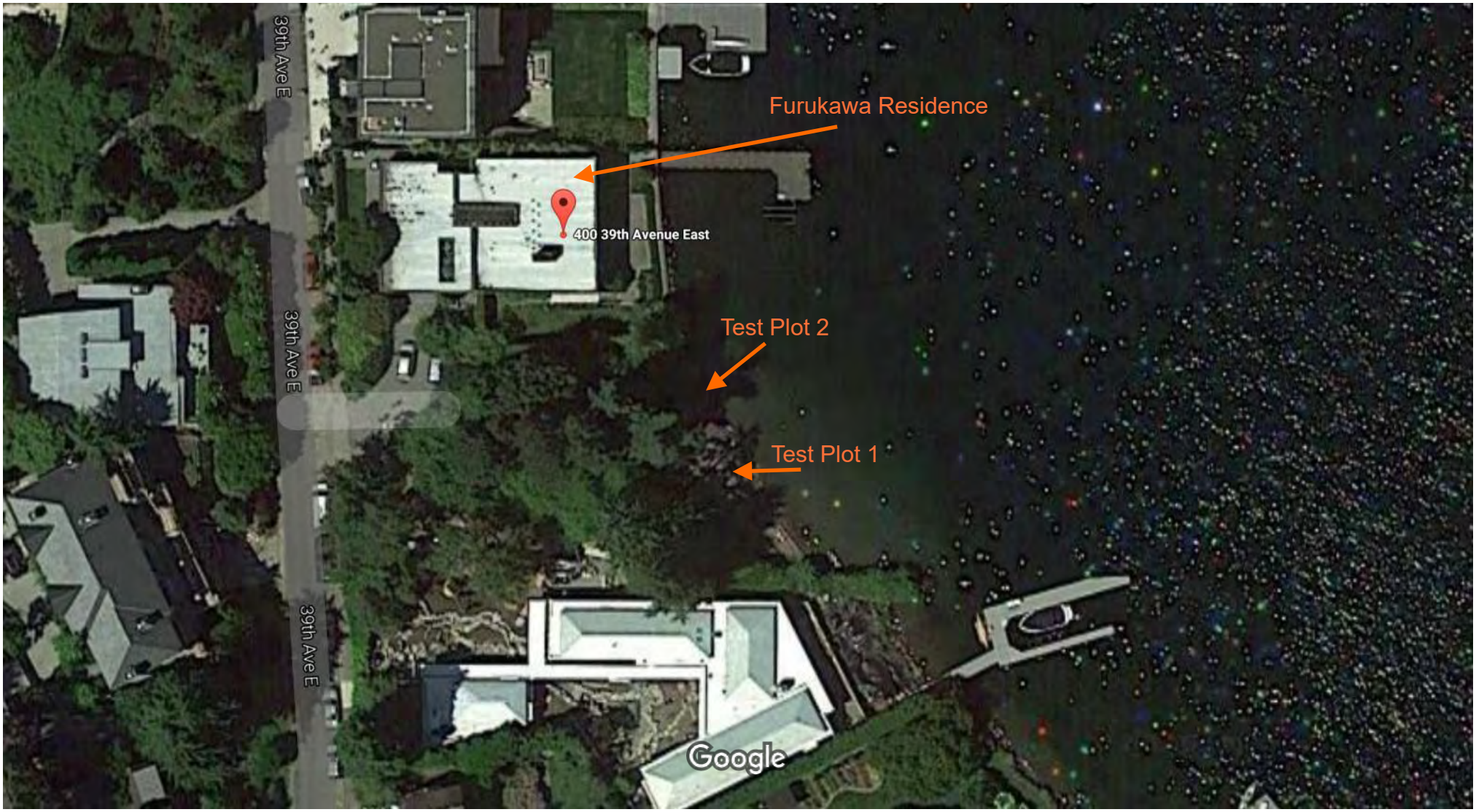
Furukawa

February 2, 2017

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

Figure 2 - NWI

Google Maps 400 39th Ave E



Map data ©2017 Google 50 ft

Figure 3 - Site Aerial

Wetland Determination Forms

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

Project/Site: Furukawa | City/County: Seattle, King County | Sampling Date: January 17, 2017
Applicant/Owner: | State: WA | Sampling Point: TP-1
Investigator(s): Brad Thiele | Section, Township, Range: 27, 25N, 4E
Landform (hillslope, terrace, etc.): Hillslope, terrace | Local relief (concave, convex, none): convex | Slope (%): 6 to 15
Subregion (LRR): A | Lat: | Long: | Datum:
Soil Map Unit Name: Not mapped | NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ___ (If no, explain in Remarks.)
Are Vegetation ___ , Soil ___ , or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes x 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	X	No	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present?	Yes		No	X

Is the Sampled Area within a Wetland? **Yes** ___ **No** **X**

Remarks: Area investigated is in a slight depression along a beach on Lake Washigton. Other vegetation nearby includes Himalayan blackberry, English ivy, and hardhack.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 10')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 10')			
1. yellow iris	60	y	OBL
2. creeping buttercup	20	Y	FACW
3. Himalayan blackberry	10	Y	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	= Total Cover		
Woody Vine Stratum (Plot size: 10')			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum ___

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 66% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	60	x 1 =	90
FACW species	20	x 2 =	40
FAC species	10	x 3 =	30
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	90 (A)		160 (B)

Prevalence Index = B/A = 1.8

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
X 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** **X** **No** ___

Remarks: Vegetation community meets criteria for wetlands. A mix of upland trees and mixed shrub community is adjacent to the west. Lake Washington beach to the west. A variety of equisetum sp was also likely present at one time but has died back to an unidentifiable decomposing state.

SOIL

Sampling Point: TP-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
0-12	10YR 3/2	100	-				Sandy loam	
12-18	2.5Y 5/2	100	10YR 4/4	30	D	M	Sandy silt	

[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)
- X 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** X **No** ___

Remarks: Test plot is located adjacent to the beach along Lake Washington. Soil conditions could be relic from past hydrologic changes in Lake Washington OHWM elevation.

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 X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

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

Remarks: Raining heavily. No standing water is present and no water was observed in the pit excavated to 24 inches. Adjacent to lake Washington. Surface water is flowing down foot path adjacent to test plot and infiltrating in beach. Second site visit on 2/1/17 confirmed groundwater was below 20 inches.

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

Project/Site: Furukawa | City/County: Seattle, King County | Sampling Date: January 17, 2017
Applicant/Owner: | State: WA | Sampling Point: TP-2
Investigator(s): Brad Thiele | Section, Township, Range: 27, 25N, 4E
Landform (hillslope, terrace, etc.): Hillslope, terrace | Local relief (concave, convex, none): convex | Slope (%): 6 to 15
Subregion (LRR): A | Lat: | Long: | Datum:
Soil Map Unit Name: Not mapped | NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ___ (If no, explain in Remarks.)
Are Vegetation ___ , Soil ___ , or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes x 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	X	No	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present?	Yes		No	X

Is the Sampled Area within a Wetland? **Yes** ___ **No** **X**

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 10')			
1. red-osier dogwood	20	y	FACW
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 10')			
1. Yellow Iris	20	Y	OBL
2. creeping bentgrass	30	Y	FAC
3. creeping buttercup	15	Y	FACW
4. curly dock	10	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	= Total Cover		
Woody Vine Stratum (Plot size: 10')			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum ___

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	20	x 1 =	20
FACW species	35	x 2 =	70
FAC species	40	x 3 =	120
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	95 (A)		210 (B)

Prevalence Index = B/A = 2.2

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
X 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** **X** **No** ___

Remarks: Vegetation meets wetland criteria. Community is a narrow band between the beach and upland vegetation community dominated by Douglas fir, Oregon grape, rose, swordfern, and lodgepole pine.

SOIL

Sampling Point: TP-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
0-8	10YR 4/2	100	-				Sand	
8-24	10YR 4/2	100	5YR 3/4	50	CS	M	Sand silt	Iron stain in 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)
- X 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** X **No** ___

Remarks: Soil is adjacent to beach of Lake Washington. Hydric characters may be relic and not indicative of current conditions.

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 X Depth (inches): _____

Water Table Present? Yes ___ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** ___ **No** X

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

Remarks: Groundwater present in pit at ~30 inches. Does not meet wetland criteria for hydrology. Water is running down foot path to the beach, but is not present at the test plot. Second site visit on 2/1/17 confirmed that the groundwater saturation began at about 30 inches.

Photos

Photo 1 - Test Plot 2

Photo 2 - Test Plot 2

Photo 3 - Test Plot 2. Auger handle is about 5 feet long and is 36 inches in ground where groundwater was encountered.

Photo 4 - Test Plot 2. Note surface water adjacent to test plot on path in this picture and picture above during period of heavy rain.

APPENDIX E

City of Seattle Comment Letter

Correction Notice #1, Project #6573736

14 February 2017

City of Seattle
Department of Construction and Inspections
Engineering Services

DAVID MARCHETTI
2400 N 45th St Suite 200
Seattle, WA 98103

Re: Project# 6573736

Correction Notice #1

Review Type	POTECH	**Date**	February 14, 2017
Project Address	400 39th Ave E	**Contact Phone**	(206) 728-9500
Contact Email	davidm@stuartsilk.com	**Contact Fax**	(206) 448-1337
SDCI Reviewer	Seth Amrhein	**Address**	Seattle Department of Construction and Inspections 700 5th Ave Suite 2000 PO Box 34019 Seattle, WA 98124-4019
Reviewer Phone	(206) 386-1981		
Reviewer Fax			
Reviewer Email	Seth.Amrhein@seattle.gov		
Owner	GARY FURUKAWA		

Applicant Instructions

Please see the attached flyer to learn "How to Respond to a SDCI Correction Notice".
If the 3-step process outlined in the aforementioned document is not followed, it is likely that there will be a delay in permit issuance and there is a potential for penalty fees.

Codes Reviewed

This project has been reviewed for conformance with the applicable development standards of the Regulations for Environmentally Critical Areas.

Corrections

1 I have reviewed the report and further documentation from the wetland consultant is needed to justify the conclusion that wetland hydrology is not present. As you will note from the report, sampling plots 1 and 2 contained wetland plants and wetland soils, but not wetland hydrology (all three are needed to be a wetland). Wetland soils, in particular, are typically only found where the soils are saturated for significant time periods. The suggestion that wetland (hydric) soils indicators observed may be relics is not explained thoroughly enough by the wetland consultant. Lake Washington was lowered approximately 100 years ago, so it seems very unlikely that these hydric soil indicators are simply relics from before the lake was lowered. Rather, based on the depth of the water table (30 inches below the surface) observed by the wetland consultant, it seems plausible that the hydric soils and wetland plants may be present because there is currently wetland hydrology in these areas for a significant part of the growing season. The wetland

consultant's investigation occurred in the middle of the winter when the lake level is maintained at its lowest level. In February, the Army Corps of Engineers begins raising the lake level; by May it will be two feet higher and maintained at this level through the summer. Therefore, it seems likely the actual water table for much of the growing season would be expected to be about two feet higher than that which was observed in January. Taking into account how the water level of Lake Washington is managed, it seems that the water table at the two sampling points would likely be within 12 inches of the surface for a significant portion of the growing season, which would be a positive indicator of wetland hydrology. Please have the wetland consultant further address these points and his conclusion that wetland hydrology is not present.

City of Seattle

How to Respond to a Seattle DCI Correction Notice

Step 1: Wait for all reviews to be completed

- You may check the status of any review at the following link: http://web6.seattle.gov/dpd/permitstatus
- All reviews must be completed before the applicant can respond, upload, or submit any correction responses.
- **Electronic Plans:** We will send correction letters to the Seattle DCI Project Portal. We will notify the primary contact for the project when all reviews in the review cycle are complete.
- **Paper Plans:** We will notify the primary contact for the project by email or phone when all reviews in the review cycle are complete and plans are ready to be picked up. Once you have been notified, pick up the plans at Plans Routing in the Applicant Service Center.

Step 2: Make Corrections

Provide a written response for each item on all correction notices. We will not accept corrected plans without written responses. Include the following information for each item:

- Describe the change
- Say where the change can be found in the plan set
- If you have not made a requested change, give a code citation or provide calculations to explain why not
- Coordinate responses to correction items among all designers, architects, engineers, and owners
- If you make voluntary changes to your plans, describe the changes you have made in your response letter

Correct your Plans:

- Cloud or circle all changes
- You may add new sheets to the plan set if you have new information to show

For Electronic Plans:

- Always upload a complete plan set

For Paper Plans:

If you replace sheets in the paper plan sets:

- Remove the old sheets, mark them as "VOID," and include them loose at the back of each plan set
- All original sheets and plan pages must be returned to Plans Routing in the Applicant Service Center
- Insert the new sheets and staple the plan sets

If you make changes to the original paper plan sheets:

- Make all changes with ink (preferably red, waterproof ink). Do not use pencil to make changes
- Do not tape or staple anything to the plan sets

Platting Actions: Provide new copies of the survey when responding to a correction notice for a shortplat, lot boundary adjustment, or other platting action. Provide the same number of copies that were required when you submitted the project.

Step 3: Submit Corrected Plans

Electronic Plans:

Upload your corrected plan set and correction response letter through your Seattle DCI Project Portal.

Paper Plans:

Return your corrected plans and your correction response letter to Plans Routing in the Applicant Services Center.

If you don't follow these instructions:

- **Plans Routing may not accept your corrected plans**
- **We may be delayed in starting corrected plan review, which can delay permit issuance**
- **We may charge a penalty fee**

APPENDIX F

Furukawa Residence Wetland Delineation Report

Prepared by Northwest Environmental Consulting, LLC

March 2017

Furukawa Residence

Wetland Delineation Report

Prepared for

Furukawa
400 39th Avenue E
Seattle, WA 98112

and

Stuart Silk Architects
2400 North 45th Street
Seattle, WA 98103

Prepared by

Northwest Environmental Consulting, LLC
3639 Palatine Avenue North
Seattle, WA 98103
206-234-2520

March 2017

SUMMARY

The Furukawa's are planning a remodel on their residence at 400 39th Avenue E in Seattle (Furukawa residence). The City of Seattle requested that the adjacent City of Seattle right of way be checked for wetlands and determine if wetlands in the right of way may affect the project proposed at the Furukawa residence.

A wetland determination was completed in the adjacent ROW in an area with hydric soils and invasive and planted wetland vegetation. The area investigated lacked wetland hydrology indicators at the time of the site visit. It is assumed that the wetlands may have hydrologic indicators when the lake level is artificially elevated during the summer boating season in Lake Washington.

The wetland was delineated and rated as a Category IV lake fringe wetland with a 50-foot buffer. The buffer will not extend into the proposed project area; therefore, the project avoids impacts to the potential wetland and buffer.

Table of Contents

1 INTRODUCTION

1.1 Report Purpose

This report documents the findings of a wetland delineation completed for the Furukawa Residence Project.

1.2 Site Location

The residential site is at 400 39th Ave E, Seattle, Washington, 98112. The project is located in Section 27, Township 25N, Range 4E. See attached Figure 1 - Vicinity Map

1.3 Site Description

The site investigation includes the Furukawa residence and the City of Seattle right of way immediately adjacent and south of the Furukawa residence. Both parcels are on the shore of Lake Washington. The Furukawa residence is developed with a single-family home with lawn and ornamental landscaping. The shoreline is bulkheaded and a small dock is present.

The City of Seattle right of way includes native and non-native landscaping planted densely between a small gravel parking lot and a small beach along the shoreline of Lake Washington. The right of way has several mature trees, native shrubs, and invasive English ivy, Himalayan blackberries and yellow iris are also present on the parcel.

1.4 Project Purpose and Description

The project is a remodel and partial new construction of a single-family residence on a moderately sloping lot. The proposal is to remodel the existing eastern half of the house (one story with full basement), and to demolish and rebuild the west side of the house (to be two stories with partial basement at level of existing).

2 METHODOLOGY

2.1 Existing Document Review

National Wetland Inventory (NWI) maps and the Soil Survey, King County Area Washington (SCS 1973) were reviewed to see whether either source indicates the presence of wetlands or wetland soils.

2.2 Field Investigation

Wetlands

NWEC biologists walked the right of way looking for wetland characteristics as defined in the *U.S. Army Corps of Engineers Wetland Delineation Manual* (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (USACE 2010). These methods were consistent with the routine approach described in the *Washington State Wetlands Identification and Delineation Manual* (Washington State Department of Ecology [Ecology] 1997).

