Critical Areas Report

Lindberg Property
Unincorporated King County

October 6, 2021

Prepared for:

King County Department of
Local Services, Permitting
Division
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Suite 210
Snoqualmie, WA 98065

Prepared on behalf of (applicant):

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THE WATERSHED COMPANY

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

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1. Introduction

1.1 Background and Purpose

The purpose of this report is to document critical area impacts and corresponding mitigation and protection measures associated with an Already-Built Construction (ABC) code violation. The subject property is located at 10627 East Lake Joy Road NE near Carnation, WA in unincorporated King County (KC). The study area is located on the southern shore of Lake Joy on parcel #4045500740 and the northeast corner of adjacent parcel #4045500745 (study area). The remainder of adjacent parcel #4045500745 was assessed separately and is summarized in *Critical Areas Designation for Parcel 404550-0745, King County, WA*, dated April 29, 2020, prepared by Altmann Oliver Associates, LLC.

1.2 Methods

A review of public-domain information was completed for the subject property and study area (200 feet outside the subject property). Resources and review findings are presented below in Table 1 of the "Location and Description" section of this report.

A wetland delineation was completed by The Watershed Company (TWC) ecologists on May 17, 2021. The subject parcel was evaluated for wetlands using methodology from the 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 (U.S. Army Corps of Engineers 2010). Presence or absence of wetlands was determined on the basis of an examination of vegetation, soils and hydrology. These parameters were sampled at several locations along the wetland boundary to determine the wetland edge. Wetlands were classified using the Department of Ecology's 2014 rating system (Hruby 2014). The extent of wetland/waterway habitat adjacent to parcel #4045500740 but located outside of the parcel boundary was estimated visually and with public domain resources.

The study area was evaluated for streams based on the presence or absence of an ordinary high water mark (OHWM) as defined by Section 404 of the Clean Water Act, the Washington Administrative Code (WAC) 220-660-030, and the Revised Code of Washington (RCW) 90.58.030 and guidance documents including Determining the Ordinary High Water Mark for Shoreline Management Act Compliance in Washington State (Anderson 2016) and A Guide to Ordinate High Water Mark (OHWM) Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Region of the United States (Mersel 2016).

2. Subject Property

2.1 Location and Description

The approximately 0.5-acre study area (parcel #4045500740 and #4045500745) is located in Section 35, Township 26 north, Range 07 East and Water Resource Inventory Area 7 - Snohomish. The study area is located on the southern shore of Lake Joy. The northwestern end of the parcel has recently been disturbed by construction and filled with gravel. The topography of the parcel slopes down to the north, toward Lake Joy. Vegetation on the site is characterized by maintained lawn, red alder, salmonberry, osoberry, big leaf maple, high bush cranberry, salal, western red cedar, Oregon grape, and others. The parcel and neighboring parcels are outside of the King County Urban Growth Area. The surrounding land use is categorized as residential.

Reviewed public-domain information on the study area is summarized in Table 1 below.

Table 1. Summary of resource review results from online mapping and inventory data.

Resource	Summary
USDA NRCS: Web Soil Survey	*Tokul gravelly medial loam, 8 to 15 percent slopes mapped throughout project area.*
USFWS: NWI Wetland Mapper	*Lacustrine system (Lake Joy, L1UBH) mapped north of the project area.*
WDFW: PHS on the Web	*No results returned.*
NWIFC & WDFW: SWIFD	*Lake Joy, located north of the project area, mapped for presence of Chinook, coho, pink, steelhead, chum, and bull trout. Unnamed Type F perennial stream is mapped crossing the southern end of the project area. This stream could not be identified at the time of the field visit on May 17, 2021.*
King County iMap	*Harris Creek is mapped approximately 270 feet from the study area. No wetlands or streams mapped on the parcel.*
DNR: Forest Practices Application Mapping Tool	*Open freshwater (Lake Joy) mapped north of the project area. Harris Creek is mapped as a perennial stream approximately 270 feet from the study area.*
WETS Climatic Condition	*Drier than normal.*

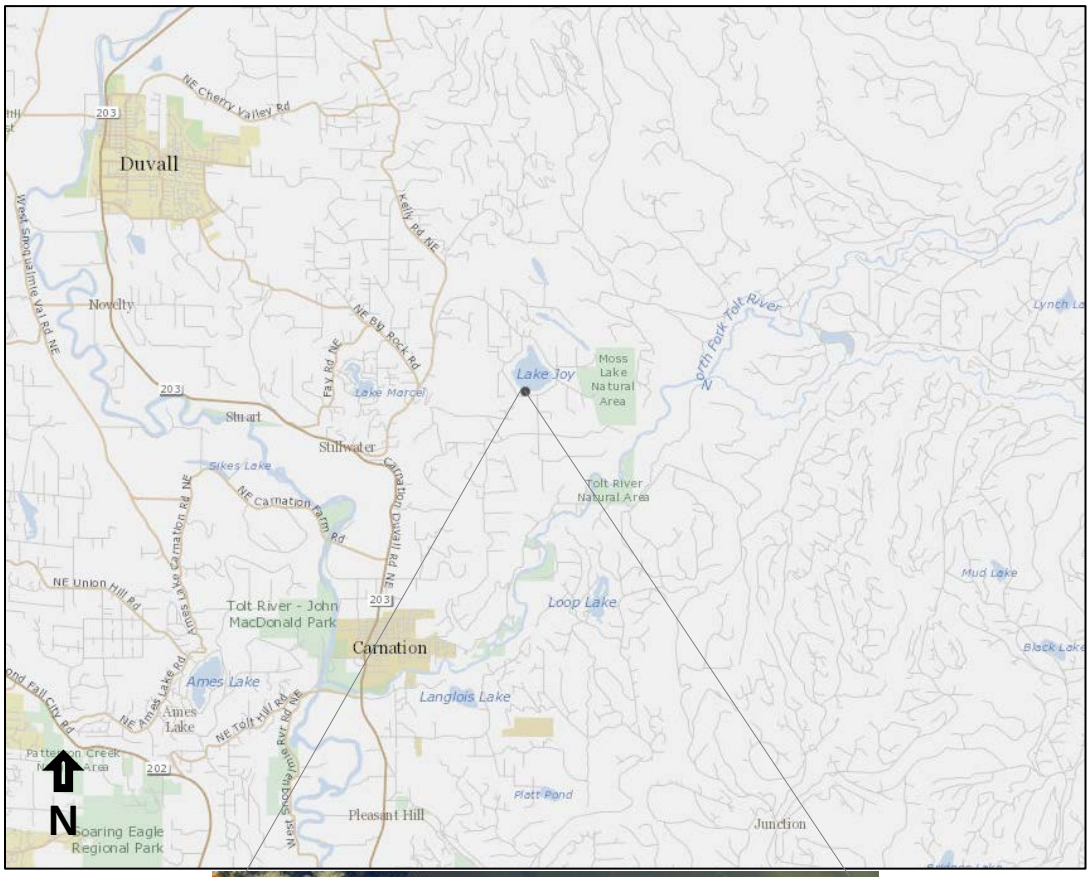

Figure 1. Vicinity and street level map of the subject property and adjacent parcel (blue outline); KC iMap).

3. Critical Areas

3.1 Wetlands

One wetland, Wetland A, was identified in the study area. Wetland A is a Category II lake fringe wetland with lacustrine forested, scrub-shrub, emergent, and aquatic bed classes. Wetland A extends outside of the study area following the shoreline of Lake Joy, the boundary of which was visually estimated from aerial imagery.

Figure 2. Looking south at the wetland on border of the study area and adjacent parcel.

3.2 Steep Slope Hazard Areas

The study area does not contain steep slopes (taller than 10 feet and greater than 40 percent grade) that meet KC's definition for a critical area due to the potential for erosion issues and landsliding. TWC does not provide geotechnical engineering services; however, steep slopes were estimated in the immediate vicinity by referencing contour lines on KC iMap. Steep slope hazard areas will not be discussed further in this report.

3.3 Critical Aquifer Recharge Areas

The study area is not located in a critical aquifer recharge area (KC iMap). Critical aquifer recharge areas will not be discussed further in this report.

3.4 Aquatic Areas

Aside from Lake Joy, no aquatic areas were identified on site (also documented in Appendix A). As described in Table 1, an unnamed Type F perennial stream is mapped crossing the southern end of the project area, however, there was no field evidence of this stream at the time of the site visit on May 17, 2021. Aquatic areas will not be discussed further in this report.

Figure 3. Looking southwest at the mapped stream location on the subject property. No streams were identified during the site visit.

3.5 Flood Hazard Areas

The FEMA 100-year floodplain is not mapped within the study area (KC iMap 2021). Flood hazard areas will not be discussed further in this report.

3.6 Wildlife Habitat Conservation Area

The KC Code (KCC) designates breeding sites and adjacent areas associated with species of local importance as a wildlife habitat conservation area (KCC 21A.06.1423 and 21A.24.382). As noted in Section 3.8.1.3 of this report, wildlife use on site is expected to be limited to rural/urban

species. However, it is possible that some habitat on site could occasionally be used by species of local importance. Species of local importance for which suitable habitat exists within the study area are bald eagle, great blue heron, osprey, peregrine falcon, and Vaux's swift. The likelihood of each of these species utilizing the study area is discussed below (Audubon 2021).

Bald eagles are generally known to nest and forage in mature or old-growth trees close to open water and could, therefore, potentially use the subject property. Bald eagles were removed from the State's endangered species list in 2017, and WDFW no longer maps known bald eagle nests nor requires coordination on bald eagle plans for specific properties. No eagles or nests were observed on site during field visits. Since the area will be restored to the previous condition before construction, bald eagles are not anticipated to be impacted.

Great blue herons are widespread in western Washington. Outside of breeding, which occurs in tall trees, commonly away from human disturbance, the birds are most often observed in and along rivers, lakes, and wetlands. No documented heron breeding area is mapped within the study area. While great blue herons could potentially use the study area, no suitable habitat on site is anticipated to be impacted by restoring the site to pre-construction condition.

Osprey are common in western Washington. Ospreys are found near water, either fresh or salt, where fish are present. While ospreys could potentially use the study area, no suitable habitat onsite is anticipated to be impacted by restoring the site to pre-construction condition.

Peregrine falcons prefer open country, cliffs, and sometimes cities often near water, especially the coast. They nest on cliff or building ledges, the hollow of broken snags, or in old stick nests of other large birds. While peregrine falcons could potentially use the study area, prevalence of more suitable habitat nearby make it unlikely that they would nest on site. Furthermore, the limited suitable habitat on site is not anticipated to be impacted by restoring the site to pre-construction condition.

Vaux's swifts forage in open skies over forests, lakes, and rivers where insects are abundant. Nesting takes place in forest stands; old-growth forests where large, hollow snags are available are preferred nesting habitat in Washington (https://explorer.natureserve.org/). The subject property does not contain hollow old-growth snags that Vaux's swifts prefer, so it is unlikely that the birds would nest on site.

3.7 Wildlife Habitat Network

A wildlife habitat network links wildlife habitat, critical areas and buffers, and other open space to allow for the movement of priority species and alleviate habitat fragmentation (KCC

21A.06.1424). A Wildlife Habitat Network is not mapped within the study area. Wildlife Habitat Network will not be discussed further in this report.

3.8 Habitat Functions

Vegetation, whether located within or outside of critical areas, inherently provides some habitat functions. Habitat functions of the subject property have been assessed and are discussed in this section, consistent with the requirements of the KCC.

3.8.1.1 Onsite Habitat

Vegetation on the subject property is variable. Vegetation includes mown lawn and other grass species. The fringes of the property are vegetated with western red cedar, osoberry, red alder, high bush cranberry, salal, sword fern, iris, hardhack, blackberry, and salmonberry.

3.8.1.2 Offsite Habitat

The opportunity for the site to provide habitat is dependent upon the potential of the greater vicinity to act as a source for wildlife. Therefore, the presence or absence of habitat patches in the landscape surrounding the subject property is considered in this assessment.

The area surrounding the subject property is rural and dominated by single-family residential homes. Habitat areas within approximately 0.5 miles include forested and shrub patches, lake fringe wetland, and open water. The open water of Lake Joy is habitat for fish species listed above under SWIFD data (Table 1).

3.8.1.3 Wildlife

Wildlife species expected to utilize the project site most are species that are adapted to living in rural/urban settings. These species generally include wildlife such as raccoons, opossums, eastern gray squirrel, rats, mice, bats, deer, rabbits, and a number of birds like crows, hawks, starlings, robins, chickadees, and sparrows. Fish species, as listed above under WDFW PHS and SWIFD data (Table 1), are expected to inhabit Lake Joy during at least some part of their life cycle. Impacts from restoring the area to pre-construction conditions are not expected to last beyond the restoration effort.

During site investigations, no species of local importance were observed within the study area, nor was habitat observed that is expected to have a primary association with any species of local importance in this local- and landscape-level context.

3.9 Water Quality, Hydrology, and Slope Stability Functions

In addition to habitat functions, vegetation also provides important water quality and hydrology functions. The ability of the site to perform these functions well is dependent upon the vegetation present (e.g., native shrubs versus mowed lawn). When located on slopes, vegetation can function to prevent soil erosion and improve slope stability. During heavy rain events, live vegetation and dead plant parts (e.g., dead stems, branches, leaves, etc.) prevent concentrated and potentially erosive flows from developing on slopes through rainwater interception. The area of Wetland A affected by already-built construction was vegetated with mown lawn grasses before construction. Shallow-rooted lawn grasses provide very limited water quality, hydrology, and slope stabilization functions.

4. Local Regulations

4.1 Critical Areas

In KC, wetlands, steep slope hazard areas, critical aquifer recharge areas, aquatic areas, flood hazard areas, wildlife habitat conservation areas, wildlife habitat networks, and building setbacks are regulated under Chapter 21A.24 (Critical Areas) of the KCC. Impacts within critical areas and buffers are subject to the mitigation sequencing criteria of KCC Section 21A.24.125.

Wetlands

Wetlands are regulated under KCC Chapter 21A.24. Per KCC Sections 21A.24.318 and 21A.24.325, wetland buffer widths are determined based on the 2014 wetland rating category, habitat function, and adjacent land use intensity. Per KCC Section 21A.24.325(A)(2)(b)(2), "residential use on a site zoned rural area, agriculture, or forestry" is classified as moderate intensity land use. Wetland A is a Category II wetland with a habitat score of 8 and moderate land use intensity. Wetland A is prescribed a buffer of 225 feet in accordance with KCC 21A.24.325.

Aquatic Areas

Lake Joy is regulated as a Type S aquatic area, pursuant to KCC 21A.24.355. Outside of the Urban Growth Area, Type S aquatic areas require a 165-foot critical area buffer.

Shoreline Jurisdiction

Lake Joy is a shoreline of the state and falls under shoreline jurisdiction as defined in RCW 90.58.30. All lands within 200 feet of the OHWM are regulated under KCC 21A.25, Shorelines Regulations. Lake Joy is located within the conservancy shoreline environment.

