**CITY OF KIRKLAND**
**Planning and Building Department**
**123 5th Avenue, Kirkland, WA 98033**
**425.587.3600 - www.kirklandwa.gov**

# ADVISORY REPORT
# FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

**To:** Kirkland Hearing Examiner

**From:** Kelly Wilkinson, Project Planner

Adam Weinstein, AICP, Planning & Building Director

**Date:** May 26, 2023

**File:** Northshore Utility District Grinder Pump 4, File No. SHR21-00692

**Hearing Date and Place**: June 6, 2023, 9:30am
Public Teleconference

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# I. INTRODUCTION

## A. APPLICATION

1. Applicant: Stephen Dennehy, Northshore Utility District

2. Site Location: 13613 62nd Ave NE and 13619 62nd Ave NE (see Attachment 1)

   Request: Northshore Utility District (NUD) is requesting a Shoreline Variance for the proposed maintenance and repair of an existing sewer grinder pump, which is located within the Shoreline Jurisdiction Area.

   This proposal includes upgrades to the station, including replacement of an existing submersible grinder pump, piping, instrumentation, control panels and other electrical components to bring the station into compliance with current electrical and fire codes. A valve box will be added to the station to help prevent accelerated deterioration of valves and piping in the future and improve the ease of operations. A 2-inch conduit will be bored underneath a fish bearing stream to replace an existing electrical line.

   All existing improvements and proposed maintenance/repair activities are located within applicable critical area buffers of a nearby stream and wetland, which are regulated pursuant to Chapter 90 of the Kirkland Zoning Code (KZC). Due to the exclusion of certain sections of KZC Chapter 90 within the shoreline jurisdiction, as noted in KZC 83.490(4), the proposal does not comply with KZC Chapter 90. As such, pursuant to KZC 83.490(6), the project requires a shoreline variance and must meet the criteria set forth in WAC 173-27-170 (see Section II.E.2).

3. Review Process: Process IIA: Hearing Examiner conducts a public hearing and makes a recommendation; the Washington State Department of Ecology makes the final decision.

4. Summary of Key Issues and Conclusions:

   a. Compliance with the Washington Administrative Code burden of proof standards for Shoreline Variance Permits (see Section II.E).

   b. Compliance with applicable Comprehensive Plan Policies (see Section II.F).

   c. Compliance with Shoreline Master Program (SMP) (see Section II.G).

## B. RECOMMENDATIONS

Based on Findings of Fact and Conclusions (Section II), and Attachments in this report, we recommend approval of this application subject to the following conditions:

1. This application is subject to the applicable requirements contained in the Kirkland Municipal Code, Zoning Code, and Building and Fire Code. It is the responsibility of the applicant to ensure compliance with the various provisions contained in these ordinances.
2. Prior to construction, the applicant shall install a temporary six-foot tall construction-phase chain link fence with silt screen fabric along the entire limits of construction area as proposed (see Conclusion II.G.3.b.f).
3. Prior to construction, the applicant shall finalize purchase of the Keller Farm Mitigation Bank credits and provide receipt to the Planning and Building Department (see Conclusion II.G.3.b.h)
4. Prior to the issuance of any building or land surface modification permit, the applicant shall submit the necessary approvals from state and federal agencies

to the Planning and Building Department (see Conclusion II.G.4.b).

5. Prior to final inspection of required building permits, all above ground utilities will be painted to match existing landscaping (see Conclusion II.G.6.2.b).

## II. FINDINGS OF FACT AND CONCLUSIONS

### A. SITE DESCRIPTION

1. Site Development and Zoning:

a. Facts:

(1) Size: The existing grinder pump station is located on two ~36,000 sq. ft. parcels (13619 62ND AVE NE and 13613 62ND AVE NE). The footprint of the proposed work area is approximately 244 square feet along the western edge of the properties.

(2) Land Use: Low Density Residential

(3) Zoning: Low Density Residential (RSA), (Chapter 15 KZC)

(4) Shoreline Designation: Residential - L (R-L)

(5) Critical Areas: There is one type F stream within the project area and two wetlands within 300' of the project area. (see Attachment 2)

(6) Terrain and Vegetation: The project site is generally flat, with a gradual overall grade sloping down from east to west, toward Lake Washington.

Vegetation is mostly lawn and ornamental shrubs, with some native emergent vegetation of Stream A. No invasive vegetation is present. (see Attachment 3).

b. Conclusions: The size and zoning of the project area are not constraining factors in the review of the shoreline variance application. The presence of wetlands, a fish-bearing stream, existing improvements, and the proximity to Lake Washington are constraining factors on the application and are the basis for the shoreline variance proposal.

2. Neighboring Development and Zoning:

a. Facts: The neighboring properties are zoned as follows and contain the following uses:

(1) North: RSA 4, Low Density Residential

(2) East: RSA 4, Low Density Residential

(3) South: RSA 4, Low Density Residential

b. Conclusion: The neighboring development and zoning are not constraining factors in the review of this application.

### B. HISTORY

1. Facts: Northshore Utility District was originally permitted for and installed Grinder Pump #4 in 1979, when the parcels were within unincorporated King County.

The subject area was annexed to the City of Kirkland in 2011. In 2021 Northshore Utility District submitted for a shoreline variance to upgrade and replace components of Grinder pump #4.

2. Conclusion: Grinder pump #4 is a legally established feature compliant with code in effect at the time. The history of Grinder Pump #4 is not a constraining factor in the review of this application.

## C. PUBLIC COMMENT

The formal public comment period for the project ran from November 17, 2022 to December 5, 2022. No comments were received.

## D. STATE ENVIRONMENTAL POLICY ACT (SEPA)

SEPA THRESHOLD DETERMINATION

1. Fact: A Determination of Nonsignificance (DNS) was issued by Northshore Utility District on November 10, 2022. The Determination is included as Attachment 4 – SEPA DNS.

2. Conclusion: Northshore Utility District has satisfied all the procedural requirements for SEPA.

## E. APPROVAL CRITERIA

### 1. KIRKLAND ZONING CODE FOR SHORELINE VARIANCES

a. Facts: The Hearing Examiner may recommend approval of a proposed shoreline variance permit only if:

(1) Pursuant to Kirkland Zoning Code section 141.70.3.d, the application is consistent with the Washington Administrative Code sections WAC 173-27-140 and 173-27-170, and

(2) Pursuant to Kirkland Zoning Code section 150.65, the application is consistent with all the applicable development regulations and, to the extent there is no applicable development regulation, the Comprehensive Plan; and it is consistent with the public health, safety, and welfare.

b. Conclusion:

(1) The proposal complies with Kirkland Zoning Code section 141.70.3 and is consistent with the applicable Washington Administrative Code sections 173-27-140 and 173-27-170 (see Sections II.E.2 and Attachment 2).

(2) The proposal, as conditioned, complies with Kirkland Zoning Code section 150.65 as it is consistent with the applicable development regulations (see Section II) and the Comprehensive Plan (see Section II.F).

### 2. WAC 173-27-140 REVIEW CRITERIA FOR SHORELINE DEVELOPMENT

*a. Facts: WAC 173-27-140 establishes the general review criteria under which the City may issue a permit for development on the shoreline. The criteria are listed below with staff response following the applicant's response to applicable criteria which may be found in Attachment 2 – Critical Areas Report.*

(1) *No authorization to undertake use or development on shorelines of the state shall be granted by the local government unless upon review the use or development is determined to be consistent with the policy and provisions of the Shoreline Management Act and the master program.*

**Staff Response:** The proposed application is consistent with the Kirkland Shoreline Master Program (see Sections II.G). The Kirkland Shoreline Master Program was reviewed and approved for consistency with the Shoreline Management Act by the Department of Ecology in September 2020. The application is consistent with both the Shoreline Master Program and Shoreline Management Act.

(2) *No permit shall be issued for any new or expanded building or structure of more than thirty-five feet above average grade level on shorelines of the state that will obstruct the view of substantial number of residences on areas adjoining such shorelines except where a master program does not prohibit the same and then only when overriding considerations of the public interest will be served.*

**Staff Response:** The project includes the replacement of a Grinder pump and electrical box. The tallest component is one electrical box, which will be a maximum height of 6 feet (see Attachment 5). The proposal is consistent with this criterion.

b. Conclusion: The proposal complies with WAC 173-27-140.

3. **WAC 173-27-170 REVIEW CRITERIA FOR VARIANCE PERMITS**

*a.* Facts: *WAC 173-27-170 establishes the criteria that must be met for a variance permit to be granted. The purpose of a variance permit is strictly limited to granting relief from specific bulk, dimensional or performance standards set forth in the applicable master program where there are extraordinary circumstances relating to the physical character or configuration of property such that the strict implementation of the master program will impose unnecessary hardships on the applicant or thwart the policies set forth in RCW 90.58.020.*

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

**Staff Response:** The applicant has identified the need for replacement of the Grinder Pump to support an existing sanitary sewer line. The proposed project will maintain the station's function and restore its operability to continue to provide sewer service in the area. Relocating the station outside of the shoreline designation and critical area buffers would require extensive relocation of connector pipelines which could disrupt

the wastewater collection service and could impact additional shoreline area. The proposal will impact the shoreline and critical areas the minimum amount necessary to maintain this vital infrastructure. Mitigation will be provided off-site through purchase of credits from the Keller Farm Mitigation Bank.

The proposal satisfies several of the guidelines outlined in RCW 90.58.020, namely recognizing and protecting the statewide interest over local interest and protecting the resources and ecology of the shoreline.

The proposed shoreline variance activities are consistent with the policies outlined in RCW 90.58.020 and will protect the resources and ecology of the shoreline by maintaining critical infrastructure. Through the approval and development of the proposed improvements, the public interest will suffer no substantial detrimental effect.

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

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

**Staff Response:**

The Kirkland Zoning Code limits the applicability of certain critical area regulations within the shoreline jurisdiction. KZC 83.490.4 restricts the sections of the critical area code (KZC 90) that apply within the shoreline jurisdiction. Exemptions that this project would typically qualify for do not apply within the shoreline jurisdiction.

The location of the existing sanitary sewer line and easement limits the reasonable options for moving the grinder pump station to an area that would comply with all applicable shoreline and critical area regulations.

Adherence to all applicable Kirkland codes would prevent the necessary repairs and replacement of this infrastructure. It would interfere with Northshore Utility District's mission to provide necessary services to the

community in a safe, reliable, economical, and ecologically responsible manner.

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

**Staff Response:**
The hardship is related to the location of existing improvements and the existing critical areas on the site. The existing Grinder Pump Station 4 cannot be relocated, as it was installed at its current location when the area was developed, leaving no feasible alternative to this project that would free it from the standards set forth. The existing sewer system, spanning multiple properties in the vicinity, consists of gravity-fed sewer pipes that lead to the Grinder Pump 4 Station which pumps to the sewer main uphill in the. Any effort to relocate the existing facilities outside critical areas and buffers is not feasible due to the existing topography of the area and the need for gravity flow from incoming pipes (i.e., pump station must be topographically lower than incoming pipes).

The current location is the only feasible location of the pump station to ensure proper functioning. Furthermore, relocating the existing grinder pump would require extensive system redesign, leading to significantly more excavation and construction activities, which would impact a much larger area within the critical areas and buffers.

The development area shown on Sheet 16 of Attachment illustrates that the site is restricted by the existing sanitary sewer line and critical areas.

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

**Staff Response:**

The proposed replacement of the Grinder Pump Station is compatible with other existing and proposed uses in the area. The land use and zoning for the project area and the surrounding area are low density residential. Granting the variance to retrofit the existing utilities will not change the residential nature of the area, and therefore, would not adversely affect the uses planned for the area.

The proposed project has been designed to repair and maintain the existing sewer facilities with the least possible impact to the shoreline environment. The project will maintain the existing sewer facilities to prevent potential environmental damage resulting from failed infrastructure, while retrofitting the facilities to comply with current code that was not enacted at the time of the original construction of the grinder pump station. The proposal will not cause adverse impacts to the shoreline environment.

The proposal aligns with the Comprehensive Plan Shoreline Area Chapter goals and policies (see Section II.F) The low-density residential uses planned for this area in the Comprehensive Plan are supported by this infrastructure.

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

**Staff Response:** Northshore Utility District is the only utility agency providing sewer service in the Finn Hill neighborhood. To continue providing this essential service, a variance to work within the stream, stream buffer and wetland buffer is necessary. The variance will not constitute a grant of special privilege.

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

**Staff Response:** The proposed development plan is the minimum necessary to replace and maintain Grinder Pump Station 4. The project will result in 21 square feet of unavoidable permanent impacts within Stream A, the buffer of Stream A and the buffer of Wetland B. The permanent impacts are a new valve box, two junction boxes and an electrical panel. Specifics on how equipment was selected and impacts were minimized can be found in the Avoidance and Minimization section of the Critical Area Report (see Attachment 2).