For jurisdictional purposes, wetlands are defined as:

> *Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.*

The presence of the three essential wetland characteristics (wetland vegetation, soils, and hydrology) is required for an area to be considered a wetland. NWEC evaluated the site for these characteristics, and investigated conditions at test plots where any of these characteristics were present. NWEC recorded the resulting observations on data forms, and determined whether the sites of these test plots were a jurisdictional wetland.

Wetland Categorization.

The City of Seattle rates wetlands according to the Washington State Wetland Rating System for Western Washington (Ecology Publication #04-06-25).

3 RESULTS

During the site visit, NWEC biologists confirmed wetland conditions are present within 100 feet of the project site. Details of the wetland investigation are described below.

3.1 Wetland Investigation

Document Review

The NWI indicates that no wetlands are present at the site but the site is along Lake Washington. See Figure 2 – NWI.

The Soil Survey map of King County does not have soil data available for this area.

Field Investigation

The site is located on a street right-of-way that dead ends into Lake Washington. The City of Seattle has created a beach access on the right-of-way and the property has been planted with native trees and shrubs and is maintained. Along the beach two areas were dominated by yellow iris occur with red-osier dogwood, hardhack, Himalayan blackberry, creeping buttercup, and creeping bentgrass mixed in or adjacent to these areas. These species occur frequently in wetlands. These areas were approximately 5 to 10 feet wide and 15 to 20 feet long. See attached photos and Figure 3 – Aerial Photo.

The plant community along the lakeshore met the criteria for wetlands and included plants that typically grow in wetlands and along wetland edges in the Pacific Northwest. The plant community quickly switches to upland communities within 10 to 15 feet of the beach. Two test plots were completed in the wetland plant communities above the OHWM of Lake Washington.

Soils were sandy with mixtures of sandy silts and loams. Hydric soil indicators were present at both test plot locations. These test plots were immediately adjacent to the beach and could be relic features from historic changes in the surface water elevation of Lake Washington and have persisted over time.

TP-1 was excavated to 20-inches and no hydrology was present. Groundwater was present in TP-2 at about 30 inches below ground surface. Heavy rains were occurring during the site visit and the soil was well drained. Surface water was running down the center of the pathway between the test plots and infiltrating at the beach adjacent to both test plot locations. No standing water was present in the wetland plant communities. See attached Wetland Determination forms.

A second site visit was completed on February 1, 2017, the ground water elevation was at a similar elevation during the second site visit. The wetland was flagged along the vegetation community that met wetland criteria. A path bisects the wetland. The wetland ended at a block stairway for the northern path.

3.2 Wetland Categorization

The wetland is a lake fringe wetland and scored a 21 for functions making the wetland a category IV wetland. The wetland has moderate water quality functions due to potential for filtering run off from the surrounding developed areas. The wetland does not retain water and lacked hydrologic functions and scored low for habitat values. See attached wetland rating form.

The wetland is less than 1,000 square feet but abuts Type S water. Category IV wetlands 1000 square feet or more in total size or of any size that abuts a Type S water (Lake Washington) has a 50 foot buffer (SMC 25.09.160). The wetland buffer is shown on Figure 5.

4.1 Conclusion

A wetland plant community existed along the edge of Lake Washington and was investigated to determine if wetland conditions existed at the site. Soils met hydric criteria; however, both sample plots lacked positive indicators for wetland hydrology.

The plant community is likely supported by hydrology provided by Lake Washington during storms and a constant water table (about 30 inches below ground surface during the site visit). Hydric soils could be relic and may not be indicative of current conditions along Lake Washington. However, the Lake level is artificially controlled and hydrology may be present during the growing season for a sufficient time for this indicator to be present. Because hydrology may be present during the summer months when the lake is the highest, the hydrology was assumed to be present and the "wetland" was flagged and categorized.

There is no proposed grading, changes to any existing exterior development, or alteration to the existing building footprint within the wetland buffer or shoreline setback areas on the east (water) side of the property. Therefore, the proposed project will avoid impacts to the wetland and associated 50-foot buffer.

Lake Washington is a water of the U.S. and any work below the Ordinary High Water Mark will require permits. Lake Washington is a shoreline of the state and any work within 200 feet of the shoreline will require shoreline permits.

5 DOCUMENT PREPARERS

Brad Thiele	Biologist	25 years of experience	Northwest Environmental Consulting, LLC. (NWEC)

Northwest Environmental Consulting, LLC followed standard acceptable field methods and protocols at the time work was performed. These standards include delineation of wetland and stream boundaries, characterization, rating, functional analyses, impact assessments and mitigation of impacts. The conclusions and findings in this report are based on field observations and measurements and represent our best professional judgment and to some extent rely on other professional service firms and available site information. Within the limitations of project scope, budget, and seasonal variations, we believe the information provided herein is accurate and true to the best of our knowledge. Northwest Environmental Consulting does not warrant any assumptions or conclusions not expressly made in this report, or based on information or analyses other than what is included herein.

6 REFERENCES

City of Seattle Code (SMC). Accessed at https://www.municode.com/library/wa/seattle/codes/ in March 2017.

Environmental Laboratory. 1987. Corps of Engineers Wetland Delineation Manual (1987 Manual). Technical Report Y-87-1, U.S. Army Engineers Waterways Experiment Station, Vicksburg, Mississippi.

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Washington Department of Ecology (Ecology). 1997. Washington State Wetlands Identification and Delineation Manual. Ecology Publication 96-94.

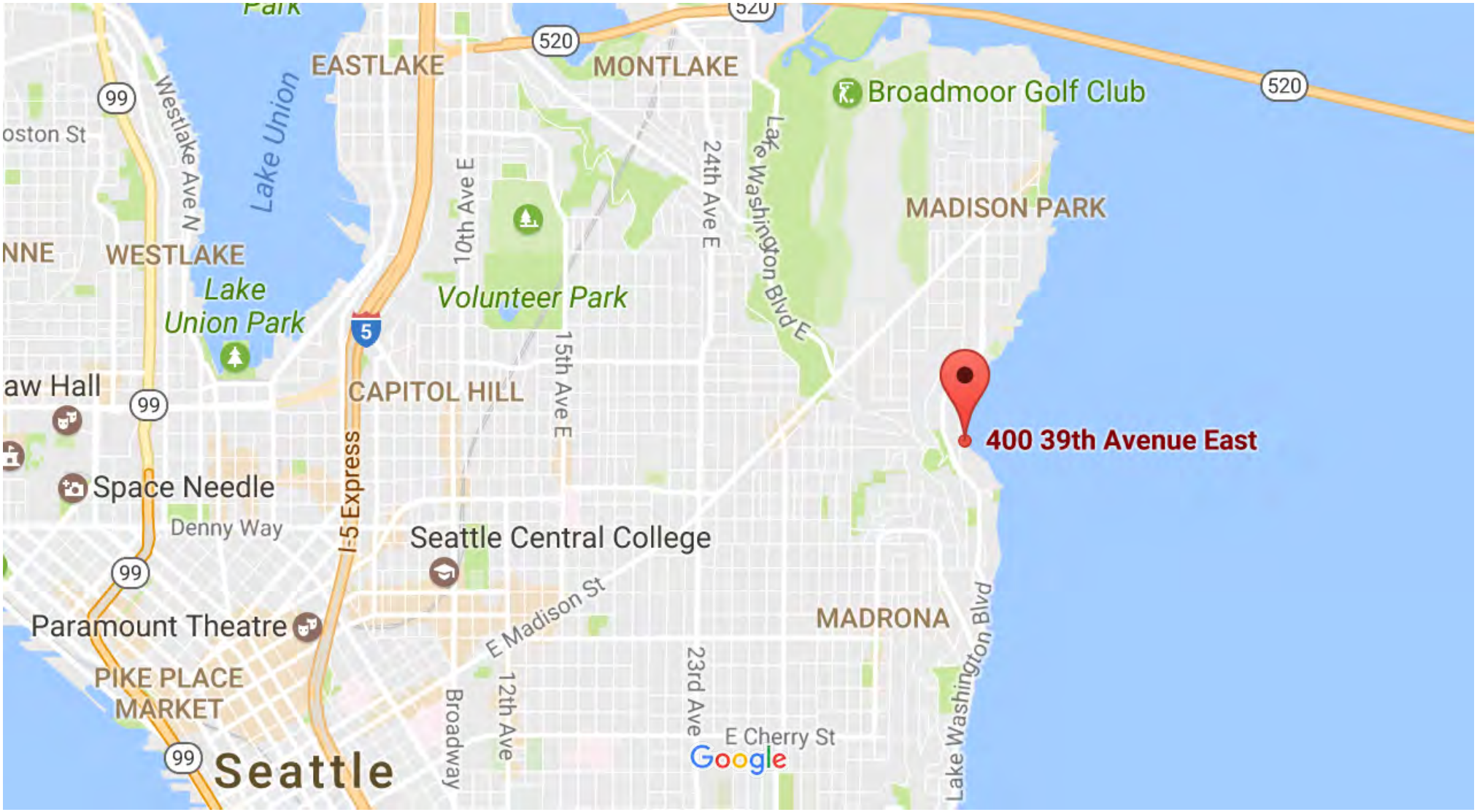
Washington Department of Fish and Wildlife (WDFW). 2008. Priority Habitats and Species List. Olympia, WA. 177 pages.

Washington Department of Fish and Wildlife (WDFW). 2016a. Priority Habitats and Species (PHS) database. Accessed April 2016 at http://apps.wdfw.wa.gov/phsontheweb/

_____. 2016b. Washington SalmonScape mapping database. Accessed April 2016 at http://apps.wdfw.wa.gov/salmonscape/

APPENDIX A: FIGURES

Google Maps 400 39th Ave E



Map data ©2017 Google 2000 ft

Figure 1 - Vicinity Map

U.S. Fish and Wildlife Service
National Wetlands Inventory

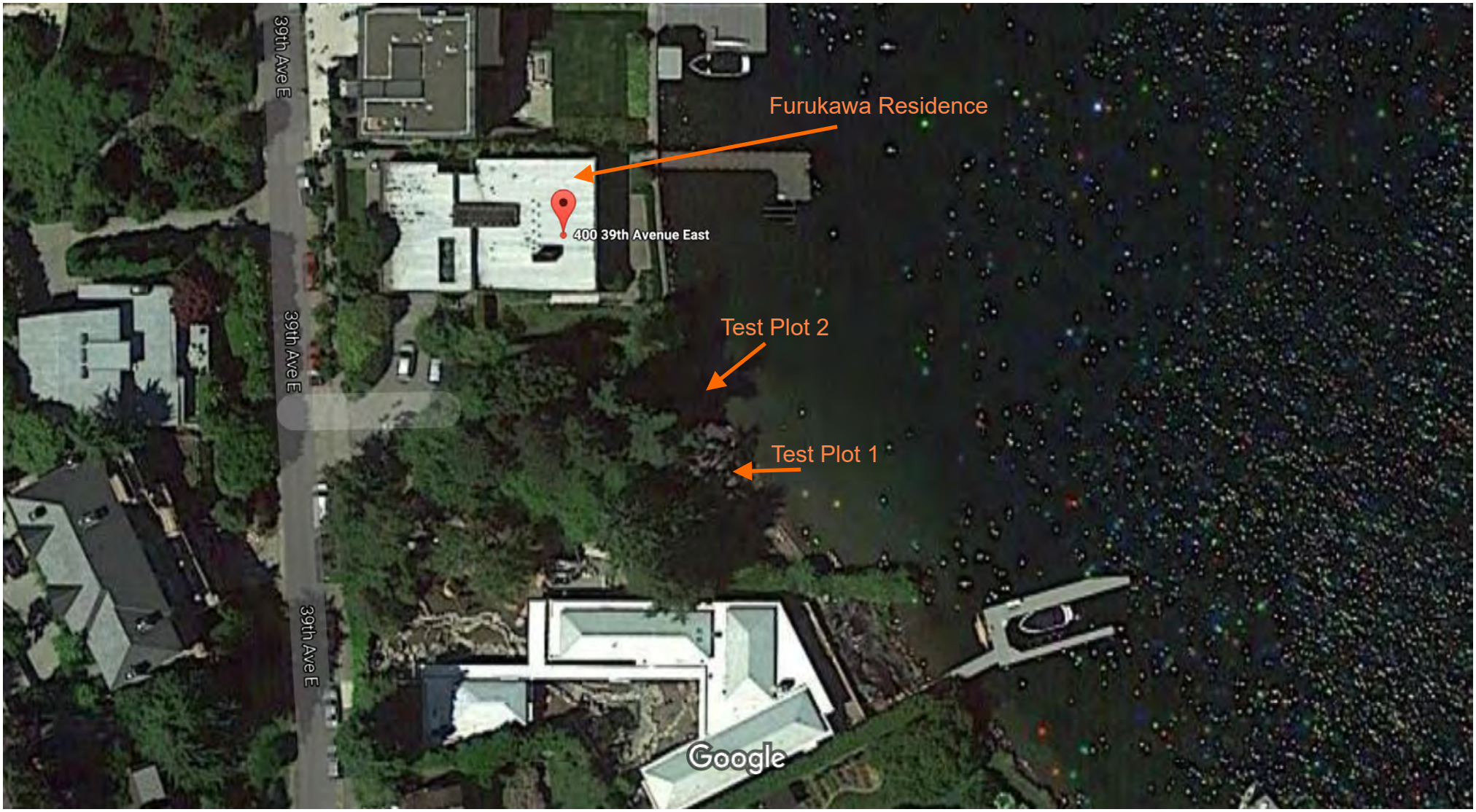
Furukawa

February 2, 2017

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

Figure 2 - NWI

Google Maps 400 39th Ave E



Map data ©2017 Google 50 ft

Figure 3 - Site Aerial

TOPOGRAPHIC & BOUNDARY SURVEY

Figure 4 - Wetland Survey

LEGAL DESCRIPTION

(PER STATUTORY WARRANTY DEED RECORDING# 20160616000796) THE SOUTH 60 FEET OF THAT PORTION OF TRACT 143 OF REPLAT OF JOHN J. MCGILVRA'S SECOND ADDITION TO THE CITY OF SEATTLE, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 13 OF PLATS, PAGE(S) 34, RECORDS OF KING COUNTY, WASHINGTON. LYING EAST OF THE EAST LINE OF 39TH AVENUE NORTH, AS NOW ESTABLISHED, BETWEEN EAST HARRISON STREET AND EAST MERCER STREET; ALSO THAT SOUTH 60 FEET OF BLOCK 36 OF LAKE WASHINGTON SHORE LANDS, IN KING COUNTY, WASHINGTON, AS SHOWN ON THE OFFICIAL MAPS ON FILE IN THE OFFICE OF THE COMMISSIONER OF PUBLIC LANDS AT OLYMPIA, WASHINGTON.

SITUATE IN THE COUNTY OF KING, STATE OF WASHINGTON.

BASIS OF BEARINGS

N02°01'04"W BETWEEN SURVEY MONUMENTS FOUND ON THE CENTERLINE OF 39TH AVE. E. PER GPS OBSERVATIONS, WASHINGTON STATE PLANE COORDINATE SYSTEM, NORTH ZONE.

REFERENCES

1. JOHN J. MCGILVRA'S 2ND ADDITION, RECORDED IN VOLUME 13 OF PLATS, PAGE 34, RECORDS OF KING COUNTY, WASHINGTON.
2. RECORD OF SURVEY, RECORDED IN BOOK 241 OF SURVEYS, PAGE 141, RECORDS OF KING COUNTY, WASHINGTON.
3. RECORD OF SURVEY, RECORDED IN BOOK 271 OF SURVEYS, PAGE 223, RECORDS OF KING COUNTY, WASHINGTON.
4. RECORD OF SURVEY, RECORDEC IN BOOK 193 OF SURVEYS, PAGE 285, RECORDS OF KING COUNTY, WASHINGTON.

VERTICAL DATUM

NAVD(88) PER GPS OBSERVATIONS.