Wildlife Habitat Conservation Areas

As noted above, habitat associated with species of local importance are also regulated as a critical area according to KCC 21A.24.382. As described in Section 3.6 of this report, there is no onsite evidence of the presence of habitat associated with species of local importance. Some of the trees on site could occasionally support migrating or foraging bird species. However, WDFW PHS data does not show the presence of any priority species within the vicinity, aside from fish species in Lake Joy. Therefore, it has been determined that the site is unencumbered by critical area habitat that has a primary association with species of local importance.

Building Setback

A building setback of 15 feet is required from the edge of all critical area buffers. Building setbacks may contain landscaping, uncovered decks, building overhangs of no more than 18 inches, impervious ground surfaces with specified drainage provisions, and utility service connections (KCC 21A.24.200).

4.1.1 Mitigation

The applicant must demonstrate that the restoration activities will avoid or mitigate for adverse impacts to critical areas (KCC 21A.24.100). Mitigation activities require monitoring and maintenance in accordance with KCC 21A.24.130, consistent with an approved mitigation plan. This proposal includes restoration of disturbed areas to pre-construction conditions. Restoration will result in equivalent or better pre-construction critical area functions and values. Mitigation and monitoring activities are described below.

5. Project

5.1 Description

Clearing activities and the installation of a gravel pad at the subject property resulted in temporary impacts to Wetland A. An area of wetland soil and lawn grass were excavated and replaced with gravel fill to a depth of 2 to 4 feet (Nelson Geotechnical 2021). Seven significant trees were removed from the subject property and plastic sheeting was installed in the nearshore environment of Lake Joy at the northern end of the property.

This project will restore the impacted area of Wetland A to pre-construction conditions by installing a native wetland grass seed mix. The removal of 7 significant trees will be mitigated by replacing them with 21 native trees at a ratio of 3:1. Vegetation structural diversity will also be achieved through the voluntary addition of native shrubs. The plastic sheeting will be removed from the aquatic area.

5.2 Mitigation Sequencing

Pursuant to KCC 21A.24.125, attempts to avoid and minimize impacts to the onsite critical areas and their buffers have been taken.

Avoidance. The proposed mitigation plan has been designed to avoid additional disturbance to Wetland A and the aquatic area buffer during restoration construction by employing best management practices.

Minimization. Several minimization techniques were utilized during the design process to limit impacts to the critical areas and buffers. Construction equipment will be staged and site access will be located outside of critical areas. The proposed planting assemblage is designed to restore the ecological function of the area to pre-construction conditions or better.

Mitigation. As mitigation for wetland impacts, 890 square feet (SF) of wetland restoration is proposed. Wetland soils, which are still located onsite, will be replaced. A native wetland grass seed mix will be installed. Seven trees previously removed from the site will be replaced at a ratio of 3:1. Additional native shrubs chosen by the client will voluntarily be installed to increase the structural diversity of onsite vegetation. Plastic sheeting will be removed from the nearshore environment of Lake Joy.

5.3 Impact Assessment

5.3.1 Critical Area Impact Assessment

Project impacts to critical areas, buffers, and setbacks are discussed in detail in the following subsections.

5.3.1.1 Unavoidable Impacts

Temporary impacts that occurred during clearing and fill activities on the subject property are described above in section 5.1. Areas that were temporarily impacted will be restored to pre-construction conditions. Impacted functions are primarily habitat functions.

5.4 Mitigation

5.4.1 Critical Area Mitigation

The proposed mitigation plan (Appendix B) will restore a total of 890 SF of disturbed wetland at a ratio of 1:1 through the installation of a native wetland grass mix. Twenty-one new native trees will replace the 7 trees removed from the property.

5.5 Critical Area Functional Lift Analysis

Per KCC 21A.24.340, the proposed mitigation measures must achieve equivalent or greater wetland functions. A qualitative analysis of the change in critical area functions is provided below.

5.5.1 Water Quality, Hydrology, and Habitat Functions

Existing Conditions. The primary area of unauthorized disturbance is a gravel pad. The gravel pad was installed without a permit to replace a maintained grass lawn. The Lake Joy nearshore environment immediately north of the subject property is covered with plastic sheet, which has prevented the growth of aquatic plants. The rest of the parcel is maintained lawn, trees, and shrubs. Trees and shrubs onsite are a mix of native and ornamental plant varieties. Functions provided by existing vegetation on site include rain and surface water interception and transpiration. Vegetation also improves soil quality, which generally improves water infiltration into the soil.

Proposed Conditions. The proposed mitigation would remove the gravel pad and replace the gravel with the excavated wetland soils, which are still located onsite. The amended and tilled wetland soil will be seeded with a native wetland grass mix. Mitigation for the removal of 7 trees will include the installation of 21 native trees onsite. Additional native shrubs will be voluntarily planted with the restored trees. The plastic sheeting will be removed from Lake Joy.

Net Result. The proposed actions result in an overall net benefit to site functions. Water quality and hydrology functions are improved by removing gravel and replacing it with wetland soil and native wetland grasses. Vegetation generally tends to improve soil quality and the soil will likely slow the movement of groundwater more than the existing gravel. The addition of new native trees to the site will increase habitat function by providing wildlife with additional opportunities for perching, nesting, and foraging. The voluntary addition of native shrubs will increase plant structure diversity, further enhancing habitat functions. Plastic sheeting will be removed from the nearshore environment, which will cease to prevent the growth of aquatic bed plants and restore nearshore habitat functions.

6. Summary

Clearing activities and the installation of a gravel pad at the subject property resulted in temporary impacts to Wetland A and the overlapping aquatic buffer. Seven significant trees were removed from the subject property and plastic sheeting was installed in the aquatic area at the northern end of the property.

This project proposes to restore impacts to Wetland A by restoring Wetland A to pre-construction conditions by installing a native wetland grass seed mix. The removal of 7 significant trees will be mitigated by replacing them with 21 native trees at a ratio of 3:1. Planting plan, mitigation monitoring, and performance standard details can be found in Appendix B. Impacts to the aquatic area will be restored by removing the plastic sheeting. The proposed critical area restoration will result in equivalent or improved pre-construction critical area ecological functions.

References

Anderson, P.S., Meyer, S., Olson, P., and Stockdale, E. 2016. Determining the Ordinary High Water Mark for Shoreline Management Act Compliance in Washington State. Publication no. 16-06-029. October. Washington State Department of Ecology, Shorelands and Environmental Assistance Program. Olympia, Washington.

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Appendix A

Wetland Delineation Report

August 26, 2021

Jonas Lindberg & Ameli Frenne
10627 East Lake Joy Road NE
Carnation, WA 98014
Via email: Jonas.erik.lindberg@gmail.com

Re: 10627 East Lake Joy Road NE– Wetland and Stream Delineation Report

The Watershed Company Reference Number: 200925

Dear Steve,

On May 17, 2021, Ecologists Heather Rogers and Roen Hohlfeld visited the site near the 10627 East Lake Joy Road NE near Carnation, WA in unincorporated King County to screen for and delineate jurisdictional wetlands and streams. This letter summarizes the findings of the study and details applicable federal, state, and local regulations. The following documents are enclosed:

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

Findings Summary

One lake fringe wetland, Wetland A, was identified within the study area and is summarized below in Table 1. There is one stream near the study area.

Table 1. Identified wetland features summary.

Feature Name	HGM Classification	Category	Approximate Wetland Size (sf)
Wetland A	Lake Fringe	II	~ 10,000

Study Area

The approximately 0.5-acre study area (parcel #4045500740) is located in section 35, township 26 north, range 07 east and Water Resource Inventory Area 7 - Snohomish. The study area is located on the southern shore of Lake Joy. The northwestern end of the parcel has recently been disturbed by construction and filled with gravel. The topography of the parcel slopes down to the north, toward Lake Joy. Vegetation on the site is characterized by maintained lawn, red alder, salmonberry, osoberry, big leaf maple, high bush cranberry, salal, western red cedar, Oregon grape, and others. The parcel and neighboring parcels are within the King County Rural Urban Growth Area. The surrounding land use is categorized as residential.

Methods

Public-domain information on the subject properties was reviewed for this delineation study. Resources and review findings are presented in Table 2 of the "Findings" section of this letter.

The subject parcel was evaluated for wetlands using methodology from the *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* (U.S. Army Corps of Engineers 2010). Presence or absence of wetlands was determined on the basis of an examination of vegetation, soils and hydrology. These parameters were sampled at several locations along the wetland boundary to determine the wetland edge. Wetlands were classified using the Department of Ecology's 2014 rating system (Hruby 2014). The extent of wetland/waterway habitat adjacent to parcel 4045500740 but located outside of the parcel boundary was estimated visually and with public domain resources; adjoining private properties were not entered.

The study area was evaluated for streams based on the presence or absence of an ordinary high water mark (OHWM) as defined by Section 404 of the Clean Water Act, the Washington Administrative Code (WAC) 220-660-030, and the Revised Code of Washington (RCW) 90.58.030 and guidance documents including Determining the Ordinary High Water Mark for Shoreline Management Act Compliance in Washington State (Anderson 2016) and A Guide to Ordinate High Water Mark (OHWM) Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Region of the United States (Mersel 2016).

The on-site wetland boundaries were marked with pink- and black-striped flagging. Data points are marked with yellow- and black-striped flags.

Characterization of climatic conditions for precipitation in the Wetland Determination Data Forms were determined using the WETS table methodology (USDA, NRCS 2015). The "Seattle

Tacoma Intl AP" station from 1991-2020 was used as a source for precipitation data (http://agacis.rcc-acis.org/). The WETS table methodology uses climate data from the three months prior to the site visit month to determine if normal conditions are present in the study area region.

Findings

The Watershed Company reviewed the following public domain resources to determine existing conditions and potential wetlands/other "waters of the U.S.," within the study area:

Table 2. Summary of online mapping and inventory resources.

Resource	Summary
USDA NRCS: Web Soil Survey	*Tokul gravelly medial loam, 8 to 15 percent slopes mapped throughout project area.*
USFWS: NWI Wetland Mapper	*Lacustrine system (Lake Joy, L1UBH) mapped north of the project area.*
WDFW: PHS on the Web	*No results returned.*
WDFW: SalmonScape	*Lake Joy, located north of the project area, mapped for presence of Chinook, coho, pink, steelhead, chum, and bull trout.*
King County iMap	*Harris Creek is mapped approximately 270 feet from the study area. No wetlands or streams mapped on the parcel.*
DNR: Forest Practices Application Mapping Tool	*Open freshwater (Lake Joy) mapped north of the project area. Harris Creek is mapped as a perennial stream approximately 270 feet from the study area.*
WETS Climatic Condition	*Drier than normal.*

Wetlands

One wetland, Wetland A, was delineated in the study area and the data collected is summarized below in Table 3.

Table 3. Wetland A assessment summary.

WETLAND A – Assessment Summary

Location:	Wetland A is located at the northern end of the parcel on the shore of Lake Joy.
WRIA / Sub-basin:	Water Resource Inventory Area 7 - Snohomish / South Lake Joy

2014 Western WA Ecology Rating:	Category II
Standard Buffer Width and Building Setback:	225 ft; 15 ft setback
Wetland Size (sf):	~ 10,000
Cowardin Classification(s):	forested, scrub-shrub, emergent, aquatic bed
HGM Classification(s):	Lake Fringe
Wetland Data Sheet(s):	DP-4
Upland Data Sheet (s):	DP-5
Flag Color:	Pink- and black-striped
Flag Numbers:	A-1 to A-9; A-4 and A-5 do not connect

Vegetation	Tree stratum:	*Thuja plicata*
	Shrub stratum:	*Rubus spectabilis, Solanum aculeastrum, Spirea douglasii, Rubus armeniacus*
	Herb stratum:	*Equisetum arvense*
Soils	Soil survey:	Tokul gravelly medial loam, 8 to 15 percent slopes
	Field data:	Loamy mucky mineral (F1)
Hydrology	Source:	High water table
	Field data:	Saturation (A3)

Wetland Functions

	Improving Water Quality			Hydrologic			Habitat			
Site Potential	H	**M**	L	H	M	**L**	H	**M**	L	
Landscape Potential	H	**M**	L	H	M	**L**	**H**	M	L	
Value	**H**	M	L	**H**	M	L	**H**	M	L	**TOTAL**
Score Based on Ratings	7			5			8			20

Description and Comments

Wetland A is a lake fringe wetland which is primarily maintained lawn at the northern end of the subject parcel. Part of Wetland A was recently disturbed by construction and filled with gravel.

The lake fringe wetland extends onto the neighboring parcels adjacent to the shore of Lake Joy. The neighboring properties were not entered, and the extent of Wetland A was estimated from the subject property.

Figure 1. Wetland A. Looking southwest from Lake Joy

Figure 2. Wetland A. Looking northeast.

Non-wetlands

Non-wetland areas within the study area do not meet the three criteria for hydrophytic vegetation, hydric soils and/or wetland hydrology. In non-wetland areas dominant vegetation consists of maintained lawn, western red cedar (*Thuja plicata*), osoberry (*Oemleria cerisaformis*), red alder (*Alnus rubra*), high bush cranberry (*Viburnum trilobum*), and salal (*Galtheria shallon*) (see Figure 3, below).

Figure 3. Typical non-wetland conditions.

Local Regulations

Wetlands

Critical areas in unincorporated King County are regulated by the County's *Critical Areas Regulations* [King County Code (KCC) Chapter 21A.24].

According to the code, wetlands are rated as one of four categories based on the 2014 Wetland Rating System. Under the Rating System, Wetland A received 7 points for water quality functions, 5 points for hydrologic functions, and 8 points for habitat functions, for a total of 20 points. This score categorizes Wetland A as a Category II wetland per KCC.

Wetland buffer widths in King County are based on the wetland category, habitat score, whether the wetland is located within designated urban growth area (UGA), and the intensity of the intended land use. Wetland A is located outside of the urban growth area and in an area zoned as residential-2.5 dwelling units per acre; therefore, residential development would be a moderate impact. Based on these parameters, and a habitat score of 8, Wetland A is prescribed a buffer of 225 feet per KCC 21A.24.325.

King County requires a 15-foot building setback from the edges of all critical area buffers. Building setbacks may contain landscaping, uncovered decks, building overhangs (if no more than 18 inches into the setback area), impervious ground surfaces with specified drainage provisions, and utility service connections (KCC 21A.24.200).

Lake Joy is a shoreline of the state and falls under shoreline jurisdiction as defined in RCW 90.58.30. All lands within 200 feet of the OHWM are regulated under KCC 21A.25, Shorelines Regulations. Lake Joy is located within the conservancy shoreline environment. See KCC 21A.25 for further development regulations.

State and Federal Regulations

Federal Agencies

Most wetlands and streams are regulated by the Corps under Section 404 of the Clean Water Act. Any proposed filling or other direct impacts to Waters of the U.S., including wetlands (except isolated wetlands), would require notification and permits from the Corps. Due to the proximity and association with Lake Washington, the wetlands and potential wetlands identified in this study are not isolated. Unavoidable impacts to jurisdictional wetlands are typically required to be compensated through implementation of an approved mitigation plan. If activities requiring a Corps permits are proposed, a Joint Aquatic Resource Permit Application (JARPA) could be submitted to obtain authorization.