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

**Staff Response:** The development proposal serves the public by maintaining existing sewer facilities. The public interest will suffer no substantial detrimental effect, but rather will be enhanced by sustaining a necessary public utility and ensuring long term viability of the infrastructure. Furthermore, the applicant proposes mitigation at an offsite location (see Analysis Sections II.G.3.b.h below).

b. Conclusion: The proposal complies with WAC 173-27-170.

## F. COMPREHENSIVE PLAN

1. Facts:

a. Pursuant to KZC 150.65, where no applicable development regulation exists, the proposal must be consistent with the Comprehensive Plan policies.

b. Kirkland Zoning Code section 83.40 establishes the relationship between the SMP and Comprehensive Plan, stating that the policies within the Shoreline Area chapter of the Comprehensive Plan establish intent for the supporting regulations in the SMP.

c. The following is a list of the applicable policies for the proposal found in the various chapters of the Comprehensive Plan, followed by a staff response:

(1) **Shoreline Utilities, Policy SA-25.2***: Minimize impacts from the location, design, and maintenance of utility facilities located within the shoreline.*

**Staff Response:** Clearing for repair of the Grinder pump will be kept to the minimum width necessary to minimize impacts to the critical areas, shoreline, and existing vegetation. When work has completed, the project area will be restored to pre-project vegetation.

(2) **Finn Hill Neighborhood, Public Services and Utilities, Policy FH-17.2:** *Provide potable water, sanitary sewer and surface water management facilities to new and existing development in accordance with the Northshore Utility District Water and Sanitary Sewer Comprehensive Plans, the Kirkland Surface Water Master Plan, Kirkland Municipal Code, and adopted Kirkland Surface Water Design Manual requirements.*

**Staff Response:** The Northshore Utility District's 2006 Wastewater Comprehensive Plan details the District's responsibility to the public to operate and maintain the existing

grinder pump stations (see Attachment X – NUD Comp Executive Summary). Repairing the Grinder pump will bring the station into compliance with current electrical and fire code regulations that were exacted after the original construction of the Grinder pump in 1979.

(3) **Utilities, Policy U-1.4:** *Ensure that utility services are provided in a manner that is environmentally sensitive, safe and aesthetically compatible with surrounding land uses.*

**Staff Response:** Relocating the sewer line outside of the shoreline management area is not feasible. Repairs of the existing station will avoid new and greater impact to critical areas.

(4) **Utilities, Policy U-3.1:** *Work with King County, adjoining jurisdictions, and local purveyors to manage, regulate, and maintain the regional sewer system.*

**Staff Response:** The upgrade of Grinder Pump 4 will maintain sewer service to numerous properties in the area. Approval of this project will allow Northshore Utility District to continue their mission of providing the necessary services to the community in a safe, reliable, economical, and ecologically responsible manner.

(5) **Utilities, Policy U-3.4:** *Correct deficiencies and increase system efficiency. Emphasis should be placed on correcting deficiencies that present sewage overflow risks.*

**Staff Response:** The existing grinder pump station's equipment has exceeded its expected functioning life span and is at risk of failing. The proposed repairs will maintain existing sewage service and prevent potential environmental damage resulting from failed infrastructure. Additionally, the repairs will bring the grinder pump and associated facilities into compliance with current fire and electrical code requirements that were not enacted at the time of original construction. This will prevent sewage overflows and adverse impacts to the shoreline environment.

2. Conclusion: All of these policies provide support for the necessary work of upgrading infrastructure to maintain sewer service in the shoreline environment, as well as ensuring environmental protection of the ecological functions of the shoreline. The proposal, with staff recommended conditions, is consistent with the policies of the relevant chapters of the Comprehensive Plan.

## G. SHORELINE MASTER PROGRAM (SMP) KZC 83

The following sections, II.G.1 through II.G.4, describe the consistency of the proposal with the applicable development regulations in the Shoreline Master Program (KZC Chapter 83).

### 1. 83.170 Shoreline Environments, Permitted and Prohibited Uses and Activities

a. Facts:

(1) Pursuant to KZC 83.170, utility transmission facilities are allowed within the Low-Density Residential Shoreline Environment. The use is allowed provided there are no other feasible routes or location. The utilities must be underground unless not feasible.

(2) The Grinder pump supports an existing underground utility. The components that can be placed underground, such as electrical lines, will be.

b. Conclusion: The proposed repair of the existing Grinder pump station is consistent with the permitted uses and activities of KZC 83.170.

### 2. 83.240 Utilities within Shoreline Jurisdiction

a. Facts:

(1) KZC 83.240.1.b states that utility facilities shall be located outside the shoreline's jurisdiction whenever feasible. When these facilities must be in the shoreline area, the location should not adversely impact shoreline ecological functions or obstruct scenic views.

(2) The Grinder pump and its associated facilities already exists within a utility easement. This is not a new facility but an existing facility that will be repaired. The total area of the facility is 21 square feet. The tallest structure will be a maximum of 6' tall (see Attachment 5). Elements of the grinder pump that can feasibly be placed underground, such as the wet well and electrical line, will be. This facility will not obstruct scenic views.

(3) KZC 83.240.1.d. states that utilities shall be located in existing rights-of-way and utility corridors wherever feasible.

(4) The Grinder pump will be repaired within the existing utility easement.

(5) KZC 83.240.1.f requires that utility lines, pipes, conduits, cables, meters, vaults, and similar infrastructure and appurtenances shall be placed underground consistent with the standards of the serving utility to the maximum extent feasible.

(6) The infrastructure that can be located underground, such as the electrical lines, will be bored underground.

(7) Pursuant to KZC 83.240.1.i. utilities shall provide screening of facilities from the lake and adjacent properties in a manner that is compatible with the surrounding environment.

(8) Above ground utility elements will be painted to match the existing landscaping.

(9) KZC 83.240.2 requires that all shoreline areas disturbed by utility construction and maintenance shall be replanted and stabilized with approved vegetation by seeding, mulching, or other effective means immediately upon completion of the construction or maintenance activity. Such vegetation shall be maintained until established. The clearing of vegetation within utility corridors shall be the minimum necessary for installation, infrastructure maintenance and public safety.

(10) The existing landscaping that will be disturbed is primarily grasses and ornamental shrubs. The landscaping will be replaced once construction has completed.

(11) Pursuant to KZC 83.240.4 utility transmission facilities shall be located outside shorelines jurisdiction where feasible, and when necessarily located within shoreline areas, shall assure no net loss of shoreline ecological functions.

(12) The applicant has submitted a mitigation assessment and no net loss analysis assessment as part of the application (see Attachments 2). The applicant has identified that strict application of all buffers and critical areas would prohibit repair of critical infrastructure.

b. Conclusion: The proposed repair of the existing Grinder pump station is consistent with the permitted uses and activities of KZC 83.240. Above ground utility elements will be painted to match the existing landscaping.

3. **83.490 Critical Areas – Wetlands, Streams, Fish and Wildlife Habitat Conservation Areas and Frequently Flooded Areas**

a. Facts:

(1) The proposal includes development activity located within 200 feet of the OHWM of Lake Washington.

(2) Pursuant to 83.490.1, streams, wetlands and associated buffers located within the shoreline jurisdiction are subject to the provisions of KZC Chapter 90, with certain exclusions.

(3) The applicant submitted a critical area report and subsequent updates, prepared by ESA Associates (see Attachment 2), which identified two wetlands and a stream near the project area. The report was reviewed by the City's contract biologist, The Watershed Company (see Attachment 6), which confirmed the following critical areas and applicable buffers:

(a) Wetland A: Category III, Habitat score 6, 110-foot buffer;

(b) Wetland B: Category IV, Habitat score 5, 40-foot buffer;

(c) Stream A: Type F, 100-foot buffer

(4) Pursuant to KZC 83.490.4, the applicable critical areas exemption of KZC 90.35, is not applicable within the shoreline jurisdiction and therefore the project must be reviewed for compliance with the

other applicable standards of KZC Chapter 90.

(5) The applicant is proposing to replace the Grinder pump within the inner 25% of the buffer of Stream A, boring under Stream A, and replacing the Grinder Pump within the inner 75% of the buffer of Wetland A, a Category III wetland.

(6) Pursuant to KZC 83.490.6, when an applicant is unable to comply with applicable sections of Chapter 90 KZC, they must obtain a shoreline variance pursuant to KZC 141.70.

(7) KZC 83.490.6(a) requires the applicant submit a report for the shoreline variance request prepared by a qualified professional, which shall be peer reviewed by the City's consultant.

(8) The applicant submitted a report and subsequent updates prepared by ESA Associates, which was reviewed by The Watershed Company (see Attachments 2 and 6)

b. Standard Decisional Criteria

c. **Standard Decisional Criteria 1:** *No other permitted type of land use for the property with less impact on the critical area and its buffer is feasible;*

**Staff Response:** The current land use on this property is Low Density Residential. The existing Grinder pump Station 4 was installed at its current location when the area was developed with residential uses. Repair and maintenance of the Grinder Pump is essential for the continued low density residential uses in the immediate area.

d. **Standard Decisional Criteria 2:** *The proposal has the minimum area of disturbance;*

**Staff Response:** The applicant is proposing the minimum amount of infrastructure necessary to maintain the sewer system in this area. The permanent buffer impact area will be 21 square feet. The utility improvements will be the minimum amount necessary to install the replacement infrastructure.

e. **Standard Decisional Criteria 3:** *The proposal maximizes the amount of existing tree canopy that is retained;*

**Staff Response:** No tree removals will occur with this project.

f. **Standard Decisional Criteria 4:** *The proposal utilizes to the maximum extent feasible innovative construction, design, and development techniques, including pervious surfaces, that minimize to the greatest extent feasible net loss of sensitive area functions and values;*

**Staff Response:** Temporary erosion and sediment control (TESC) devices will be implemented to ensure sediment from the work area does not enter the shoreline, Stream A, Wetland A or

Wetland B.

g. **Standard Decisional Criteria 5:** *The proposed development does not pose an unacceptable threat to the public health, safety, or welfare on or off the property;*

**Staff Response:** The proposed project is critical for public health and safety. The proposed shoreline variance will protect the resources and ecology of the shoreline by maintaining critical infrastructure. Through the approval and development of the proposed improvements, the public interest will suffer no substantial detrimental effect.

h. **Standard Decisional Criteria 6:** *The proposal meets the mitigation, maintenance, and monitoring standards in Chapter 90 KZC.*

**Staff Response:** The project is limited to the minimum necessary to bring the Grinder Pump into compliance with current code. Avoiding the impact would not be feasible considering the existing sewer infrastructure along Lake Washington and the locations of the existing utility easements.

The application complies with the wetland delineation and determination submittal standards of KZC 90.110. The location of the proposed improvements within Stream A, the inner 25% of the buffer of Stream A and the inner 75% of the buffer of Wetland A require the applicant to comply with the shoreline variance standards of KZC 83.490.6.

The applicant has submitted a mitigation assessment and no net loss analysis assessment as part of the application (see Attachment 2). The applicant has identified that strict application of all buffers and critical areas would prohibit repair of critical infrastructure.

The applicant proposes use of an off-site mitigation bank, Keller Farm Mitigation Bank, to compensate for the 21 square feet of permanent stream buffer impacts (see Attachment 2). The Co-chairs of the Keller Farm Bank have reviewed and approved the use of mitigation credits as the ecologically preferable compensation option (see Attachment 7).

i. **Standard Decisional Criteria 7:** *The granting of the shoreline variance will not confer on the applicant any special privilege that is denied by this chapter to other lands, buildings, or structures under similar circumstances.*

**Staff Response:** The City allows repair and maintenance of legally established structures within the shoreline jurisdiction in accordance with applicable standards for each project. Past shoreline variances have been approved related to essential public

services like roadways and public park development. Furthermore, the need to maintain safe, working, and modern sewer service necessitates the proposed repairs of the existing sewer infrastructure. As such, this shoreline variance will not confer a special privilege.

4. **83.370 Federal and State Approval**

a. Facts:

(1) Pursuant to KZC 83.370, all work at or waterward of the OHWM requires permits or approvals from one or more of the following state and federal agencies: U.S. Army Corps of Engineers, Washington Department of Fish and Wildlife, Washington Department of Natural Resources, or Washington Department of Ecology.

(2) Pursuant to KZC 141.70(3), the City will forward the final recommendation on a shoreline variance application to the Washington State Department of Ecology for final approval.

b. Conclusion: Prior to construction, the application should submit the necessary approvals from state and federal agencies to the Planning and Building Department.

## III. SUBSEQUENT MODIFICATIONS

Modifications to the approval may be requested and reviewed pursuant to the applicable modification procedures and criteria in effect at the time of the requested modification.

## IV. APPEALS AND JUDICIAL REVIEW

The following is a summary of the deadlines and procedures for appeals. Any person wishing to file or respond to an appeal should contact the Planning & Building Department for further procedural information.

Appeal to Shoreline Hearings Board:

Pursuant to RCW 90.58.180 and WAC 173-27-220 any person aggrieved by the City's final decision on the Shoreline Substantial Development Permit may seek appeal to the State Shoreline Hearings Board by filing a petition for review. All petitions for review shall be filed with the Shoreline Hearings Board within 21 days of the date the applicant receives written notice from the Department of Ecology that the Department has received the City's decision. Within seven days of filing any petition for review with the Shoreline Hearings Board, the petitioner shall serve copies of the petition for review to the Department of Ecology, the State Attorney General, and the City of Kirkland. The petition for review must contain items required by WAC 461-08-055.