SURVEYOR'S NOTES

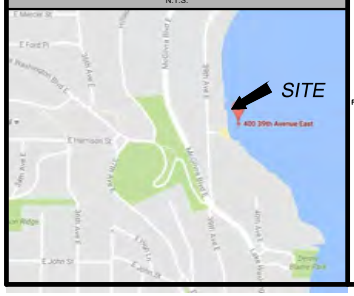
1. THE TOPOGRAPHIC SURVEY SHOWN HEREON WAS PERFORMED IN JULY OF 2016. THE FIELD DATA WAS COLLECTED AND RECORDED ON MAGNETIC MEDIA THROUGH AN ELECTRONIC THEODOLITE. THE DATA FILE IS ARCHIVED ON DISC OR CD. WRITTEN FIELD NOTES MAY NOT EXIST. CONTOURS ARE SHOWN FOR CONVENIENCE ONLY. DESIGN SHOULD RELY ON SPOT ELEVATIONS.
2. ALL MONUMENTS SHOWN HEREON WERE LOCATED DURING THE COURSE OF THIS SURVEY UNLESS OTHERWISE NOTED.
3. BURIED UTILITIES SHOWN BASED ON RECORDS FURNISHED BY OTHERS AND VERIFIED WHERE POSSIBLE IN THE FIELD. TERRANE ASSUMES NO LIABILITY FOR THE ACCURACY OF THOSE RECORDS OR ACCEPT RESPONSIBILITY FOR UNDERGROUND LINES WHICH ARE NOT MADE PUBLIC RECORD. FOR THE FINAL LOCATION OF EXISTING UTILITIES IN AREAS CRITICAL TO DESIGN CONTACT THE UTILITY OWNER/AGENCY. AS ALWAYS, CALL 1-800-424-5555 BEFORE CONSTRUCTION.
4. SUBJECT PROPERTY TAX PARCEL NO. 411460-0790
5. SUBJECT PROPERTY AREA PER THIS SURVEY IS 23,908± S.F. (0.54± ACRES)
6. THIS SURVEY WAS PERFORMED WITHOUT THE BENEFIT OF A TITLE REPORT. EASEMENTS AND OTHER ENCUMBRANCES MAY EXIST THAT ARE NOT SHOWN HEREON.
7. INSTRUMENTATION FOR THIS SURVEY WAS A TRIMBLE ELECTRONIC DISTANCE MEASURING UNIT. PROCEDURES USED IN THIS SURVEY WERE DIRECT AND REVERSE ANGLES. NO CORRECTION NECESSARY. MEETS STATE STANDARDS SET BY WAC 332-130-090.

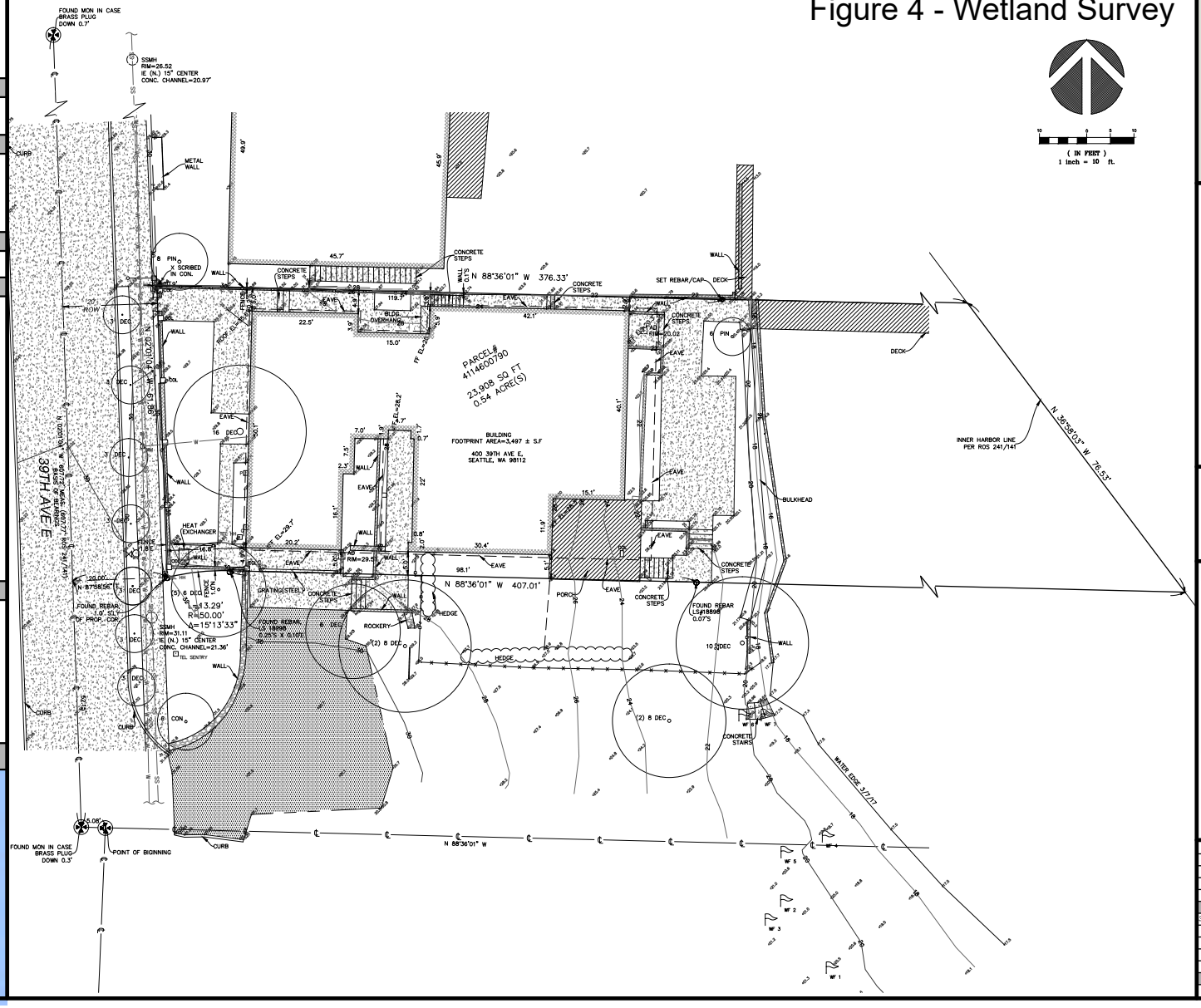
LEGEND

BUILDING
CONCRETE SURFACE
FENCE LINE (CHAIN LINK)
FENCE LINE (WOOD)
DECK
GRAVEL SURFACE
HEDGE ROW
LIGHT POLE
AREA DRAIN
CDL
TREE (AS NOTED)
TELEPHONE HAND HOLE
WATER LINE
WATER METER
WATER VALVE
MONUMENT IN CASE (FOUND)
REBAR AS NOTED (FOUND)
REBAR & CAP (SET)
ROCKERY
SEWER LINE
SEWER MAINTENANCE
WETLAND FLAG

VICINITY MAP

N.T.S.





measure success

TOPOGRAPHIC & BOUNDARY SURVEY
NE 1/4 OF SW 1/4 SEC 27, TWP. 25N., RGE 04E., W.M.
PARCEL NO. 4114600790

FURUKAWA RESIDENCE
400 39TH AVE E
SEATTLE, WA 98112

Terrane

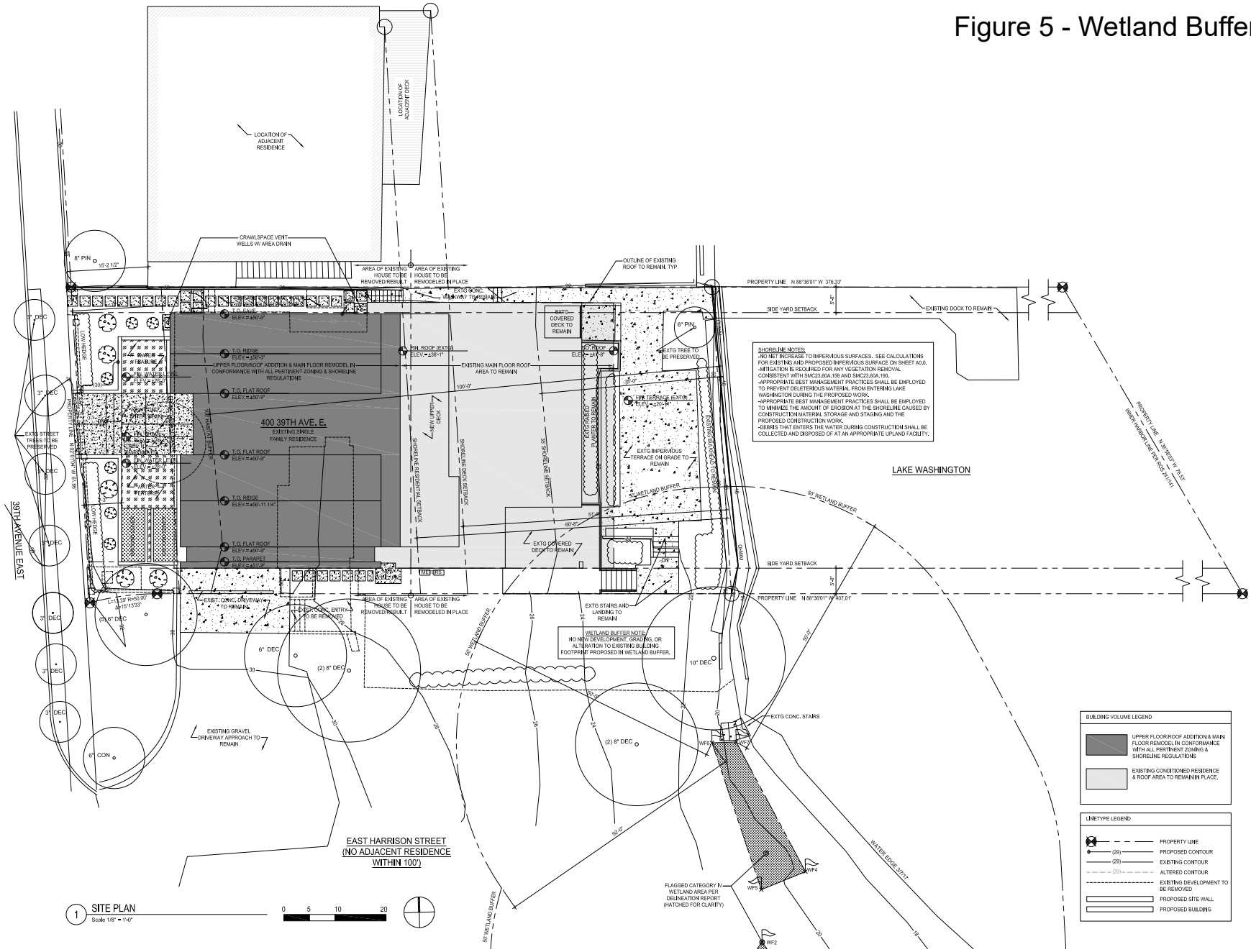
JOB NUMBER:	160833
DATE:	08/01/16
DRAFTED BY:	IDV-SRG
CHECKED BY:	MABIRLS
SCALE:	1"= 10'

REVISION HISTORY

3/9/17	WETLAND FLAGS

SHEET NUMBER
1 OF 1

Figure 5 - Wetland Buffer



1 SITE PLAN
Scale 1/8" = 1'-0"
0 5 10 20

NOT FOR CONSTRUCTION

3257 REGISTERED ARCHITECT
STUART SILK
STUART TAYLOR SILK
STATE OF WASHINGTON

DESIGN SS, DM
DRAWN DM
CHECKED SS
DATE
SHORELINE EXEMPTION - 02/14/2017
PERMIT SET - 03/23/2017

REVISIONS

Stuart Silk Architects
2400 North 45th Street
Seattle, Washington 98103
206 728 9500 phone
206 448 1337 fax
generaloffice@stuartsilk.com

FURUKAWA RESIDENCE
400 39TH AVE. E.
SEATTLE, WA 98112

PERMIT SET

SITE PLAN

A-1.0

APPENDIX B: PHOTOS

Photo 1 - Test Plot 2

Photo 2 - Test Plot 2

Photo 3 - Test Plot 2. Auger handle is about 5 feet long and is 36 inches in ground where groundwater was encountered.

Photo 4 - Test Plot 2. Note surface water adjacent to test plot on path in this picture and picture above during period of heavy rain.

APPENDIX C: WETLAND DETERMINATION DATA FORMS

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

Project/Site: Furukawa | City/County: Seattle, King County | Sampling Date: January 17, 2017
Applicant/Owner: | State: WA | Sampling Point: TP-1
Investigator(s): Brad Thiele | Section, Township, Range: 27, 25N, 4E
Landform (hillslope, terrace, etc.): Hillslope, terrace | Local relief (concave, convex, none): convex | Slope (%): 6 to 15
Subregion (LRR): A | Lat: | Long: | Datum:
Soil Map Unit Name: Not mapped | NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ___ (If no, explain in Remarks.)
Are Vegetation ___ , Soil ___ , or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes x 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	X	No	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present?	Yes		No	X

Is the Sampled Area within a Wetland? **Yes** ___ **No** **X**

Remarks: Area investigated is in a slight depression along a beach on Lake Washigton. Other vegetation nearby includes Himalayan blackberry, English ivy, and hardhack.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 10')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 10')			
1. yellow iris	60	y	OBL
2. creeping buttercup	20	Y	FACW
3. Himalayan blackberry	10	Y	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	= Total Cover		
Woody Vine Stratum (Plot size: 10')			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum ___

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 66% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	60	x 1 =	90
FACW species	20	x 2 =	40
FAC species	10	x 3 =	30
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	90 (A)		160 (B)

Prevalence Index = B/A = 1.8

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
X 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** **X** **No** ___

Remarks: Vegetation community meets criteria for wetlands. A mix of upland trees and mixed shrub community is adjacent to the west. Lake Washington beach to the west. A variety of equisetum sp was also likely present at one time but has died back to an unidentifiable decomposing state.

SOIL

Sampling Point: TP-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
0-12	10YR 3/2	100	-				Sandy loam	
12-18	2.5Y 5/2	100	10YR 4/4	30	D	M	Sandy silt	

[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)
- X 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** X **No** ___

Remarks: Test plot is located adjacent to the beach along Lake Washington. Soil conditions could be relic from past hydrologic changes in Lake Washington OHWM elevation.

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 X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

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

Remarks: Raining heavily. No standing water is present and no water was observed in the pit excavated to 24 inches. Adjacent to lake Washington. Surface water is flowing down foot path adjacent to test plot and infiltrating in beach. Second site visit on 2/1/17 confirmed groundwater was below 20 inches.

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

Project/Site: Furukawa | City/County: Seattle, King County | Sampling Date: January 17, 2017
Applicant/Owner: | State: WA | Sampling Point: TP-2
Investigator(s): Brad Thiele | Section, Township, Range: 27, 25N, 4E
Landform (hillslope, terrace, etc.): Hillslope, terrace | Local relief (concave, convex, none): convex | Slope (%): 6 to 15
Subregion (LRR): A | Lat: | Long: | Datum:
Soil Map Unit Name: Not mapped | NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ___ (If no, explain in Remarks.)
Are Vegetation ___ , Soil ___ , or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes x 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	X	No	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present?	Yes		No	X

Is the Sampled Area within a Wetland? **Yes** ___ **No** **X**

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 10')			
1. red-osier dogwood	20	y	FACW
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 10')			
1. Yellow Iris	20	Y	OBL
2. creeping bentgrass	30	Y	FAC
3. creeping buttercup	15	Y	FACW
4. curly dock	10	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	= Total Cover		
Woody Vine Stratum (Plot size: 10')			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum ___

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	20	x 1 =	20
FACW species	35	x 2 =	70
FAC species	40	x 3 =	120
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	95 (A)		210 (B)

Prevalence Index = B/A = 2.2

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
X 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** **X** **No** ___

Remarks: Vegetation meets wetland criteria. Community is a narrow band between the beach and upland vegetation community dominated by Douglas fir, Oregon grape, rose, swordfern, and lodgepole pine.

SOIL

Sampling Point: TP-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
0-8	10YR 4/2	100	-				Sand	
8-24	10YR 4/2	100	5YR 3/4	50	CS	M	Sand silt	Iron stain in 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)
- X 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** X **No** ___

Remarks: Soil is adjacent to beach of Lake Washington. Hydric characters may be relic and not indicative of current conditions.

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 X Depth (inches): _____

Water Table Present? Yes ___ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** ___ **No** X

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

Remarks: Groundwater present in pit at ~30 inches. Does not meet wetland criteria for hydrology. Water is running down foot path to the beach, but is not present at the test plot. Second site visit on 2/1/17 confirmed that the groundwater saturation began at about 30 inches.

APPENDIX D: WETLAND RATING FORMS

Wetland name or number _____

WETLAND RATING FORM - WESTERN WASHINGTON

Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Name of wetland (if known): Furukawa Date of site visit: 2/28/17

Rated by Brad Thiele Trained by Ecology? Yes ☒ No ☐ Date: 5/5/05

SEC: _____ TWNSHP: _____ RNGE: _____ Is S/T/R in Appendix D? Yes N☐ ☒

Map of wetland unit: Figure _____ **Estimated size** **Tiny**

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I ☐ **II** ☐ **III** ☐ **IV** ☒

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score <30

Score for Water Quality Functions	8
Score for Hydrologic Functions	0
Score for Habitat Functions	13
TOTAL score for functions	**21**

Category based on SPECIAL CHARACTERISTICS of wetland

I ☐ **II** ☐ **Does not Apply** ☐

Final Category **(choose the "highest" category from above)** **IV**

Check the appropriate type and class of wetland being rated.