Federally permitted actions that could affect endangered species may also require a biological assessment study and consultation with the U.S. Fish and Wildlife Service and/or the National Marine Fisheries Service. Compliance with the Endangered Species Act must be demonstrated for activities within jurisdictional wetlands and the 100-year floodplain. Application for Corps permits may also require an individual 401 Water Quality Certification and Coastal Zone Management Consistency determination from Ecology and a cultural resource study in accordance with Section 106 of the National Historic Preservation Act.

Washington Department of Ecology (Ecology)

Similar to the Corps, Ecology, under Section 401 of the Clean Water Act, is charged with reviewing, conditioning, and approving or denying certain federally permitted actions that result in discharges to state waters. However, Ecology review under the Clean Water Act would only become necessary if a Section 404 permit from the Corps was issued. However, Ecology also regulates wetlands, including isolated wetlands, under the Washington Pollution Prevention and Control Act, but only if direct wetland impacts are proposed. Therefore, if filling activities are avoided, authorization from Ecology would not be needed.

If filling is proposed, a JARPA may be also be submitted to Ecology in order to obtain a Section 401 Water Quality Certification and Coastal Zone Management Consistency Determination. Ecology permits are either issued concurrently with the Corps permit or within 90 days following the Corps permit.

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

Washington Department of Fish and Wildlife (WDFW)

Chapter 77.55 of the RCW (the Hydraulic Code) gives WDFW the authority to review, condition, and approve or deny "any construction activity that will use, divert, obstruct, or change the bed or flow of state waters." This provision includes any in-water work, the crossing or bridging of any state waters and can sometimes include stormwater discharge to state waters. If a project meets regulatory requirements, WDFW will issue a Hydraulic Project Approval (HPA).

Through issuance of an HPA, WDFW can also restrict activities to a particular timeframe. Work is typically restricted to late summer and early fall. However, WDFW has in the past allowed crossings that do not involve in-stream work to occur at any time during the year.

Disclaimer

The information contained in this letter is based on the application of technical guidelines currently accepted as the best available science and in conjunction with the manuals and criteria referenced above. All discussions, conclusions and recommendations reflect the best professional judgment of the author(s) and are based upon information available at the time the study was conducted. All work was completed within the constraints of budget, scope, and timing. The findings of this report are subject to verification and agreement by the appropriate

local, state and federal regulatory authorities. No other warranty, expressed or implied, is made.

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

Sincerely,

Heather Rogers
Ecologist

Enclosures

References

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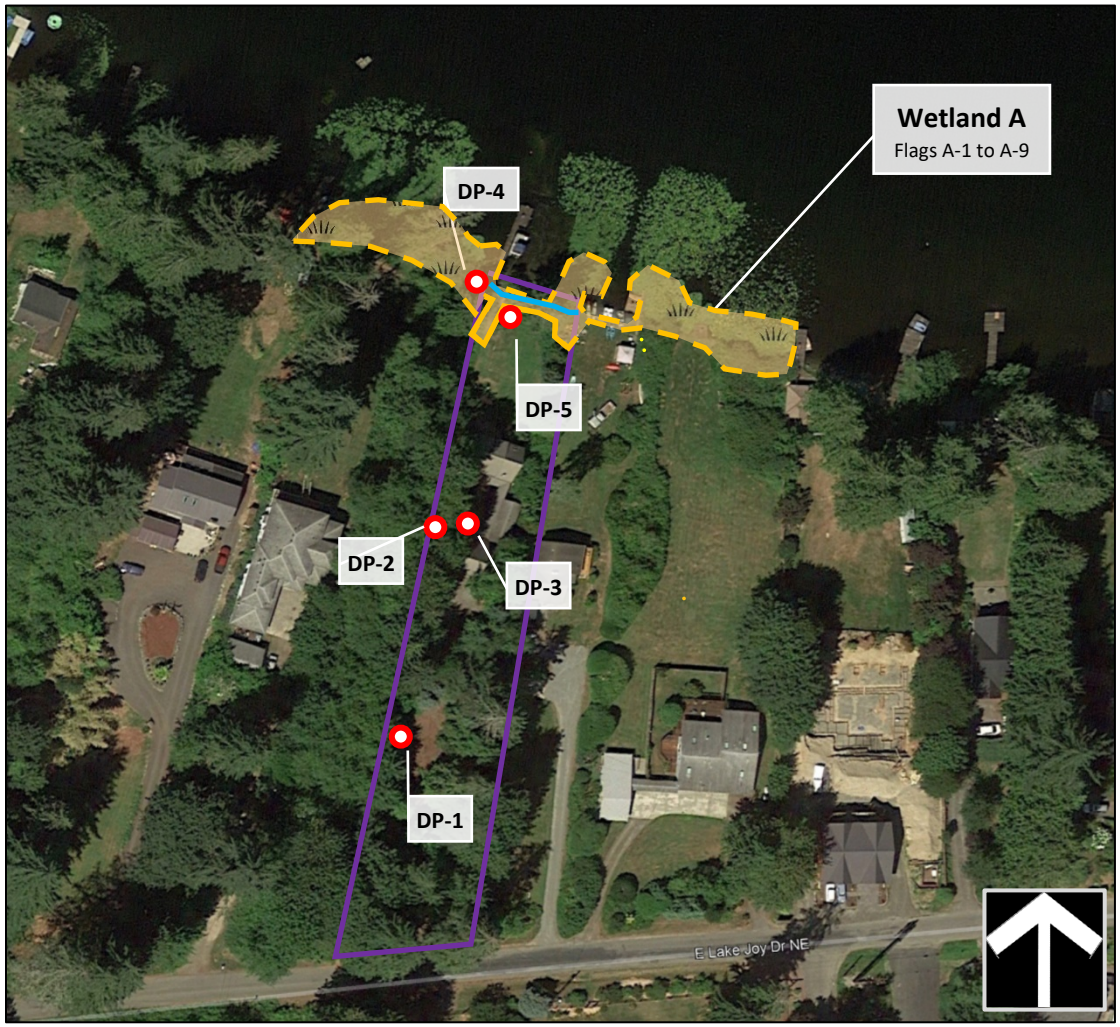
Stream & Wetland Reconnaissance Sketch – Lindberg Property

Site Address:	10627 East Joy Lake Road NE	Prepared for:	Jonas Lindberg & Ameli Frenne
Parcel Number:	4045500740	TWC Ref. No.:	200925
Site Visit Date:	5/18/2021		



LEGEND

- Wetland
- Delineated Wetland Boundary
- Non-delineated Wetland Boundary
- OHWM
- Study Area
- Data Point (DP)

Note: Field sketch only. Features depicted are approximate and not to scale. Wetland boundary is marked with pink- and black-striped flags. Stream OHWM is marked with blue- and white-striped flags. Data points are marked with yellow- and black-striped flags. Off-site features were assessed from the property boundary or nearest publicly owned parcel. The aerial photo is from 2018; the aquatic bed was less extensive at the time of the site visit on 5/18/2021.

THE WATERSHED COMPANY

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

DP- 1

Project/Site: Lindberg City/County: Carnation/KC Sampling date: 5-15-21

Applicant/Owner: Lindberg State: WA Sampling Point: DP-1

Investigator(s): HR/RH Section, Township, Range: 33S, T26N, R7E

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

Subregion (LRR): A Lat: - Long: - Datum: -

Soil Map Unit Name: Tokul NWI classification: N/A

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

Are Vegetation ☐, Soil ☒, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present on the site? ☐ Yes ☒ No

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

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

Hydrophytic Vegetation Present?	Yes ☒	No ☐	**Is the Sampled Area within a Wetland?**	Yes ☐ No ☒
Hydric Soils Present?	Yes ☐	No ☒		
Wetland Hydrology Present?	Yes ☐	No ☒		

Remarks: drier than normal; disturbed by construction

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5-m diameter)	Absolute % Cover	Dominant Species?	Indicator Status
1. ~~ALRU~~ ALRU	60	Y	F
2. TSHE (rooted out)	20	N	FU
3.			
4.			
	80	= Total Cover	

Sapling/Shrub Stratum (Plot size: 3-m diameter)			
1. RUSP	35	Y	F
2. OECE	trace	N	FU
3. ACMA (sprouts)	trace	N	FU
4. ILAQ	5	Y	FU
5.			
	40	= Total Cover	

Herb Stratum (Plot size: 1-m diameter)

1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11.

= Total Cover

Woody Vine Stratum (Plot size: 3-m diameter)

1. 2.

= Total Cover

% Bare Ground in Herb Stratum:

Dominance Test worksheet:

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

SOIL

Sampling Point: DP- 1

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

Depth (inches)	Matrix Color (moist)	%	Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR3/3	100%					SA/LO	
6-17	10YR 2/2	50%					SA/LO	MIXED
6-17	10YR 3/3	50%					SA/LO	MIXED

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric soil present? Yes ☐ No ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (in):

Water Table Present? Yes ☐ No ☒ Depth (in):

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

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks: dry throughout

THE WATERSHED COMPANY

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

DP- 2

Project/Site: ~~Lake Joy~~ Lindberg City/County: Carnation/King Sampling date: 5-18-21

Applicant/Owner: Lindberg State: WA Sampling Point: DP-2

Investigator(s): HER, RH Section, Township, Range: S35 T26N R7E

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

Subregion (LRR): A Lat: - Long: - Datum: -

Soil Map Unit Name: Tokul NWI classification: NA

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present on the site? ☐ Yes ☒ No

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

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

Hydrophytic Vegetation Present?	Yes ☐	No ☑	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Hydric Soils Present?	Yes ☐	No ☑		
Wetland Hydrology Present?	Yes ☐	No ☑		

Remarks: drier than normal; site disturbed by construction

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5-m diameter)	Absolute % Cover	Dominant Species?	Indicator Status
1. ALRU	60	Y	F
2.			
3.			
4.			
	60	= Total Cover	

Sapling/Shrub Stratum (Plot size: 3-m diameter)			
1. high bush cranberry VITE	60	Y	NI
2. Gaultheria shallon GASH	40	Y	FU
3.			
4.			
5.			
	100	= Total Cover	

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

Woody Vine Stratum (Plot size: 3-m diameter)	
1.	
2.	
	= Total Cover

% Bare Ground in Herb Stratum:

Dominance Test worksheet:

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 4 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:

SOIL

Sampling Point: DP-

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

Depth (inches)	Matrix Color (moist)	%	Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 2/2	100					Sandy loam	
5-18	10YR 2/2	50					Sandy silt loam	
	10YR 3/6	50						

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric soil present? Yes ☐ No ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (in):

Water Table Present? Yes ☐ No ☒ Depth (in):

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

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks: dry throughout

THE WATERSHED COMPANY

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

DP- 3

Project/Site: Lindberg City/County: Carnation/KC Sampling date: 5-18-21

Applicant/Owner: Lindberg State: WA Sampling Point:

Investigator(s): HR/RH Section, Township, Range: S35 T26N R7E

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

Subregion (LRR): A Lat: - Long: - Datum: -

Soil Map Unit Name: Tokul NWI classification: NA

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present on the site? ☐ Yes ☒ No

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

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

Hydrophytic Vegetation Present?	Yes ☒	No ☐	**Is the Sampled Area within a Wetland?**	Yes ☐ No ☒
Hydric Soils Present?	Yes ☐	No ☒		
Wetland Hydrology Present?	Yes ☒	No ☐		

Remarks: drier than normal ; part of site excavated and replaced w/ gravel

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5-m diameter)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 3-m diameter)			
1. RUSP	2	Y	FAC
2. RUAR	2	Y	FAC
3.			
4.			
5.			
	4 = Total Cover		
Herb Stratum (Plot size: 1-m diameter)			
1. GEMA	trace		
2. RARE	35	Y	FAC
3. TAOF	10	N	
4. GERO	3	N	
5. grasses *	40	Y	FAC*
6. willow herb	trace		
7.			
8.			
9.			
10.			
11.			
	88 = Total Cover		
Woody Vine Stratum (Plot size: 3-m diameter)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum: 40

Dominance Test worksheet:

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across all Strata: 4 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

SOIL

Sampling Point: DP-

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR2/2	100%					SA/CL/LO	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric soil present? Yes ☐ No ☑

Remarks:

- restrictive layer - weed fabric.
- maintained as drainage for downspout.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ☐	No ☑	Depth (in):	–	
Water Table Present?	Yes ☐	No ☑	Depth (in):	–	
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (in):	0"	

Wetland Hydrology Present? Yes ☑ No ☐

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

Remarks:

- near downspout and hose bib.

THE WATERSHED COMPANY

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

DP- 4

Project/Site: Lindberg City/County: Carnation/KC Sampling date: 5-18-21

Applicant/Owner: Lindberg State: WA Sampling Point: DP-4

Investigator(s): HR/RH Section, Township, Range: S35 T26N R7E

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

Subregion (LRR): A Lat: - Long: - Datum: -

Soil Map Unit Name: Tokul NWI classification: NA

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present on the site? ☐ Yes ☒ No

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

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

Hydrophytic Vegetation Present?	Yes ☒	No ☐	**Is the Sampled Area within a Wetland?**	Yes ☒ No ☐
Hydric Soils Present?	Yes ☒	No ☐		
Wetland Hydrology Present?	Yes ☒	No ☐		

Remarks: Wetland A - IN p.7 ; drier than normal ; part of wetland has been dug out and replaced with gravel

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5-m diameter)	Absolute % Cover	Dominant Species?	Indicator Status
1. THPL (rooted out)	70	N	F
2.			
3.			
4.			
	= Total Cover		

Sapling/Shrub Stratum (Plot size: 3-m diameter)			
1. RUSP	15	N	F
2. RUAR	25	Y	F
3. SPDO	30	Y	FW
4. SOAC	10	N	FU?
5. GASH	5	N	FU
	85 = Total Cover		

Herb Stratum (Plot size: 1-m diameter)			
1. EQTE	5	Y	FW?
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.	= Total Cover		

Woody Vine Stratum (Plot size: 3-m diameter)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum:

Dominance Test worksheet:

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

SOIL

Sampling Point: DP- 4

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR2/1	100%					mucky mineral	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric soil present? Yes ☒ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (in): —

Water Table Present? Yes ☐ No ☑ Depth (in): —

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

Wetland Hydrology Present? Yes ☑ No ☐

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

Remarks:

THE WATERSHED COMPANY

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

DP- 5

Project/Site: Lindberg City/County: Carnation/KC Sampling date: 5-18-21

Applicant/Owner: Lindberg State: WA Sampling Point: DP-5

Investigator(s): HR/RH Section, Township, Range: S35 T26N R7E

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

Subregion (LRR): A Lat: - Long: - Datum: -

Soil Map Unit Name: Tokul NWI classification: NA

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present on the site? ☐ Yes ☒ No

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

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

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

Remarks: Wetland A - OUT pit ; drier than normal ; part of wetland has been removed

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5-m diameter)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		

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

Herb Stratum (Plot size: 1-m diameter)			
1. grasses #	65	Y	F
2. HOLA	10	N	
3. white clover	5	N	
4. chickweed	trace	N	
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	80 = Total Cover		

Woody Vine Stratum (Plot size: 3-m diameter)	
1.	
2.	
	= Total Cover

% Bare Ground in Herb Stratum:

Dominance Test worksheet:

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: 35

SOIL

Sampling Point: DP- 5

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-17	7.5YR 2/2	100%					SA/LO	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric soil present? Yes ☐ No ☒

Remarks: Wetland A - OUT Pit

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (in):

Water Table Present? Yes ☐ No ☒ Depth (in):

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

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks: damp at bottom.