## V. LAPSE OF APPROVAL

Pursuant to RCW 90.58.200 and WAC 173-27-090, construction or substantial progress toward construction of a project for which a Shoreline Variance Permit has been granted pursuant to the Shoreline Management Act must be undertaken within two (2) years after the date of filing. The project must be completed within five (5) years and a one (1) year extension may be considered.

"Date of filing" means the date the decision of the Department of Ecology is transmitted by the

department to the City of Kirkland. The permit time periods do not include the time during which a use or activity was not actually pursued due to the pendency of administrative appeals or legal actions pursuant to RCW 90.58.180 and WAC 173-27-220.

## VI. APPENDICES

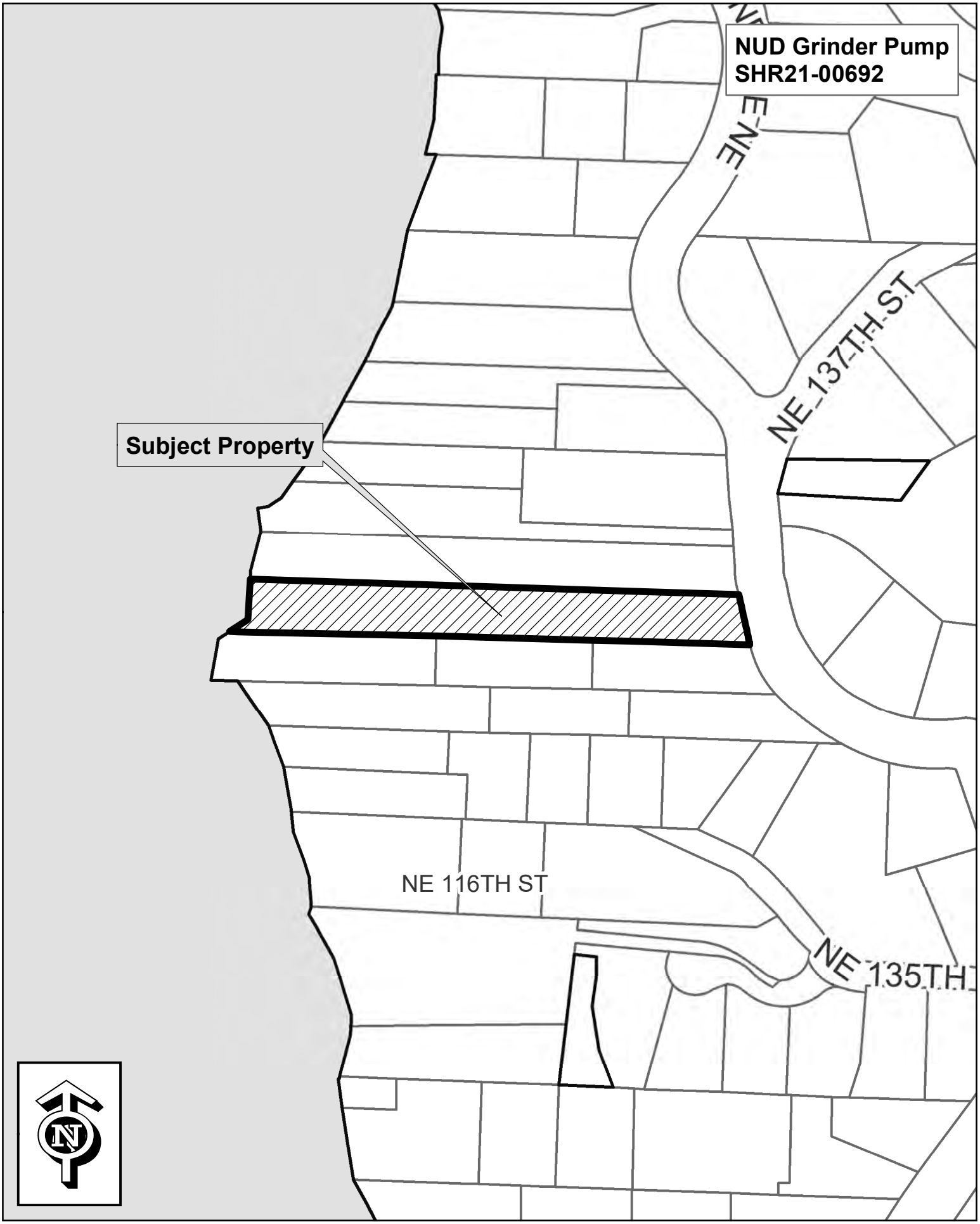
Attachments 1 through X are attached.

1. Vicinity Map
2. ESA Critical Areas Report
3. Proposed Plan Set
4. SEPA DNS
5. Proposed Electrical Plans
6. The Watershed Company Peer Review Report
7. Keller Farm Bank Emails

## VII. PARTIES OF RECORD

Applicant: Stephen Dennehy, Northshore Utility District
Eric Delfel, Gray & Osborne Inc.
Planning and Building Department

The Hearing Examiner will issue a written recommendation within eight calendar days of the date of the open record hearing.


NUD Grinder Pump
SHR21-00692
Subject Property
NE 137TH ST
NE 116TH ST
NE 135TH
N

# NORTHSHORE UTILITY DISTRICT GRINDER PUMP STATION 4

## Critical Areas Report

**Prepared for**

**Northshore Utility District**

**July 2022**

**1st Revision: January 2023**

**2nd Revision: March 2023**

# NORTHSHORE UTILITY DISTRICT GRINDER PUMP STATION 4

## Critical Areas Report

**Prepared for**

**Northshore Utility District**

**July 2022**

**1st Revision: January 2023**

**2nd Revision: March 2023**

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# NORTHSHORE UTILITY DISTRICT GRINDER PUMP STATION 4

Critical Areas Report

## 1.0 Project Authorization and Scope of Work

The Northshore Utility District (NUD) proposes to improve existing components of the Grinder Pump Station 4 in Kirkland, Washington. At the request of the NUD, Environmental Science Associates (ESA) biologists identified and delineated critical areas on the parcels where the project footprint occurs and prepared this report to summarize findings. The study area was limited to the parcel boundaries and does not include detailed evaluations or delineations of off-site critical areas. ESA's scope of work was limited to wetlands and streams. Other types of critical areas regulated by the City of Kirkland (City), such as geologic hazards, are not addressed in this report.

This Critical Areas Report adheres to regulatory requirements described in Kirkland Zoning Code (KZC) *Chapter 90 – Critical Areas: Wetlands, Streams, Minor Lakes, Fish and Wildlife Habitat Conservation Areas, and Frequently Flooded Areas*, KZC *Chapter 83 – Shoreline Management*, and the City's 2020 Shoreline Master Program (SMP). This report provides a brief overview of the proposed project, discusses mapped critical areas, presents the results of the field investigation, describes proposed impacts and mitigation, and documents potential regulatory implications associated with identified critical areas. The report also demonstrates how the proposed actions fulfill the needs of the project while also preserving the ecological function of the shoreline environment and onsite stream.

## 2.0 Proposed Project and Study Area

The existing Grinder Pump Station 4 was constructed in 1979 to convey sewage from residential developments along part of the eastern shore of Lake Washington. The project involves the replacement of existing components of Grinder Pump Station 4 to maintain the functionality and restore the station to its original condition. In the current condition, the pump station no longer meets electrical or fire code compliance requirements. NUD proposes to replace failing components to help prevent deterioration of valves and piping while also improving the ease of operation. The existing control panel, conduit, and electrical equipment will be replaced with a new valve box, two junction boxes, and an electrical panel. The pump station improvements are essential for maintaining the transmission of sewer flows since the topography of the area prevents gravity conveyance. Failure to maintain and upgrade the equipment could lead to sewer backups and overflow, which would cause environmental damage and public health issues.

The project site (Site) is located within the NW ¼ of Section 23 of Township 26 North, Range 4 East (Figure 1) in Kirkland, Washington. The Site is contained within two developed residential parcels (King County parcels #3761700125 and #3761700130) totaling approximately 1.67 acres in Kirkland, Washington. Both parcels are zoned RSA 4, Low-density Residential (City of Kirkland, 2022) and are located along the eastern side of Lake Washington, within the City's shoreline jurisdiction. The shoreline environmental designation for both parcels is also Low-density Residential (R-L(E)). The footprint of the work area is approximately 244 square feet along the western edge of the parcels. Land use surrounding the study area consists of primarily single-family houses, driveways, and private docks. Saint Edwards State Park is located approximately 0.25 mile north of the Site. Lake Washington is located directly west of the Site.

# 3.0 Methods

ESA reviewed existing information and conducted an on-site investigation to identify and assess critical areas.

## 3.1 Review of Existing Documentation

ESA biologists reviewed the following data sources for specific information about the ecological and geographic conditions within the vicinity of the evaluation area:

- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI);
- USFWS Information for Planning and Consultation (IPaC) species and habitat database;
- Natural Resources Conservation Service Web Soil Survey (Web Soil Survey);
- Washington Department of Fish and Wildlife (WDFW) Priority Habitats and Species (PHS) mapping
- StreamNet Mapper for fish distribution and species;
- WDFW SalmonScape;
- King County iMap; and
- City of Kirkland CityHub Maps

The collected information was used as a baseline for the field assessment and delineation.

## 3.2 Wetland Identification, Delineation, and Classification

ESA biologists identified wetlands according to local, state, and federal guidelines within the project limits. Wetlands were identified using the Routine Determination Method in the U.S. Army Corps of Engineers Wetland Delineation Manual (Environmental Laboratory 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region – Version 2.0 (Regional Supplement) (USACE, 2010).


SOURCE: ESRI, 2021; King County, 2022

Northshore Utility District Grinder Pump Station 4

**Figure 1**
Vicinity Map

ESA

## 3.3 Stream and Lake Identification and Classification

The stream investigation followed methods defined by the Corps and Ecology for the identification of streams and the ordinary high water mark (OHWM) (Corps 2014; Anderson et al. 2016). To determine a stream's lateral jurisdiction under the Clean Water Act, the Corps defines the OHWM as: "*that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas*" (Corps 2014). Similarly, Ecology defines the OHWM as the "*mark that will be found by examining the bed and banks and ascertaining where the presence and action of waters are so common and usual, and so long continued in all ordinary years, as to mark upon the soil a character distinct from that of the abutting upland*" (Anderson et al. 2016).

Other physical characteristics that determine the OHWM include wracking; vegetation matted down, bent, or absent; sediment sorting; leaf litter disturbed or washed away; scour; deposition; multiple observed flow events; bed and banks; water staining; and a change in plant community (Corps 2014). These aquatic features were evaluated based on a qualitative assessment of the channel width, substrate, bed features, stream gradient, and fish access.

# 4.0 Results

The following sections describe the results of the review of existing information and the field investigation. The field investigation was conducted by ESA biologists Aaron Ellig and Colleen Kroe on March 14, 2022, and by biologist James Watson on November 22, 2022.

## 4.1 Watershed Description

The Site lies within the Lake Washington – Sammamish River subbasin (HUC 171100120400) in the Cedar-Sammamish River watershed (Water Resource Inventory Area 8). The land that drains to the Site, and eventually into Lake Washington, is developed with mixed density residential housing, community parks and greenbelts, schools, and commercial buildings. The subbasin covers a large area along the east side of Lake Washington, with the northern extent within the City of Kenmore and the southern extent within the City of Renton.

## 4.2 Climate and Precipitation Data

Both site visits were conducted during the growing season, which is estimated as February 7 to December 10 (NOAA 2022a). Biologists verified growing season conditions in the field as well. During the March visit, ESA observed vegetative growth including emergence of small-fruited bulrush from the ground and bud burst on nearby woody shrubs. During the November visit, ESA observed the continuing presence of green leaves on deciduous woody shrubs and persistence of nearby herbaceous species that typically die back at the end of the growing season (e.g., field horsetail [*Equisetum arvense*]).

According to the NRCS, with the exception of September 2022, precipitation amounts for the two months preceding both field visits varied in normalcy. January and February 2022 both had precipitation levels higher than normal, whereas the two months preceding the November 2022 site visit had precipitation levels below normal (September) and at normal range (October) (Table 1). Weather conditions at the time of the site visits varied. Rain began falling near the end of the March site visit and the air temperature was approximately 46 F; precipitation would eventually total 0.38 inch on March 14, 2022 (NOAA 2022b). Hard rain was falling during the November 22, 2022, site visit, and the Sand Point weather station recorded that the area received one inch of rain that day (NOAA 2022b).