Wetland Type	
Estuarine	☐
Natural Heritage Wetland	☐
Bog	☐
Mature Forest	☐
Old Growth Forest	☐
Coastal Lagoon	☐
Interdunal	☐
None of the above	☒

Wetland Class	
Depressional	☐
Riverine	☐
Lake-fringe	☒
Slope	☐
Flats	☐
Freshwater Tidal	☐
Check if multiple HGM classes are present	☐

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below, you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Special Protection (in addition to the protection recommended for its category)		YES	NO
SP1.	*Has the wetland been documented as a habitat for any federally listed Threatened or Endangered (T/E) plant or animal species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.	☐	☒
SP2.	*Has the wetland been documented as habitat for any state listed Threatened or Endangered plant or animal species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands.	☐	☒
SP3.	*Does the wetland contain individuals of Priority species listed by the WDFW for the state?*	☐	☒
SP4.	*Does the wetland have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.	☐	☒

To complete the next part of the data sheet, you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Vegetated Wetlands in Western Washington

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, indentify which hydrologic criteria in questions 1-7 apply and go to Question 8.

1. Are the water levels in the wetland usually controlled by tides (i.e., except during floods)?

☒ NO - go to 2 ☐ YES - the wetland class is **Tidal Fringe**

If YES, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ YES - **Freshwater Tidal Fringe** ☐ NO - **Saltwater Tidal Fringe (Estuarine)**

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 rated as an Estuarine wetland. Wetlands that were called estuarine in the first and second editions of the rating system are called Saltwater Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is being kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. xx).

2. Is the topography within the wetland flat and precipitation is only source (>90%) of water to it?

☒ 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 wetland **meet both** of the following criteria?

☒ The vegetated part of the wetland is on the shores of a body of open water (without any vegetation on the surface) where at least 20 acres (8 ha) are permanently inundated (ponded or flooded);

☒ At least 30% of the open water area is deeper than 6.6 feet (2 m)?

☐ NO - go to 4 ☒ YES - the wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the wetland **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**?

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 feet in diameter and less than 1 foot deep).*

☐ NO - go to 5 ☒ YES - the wetland class is **Slope**

5. Is the wetland in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river? The flooding should occur at least once every two years, on the average, to answer "yes." *The wetland can contain depressions that are filled with water when the river is not flooding.*

☒ NO - go to 6 ☐ YES - the wetland class is **Riverine**

6. Is the wetland in a topographic depression in which water ponds, or is saturated to the surface, at some time of 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 wetland located in a very flat area with no obvious depression and no stream or river running through it and providing water? The wetland seems to be maintained by higher ground water 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 seems to be difficult to classify. 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. Sometimes we find characteristics of several different hydrogeomorphic classes within one wetland boundary. Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. 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 being rated. If the area of the second class is less than 10%, classify the wetland using the first class.

HGM Classes Within a Delineated Wetland Boundary	***Class to Use in Rating***	
Slope + Riverine	Riverine	☐
Slope + Depressional	Depressional	☐
Slope + Lake-fringe	Lake-fringe	☒
Depressional + Riverine along stream within boundary	Depressional	☐
Depressional + Lake-fringe	Depressional	☐
Saltwater Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics	☐

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

L Lake-fringe Wetlands

WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality.

L 1. Does the wetland have the potential to improve water quality? *(see p. 59)* — **Points**

L 1.1 Average width of vegetation along the lakeshore (***use polygons of Cowardin classes***)

- ☐ Vegetation is more than 33 ft. (10 m) wide — **Points = 6**
- ☐ Vegetation is more than 16 ft. (5 m) wide and less than 33 ft. — **Points = 3**
- ☐ Vegetation is more than 6 ft. (2 m) wide and less than 16 ft. — **Points = 1**
- ☒ Vegetation is less than 6 ft. wide — **Points = 0**

Map of Cowardin classes with widths

Points: 0

L 1.2 Characteristics of the vegetation in the wetland: *choose the appropriate description that results in the highest points, and do not include any open waterin your estimateof coverage. The herbaceous plants can be either the dominant form or as an understory in a shrub or forest community.* ***These are not Cowardin classes.*** *Area of cover is total cover in the unit, but it can be in patches.* ***NOTE:*** *Herbaceous does not include aquatic bed.*

- ☐ Cover of herbaceous plants is >90% of vegetated area — **Points = 6**
- ☒ Cover of herbaceous plants is >2/3 of vegetated area — **Points = 4**
- ☐ Cover of herbaceous plants is >1/3 of vegetated area — **Points = 3**
- ☐ Other vegetation that is not aquatic bed or herbaceous covers >2/3 of unit — **Points = 3**
- ☐ Other vegetation that is not aquatic bed in >1/3 vegetated area — **Points = 1**
- ☐ Aquatic bed vegetation and open water cover >2/3 of unit — **Points = 0**

Map with polygons of vegetation types

Points: 4

Total for L 1 — *Add the points in the boxes above* — **Points:** 4

L 2. Does the wetland have the opportunity to improve water quality? *(see p. 61)*

Answer YES if you know or believe there are pollutants in the lake water, or polluted surface water flowing through the unit to the lake. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources but any single source would qualify as an opportunity.*

- ☒ Wetland is along the shores of a lake or reservoir that does not meet water quality standards
- ☐ Grazing in the wetland or within 150 feet of the wetland
- ☐ Polluted water discharges to wetland along upland edge
- ☐ Tilled fields or orchards within 150 feet of the wetland
- ☒ Residential or urban areas are within 150 feet of wetland
- ☐ Parks with grassy areas that are maintained, ballfields, golf courses (all within 150 feet of lakeshore)
- ☒ Power boats with gasoline or diesel engines use the lake
- ☐ Other: _____

YES - multiplier is **2** NO - multiplier is **1**

Multiplier: 2

TOTAL - Water Quality Functions — Multiply the score from L 1. by L 2. ***Add score to table on p. 1*** — **Points:** 8

L Lake-fringe Wetlands

HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce shoreline erosion.

L 3. Does wetland have the potential to reduce flooding/erosion? *(see p. 62)*	**Points**
L 3.1 Distance along shore and average width of Cowardin classes along the lakeshore (**do not** include aquatic bed): *choose the highest scoring description that matches conditions in the wetland*.	
☐ >3/4 of distance is shrub or forest at least 33 ft. (10 m) wide **Points = 6**	0
☐ >3/4 of distance is shrub or forest at least 6 ft. (2 m) wide **Points = 4**	
☐ >1/4 of distance is shrub or forest at least 33 ft. (10 m) wide **Points = 4**	
☐ Vegetation is at least 6 ft. (2 m) wide (any type except aquatic bed) **Points = 2**	
☒ Vegetation is at < 6 ft. (2 m) wide (any type except aquatic bed) **Points = 0**	
Aerial photo or map with Cowardin vegetation classes	
Record the points from the box above	0

L 4. Does wetland have the opportunity to reduce erosion? *(see p. 63)*	
Are there features along the shoreline that will be impacted if it erodes? *Note which of the following conditions apply.*	
☐ There are human structures and activities along the upland edge of the wetland (roads, buildings, fields) that can be damaged by erosion	
☐ There are undisturbed natural resources along the upland edge of the wetland (mature forests, other wetlands) that can be damaged by erosion	
☐ Other: _____	Multiplier
	1
YES - multiplier is **2** NO - multiplier is **1**	

TOTAL - Hydrologic Functions	Multiply the score from L 3. by L 4. ***Add score to table on p. 1***	0

These questions apply to wetlands of all HGM classes

HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat.

H 1. Does the wetland have the potential to provide habitat for many species? — **Points**

H 1.1 Vegetation structure ***(see p. 72)***

Check the types of vegetation classes present (as defined by Cowardin). Size threshold for class is 1/4 acre or more than 10% of the area of the wetland if it is smaller than 2.5 acres.

- ☐ Aquatic bed
- ☒ Emergent plants
- ☒ Scrub/shrub (areas where shrubs have >30% cover)
- ☐ Forested (areas where trees have >30% cover)
- ☐ Forested areas have 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover)

Add the number of vegetation types that qualify. If you have:

4 types or more	**Points = 4**
3 types	**Points = 2**
2 types	**Points = 1**
1 type	**Points = 0**

Map of Cowardin classes

Points: 1

H 1.2 Hydroperiods ***(see p. 73)***

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland if less than 2.5 acres in size or 1/4 acre 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**

Map of hydroperiods

Points: 2

H 1.3 Richness of Plant Species ***(see p. 75)***

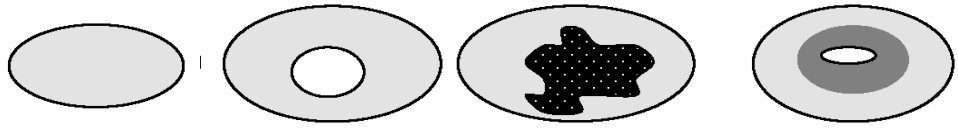
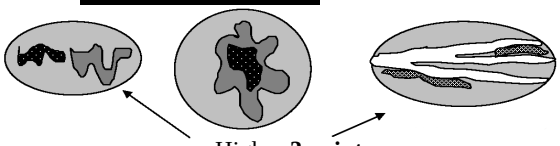
Count the number of plant species in the wetland that cover at least 10 sq. ft. (different patches of the same species can be combined to meet the size threshold). You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.

List species below if you want to:

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

Points: 1

Total for page 4

		Points
H 1.4	Interspersion of Habitats ***(see p. 76)*** *Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1) or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.*  None = **0 points** Low = **1 point** Moderate = **2 points**  [riparian braided channels] High = **3 points** NOTE: If you have four or more vegetation types or three vegetation types and open water, the rating is always "high". **Use map of Cowardin classes**	1
H 1.5	Special Habitat Features ***(see p. 77)*** *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ☐ Large, downed, woody debris within the wetland (>4 inches in diameter and 6 feet long). ☐ Standing snags (diameter at the bottom >4 inches) in the wetland. ☐ Undercut banks are present for at least 6.6 feet (2 m) and/or overhanging vegetation extends at least 3.3 feet (1 m) over a stream (or ditch) in or contiguous with the wetland, for at least 33 feet (10 m). ☐ Stable steep banks of fine material that might be used by beaver/muskrat for denning (>30° slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet turned brown/gray*). ☐ At least 1/4 acre of thin-stemmed presistent vegetation 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 each stratum of plants.	0
	H 1. TOTAL Score - potential for providing habitat *Add the scores in the column above*	5
Comments:		

H 2.	**Does the wetland have the opportunity to provide habitat for many species?**	**Points**
H 2.1	Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within undisturbed part of buffer (*relatively undisturbed also means no grazing, no landscaping, no daily human use*). **Points = 5** ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >50% of circumference. **Points = 4** ☐ 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** ☒ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for >25% circumference. **Points = 3** ☐ 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for >50% circumference. **Points = 3** **If buffer does not meet any of the criteria above:** ☐ No paved areas (except paved trails) or buildings within 25 m (80 feet) of wetland >95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** ☐ No paved areas or buildings within 50 m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** ☐ Heavy grazing in buffer. **Points = 1** ☐ Vegetated buffers are <2 m wide (6.6 feet) for more than 95% of the circumference (e.g., tilled fields, paving, basalt bedrock extend to edge of wetland). **Points = 0** ☐ Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	3
H 2.2 H 2.2.1	Corridors and Connections ***(see p. 81)*** Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (riparian or upland) at least 150 feet wide, has at least 30% cover of shrubs, forest, or native undisturbed prairie, that connects to estuaries, other wetlands, or undisturbed uplands that are at least 250 acres in size? (*Dams in riparian corridors, heavily used gravel roads, and paved roads are considered breaks in the corridor.*) YES = **4 points** (*go to H 2.3*) **NO = *go to H 2.2.2***	
H 2.2.2	Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (either riparian or upland) at least 50 feet wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands, or undisturbed uplands that are at least 25 acres in size **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = *go to H 2.2.3*	2
H 2.2.3	Is the wetland: within 5 miles (8 km) of a brackish or salt water estuary **OR** within 3 miles of a large field or pasture (>40 acres) **OR** within 1 mile of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	

Total for page 5

H 2.3	Near or Adjacent to Other Priority Habitats Listed by WDFW ***(see p. 82)***	**Points**

Which of the following priority habitats are within 330 feet (100 m) of the wetland? NOTE: the connections do not have to be relatively undisturbed. These are WDFW definitions. Check with your local WDFW biologist is there are any questions.

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

☐ **Aspen stands**: Pure or mixed stands of aspen >0.8 ha (2 acres).
☐ **Cliffs**: Greater than 7.6 m (25 feet) high and occuring below 5,000 feet.
☐ **Old-growth 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 20 trees/ha (8/acre) >81 cm (32 inches) in diameter or >200 years of age.

☐ **Mature forests**: Stands with average diameters exceeding 53 cm (21 inches) dbh; crown cover may be <100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than found in old-growth; 80-200 years old west of Cascade crest.

☐ **Prairies**: Relatively undisturbed areas (indicated by dominance of native plants) where grasses/forbs form the natural climax plant community.
☐ **Talus**: Homogenous areas of rock rubble (average size 0.15 - 2.0 m [0.5 - 65 feet]), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
☐ **Caves**: Naturally occurring cavity, recess, void, or system of interconnected passages.

☐ **Oregon white oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is 25%.
☐ **Urban Natural Open Space**: A priority species resides within or is adjacent to the open space and uses it for breeding and/or regular feeding; and/or the open space functions as a corridor connecting other *priority habitats*, especially those otherwise isolated; and/or the open space is an isolated remnant of natural habitat >4 ha (10 acres) and is surrounded by urban development.

0

☐ **Estuary/estuary-like**: Deepwater tidal habitats & adjacent tidal wetlands, usually semi-enclosed by land but with open, partly obstructed, or sporadic access to open ocean; ocean water at least occasionally diluted by freshwater runoff from land. Salinity may be periodically increased above that of open ocean by evaporation. Along some low-energy coastlines, there is appreciable dilution of sea water. Estuarine habitat extends upstream and landward to where ocean-derived salts measure <0.5 ppt. during period of avg. annual low flow. Includes both estuaries and lagoons.

☐ **Marine/estuarine shorelines**: Include intertidal and subtidal zones of beaches; may also include backshore and adjacent components of the terrestrial landscape (e.g., cliffs, snags, mature trees, dunes, meadows) important to shoreline associated fish and wildlife and that contribute to shoreline function (e.g., sand/rock/log recruitment, nutrient contribution, erosion control).

If wetland has: **3+** priority habitats = **4 points** | **1** priority habitat = **1 point**
2 priority habitats = **3 points** | No habitats = **0 points**

Note: all vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4

H 2.4	Wetland Landscape ***(see p. 84)***		Points
	Choose the **one** description of the landscape around the wetland that best fits.		
	☐ There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development).	**Points = 5**	
	☐ The wetland is Lake-fringe on a lake with little disturbance and there are 3 other Lake-fringe wetlands within 1/2 mile.	**Points = 5**	3
	☐ There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed.	**Points = 3**	
	☒ The wetland is Lake-fringe on a lake **with** disturbance, and there are 3 other Lake-fringe wetlands within 1/2 mile.	**Points = 3**	
	☐ There is at least 1 wetland within 1/2 mile.	**Points = 2**	
	☐ There are no wetlands within 1/2 mile.	**Points = 0**	
	H 2. TOTAL Score - opportunity for providing habitat *Add the scores in the column above*		8
Total Score for Habitat Functions - add the points for H 1, H2, and record the result on p. 1			13

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and choose the appropriate answers and Category.