Wetland name or number: Wetland A

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland A Date of site visit: 5/18/2021

Rated by: H. Rogers, R. Hohlfeld Trained by Ecology? ☒Y ☐N Date of training: November 2020

HGM Class used for rating: Lake-fringe Wetland has multiple HGM classes? ☐Y ☒N

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

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

1. Category of wetland based on FUNCTIONS

- ☐ **Category I** – Total score = 23 - 27
- ☒ **Category II** – Total score = 20 - 22
- ☐ **Category III** – Total score = 16 - 19
- ☐ **Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality			Hydrologic			Habitat			
	Circle the appropriate ratings									
Site Potential	H	**M**	L	H	M	**L**	H	**M**	L	
Landscape Potential	H	**M**	L	H	M	**L**	**H**	M	L	
Value	**H**	M	L	**H**	M	L	**H**	M	L	**TOTAL**
Score Based on Ratings	7			5			8			20

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

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

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

Wetland name or number: Wetland A

Maps and figures required to answer questions correctly for Western Washington

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	1
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	2
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	L 2.2	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	3
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	4
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	5

HGM Classification of Wetlands in Western Washington

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

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

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

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

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

   NO – Saltwater Tidal Fringe (Estuarine) **YES – Freshwater Tidal Fringe**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

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

   ☒NO – go to 3 ☐**YES** – The wetland class is **Flats**
   *If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
   ☒The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
   ☒At least 30% of the open water area is deeper than 6.6 ft (2 m).

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

4. Does the entire wetland unit **meet all** of the following criteria?
   ☐The wetland is on a slope (*slope can be very gradual*),
   ☐The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
   ☐The water leaves the wetland **without being impounded**.

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

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

5. Does the entire wetland unit **meet all** of the following criteria?
   ☐The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
   ☐The overbank flooding occurs at least once every 2 years.

Wetland name or number: Wetland A

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

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

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

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

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

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

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

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

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

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

Wetland name or number: Wetland A

LAKE FRINGE WETLANDS

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

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

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

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

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

Internal combustion engines are not allowed on Lake Joy; no algal blooms reported in 2020 per KC Water Quality report

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

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

The site is located in the Harris Creek – Snoqualmie River subbasin, Marcel Lake and sections of the Snoqualmie River are on the 303d list. There is a TMDL for Snoqualmie River basin.

Wetland name or number: Wetland A

LAKE FRINGE WETLANDS

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

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

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

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

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

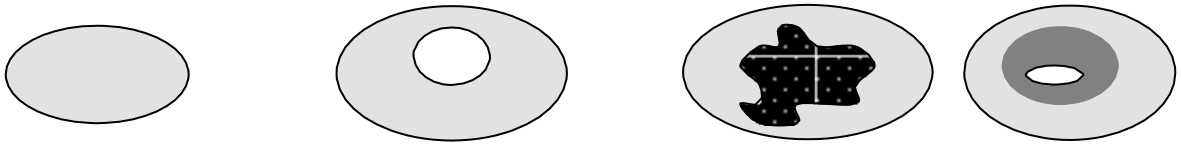
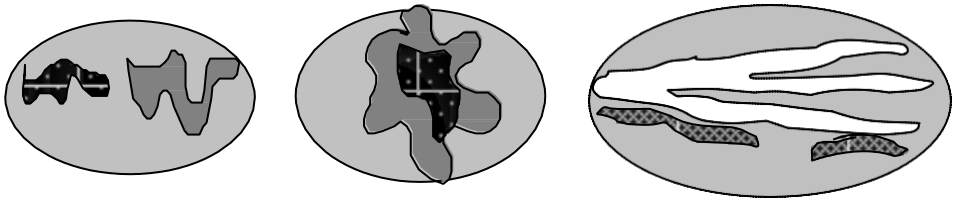
L 6.0. Are the hydrologic functions provided by the site valuable to society?	
L 6.1. Are there resources along the shore that can be impacted by erosion? If more than one resource is present, choose the one with the highest score. ☒ There are human structures or old growth/mature forests within 25 ft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

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

NOTES and FIELD OBSERVATIONS:

Docks, pergolas, and boat storage present on shore

Wetland name or number: Wetland A

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

Wetland name or number: Wetland A

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☒ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). ☐ Standing snags (dbh > 4 in) within the wetland. ☐ Undercut banks are present for at least 6.6 ft (2 m) **AND/OR** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m). ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) **OR** signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed).* ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians).*	1
Total for H 1 — Add the points in the boxes above	10

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

H 2.0. Does the landscape have the potential to support the habitat functions of the site?

H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat + [(%moderate and low intensity land uses)/2] = **20% + (5%/2) = 22.5%** If total accessible habitat is: ☐ > 1/3 (33.3%) of 1 km Polygon — points = 3 ☒ 20-33% of 1 km Polygon — points = 2 ☐ 10-19% of 1 km Polygon — points = 1 ☐ < 10% of 1 km Polygon — points = 0	2
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* % undisturbed habitat + [(%moderate and low intensity land uses)/2 **= 35% + (40%/2) = 55%** ☒ Undisturbed habitat > 50% of Polygon — points = 3 ☐ Undisturbed habitat 10-50% and in 1-3 patches — points = 2 ☐ Undisturbed habitat 10-50% and > 3 patches — points = 1 ☐ Undisturbed habitat < 10% of 1 km Polygon — points = 0	3
H 2.3. Land use intensity in 1 km Polygon: If ☐ > 50% of 1 km Polygon is high intensity land use — points = (- 2) ☐ ≤ 50% of 1 km Polygon is high intensity — points = 0	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.* Site meets ANY of the following criteria: — points = 2 ☒ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan ☐ Site has 1 or 2 priority habitats (listed on next page) within 100 m — points = 1 ☐ Site does not meet any of the criteria above — points = 0	2

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

Wetland name or number: Wetland 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: Wetland A

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

Wetland name or number: Wetland A

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

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Wetland Rating Form Figures

10627 East Lake Joy Road NE

Wetland A (Lake Fringe)

Figure 1. Cowardin plant classes – L1.1, L4.1, H1.1, H1.4

Figure 2. Plant cover of dense and rigid trees, shrubs, and herbaceous plants and 150 ft boundary– L1.2, L2.2

Figure 3. 1km Polygon with accessible habitat and undisturbed habitat - H2.1, H2.2, H2.3

Figure 3. Screen capture of 303(d) listed waters – L3.1, L3.2

Figure 4. Screen capture of TMDL list for WRIA in which unit is found – L3.3

Wetland A (Lake Fringe)

Figure 1. Cowardin Classes

Figure 2. Plant Cover and 150-foot boundary

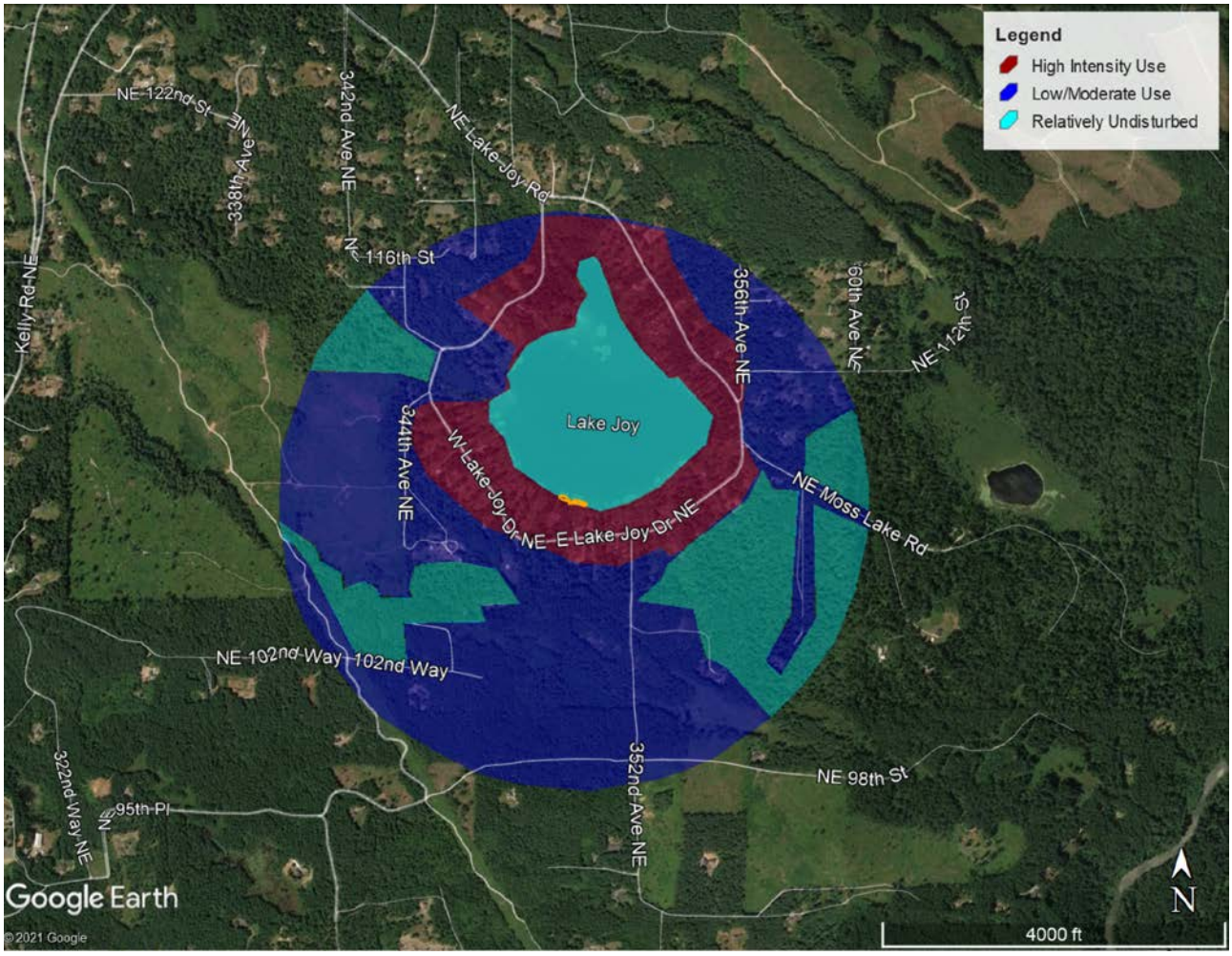


Figure 3. 1 km polygon with accessible and relatively undisturbed habitat.

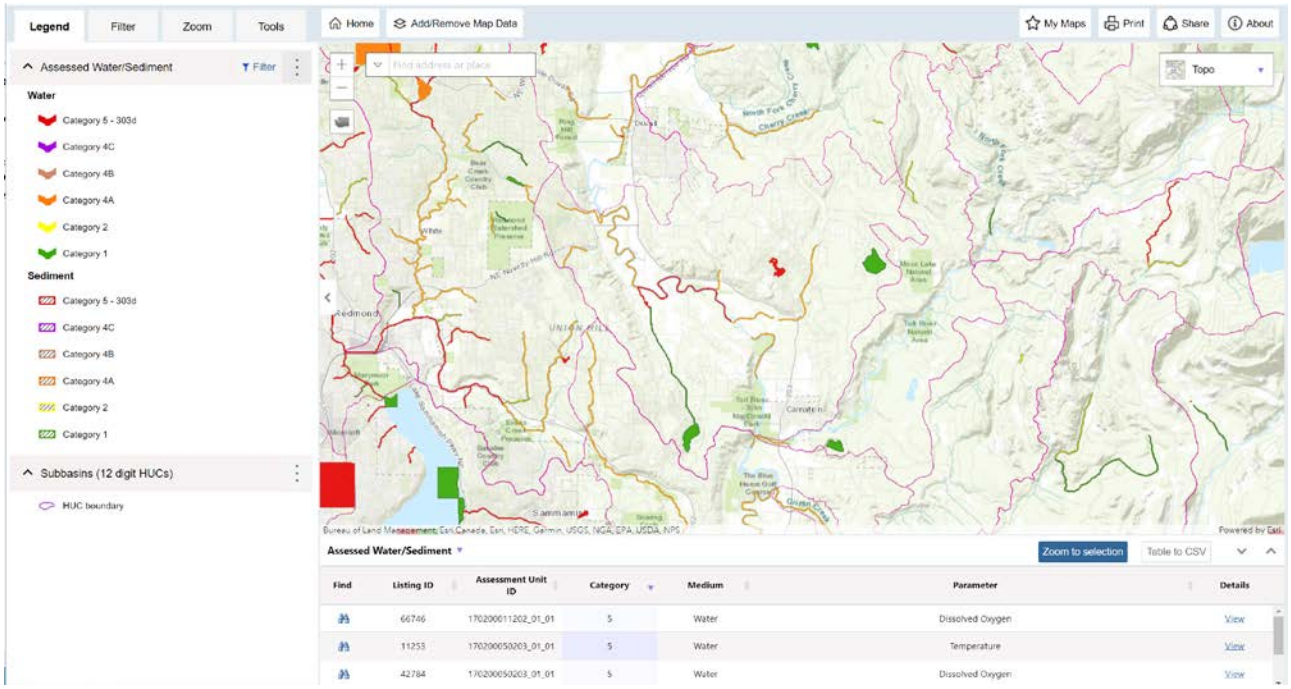
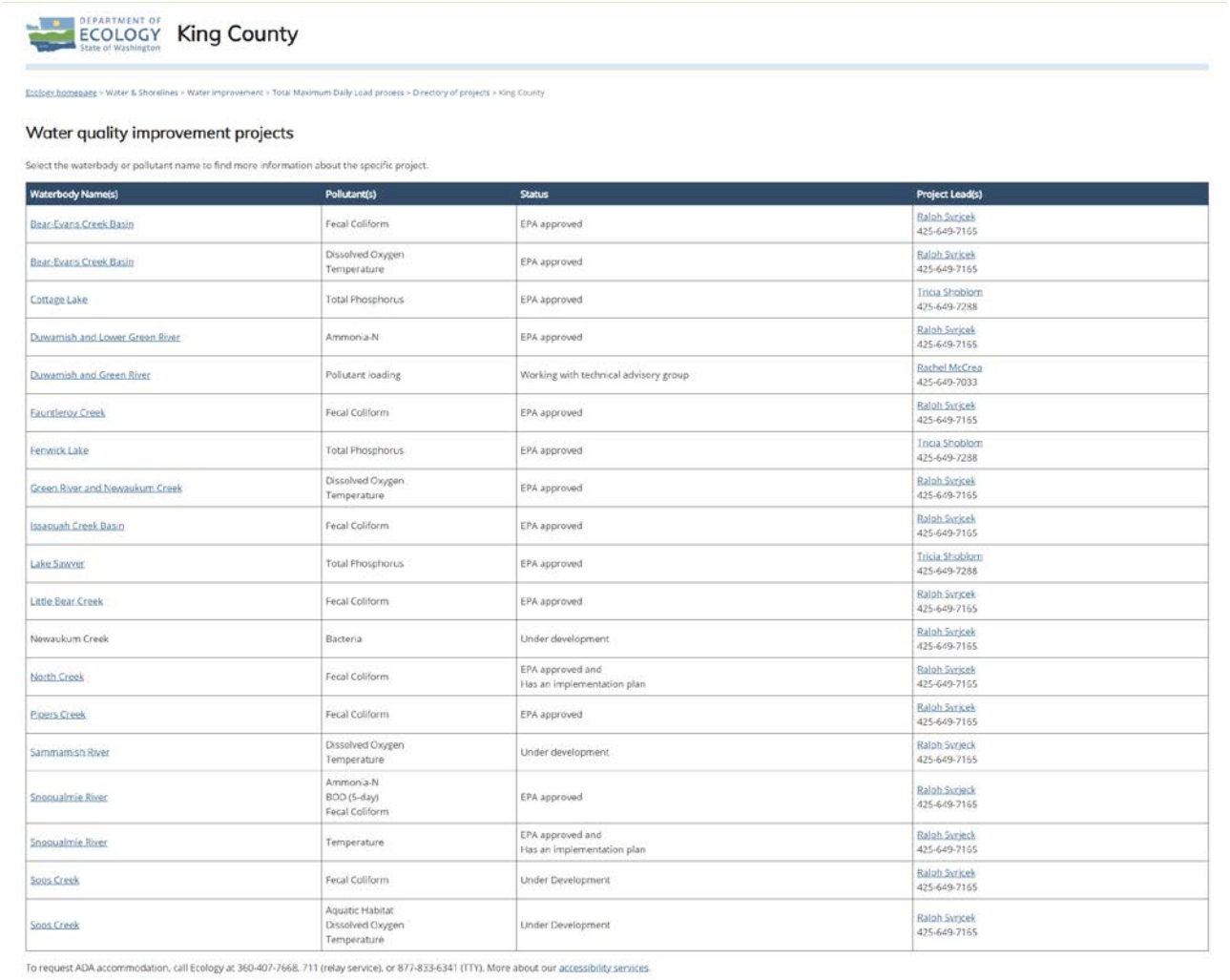