**TABLE 1.**
**AVERAGE VS. MEASURED PRECIPITATION (IN INCHES) FOR TWO MONTHS PRIOR TO SURVEYS**

| Time Interval | Recorded Precipitation | WETS | | | Within Normal Range? |
|---|---|---|---|---|---|
| | | Average | 30% Chance Less | 30% Chance More | |
| January 2022 | 7.06 | 5.13 | 3.58 | 6.10 | No (above normal) |
| February 2022 | 5.32 | 4.18 | 2.73 | 5.02 | No (above normal) |
| September 2022 | 0.25 | 1.63 | 0.69 | 1.90 | No (below normal) |
| October 2022 | 2.51 | 3.19 | 1.96 | 3.86 | Yes |

SOURCE: NRCS 2022a

## 4.3 Vegetation

Vegetation within the Site is mostly mowed lawn and ornamental shrubs, with some native emergent vegetation of Stream A. Biologists noted an abrupt break in vegetation type and presence of small-fruited bulrush (*Scirpus microcarpus*) interspersed in the lawn area during both site visits. Vegetation along the northern streambank is primarily composed of soft rush (*Juncus effusus*), small-fruited bulrush (*Scirpus microcarpus*), reed canarygrass (*Phalaris arundinacea*), and giant horsetail (*Equisetum telmateia*). No non-native or invasive vegetation is present.

## 4.4 Soils

The Web Soil Survey maps Ragnar-Indianola association, sloping, and Ragnar-Indianola association, moderately steep as the soil types within the study area. Ragnar-Indianola association is well-drained soil that is common in glacial outwash. A representative profile contains ashy fine sandy loam to 27 inches underlain by loamy sand to 60 inches (USDA 2022a). Ragnar-Indianola association is not considered to be a hydric soil (USDA 2022B).

## 4.5 Wetlands

The National Wetlands Inventory (NWI) maps the following two features on the Site (USFWS 2022):

- One riverine, intermittent, streambed, seasonally flooded (R4SBU) wetland bisects the two parcels from east to west, before connecting to Lake Washington.
- One lacustrine, limnetic, unconsolidated bottom, permanently flooded, diked/impounded (L1UBHh) lake is mapped west of the parcels, which corresponds to the location of Lake Washington.

Two wetlands (Wetlands A and B) were identified outside of the project area, but within 300 feet of the of the project site (Figure 2). Both wetlands are palustrine emergent wetlands, but Wetland A is a depressional with a seasonally flooded areas and had an outer ring of saturation. Wetland B is a slope wetland with saturation to the surface present.

Although much of the proposed project area has a prevalence of hydrophytic vegetation and hydric soils, wetland hydrology was not observed in the project impact area during either site visit. Biologists completed formal data determination forms for the November 2022 site visit (Appendix A). The March conditions were not formally recorded on forms, but photos of the sample plots and their locations and of the general project area were taken that show the hydrologic conditions relative to the project area (Appendix B). Wetland B, located north of the proposed project area on an adjacent parcel, appeared to have wetland hydrology during both site visits. However, it is located outside of the proposed project area approximately 60 feet to the north, on a parcel not included in the project area.

Of import is the upland data point DP-2 (Appendix A). The lack of primary indicators of wetland hydrology in March, so early in the growing season following two months of above normal precipitation, indicates this area does not receive sufficient hydrology during the growing season to be classified as wetland. Additionally, only one secondary indicator of wetland hydrology (D2 – geomorphic position) is met, which is not sufficient for confirming wetland hydrology. As noted, observed soil conditions and a prevalence of facultative and wetter vegetation were similar in both wetland and non-wetland areas. This condition suggests that hydrology may have been altered on or near the site and that the site is no longer subject to sufficient hydrology. This could potentially explain the abrupt change in vegetation and apparent topographic break upgradient of the project area.

The Regional Supplement provides a procedure to follow in the case of difficult wetland situations, specifically in areas where indicators of hydrophytic vegetation and hydric soil are present but hydrology is lacking. ESA has followed the procedure and determined there can be no assumption that wetland hydrology is present given that none of the positive indicators of hydrology are met (Table 2).

Functionally, Wetland A provides moderate levels of water quality function due to its dense, persistent vegetation, presence of seasonal ponding, and proximity to areas that generate pollutants and presence in a subbasin with water quality issues (Appendix C). It provides low to moderate levels of hydrologic function because although it has potential to provide the function due to upgradient land use, it has shallow depth of storage and it is located within a landscape devoid of downstream flooding due to controlled hydrologic conditions.


SOURCE: ESA, 2022; ESRI 2021

Northshore Utility District Grinder Pump Station 4

**Figure 2**
Existing Conditions Map

ESA

Wetland B provides low to moderate levels of water quality function due to geomorphology (slope), and maintained vegetation that limit its ability to provide this function despite its proximity to pollutant-generating surfaces (Appendix C). It provides low to of hydrologic function because, like Wetland A, it has potential to provide the function due to upgradient land use. However, it lacks vegetative structure to reduce flooding and erosion and is located within a landscape devoid of downstream flooding. Both wetlands provide low to moderate levels of habitat. Both have only one hydroperiod and lack plant species diversity and interspersion, but provide some habitat connectivity to nearby forested ravines, parks, and the lake, and adjacency to riparian habitat (Stream A).

**TABLE 2**
**PROCEDURE FOR DETERMINING WETLAND HYDROLOGY IN DIFFICULT SITUATIONS**

| Procedure | |
|---|---|
| **1. Are indicators of hydrophytic vegetation and hydric soil present?** | **Yes. See discussion above and attached data forms.** |
| **2. Is area in a landscape position that is likely to collect for concentrate water?** | **Yes. Fringe of another water body; toe slope (although slope is gradual)** |
| 3. Approach | Result |
| Site visits during the dry season | Not applicable. Site visits were not conducted during the dry season. |
| Periods with below-normal rainfall | Below-normal rainfall recorded in September 2022, two months prior to November site visit. However, hydrologic conditions not discernibly different from those during March 2022 site visit. See discussion, WETS table data above. |
| Drought years | Palmer Drought Index indicates no drought conditions were present in March 2022, but were severe drought conditions the week of November 2022 site visit (NOAA 2022c). |
| Years with unusually low winter snowpack | Not applicable. Conditions on site are not directly dependent on melting winter snowpack as a major water source. |
| Reference sites | Not formally used as no right of entry on adjacent parcels. However, area with apparent wetland conditions was observed north of project site at slightly lower elevation on topographic bench above lake OHWM (Wetland A). |
| Hydrology tools | Not met/only partially applicable. Site is not used for agriculture and groundwater monitoring wells are not present. Tools that were applied include review of aerial photos, which do not show obvious ponding or other wetness signatures. Areas with vegetation indicators visually observed and discussed above. |
| Evaluating multiple years of aerial photography | Not met. Annual/biannual aerial photography on King County iMap reviewed from 1998 to present and also from 1936. Only 1936 appears to show potential forested wetland that may follow original drainage pattern of Type F stream delineated on southern parcel in project area. No evidence of when drainage pattern may have changed, no concrete support that examined area was wetland in 1936, which was prior to wetland regulation. |
| Long-term hydrologic monitoring | Not applicable. There is no current monitoring of surface or groundwater conditions in the project area. |

SOURCE: USACE 2010

## 4.6 Stream and Lakes

Lake Washington borders the proposed project area parcels on the west (Figure 2). Lake Washington is approximately 21,600 acres in size and is classified as a shoreline of statewide significance. The onsite portion of the OHWM was delineated with pink pin flags; the remaining boundary was estimated based on topography, visual observations in the field, and aerial photography. The existing condition of the shoreline consists of rock armoring, rock steps to the waterfront, an existing dock, and a small sandy area with undercut banks. Vegetation within the shoreline jurisdiction is almost entirely mowed lawn with an existing home positioned approximately 30 feet east of the delineated OHWM.

One stream (Stream A) was identified and delineated on the Site (Figure 2). Stream A is an intermittently flowing stream with a bankfull width of approximately 2 to 3 feet and wetted depths ranging from 3 to 6 inches. The streambanks and streambed are lined with angular rock and concrete, with minimal bank vegetation or instream fish habitat. A residential house is located approximately 10 feet from the southern edge of the stream channel. The stream splits into two different reaches that originate further up the hillslope, away from the proposed project actions. The onsite portion of the ordinary high water mark (OHWM) was flagged using pink pin flags; the remaining boundary was estimated based on topography, visual observations in the field, and aerial photography. The stream boundaries generally align with the mapped riverine systems depicted by NWI, StreamNet, SalmonScape, and the City's CityHub Maps.

Photographs of the shoreline and stream channel documenting the existing conditions of vegetation and hardscaping are included in Appendix B.

## 4.6 Fish and Wildlife

WDFW maps a large biodiversity corridor associated with Saint Edwards State Park and the forested area approximately 1,000 feet east of the Site. Winter steelhead (*Oncorhynchus mykiss*), coastal cutthroat (*Oncorhynchus clarkii clarkii*), coho salmon (*Oncorhynchus kisutch*), kokanee, sockeye salmon (*Oncorhynchus nerka*), Chinook salmon (*Oncorhynchus tshawytscha*), and bull trout (*Salvelinus confluentus*) are all listed as occurring in Lake Washington in association with the Sammamish River. Additionally, the Site is included in the PHS mapping for little brown bat (*Myotis lucifugus*). However, WDFW maps this species at the township level. No other PHS features are mapped in the vicinity of the project (WDFW 2022b).

The Site does not appear to provide habitat for any federally listed threatened or endangered animal species or suitable habitat regulated by the USFWS (USFWS 2022). The lack of robust, undisturbed habitat, perennial streamflow, and healthy water resources limits the likelihood of any of these species being present.

# 5.0 City of Kirkland Regulatory Considerations

No federal or state permits are anticipated for this project because the project will not involve work within a water of the United States, such as a stream, lake, or wetland, per the Clean Water Act.

## 5.1 Wetlands

The City of Kirkland regulates wetlands under the critical areas code (KZC 90.65). The wetlands were rated using the Ecology's 2014 Wetland Rating Manual for Western Washington. Wetland A received a score of 16 with a habitat score of 6, which rates it as a Category III wetland with a 110-foot buffer. Wetland B received a score of 15 with a habitat score of 5, which rates it as a Category IV wetland with a 40-foot buffer (KZC 90.55). Wetland A and its buffer are located outside of the project area and would not be impacted. Wetland B is located outside of the project area, but its buffer overlaps with the project area. However, the buffer for Wetland B is located entirely within the buffer of Stream A and the setback for Lake Washington. For the purposes of mitigation, buffer impacts have been quantified as stream, which would require mitigation and no net loss of shoreline ecological functions. Therefore, impacts to the wetland and wetland buffer are not anticipated.

## 5.2 Streams

The City of Kirkland regulates streams under the critical areas code (KZC 90.65). Shorelines are regulated under the shoreline management code (KZC Chapter 83) and the 2020 SMP. The state water typing system, Washington Administrative Code (WAC) 222-16-030, classifies streams as S, F, Np, or Ns, depending on their "shoreline of the state" status, presence of fish habitat, annual flow rate (seasonal or perennial), and connections to other waters. The City of Kirkland assigns buffers to streams based on the same water typing system. Stream A is hydrologically connected to Lake Washington and even though the stream channel is highly modified, has the potential for fish use; therefore, Stream A is classified as a Type F stream. Per KZC Table 90.65.1, Type F streams require a 100-foot buffer. Per KZC 90.70.5, modification to the buffer may be allowed if the elements of the proposal will not be detrimental to fish and will have no adverse effects on drainage, water quality, stream velocity, sediment loading, ground stability, or any other stream characteristics.

## 5.2 Shorelines

Lake Washington is a shoreline of the state, and as such is regulated by the City of Kirkland under the Washington State Shoreline Management Act (SMA). The Washington State Department of Ecology (Ecology) is required to review and approve local programs and certain types of shoreline permits to ensure the project meets the three major policy objectives of the Act (RCW 90.58.020). These policies include: 1) protecting shoreline resources and the natural environment; 2) increasing public access to publicly-owned shoreline areas; and 3) encouraging water-dependent uses. The City of Kirkland regulates shorelines under KZC Chapter 83 – Shoreline Management and the 2020 SMP.

City of Kirkland shoreline jurisdiction includes shorelands that extend 200 feet landward of the OHWM. Additionally, Lake Washington is regulated as a Fish and Wildlife Habitat Conservation Area (FWHCA) under KZC 90.95. The City of Kirkland classifies shorelines into six shoreline environment designations. The shoreline environment designations include Aquatic, Natural, Urban Conservancy, Low-density Residential, Medium and High-density Residential, and Urban Mixed. The proposed project is located within the designation Low-density Residential (E). Per KZC 83.180(2)(c) the shoreline setback for RL(E), or distance that a structure must located away from the OHWM, is 30 percent of the average parcel depth but not less than 30 feet and not required to be greater than 80 feet.

If development is proposed within shoreline jurisdiction, the development must result in no net loss of shoreline ecological function. The development will require prioritization of avoidance and minimization of shoreline functions and values, followed by mitigation measures that ensure no net loss of ecological function.