Wetland Type *Check off any criteria that apply to the wetland. Check the appropriate Category when the appropriate criteria are met.*	**Category**
SC 1. Estuarine Wetlands *(see p. 86)* 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	
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*	
SC 1.2 Is the wetland at least 1 acre 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 <10% cover of non-native plant species. If the non-native *Spartina* spp. are the only species that cover >10% of the wetland, then the wetland should be given a dual rating (I/II). The area of *Spartina* would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of *Spartina* in determining the size threshold of 1 acre. ☐ At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or continguous freshwater wetlands. ☐ YES = **Category I** ☐ NO = **Category II**	

		Category
SC 2.	Natural Heritage Wetlands *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a Natural Heritage wetland? (This question is used to screen out most sites before you need to contact WNHP/DNR.) S/T/R information from Appendix D ☐ accessed from WNHP/DNR web site ☐ ☐ YES - contact WNHP/DNR *(see p. 79)* and *go to SC 3.2* ☐ NO SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state Threatened or Endangered plant species? ☐ YES = **Category I** ☐ NO	
SC 3.	Bogs *(see p. 87)* Does the wetland (or part of the wetland) meet both the criteria for soils and vegetations in bogs? *Use the key below to identify if the wetland is a bog.* ***If you answer Yes, you will still need to rate the wetland based on its function.*** 1. Does wetland have organic soil horizons (i.e., layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic oils.) ☐ YES - *go to Q. 3* ☐ NO - *go to Q. 2* 2. Does the wetland have organic soils, either peats or mucks, that are <16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? ☐ YES - *go to Q. 3* ☐ NO - is not a bog for purpose of rating 3. Does wetland have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (>30% of total shrub and herbaceous cover consists of species in Table 3)? ☐ YES - is a bog for purpose of rating ☐ NO - *go to Q. 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" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is wetland forested (>30% cover) with sitka spruce, subalpine fir, western redcedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on bog species plant list in Table 3 as a significant component of the ground cover (*>30% coverage of total shrub/herbaceous cover*)? ☐ YES - **Category I** ☐ NO - is not a bog for purpose of rating	

SC 4. Forested Wetlands ***(see p. 90)*** **Category**

Does the wetland have at least 1 acre of forest that meets one of these criteria for the Department of Fish and Wildlife's forests as priority habitat? *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 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more.

NOTE: The criterion for dbh is based on measurements for upland forests. 200-year-old trees in wetlands will often have a smaller dbh because their growth rates are often smaller. The DFW criterion is an "OR" so old-growth forests do not necessarily have to have trees of this diameter.

☐ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 - 200 years old OR have average diameters (dbh) exceeding 21 inches (53 cm); 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.

☐ YES = **Category I** ☐ NO

SC 5. Wetlands in Coastal Lagoons ***(see p. 91)***

Does the wetland meet all of the following criteria of a wtland 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 surface water that is saline or brackish (>.5 ppt) during most of the year in at leat 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 3 conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).

☐ At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland.

☐ The wetland is larger than 1/10 acre (4,350 square feet).

☐ YES = **Category I** ☐ NO = **Category II**

SC 6. Interdunal Wetlands ***(see p. 93)***	**Category**
Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ☐ YES - *go to SC 6.1* ☐ NO - not an interdunal wetland for rating ***If you answer Yes, you will still need to rate the wetland based on its 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 1115 and SR 109. SC 6.1 Is wetland 1 acre or larger, or is it in a mosaic of wetlands that is 1 acre or larger? ☐ YES = **Category II** ☐ NO - *go to SC 6.2* SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? ☐ YES = **Category III**	
Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1. If you answered NO for all types, enter "Not Applicable" on p. 1.	

APPENDIX G

Agency Database Results

Agency Database Websites

Database	Agency (Database Manager)	Website
Township, Range, Section Map	WSDOT	https://www.arcgis.com/home/webmap/viewer.html?useExisting=1&layers=97a5ae98d8d04458860f64e201d155c4
Watershed Boundaries	ECY	https://www.arcgis.com/home/webmap/viewer.html?url=https%3A%2F%2Fhydro.nationalmap.gov%2Farcgis%2Frest%2Fservices%2Fwbd%2FMapServer&source=sd
Websoils	NRCS	https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx
National Wetlands Inventory	USFWS	https://www.fws.gov/wetlands/data/Mapper.html
Map Service Center	FEMA	https://msc.fema.gov/portal/home
Washington State Water Quality Atlas	ECY	https://apps.ecology.wa.gov/waterqualityatlas/wqa/map
Priority Habitats and Species (PHS)	WDFW	https://geodataservices.wdfw.wa.gov/hp/phs/
Forest Practices Application Mapping Tool	WDNR	https://fpamt.dnr.wa.gov/default.aspx
Statewide Integrated Fish Distribution (SWIFD) Web Map	NWIFC	https://geo.nwifc.org/swifd/
Washington State Fish Passage	WDFW	https://geodataservices.wdfw.wa.gov/hp/fishpassage/index.html
Seattle GIS	City of Seattle	https://seattlecitygis.maps.arcgis.com/apps/webappviewer/index.html?id=f822b2c6498c4163b0cf908e2241e9c2

October 3, 2024

East Harrison Street End WQ Atlas

WQ Permitted Outfalls
- Outfall - Groundwater
- Outfall - Surface Water
- Outfall - Other
- Associated Facility

Water Quality Standards
- All Standards

Water Resource Inventory Areas
- WRIA boundary

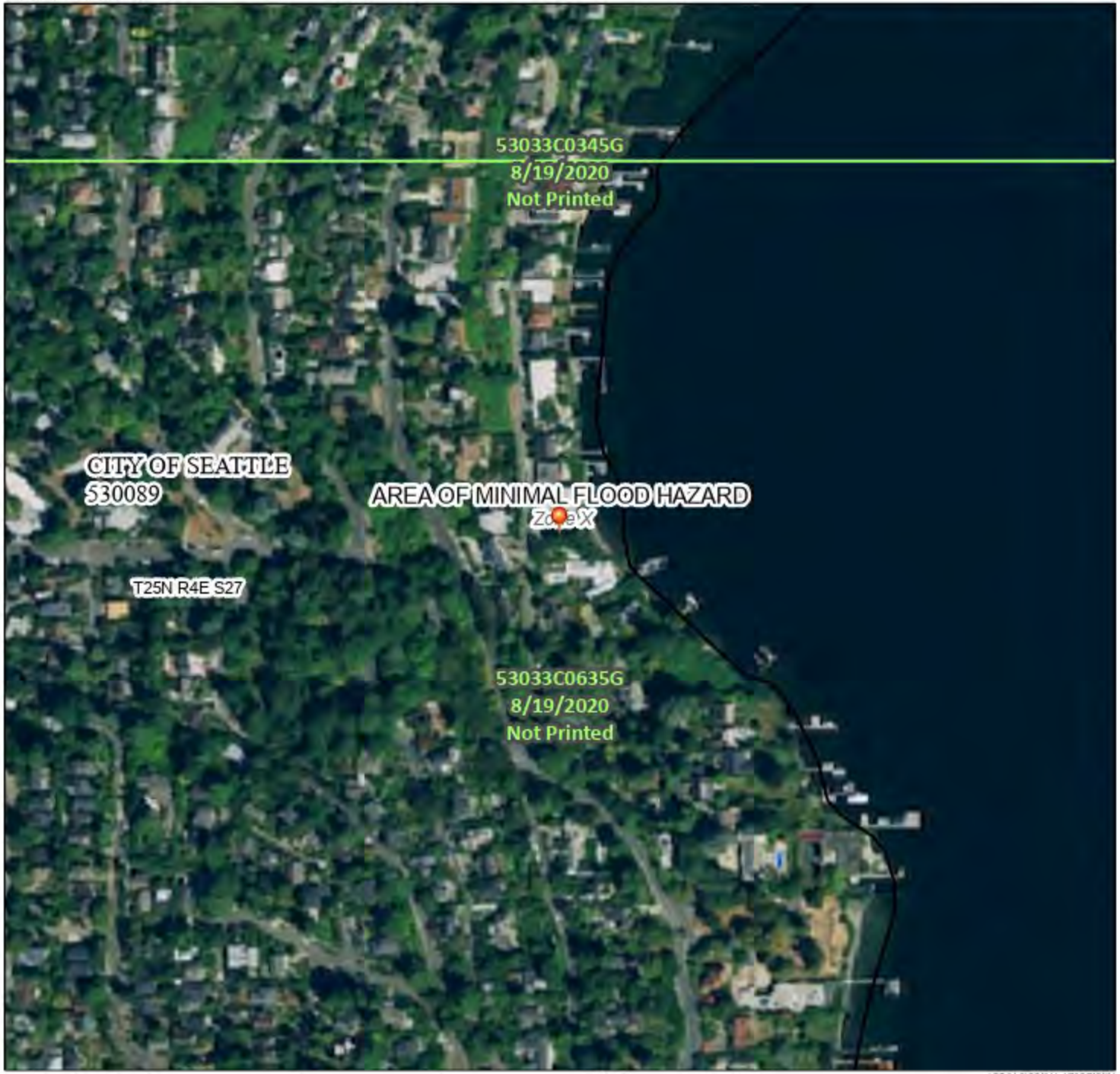
Subbasins (12 digit HUCs)
- HUC boundary

Miles
0 0.01 0.01 0.03

National Flood Hazard Layer FIRMette

FEMA

122°17'17"W 47°37'34"N



122°16'39"W 47°37'9"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

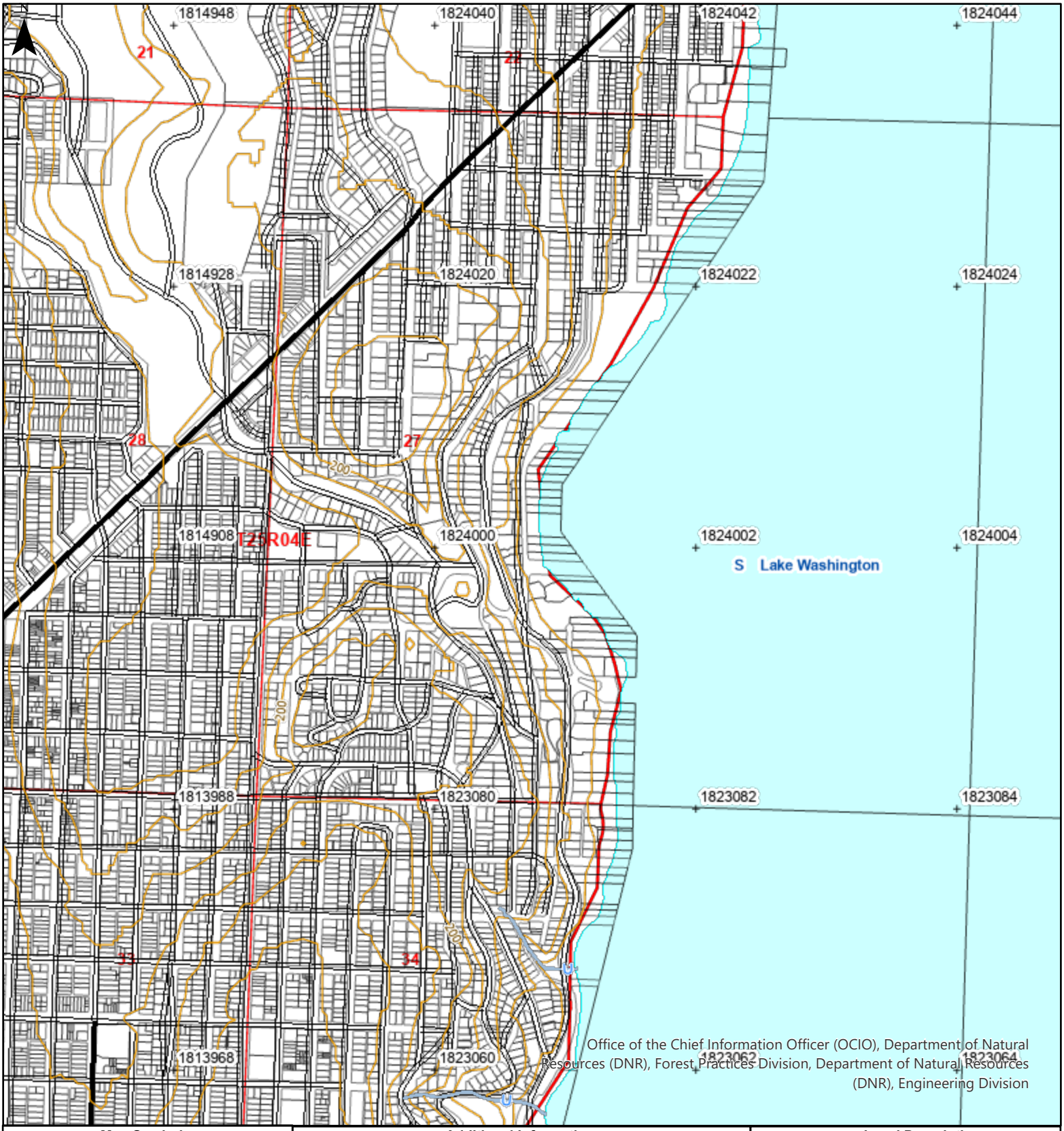
The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 10/3/2024 at 4:50 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Forest Practices Activity Map - Application #_____



Map Symbols

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

Additional Information

Legal Description

S27 T25.0N R04.0E,

WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES

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

Approximate Scale : 1:12,000

0 500 1,000 2,000 Feet

Date: 10/3/2024 Time: 2:15 PM

Priority Habitats and Species on the Web

Buffer radius: 300 Feet

Report Date: 10/03/2024

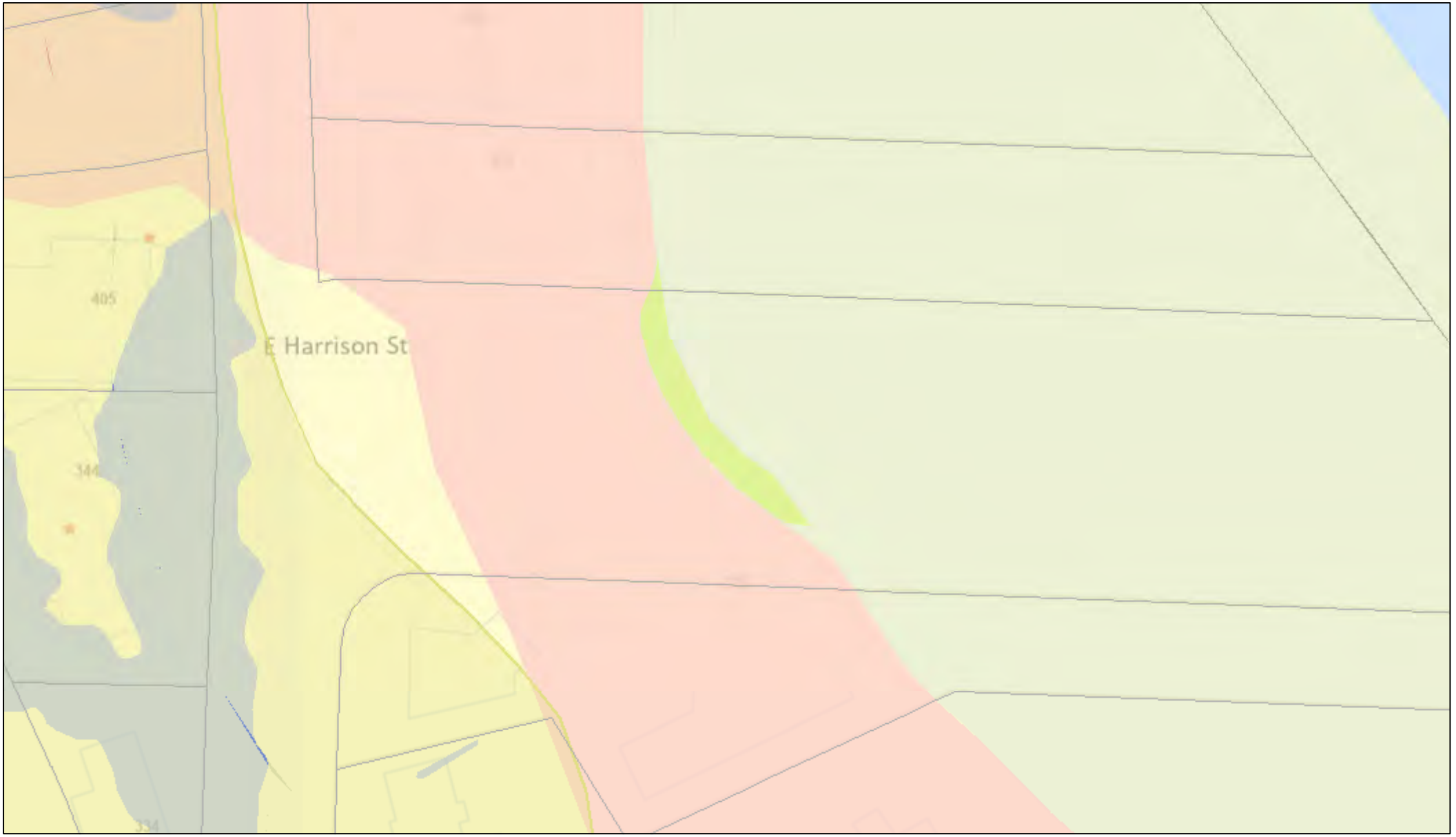
PHS Species/Habitats Overview:

Occurence Name	Federal Status	State Status	Sensitive Location
Lake	N/A	N/A	No

PHS Species/Habitats Details:

Lake	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Lake - NWI Code: L2USCh
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

SDCI GIS Web Map



10/3/2024, 12:42:48 PM

Parcels

Zoning

Neighborhood Residential

ECA Steep Slope (40% average)

ECA Potential Slide Area

ECA Wetland

ECA Liquefaction Prone Area (Adopted Aug 30 2023)

ECA Known Slide (Initiation Point)

1:600

0 0.005 0.01 0.02 mi

0 0.0075 0.015 0.03 km

City of Seattle

Hydric Rating by Map Unit—City of Seattle, Washington
(East Harrison Street End NRCS Soils Map)

Map Scale: 1:412 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 5 10 20 30

Feet
0 20 40 80 120

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 Rating Polygons
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Soil Rating Lines
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Soil Rating Points
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

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 1:12,000.