Figure 4. 303(d) Screen capture



DEPARTMENT OF ECOLOGY State of Washington — King County

Ecology homepage > Water & Shorelines > Water improvement > Total Maximum Daily Load process > Directory of projects > King County

Water quality improvement projects

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

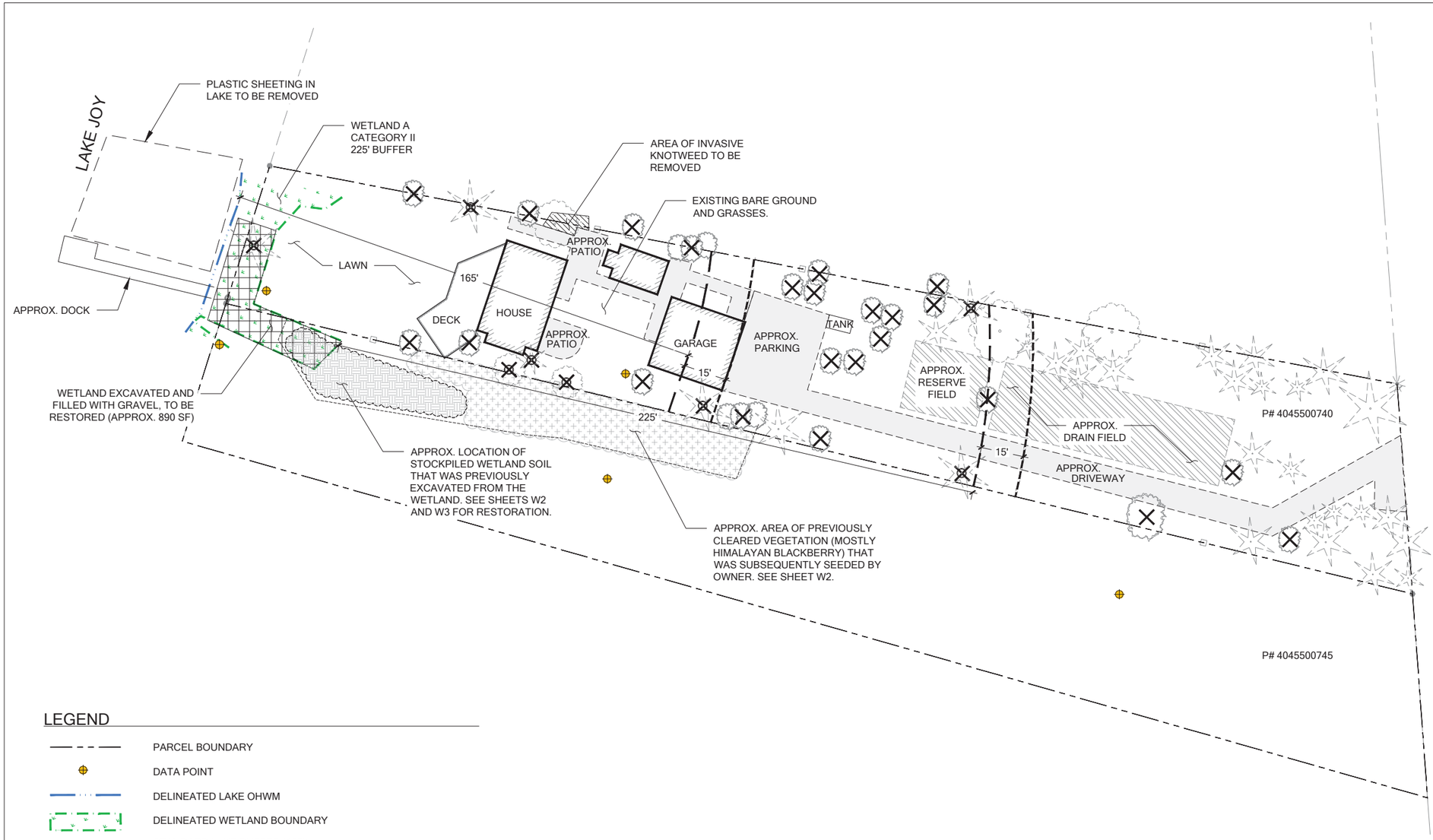
Waterbody Name(s)	Pollutant(s)	Status	Project Lead(s)
Bear-Evans Creek Basin	Fecal Coliform	EPA approved	Ralph Svrjcek 425-649-7165
Bear-Evans Creek Basin	Dissolved Oxygen Temperature	EPA approved	Ralph Svrjcek 425-649-7165
Cottage Lake	Total Phosphorus	EPA approved	Tricia Shoblom 425-649-7288
Duwamish and Lower Green River	Ammonia-N	EPA approved	Ralph Svrjcek 425-649-7165
Duwamish and Green River	Pollutant loading	Working with technical advisory group	Rachel McCrea 425-649-7033
Fauntleroy Creek	Fecal Coliform	EPA approved	Ralph Svrjcek 425-649-7165
Fenwick Lake	Total Phosphorus	EPA approved	Tricia Shoblom 425-649-7288
Green River and Newaukum Creek	Dissolved Oxygen Temperature	EPA approved	Ralph Svrjcek 425-649-7165
Issaquah Creek Basin	Fecal Coliform	EPA approved	Ralph Svrjcek 425-649-7165
Lake Sawyer	Total Phosphorus	EPA approved	Tricia Shoblom 425-649-7288
Little Bear Creek	Fecal Coliform	EPA approved	Ralph Svrjcek 425-649-7165
Newaukum Creek	Bacteria	Under development	Ralph Svrjcek 425-649-7165
North Creek	Fecal Coliform	EPA approved and Has an implementation plan	Ralph Svrjcek 425-649-7165
Pipers Creek	Fecal Coliform	EPA approved	Ralph Svrjcek 425-649-7165
Sammamish River	Dissolved Oxygen Temperature	Under development	Ralph Svrjeck 425-649-7165
Snoqualmie River	Ammonia-N BOD (5-day) Fecal Coliform	EPA approved	Ralph Svrjeck 425-649-7165
Snoqualmie River	Temperature	EPA approved and Has an implementation plan	Ralph Svrjeck 425-649-7165
Soos Creek	Fecal Coliform	Under Development	Ralph Svrjcek 425-649-7165
Soos Creek	Aquatic Habitat Dissolved Oxygen Temperature	Under Development	Ralph Svrjcek 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.

Figure 5. TMDL Screen capture

Appendix B

Mitigation Plan



LEGEND

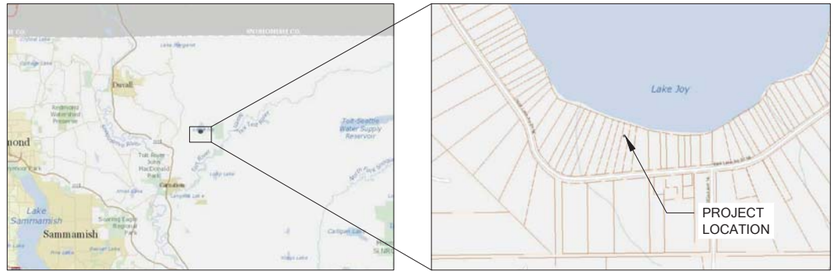
- PARCEL BOUNDARY
- DATA POINT
- DELINEATED LAKE OHWM
- DELINEATED WETLAND BOUNDARY
- STANDARD LAKE BUFFER (165')
- STANDARD WETLAND BUFFER (225')
- BUILDING SETBACK LINE (15)
- AREA OF WETLAND IMPACT TO BE RESTORED
- EXISTING TREE TO REMAIN (APPROX. LOCATION)
- SIGNIFICANT TREE PREVIOUSLY REMOVED (APPROX. 7)
- SHRUBS OR NON-SIGNIFICANT TREE PREVIOUSLY REMOVED (APPROX. LOCATION)

NOTES

1. SURVEY PROVIDED BY PLS, INC. ON APRIL 22, 2019 (1595 NW GILMAN BOULEVARD, #15; ISSAQUAH, WA 98027; 425-313-9378).SURVEYED FEATURES INCLUDE PROPERTY LINE, STRUCTURES AND DECK ONLY.
2. CRITICAL AREAS ASSESSED BY THE WATERSHED COMPANY ON MAY 18, 2021 (750 SIXTH STREET SOUTH; KIRKLAND, WA 98033; 425-822-5242). GPS LOCATIONS OF CRITICAL AREAS ADDED TO SURVEY BY THE WATERSHED COMPANY.
3. TREE LOCATIONS, DOCK, DRIVEWAY, PARKING AREA, AND PATIOS ARE APPROXIMATED BASED ON OWNER INPUT AND FIELD OBSERVATION BY THE WATERSHED COMPANY.

EXISTING CONDITIONS AND IMPACTS

SCALE 1:20



VICINITY MAPS

0' 10' 20' 40' 80'

SHEET INDEX

PERMIT SET - NOT FOR CONSTRUCTION

THE WATERSHED COMPANY
750 Sixth Street South
Kirkland WA 98033
p 425.822.5242
www.watershedco.com
Science & Design

LINDBERG RESIDENCE

MITIGATION PLAN

JONAS LINDBERG AND AMELI FRENNE
PARCEL # 4045500740 & 4045500745
10627 & 10623 EAST LAKE JOY ROAD NE
CARNATION, WA 98014

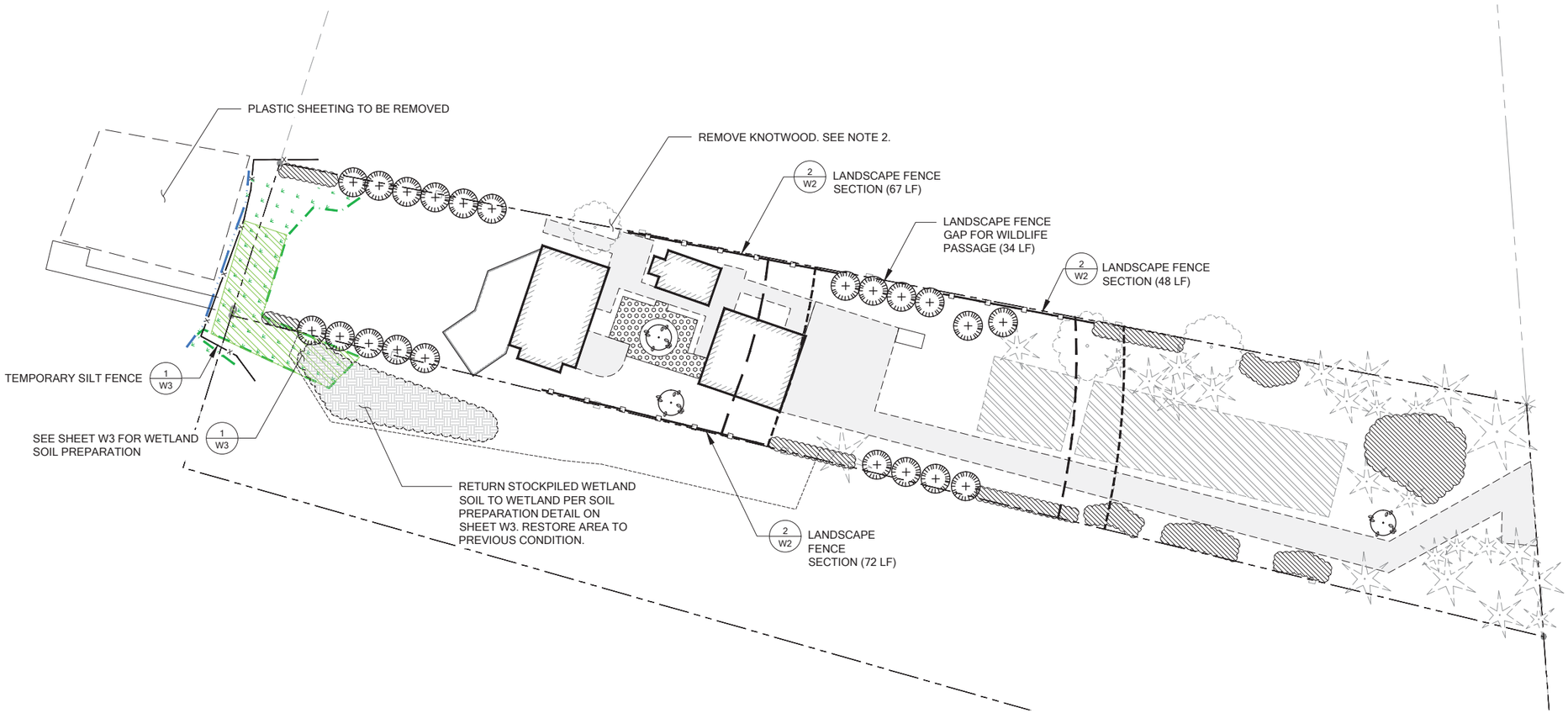
SUBMITTALS & REVISIONS

NO.	DATE	DESCRIPTION	BY
1	08/31/2021	MITIGATION PLAN	AF
2	10/08/2021	MITIGATION PLAN REVISED	AF

SHEET SIZE:
ORIGINAL PLAN IS 22" x 34".
SCALE ACCORDINGLY.