## 5.3 Impacts and Mitigation

Given the site constraints, avoiding development within the shoreline jurisdiction is not possible since the shoreline jurisdiction encompasses most of the site western half of the parcels and existing infrastructure is already in place near Lake Washington and beneath Stream A. The project will result in 21 square feet of unavoidable permanent impacts within the overlapping shoreline jurisdiction and Stream A buffer (Appendix D). Additionally, approximately 214 square feet of temporary impacts will occur during construction. All impacts will be fully contained within the existing utility easement and will occur landward of the OHWM of Lake Washington and Stream A.

Developments activities proposed within shoreline jurisdiction must demonstrate no net loss of shoreline ecological function through mitigation sequencing as part of the mitigation analysis. Under KZC 90.145(2) and KZC 83.360(2), mitigation sequencing should occur in the following order of preference during design, construction, and operation.

a. Avoiding the impact altogether by not taking a certain action or parts of an action;

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

c. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;

d. Reducing or eliminating the impact over time by preservation and maintenance operations;

e. Compensating for the impact by replacing, enhancing, or providing substitute resources or environments; and

f. Monitoring the impact and the compensation projects and taking appropriate corrective measures.

### 5.3.1 Avoidance and Minimization

The project has a limited footprint that was determined based on topography of the site and the existing easement restrictions along the waterfront of the two parcels. Impacts cannot be avoided entirely because the repairs are to an existing sewer infrastructure, and moving the existing utility outside of the shoreline or stream buffer is not possible due to the size and complexity of the overall utility. The project avoided impacts where possible and minimized the expansion of the developed footprint while still meeting the goals of the project. The existing control panel, conduit, and electrical equipment will be replaced with a new valve box, two junction boxes, and an electrical panel. The size of the junction boxes is necessary and consistent with WSDOT Type 2 junction box specifications. The valve box is positioned near the existing fiberglass wet well, over the same footprint as the existing valve box. The control panel is located slightly east of the wet well to allow for required clearance in front of the panel.

Impacts were minimized to the maximum extent possible where project impacts could not be avoided. The existing fiberglass wet well will remain in place and be repurposed to minimize the footprint of permanent impacts. Best management practices (BPMs) will be used to isolate the work area and prevent potential negative impacts on surrounding critical areas and the shoreline. Temporary erosion and sediment control (TESC) devices will be implemented to ensure sediment does not mobilize beyond the work area into Stream A, Wetland B, or Lake Washington. This may include the use of filter fabric fencing and other geotextile fabrics around the perimeter of the work area, straw wattles, and storm drain inlet protection. Existing herbaceous vegetation located directly adjacent to the stream channel will be preserved. Proposed impact areas are best characterized by mowed lawn and hardscape that provides minimal ecological function. Per KZC 83.240(1)(d) and 83.240(2)(b), the utility improvements are located entirely within the existing easement and the amount of vegetation (lawn) removed is the minimum amount necessary to effectively install the new infrastructure.

### 5.3.2 Mitigation Plan

Onsite mitigation opportunity is not possible because the project is contained within a utility easement and compensatory buffer enhancement plantings cannot be installed on privately owned parcels. During easement negotiations, the property owners would not allow plantings for mitigation purposes. Installed plant materials around electrical equipment can also violate electrical code requirements if not maintained frequently. Therefore, to mitigate the 21 square feet of permanent buffer impacts and ensure no net loss of ecological function, buffer credits will be purchased from the Keller Farm Mitigation Bank (KFMB), which is located within the same service area. A quantity of 0.0023 credits will be purchased from KFMB to offset the proposed impacts. 0.0023 credit equates to approximately 330 square feet, exceeding the 21 square feet of permanent buffer impacts associated with the project and providing mitigation at a ratio greater than 15:1. The 214 square feet of temporary buffer impacts will be fully restored to their original condition or enhanced where possible following construction.

The use of the KFMB is ecologically appropriate for this project due to the ownership restrictions for on-site mitigation and the limited functional benefits the stream buffer currently provides. The current stream buffer has limited capacity to protect the stream from external disturbances or adjacent land use (e.g., light, pollutants, human disturbances, etc.). The buffer does not include vegetation that regulates stream temperature, recruits large woody debris, or reduces flow rates. The buffer also does not include areas that would increase water holding capacity. Vegetation is significantly degraded along both banks with current land use consisting of a large house and hardscaping within 10 feet of the channel (Appendix B; Photos 1-4). The most significant functional impact that results from the project is a small loss of buffer area which may slightly reduce water quality functions of the stream buffer.

The existing wetlands and streams at the KFMB site have gained significant functional lift in water quality and habitat functions from rehabilitation and enhancement actions associated with implementation of the bank. Efforts at KFMB have created mitigated conditions that would far exceed anything that could be accomplished on-site at the project site. The KFMB has created 2.6 acres of stream channel area and associated stream buffer habitat across the bank project, which also includes shoreline buffer habitat. Reestablished stream buffers at the KFMB contribute to the project's stated goals of reducing stream temperatures on site for ESA-listed Chinook and other anadromous fish species present on the site and within a key reach of the Bear Creek subbasin. The KFMB site specifically provides a source of cold water to the Sammamish River system which eventually drains into Lake Washington. The stream buffers on the KFMB support a variety of native trees and shrubs as well as emergent wetland species that contribute to sustainable wetland and stream hydrology, groundwater recharge, and a habitat complex within the floodplain for anadromous and resident native fish species. All impacts on stream buffer functions that result from the project would be offset through the purchase of mitigation credits from the KFMB.

## 5.4 Shoreline Variance Review Criteria

A shoreline variance is an administrative process where the City of Kirkland provides a recommendation to Ecology, who reviews the recommendation and provides the approval (or denial). The project may also trigger the State Environmental Policy Act (SEPA) review process since the project requires a shoreline variance. In response to comments received by Kelly Wilkinson on June 17, 2021, WAC 173-27-170 describes review criteria for variance permits where the physical characteristics and configuration of a property impose hardships on applicants. Responses to shoreline variance review criteria for both the city and the state are provided in Appendix E, and have been submitted with the separate shoreline variance application. Additionally, per KZC 83.490(6)(a), shoreline variance requests must include certain submittal requirements. These requirements are presented below (in bold text) with a description of how the project meets each requirement (in italics text).

1) **A determination and delineation of the critical area and critical area buffer containing all the information specified in Chapter 90 KZC;**

*All critical areas were delineated and surveyed as specified in KZC Chapter 90.*

2) **An analysis of whether any other proposed development with less impact on the critical area and critical area buffer is feasible;**

*An analysis of potential alternatives was conducted as part of the mitigation sequencing process (see Section 5.3.1). No other proposed developments are feasible that would result in less impact on Stream A buffer or the shoreline jurisdiction.*

3) **Sensitive site design and construction staging of the proposal so that the development will have the least feasible impact on the critical area and critical area buffer;**

*As designed, the project will result in the least possible impact on Stream A buffer and the shoreline jurisdiction.*

4) **A description of the area of the site that is within the critical area or within the setbacks or buffers required by this chapter;**

*A site description is provided in Section 2 of this report. Detailed descriptions of Stream A and the existing condition of Lake Washington on the subject parcels are provided in Section 4 of this report.*

5) **A description of protective measures that will be undertaken, such as siltation curtains, hay bales and other siltation prevention measures, and scheduling the construction activity to avoid interference with wildlife and fisheries rearing, nesting or spawning activities;**

*TESC elements will be installed around the perimeter of the work area and any areas where surface flows may occur to prevent sediment from entering waterways and water bodies. These elements will include silt fencing, straw wattles, and storm drain inlet protection. Construction timing is not expected to interfere with wildlife and fisheries rearing, nesting, or spawning activities.*

6) **An analysis of the impact that the proposed development would have on the critical area and its buffer;**

*The project will result in 21 square feet of unavoidable permanent impacts within the overlapping shoreline jurisdiction and buffer of Stream A buffer. Additionally, approximately 214 square feet of temporary impacts will occur during construction. Minimal impacts on buffer and shoreline function are expected because the area has existing infrastructure and consists of mostly mowed lawn and hardscaping, providing little ecological function.*

7) **How the proposal minimizes net loss of critical area and/or critical area buffer functions to the greatest extent feasible;**

*Mitigation sequencing is described in the previous section (Section 5.3.1 – Avoidance and Minimization).*

**8) Whether the improvement is located away from the critical area and the critical area buffer to the greatest extent feasible;**

*Since the existing infrastructure is located along the waterfront and under the concrete reach of Stream A, there are no other options to locate improvements away from the Stream A buffer or Lake Washington. Doing so would result in additional unnecessary impacts.*

**9) A description of compensatory mitigation;**

*Compensatory mitigation is being provided by fully restoring temporary impact areas by seeding the areas with grass to match the existing surrounding landscape. There is no opportunity for onsite mitigation given the site constraints and ownership of the parcels. To ensure no net loss of ecological function, 0.0023 credits (the equivalent of 330 square feet) will be purchased from the Keller Farm Mitigation Bank within the same service area to mitigate the 21 square feet of permanent impacts.*

# 6.0 Limitations

Within the limitations of schedule, budget, and scope-of-work, we warrant that this investigation was conducted in accordance with generally accepted environmental science practices, including the technical guidelines and criteria in effect at the time this investigation was performed. The results and conclusions of this report represent the authors' best professional judgment, based on information provided by the project proponent in addition to that obtained during this study. No other warranty, expressed or implied, is made.

# 7.0 References

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# APPENDIX A:

## Wetland Determination Data Forms

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

Project/Site: Northshore Utility District Grinder Pump Station 4 City/County: Kirkland /King Sampling Date: 11/22/2022
Applicant/Owner: Northshore Utility District State: Washington Sampling Point: DP-1
Investigator(s): James Watson Section, Township, Range: 23/26N/4E
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): Concave Slope (%): 3
Subregion (LRR): LRR A Lat: 47.7231565 Long: -122.261432833 Datum: - WGS84
Soil Map Unit Name: Ragnar-Indianola association NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)
Are Vegetation no Soil no or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___
Are Vegetation no Soil no or Hydrology no 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 ___
Hydric Soil Present? Yes ✓ No ___
Wetland Hydrology Present? Yes ___ No ✓

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

Remarks:
Sample plot located ~5 feet north of small tributary flowing west into Lake Washington along northern parcel boundary of King County parcel #3761700125, located at 13613 62nd Avenue NE, Kirkland, WA. Weather cold (~45 F) with heavy rain. Last measurable rainfall prior to 11/22/22 was 11/7/22.

## VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 30 ft/radius) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | 0 | | |
| 2. | 0 | | |
| 3. | 0 | | |
| 4. | 0 | | |
| | 0 = Total Cover | | |
| **Sapling/Shrub Stratum (Plot size: 30 ft/radius)** | | | |
| 1. | 0 | | |
| 2. | 0 | | |
| 3. | 0 | | |
| 4. | 0 | | |
| 5. | 0 | | |
| | 0 = Total Cover | | |
| **Herb Stratum (Plot size: 5 ft/radius)** | | | |
| 1. Festuca rubra | 45 | yes | FAC |
| 2. Ranunculus repens | 30 | yes | FAC |
| 3. Scirpus microcarpus | 15 | no | OBL |
| 4. | | | |
| 5. | 0 | | |
| 6. | 0 | | |
| 7. | 0 | | |
| 8. | 0 | | |
| 9. | 0 | | |
| 10. | 0 | | |
| 11. | 0 | | |
| | 90 = Total Cover | | |
| **Woody Vine Stratum (Plot size: 30)** | | | |
| 1. | 0 | | |
| 2. | 0 | | |
| | 0 = Total Cover | | |

% Bare Ground in Herb Stratum 0

**Dominance Test worksheet:**
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: |
|---|---|---|
| OBL species | 15 | x 1= 15 |
| FACW species | | x 2= |
| FAC species | 75 | x 3= 225 |
| FACU species | 0 | x 4= 0 |
| UPL species | 0 | x 5= |
| Column Totals: | 90 (A) | 240 (B) |

Prevalence Index = B/A = 2.70

**Hydrophytic Vegetation Indicators:**
no 1-Rapid Test For Hydrophytic Vegetation
yes 2-Dominance Test is >50%
yes 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]
___ 6-Problematic Hydrophytic Vegetation[1] (Explain)
[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** **Yes** ✓ **No** ___

Remarks:
Fluctuating groundwater table could be the cause of obligate plants to grow. Site is mostly mowed.

## 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 % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0 - 6 | 7.5YR 4/1 | 100 | | 0 | | | Clay loam | |
| 6 - 12 | 10YR 4/2 | 97 | 5YR 4/4 | 3 | C | M | Loamy sand | prominent redox |
| 12 - 16 | 10Y 5/ | 70 | 2.5YR 4/6 | 30 | C | M | Sandy loam | prominent redox |
| 0 - 0 | | 0 | | 0 | | | | |
| 0 - 0 | | 0 | | 0 | | | | |
| 0 - 0 | | 0 | | 0 | | | | |
| 0 - 0 | | 0 | | 0 | | | | |
| - | | | | | | | | |

[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 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): 0

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

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | no | Depth (Inches): | 0 |
| Water Table Present? | no | Depth (Inches): | 0 |
| Saturation Present? (includes capillary fringe) | no | Depth (Inches): | 0 |

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

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

Remarks:
Standing water approximately 15 feet away from plot.