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

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

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

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

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

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

Soil Survey Area: City of Seattle, Washington
Survey Area Data: Version 8, Aug 28, 2024

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

Date(s) aerial images were photographed: Mar 1, 2023—Sep 1, 2023

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.

Hydric Rating by Map Unit

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
3057	Urban land-Alderwood complex, 12 to 35 percent slopes	10	0.5	66.3%
Totals for Area of Interest			**0.7**	**100.0%**

Description

This rating indicates the percentage of map units that meets the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric soil or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor nonhydric components in the higher positions on the landform, and map units that are made up dominantly of nonhydric soils may have small areas of minor hydric components in the lower positions on the landform. Each map unit is rated based on its respective components and the percentage of each component within the map unit.

The thematic map is color coded based on the composition of hydric components. The five color classes are separated as 100 percent hydric components, 66 to 99 percent hydric components, 33 to 65 percent hydric components, 1 to 32 percent hydric components, and less than one percent hydric components.

In Web Soil Survey, the Summary by Map Unit table that is displayed below the map pane contains a column named 'Rating'. In this column the percentage of each map unit that is classified as hydric is displayed.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

References:

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.

Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

Rating Options

Aggregation Method: Percent Present

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

APPENDIX H

Photodocument

May 2019—Source: Google Maps Photos

20 March 2023

12 September 2023

16 May 2024

20 March 2023

20 March 2023

May 2019—Google Map Photo

20 March 2023

12 September 2023

16 May 2024

June 2022—Source: Google Maps Photos

20 March 2023

12 September 2023

16 May 2024

20 March 2023

20 March 2023

12 September 2023

16 May 2024

APPENDIX J

Wetland Data Sheets

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

Project/Site: E Harrison Street End | City/County: King | Sampling Date: 3/20/2023
Applicant/Owner: Roberts/SDOT | State: WA | Sampling Point: TP 1
Investigator(s): JMM/KN | Section, Township, Range: SW ¼ of Section 27, Township 25 North, Range 4 East
Landform (hillslope, terrace, etc.): lake shoreline | Local relief (concave, convex, none): None | Slope (%): 1-2+
Subregion (LRR): LRR A - Northwest Forests and Coast | Lat: 47.622600 | Long: -122.282400 | Datum: WGS84
Soil Map Unit Name: 3057, Urban land-Alderwood complex, 12 to 35% slopes | NWI Classification: L2USCh
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No ___ (If no, explain in remarks)
Are vegetation X, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes ___ No X
Are vegetation ___, Soil X, or Hydrology X naturally problematic?

SUMMARY OF FINDINGS - Attach site map showing sampling point location, transects, important features, etc.

Hydrophytic vegetation present?	Yes	X	No	
Hydric soil present?	Yes	X	No	**Is the sampled area within a wetland?** Yes X No
Indicators of wetland hydrology present?	Yes	X	No	

Remarks: See sections below for more details. Sample point location is site of previously mapped wetland on Lk WA shoreline within an SDOT street end park. Rainfall was normal during site visits, but Lk WA hydrology is inherently problematic, and veg is disturbed from human uses.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' r)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Juncus effusus*	5	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	5 = Total Cover		
Woody Vine Stratum (Plot size: 30' r)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 95

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across all Strata: 1 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	5 (A)		10 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0
___ 4 - Morphological Adaptations* (Provide supporting data in Remarks or on a separate sheet)
X 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 X No ___

Remarks:

Site has high human use during main season for plant growth (May - September); previous reports documented more vegetation than currently present.Documented high level of vegetation removal through high foot traffic. No adjacent offsite wetland areas for comparison. Comparison only possible through old photos and previous reports.Hydro veg assumed based on review of other documentation.

SOIL

Sampling Point: TP 1

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
0-8	10YR 4/1	80	10YR 7/4	3	C	M	S	coarse sand/shoreline
	10YR 5/1	15	7.5YR 5/6	2	C	M	S	coarse sand/shoreline

[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)
- X Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(Except MRLA 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** X **No** ___

Remarks:

Sand didn't hold structure for a deeper pit. Sandy redox was found within the upper 6" of the soil horizon, evidence of enough groundwater moving through this area to form redoximorphic features despite ground disturbing activities at the surface affecting presence of vegetation.

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is 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 MRLA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on 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 (C
- ___ 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	X	Depth (inches): ___
Water Table Present?	Yes	___	No	X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes	___	No	X	Depth (inches): ___

Wetland Hydrology Present?

Yes X **No** ___

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

Remarks:

Adj to Lk WA is an abnormal situation.No hydrology present in Mar 2023. However, Lk WA water levels are elevation controlled by the Ballard locks, and water levels are kept low in the winter with water levels rising during the summer. In May 2024, this feature was at the upper limits of the summer lake water levels, where hydrology indicators include both surface water & saturation in the soil.

U.S. Army Corps of Engineers

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

See ERDC/EL TR-10-3; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: E Harrison Street End | City/County: King | Sampling Date: 10/24/2024

Applicant/Owner: Roberts/SDOT | State: WA | Sampling Point: SP2

Investigator(s): J. Marriott | Section, Township, Range: S27, T25N, R4E

Landform (hillside, terrace, etc.): lake shoreline | Local relief (concave, convex, none): None | Slope (%): 1-2

Subregion (LRR): LRR A | Lat: 47.62262 | Long: -122.28241 | Datum: WGS84

Soil Map Unit Name: 3057, Urban Land - Alderwood complex, 12-25% slopes | NWI classification: None

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

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

Are Vegetation ____, Soil X, or Hydrology X 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 X	No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
See sections below for more details. Sample point location is site of previously mapped wetland on Lk WA shoreline within an SDOT street end park. Rainfall was normal during site visits, but Lk WA hydrology is inherently problematic, and veg is disturbed from human uses.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. None	0		
2.			
3.			
4.			
	____ =Total Cover		
Sapling/Shrub Stratum (Plot size: 10ft)			
1. None	0		
2.			
3.			
4.			
5.			
	____ =Total Cover		
Herb Stratum (Plot size: 5ft)			
1. None	0		
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	____ =Total Cover		
Woody Vine Stratum (Plot size: 10ft)			
1. None	0		
2.			
	____ =Total Cover		

% Bare Ground in Herb Stratum 100

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: ____ (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]
- X Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks:

SOIL

Sampling Point: SP2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 4/2	100					Sandy	coarse sand/shoreline
3-8	10YR 4/2	90	10YR 4/6	10	C	M	Sandy	Prominent redox concentrations
8-10	10YR 5/2	100					Sandy	no redox present

[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)
- ___ 1 cm Muck (A9) **(LRR D, G)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G)**
- ___ Sandy Gleyed Matrix (S4)
- X 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) **(LRR A, E)**
- ___ Iron-Manganese Masses (F12) **(LRR D)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Clay

Depth (inches): 8

Hydric Soil Present? **Yes** X **No** ___

Remarks:
Sandy redox was found within the upper 6" of the soil horizon, evidence of enough groundwater moving through this area to form redoximorphic features despite ground disturbing activities at the surface affecting presence of vegetation.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X 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 on 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)
- X Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___		
Water Table Present?	Yes X	No ___	Depth (inches): 7		
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 6	**Wetland Hydrology Present?**	**Yes** X **No** ___

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

Remarks:
Adj to Lk WA is an abnormal situation.

U.S. Army Corps of Engineers

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

See ERDC/EL TR-10-3; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: E Harrison Street End | City/County: King | Sampling Date: 10/24/2024

Applicant/Owner: Roberts/SDOT | State: WA | Sampling Point: SP3

Investigator(s): J. Marriott | Section, Township, Range: S27, T25N, R4E

Landform (hillside, terrace, etc.): lake shoreline | Local relief (concave, convex, none): None | Slope (%): 3-4

Subregion (LRR): LRR A | Lat: 47.62262 | Long: -122.28247 | Datum: WGS84

Soil Map Unit Name: 3057, Urban Land - Alderwood complex, 12-25% slopes | NWI classification: None

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

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

Are Vegetation ____, Soil X, or Hydrology X 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 X	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
See sections below for more details. Rainfall was normal during site visits, but Lk WA hydrology is inherently problematic, and veg is disturbed from human uses.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Pinus contorta*	60	Yes	FAC
2. *Betula papyrifera*	15	No	FAC
3. *Acer circinatum*	5	No	FAC
4. *Thuja plicata*	5	No	FAC
	85	=Total Cover	
Sapling/Shrub Stratum (Plot size: 10ft)			
1. *Rhododendron occidentale*	15	Yes	FAC
2. *Mahonia aquifolium*	8	Yes	FACU
3.			
4.			
5.			
	23	=Total Cover	
Herb Stratum (Plot size: 5ft)			
1. *Polystichum munitum*	2	No	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	2	=Total Cover	
Woody Vine Stratum (Plot size: 10ft)			
1. None	0		
2.			
		=Total Cover	

% Bare Ground in Herb Stratum 100

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	100	x 3 =	300
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	110 (A)		340 (B)

Prevalence Index = B/A = 3.09

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 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 X No ____

Remarks:

SOIL

Sampling Point: SP3

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 5/2	100					Sandy	coarse sand/shoreline

[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)
- ___ 1 cm Muck (A9) **(LRR D, G)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G)**
- ___ 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) **(LRR A, E)**
- ___ Iron-Manganese Masses (F12) **(LRR D)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 on 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 X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

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

Remarks:

APPENDIX K

Wetland Rating Form

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland A Date of site visit: 9/17/2024

Rated by J. Marriott Trained by Ecology? ☑ Yes ☐ No Date of training 2023

HGM Class used for rating Lk Fringe Wetland has multiple HGM classes? ☐ Yes ☑ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map iMap 2023

OVERALL WETLAND CATEGORY II (based on functions☑ or special characteristics☐)

1. Category of wetland based on FUNCTIONS

_____ **Category** I - Total score = 23 - 27
X **Category** II - Total score = 20 - 22
_____ **Category** III - Total score = 16 - 19
_____ **Category** IV - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	L	L	L	
Landscape Potential	H	H	M	
Value	H	H	H	**Total**
Score Based on Ratings	7	7	6	**20**

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

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	**X**

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

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

Riverine Wetlands

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

Lake Fringe Wetlands

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

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*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	

HGM Classification of Wetland in Western Washington

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

☑ 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.*

LAKE FRINGE WETLANDS

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

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

Rating of Site Potential If score is: ☐ **8 - 12 = H** ☐ **4 - 7 = M** ☑ **0 - 3 = L** *Record the rating on the first page*

L 2.0. Does the landscape have the potential to support the water quality function of the site?		
L 2.1. Is the lake used by power boats?	Yes = 1 No = 0	1
L 2.2. Is > 10% of the area within 150 ft of wetland unit on the upland side in land uses that generate pollutants?	Yes = 1 No = 0	1
L 2.3. Does the lake have problems with algal blooms or excessive plant growth such as milfoil?	Yes = 1 No = 0	1
Total for L 2	Add the points in the boxes above	**3**

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

L 3.0. Is the water quality improvement provided by the site valuable to society?		
L 3.1. Is the lake on the 303(d) list of degraded aquatic resources?	Yes = 1 No = 0	1
L 3.2. Is the lake in a sub-basin where water quality is an issue (at least one aquatic resource in the basin is on the 303(d) list)?	Yes = 1 No = 0	1
L 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 lake or basin in which the unit is found.*	Yes = 2 No = 0	0
Total for L 3	Add the points in the boxes above	**2**

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

LAKE FRINGE WETLANDS

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

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

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

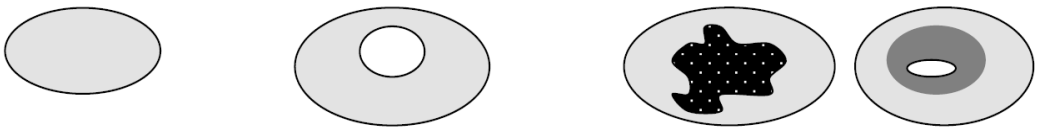
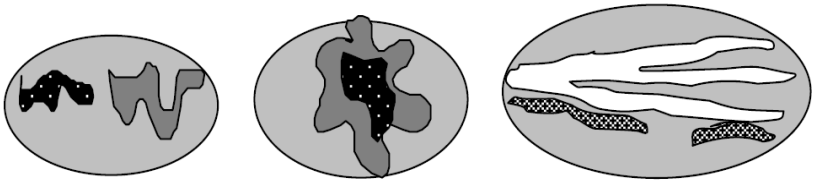
L 5.0. Does the landscape have the potential to support the hydrologic functions of the site?		
L 5.1. Is the lake used by power boats with more than 10 hp?	Yes = 1 No = 0	1
L 5.2. Is the fetch on the lake side of the unit at least 1 mile in distance?	Yes = 1 No = 0	1
Total for L 5	Add the points in the boxes above	**2**

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

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

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

NOTES and FIELD OBSERVATIONS:

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

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*)	1
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 function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* _____ % undisturbed habitat + (_____ % moderate & 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	2
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* _____ % undisturbed habitat + (_____ % moderate & 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	2
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 1km Polygon is high intensity points = 0	-2
Total for H 2 Add the points in the boxes above	**2**

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

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

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

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.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List 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**	
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**	
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 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 to SC 2.4** ☑ No = **Not 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 WHCV**	
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**

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**

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

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

Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	NA

APPENDIX L

Memo to SDOT, 17 June 2024

Wet.land, LLC
Jennifer Marriott, PWS
8201 164th Ave NE, Suite 200, PMB 141
Redmond, WA 98052

17 June 2024

Seattle Department of Transportation
Attn: Omar Akkari, PLA
Seattle City Hall
600 4th Ave, 5th Floor
Seattle, WA 98104

PROJECT: East Harrison Street End, Seattle, Washington

SUBJECT: Violations of the City's Shoreline Master Program

Dear Seattle Department of Transportation and Seattle Department of Construction and Inspections:

I write on behalf of neighbors who live near the East Harrison Street End to express concern about what is happening there to degrade the environmentally sensitive shoreline environment in ways that violate the City's Shoreline Master Program (SMP) and regulations on managing Environmentally Critical Areas (ECA) consistent with the Seattle Municipal Code (SMC).

Although the street end is under the jurisdiction of the Seattle Department of Transportation (SDOT), it is subject to the City's SMP as administered by the Seattle Department of Construction and Inspections (SDCI).

This letter explains that the street end is being used as a park without a shoreline permit in violation of the SMP, and that users of the SSE are damaging the vegetation and the previously delineated (by others) wetland on the site in ways that also violate the SMP.

I am a Professional Wetland Scientist and the co-owner and senior scientist at **Wet-land, LLC**, an environmental consulting firm. In preparing this letter I reviewed the City's SMP; visited the site on 20 March 2023, 12 September 2023, and 16 May 2024; and reviewed many pictures and aerial images that depict the park use and changes in vegetation degrading the wetland over the past few years.

1. The SMP and Protection of Environmental Functions & Values

The East Harrison Street End is on the shore of Lake Washington, a state-designated Shoreline of the State. This designation reflects the significance of this waterbody. Under the SMP, the shoreline environment waterward of the Ordinary High Water Mark (OHWM) is Conservancy Recreation (CR), and the shoreline environment for 200 feet landward of the OHWM is Urban Residential (UR).

The purpose of the CR environment is to provide public access and recreational use of shorelines while protecting ecological functions (SMC 23.60A.220). The location criteria tie back to protecting natural resources while allowing water access. However, there are different types of public access and recreational uses with varying levels of land use intensity. Shorelines that balance critical areas against shoreline access must also keep carrying capacity of the property in mind. As the below photo shows, current uses at this street end can quickly exceed compatible densities of people and uses.