PROJECT MANAGER: KB
DESIGNED: AF
DRAFTED: AF
CHECKED: RH/MF/KB
JOB NUMBER:
200925
SHEET NUMBER:
W1 OF 6

FILENAME
PRINTED BY
DATE



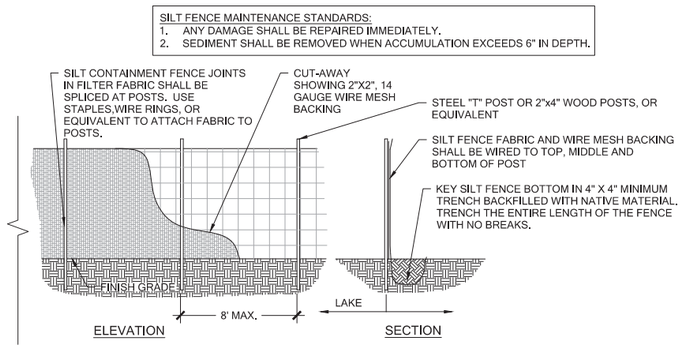
LEGEND

EXISTING

- PARCEL BOUNDARY
- DATA POINT
- DELINEATED LAKE OHWM
- DELINEATED WETLAND BOUNDARY
- STANDARD LAKE BUFFER (165')
- STANDARD WETLAND BUFFER (225')
- BUILDING SETBACK LINE (15)

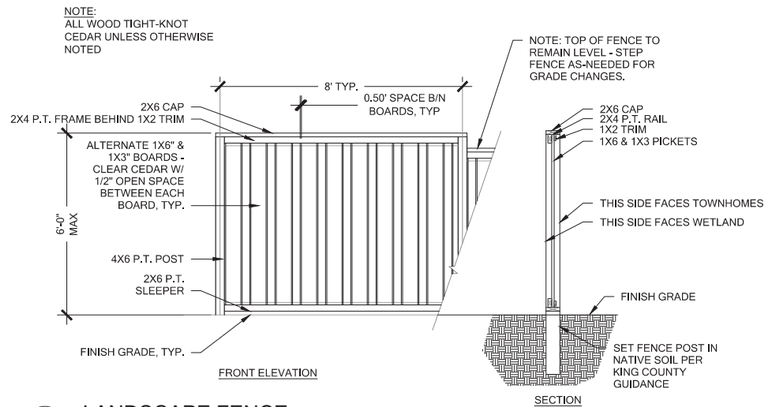
PROPOSED

- RESTORATION PLANTING AREA (890 SF)
- TEMPORARY SILT FENCE
- MITIGATION TREE (21 TOTAL)
- OWNER SELECTED TREE (3 TOTAL)
- LANDSCAPE FENCE (6' HT)
- OWNER LANDSCAPE
- WOODCHIPS OR OTHER PERMEABLE SURFACING (350 SF)



1 TEMPORARY SILT FENCE

Scale: NTS



2 LANDSCAPE FENCE

Scale: NTS

NOTES

1. SILT FENCE SHALL BE PUT IN PLACE PRIOR TO ANY MITIGATION WORK.
2. INVASIVE SPECIES SHALL BE REMOVED AND DISPOSED OF ACCORDING TO KCNWCB RECOMMENDATIONS.

MITIGATION SITE PLAN

SCALE 1:20

0' 10' 20' 40' 80'

PERMIT SET - NOT FOR CONSTRUCTION

THE WATERSHED COMPANY
750 Sixth Street South
Kirkland WA 98033
p 425.822.5242
www.watershedco.com
Science & Design

LINDBERG RESIDENCE
MITIGATION PLAN
JONAS LINDBERG AND AMELI FRENNE
PARCEL # 4045500740 & 4045500745
10627 & 10623 EAST LAKE JOY ROAD NE
CARNATION, WA 98014

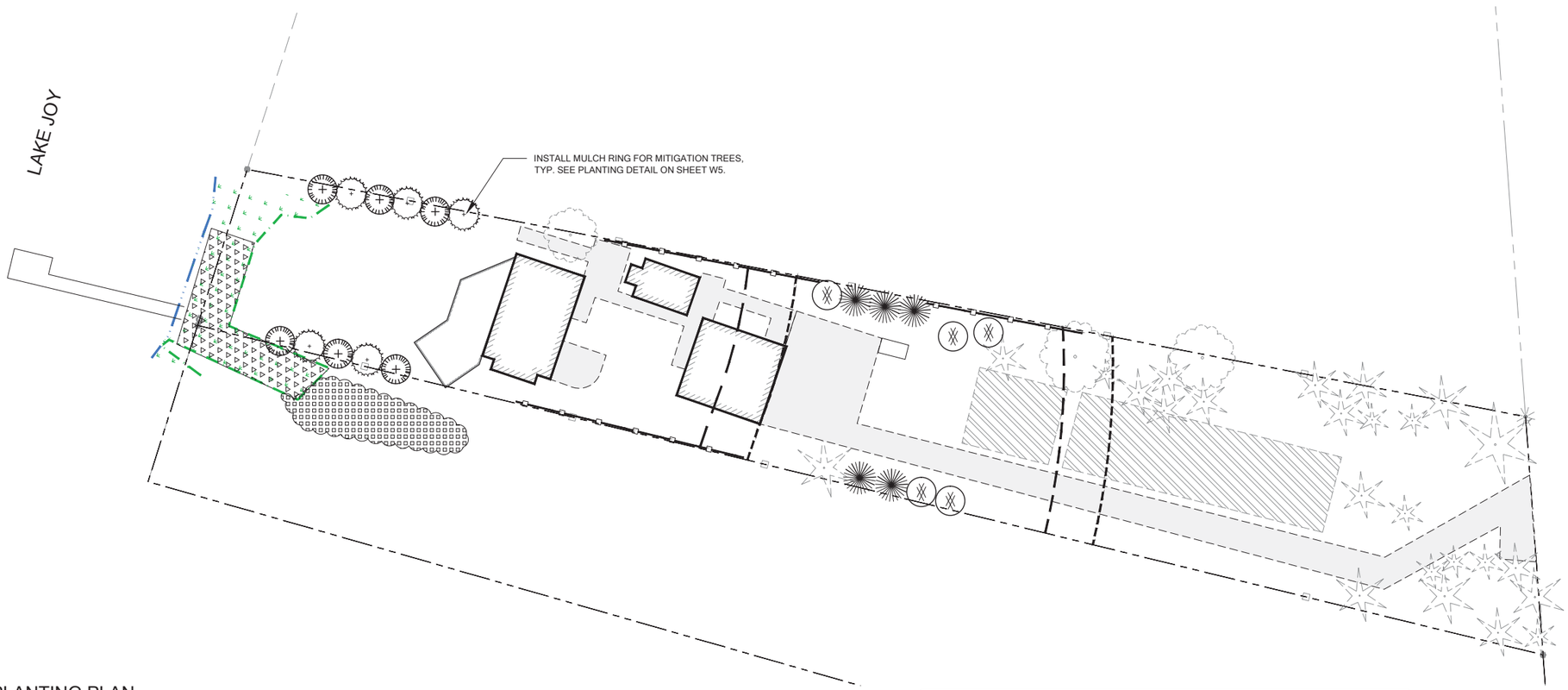
SUBMITTALS & REVISIONS

NO.	DATE	DESCRIPTION	BY
1	08/31/2021	MITIGATION PLAN	AF
2	10/08/2021	MITIGATION PLAN REVISED	AF

SHEET SIZE:
ORIGINAL PLAN IS 22" x 34".
SCALE ACCORDINGLY.

PROJECT MANAGER: KB
DESIGNED: AF
DRAFTED: AF
CHECKED: RH/MF/KB
JOB NUMBER:
200925
SHEET NUMBER:
W2 OF 6

FILENAME
PRINTED BY
DATE



PLANTING PLAN

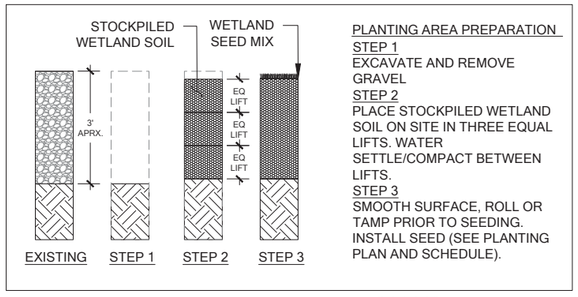
TREES	BOTANICAL / COMMON NAME	SIZE	QTY
	FRANGULA PURSHIANA / CASCARA	5 GAL.	5
	PICEA SITCHENSIS / SITKA SPRUCE	5 GAL.	5
	PSEUDOTSUGA MENZIESII / DOUGLAS-FIR	5 GAL.	5
	THUJA PLICATA / WESTERN RED CEDAR	5 GAL.	6
GRASSES			
	PRO TIME 408 NATIVE WETLAND MIX (OR SIMILAR)	SEED	890 SF
	PROTIME PT 402 NATIVE RIPARIAN MIX (OR SIMILAR)	SEED	760 SF

NOTES

1. SEE SHEET W5 FOR PLANT INSTALLATION DETAILS AND SPECIFICATIONS.
2. SEE SHEET W6 FOR MITIGATION PLAN NOTES.

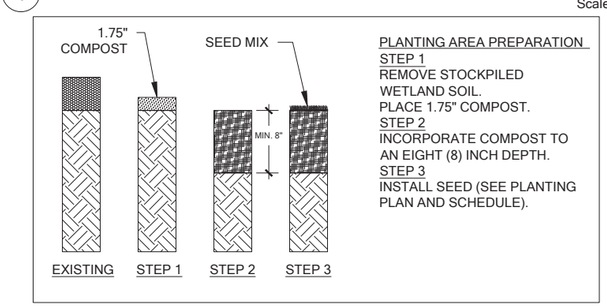
MITIGATION PLANTING PLAN AND SCHEDULE

SCALE 1:20



1 WETLAND SOIL PREPARATION

Scale: NTS



2 SEED AREA SOIL PREPARATION

Scale: NTS

0' 10' 20' 40' 80'

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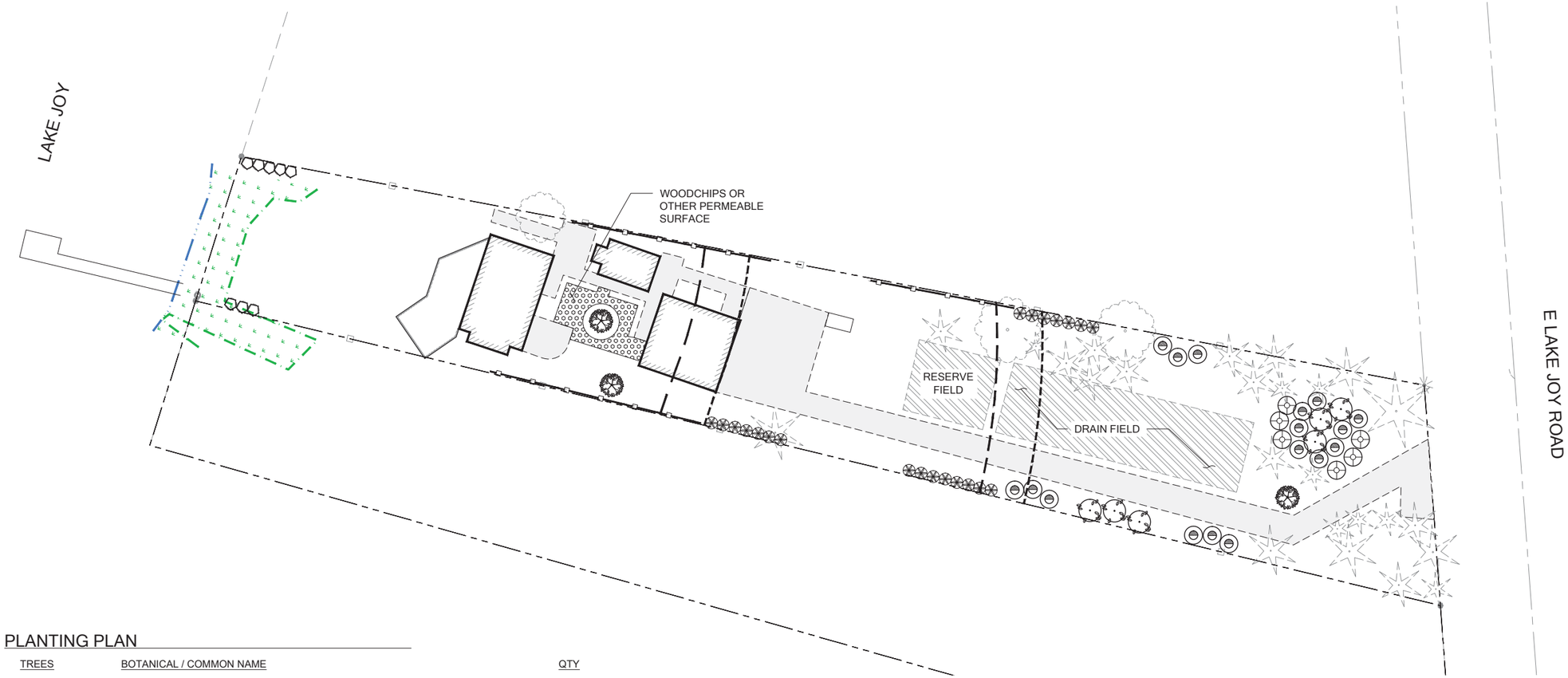
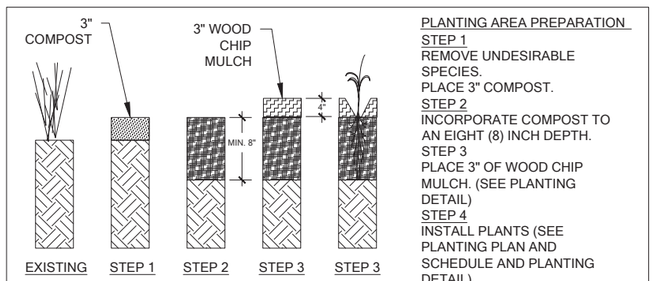


PLANTING PLAN

TREES	BOTANICAL / COMMON NAME	QTY
	ACER PALMATUM 'SHIN DESHOJO' / SHIN DESHOJO JAPANESE MAPLE	3

SHRUBS	BOTANICAL / COMMON NAME	SIZE	SPACING	QTY
	ACER CIRCINATUM / VINE MAPLE	1 GALLON	96" o.c.	6
	MORELLA CALIFORNICA / PACIFIC BAYBERRY	1 GALLON	48" o.c.	22
	MYRICA GALE / SWEETGALE	1 GALLON	48" o.c.	8
	RHODODENDRON MACROPHYLLUM / PACIFIC RHODODENDRON	1 GALLON	72" o.c.	17
	RIBES SANGUINEUM / REDFLOWER CURRANT	1 GALLON	72" o.c.	6



PLANTING AREA PREPARATION
STEP 1
REMOVE UNDESIRABLE SPECIES.
PLACE 3" COMPOST.
STEP 2
INCORPORATE COMPOST TO AN EIGHT (8) INCH DEPTH.
STEP 3
PLACE 3" OF WOOD CHIP MULCH. (SEE PLANTING DETAIL)
STEP 4
INSTALL PLANTS (SEE PLANTING PLAN AND SCHEDULE AND PLANTING DETAIL).