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

Project/Site: Northshore Utility District Grinder Pump Station 4 City/County: Kirkland /King Sampling Date: 11/22/2022
Applicant/Owner: Northshore Utility District State: Washington Sampling Point: DP-2
Investigator(s): James Watson Section, Township, Range: 23/26N/4E
Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): 0
Subregion (LRR): LRR A Lat: 47.723137 Long: -122.2613545 Datum: - WGS84
Soil Map Unit Name: Ragnar-Indianola association NWI classification: Wetland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)
Are Vegetation no Soil no or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___
Are Vegetation no Soil no or Hydrology no 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 ___
Hydric Soil Present? Yes ✓ No ___
Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:
Sample plot located ~15 feet north of small tributary flowing west into Lake Washington along northern parcel boundary of King County parcel #3761700125, located at 13613 62nd Avenue NE, Kirkland, WA. Weather cold (~45 F) with heavy rain. Last measurable rainfall prior to 11/22/22 was 11/7/22.

## VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 30 ft/radius) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | 0 | | |
| 2. | 0 | | |
| 3. | 0 | | |
| 4. | 0 | | |
| | 0 = Total Cover | | |
| **Sapling/Shrub Stratum (Plot size: 30 ft/radius)** | | | |
| 1. | 0 | | |
| 2. | 0 | | |
| 3. | 0 | | |
| 4. | 0 | | |
| 5. | 0 | | |
| | 0 = Total Cover | | |
| **Herb Stratum (Plot size: 5 ft/radius)** | | | |
| 1. Festuca rubra | 60 | yes | FAC |
| 2. Ranunculus repens | 40 | yes | FAC |
| 3. | 0 | | |
| 4. | 0 | | |
| 5. | 0 | | |
| 6. | 0 | | |
| 7. | 0 | | |
| 8. | 0 | | |
| 9. | 0 | | |
| 10. | 0 | | |
| 11. | 0 | | |
| | 100 = Total Cover | | |
| **Woody Vine Stratum (Plot size: 30)** | | | |
| 1. | 0 | | |
| 2. | 0 | | |
| | 0 = Total Cover | | |

% Bare Ground in Herb Stratum 0

**Dominance Test worksheet:**
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 % (A/B)

**Prevalence Index worksheet:**

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

Prevalence Index = B/A = 3

**Hydrophytic Vegetation Indicators:**
no 1-Rapid Test For Hydrophytic Vegetation
yes 2-Dominance Test is >50%
yes 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]
___ 6-Problematic Hydrophytic Vegetation[1] (Explain)
[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** **Yes** ✓ **No** ___

Remarks:
Mowed lawn

## SOIL

Sampling Point: DP-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 % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0 - 5 | 7.5YR 3/2 | 100 | | 0 | | | Silt loam | |
| 5 - 13 | 2.5YR 4/1 | 93 | 7.5YR 4/6 | 7 | C | M | Loamy sand | prominent redox |
| 13 - 16 | N 4/ | 90 | 5YR 6/6 | 10 | C | M | Sand | prominent redox |
| 0 - 0 | | 0 | | 0 | | | | |
| 0 - 0 | | 0 | | 0 | | | | |
| 0 - 0 | | 0 | | 0 | | | | |
| 0 - 0 | | 0 | | 0 | | | | |
| - | | | | | | | | |

[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 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): 0

**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)
- 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 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? | no | Depth (Inches): | 0 |
| Water Table Present? | no | Depth (Inches): | 0 |
| Saturation Present? (includes capillary fringe) | yes | Depth (Inches): | 0 |

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

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

Remarks:
Water table in picture is accumulation of rain, surface water flowing into hole during heavy rains.

# APPENDIX B:
## Photographs

**Photo 1**
Existing infrastructure and adjacent landscaping.

**Photo 2**
Shoreline hardscaping and steps.

**Photo 3**
Outfall of Stream A into Lake Washington

**Photo 4**
Project area facing west. Note topographic, vegetative break to right indicating disturbed conditions. March 2022.

**Photo 5**

Project area facing west. No hydrology observed at plot in center of photo; hydrology (wetland) at plot in upper right.

**Photo 6**

Saturated soil conditions at wetland plot March 2022.

**Photo 7**
Wetland A on parcel north of project parcels, on bench above OHWM. Photo taken facing west. March 2022.

**Photo 8**
Upland plot (DP-1) in background with orange flagging, in project area. Wetland plot (DP-2) at left. November 2022.

**Photo 9**
Surface flow from heavy rain event just downgradient (west of) upland plot (DP-1). November 2022**.**

**Photo 10**
Soil profile from upland data plot (DP-1). Note presence of hydric soil conditions but no hydrology. November 2022**.**

**Photo 11**
Soil profile from wetland data plot (DP-2). Note presence of hydric soil condition. Sols were saturated. November 2022.

# APPENDIX C:

## Wetland Rating Forms and Figures

Wetland name or number A

# RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland A  Date of site visit: 3/14/2022

Rated by C. Kroe and M. Remmen  Trained by Ecology? ☑ Yes ☐ No  Date of training 10/16, 3/21

**HGM Class used for rating** Depressional & Flats  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 Kign County iMap

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

## 1. Category of wetland based on FUNCTIONS

_____ **Category I** - Total score = 23 - 27
_____ **Category II** - Total score = 20 - 22
X **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 | M | L | L | |
| Landscape Potential | M | M | H | |
| Value | M | L | M | **Total** |
| **Score Based on Ratings** | 6 | 4 | 6 | **16** |

**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 |

Wetland name or number ___A____

# Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

| Map of: | To answer questions: | Figure # |
|---|---|---|
| Cowardin plant classes | D 1.3, H 1.1, H 1.4 | 1 |
| Hydroperiods | D 1.4, H 1.2 | 2 |
| Location of outlet (*can be added to map of hydroperiods*) | D 1.1, D 4.1 | 2 |
| Boundary of area within 150 ft of the wetland (*can be added to another figure*) | D 2.2, D 5.2 | 2 |
| Map of the contributing basin | D 4.3, D 5.3 | 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 | 4 |
| Screen capture of map of 303(d) listed waters in basin (from Ecology website) | D 3.1, D 3.2 | 5 |
| Screen capture of list of TMDLs for WRIA in which unit is found (from web) | D 3.3 | 6 |

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 | |

Wetland name or number ___A____

# 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.

Wetland name or number ___A____

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.*

NOTES and FIELD OBSERVATIONS:

Wetland name or number A

# DEPRESSIONAL AND FLATS WETLANDS

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

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

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

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

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

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

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

Wetland name or number A

# DEPRESSIONAL AND FLATS WETLANDS

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

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

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

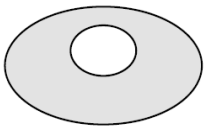
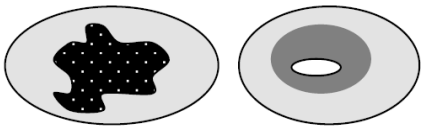
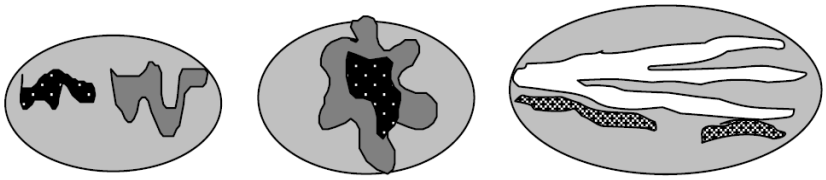
| | | |
|---|---|---|
| D 5.0. Does the landscape have the potential to support hydrologic function of the site? | | |
| D 5.1. Does the wetland unit receive stormwater discharges? | Yes = 1 No = 0 | 0 |
| D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff? | Yes = 1 No = 0 | 1 |
| D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)? | Yes = 1 No = 0 | 1 |
| Total for D 5 | Add the points in the boxes above | **2** |

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

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

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

Wetland name or number ___A____

| **These questions apply to wetlands of all HGM classes.**<br>**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.*<br><br>☐ Aquatic bed — 4 structures or more: points = 4<br>☐ Emergent — 3 structures: points = 2<br>☐ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1<br>☐ Forested (areas where trees have > 30% cover) — 1 structure: points = 0<br>*If the unit has a Forested class, check if*:<br>☐ 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<br>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* ).<br><br>☐ Permanently flooded or inundated — 4 or more types present: points = 3<br>☑ Seasonally flooded or inundated — 3 types present: points = 2<br>☐ Occasionally flooded or inundated — 2 types present: points = 1<br>☐ Saturated only — 1 types present: points = 0<br>☐ Permanently flowing stream or river in, or adjacent to, the wetland<br>☐ Seasonally flowing stream in, or adjacent to, the wetland<br>☐ **Lake Fringe wetland — 2 points**<br>☐ **Freshwater tidal wetland — 2 points** | 1 |
| H 1.3. Richness of plant species<br>Count the number of plant species in the wetland that cover at least 10 $ft^2$.<br>*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***<br><br>If you counted: > 19 species — points = 2<br>5 - 19 species — points = 1<br>< 5 species — points = 0 | 0 |
| H 1.4. Interspersion of habitats<br>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.*<br><br>    <br>**None** = 0 points — **Low** = 1 point — **Moderate** = 2 points<br><br>All three diagrams in this row are **HIGH** = 3 points  | 0 |

Wetland name or number A

| | |
|---|---|
| H 1.5. Special habitat features:<br>Check the habitat features that are present in the wetland. *The number of checks is the number of points.*<br>☐ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long)<br>☐ Standing snags (dbh > 4 in) within the wetland<br>☐ 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)<br>☐ 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*)<br>☐ 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*)<br>☐ 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 | **2** |

**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*).<br>*Calculate:*<br>0 % undisturbed habitat + ( 45 % moderate & low intensity land uses / 2 ) = 22.5%<br><br>If total accessible habitat is:<br>> $^1/_3$ (33.3%) of 1 km Polygon — points = 3<br>20 - 33% of 1 km Polygon — points = 2<br>10 - 19% of 1 km Polygon — points = 1<br>< 10 % of 1 km Polygon — points = 0 | 2 |
| H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.<br>*Calculate:*<br>30 % undisturbed habitat + ( 45 % moderate & low intensity land uses / 2 ) = 52.5%<br><br>Undisturbed habitat > 50% of Polygon — points = 3<br>Undisturbed habitat 10 - 50% and in 1-3 patches — points = 2<br>Undisturbed habitat 10 - 50% and > 3 patches — points = 1<br>Undisturbed habitat < 10% of 1 km Polygon — points = 0 | 3 |
| H 2.3 Land use intensity in 1 km Polygon: If<br>> 50% of 1 km Polygon is high intensity land use — points = (-2)<br>≤ 50% of 1km Polygon is high intensity — points = 0 | 0 |
| Total for H 2 — Add the points in the boxes above | **5** |

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

| | |
|---|---|
| H 3.0. Is the habitat provided by the site valuable to society? | |
| 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*.<br>Site meets ANY of the following criteria: — points = 2<br>☐ It has 3 or more priority habitats within 100 m (see next page)<br>☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)<br>☐ It is mapped as a location for an individual WDFW priority species<br>☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources<br>☐ 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<br>Site has 1 or 2 priority habitats (listed on next page) with in 100m — points = 1<br>Site does not meet any of the criteria above — points = 0 | 1 |

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

Wetland name or number ___A____

# WDFW Priority Habitats

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

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

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report* ).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above* ).
- ☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above* ).
- ☑ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page* ).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☐ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

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

Wetland name or number ___A____

# CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

| **Wetland Type**<br><br>*Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.* | **Category** |
|---|---|
| **SC 1.0. Estuarine Wetlands**<br>Does the wetland meet the following criteria for Estuarine wetlands?<br>☐ The dominant water regime is tidal,<br>☐ Vegetated, and<br>☐ With a salinity greater than 0.5 ppt<br>☐ 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?<br>☐ 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?<br>☐ 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)<br>☐ 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.<br>☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.<br>☐ Yes = **Category I** ☐ No = **Category II** | |
| **SC 2.0. Wetlands of High Conservation Value (WHCV)**<br>SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value?<br>☐ Yes - Go to **SC 2.2** ☑ No - Go to **SC 2.3**<br>SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?<br>☐ Yes = **Category I** ☑ No = **Not WHCV**<br>SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland?<br>http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf<br>☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV**<br>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?<br>☐ Yes = **Category I** ☐ No = **Not WHCV** | |
| **SC 3.0. Bogs**<br>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*** .<br>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?<br>☐ Yes - Go to **SC 3.3** ☑ No - Go to **SC 3.2**<br>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?<br>☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog**<br>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?<br>☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4**<br>**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.<br>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?<br>☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog** | |