Photo 1. *Photo from Friends of Hidden Beach website (photo dated June 27, 2021)*

In the upland UR environment, a shoreline "park and open space use" is allowed, but only with a shoreline substantial development permit, which I understand has not been applied for by SDOT or by the people who are encouraging and participating in the high-volume use of this street end for park purposes. As a wetland scientist, I can say that this shoreline environment cannot support such a park use without degradation of the natural environment, which has already taken place and is currently taking place. Ecological functions have not been protected as required by SMC 23.60A.220, and such harm to the shoreline environment violates the SMP (discussion continued below on the shoreline damage to date).

Changes to vegetation within shoreline jurisdiction must comply with SMP

For example, the first 35 feet landward of the OHWM is within the "shoreline setback." Within this shoreline setback, per 23.60A.190.F, "any land disturbing activity, and any action detrimental to aquatic or wildlife habitat, vegetation or trees is prohibited," except as expressly authorized by the SMP. The SMP requires supervision by a "qualified professional" for pruning and vegetation management. However, recent pruning of trees & shrubs was completed on a variety of limb/branch sizes above as well as below the threshold for which permits are required. At a minimum, land management activities are being done within a critical area without the correct authorizations and/or awareness of the regulations protecting critical areas, including shorelines.

SMP does not permit damage to wetlands without permitting and mitigation

The SMP also does not allow the damage to the small wetland near the shore that has taken place. This wetland is depicted on SDCI's GIS map. The Washington State Department of Fish and Wildlife recognizes the property as a "Priority Area" for "Aquatic Habitat", and the wetland is shown on the U.S. Fish and Wildlife Service National Wetlands Inventory. The wetland is directly adjacent to waters of the United States, Lake Washington, meeting the definition of a jurisdictional wetland under the federal Clean Water Act.

My understanding is that this wetland has been delineated twice in the last twelve years (in 2011 by The Watershed Company, and 2017 by Northwest Environmental Consulting). Both studies were provided to the City as part of larger applications at their time of drafting. The Watershed Company concluded there is a wetland contiguous to Lake Washington on the street end. The January 2017 report by Northwest Environmental Consulting initially concluded that no wetlands occurred onsite due to a lack of wetland hydrology. However, a comment letter by SDCI dated 14 February 2017 accurately noted that evaluating wetland hydrology adjacent to Lake Washington in January (field date was 17 January 2017) would not accurately reflect growing season wetland hydrology given the managed nature of Lake Washington. A subsequent report in March 2017 by Northwest Environmental Consulting updated their conclusion in response to the below SDCI comment that this area was in fact wetland, and then rated as a Category IV lake fringe wetland. As explained further below, this is consistent with my observation and conclusion that wetland hydrology supports the wetland designation.

The SDCI letter dated 14 February 2017 (Correction Notice #1, Project #6573736) noted the following:

> *I have reviewed the report and further documentation from the wetland consultant is needed to justify the conclusion that wetland hydrology is not present. As you will note from the report, sampling plots 1 and 2 contained wetland plants and wetland soils, but not wetland hydrology (all three are needed to be a wetland). Wetland soils, in particular, are typically only found where the soils are saturated for significant time periods. The suggestion that wetland (hydric) soils indicators observed may be relics is not explained thoroughly enough by the wetland consultant. Lake Washington was lowered approximately 100 years ago, so it seems very unlikely that these hydric soil indicators are simply relics from before the lake was lowered. Rather, based on the depth of the water table (30 inches below the surface) observed by the wetland consultant, it seems plausible that the hydric soils and wetland plants may be present because there is currently wetland hydrology in these areas for a significant part of the growing season. The wetland consultant's investigation occurred in the middle of the winter when the lake level is maintained at its lowest level. In February, the Army Corps of Engineers begins raising the lake level; by May it will be two feet higher and maintained at this level through the summer. Therefore, it seems likely the actual water table for much of the growing season would be expected to be about two feet higher than that which was observed in January. Taking into account how the water level of Lake Washington is managed, it seems that the water table at the two sampling points would likely be within 12 inches of the surface for a significant portion of the growing season, which would be a positive indicator of wetland hydrology. Please have the wetland consultant further address these points and his conclusion that wetland hydrology is not present.*

My site visits confirmed the presence of hydric soils (redoximorphic features present in the upper 6" of the sandy soils onsite at the south end of the beach) as well as wetland hydrology. Site visits were completed at three (3) different times of year, and lake water levels are significantly different. In addition to variations in lake water levels, normal rainfall was only present during the September 2023 site visit, and were drier than normal during the March 2023 and May 2024 visits. The presence of normal rainfall conditions is a prerequisite to an accurate wetland determination. Wetland conditions were identified within this Site even with drier than normal conditions. **Photo 2** below shows photos between March 2023 and May 2024 on two (2) different portions of the shoreline that clearly reflect the variability of water levels within Lake Washington. It is also important to note that surface inundation is not required to meet the wetland hydrology indicators. Saturation below grade within 12" of the soil surface for a minimum of two (2) weeks of the growing season also qualifies as wetland hydrology. Many wetlands retain saturated soils for many weeks to months but lack regular inundation. Given the coarse material of the shoreline, it is likely that the lake water moves laterally to saturate soils further landward than the visible surface water of the lake.

Photo 2. *Comparison of shoreline (March vs May) – note red & yellow lines are same feature between photos for ease of comparison.*

Photos from 2019 of the street end show the wetland area of street vegetated with sedges and grasses, as discussed further below. But over the last few years, visitors have heavily disturbed vegetation. Based on what I saw during my sight visits in 2023 and 2024, and what can be seen from review of pictures that depict changes in vegetation over the past few years as well as photos and datasheets from the above previously prepared critical area reports,

it appears that this wetland has been badly damaged by foot traffic. The 2011 report by The Watershed Company described the wetland as containing bamboo, English ivy, yellow iris, Himalayan blackberry, giant horsetail, and soft rush. This reflects a common urban wetland with significant invasive species encroachment. This report noted that about half the wetland was unvegetated as a result of volunteers removing invasive species. The 2017 report identified the wetland as containing yellow iris, red-osier dogwood, hardhack (*Spirea douglasii*), Himalayan blackberry, creeping buttercup, and creeping bentgrass. Photos posted publicly on Google Maps at the shoreline reflect significant coverage of a groundcover/grass that has since been reduced to small patches. A comparison of photos over the years shows degradation of the remaining vegetation. Today there is only limited wetland vegetation near the edge of the shoreline. Even a small wetland requires a buffer, and both the wetland and its buffer appear to have been trampled by the more recent heavy use of the street end.

A comparison of photos submitted by users to Google Maps of this street end shows a substantial reduction in shoreline vegetation between May 2019 and June 2022:

Photo 3. *Photo of East Harrison Street End shoreline (facing north) [Source: Google Maps, May 2019]*

Photo 4. *Photo of East Harrison Street End shoreline (facing north) [Source: Google Maps, June 2022]*

Sedges and/or grasses are clearly visible in the 2019 photograph that provided rather significant ground coverage. However, the early signs of human intrusions can be seen in the path worn through the vegetation to the shoreline and the lack of shoreline vegetation at the water's edge. Most sedges and many shoreline grasses in Washington are facultative or wetter plants and readily identified as common wetland plants. The June 2022 photo shows the same area of the shoreline (based on the single large log that is present on this shoreline and seen in many photos observed online). Note the significant reduction of sedge and grass coverage in the June 2022 photo. Similar loss of vegetation is apparent in the buffer as well where the understory is less dense, suggesting damage from excessive summer foot traffic that does not remain on the designated paths onsite.

Wetlands, and shorelines in general, provide important ecological functions. Lake Washington provides habitat for salmon, among other species, that rely on healthy shoreline ecology to survive. Lake Washington is identified by the National Marine Fisheries Service as Essential Fish Habitat for species of salmon and non-salmonid fish.

Shoreline vegetation provides shading over lake water that in turn lowers water temperatures in these shallow water portions of the lake. Wetland vegetation in lake fringe wetlands also provide refugia for juveniles of many aquatic species. The degradation of the wetland and shoreline by dense, unregulated crowds is detrimental to wildlife, particularly to those that depend on these shoreline environments.

Unpermitted impacts to the shoreline/wetland violates federal and state permitting requirements

It appears from the June 2022 photo that sand may have been imported to replace dirt that has eroded from the shoreline. Sediment erosion is clearly a problem the site is currently having that is common to Lakes Washington and Sammamish where natural shorelines alternate with managed shorelines. Sediment erosion is also a common impact from unsustainable pedestrian traffic that causes loss of vegetation and soil compaction. Importation of soil into a wetland or the lake requires permits from other agencies including the Army Corps of Engineers and the Department of Ecology, regardless of quantity. And any work at or below the OHWM would also require a Hydraulic Project Approval (HPA) from the Department of Fish and Wildlife, in addition to the previously listed state and federal agencies. I am not aware of any jurisdictional determinations by the United States Army Corp of Engineers, but the wetland meets the definition of a jurisdictional wetland under the federal Clean Water Act given its location adjacent to Lake Washington.

Off-leash dog users of the shoreline is harmful to ecological functions and degrades the wetland & shoreline

The shoreline, including the wetland area, also is being used as an off-leash area for dogs, which is harmful to the ecological function of this area given the bacteria they carry as well as the damage to vegetation caused by their paws. Additionally, signage at the front of the street end clearly states that dogs must remain on leashes.

***Photo 5**. Photo from 13 March 2023 [Source: Mr. & Mrs. Roberts]*

2. Protecting ECAs

While the SMP supports mixed uses of the shoreline, a plan is typically required that clearly separates environmentally sensitive areas from areas used for shoreline access so that these types of critical area impacts are avoided. It is a violation of the SMP and the City's Regulations for Critical Areas (Chapter 25.09) to fail to comply with the requirements of both (see SMC 25.09.400; SMC 23.60A.012; SMC 23.60A.082).

The photos demonstrate a decrease in vegetation due to excessive foot traffic that has a deleterious effect on the shoreline and shoreline processes. Decreased shoreline vegetation will increase shoreline erosion as the lake water levels shift or boat wakes hit the shore. Shoreline erosion has many causes with vegetation being the primary protector against excessive erosion. The continued excessive summer foot traffic, that coincides with the majority of the growing season for the plants within these sensitive areas, will continue to erode the soil at the lakeshore regardless of the wave action from the lake. The SMP does not allow a lake fringe wetland to be used as an entry point to a waterbody, especially when alternate locations are available nearby.

Any impact to a critical area, including wetlands and their buffers, as well as the shoreline itself, requires application of avoidance and minimization measures. These avoidance and minimization measures include documenting that the impact was avoided as much as possible, then minimized, and finally, where impacts to critical areas cannot be fully avoided and have been minimized to the greatest extent possible, any remaining impacts must be mitigated appropriately. Mitigation can take the form of wetland creation to offset direct and permanent wetland impacts, or purchase of credits through an approved mitigation bank or in lieu fee program, such as the King County In Lieu Fee program. Other options include restoration of impacted areas with long-term protection provided to protect against future impacts.

The heavy park use of the shoreline depicted in the first photo above, from the Friends of Hidden Beach website, is happening without regard to the environmentally sensitive nature of this site or the requirements of the SMP. No critical area fencing or signage is located onsite to reflect the City's mapped wetland in this location and the associated buffer, to identify these sensitive areas and demarcate where people should and should not pass, as would be considered best management practices where people and critical areas occur in tandem.

My understanding is that until the last few years, the street end was lightly used by people who respected the quiet wooded environment. This street end is not large enough to support a healthy wetland and buffer while also accommodating the many hundreds of people currently using the wetland and shoreline as a crowded swimming area throughout the summer.

SDOT's Shoreline Street End Map clearly identifies parks, two nearby, that are designated for swimming and beach access, and this street end was not identified as such [https://seattlecitygis.maps.arcgis.com/apps/webappviewer/index.html?id=118355cfdc4b4931bbec0b67f6b750fc]. The current uses of the street end, in particular in the shoreline, are not consistent with regulations protecting ecological functions and are ultimately detrimental to the shoreline environment at this location.

3. Conclusion

The neighbors on whose behalf I write request that SDOT recognize and abide by the requirements of the SMP in regulating the use of this street end. I plan to return to the street end in the coming months to continue documenting and assessing ecological conditions of the shoreline and wetland. I am happy to meet with SDOT and SDCI to talk about possible measures that can be taken to protect and restore the ecological function of the street end in the hopes that the community and City can work together to restore it instead of damaging this shoreline further.

Should you have any questions or require additional information regarding this Project, please contact me at *jen@wet.land* (office: 206-309-8100).

Jennifer Marriott, PWS
Senior Ecologist, Wet.land, LLC

VIA EMAIL TO: *Omar.Akkari@seattle.gov*
Copy to: Ben Perkowski, Land Use Planner, *Ben.Perkowski@seattle.gov*
Christy Carr, Senior Environmental Analyst, *Christy.Carr@seattle.gov*

Attachments: None (referenced documents provided upon request)

APPENDIX M

Memo to Mr. & Mrs. Roberts, 27 September 2024

Site Visit Summary Memo

To: Elizabeth Roberts

From: Jennifer Marriott

Date: 27 September 2024

Property: Late Summer Site Visit – East Harrison Street End

I visited this Site on 17 September 2024 to document the existing conditions at the end of the summer.

I had one unpleasant encounter with an individual using the street end with his dog. I was asked politely if I minded his dog being off-leash. I responded that this was not a designated off-leash dog park. I received an angry response of "what was I going to do about it?" while he removed his dog's leash. The dog immediately ran at me and lunged before his owner called the dog away.

Conditions at the street end continue to deteriorate though the erosion is less obvious in the last year than when comparing to previous years. The little bit of vegetation that was left during our September 2023 site visit within the shoreline area is mostly gone now (Photos 1 & 2 below). Note the clumps of grass in Photo 1 that are significantly reduced in size/area within Photo 2.

The wetland vegetation from previous years' delineations is long since gone, so tracking the grasses that are left and general erosion exposing roots and large wood on the shoreline are the only remaining features that can be documented for habitat condition on this specific segment of shoreline.

Shoreline erosion is a natural process that is hindered along Lake Washington broadly as a baseline current condition given the many docks on the shoreline have varying effects on natural shoreline sediment transport processes. Typically, new sediment is deposited on a shoreline to offset sediment loss. Wetland vegetation on a shoreline, even invasive species, can serve to protect shorelines from this net sediment loss that appears to be occurring on this street end.

Photos 3-6 below document erosion occurring from behind a large wood railroad tie that has been a constant feature on this shoreline since our site visits started in early 2023. This erosion is occurring from the landward side of the shoreline, beyond the ordinary high water mark of the lake. so is unlikely the result of wave/water action. The location of the erosion suggests pedestrian traffic as the likely cause of this erosion rather than shifting water levels in Lake Washington.

Photo 1. *East Harrison Street End - facing south (12 September 2023)*

Photo 2. *East Harrison Street - facing south (17 September 2024)*

***Photo 3**. 20 March 2023*

***Photo 5.** 16 May 2024*

***Photo 4.** 12 September 2023*

***Photo 6.** 17 September 2024*

APPENDIX N

Letter of Findings, Wetlands Northwest, 14 August 2024

August 14, 2024

Friends of Hidden Beach (FOHB)

Re: Unimproved Right-Of-Way of East Harrison Street, east of 39th Ave East aka Hidden Beach
City of Seattle Permit SUSIP0000667
SDOT Application SUCONST0004094

Dear Mr. FOHB:

Based on my site visit on July 31, 2024, the property is not subject to regulation in Sections 25.09.160 (Wetlands and Wetland Buffers) and 25.09.200 (Fish and Wildlife Conservation Areas) of the Seattle Municipal Code (SMC).

The property is in the Harrison/Denny Blaine neighborhood along the Shores of Lake Washington (see Figure 1). The property slopes 10% to the east towards Hidden Beach on Lake Washington. Within the unimproved right-of-way there is a tree canopy, two driveways and a beach. The unimproved right-of-way services the neighborhood for recreation and lake access. Within the unimproved right-of-way there are driveways that allow ingress and egress for 400 39th Avenue East and 338 39th Avenue East. Critical area inventories have mapped a Lacustrine wetland along the shoreline (hydrogeomorphic designation as L2A in the GIS data base file) which measures approximately 1,100 square feet (see Figure 2). Lake Washington is a Type S water and is designated as an Urban Residential Shoreline (UR).