1 PLANTING AREA SOIL PREPARATION

Scale: NTS

NOTES

1. REMOVE INVASIVE SPECIES IN PLANTING AREAS.
2. SEE SHEET W5 FOR PLANT INSTALLATION DETAILS AND SPECIFICATIONS.
3. SEE SHEET W6 FOR MITIGATION PLAN NOTES.

OWNER SELECTED PLANTING PLAN AND SCHEDULE

SCALE 1:20

0' 10' 20' 40' 80'

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PLANT INSTALLATION SPECIFICATIONS

GENERAL NOTES

QUALITY ASSURANCE
1. PLANTS SHALL MEET OR EXCEED THE SPECIFICATIONS OF FEDERAL, STATE, AND LOCAL LAWS REQUIRING INSPECTION FOR PLANT DISEASE AND INSECT CONTROL.
2. PLANTS SHALL BE HEALTHY, VIGOROUS, AND WELL-FORMED, WITH WELL DEVELOPED, FIBROUS ROOT SYSTEMS, FREE FROM DEAD BRANCHES OR ROOTS. PLANTS SHALL BE FREE FROM DAMAGE CAUSED BY TEMPERATURE EXTREMES, LACK OR EXCESS OF MOISTURE, INSECTS, DISEASE, AND MECHANICAL INJURY. PLANTS IN LEAF SHALL BE WELL FOLIATED AND OF GOOD COLOR. PLANTS SHALL BE HABITUATED TO THE OUTDOOR ENVIRONMENTAL CONDITIONS INTO WHICH THEY WILL BE PLANTED (HARDENED-OFF).
3. TREES WITH DAMAGED, CROOKED, MULTIPLE OR BROKEN LEADERS WILL BE REJECTED. WOODY PLANTS WITH ABRASIONS OF THE BARK OR SUN SCALD WILL BE REJECTED.
4. NOMENCLATURE: PLANT NAMES SHALL CONFORM TO FLORA OF THE PACIFIC NORTHWEST BY HITCHCOCK AND CRONQUIST, UNIVERSITY OF WASHINGTON PRESS, 1973 AND/OR TO A FIELD GUIDE TO THE COMMON WETLAND PLANTS OF WESTERN WASHINGTON & NORTHWESTERN OREGON, ED. SARAH SPEAR COOKE, SEATTLE AUDUBON SOCIETY, 1997.

DEFINITIONS
1. PLANTS/PLANT MATERIALS. PLANTS AND PLANT MATERIALS SHALL INCLUDE ANY LIVE PLANT MATERIAL USED ON THE PROJECT. THIS INCLUDES BUT IS NOT LIMITED TO CONTAINER GROWN, B&B OR BAREROOT PLANTS; LIVE STAKES AND FASCINES (WATTLES); TUBERS, CORMS, BULBS, ETC..; SPRIGS, PLUGS, AND LINERS.
2. CONTAINER GROWN. CONTAINER GROWN PLANTS ARE THOSE WHOSE ROOTBALLS ARE ENCLOSED IN A POT OR BAG IN WHICH THAT PLANT GREW.

SUBSTITUTIONS
1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN SPECIFIED MATERIALS IN ADVANCE IF SPECIAL GROWING, MARKETING OR OTHER ARRANGEMENTS MUST BE MADE IN ORDER TO SUPPLY SPECIFIED MATERIALS.
2. SUBSTITUTION OF PLANT MATERIALS NOT ON THE PROJECT LIST WILL NOT BE PERMITTED UNLESS AUTHORIZED IN WRITING BY THE RESTORATION CONSULTANT.
3. IF PROOF IS SUBMITTED THAT ANY PLANT MATERIAL SPECIFIED IS NOT OBTAINABLE, A PROPOSAL WILL BE CONSIDERED FOR USE OF THE NEAREST EQUIVALENT SIZE OR ALTERNATIVE SPECIES, WITH CORRESPONDING ADJUSTMENT OF CONTRACT PRICE.
4. SUCH PROOF WILL BE SUBSTANTIATED AND SUBMITTED IN WRITING TO THE CONSULTANT AT LEAST 30 DAYS PRIOR TO START OF WORK UNDER THIS SECTION.

INSPECTION
1. PLANTS SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY THE RESTORATION CONSULTANT FOR CONFORMANCE TO SPECIFICATIONS, EITHER AT TIME OF DELIVERY ON-SITE OR AT THE GROWER'S NURSERY. APPROVAL OF PLANT MATERIALS AT ANY TIME SHALL NOT IMPAIR THE SUBSEQUENT RIGHT OF INSPECTION AND REJECTION DURING PROGRESS OF THE WORK.
2. PLANTS INSPECTED ON SITE AND REJECTED FOR NOT MEETING SPECIFICATIONS MUST BE REMOVED IMMEDIATELY FROM SITE OR RED-TAGGED AND REMOVED AS SOON AS POSSIBLE.
3. THE RESTORATION CONSULTANT MAY ELECT TO INSPECT PLANT MATERIALS AT THE PLACE OF GROWTH. AFTER INSPECTION AND ACCEPTANCE, THE RESTORATION CONSULTANT MAY REQUIRE THE INSPECTED PLANTS BE LABELED AND RESERVED FOR PROJECT. SUBSTITUTION OF THESE PLANTS WITH OTHER INDIVIDUALS, EVEN OF THE SAME SPECIES AND SIZE, IS UNACCEPTABLE.

MEASUREMENT OF PLANTS
1. PLANTS SHALL CONFORM TO SIZES SPECIFIED UNLESS SUBSTITUTIONS ARE MADE AS OUTLINED IN THIS CONTRACT.
2. HEIGHT AND SPREAD DIMENSIONS SPECIFIED REFER TO MAIN BODY OF PLANT AND NOT BRANCH OR ROOT TIP TO TIP. PLANT DIMENSIONS SHALL BE MEASURED WHEN THEIR BRANCHES OR ROOTS ARE IN THEIR NORMAL POSITION.
3. WHERE A RANGE OF SIZE IS GIVEN, NO PLANT SHALL BE LESS THAN THE MINIMUM SIZE AND AT LEAST 50% OF THE PLANTS SHALL BE AS LARGE AS THE MEDIAN OF THE SIZE RANGE. (EXAMPLE: IF THE SIZE RANGE IS 12" TO 18", AT LEAST 50% OF PLANTS MUST BE 15" TALL.).

SUBMITTALS

PROPOSED PLANT SOURCES
1. WITHIN 45 DAYS AFTER AWARD OF THE CONTRACT, SUBMIT A COMPLETE LIST OF PLANT MATERIALS PROPOSED TO BE PROVIDED DEMONSTRATING CONFORMANCE WITH THE REQUIREMENTS SPECIFIED. INCLUDE THE NAMES AND ADDRESSES OF ALL GROWERS AND NURSERIES.

PRODUCT CERTIFICATES
1. PLANT MATERIALS LIST - SUBMIT DOCUMENTATION TO CONSULTANT AT LEAST 30 DAYS PRIOR TO START OF WORK UNDER THIS SECTION THAT PLANT MATERIALS HAVE BEEN ORDERED. ARRANGE PROCEDURE FOR INSPECTION OF PLANT MATERIAL WITH CONSULTANT AT TIME OF SUBMISSION.
2. HAVE COPIES OF VENDOR'S OR GROWERS' INVOICES OR PACKING SLIPS FOR ALL PLANTS ON SITE DURING INSTALLATION. INVOICE OR PACKING SLIP SHOULD LIST SPECIES BY SCIENTIFIC NAME, QUANTITY, AND DATE DELIVERED (AND GENETIC ORIGIN IF THAT INFORMATION WAS PREVIOUSLY REQUESTED).

DELIVERY, HANDLING, & STORAGE

NOTIFICATION
CONTRACTOR MUST NOTIFY CONSULTANT 48 HOURS OR MORE IN ADVANCE OF DELIVERIES SO THAT CONSULTANT MAY ARRANGE FOR INSPECTION.

PLANT MATERIALS
1. TRANSPORTATION - DURING SHIPPING, PLANTS SHALL BE PACKED TO PROVIDE PROTECTION AGAINST CLIMATE EXTREMES, BREAKAGE AND DRYING. PROPER VENTILATION AND PREVENTION OF DAMAGE TO BARK, BRANCHES, AND ROOT SYSTEMS MUST BE ENSURED.
2. SCHEDULING AND STORAGE - PLANTS SHALL BE DELIVERED AS CLOSE TO PLANTING AS POSSIBLE. PLANTS IN STORAGE MUST BE PROTECTED AGAINST ANY CONDITION THAT IS DETRIMENTAL TO THEIR CONTINUED HEALTH AND VIGOR.
3. HANDLING - PLANT MATERIALS SHALL NOT BE HANDLED BY THE TRUNK, LIMBS, OR FOLIAGE BUT ONLY BY THE CONTAINER, BALL, BOX, OR OTHER PROTECTIVE STRUCTURE, EXCEPT BAREROOT PLANTS SHALL BE KEPT IN BUNDLES UNTIL PLANTING AND THEN HANDLED CAREFULLY BY THE TRUNK OR STEM.
4. LABELS - PLANTS SHALL HAVE DURABLE, LEGIBLE LABELS STATING CORRECT SCIENTIFIC NAME AND SIZE. TEN PERCENT OF CONTAINER GROWN PLANTS IN INDIVIDUAL POTS SHALL BE LABELED. PLANTS SUPPLIED IN FLATS, RACKS, BOXES, BAGS, OR BUNDLES SHALL HAVE ONE LABEL PER GROUP.

WARRANTY

PLANT WARRANTY
PLANTS MUST BE GUARANTEED TO BE TRUE TO SCIENTIFIC NAME AND SPECIFIED SIZE, AND TO BE HEALTHY AND CAPABLE OF VIGOROUS GROWTH.

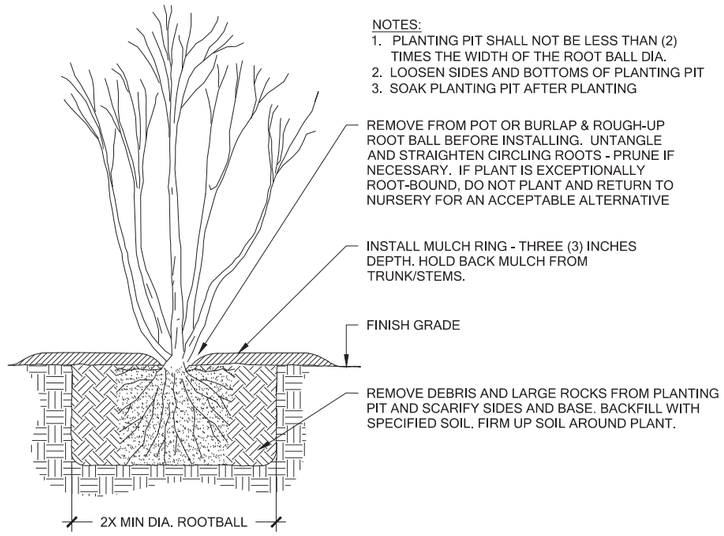
REPLACEMENT
1. PLANTS NOT FOUND MEETING ALL OF THE REQUIRED CONDITIONS AT THE CONSULTANT'S DISCRETION MUST BE REMOVED FROM SITE AND REPLACED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
2. PLANTS NOT SURVIVING AFTER ONE YEAR TO BE REPLACED AT THE CONTRACTOR'S EXPENSE.

PLANT MATERIAL

GENERAL
1. PLANTS SHALL BE NURSERY GROWN IN ACCORDANCE WITH GOOD HORTICULTURAL PRACTICES UNDER CLIMATIC CONDITIONS SIMILAR TO OR MORE SEVERE THAN THOSE OF THE PROJECT SITE.
2. PLANTS SHALL BE TRUE TO SPECIES AND VARIETY OR SUBSPECIES. NO CULTIVARS OR NAMED VARIETIES SHALL BE USED UNLESS SPECIFIED AS SUCH.

QUANTITIES
SEE PLANT LIST ON ACCOMPANYING PLANS AND PLANT SCHEDULES.

ROOT TREATMENT
1. CONTAINER GROWN PLANTS (INCLUDES PLUGS): PLANT ROOT BALLS MUST HOLD TOGETHER WHEN THE PLANT IS REMOVED FROM THE POT, EXCEPT THAT A SMALL AMOUNT OF LOOSE SOIL MAY BE ON THE TOP OF THE ROOTBALL.
2. PLANTS MUST NOT BE ROOT-BOUND; THERE MUST BE NO CIRCLING ROOTS PRESENT IN ANY PLANT INSPECTED.
3. ROOTBALLS THAT HAVE CRACKED OR BROKEN WHEN REMOVED FROM THE CONTAINER SHALL BE REJECTED.



1 CONTAINER PLANTER

Scale: NTS

PLANT INSTALLATION DETAILS AND SPECIFICATIONS

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MITIGATION PLAN NOTES

OVERVIEW

THIS PLAN HAS BEEN PREPARED AS MITIGATION FOR ALREADY-BUILT CONSTRUCTION IMPACTS TO ON-SITE CRITICAL AREAS AND FULFILLS THE REQUIREMENTS OF KCC 21A.24.100. THE PLAN WILL RESTORE CRITICAL AREA FUNCTIONS TO WETLAND A AND THE AQUATIC BUFFER OF LAKE JOY AS WELL AS MITIGATE FOR THE REMOVAL OF SIGNIFICANT TREES FROM THE SUBJECT PROPERTY.

TO OFFSET TEMPORARY IMPACTS TO WETLAND A, WETLAND A WILL BE RESTORED TO PRE-CONSTRUCTION CONDITIONS BY REPLACING THE REMOVED WETLAND SOIL AND INSTALLING A NATIVE WETLAND GRASS SEED MIX. THE REMOVAL OF 7 SIGNIFICANT TREES WILL BE MITIGATED BY REPLACING THEM WITH 21 NATIVE TREES AT A RATIO OF 3:1. PLASTIC SHEETING WILL BE REMOVED FROM THE AQUATIC AREA. ADDITIONAL NATIVE SHRUBS WILL BE VOLUNTARILY ADDED TO DIVERSIFY THE VEGETATION STRUCTURE ONSITE.

MAINTENANCE AND MONITORING PLAN

THE SITE SHALL BE MAINTAINED AND MONITORED FOR THREE YEARS FOLLOWING SUCCESSFUL INSTALLATION. COMPONENTS OF THE 3-YEAR MAINTENANCE AND MONITORING PLAN ARE DETAILED BELOW.

GOALS

1. ESTABLISH NATIVE WETLAND GRASS VEGETATION THAT IS APPROPRIATE TO THE ECO-REGION AND SITE.
2. LIMIT INVASIVE AND/OR NOXIOUS WEED COVER ON-SITE.
3. RE-ESTABLISH NATIVE TREES. PROVIDE PERCHING, NESTING, AND FORAGING HABITAT FOR NATIVE BIRDS.

PERFORMANCE STANDARDS

THE STANDARDS LISTED BELOW WILL BE USED TO JUDGE THE SUCCESS OF THE INSTALLATION OVER TIME. IF PERFORMANCE STANDARDS ARE MET AT THE END OF YEAR 3, THE SITE WILL THEN BE DEEMED SUCCESSFUL.

1. SURVIVAL: ACHIEVE 100% SURVIVAL OF ALL INSTALLED TREES BY THE END OF YEAR 1. THIS STANDARD CAN BE MET THROUGH PLANT ESTABLISHMENT OR THROUGH REPLANTING AS NECESSARY TO ACHIEVE THE REQUIRED NUMBERS. ACHIEVE AT LEAST 80% SURVIVAL OF ALL INSTALLED TREES IN YEARS 2 AND 3.
2. NATIVE PLANT COVER IN WETLAND A RESTORATION AREA:
   a. ACHIEVE 40% NATIVE GRASSES COVERAGE BY THE END OF YEAR 1.
   b. ACHIEVE 60% NATIVE GRASS COVERAGE BY THE END OF YEAR 2.
   c. ACHIEVE 80% NATIVE GRASS COVERAGE BY THE END OF YEAR 3. RETAINED VEGETATION AND NATIVE VOLUNTEER SPECIES MAY COUNT TOWARDS THIS COVER STANDARD.
3. INVASIVE COVER: AERIAL COVER FOR ALL NON-NATIVE, INVASIVE AND NOXIOUS WEEDS WILL NOT EXCEED 10% AT ANY YEAR DURING THE MONITORING PERIOD. INVASIVE PLANTS INCLUDE BUT ARE NOT LIMITED TO HIMALAYAN BLACKBERRY (RUBUS ARMENIACUS), CUT LEAF BLACKBERRY (RUBUS LACINIATUS), KNOTWEEDS (POLYGONUM CUSPIDATUM AND OTHERS), REED CANARYGRASS (PHALARIS ARUNDINACEA), CHERRY (HEDGE) LAUREL (PRUNUS LAUROCERASUS), ENGLISH HOLLY (ILEX AQUIFOLIUM), AND IVY SPECIES (HEDERA SPP.).

MONITORING METHODS

THIS MONITORING PROGRAM IS DESIGNED TO TRACK THE SUCCESS OF THE MITIGATION SITE OVER TIME AND TO MEASURE THE DEGREE TO WHICH IT IS MEETING THE PERFORMANCE STANDARDS OUTLINED IN THE PRECEDING SECTION.

AN AS-BUILT PLAN WILL BE PREPARED BY THE RESTORATION PROFESSIONAL PRIOR TO THE BEGINNING OF THE MONITORING PERIOD. THE AS-BUILT PLAN WILL BE A MARK-UP OF THE PLANTING PLANS INCLUDED IN THIS PLAN SET. THE AS-BUILT PLAN WILL DOCUMENT ANY DEPARTURES IN PLANT PLACEMENT OR OTHER COMPONENTS FROM THE PROPOSED PLAN.

MONITORING WILL TAKE PLACE ONCE ANNUALLY IN THE FALL FOR THREE YEARS. YEAR-1 MONITORING WILL COMMENCE IN THE FIRST FALL FOLLOWING INSTALLATION.

THE FORMAL MONITORING VISIT SHALL RECORD AND REPORT THE FOLLOWING IN AN ANNUAL REPORT SUBMITTED TO KING COUNTY:

1. VISUAL ASSESSMENT OF THE OVERALL SITE.
2. YEAR-1 COUNTS OF LIVE AND DEAD PLANTS BY SPECIES. YEAR-2 THROUGH YEAR-3 COUNTS OF ESTABLISHED NATIVE TREES, TO THE EXTENT FEASIBLE.
3. COUNTS OF DEAD TREES WHERE MORTALITY IS SIGNIFICANT IN ANY MONITORING YEAR.
4. ESTIMATE OF NATIVE COVER IN THE MITIGATION AREA.
5. ESTIMATE OF NON-NATIVE, INVASIVE WEED COVER IN THE MITIGATION AREA.
6. TABULATION OF ESTABLISHED NATIVE SPECIES, INCLUDING BOTH PLANTED AND VOLUNTEER SPECIES.
7. PHOTOGRAPHIC DOCUMENTATION FROM AT LEAST THREE FIXED REFERENCE POINTS.
8. ANY INTRUSIONS INTO OR CLEARING OF THE PLANTING AREAS, VANDALISM, OR OTHER ACTIONS THAT IMPAIR THE INTENDED FUNCTIONS OF THE MITIGATION AREA.
9. RECOMMENDATIONS FOR MAINTENANCE OR REPAIR OF ANY PORTION OF THE MITIGATION AREA.

MAINTENANCE

THE SITE WILL BE MAINTAINED IN ACCORDANCE WITH THE FOLLOWING INSTRUCTIONS FOR AT LEAST FIVE YEARS FOLLOWING COMPLETION OF CONSTRUCTION:

1. FOLLOW THE RECOMMENDATIONS NOTED IN THE PREVIOUS MONITORING SITE VISIT.
2. GENERAL WEEDING FOR ALL PLANTED AREAS:
   a. AT LEAST TWICE YEARLY, REMOVE ALL COMPETING WEEDS AND WEED ROOTS FROM BENEATH EACH INSTALLED PLANT AND ANY DESIRABLE VOLUNTEER VEGETATION TO A DISTANCE OF 18 INCHES FROM THE MAIN PLANT STEM. WEEDING SHOULD OCCUR AT LEAST TWICE DURING THE SPRING AND SUMMER. FREQUENT WEEDING WILL RESULT IN LOWER MORTALITY, LOWER PLANT REPLACEMENT COSTS, AND INCREASED LIKELIHOOD THAT THE PLAN MEETS PERFORMANCE STANDARDS BY YEAR 3.
   b. MORE FREQUENT WEEDING MAY BE NECESSARY DEPENDING ON WEED CONDITIONS THAT DEVELOP AFTER PLAN INSTALLATION.
   c. DO NOT WEED THE AREA NEAR THE PLANT BASES WITH STRING TRIMMER (WEED WHACKER/WEED EATER). NATIVE PLANTS ARE EASILY DAMAGED OR KILLED, AND WEEDS EASILY RECOVER AFTER TRIMMING.
   d. SELECTIVE APPLICATIONS OF HERBICIDE MAY BE NEEDED TO CONTROL INVASIVE WEEDS, ESPECIALLY WHEN INTERMIXED WITH NATIVE SPECIES. HERBICIDE APPLICATION, WHEN NECESSARY, SHALL BE CONDUCTED ONLY BY A STATE-LICENSED APPLICATOR.
3. APPLY SLOW-RELEASE, GRANULAR FERTILIZER TO EACH INSTALLED PLANT ANNUALLY IN THE SPRING (BY JUNE 1) OF YEARS 2 THROUGH 3.
4. REPLACE MULCH AS NECESSARY TO MAINTAIN A 4-INCH-THICK LAYER NEAR TREE SPECIES TO RETAIN SOIL MOISTURE AND LIMIT WEEDS.
5. REPLACE EACH PLANT FOUND DEAD IN THE SUMMER MONITORING VISITS DURING THE UPCOMING DORMANT SEASON (OCTOBER 15 TO MARCH 1), FOR BEST SURVIVAL.
6. THE PROPERTY OWNER WILL ENSURE THAT WATER IS PROVIDED FOR THE ENTIRE PLANTED AREA WITH A MINIMUM OF 1 INCH OF WATER PER WEEK FROM JUNE 1 THROUGH SEPTEMBER 30 FOR THE FIRST TWO YEARS FOLLOWING INSTALLATION, THROUGH THE OPERATION OF A TEMPORARY IRRIGATION SYSTEM. LESS WATER IS NEEDED DURING THE REST OF THE YEAR.

CONSTRUCTION NOTES AND SPECIFICATIONS

THE RESTORATION PROFESSIONAL WILL MONITOR:

1. ALL SITE PREPARATION.
   a. WEED REMOVAL.
   b. MULCH PLACEMENT AND INSTALLATION OF MULCH RINGS.
2. PLANT/SEED MATERIAL INSPECTION.
   a. PLANT/SEED MATERIAL DELIVERY INSPECTION.
   b. 100% PLANT/SEED INSTALLATION INSPECTION.

GENERAL WORK SEQUENCE

SITE PREPARATION

1. INSTALL SILT FENCE PER PLANS.
2. MANUALLY CLEAR ANY INVASIVE AND NON-NATIVE VEGETATION FROM MITIGATION AREA DURING SPRING AND/OR SUMMER MONTHS (I.E., AVOID CREATING EXPOSED SOIL CONDITIONS DURING THE WINTER STORM SEASON).
   a. REMOVE INVASIVE SPECIES (I.E., HIMALAYAN BLACKBERRY, ENGLISH IVY), IN ACCORDANCE WITH KING COUNTY NOXIOUS WEED BEST MANAGEMENT PRACTICES. FOR MORE INFORMATION: HTTPS://WWW.KINGCOUNTY.GOV/SERVICES/ENVIRONMENT/ANIMALS-AND-PLANTS/NOXIOUS-WEEDS.ASPX.
   b. AVOID AND MINIMIZE DISTURBANCE AND/OR COMPACTION TO ROOTS OF ESTABLISHED NATIVE TREES TO BE RETAINED WHEN REMOVING VEGETATION FROM WITHIN TREE DRIPLINES.
3. BLANKET-MULCH ANY CLEARED AREAS WITH WOOD MULCH, THREE INCHES THICK. MULCH RINGS WILL BE INSTALLED AROUND NEW TREES.
   a. ENSURE MULCH DOES NOT TOUCH STEMS OF EXISTING (OR INSTALLED) VEGETATION. SEE PLANTING DETAIL ON SHEET W4.

MITIGATION PLANTING AND IRRIGATION

4. INSTALL MITIGATION PLANTS DURING THE DORMANT SEASON (OCTOBER 15 - MARCH 1).
   a. PREPARE A PLANTING PIT FOR EACH PLANT AND INSTALL PER THE PLANTING DETAILS.
5. INSTALL A TEMPORARY, ABOVE GROUND IRRIGATION SYSTEM TO PROVIDE FULL COVERAGE TO ALL INSTALLED PLANTS WITHIN THE RESTORATION AREA.

MATERIAL SPECIFICATIONS AND DEFINITIONS

1. FERTILIZER (FOR NEAR AQUATIC ENVIRONMENTS): SLOW-RELEASE, PHOSPHOROUS-FREE GRANULAR FERTILIZER. LABEL MUST INDICATE THAT PRODUCT IS SAFE FOR AQUATIC ENVIRONMENTS. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR USE. KEEP FERTILIZER IN WEATHER-TIGHT CONTAINER WHILE ON-SITE. FERTILIZER IS ONLY TO BE APPLIED IN YEARS TWO AND THREE, NOT IN YEAR ONE.
2. IRRIGATION SYSTEM: SYSTEM CAPABLE OF DELIVERING AT LEAST ONE INCH OF WATER PER WEEK FROM JUNE 1 THROUGH SEPTEMBER 30 FOR THE FIRST TWO YEARS FOLLOWING INSTALLATION.
3. RESTORATION PROFESSIONAL: WATERSHED COMPANY [(425) 822-5242] PERSONNEL, OR OTHER PERSONS QUALIFIED TO EVALUATE ENVIRONMENTAL RESTORATION PROJECTS.

   WOODCHIP MULCH: "ARBORIST CHIPS" (CHIPPED WOODY MATERIAL) APPROXIMATELY ONE TO THREE INCHES IN MAXIMUM DIMENSION (NO SAWDUST WILL BE USED). THIS MATERIAL IS COMMONLY AVAILABLE IN LARGE QUANTITIES FROM ARBORISTS OR TREE-PRUNING COMPANIES. MULCH SHALL NOT CONTAIN APPRECIABLE QUANTITIES OF GARBAGE, PLASTIC, METAL, SOIL, AND DIMENSIONAL LUMBER OR CONSTRUCTION/DEMOLITION DEBRIS.
4. TOPSOIL: TOPSOIL SHALL BE A 3-WAY MIXTURE OF APPROXIMATELY 33-50% COMPOST AND 50-65% SAND OR SANDY LOAM. ALL COMPONENTS SHALL BE FREE OF PHYTO-TOXIC MATERIALS AND VIABLE SEEDS, RHIZOMES, OR ROOTS OF STATE-LISTED NOXIOUS WEEDS.
5. COMPOST: COMPOST SHALL MEET WSDOT STANDARDS SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION, 9-14.4(8) FOR FINE COMPOST.

CONTINGENCIES

IF THERE IS A SIGNIFICANT PROBLEM WITH THE RESTORATION AREAS MEETING PERFORMANCE STANDARDS, A CONTINGENCY PLAN WILL BE DEVELOPED AND IMPLEMENTED. CONTINGENCY PLANS CAN INCLUDE, BUT ARE NOT LIMITED TO: SOIL AMENDMENT, ADDITIONAL PLANT INSTALLATION, AND PLANT SUBSTITUTIONS OF TYPE, SIZE, QUANTITY, AND LOCATION.

MITIGATION PLAN NOTES

PERMIT SET - NOT FOR CONSTRUCTION

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MITIGATION PLAN
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SUBMITTALS & REVISIONS

NO.	DATE	DESCRIPTION	BY
1	08/31/2021	MITIGATION PLAN	AF
2	10/08/2021	MITIGATION PLAN REVISED	AF

SHEET SIZE:
ORIGINAL PLAN IS 22" x 34".
SCALE ACCORDINGLY.

PROJECT MANAGER: KB
DESIGNED: AF
DRAFTED: AF
CHECKED: RH/MF/KB
JOB NUMBER:
200925
SHEET NUMBER:
W5 OF 6

FILENAME
PRINTED BY
DATE