Wetland name or number ___A____

| | |
|---|---|
| **SC 4.0. Forested Wetlands**<br>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.***<br>☐ **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.<br>☐ **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).<br>☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section** | |
| **SC 5.0. Wetlands in Coastal Lagoons**<br>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?<br>☐ 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<br>☐ 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* )<br>☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**<br>SC 5.1. Does the wetland meet all of the following three conditions?<br>☐ 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).<br>☐ 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.<br>☐ The wetland is larger than $^{1}/_{10}$ ac (4350 $ft^2$)<br>☐ Yes = **Category I** ☐ No = **Category II** | |
| **SC 6.0. Interdunal Wetlands**<br>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.***<br>In practical terms that means the following geographic areas:<br>☐ Long Beach Peninsula: Lands west of SR 103<br>☐ Grayland-Westport: Lands west of SR 105<br>☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109<br>☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**<br>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)?<br>☐ Yes = **Category I** ☐ No - Go to **SC 6.2**<br>SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?<br>☐ Yes = **Category II** ☐ No - Go to **SC 6.3**<br>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?<br>☐ Yes = **Category III** ☐ No = **Category IV** | |
| **Category of wetland based on Special Characteristics**<br>If you answered No for all types, enter "Not Applicable" on Summary Form | |

Wetland name or number B

# RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland B  Date of site visit: 3/14/2022

Rated by C. Kroe and M. Remmen  Trained by Ecology? ☑ Yes ☐ No  Date of training 10/16, 3/21

**HGM Class used for rating** Slope  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 King County iMap

**OVERALL WETLAND CATEGORY** IV (based on functions ☐ or special characteristics ☐ )

## 1. Category of wetland based on FUNCTIONS

_____ **Category I** - Total score = 23 - 27
_____ **Category II** - Total score = 20 - 22
_____ **Category III** - Total score = 16 - 19
X **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 | M | L | H | |
| Value | H | L | M | **Total** |
| **Score Based on Ratings** | 6 | 3 | 6 | **15** |

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

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

## 2. Category based on SPECIAL CHARACTERISTICS of wetland

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

Wetland name or number B

# Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

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

Riverine Wetlands

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

Lake Fringe Wetlands

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

Slope Wetlands

| Map of: | To answer questions: | Figure # |
|---|---|---|
| Cowardin plant classes | H 1.1, H 1.4 | 1 |
| Hydroperiods | H 1.2 | 2 |
| Plant cover of **dense** trees, shrubs, and herbaceous plants | S 1.3 | 1 |
| Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*) | S 4.1 | 1 |
| Boundary of area within 150 ft of the wetland (*can be added to another figure*) | S 2.1, S 5.1 | 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 | 4 |
| Screen capture of map of 303(d) listed waters in basin (from Ecology website) | S 3.1, S 3.2 | 5 |
| Screen capture of list of TMDLs for WRIA in which unit is found (from web) | S 3.3 | 6 |

Wetland name or number B

# 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.

Wetland name or number ___B_____

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

☑ NO - go to 7 ☐ **YES** - The wetland class is **Depressional**

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

☑ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

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

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

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

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

Wetland name or number B

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

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

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

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

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

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

Wetland name or number B

| SLOPE WETLANDS<br>**Hydrologic Functions** - Indicators that the site functions to reduce flooding and stream erosion | | |
|---|---|---|
| S 4.0. Does the site have the potential to reduce flooding and stream erosion? | | |
| S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. *Stems of plants should be thick enough (usually > $^{1}/_{8}$ in), or dense enough, to remain erect during surface flows.* | | 0 |
| Dense, uncut, **rigid** plants cover > 90% of the area of the wetland | points = 1 | |
| All other conditions | points = 0 | |

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

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

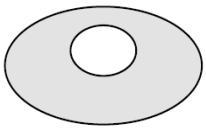
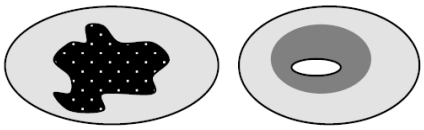
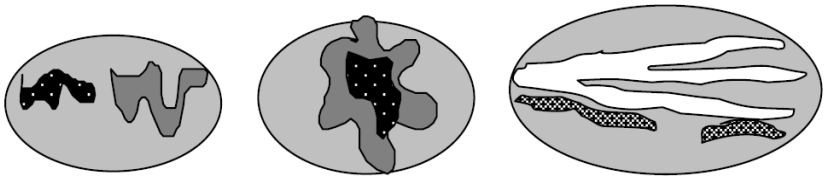
**Rating of Landscape Potential** If score is: ☐ **1 = M** ☑ **0 = L** *Record the rating on the first page*

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

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

NOTES and FIELD OBSERVATIONS:

Wetland name or number B

| **These questions apply to wetlands of all HGM classes.**<br>**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.*<br><br>☐ Aquatic bed — 4 structures or more: points = 4<br>☐ Emergent — 3 structures: points = 2<br>☐ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1<br>☐ Forested (areas where trees have > 30% cover) — 1 structure: points = 0<br>*If the unit has a Forested class, check if*:<br>☐ 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<br>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* ).<br><br>☐ Permanently flooded or inundated — 4 or more types present: points = 3<br>☐ Seasonally flooded or inundated — 3 types present: points = 2<br>☐ Occasionally flooded or inundated — 2 types present: points = 1<br>☑ Saturated only — 1 types present: points = 0<br>☐ Permanently flowing stream or river in, or adjacent to, the wetland<br>☐ Seasonally flowing stream in, or adjacent to, the wetland<br>☐ **Lake Fringe wetland** — **2 points**<br>☐ **Freshwater tidal wetland** — **2 points** | 1 |
| H 1.3. Richness of plant species<br>Count the number of plant species in the wetland that cover at least 10 $ft^2$.<br>*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***<br><br>If you counted: > 19 species — points = 2<br>5 - 19 species — points = 1<br>< 5 species — points = 0 | 1 |
| H 1.4. Interspersion of habitats<br>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.*<br><br>  <br>**None** = 0 points<br><br>  <br>**Low** = 1 point<br><br>  <br>**Moderate** = 2 points<br><br>All three diagrams in this row are **HIGH** = 3 points<br><br>  | 0 |

Wetland name or number B

| | |
|---|---|
| H 1.5. Special habitat features:<br>Check the habitat features that are present in the wetland. *The number of checks is the number of points.*<br>☐ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long)<br>☐ Standing snags (dbh > 4 in) within the wetland<br>☐ 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)<br>☐ 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*)<br>☐ 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*)<br>☑ 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 | **3** |

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

| | |
|---|---|
| H 2.0. Does the landscape have the potential to support the habitat function of the site? | |
| H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*).<br>*Calculate:*<br>0 % undisturbed habitat + ( 45 % moderate & low intensity land uses / 2 ) = 22.5%<br><br>If total accessible habitat is:<br>> $^1/_3$ (33.3%) of 1 km Polygon — points = 3<br>20 - 33% of 1 km Polygon — points = 2<br>10 - 19% of 1 km Polygon — points = 1<br>< 10 % of 1 km Polygon — points = 0 | 2 |
| H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.<br>*Calculate:*<br>30 % undisturbed habitat + ( 45 % moderate & low intensity land uses / 2 ) = 52.5%<br><br>Undisturbed habitat > 50% of Polygon — points = 3<br>Undisturbed habitat 10 - 50% and in 1-3 patches — points = 2<br>Undisturbed habitat 10 - 50% and > 3 patches — points = 1<br>Undisturbed habitat < 10% of 1 km Polygon — points = 0 | 3 |
| H 2.3 Land use intensity in 1 km Polygon: If<br>> 50% of 1 km Polygon is high intensity land use — points = (-2)<br>≤ 50% of 1km Polygon is high intensity — points = 0 | 0 |
| Total for H 2 — Add the points in the boxes above | **5** |

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

| | |
|---|---|
| H 3.0. Is the habitat provided by the site valuable to society? | |
| 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*.<br>Site meets ANY of the following criteria: — points = 2<br>☐ It has 3 or more priority habitats within 100 m (see next page)<br>☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)<br>☐ It is mapped as a location for an individual WDFW priority species<br>☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources<br>☐ 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<br>Site has 1 or 2 priority habitats (listed on next page) with in 100m — points = 1<br>Site does not meet any of the criteria above — points = 0 | 1 |

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

Wetland name or number ___B_____

# WDFW Priority Habitats

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

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

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report* ).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above* ).
- ☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above* ).
- ☑ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page* ).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☐ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

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

Wetland name or number ___B_____

# CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

| **Wetland Type**<br><br>*Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.* | **Category** |
|---|---|
| **SC 1.0. Estuarine Wetlands**<br>Does the wetland meet the following criteria for Estuarine wetlands?<br>☐ The dominant water regime is tidal,<br>☐ Vegetated, and<br>☐ With a salinity greater than 0.5 ppt<br>☐ 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?<br>☐ 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?<br>☐ 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)<br>☐ 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.<br>☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.<br>☐ Yes = **Category I** ☐ No = **Category II** | |
| **SC 2.0. Wetlands of High Conservation Value (WHCV)**<br>SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value?<br>☐ Yes - Go to **SC 2.2** ☑ No - Go to **SC 2.3**<br>SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?<br>☐ Yes = **Category I** ☑ No = **Not WHCV**<br>SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland?<br>http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf<br>☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV**<br>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?<br>☐ Yes = **Category I** ☐ No = **Not WHCV** | |
| **SC 3.0. Bogs**<br>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*** .<br>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?<br>☐ Yes - Go to **SC 3.3** ☑ No - Go to **SC 3.2**<br>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?<br>☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog**<br>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?<br>☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4**<br>**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.<br>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?<br>☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog** | |

Wetland name or number ___B_____

| | |
|---|---|
| **SC 4.0. Forested Wetlands**<br>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.***<br>☐ **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.<br>☐ **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).<br>☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section** | |
| **SC 5.0. Wetlands in Coastal Lagoons**<br>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?<br>☐ 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<br>☐ 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* )<br>☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**<br>SC 5.1. Does the wetland meet all of the following three conditions?<br>☐ 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).<br>☐ 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.<br>☐ The wetland is larger than $^{1}/_{10}$ ac (4350 $ft^2$)<br>☐ Yes = **Category I** ☐ No = **Category II** | |
| **SC 6.0. Interdunal Wetlands**<br>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.***<br>In practical terms that means the following geographic areas:<br>☐ Long Beach Peninsula: Lands west of SR 103<br>☐ Grayland-Westport: Lands west of SR 105<br>☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109<br>☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**<br>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)?<br>☐ Yes = **Category I** ☐ No - Go to **SC 6.2**<br>SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?<br>☐ Yes = **Category II** ☐ No - Go to **SC 6.3**<br>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?<br>☐ Yes = **Category III** ☐ No = **Category IV** | |
| **Category of wetland based on Special Characteristics**<br>If you answered No for all types, enter "Not Applicable" on Summary Form | |

# King County iMap




Date: 1/19/2023

Notes: Purple: Emergent Vegetation

N

King County

# King County iMap



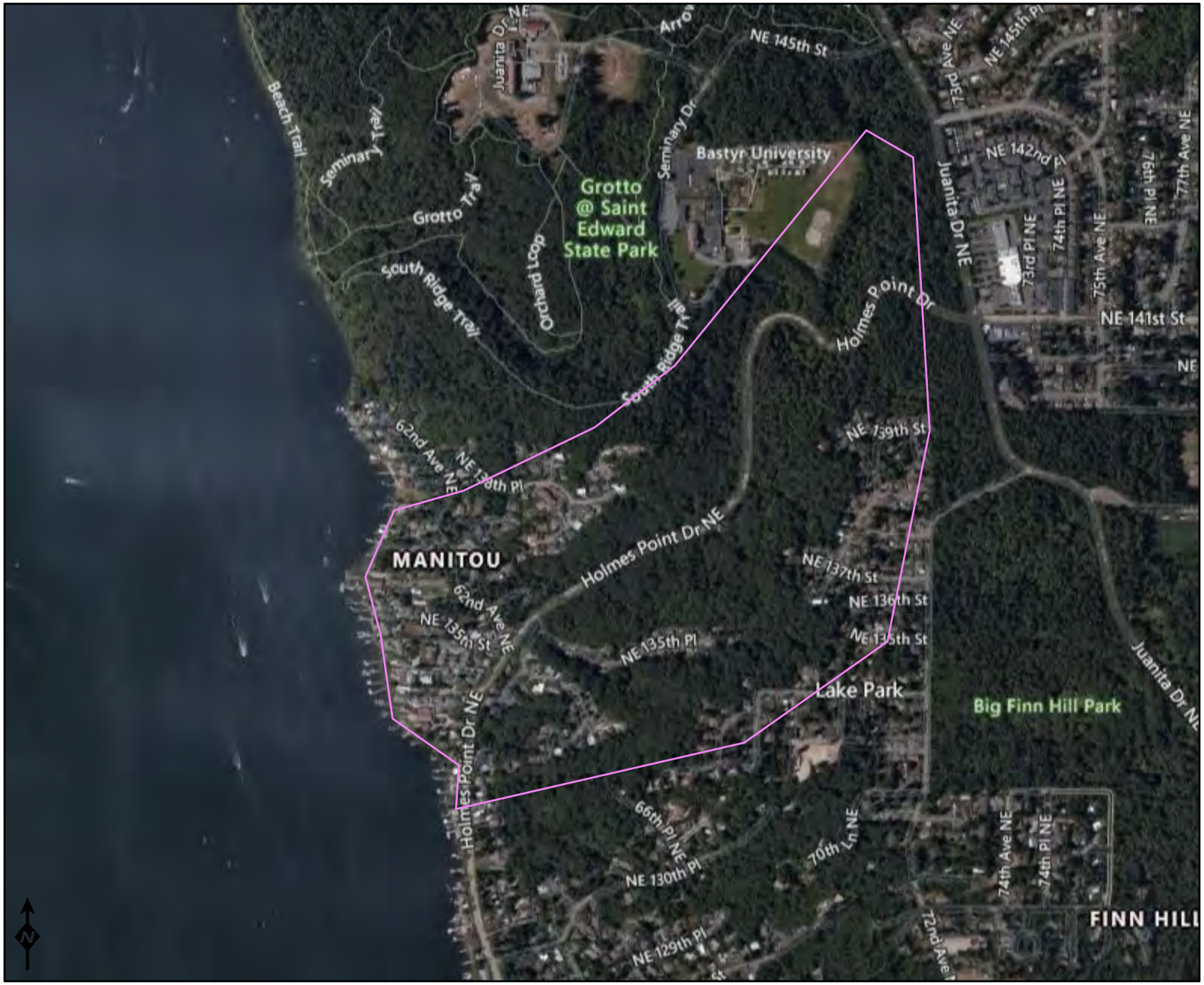

Date: 1/20/2023

Notes: Blue: Saturated, Orange: Seasonally Flooded

N

King County

# Wetland A Contributing Basin




Miles 0 0.1 0.2 0.4

Esri Community Maps Contributors, City of Kirkland, City of Seattle, King County, WA State Parks GIS, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management,



DEPARTMENT OF ECOLOGY State of Washington

# King County iMap

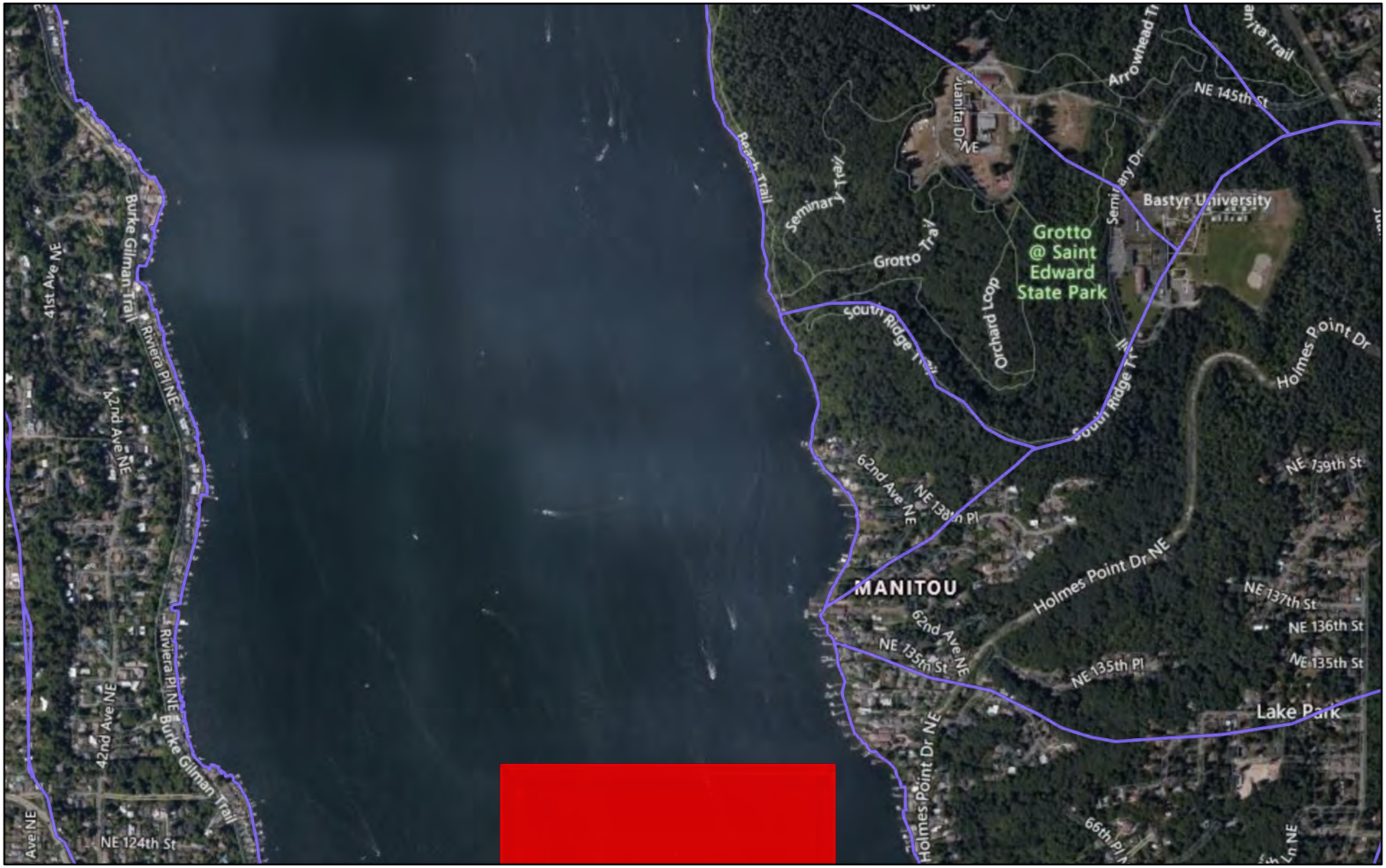



Date: 1/20/2023

Notes: Green: Undisturbed Habitat, Orange: Moderate and Low Intensity, Red: High Intensity

N

King County




January 19, 2023

1:18,056

0 0.1 0.2 0.4 mi

0 0.15 0.3 0.6 km

DEPARTMENT OF ECOLOGY State of Washington

# King County



## Water quality improvement projects

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

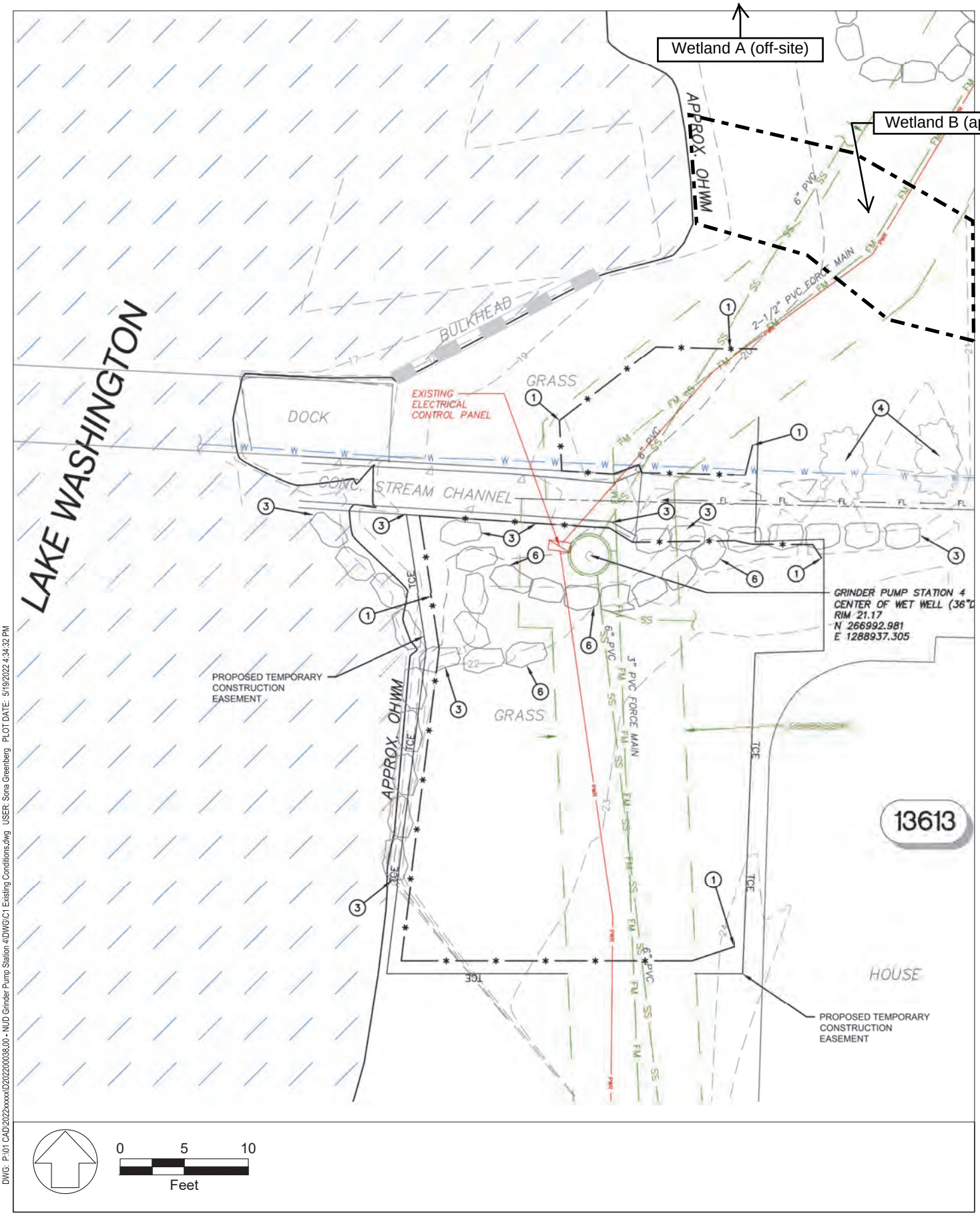
| Waterbody Name(s) | Pollutant(s) | Status | Project Lead(s) |
|---|---|---|---|
| Bear-Evans Creek Basin | Fecal Coliform | EPA approved | Ralph Svrjcek<br>425-649-7165 |
| Bear-Evans Creek Basin | Dissolved Oxygen<br>Temperature | EPA approved | Ralph Svrjcek<br>425-649-7165 |
| Cottage Lake | Total Phosphorus | EPA approved | Tricia Shoblom<br>425-649-7288 |
| Duwamish and Lower Green River | Ammonia-N | EPA approved | Ralph Svrjcek<br>425-649-7165 |
| Duwamish and Green River | Pollutant loading | Working with technical advisory group | Rachel McCrea<br>425-649-7033 |
| Fauntleroy Creek | Fecal Coliform | EPA approved | Ralph Svrjcek<br>425-649-7165 |
| Fenwick Lake | Total Phosphorus | EPA approved | Tricia Shoblom<br>425-649-7288 |
| Green River and Newaukum Creek | Dissolved Oxygen<br>Temperature | EPA approved | Ralph Svrjcek<br>425-649-7165 |

| | | | |
|---|---|---|---|
| Issaquah Creek Basin | Fecal Coliform | EPA approved | Ralph Svrjcek<br>425-649-7165 |
| Lake Sawyer | Total Phosphorus | EPA approved | Tricia Shoblom<br>425-649-7288 |
| Little Bear Creek | Fecal Coliform | EPA approved | Ralph Svrjcek<br>425-649-7165 |
| Newaukum Creek | Bacteria | Under development | Ralph Svrjcek<br>425-649-7165 |
| North Creek | Fecal Coliform | EPA approved and<br>Has an implementation plan | Ralph Svrjcek<br>425-649-7165 |
| Pipers Creek | Fecal Coliform | EPA approved | Ralph Svrjcek<br>425-649-7165 |
| Sammamish River | Dissolved Oxygen<br>Temperature | Under development | Ralph Svrjeck<br>425-649-7165 |
| Snoqualmie River | Ammonia-N<br>BOD (5-day)<br>Fecal Coliform | EPA approved | Ralph Svrjeck<br>425-649-7165 |
| Snoqualmie River | Temperature | EPA approved and<br>Has an implementation plan | Ralph Svrjeck<br>425-649-7165 |
| Soos Creek | Fecal Coliform | Under Development | Ralph Svrjcek<br>425-649-7165 |
| Soos Creek | Aquatic Habitat<br>Dissolved Oxygen<br>Temperature | Under Development | Ralph Svrjcek<br>425-649-7165 |

To request ADA accommodation, call Ecology at 360-407-7668, 711 (relay service), or 877-833-6341 (TTY). More about our accessibility services.

# APPENDIX D:

## Existing Conditions and Impact Figures




DWG: P:\01 CAD\2022xxxx\D202200038.00 - NUD Grinder Pump Station 4\DWG\C1 Existing Conditions.dwg USER: Sona Greenberg PLOT DATE: 5/19/2022 4:34:32 PM

Northshore Utility District Grinder Pump Station 4

**Figure D1**

Existing Conditions