The tree canopy is well-maintained whose vegetation is comprised mostly of native plants and shrubs with little herbaceous coverage (see Photo 1). The vegetation observed included Douglas-fir (*Pseudotsuga Menziessi*), Western red cedar (*Thuja plicata*), Ponderossa pine (*Pinus Ponderossa*), Leyland cypress (*Cuprocyparis leylandii*), beaked hazelnut (*Corylus cornuta*), red flowering currant (*Ribes sanguineum*), red-osier dogwood (*Conus stolonifera*), thimbleberry (Rubus parviflorus), snowberry (Symphoricarpos albus), tall Oregon grape (*Mahonia aquifolium*), Portuguese laurel (*Prunus lusitanica*), cherry laurel (*Prunus laurocerasus*), vine maple (*Acer circunatum*), salmonberry (*Rubus spectabilis*), Nootka rose (*Rosa Nootkana*), piggy back plant (*Tolmiea menziesii*), sword fern (Polytstichum munitum), braken fern (*Pteridium aquilinum*) and English ivy (*hedera helix*). Data Point DP-1 (see attached data sheet, Photo 2 and Figure 3 for data point location) did not present the required three wetland indicators within the tree canopy for wetland regulation.

Furthermore, the inventoried Lacsutrine wetland adjacent to the shoreline is erroneous as there was an absence of aquatic vegetation (see Photo 3). The Department of Ecology's (DOE) Wetland Rating System (Hruby 2014, DOE Publication #14-06-029, page 21) identifies Lacustrine wetlands as "the vegetated areas along the lake shore are considered part of the wetland unit for rating. Open water within areas of plants are considered to be part of the wetland, but open water that separates patches of plants along a shore is not considered to be part of the wetland". For accuracy, this inventoried wetland should be removed from the City's GIS database.

5218 Ivanhoe PL NE
Seattle, WA 98105
206-554-1628
www.wetlandsnw.com

I have been involved in permitting with respect to critical areas for close to 25 years. I am surprised that part of your fundraising needs covers the cost of permit review fees. Ten years ago I was a forest steward with the Green Seattle Partnership and spent many volunteer hours leading groups in my neighborhood along the Burke Gilman Trail in Northeast Seattle removing invasive vegetation and increasing native plant density. Seattle Parks and Recreation through the Green Seattle Partnership supported our effort and supplied volunteers, plants, mulch and tools. There was an expected tradeoff in volunteer work hours with support from the Parks Department. My experience while employed as an environmental scientist with the King County Department of Permitting and Environmental Review (now known as Department of Services) with inter departmental review was performed internally. I recall reviewing a permit for King County Water and Land Use Resources (WLRD) on a King County owned property where WLRD had their owned biologists submit a report for permitting review. All costs and review were performed by King County.

In your case, FOHB are stewards of the property performing a benefit to the property owner (Seattle Department of Transportation, SDOT). At the very least, I would suggest to the Departments involved that they organize permit and review fees within their own bureaucracy.

Wetlands Northwest LLC upheld professional industry standards when completing this review. The information included in this report constitutes a professional opinion and does not guarantee approval by any federal, state, and/or local permitting agencies.

If you have any further questions, feel free to contact me on my mobile phone at 206-554-1628.
Sincerely,

Robert King, PWS
Owner

Figure 1 - Vicinity Map

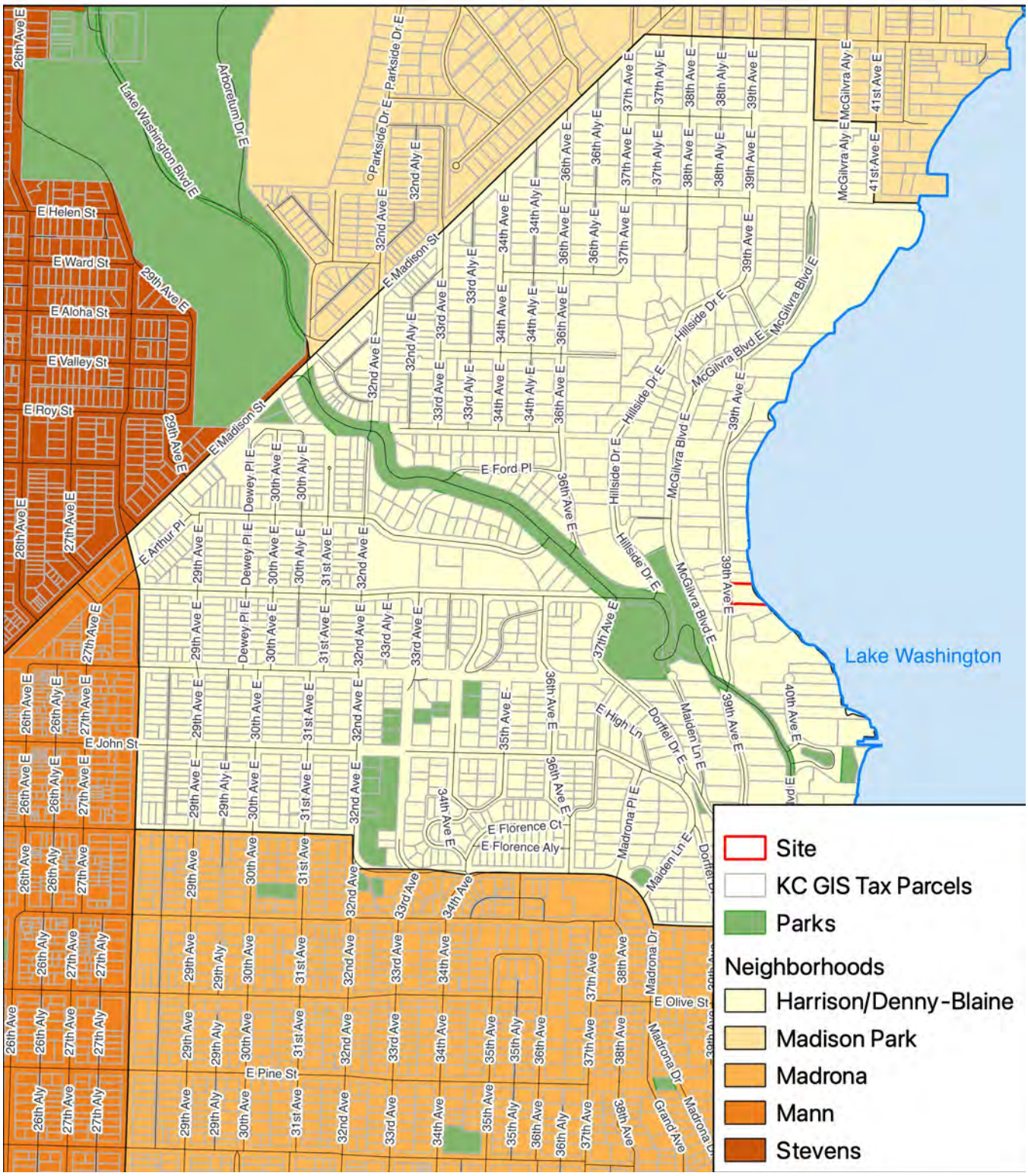


Figure 2 - Wetland , Stream and Waterbody Invnetory Map

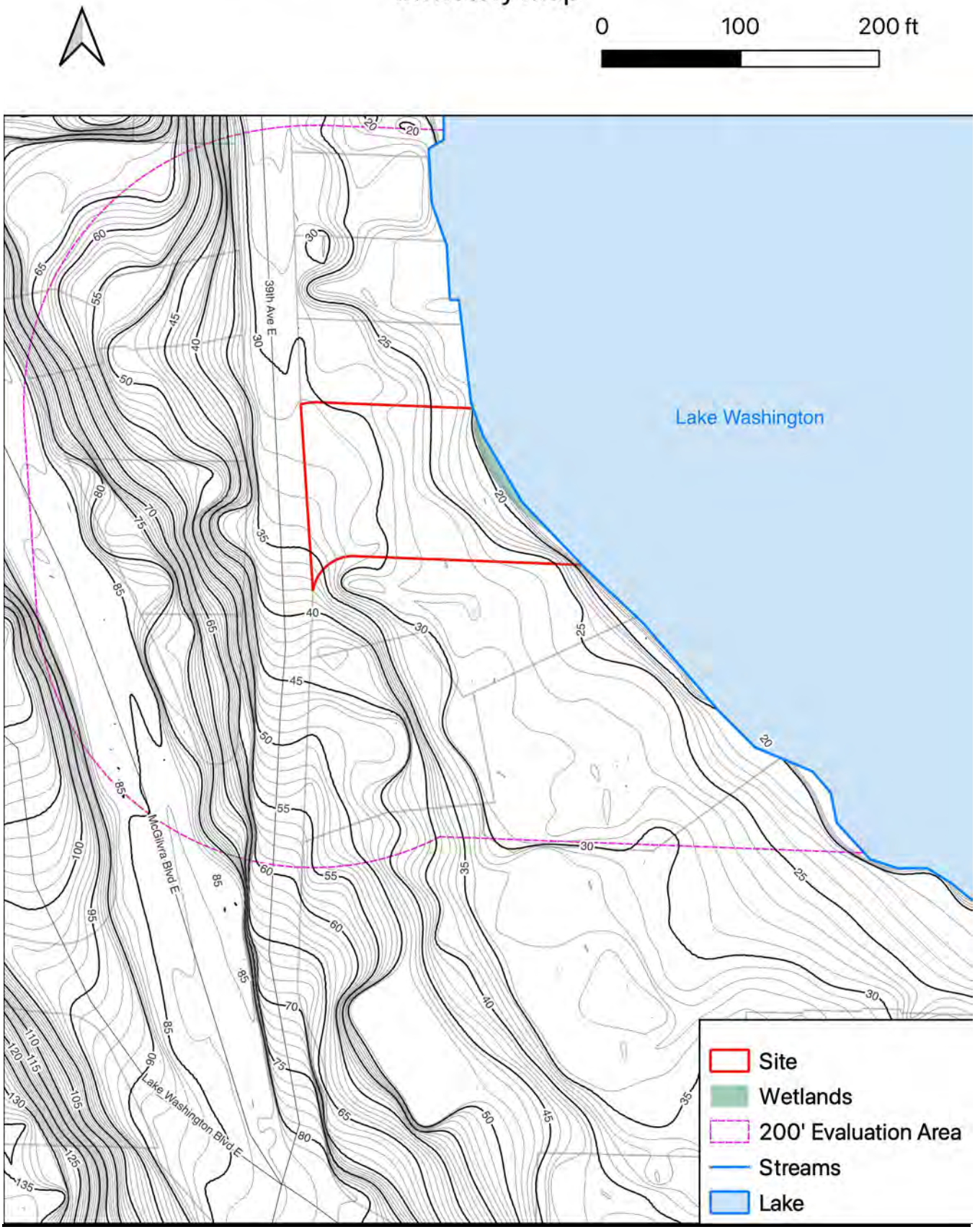


Figure 3 - Data Point (DP-1)
King County 2023 Aerial

0 50 100 ft

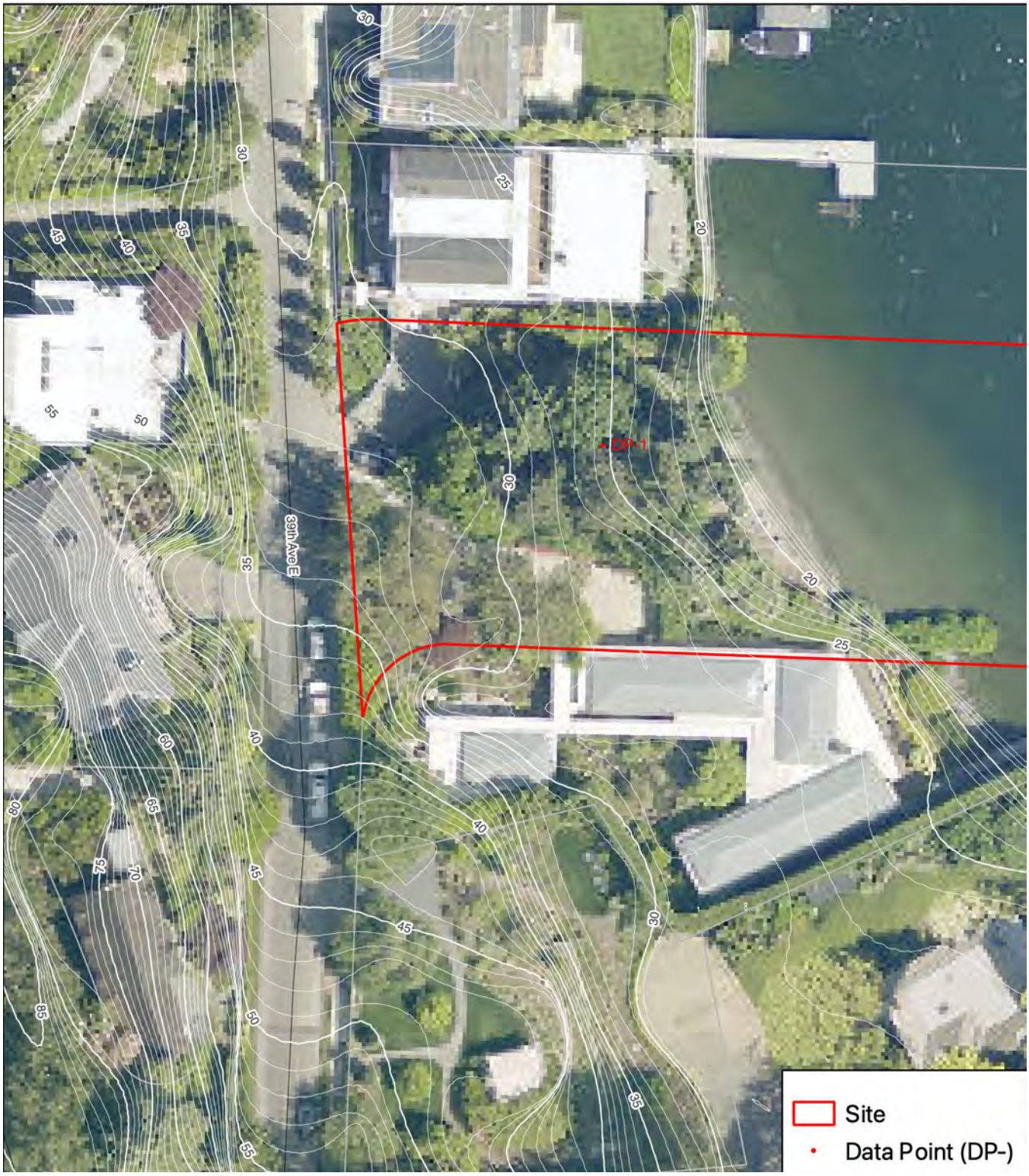


Photo 1 – Tree canopy providing shading, absence of herbaceous vegetation

Photo 2 – DP-1

Photo 3 – Beach, absence of aquatic vegetation or lacustrine wetland

Attachments

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

Project/Site: FOHB | City/County: Seattle | Sampling Date: 07-31-2024
Applicant/Owner: SDOT | WA | Sampling Point: DP-1, near NE Corner
Investigator(s): R. King | Section, Township, Range: SW 27, 25N, 04E
Landform (hillslope, terrace, etc.): slope | Local relief (concave, convex, none): none | Slope (%): 10%
Subregion (LRR): A | Lat: | Long: | Datum:
Soil Map Unit Name: N/A | NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ___ (If no, explain in Remarks.)
Are Vegetation ___ , Soil ___ , or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes x 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 x	**Is the Sampled Area within a Wetland?**	**Yes ___ No x**
Hydric Soil Present?	Yes ___	No x		
Wetland Hydrology Present?	Yes ___	No x		

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus Ponderossa.	30	Y	FACU
2.			
3.			
4.			
	= Total Cover		

Sapling/Shrub Stratum (Plot size: 3)			
1. Rhododendron spp	30	Y	NI
2.			
3.			
4.			
5.			
	= Total Cover		

Herb Stratum (Plot size: 1 m)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	= Total Cover		

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

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (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 x**

Remarks:

SOIL

Sampling Point: DP- 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
0-12	10YR 2/2	100					gs loam	
12-18+	10YR 3/3	100					"	

[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** x

Remarks: Tidally influenced.

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	x	Depth (inches):	N/A
Water Table Present?	Yes	___	No	x	Depth (inches):	>18
Saturation Present? (includes capillary fringe)	Yes	___	No	x	Depth (inches):	>18

Wetland Hydrology Present? **Yes** ___ **No** x

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Pickleweed present throughout and in a tidally influenced position.

Remarks: