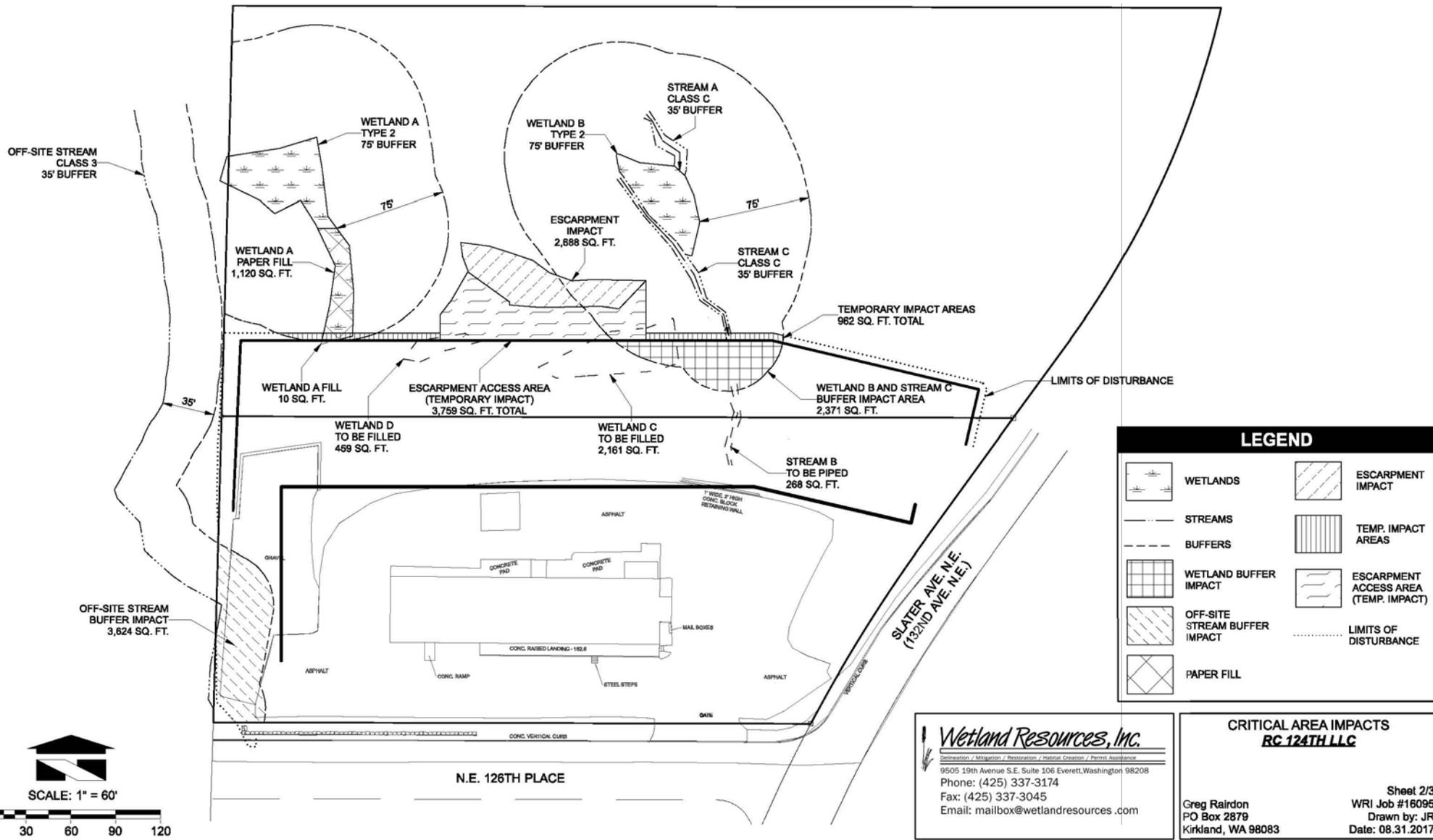


CRITICAL AREA IMPACTS MAP
RC 124TH LLC
 PORTION OF S28, T26N, R05E, W.M.



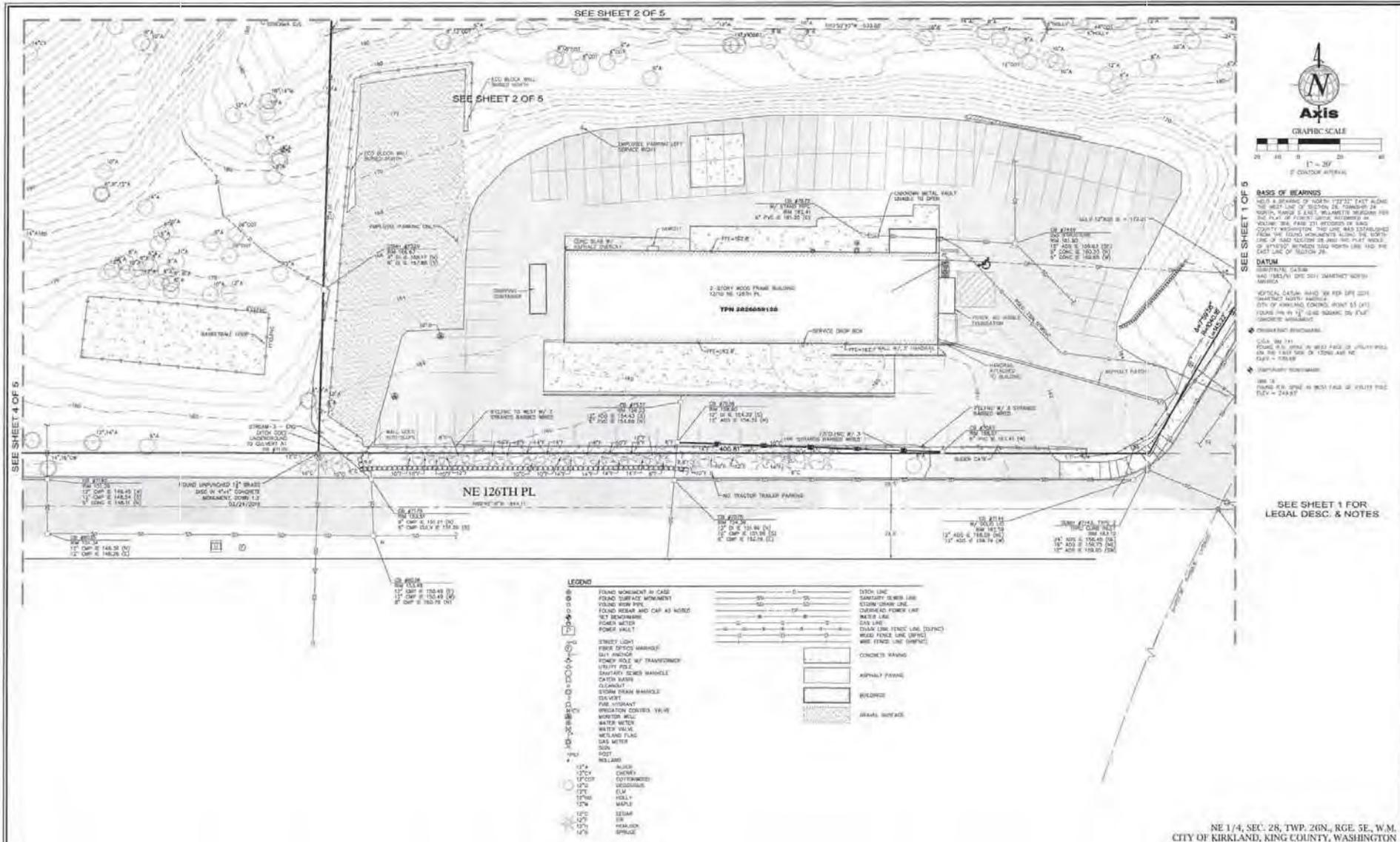
LEGEND			
	WETLANDS		ESCARPMENT IMPACT
	STREAMS		TEMP. IMPACT AREAS
	BUFFERS		ESCARPMENT ACCESS AREA (TEMP. IMPACT)
	WETLAND BUFFER IMPACT		LIMITS OF DISTURBANCE
	OFF-SITE STREAM BUFFER IMPACT		
	PAPER FILL		

Wetland Resources, Inc.
 9505 19th Avenue S.E. Suite 106 Everett, Washington 98208
 Phone: (425) 337-3174
 Fax: (425) 337-3045
 Email: mailbox@wetlandresources.com

CRITICAL AREA IMPACTS
RC 124TH LLC

Greg Rairdon
 PO Box 2879
 Kirkland, WA 98083

Sheet 2/3
 WRI Job #16095
 Drawn by: JR
 Date: 08.31.2017



SEE SHEET 2 OF 5

BASIS OF BEARINGS
 N63.0 ± BEARING OF NORTH 127.21' ± EAST ALONG THE WEST LINE OF SECTION 28, TOWNSHIP 28 NORTH, RANGE 5 EAST, WASHINGTON COUNTY, WASHINGTON. THE LINE HAS ESTABLISHED FROM THE FOUND MONUMENTS ALONG THE NORTH LINE OF SAID SECTION 28 AND THE PLAT WALLS OF PROPERTY BOUNDING SAID NORTH LINE AND THE EAST LINE OF SECTION 28.

DATUM
 QUADRICENTRAL CALSIB
 NAD 83 (FIELDA) GRS 80 (ZAMANTI) NORTH MARIANA

VERTICAL CURVES SHALL BE PER 2011 SDAS (WASHINGTON STATE) AND 2011 SDAS (CITY OF KIRKLAND) AND 2011 SDAS (COUNTY OF KING) AND 2011 SDAS (STATE OF WASHINGTON) AND 2011 SDAS (CITY OF KIRKLAND) AND 2011 SDAS (COUNTY OF KING) AND 2011 SDAS (STATE OF WASHINGTON).

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ASPHALT SHALL BE PER 2011 SDAS (WASHINGTON STATE) AND 2011 SDAS (CITY OF KIRKLAND) AND 2011 SDAS (COUNTY OF KING) AND 2011 SDAS (STATE OF WASHINGTON).

GRAVEL SURFACE SHALL BE PER 2011 SDAS (WASHINGTON STATE) AND 2011 SDAS (CITY OF KIRKLAND) AND 2011 SDAS (COUNTY OF KING) AND 2011 SDAS (STATE OF WASHINGTON).

SEE SHEET 1 FOR LEGAL DESC. & NOTES

- LEGEND**
- FOUND MONUMENT IN CASE
 - FOUND SURFACE MONUMENT
 - FOUND BENCH MARK
 - SET BENCHMARK
 - POWER VAULT
 - STREET LIGHT
 - FIBER OPTIC MARKER
 - GUY WIRE
 - POWER POLE W/ TRANSFORMER
 - UTILITY POLE
 - SURVEYOR'S BENCH MARK
 - CATCH BASIN
 - CLEANOUT
 - STORM DRAIN BANSOLE
 - DRAINAGE
 - FIRE HYDRANT
 - OPERATOR CONTROL VALVE
 - WATER METER
 - WATER VALVE
 - WETLAND FLAG
 - TREE METER
 - SIGN
 - ROOT
 - HOLE
 - ALDER
 - CHERRY
 - CYPRESS
 - DOGWOOD
 - GUM
 - HEMLOCK
 - HICKORY
 - KUMAR
 - MAPLE
 - REDWOOD
 - SUGAR
 - WILLOW
 - YEW
- 1200V LINE
 - 2400V LINE
 - 4800V LINE
 - 10KV LINE
 - 15KV LINE
 - 20KV LINE
 - 30KV LINE
 - 35KV LINE
 - 40KV LINE
 - 45KV LINE
 - 50KV LINE
 - 60KV LINE
 - 65KV LINE
 - 70KV LINE
 - 75KV LINE
 - 80KV LINE
 - 85KV LINE
 - 90KV LINE
 - 95KV LINE
 - 100KV LINE
- CONCRETE WALKWAY
 - ASPHALT PAVING
 - GRAVEL SURFACE

NE 1/4, SEC. 28, TWP. 26N., RGE. 5E., W.M.
 CITY OF KIRKLAND, KING COUNTY, WASHINGTON

NO.	DESCRIPTION OF MONUMENT	DATE	BY
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

BOUNDARY AND TOPOGRAPHIC SURVEY
 FOR
RAIRDON of KIRKLAND

PAC LAND
 1505 Westlake Avenue N.
 Suite 305
 Seattle, WA 98120
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 F (206) 522-6349
 www.PacLand.com

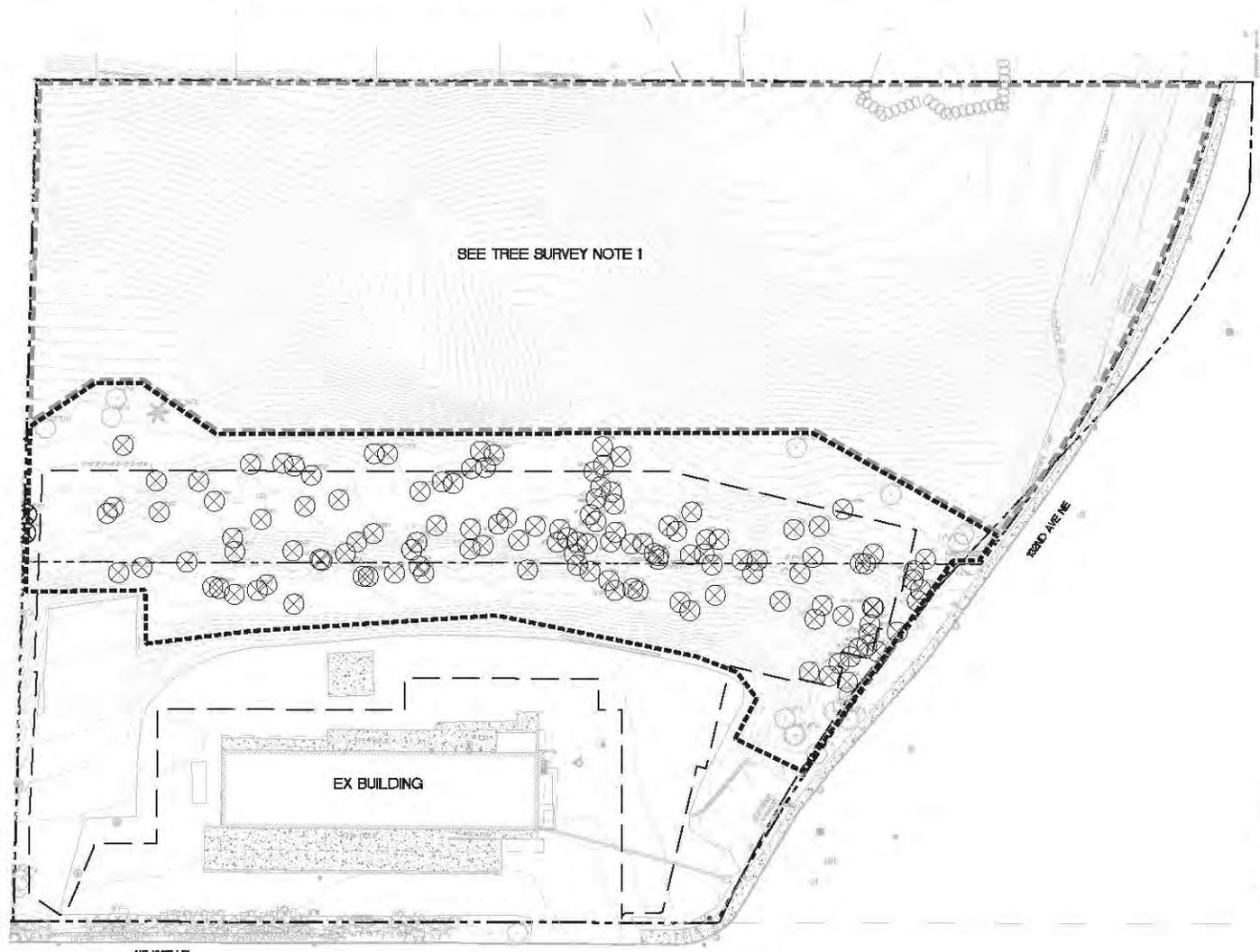


Axis
 Survey & Mapping
 11441 NE 10TH ST
 BELLEVUE, WA 98004
 TEL: 425-823-8700
 FAX: 425-823-8700

www.axismap.com

REV NO.	DATE
16-052	12/18/16
DRAWN BY	CHUCK BERT
DMB	ZLS
SCALE	AS SHOWN
1" = 20'	5 OF 5

SECTION 28, TOWNSHIP 26 N, RANGE 5 E



LEGEND

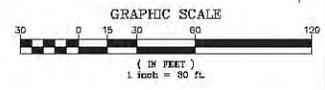
- LIMITS OF PROPOSED WORK
- AREA USED TO DETERMINE TYPICAL TREE DENSITY
- AREA INDICATING TREE ESTIMATE FROM EXTRAPOLATION
- SIGNIFICANT TREE AND INDEX NUMBER (DIAMETER > 6")
- ⊗ SIGNIFICANT TREE TO BE REMOVED

TREE RETENTION NOTES

1. "SIGNIFICANT" REFERS TO TREES THAT ARE 6" INCHES OR GREATER IN DIAMETER MEASURED AT 4 FEET ABOVE GRADE.
2. TREE LOCATIONS, WHERE AVAILABLE, WERE DERIVED FROM A SURVEY PREPARED BY PAC ENGINEERS, DATED 6/15/16
3. 132 TREES ARE PROPOSED TO BE REMOVED
4. 340 TREES (ESTIMATED) ARE TO REMAIN

TREE SURVEY NOTES

1. THE UNDEVELOPED AREA TO THE NORTH OF THE DEVELOPED SITE WAS DID NOT HAVE A TREE SURVEY PERFORMED DUE TO THE SIZE OF THE AREA AND THE FACT THAT NO WORK IS TO BE PERFORMED IN THIS AREA. THE AMOUNT OF TREES PRESENT IN THIS AREA WAS ESTIMATED BASED ON THE TREE DENSITY IN THE SURVEYED AREA TO THE SOUTH (IDENTIFIED ON THIS PLAN).



S:\Washington\Kirkland\Kirkland_V16_126th Place\2016\2016-09-30 Tree exhibit\Kirkland Rairdon - Tree Retention Plan.dwg Sep 09, 2016 - 2:52pm

No.	Date	By	Revision Description

Designed By	Issue Date
VFT	09/09/2016
Drawn By	ISSUED
LPR	
Checked By	Project No.
LPR	10-533-002

PAC LAND
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KIRKLAND RAIDON
 13110 NE 126TH PLACE
 KIRKLAND, WA

TREE RETENTION PLAN

C-1.0

**CRITICAL AREAS REPORT
AND
DETAILED MITIGATION PLAN
FOR
*RC 124TH LLC***

Wetland Resources, Inc. Project #16095

Prepared By:

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

For:

RC 124th LLC

February 6, 2018

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APPENDIX B: 2014 WASHINGTON STATE WETLAND RATING SYSTEM RATING FORMS
AND FIGURES

APPENDIX C: WETLAND DETERMINATION DATA FORMS

APPENDIX D: DEPT. OF ECOLOGY CREDIT-DEBIT FORMS AND KING COUNTY IN-LIEU
FEE MITIGATION PURCHASE APPLICATION

APPENDIX E: KING COUNTY BOND QUANTITY WORKSHEET

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MAP FROM SOUNDVIEW CONSULTANTS REPORT

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APPENDIX H: MAPS

1.0 PROPOSED PROJECT

1.1 PROJECT DESCRIPTION

RC 124th LLC (“Rairdon”) owns two parcels of land north of NE 126th Place in Kirkland, WA referred hereinafter as the Subject Property. King County Parcel No. 2826059004, located at 13000 132nd Place NE, (the “North Parcel”) is a 3.74 acre undeveloped site. King County Parcel No. 2826059128, located at 13110 NE 126th Place (the “South Parcel”) is a 2.2-acre site developed with a vehicle service center that is also used to store vehicles that are part of the sales inventory for Rairdon's Chrysler Dodge Jeep of Kirkland, Rairdon’s Fiat and Alfa Romeo of Kirkland, and Maserati of Kirkland (the “Dealerships”). There is a significant shortage of well-located, efficient storage space for vehicle inventory needed by the Dealerships. The South Parcel has been used for vehicle storage, but it is too small and not configured properly for this use, resulting in inadequate inventory space and often requiring movement of four to five vehicles in order to retrieve a specific vehicle stored on the South Parcel.

In 2015, Rairdon approached City of Kirkland planning staff seeking input on the potential use of the Subject Property for vehicle storage use. At that time, the zoning of the North Parcel prohibited such uses. During these discussions, Rairdon noted that development of the North Parcel for vehicle storage use would require constructing retaining walls that would necessarily impact wetlands and a stream and sought guidance from staff on the means to seek authorization from the City to accomplish these project goals.

As a result of those discussions, staff confirmed that a Planned Unit Development (PUD), if approved, could authorize disturbance of wetlands, streams and critical area buffers that would otherwise be prohibited by Kirkland Zoning Code (KZC) Chapter 90.45. Additionally, Rairdon applied for an amendment to Kirkland’s Comprehensive Plan and Zoning Code to authorize the uses contemplated for the Subject Property. In December 2015, the Kirkland City Council enacted Ordinance No. 4498, which, among its terms, established the zoning provisions through which Rairdon could seek a PUD to authorize this project.

This project seeks PUD approval to allow future development of an outdoor, open and uncovered tiered vehicle storage area north of the existing vehicle service building. A future site development permit and building permit would seek permission to construct these improvements. Through the PUD, Rairdon is seeking City approval to fill portions of wetlands and a stream and impact wetland buffers. The project will provide mitigation through the King County Fee In Lieu Mitigation Reserves Program. The PUD provisions allow use of the King County Mitigation Program, which would not otherwise be permitted under KZC 90.45. Additionally, the project will mitigate impacts through on-site enhancement and increasing wetland buffers. Other components of the PUD application materials identify the public benefits to be provided through the PUD. This Report examines the critical areas on the Subject Property and the mitigation measures proposed.

It should be noted that this proposed project is vested under the previous version of the Kirkland Zoning Code. The current critical areas regulations that took effect on March 1, 2017 are not applicable to the project.

1.2 SUMMARY OF PRIOR CRITICAL AREA REVIEW

Wetland Resources, Inc. (WRI) performed a site investigation on March 28, 2013 to locate jurisdictional wetlands and streams on and in proximity to the North Parcel. A critical areas study was prepared following this investigation and is attached as Appendix A. The Public Land Survey System (PLSS) locator for the North Parcel is Section 28, Township 26N, Range 05E, W.M. The study site is situated within the Cedar/Sammamish Watershed, Water Resources Inventory Area (WRIA) 8, as well as the City of Kirkland Juanita Creek drainage basin.

The North Parcel is located in an urban setting. The South Parcel and the Totem Lake Commercial District is situated to the south while residential areas and subdivisions are located to the north. The North Parcel is currently undeveloped and dominated by a mixed coniferous-deciduous forest. A residential development borders the property on the north while the South Parcel, with its vehicle service building, is located immediately to the south. An undeveloped forested parcel sits to the west of the Subject Property and 132nd Avenue NE borders the property on the east. The North Parcel primarily slopes in a southerly direction and contains several steep slopes along the northern, southern, and western boundaries.

Three wetlands and two streams were identified and delineated on the North Parcel during the March 28, 2013 site inspection, and one off-site stream was observed approximately 50 feet west of the Subject Property boundary.

The Watershed Company, the City's third-party reviewer ("Watershed"), reviewed the March 2013 WRI delineations for the City of Kirkland. In a December 3, 2013 review letter, Watershed generally agreed with the delineated boundaries and classifications and the site survey was adjusted in response to their review.

Personnel from both WRI and Watershed revisited the Subject Property in November 2016, at which time it was determined that additional fieldwork was necessary. This additional work included flagging the ordinary high water mark (OHWM) of Stream C (formerly referred to as the southern portion of Stream A), re-flagging the boundary of Wetland A, and delineating a new wetland that was not previously observed (currently referred to as Wetland D). This work was completed by WRI in January 2017 and is now reflected on the attached critical areas maps and site plans (Appendix H).

2.0 REVIEW OF EXISTING INFORMATION

Prior to conducting the site investigation, public resources were reviewed to gather background information on the Subject Property and the surrounding area in regards to critical areas. The following information was examined:

2.1 USFWS NATIONAL WETLANDS INVENTORY

The National Wetland Inventory (NWI) does not indicate the presence of any wetland areas on the Subject Property.

2.2 USDA/NRCS WEB SOIL SURVEY

The Web Soil Survey indicates that the Subject Property is underlain by Alderwood gravelly sandy loam, 6 to 15 percent slopes, and Alderwood gravelly sandy loam, 5 to 30 percent slopes. While neither soil is hydric according to the NRCS, Alderwood gravelly sandy loam, 6 to 15 percent slopes does contain hydric inclusions.

2.3 WDFW SALMONSCAPE INTERACTIVE MAPPING SYSTEM

The SalmonScape interactive map does not show any streams on the Subject Property.

2.4 WDFW PRIORITY HABITAT AND SPECIES (PHS) MAPS

The PHS Interactive Map does not show any priority habitats or species on the Subject Property.

2.5 KING COUNTY IMap INTERACTIVE MAPPING TOOL

The King County iMap indicates that the eastern portion of the property is located within an erosion hazard area, and the entire property is located within a landslide hazard area. There are no on-site wetlands or streams illustrated by the King County iMap.

2.6 CITY OF KIRKLAND SENSITIVE AREAS MAP

According to the Kirkland Sensitive Areas Map, a wetland is located on the Subject Property. The off-site stream to the west of the Subject Property is also shown on the City of Kirkland map.

3.0 METHODOLOGY

3.1 WETLAND DETERMINATION AND DELINEATION

Wetland boundaries were determined using the routine approach described in *the Corps of Engineers Wetlands 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). Under the routine methodology, the process for making a wetland determination is based on three steps:

- 1.) Examination of the site for hydrophytic vegetation (species present and percent cover);
- 2.) Examination of the site for hydric soils; and
- 3.) Determining the presence of wetland hydrology.

The following criteria must be met in order to make a positive wetland determination:

3.1.1 Vegetation Criteria

The Corps Manual and 2010 Regional Supplement define hydrophytic vegetation as “*the assemblage of macrophytes that occurs in areas where inundation or soil saturation is either permanent or of sufficient frequency and duration to influence plant occurrence.*” Field indicators are used to determine whether the hydrophytic vegetation criteria have been met. Examples of these indicators include, but are not limited to, the rapid test for hydrophytic vegetation, a dominance test result of greater than 50%, and/or a prevalence index score less than or equal to 3.0.

3.1.2 Soils Criteria

The 2010 Regional Supplement (per the National Technical Committee for Hydric Soils) defines hydric soils as soils “that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part.” Field indicators are used to determine whether a given soil meets the definition for hydric soils. Indicators are numerous and include, but are not limited to, presence of a histosol or histic epipedon, a sandy gleyed matrix, depleted matrix, and redoximorphic depressions.

3.1.3 Hydrology Criteria

Wetland hydrology encompasses all hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface for a sufficient duration during the growing season. Areas with evident characteristics of wetland hydrology are those where the presence of water has an overriding influence on the characteristics of vegetation and soils due to anaerobic and chemically reducing conditions, respectively. The strongest indicators include the presence of surface water, a high water table, and/or soil saturation within at least 12 inches of the soil surface.

4.0 WETLAND DETERMINATION

Wetlands identified on the Subject Property were rated pursuant to the City of Kirkland’s Wetland Field Data Form as required by KZC section 90.40(3)(h). The wetlands were also rated pursuant to the Washington State Wetland Rating System for Western Washington: 2014 Update (Hruby 2014). Wetlands were classified according to the U.S. Fish and Wildlife Service (USFWS) Classifications of Wetlands and Deepwater Habitats of the United States (Cowardin et al., 1979), also known as the Cowardin Classification System, as well as the Hydrogeomorphic (HGM) Classification System (Brinson 1993).

Four wetlands (referred to as Wetlands A through D for the purposes of this report) and three streams (referred to as Streams A, B, and C for the purposes of this report) were identified and delineated on the Subject Property. These resources are described below.

4.1 WETLAND BOUNDARY DETERMINATION FINDINGS

4.1.1 Wetland A

Cowardin Classification: Palustrine, Forested/Emergent, Broad-leaved deciduous/Persistent, Saturated

City of Kirkland Wetland Classification: Type 2 Wetland

City of Kirkland Standard Buffer Requirement: 75 feet

Wetland A is a small slope wetland per the HGM classification system and is located in the northwest corner of the Subject Property. It is approximately 3,790 SF in size and extends slightly off-site to the west. Based on the Cowardin classification system, Wetland A is a palustrine, forested/emergent, broad-leaved deciduous/persistent, saturated wetland system.

Wetland A received a score of 25 on the City of Kirkland’s Wetland Field Data Form, which equates to a Type 2 wetland rating. Per KZC 90.45, the buffer for a Type 2 wetland located in a primary drainage basin is 75 feet (the Juanita Creek Drainage Basin is considered a primary

basin per the City of Kirkland Sensitive Areas Map and KZC 90.30) with an additional 10-foot structure setback.

The primary source of hydrology for Wetland A is groundwater and runoff from adjacent slopes. Shallow areas of surface water were observed during the site investigation, and soils were saturated to the surface. These characteristics meet wetland hydrology indicators A1 and A3 on the 2010 Regional Supplement Wetland Delineation Data Form.

Vegetation within Wetland A is comprised primarily of forested and emergent species. Dominant species observed at sampling point S-2 include red alder (*Alnus rubra*), black cottonwood (*Populus balsamifera*), salmonberry (*Rubus spectabilis*), western red cedar (*Thuja plicata*), lady fern (*Athyrium filix-femina*), and skunk cabbage (*Lysichiton americanus*). Greater than 50% of the dominant species within Wetland A have an indicator status of facultative (FAC) or wetter, which meets the hydrophytic vegetation criteria per the Corps Wetland Delineation Manual and the 2010 Regional Supplement.

Soils within Wetland A are very dark brown sandy clay loam to a depth of 4 inches, very dark greenish gray clay loam between 4 and 12 inches in depth, and black clay loam below 12 inches. Redoximorphic features were observed in the bottom two layers. These soil characteristics meet the description of a Redox Dark Surface, which is indicator F6 on the 2010 Regional Supplement Wetland Delineation Data Form.

No nesting, denning, or breeding areas were observed in Wetland A or the surrounding area during the site investigation. The wetland and surrounding buffer is most likely utilized by various songbirds, small mammals, common amphibians and reptiles, and species suited to life in urban/suburban settings.

4.1.2 Wetland B

Cowardin Classification: Palustrine, Forested/Scrub-shrub, Broad-leaved deciduous, Saturated

City of Kirkland Wetland Classification: Type 2 Wetland

City of Kirkland Standard Buffer Requirement: 75 feet

Wetland B is a slope wetland per the HGM classification system and is located in the north and central portion of the Subject Property. It is approximately 2,122 SF in size and is contained entirely on-site. Based on the Cowardin classification system, Wetland B is a palustrine, forested/scrub-shrub, broad-leaved deciduous, saturated wetland system.

Wetland B received a score of 23 on the City of Kirkland's Wetland Field Data Form, which equates to a Type 2 wetland. Per KZC 90.45, the buffer for a Type 2 wetland located in a primary drainage basin is 75 feet with an additional 10-foot structure setback.

The hydrology for Wetland B is driven by groundwater, seeps, and Stream A. The wetland is located on a relatively steep slope that contains numerous groundwater seeps. Flowing water was observed throughout the wetland. Stream A, a short, seasonal feature, enters the wetland from the north. The stream was flowing at the time of the initial site investigation in 2013. Soils were saturated to the surface at the time of the site investigation and a water table was observed within

12 inches of the soil surface. These characteristics meet wetland hydrology indicators A2 and A3 on the 2010 Regional Supplement Wetland Delineation Data Form.

Vegetation within Wetland B is comprised primarily of forested and scrub-shrub species. Dominant species observed at sampling point S-3 include red alder, Himalayan blackberry (*Rubus armeniacus*), lady fern, and skunk cabbage. Greater than 50% of the dominant species within Wetland B have an indicator status of facultative (FAC) or wetter, which meets the hydrophytic vegetation criteria per the Corps Wetland Delineation Manual and the 2010 Regional Supplement.

Soils within Wetland B are very dark brown clay loam to a depth of 6 inches and black clay loam between 6 and 17 inches in depth. Redoximorphic features are present below 6 inches and include concentrations in the matrix and in pore linings. A redox dark surface is present in the middle layer (6-12"), which meets hydric soil indicator F6 on the 2010 Regional Supplement determination data form.

No nesting, denning, or breeding areas were observed in Wetland B or the surrounding area during the site investigation. The wetland and surrounding buffer is most likely utilized by various songbirds, small mammals, common amphibians and reptiles, and species suited to life in urban/suburban settings.

4.1.3 Wetland C

Cowardin Classification: Palustrine, Forested, Broad-leaved deciduous, Saturated

City of Kirkland Wetland Classification: Type 3 Wetland

City of Kirkland Standard Buffer Requirement: 50 feet

Wetland C is a depressional wetland per the HGM classification system and is located in the south/central portion of the Subject Property. It is approximately 2,161 SF in size and is contained entirely on-site. Based on the Cowardin classification system, Wetland C is a palustrine, forested, broad-leaved deciduous, saturated wetland system.

Wetland C received a score of 16 on the City of Kirkland's Wetland Field Data Form, which equates to a Type 3 wetland. Per KZC 90.45, the buffer for a Type 3 wetland located in a primary drainage basin is 50 feet with an additional 10-foot structure setback.

The hydrology for Wetland C is driven by groundwater and possibly by runoff from the adjacent slopes to the north. The wetland is located on a relatively flat area/terrace feature that appears to collect runoff and groundwater. The upper 10 inches of the soil profile was saturated at the time of the site investigation, which meets wetland hydrology indicator A3 on the 2010 Regional Supplement Wetland Delineation Data Form.

Vegetation within Wetland C is comprised primarily of forested and scrub-shrub species. Dominant species observed at sampling point S-5 include black cottonwood, Himalayan blackberry, Nootka rose (*Rosa nutkana*), Indian plum (*Oemleria cerasiformis*), reed canarygrass (*Phalaris arundinacea*), and creeping buttercup (*Ranunculus repens*). Greater than 50% of the dominant species within Wetland C have an indicator status of facultative (FAC) or wetter, which

meets the hydrophytic vegetation criteria per the Corps Wetland Delineation Manual and the 2010 Regional Supplement.

Soils within Wetland C are black clay loam to a depth of 6 inches, gray silty clay between 6 and 11 inches in depth, and dark gray silty clay between 11 and 15 inches in depth. Redoximorphic concentrations are present in the matrix in the bottom two layers. The middle soil layer is a loamy gleyed matrix, which meets hydric soil indicator F2 on the 2010 Regional Supplement Wetland Delineation Data Form.

No nesting, denning, or breeding areas were observed in Wetland C or the surrounding area during the site investigation. The wetland and surrounding buffer is most likely utilized by various songbirds, small mammals, common amphibians and reptiles, and species suited to life in urban/suburban settings.

4.1.4 Wetland D

Cowardin Classification: Palustrine, Scrub-shrub, Broad-leaved deciduous, Saturated

City of Kirkland Wetland Classification: Type 3 Wetland

City of Kirkland Standard Buffer Requirement: 50 feet

Wetland D is a depressional wetland per the HGM classification system and is located west of Wetland C. It is approximately 459 SF in size and is contained entirely on-site. Based on the Cowardin classification system, Wetland D is a palustrine, scrub-shrub, broad-leaved deciduous, saturated wetland system.

Wetland D received a score of 18 on the City of Kirkland's Wetland Field Data Form, which equates to a Type 3 wetland. Per KZC 90.45, the buffer for a Type 3 wetland located in a primary drainage basin is 50 feet with an additional 10-foot structure setback.

The hydrology for Wetland D is driven by groundwater and possibly by runoff from the adjacent slopes to the north. The wetland is located on a relatively flat area/terrace feature that appears to collect runoff and groundwater. The soil was saturated to within 2 inches of the surface at the time of the January 2017 site investigation, and a water table was observed at a depth of 6 inches. This meets hydrology indicators A2 and A3 on the 2010 Regional Supplement Wetland Delineation Data Form.

Vegetation within Wetland D includes forested, scrub-shrub, and herbaceous species. Observed species include black cottonwood, Himalayan blackberry, and piggy-back plant (*Tolmiea menziesii*). Greater than 50% of the dominant species within Wetland D have an indicator status of facultative (FAC) or wetter, which meets the hydrophytic vegetation criteria per the Corps Wetland Delineation Manual and the 2010 Regional Supplement.

Soils within Wetland D are very dark grayish brown silty clay loam to a depth of 7 inches and gray silty clay between 7 and 16 inches in depth. Redoximorphic concentrations are present in the upper soil layer. The matrix color of the soil, along with the presence of redoximorphic features, meets hydric soil indicator F6 on the 2010 Regional Supplement Wetland Delineation Data Form.

No nesting, denning, or breeding areas were observed in Wetland D or the surrounding area during the site investigation. The wetland and surrounding buffer is most likely utilized by various songbirds, small mammals, common amphibians and reptiles, and species suited to life in urban/suburban settings.

Sections 90.15(1)(c) and 90.20(3) of the KZC state that Type 3 wetlands located in primary basins and measuring less than 1,000 SF in size are exempt from the City of Kirkland's critical areas regulations. Since Wetland D is only 459 SF in size, it is therefore a non-regulated feature.

5.0 STREAMS

The ordinary high water marks (OHWM) of streams were identified using the methodology described in the Washington State Department of Ecology document Determining the Ordinary High Water Mark on Streams in Washington State (Second Review Draft) (Olson and Stockdale 2010). Streams were classified according to KZC 90.30(4) through (6) and 90.90.

5.1 STREAMS A THROUGH C

Stream A is located at the north end of Wetland B. It originates to the north of the wetland and flows for a very short distance on-site before dissipating into the wetland.

Stream B originates near the southeastern corner of Wetland C and flows in a southerly direction for a short distance before leaving the Subject Property. Water from the stream flows down a short, steep slope and onto the asphalt parking lot of the developed South Parcel. Once on the parking lot, the stream water mixes with oils and other pollutants before flowing into a catch basin and entering the City's stormwater system.

Stream C originates near the northwest corner of Wetland B and flows in a southeasterly direction, extending past the southern terminus of Wetland B. Stream C eventually infiltrates into the soil and does not reappear.

A channel/ditch, located near the southern end of Wetland B, extends in a southeasterly direction and ends at a culvert located beneath 132nd Ave. NE. While this feature likely conveys water during storm events, it does not appear to be a naturally occurring stream. The channel is comprised of a mud substrate, lacks true streambed material (e.g. cobble, gravel, sand, etc.), and contains a small amount of upland vegetation. In addition, the soil within the channel was dry during a November 2013 site visit. Based on these characteristics, this feature is not a regulated stream.

According to KZC 90.30(6), Streams A, B, and C meet the criteria for Class C streams. They are seasonal features not used by salmonids (or any fish) and lack fish habitat. They are small/narrow features with mud and cobble/gravel substrates. Based on the Cowardin classification system, Streams A, B, and C are riverine, intermittent, streambed, mud systems. Per KZC 90.90, Class C streams located in primary basins require 35-foot buffers with an additional 10-foot structure setback.

It should be noted that surface water from the hillside on the North Parcel currently flows onto the existing parking lot on the South Parcel and flows across the parking lot to an existing storm drain.

5.2 OFF-SITE STREAM

The off-site stream located to the west of the Subject Property meets the criteria for a Class C stream per KZC 90.30(5). Portions of the off-site stream were observed from the Subject Property during the initial 2013 site inspection as well as the 2016 and 2017 site inspections. Based on these observations, it was determined that the off-site stream meets Class C stream criteria. Since it is an off-site feature, WRI personnel did not delineate the stream. Class C streams located within primary basins in the City of Kirkland require 35-foot buffers.

6.0 ASSESSMENT OF OFF-SITE CRITICAL AREAS

The City of Kirkland has requested that the project Applicant make a reasonable effort to access the adjacent western parcel (parcel ID #8663350120) in order to determine the presence or absence of critical areas. The City's critical areas maps show a wetland in the southeast corner of this parcel, immediately adjacent to the southern parcel. A wetland in this location would cast a buffer onto the southern parcel/Subject Property, thereby necessitating the need for further mitigation by the project Applicant. In a May 16, 2017 letter addressed to WRI ecologist Jim Rothwell, representatives from 12509 Kirkland LLC, the owner of the western parcel, stated that they are not interested in pursuing a City review of wetlands that may be located on their property at this time. Therefore, neither the project Applicant nor his representatives are permitted access to the western parcel. However, the property owners did state that they had retained Soundview Consultants to perform a site inspection/delineation on their property and that the applicable data sheets from that delineation could be used by WRI to assess critical area conditions on their parcel. These data sheets, along with a location map, as well as the letter from 12509 Kirkland LLC, are included in Appendix F. The Soundview Consultants Report did not identify any wetlands in the southeast corner of the western parcel.

7.0 PROPOSED WETLAND, STREAM, AND BUFFER ALTERATIONS

7.1 PROJECT DESCRIPTION

As described above, the Applicant proposes to construct a tiered parking lot for the storage of vehicles used as inventory for nearby Dealerships. Retaining walls would be built into the hillside to establish the tiered parking lots and circulation through the South Parcel and the existing access onto NE 126th Place.

7.2 AVOIDANCE AND MINIMIZATION

The configuration of the proposed vehicle storage lot has been arranged to avoid impacts to critical areas to the maximum extent feasible while accommodating the requisite number of vehicles and providing for efficient vehicular movement. Currently, gaining access to one vehicle often requires moving up to five vehicles. The layout as proposed allows for greater ease of access to vehicles. Some of the storage areas have used "tandem" or "stacked" parking configurations. This configuration is utilized to minimize the overall footprint of the required storage area and thus minimize impacts to adjacent wetlands.

The site development proposes the use of retaining walls to accommodate the grade changes between the parking levels. Retaining walls were chosen in lieu of re-grading the existing slopes. The re-grading would have had significantly more impact to the adjoining wetlands/streams and associated buffers. Utilization of the retaining walls further minimizes impacts. The most northerly retaining wall was located as far south as possible to minimize impacts to wetlands and streams and their buffers, while still achieving the project purpose.

7.3 WETLAND, STREAM, AND BUFFER ALTERATIONS

7.3.1 Permanent Wetland Impacts

In order to allow for the construction of the vehicle storage lot, Wetlands C and D will be entirely filled and approximately 10 SF of Wetland A will be filled. This will result in a total of 2,630 SF of permanent wetland fill. Wetlands C and D are located on a relatively flat terraced area that represents the most sound location for the lot. The majority of the remaining Subject Property comprises steep slopes that would require extensive grading and engineering for construction of a vehicle storage lot. Mitigation for these impacts will be accomplished by utilizing the King County Mitigation Reserves Program (MRP) (see Section 9, below).

7.3.2 Permanent Stream Impacts

Stream B is located near the southeastern corner of Wetland C and flows in a southerly direction through the proposed storage lot area. Stream B must be tight-lined and placed in a piped stormdrain system in order to construct the additional vehicle storage lot. This will result in 54 linear feet (LF) of stream impact and 268 square feet (SF) of total area impact (footprint of entire stream channel). This is described in further detail in Section 9.2, below. Currently, Stream B flows down a short, steep slope and onto the asphalt parking lot of the developed South Parcel. Once on the parking lot, the stream water mixes with oils and other pollutants before flowing into a catch basin and entering the City's stormwater system. Placing the stream in a piped system and directing it to a detention vault will avoid mixing with pollutants and, therefore, improve water quality.

Mitigation for these impacts will be accomplished by utilizing the King County MRP (see Section 9, below).

7.3.3 Wetland Buffer Impacts

Per KZC 90.60(2)(b), a wetland buffer may be reduced by one-third (1/3) of the standard buffer width through buffer averaging. While construction of the wall will encroach into the buffer of Wetland B, the buffer will not be reduced by more than one-third (1/3) of its standard width. Approximately 1,267 SF of the Wetland B buffer will be impacted.

The proposed retaining wall will also impact a portion of the Stream C buffer. The majority of the Stream C buffer overlaps with the Wetland B buffer; however, a portion of it (1,104 SF) extends outside of the Wetland B buffer and will be impacted. This will also result in the buffer being reduced by more than 1/3 of its standard width. Per KZC 90.100(1), a stream buffer may not be reduced by more than 1/3 of the standard buffer width.

To compensate for the Wetland B and Stream C buffer impacts, the Applicant is proposing to designate 13,680 SF of new buffer area between Wetlands A and B. This would create a

protected corridor that encompasses Wetlands A and B, Stream C, and their associated buffers. In addition, this new buffer area meets the buffer width averaging requirements for the Wetland B buffer impacts.

7.3.4 Wetland Paper Fill Impacts

The impacts to the Wetland A buffer will exceed the 1/3 standard outlined in KZC 90.60. To address this impact, the Applicant proposes that the City consider this project as causing a “paper fill” of the southern portion of Wetland A. By assuming this wetland fill, the “remaining” portion of Wetland A would continue to have a buffer of 75 feet. This action will not result in actual wetland fill. The paper fill concept is proposed to account for the impacts to Wetland A from the encroachment into the buffer of Wetland A. Approximately 1,120 SF of Wetland A will be paper-filled for the purpose of quantifying impacts to Wetland A. The King County MRP will be used to mitigate for the paper-filled buffer at a ratio of 0.5:1. Therefore, 560 SF of wetland will be mitigated for through the King County MRP (see Section 9, below).

7.3.5 Off-Site Stream Buffer Impacts

The proposed project will impact a portion of the buffer for the off-site stream. This portion of the buffer (3,624 SF) is primarily composed of a gravel parking area and lacks significant vegetation. The Applicant proposes to pave over this area in order to provide access to the new vehicle storage lot. Per KZC 90.30(2), a buffer is defined as “*The area immediately adjacent to wetlands and streams that protects these sensitive areas and provides essential habitat elements for fish and/or wildlife.*” This area provides little to no fish or wildlife habitat, nor is it protecting the stream. Therefore, paving over this portion of the buffer will not result in any negative impacts to the off-site stream or the remainder of the buffer. The project will actually improve the off-site stream buffer by constructing curbing that will prevent untreated surface water from migrating into the buffer from adjacent slopes.

Mitigation is still required for this action per City of Kirkland requirements. As with the paper-filled portion of Wetland A, the King County MRP will be used to mitigate for these impacts. This is described in further detail in Section 9, below.

7.3.6 Escarpment Impacts

A steep, bare soil escarpment is located at the toe of the ridge feature immediately north of the proposed vehicle storage lot expansion and retaining wall. According to the *Phase I Geotechnical Engineering Report* (Zipper Geo Associates, LLC – Dec. 2016), this escarpment shows signs of instability, including erosion and a tension crack at the top. The project geotechnical engineer’s opinion is that this feature presents a long-term geologic hazard to the project and should be mitigated. Mitigation will be achieved by creating a reinforced soil slope where the escarpment is currently located. Following construction of the slope, native shrubs and herbaceous vegetation will be installed. Approximately 910 SF of the escarpment extends into the buffer of Wetland B and Stream C. These mitigation actions will ultimately improve both the stability of the slope as well as the functions provided by the buffer. Since the majority of the escarpment is bare, planting native vegetation on it will improve habitat within the wetland/stream buffer. An addendum/letter to the 2016 geotechnical report that briefly describes the reinforced slope has been prepared by Zipper Geo Associates and is included in Appendix G of this report.

7.3.7 Temporary Impacts

The project's limits of disturbance/clearing limits will extend approximately five feet beyond the footprint of the actual retaining wall, thereby temporarily impacting portions of Wetland A, the Wetland A buffer, the Wetland B buffer, Stream C, and the proposed additional buffer area. In addition, the escarpment access area will cause temporary impacts to the buffers of Wetland B and Stream C and the proposed additional buffer area. A total of 4,721 SF of area will be temporarily impacted. These areas will be restored with native vegetation following construction.

Table 1 summarizes the overall project impacts:

Table 1: Project Impacts

Aquatic Resource	Impact Quantity	Cause of Impact
Wetland A	10 square feet	Retaining wall and lot construction resulting in wetland fill.
Wetland C	2,161 square feet	
Wetland D	459 square feet	
Stream B	54 linear feet/ 268 square feet	Tight-lining for lot construction.
Wetland A	1,120 square feet	Paper fill to address reduction of original Wetland A buffer.
Wetland B Buffer	1,267 square feet	Retaining wall and lot construction
Wetland B Buffer*	910 square feet*	Escarpment repair
Stream C Buffer	1,104 square feet	Retaining wall and lot construction
Wetland A, Wetland A buffer, Wetland B buffer, and Stream C	4,721 square feet (Temp. impact)	Retaining wall construction/limits of disturbance; escarpment access
Off-site Stream Buffer	3,624 square feet	Paving over of existing gravel parking area

*Alteration will result in positive buffer alterations

8.0 KIRKLAND ZONING CODE PROVISIONS AND LIMITATIONS

8.1 WETLAND MODIFICATIONS

Sections 90.55(2) and (3) of the KZC detail the requirements and allowances involving wetland modifications. Land surface modifications and improvements shall not occur within Type 2 and 3 wetlands except as provided in these code sections. An applicant may request a modification of the requirements of these subsections. The requirements for requesting a modification are listed below in italics, with project-specific responses following each one:

a) *It will not adversely affect water quality.*

A stormwater management system will be installed on the subject property that will replace any water quality functions lost as a result of modifying Wetlands A, C, and D. Therefore, water quality will not be adversely affected. The wetlands currently provide only low-moderate levels of water quality improvement, so replacing this function is easily achievable. Based on the results of the Washington State Wetland Rating System for Western Washington: 2014 Update (Hruby 2014), Wetland C has a limited potential to improve water

quality while Wetland D has a moderate potential. Furthermore, the surrounding landscape only has a moderate potential to support the water quality function of the site. The proposed impacts to Wetland A are so small that they are not expected to seriously alter the functions provided by the wetland.

b) It will not adversely affect fish, wildlife, or their habitat.

The loss of Wetlands C and D and the small amount of Wetland A fill will result in very minor losses of wildlife habitat. Both wetlands received very low habitat scores on the 2014 wetland rating system due to limited plant structures and hydroperiods, lack of habitat interspersions, and limited habitat features. The proposed mitigation plan will more than adequately replace these lost functions and will result in a net improvement in wildlife habitat. Furthermore, the site improvements will treat existing untreated stormwater, thereby improving water quality further downstream. It should be noted that there are no fish present on site. The Applicant is requesting the use of a Planned Unit Development (PUD) to address this. See section 9 for further details.

c) It will not have an adverse effect on drainage and/or storm water detention capabilities.

As previously stated, a stormwater management system will be installed as part of the project, so on-site drainage and stormwater detention capabilities will not be impacted. Additionally, the existing untreated stormwater/runoff will be directed, detained, and treated to improve water quality. The project should result in a net improvement to the quality of water leaving the site.

d) It will not lead to unstable earth conditions or create an erosion hazard or contribute to scouring actions.

The proposed project will actually improve the condition of the subject property in terms of erosion hazards, stability, and scouring. Portions of the subject property comprise steep slopes that contain several seeps. Modifying the wetlands and constructing the storage lot, retaining walls, and stormwater management system will help to stabilize these slopes and will capture some of the seeps and runoff that would normally continue to flow off-site.

e) It will not be materially detrimental to any other property or the City as a whole.

The proposed modifications will not cause any negative impacts to neighboring properties or the City. The proposed project will help in stabilizing the on-site steep slopes, which will benefit the neighboring single-family homes located at the top of the slopes to the north. Lost wetland functions and values will be replaced through mitigation actions.

f) It will result in land surface modification of no more than five (5) percent of the wetland on the subject property (for Type 1 wetlands).

This requirement is specifically for Type 1 wetlands. There are no Type 1 wetlands on the subject property. See below for Type 2 and 3 wetlands.

- g) *Compensatory mitigation is provided in accordance with the table in subsection (4) of this section.*

While mitigation for the wetland modifications will be provided, it will not be in accordance with subsection four of KZC 90.55. The Applicant is requesting the use of a PUD to address this issue. Mitigation will be provided through the use of the King County MRP, an in-lieu fee program. See section 10 for further details.

- h) *Fill material does not contain organic or inorganic material that would be detrimental to water quality or fish and wildlife habitat.*

Fill material, if placed on-site, will not contain any material that would be detrimental to water quality or to fish, wildlife, or their habitat.

- i) *All exposed areas are stabilized with vegetation normally associated with native wetlands and/or buffers as appropriate.*

Any exposed areas on the subject property will be planted with native vegetation. This is discussed in section 10 of this report.

- j) *There is no practicable or feasible alternative development proposal that results in less impact to the wetland and its buffer.*

The locations of the wetlands that will be impacted by the proposed project, as well as the adjacent steep slope areas, make it extremely difficult to utilize the subject property without causing wetland impacts. On-site development opportunities are limited. There are no other alternative development proposals that would result in fewer wetland impacts. The wetlands are located in one of the only flat portions of the subject property, so a different development proposal would likely still require at least some wetland impacts. Outside of the wetland areas, the subject property comprises steep slopes and streams.

- k) *In primary basins, the modification shall not affect more than 10 percent of the wetland on the subject property (for Type 2 wetlands)*

Although the proposed project will only be physically impacting 10 SF of Wetland A (a Type 2 wetland), paper fill will result in 1,120 SF of modifications, which is more than 10 percent of the wetland. The Applicant is requesting the use of a PUD to address this issue.

- l) *In primary basins, the modification shall not affect more than 50 percent of the wetland on the subject property (for Type 3 wetlands)*

Wetlands C and D, both of which are Type 3 wetlands, will be completely filled as part of the proposed project. This is more than 50 percent of the wetland. The Applicant is requesting the use of a PUD to address this issue.

- m) *In secondary basins, the modification shall not affect more than 25 percent of the wetland on the subject property (for Type 2 wetlands).*

The subject property is located in a primary basin, so this requirement is not applicable.

n) *In secondary basins, the modification may affect all of the wetland on the subject property.*

The subject property is located in a primary basin, so this requirement is not applicable.

8.2 BUFFER MODIFICATIONS AND BUFFER WIDTH AVERAGING

The proposed project will impact 1,267 SF of the buffer of Wetland B and 1,104 SF of the Stream C buffer. The remaining buffer adjacent to the Wetland B will be at least 57 feet in width not considering any further building setback. The southern portion of the Stream C buffer, however, will be completely reduced. The Applicant proposes buffer width averaging to compensate for the impacts to the Wetland B buffer, as authorized by KZC 90.60(2)(b). Approximately 13,680 SF of new buffer will be designated between Wetlands A and B to compensate for this buffer reduction and to compensate for all buffer impacts.

The buffer of the off-site stream will be fully reduced where it extends onto the subject property. The Applicant is requesting the use of a PUD to address this action.

The proposed escarpment work will modify 910 SF of the Wetland B buffer. While this will improve the condition and stability of the buffer, it is still considered a buffer modification and must be addressed here.

A request for a land surface modification shall be approved only if the specific requirements outlined in KZC 90.60(2)(a)(1) and (2)(b) and 90.100(1)(a) and (2) are met. These requirements are listed below in italics, with project-specific responses following each one.

Section 90.60(2)(a)(1) of the KZC states the following: *“Buffer averaging requires that the area of the buffer resulting from the buffer averaging is equal in size and quality to the buffer area calculated by the standards specified in KZC 90.45(1). Buffers may not be reduced at any point by more than one-third (1/3) of the standards specified in KZC 90.45(1). Buffer averaging calculations shall only consider the subject property.”*

Section 90.100(1)(a) states the following: *“Buffer averaging requires that the area of the buffer resulting from the buffer averaging is equal in size and quality to the buffer area calculated by the standards specified in KZC 90.90(1). Buffers may not be reduced at any point by more than one-third (1/3) of the standards specified in KZC 90.90(1). Buffer averaging calculations shall only consider the subject property.”*

Buffer width averaging for Wetland B will be in compliance with KZC 90.60(2)(a)(1). The buffer being designated between Wetlands A and B is similar in quality to that portion of the buffer being reduced. In addition, the new buffer area is substantially larger in size than the buffer area being reduced. The buffer for Wetland B will not be reduced by more than one-third of the standard buffer width.

The off-site stream buffer will be reduced by more than one-third the standard buffer width. The Applicant is requesting the use of a PUD to address this action.

While the new buffer area being designated is similar in quality to, and much larger than, the buffer area being reduced adjacent to Stream C, the Stream C buffer will be reduced by more

than one-third the standard buffer width. The Applicant is requesting the use of a PUD to address this issue.

The requirements of KZC 90.60(2)(b) and KZC 90.100(2) are as follows:

An improvement or land surface modification shall be approved in a wetland buffer only if:

- 1) *It is consistent with Kirkland's Streams, Wetlands and Wildlife Study (The Watershed Company, 1998) and the Kirkland Sensitive Areas Regulatory Recommendations Report (Adolfson Associates, Inc., 1998);*

The objective of Kirkland's Streams, Wetlands and Wildlife Study is to “*provide the foundation for development of policies, regulations and incentives that will maintain, and to the degree possible, improve the quality of Kirkland's streams, wetlands and natural areas.*” The Study provides a list of opportunities for enhancement and restoration of the functions and features provided by the Juanita Creek Basin. The following items are excerpted from that list:

- “In areas where much of the surrounding land has already been developed, it is recommended that vegetated buffers be established wherever possible and as future opportunities arise.”
- “Many of even the smallest wetlands could be enhanced by removing garbage and invasive plants, such as Himalayan blackberry, English ivy, Japanese knotweed, and bittersweet nightshade. Establishing any buffer of native vegetation can provide an improvement for screening, water quality, and wildlife habitat.”

Although the proposed buffer width averaging plan will reduce portions of existing wetland buffers, additional buffer will be designated elsewhere on the project site. This will maintain the overall quantity of, as well as the functions provided by, the buffers. The existing and proposed buffer areas are currently vegetated; providing permanent protection of these areas meets the opportunities contained in the Study and will provide long-term protection of associated wetlands. The PUD program will be utilized to address the impacts to the Stream C buffer and the off-site stream buffer.

The escarpment repair work will re-establish vegetation on that portion of the slope, thereby improving the vegetated buffer.

The Kirkland Sensitive Areas Regulatory Recommendations Report outlines recommendations for buffer width reductions adjacent to streams and wetlands. The Report recommends that stream buffer modification only be allowed if buffer averaging or buffer enhancement is proposed. It states, “*Similar to the stream buffer modification recommendations, we recommend that modification of wetland buffers not exceed one-third of the buffer width, regardless of the basin designation, as long as buffer enhancement or averaging is provided.*” The buffer width averaging plan for Wetland B will be consistent with this recommendation. The proposed buffer modifications for Stream C and the off-site stream buffer, however, exceed the 1/3 reduction limitation. The Applicant is requesting the

use of a PUD to address these issues. The new buffer area being designated will more than adequately compensate for the stream buffer areas being reduced.

The escarpment repair work will provide enhancement of the buffer and will not result in any stream or wetland buffer width reduction.

2) *It will not adversely affect water quality;*

The proposed buffer width averaging plan and buffer reduction actions will not adversely affect water quality. New buffer will be designated to replace lost/reduced buffer, which will maintain water quality functions and protection. All proposed buffer areas are currently vegetated. Approximately 5,995 SF of wetland and stream buffer will be impacted by the project while 13,680 SF of new buffer will be designated. Overall, the project will result in a net improvement to water quality.

The escarpment repair work will not adversely affect water quality. This area is currently showing signs of instability and erosion, which threatens water quality. Repairing this area and adding native vegetation will improve and protect water quality.

3) *It will not adversely affect fish, wildlife, or their habitat;*

There is no fish habitat on or near the project site. Wildlife habitat will be maintained by the additional buffer being designated. Stream C is not a fish-bearing stream, nor does it have the ability to provide fish habitat. Wildlife habitat within the escarpment area will be improved through the addition of native vegetation. The portion of the off-site stream buffer being impacted is composed of a gravel parking area and does not provide any fish or wildlife habitat. As noted above, redirecting and treating water will result in a net improvement to water quality.

4) *It will not have an adverse effect on drainage and/or storm water detention capabilities;*

The buffer areas are not currently providing significant stormwater detention functions, so altering them will not impact those capabilities. The areas in which the buffer reductions occur for Wetland B and Stream C are down gradient from the associated wetland. The reduction will not impact the drainage to the wetland or stream. Furthermore, stormwater management, drainage plans/assessments, and erosion control plans are being prepared to address those functions during and following construction of the project. The overall completed project will improve drainage and stormwater quality. Escarpment repair will have not have any negative impacts on drainage or storm water detention.

5) *It will not lead to unstable earth conditions or create an erosion hazard or contribute to scouring actions;*

The reduction of the buffers will not lead to soil destabilization or an erosion hazard. The proposed plans include retaining walls, subsurface drainage, and surface drainage improvements to further stabilize the surrounding soils. Additionally, the grading and tree removal will be minimized to preserve the mature ground cover, which is critical in minimizing erosion. The overall completed project will improve and mitigate existing landslide hazards. The attached Zipper Geo letter/addendum (Appendix G) addresses the

escarpment restoration area, which will result in improved slope stability. Water exiting Stream C will be captured and incorporated into the project's stormwater management system, then returned to the City's stormwater system. Stream water will not contribute to scouring actions.

6) *It will not be materially detrimental to any other property or the City as a whole;*

The proposed buffer alterations will occur entirely on-site and will not extend into neighboring parcels or city-owned property. Long-term or large-scale negative impacts will not result from the buffer width averaging plan.

7) *Fill material does not contain organic or inorganic material that would be detrimental to water quality or to fish, wildlife, or their habitat;*

Fill material, if placed on-site, will not contain any material that would be detrimental to water quality or to fish, wildlife, or their habitat.

8) *All exposed areas are stabilized with vegetation normally associated with native wetland buffers and native stream buffers, as appropriate; and*

Any exposed areas that result from buffer width averaging will be planted/restored with native vegetation.

9) *There is no practicable or feasible alternative development proposal that results in less impact to the buffer.*

The remainder of the project site comprises wetlands and steep slope areas. Constructing the vehicle storage lot elsewhere on the project site would result in either greater impacts to wetlands or would require extensive engineering due to the possibility of landslide and/or erosion issues. The proposed layout represents the most appropriate location.

8.3 WETLAND MITIGATION AND STREAM MODIFICATIONS

The KZC does not allow for the piping/tight lining of streams. Streams may be placed in culverts, relocated, or modified provided these actions meet the proper criteria, but piping streams is not addressed in the KZC. The Applicant is requesting the use of a PUD to address this action. This is discussed in section 9.2

Finally, KZC section 90.55(4) addresses wetland mitigation. These regulations do not authorize use of an in lieu fee program for wetland and stream mitigation. The Applicant is requesting the use of a PUD. For the reasons explained in Sections 9 and 10, below, the Applicant is proposing, through the PUD, to mitigate the wetland and stream impacts through purchasing credits from King County as part of the King County MRP.

9.0 PLANNED UNIT DEVELOPMENT

Chapter 125 of the Kirkland Zoning Code addresses Planned Unit Developments (PUDs). A PUD allows an applicant to propose a development that is innovative or beneficial, but which does not fully comply with the provisions of the code. It is intended to allow for developments that benefit the City of Kirkland more than would a development that meets all the requirements

of the code. Since, as described above, certain aspects of the proposed project are not in full compliance with the critical area regulations of the Kirkland Zoning Code, the Applicant is proposing a PUD.

Per KZC section 125.35, the City will only approve a PUD if all of the following requirements have been met:

- 1) The proposed PUD meets the requirements of the chapter.
- 2) Any adverse impacts or undesirable effects of the proposed PUD are clearly outweighed by specifically identified benefits to the residents of the City.
- 3) The applicant is providing one (1) or more of the following benefits to the City as part of the proposed PUD:
 - a) The applicant is providing public facilities that could not be required by the City for development of the Subject Property without a PUD.
 - b) The proposed PUD will preserve, enhance or rehabilitate natural features of the Subject Property such as significant woodlands, wildlife habitats or streams that the City could not require the applicant to preserve, enhance or rehabilitate through development of the Subject Property without a PUD.
 - c) The design of the PUD incorporates active or passive solar energy systems.
 - d) The design of the proposed PUD is superior in one (1) or more of the following ways to the design that would result from development of the Subject Property without a PUD:
 1. Increased provision of open space or recreational facilities.
 2. Superior circulation patterns or location or screening of parking facilities.
 3. Superior landscaping, buffering, or screening in or around the proposed PUD.
 4. Superior architectural design, placement, relationship or orientation of structure.
 5. Minimum use of impervious surfacing materials.
- 4) Any PUD which is proposed as special needs housing shall be reviewed for its proximity to existing or planned services (i.e., shopping centers, medical centers, churches, parks, entertainment, senior centers, public transit, etc.).

The Applicant proposes to meet the criteria of KZC 125.35.3(a) by constructing a public sidewalk connection and the criteria of 125.35.3(b) by providing additional on-site wetland buffer enhancement, including preservation of an existing tree grove.

Other aspects of the PUD application address compliance with PUD criteria. Table 2 summarizes what the Applicant is proposing as authorized critical area impacts and approaches to mitigation under the PUD process.

Table 2: Proposed PUD Actions

Requested Action	KZC Limitations and Allowances
Complete fill of Wetlands C and D and partial fill of Wetland A (2,630 SF)	No more than 50% of a wetland in a primary basin can be altered (90.55(3))
Piping of Stream B (54 LF; 268 SF)	Piping of streams is not addressed in the KZC.
“Paper Fill” of Wetland A (1,120 SF) to address impact of reduction of Wetland A buffer beyond allowable limits	Wetland buffers may be reduced by no more than one-third (1/3) of the standard buffer width through buffer averaging (90.60(2)(a))
Permanent impact of southern portion of Stream C buffer	Stream buffers may be reduced by no more than one-third (1/3) of the standard buffer width through buffer averaging or buffer enhancement (90.100)
Reduction of off-site stream buffer (greater than 1/3)	Stream buffers may be reduced by no more than one-third (1/3) of the standard buffer width through buffer averaging or buffer enhancement (90.100)
Modify 10-foot structure setback from buffers	A 10-foot structure setback is required from designated wetland and stream buffers (90.45(2), 90.90(2))
Mitigation using the King County Mitigation Reserves Program	KZC critical area regulations do not authorize use of in-lieu fee programs

The following is a list of public benefits that will result from the completed project:

- Funding a public sidewalk project that will provide pedestrian connection to ultimately connect to the City’s planned Totem Lake Cross Corridor pedestrian trail.
- Improved buffering/screening between residential and proposed project (200 feet).
- Avoidance of circulation impacts to 132nd Ave. NE by combining the North and South Parcels and taking access on NE 126th Place.
- Support of an important economic sector in the Totem Lake Eastern Industrial Subarea.
- Permanent stabilization of a hillside (considered a long-term geologic hazard) by constructing retaining walls and filling and revegetating the escarpment.
- Reduction of erosion hazards by grading activities; will fill over-exposed slopes.
- Improvement of water quality of capturing hillside flows that currently seep into the existing parking lot and adjacent stream buffer.
- Funding of off-site restoration, establishment, enhancement, and/or preservation of aquatic resources through the King County Mitigation Reserves Program.
- Reduce risk of landslide that could result in public harm and property damage in areas south of the project limits.
- Reduce risk of destabilizing slopes to the north of the project limits that could impact existing residential properties north of the project site.

9.1 BUFFER SETBACK MODIFICATION

Sections 90.45(2) and 90.90(2) of the KZC outline buffer setback requirements. Per the code, structures must be set back at least 10 feet from the designated or modified wetland or stream buffers. Buildings and other above-ground structures are not allowed within this setback. The Applicant is requesting relief from this requirement. The proposed project design would encroach into the on-site wetland and stream buffers, and in some cases exceeding what is allowable by code. Enforcing the setback requirement would increase the amount of buffer encroachment since the proposed retaining wall cannot be moved further south (away from) the critical area buffers. The setback would need to extend into the buffer areas, thereby necessitating the need for additional buffer mitigation. According to the KZC, the buffer setback “*serves to protect the wetland or stream buffer during development activities, use, and routine maintenance occurring adjacent to these resources.*” Upon completion of the project, routine maintenance of the retaining wall will be extremely limited. Unlike a house or building that would require repairs, upkeep (e.g. exterior painting), and other maintenance actions, a retaining wall would generally remain as-is once constructed. Weeding and plant removal from the wall itself may need to occur, but this wouldn’t require encroachment into the critical area buffers.

9.2 STREAM B IMPACT ASSESSMENT

The applicant is requesting the use of a PUD to address the piping of Stream B. Such actions are not addressed in the KZC. Stream B must be piped in order to complete the project. Leaving the stream as-is would significantly reduce the size of the proposed storage lot as the easternmost portion would become un-buildable. Furthermore, in order to complete the other elements of the project – i.e. surfacing, water quality improvement, protection of adjacent steep slopes, etc. – the stream must be placed in a pipe. There is no other feasible alignment. The following paragraphs discuss the benefits of this proposed action.

The tight lining of Stream B will result in a permanent modification to the flow path and stream channel. However, this action will improve water quality and stability of the surrounding hillside. As previously stated, Stream B flows down a short, steep slope and onto the asphalt parking lot of the developed South Parcel. Once on the parking lot, the stream water mixes with oils and other pollutants before flowing into a catch basin and entering the City’s stormwater system. Placing the stream in a piped system and directing it to a detention vault will avoid mixing with pollutants and, therefore, improve water quality. From the detention vault, water will continue to enter the City’s stormwater system. Piping Stream B will maintain stream flow, improve water quality, and will not impact the quantity of water entering the system.

Stream B, as well as the majority of the water flowing across the steep slopes of the North Property, represent an erosion hazard. According to the geotechnical report prepared by Zipper Geo Associates, LLC (Dec. 2016), the existing flow paths located on the North Parcel are directing water over steep slopes, thereby causing erosion and shallow surficial slope failures. Proper control of surface water runoff in the undeveloped, upland portions of the project site is one of several actions that is proposed to mitigate post-construction erosion. In addition to Stream B, surface water runoff from the slopes on the North Parcel will be intercepted at the top of the north cut wall and will be directed to on-site storm drainage facilities. Placing Stream B in a piped system will reduce the amount of erosion occurring on the steep slopes and will aid in protecting the undeveloped portion of the North Parcel.

Stream B meets the criteria for a Class C stream in the City of Kirkland and a Type Ns stream per section 222-16-030 of the Washington Administrative Code (WAC). Section 90.30(6) of the KZC defines Class C streams as “*seasonal or ephemeral streams (during years of normal precipitation) not used by salmonids.*” Type Ns streams are defined in the WAC as “*all segments of natural waters within the bankfull width of the defined channels that are not Type S, F, or Np Waters. These are seasonal, nonfish habitat streams in which surface flow is not present for at least some portion of a year of normal rainfall and are not located downstream from any stream reach that is a Type Np Water.*” Stream B does not contain any fish nor does it contain fish habitat. It serves only as a conduit for water leaving the North Parcel into the City’s stormwater system. Placing Stream B in a pipe will not result in the loss of any fish or wildlife habitat. The stream does not have any direct connections to other streams in the immediate vicinity. According to the City’s storm system map, it flows into the City’s piped stormwater system before reaching any other naturally occurring streams. The stream buffer is dominated by invasive species, primarily Himalayan blackberry, and provides limited wildlife habitat. Due to the lack of any substantial habitat within or adjacent to Stream B, and because of the proposed mitigation actions (see section 9, below), the proposed alteration of Stream B will not result in any significant impacts to the nearby critical areas, the remainder of the North Parcel, or to the local environment as a whole.

10.0 PROPOSED MITIGATION

10.1 WETLAND, STREAM, AND BUFFER MITIGATION

The King County Mitigation Reserves Program (MRP) will be used to provide mitigation for wetland and stream impacts. The MRP is an in-lieu fee mitigation program that allows permit applicants to purchase “credits” from the County in order to satisfy mitigation obligations associated with projects that have resulted in unavoidable wetland, stream, and/or buffer impacts. The County uses the mitigation fees provided by the applicant to carry out mitigation projects that compensate for the unavoidable impacts.

Per KZC 90.55(4), on-site mitigation is preferable to off-site mitigation. The City may approve off-site mitigation provided it is located within the same drainage basin as the property that will be impacted by a project. Off-site mitigation must result in higher wetland functions, values, and/or acreage than on-site mitigation. On-site mitigation options are extremely limited on the North Parcel and would not result in a net improvement in wetland functions and values. The majority of the site comprises steep slopes, which are not suitable for wetland creation. Enhancing the remaining on-site wetlands as compensation would not adequately replace the lost functions and values of Wetlands C and D. Furthermore, no more than one-third of a mitigation plan within a primary basin can consist of enhancement actions (KZC 90.55). Therefore, off-site mitigation via the MRP is the most ecologically sound method of compensating for unavoidable impacts.

The following is an example of the MRP process (excerpted from the King County Mitigation Reserves Program website):

1. Applicants work with regulatory agencies and tribes to identify ways a proposed project can avoid and minimize environmental impacts.

2. Regulatory agencies determine preferred options for mitigating unavoidable impacts. Mitigation options may include:
 - on-site mitigation (if ecologically-feasible and likely to succeed)
 - off-site mitigation sponsored by the permittee
 - purchasing credits from a mitigation bank (if one is available), or
 - purchasing credits from the Mitigation Reserves Program
3. If the applicant chooses to use the KC MRP (and the regulatory agencies approve), the ecological impacts translated into a number of *debits* associated with the impact.
4. The applicant buys *credits* from the KC MRP to offset the debits associated with the impact. By purchasing credits, the applicant satisfies their compensatory mitigation requirements and have no further involvement in the mitigation implementation.
5. The KC MRP chooses a mitigation site from a predefined Roster. Roster sites may be publicly or privately owned, and will be chosen based on science-based watershed priorities.
6. The KC MRP plans, implements, monitors and maintains projects at chosen sites that will achieve ecological “lift.” On balance, completed projects should result in a number of credits equal to or greater than the number of debits associated with the original impacts.

The amount of credits that an applicant must purchase is determined by using the Washington State Department of Ecology document Calculating Credits and Debits for Compensatory Mitigation in Wetlands of Western Washington (Hruby 2012), or the “Credit-Debit Method”. In terms of in-lieu fee programs, a “debit” is the standard unit of measure used to quantify impacts while lift or improvement at a mitigation site is measured in “credits.” The Credit-Debit Method determines/quantifies the debits/impacts at a proposed project site and then determines the number of credits necessary to compensate for those impacts. Credits are then purchased from the MRP. Although the MRP is a King County-based program, it can be used in incorporated cities throughout the County if allowed by that particular city. The Applicant is seeking City of Kirkland approval to use the King County MRP as part of its PUD application. King County personnel have determined that the proposed RC 124th LLC project is eligible for the MRP program, and City Staff has agreed that use of the County’s in-lieu fee program is appropriate for this project.

The Applicant is proposing to use the MRP to mitigate the impacts to Stream B. King County personnel have stated that a stream mitigation site is available within the Cedar River/Lake Washington service area, the same service area in which the proposed project is located. Furthermore, Larry Fisher, Habitat Biologist with the Washington Department of Fish and Wildlife (WDFW) has stated that WDFW will accept the use of the MRP for Stream B mitigation. The details of the mitigation will be confirmed prior to City approval of tight-lining Stream B.

The King County MRP will also be used to mitigate the paper fill impacts within Wetland A and the impacts to the off-site stream buffer. The paper fill impact area (1,120 SF) will be mitigated at a 0.5:1 ratio, so 560 SF of wetland mitigation will occur. The off-site stream buffer impact area (3,789 SF) will be mitigated at a 1:1 ratio.

Although King County is responsible for the implementation of the MRP, City of Kirkland personnel will review the credit-debit calculations and proposed mitigation credit payment before authorizing the proposed construction activities impacting wetlands and streams.

An In-Lieu Fee Mitigation Purchase Application has been submitted to the King County MRP department and is included in Appendix D of this report. The credit-debit forms and debit worksheets for Wetlands A, C, and D are also included in Appendix D.

In addition to King County and City of Kirkland approval, the U.S. Army Corps of Engineers (Corps) must also approve the filling of Wetlands A, C, and D and the use of the in-lieu fee program. The applicant is responsible for preparing the necessary permit applications and documents for Corps approval (e.g. JARPA application, delineation report, mitigation plan, biological evaluation, etc.). In addition, an In-Lieu Fee Use Plan must be prepared and submitted to both the Corps and King County. Since the project is still in the planning phases, these documents have not yet been prepared. Once all of the project details have been determined, these documents will be prepared and submitted to the Corps, King County, and the City of Kirkland (at their request).

10.2 ADDITIONAL BUFFER DESIGNATION

As part of the buffer width averaging plan, and to improve overall buffer functions on the Subject Property, 13,680 SF of new buffer will be designated between Wetlands A and B. This will create a protected corridor that encompasses Wetlands A and B, Stream C, and their associated buffers.

10.3 WETLAND/STREAM BUFFER ENHANCEMENT AND RESTORATION

A portion of the Wetland B/Stream A/Stream C buffer will undergo enhancement as part of the public benefit portion of the PUD. The northern portion of the buffer will be enhanced while an adjacent, non-buffer area to the north will be restored. Invasive vegetation will be removed from these areas, followed by the installation of native trees and shrubs. A total of 9,954 SF of existing buffer will be enhanced while 4,250 SF of non-buffer area will be restored. Enhancing this area will improve the buffer functions and values, provide improved wildlife habitat, and provide additional screening for some of the private parcels located north of the project site. Furthermore, the existing population of native trees in this area (primarily conifers) will be enhanced by underplanting with additional conifer species and assorted shrubs. Table 3 lists the plant species that will be installed within the enhancement area.

Table 3: Enhancement/Restoration Species List

<u>SPECIES</u>	<u>SCIENTIFIC NAME</u>	<u>SIZE</u>	<u>SPACING</u>	<u>QUANTITY</u>
Douglas fir	<i>Pseudotsuga menziesii</i>	1 gallon	10' OC	71
Western red cedar	<i>Thuja plicata</i>	1 gallon	10' OC	71
Beaked hazelnut	<i>Corylus cornuta</i>	1 gallon	6' OC	63
Thimbleberry	<i>Rubus parviflorus</i>	1 gallon	6' OC	63
Indian plum	<i>Oemleria cerasiformis</i>	1 gallon	6' OC	63
Snowberry	<i>Symphoricarpos albus</i>	1 gallon	6' OC	63

10.4 ESCARPMENT RESTORATION

The escarpment impact area (2,688 SF) will be restored with native shrubs and ferns following construction of the reinforced soil slope. The reinforced slope will be constructed of layers, or lifts, that resemble a stepped structure. A compacted sand backfill will be used to create the layers/lifts, with a topsoil medium comprising the outermost portion. The addendum to the 2016 geotechnical report contains a figure that illustrates what this structure will look like (see Appendix G). Shrubs and ferns will be planted along the outer portions of the layers/lifts. Topsoil will be placed throughout the planting areas a depth of 1.5 feet, which matches the height of each reinforced layer. The exception to this is the uppermost layer, which will be composed entirely of topsoil to accommodate a larger planting area and additional plants.

The combination of topsoil and a compacted subsurface layer will allow for the successful establishment of the new vegetation. While the original plan for the escarpment called for the placement of a quarry spall buttress in front of the entire slope, this revised restoration plan will create a much more favorable structure and setting for native plant establishment.

Since heavy machinery may be used during construction of the reinforced slope, decompaction of the escarpment access restoration area may need to occur. This will be determined by the lead biologist and/or City of Kirkland personnel following construction. Decompaction and rental of decompaction machinery has been factored into the cost estimate and added to the bond quantity worksheet (Appendix E).

Table 4 lists the plant species that will be installed on the reinforced slope.

Table 4: Escarpment Restoration Area Species List

<u>SPECIES</u>	<u>SCIENTIFIC NAME</u>	<u>SIZE</u>	<u>SPACING</u>	<u>QUANTITY</u>
Tall Oregon grape	<i>Mahonia nervosa</i>	1 gallon	5' OC	36
Thimbleberry	<i>Rubus parviflorus</i>	1 gallon	5' OC	36
Snowberry	<i>Symphoricarpos albus</i>	1 gallon	5' OC	36
Sword fern	<i>Polystichum munitum</i>	1 gallon	3' OC	190

10.5 TEMPORARY IMPACT AREA RESTORATION

The project clearing limits will extend approximately five feet beyond the footprint of the retaining wall, thereby temporarily impacting portions of Wetland A, the Wetland A buffer, the Wetland B buffer, and Stream C. The escarpment access area will also result in temporary impacts to wetland and stream buffer areas. A total of 4,721 SF of area will be temporarily impacted. These areas will be restored with native vegetation following construction. Table 5 lists the plant species that will be installed within the temporary impact areas.

Table 5: Temporary Impact Restoration Area Species List

<u>SPECIES</u>	<u>SCIENTIFIC NAME</u>	<u>SIZE</u>	<u>SPACING</u>	<u>QUANTITY</u>
Big leaf maple	<i>Acer macrophyllum</i>	1 gallon	10' OC	24
Black cottonwood	<i>Populus balsamifera</i>	1 gallon	10' OC	24
Western red cedar*	<i>Thuja plicata</i>	1 gallon	6-7' OC	2
Black twinberry*	<i>Lonicera involucrata</i>	1 gallon	4' OC	3
Beaked hazelnut	<i>Corylus cornuta</i>	1 gallon	6' OC	21
Thimbleberry	<i>Rubus parviflorus</i>	1 gallon	6' OC	21
Indian plum	<i>Oemleria cerasiformis</i>	1 gallon	6' OC	21
Snowberry	<i>Symphoricarpos albus</i>	1 gallon	6' OC	21

*To be planted in the Wetland A portion of the temp. impact area (83 SF)

11.0 MITIGATION PLAN NOTES

Pre-construction Meeting

Monitoring by the lead biologist for all portions of this project is strongly recommended. An on-site, pre-construction meeting should be held between the lead biologist, project applicant, and City of Kirkland personnel. The objective of such a meeting is to discuss project sequencing, confirm the location of the mitigation areas, and verify the mitigation actions.

Inspections

The lead biologist will periodically inspect the mitigation installation process. Minor adjustments to the original design may be necessary prior to and during construction due to unusual or unknown site conditions. A City of Kirkland representative and/or the lead biologist will make these decisions during construction.

Planting Schedule

If possible, plant installation will take place in late fall or early spring (prior to the start of the growing season). Plants shall be obtained from a reputable nursery familiar with native vegetation and that is capable of providing local genetic stock. Limited species substitution may be allowed, as well as revisions to spacing and plant locations. The lead biologist must approve alterations to the approved mitigation plan before they occur.

Handling

Plants shall be handled to avoid damage, including breaking, bruising, root damage, sunburn, drying, freezing, or other injury. Plants must be covered during transport. Plants shall not be bound with wire or rope in a manner that could damage branches. Protect plant roots with shade and wet soil in the period between delivery and installation. Do not lift container stock by trunks, stems, or tops. Do not remove from containers until ready to plant. Water all plants as necessary to keep moisture levels appropriate to the species requirements. Plants shall not be allowed to dry out. All plants shall be watered thoroughly immediately upon installation. Soak all containerized plants thoroughly prior to installation.

Storage

Plants stored for longer than one month prior to planting shall be planted in nursery rows and treated in a manner suitable to specific species requirements. Plants must be re-inspected by the lead biologist prior to installation.

Damaged plants

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

Plant Names

Plant names shall comply with those generally accepted in the native plant nursery trade. Any question regarding plant species or variety shall be referred to the lead biologist. All plant materials shall be true to species and variety and legibly tagged.

Quality and condition

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

Roots

All plants shall be containerized unless explicitly authorized by the lead biologist. Root bound plants or B&B plants with damaged, cracked, or loose rootballs (major damage) will be rejected. Before installation, plants with minor root damage (e.g. broken and/or twisted roots) must be root-pruned. Matted or circling roots of containerized plantings must be pruned or straightened and the sides of the root ball must be roughened.

Sizes

Plant sizes are indicated in Table 2, above. Larger stock may be acceptable provided that it has not been cut back to the size specified, and that the root ball is proportionate to the size of the plant. Smaller stock may be acceptable, and preferable under some circumstances, based on site-specific conditions. Any changes to the original mitigation design must be approved by the lead biologist. Measurements, caliper, branching, and balling-and-burlapping shall conform to industry standards.

Form

Evergreen trees shall have single trunks and symmetrical, well-developed form. Deciduous trees shall be single trunked unless specified as multi-stem in the plant schedule. Shrubs shall have multiple stems and be well branched.

Weeding and Site Preparation

Non-native and invasive vegetation in the enhancement and restoration areas will be completely removed prior to plant installation. Himalayan blackberry roots, and those of other woody invasive species, must be grubbed out and completely removed from the planting areas. Basic weeding activities will also occur on a routine basis throughout the monitoring period. No

chemical control of vegetation on any portion of the site is allowed without the approval of the City of Kirkland.

Site conditions

The contractor shall immediately notify the lead biologist of drainage or soil conditions likely to be detrimental to the growth or survival of plants. Planting operations should not be conducted under the following conditions: freezing weather, when the ground is frozen, excessively wet weather, excessively windy weather, or in excessive heat.

Planting Pits

Planting pits should be circular with vertical sides, and should be 6” deeper and 12” larger in diameter than the root ball of the plant. In compacted soils, the sides of the planting pits should be scarified/broken up. Set plants upright in pits. Burlap, if used, shall be removed from the planting pits. Backfill shall be worked back into holes such that air pockets are removed without compacting the soils.

Staking

Most shrubs and trees do not require staking. If the plant can stand upright without staking in a moderate wind, stakes should not be used. If the plant needs support, then strapping or webbing should be used as low as possible on the trunk to loosely brace the tree with two stakes. Do not brace the tree tightly or too high on the trunk. Do not use wire in a rubber hose for strapping as it exerts too much pressure on the bark. As soon as supporting the plant becomes unnecessary, stakes should be removed. All stakes must be removed within one (1) year of installation.

Plant Location

Lath staking, brightly colored flagging, or another form of marking shall be placed on or near each installed plant to assist in locating the plants during maintenance and monitoring activities.

Arrangement and Spacing

The plants shall be arranged with the appropriate numbers, sizes, species, and distribution to achieve the required vegetation coverage. The actual placement of individual plants shall mimic natural, asymmetric vegetation patterns found on similar undisturbed sites in the area.

Inspection(s)

The lead biologist shall be present on site to inspect the plants prior to planting. Minor adjustments to the original design may be required prior to and during construction. The lead biologist must approve any modifications before they occur.

Mulch

A layer of wood chip mulch (containing some green/vegetative material) will be placed throughout the enhancement areas at a depth of 2-4 inches. Mulch shall not be allowed to contact plant stems so as to avoid plant decay and rot.

Topsoil/Amendments

The individual planting pits throughout all planting areas shall be amended with topsoil. Pits

shall be over-excavated to accommodate the topsoil.

Water

Plants should be watered midway through backfilling, and again upon completion of backfilling. For spring plantings (if approved), a rim of earth should be mounded around the base of the tree or shrub no closer than the drip line, or no less than 30" in diameter, except on steep slopes or in hollows. Plants should be watered a second time within 24-48 hours after installation. The earthen rim/dam should be leveled prior to the second growing season.

Irrigation

Irrigation shall be provided during the first two years of the monitoring period and will occur during the summer/dry season (e.g. June through September), any extensive dry periods, and/or as determined by the lead biologist. Water shall be applied to the new plants at a rate of one (1) inch per week. An experienced landscaper shall install the irrigation system.

11.2 FENCING AND SIGNAGE

Section 90.50 of the KZC requires that temporary construction phase fencing be installed along the upland boundary of the wetland/stream buffer. Silt screen fabric must also be installed. The construction fencing shall remain in place for the duration of the development activities. Upon completion of the project, a 3- to 4-foot tall split rail fence will be installed at an appropriate location approved by City of Kirkland personnel. The fencing illustrated on the attached mitigation map is subject to change. The retaining wall will act as a sufficient barrier along the southern portion of the remaining critical areas; split-rail fencing will not be installed in this location.

Sensitive/critical area signs shall be placed along the retaining wall and along portions of the upland boundary of the wetland/stream buffer. The final location of the signs shall be approved by the City of Kirkland. As with the split rail fencing, the locations of the signs illustrated on the attached mitigation map are subject to change.

12.0 GOALS, OBJECTIVES, AND PERFORMANCE STANDARDS

Project goals identify what the mitigation plan is attempting to accomplish. Objectives identify specific actions that are taken or components that are initiated in order to meet the project goals. Finally, performance standards provide measurable criteria for determining if the goals and objectives are being achieved (WA. State Department of Ecology et al., 2006)

12.1 GOALS

The goals of this mitigation plan include the following:

- Replacement of lost functions and values resulting from 2,630 square feet of wetland fill and 1,120 square feet of wetland paper fill (paper fill mitigation shall occur at a 0.5:1 ratio).
- Replacement of lost functions and values resulting from 268 square feet of permanent stream impact.

- Replacement of lost functions and values resulting from 3,624 square feet of off-site stream buffer impact.
- Enhancement of 14,204 square feet of wetland/stream buffer and non-buffer area.
- Restoration of a 2,688 square foot reinforced escarpment area.
- Restoration of 4,721 square feet of temporary impact area.
- Permanent protection of on-site critical areas.

12.2 OBJECTIVES

The goals will be met by performing the following actions (i.e. objectives):

- Application to the King County Mitigation Reserves Program (MRP) and purchase of MRP credits to mitigate for the permanent wetland fill impacts, the permanent stream impacts, the paper fill impacts, and the permanent off-site stream buffer impacts.
- Removal of invasive and non-native vegetation from all enhancement and restoration areas.
- Installation of two (2) species of native trees and four (4) species of native shrubs (394 plants total) within the wetland/stream buffer enhancement area.
- Installation of three (3) species of native shrubs and one (1) species of native fern (298 plants total) within the escarpment restoration area.
- Installation of three (3) species of native trees and five (5) species of native shrubs (137 plants total) within the temporary impact restoration area.
- Installation of split-rail fencing and sensitive/critical area signs along the upland boundary of the wetland/stream buffer. Final fencing and sign locations will be approved by the City of Kirkland.

12.3 PERFORMANCE STANDARDS

The performance standards for this mitigation plan include the following:

- Survival of planted trees, shrubs, and herbaceous vegetation throughout the planting areas will be 100% following the first year of monitoring; 80% following the third year; and 70% by the end of the fifth year. All dead plants shall be replaced following the first year of monitoring.
- Tree and shrub aerial coverage throughout the planting areas will be 50% at the end of the third monitoring year and 80% at the end of the fifth monitoring year. (Note: desirable native volunteer species may contribute up to 20% cover. If volunteer species exceed 20% cover, control measures shall be initiated in an effort to maintain species diversity).
- Invasive and non-native species shall not exceed 15% aerial coverage within any of the planting areas.

- Credit-debit forms, debit worksheets, in-lieu fee use plan, and other applicable documents shall be submitted to the King County MRP and the Army Corps of Engineers as part of the MRP/in-lieu fee program. These documents shall also be submitted to the City of Kirkland for review and approval. In addition, the applicant shall furnish documentation verifying the purchase of mitigation credits.

13.0 MONITORING

A five-year monitoring plan will begin with the preparation of an as-built report following mitigation installation. This report will outline what occurred on the project site during construction and identify any changes that were made to the approved mitigation plan. Following submittal of the as-built plan, monitoring visits will occur. Monitoring visits will occur twice yearly (once in the spring, once in the fall) and will continue for five years.

Monitoring techniques will include general visual observations to assess tree, shrub, and herbaceous vegetation survivability and coverage. In addition, transects and/or quadrats may be used to assess plant survivability and aerial coverage. Specific monitoring techniques will be discussed in the first monitoring report. Permanent photos points will be established throughout the planting areas as well.

Monitoring reports will be prepared and submitted to the City of Kirkland at the end of each monitoring year. The reports will summarize the overall conditions of the mitigation areas and discuss whether the performance standards are being met. On year 5, the final monitoring report will be prepared and will discuss whether or not the mitigation plan has been successful per the established goals, objectives, and performance standards. If the mitigation plan is deemed unsuccessful, contingency actions will be utilized and/or the monitoring period may be extended.

14.0 MAINTENANCE

Periodic maintenance will be performed throughout the planting areas. Maintenance actions shall include, but are not limited to, replacement of dead vegetation, removal of invasive and non-native vegetation, trash cleanup, and repair of damaged fencing and signs. Maintenance needs will be discussed in the annual monitoring reports. Completed maintenance tasks and maintenance that needs to be performed will be addressed in each monitoring report.

15.0 CONTINGENCY

If, during any of the monitoring visits, 20% of the plants within any restoration area, or in any particular stratum within a restoration area, are severely stressed, or it appears that 20% may not survive, additional plants will be added to the mitigation areas. If invasive and non-native species exceed 15% aerial coverage within any of the restoration areas at any time, control measures will be initiated. Additional contingency actions may include, but will not be limited to, more aggressive weed control, additional mulching, species substitution, soil amendments, and/or additional irrigation. If necessary, a meeting between the lead biologist and City of Kirkland personnel will be held to develop new contingency actions.

16.0 COST ESTIMATE

The following is a cost estimate for plant materials, labor, monitoring, and maintenance. It is based on the King County bond quantity worksheet (Appendix E). Please note that this does not represent an actual bid for services.

Plant materials (includes labor/installation)	\$9,533.50
Installation Costs	\$3,678.23
Erosion Control	\$20,438.46
General Items	\$3,856.88
Mobilization & Contingency	\$15,002.83
Maintenance	\$3,600.00
Monitoring	\$9,000.00
Total:	\$65,109.90

17.0 USE OF THIS REPORT

This Critical Area Study and Detailed Mitigation Plan is supplied to Rairdon as a means of determining on-site wetland and stream conditions, and as a means of implementing mitigation actions for a development proposal as required by the City of Kirkland. This report is based largely on readily observable conditions and, to a lesser extent, on readily ascertainable conditions. No attempt has been made to determine hidden or concealed conditions.

The laws applicable to wetlands and streams are subject to varying interpretations and may be changed at any time by the courts or legislative bodies. This report is intended to provide information deemed relevant in the Applicant's attempt to comply with the laws now in effect.

This report conforms to the standard of care employed by wetland ecologists. No other representation or warranty is made concerning the work or this report and any implied representation or warranty is disclaimed.

Wetland Resources, Inc.



Jim Rothwell, PWS
Senior Ecologist
Wetland Resources, Inc.

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Appendix A

City of Kirkland Wetland Field Data Forms

**Plate 26
WETLAND FIELD DATA FORM**

(Note: Applicable to Chapter 90 KZC, but not Chapter 83 KZC)



WETLAND FIELD DATA FORM

BEGIN BY CHECKING ANY OF THE FOLLOWING (a. – e.) THAT APPLY:

- a. The wetland is contiguous to Lake Washington;
- b. The wetland contains at least 1/4 acre of organic soils, such as peat bogs or mucky soils;
- c. The wetland is equal to or greater than 10 acres in size and having three or more wetland classes, as defined by the U.S. Fish & Wildlife Service (Cowardin et al., 1979), one of which is open water;
- d. The wetland has significant habitat value to state or federally listed threatened or endangered wildlife species; or
- e. The wetland contains state or federally listed threatened or endangered plant species.

IF ANY OF THE CRITERIA LISTED ABOVE ARE MET, THEN THE WETLAND IS CONSIDERED TO BE TYPE 1. IF THAT IS THE CASE, PLEASE CONTINUE TO COMPLETE THE ENTIRE FORM, BUT DO NOT ASSIGN POINTS.

IF THE WETLAND DOES NOT MEET THE CRITERIA LISTED ABOVE FOR TYPE 1, COMPLETE THE ENTIRE FORM, USING THE ASSIGNED POINTS TO DETERMINE IF IT IS A TYPE 2 OR TYPE 3 WETLAND.

Type 2 wetlands typically have at least two wetland vegetation classes, are at least partially surrounded by buffers of native vegetation, connected by surface water flow (perennial or intermittent) to other wetlands or streams, and contain or are associated with forested habitat.

1. Total wetland area

Estimate wetland area and score from choices	<u>Acres</u>		<u>Point Value</u>	<u>Points</u>
	>20.00	=	6	
	10-19.99	=	5	
	5-9.99	=	4	
	1-4.99	=	3	
	0.1-0.99	=	2	
	<0.1	=	1	

2. Wetland classes: Determine the number of wetland classes that qualify, and score according to the table.

	# of Classes	=	Points
Open Water: if the area of open water is >1/3 acre or >10% of the total wetland area	1	=	1
Aquatic Beds: if the area of aquatic beds is >10% of the open water area or >1/2 acre	2	=	3
Emergent: if the area of emergent class is >1/2 acre or >10% of the total wetland area	3	=	5
Scrub-Shrub: if the area of scrub-shrub class is >1/2 acre or >10% of the total wetland area	4	=	7
Forested: if the area of forested class is >1/2 acre or >10% of the total wetland area	5	=	10

3. Plant species diversity.

For all wetland classes which qualified in 2 above, count the number of different plant species and score according to the table below. You do not have to name them.

e.g., if a wetland has an aquatic bed class with 3 species, and emergent class with 4 species and a scrub-shrub class with 2 species, you would circle 2, 2, and 1 in the second column (below).

<u>Class</u>	<u># of Species</u>	<u>Point Value</u>	<u>Class</u>	<u># of Species</u>	<u>Point Value</u>
Aquatic Bed	1-2	= 1	Scrub-Shrub	1-2	= 1
	3	= 2		3-4	= 2
	>3	= 3		>4	= 3
Emergent	1-2	= 1	Forested	1-2	= 1
	3-4	= 2		3-4	= 2
	>4	= 3		>4	= 3

4. Structural diversity.

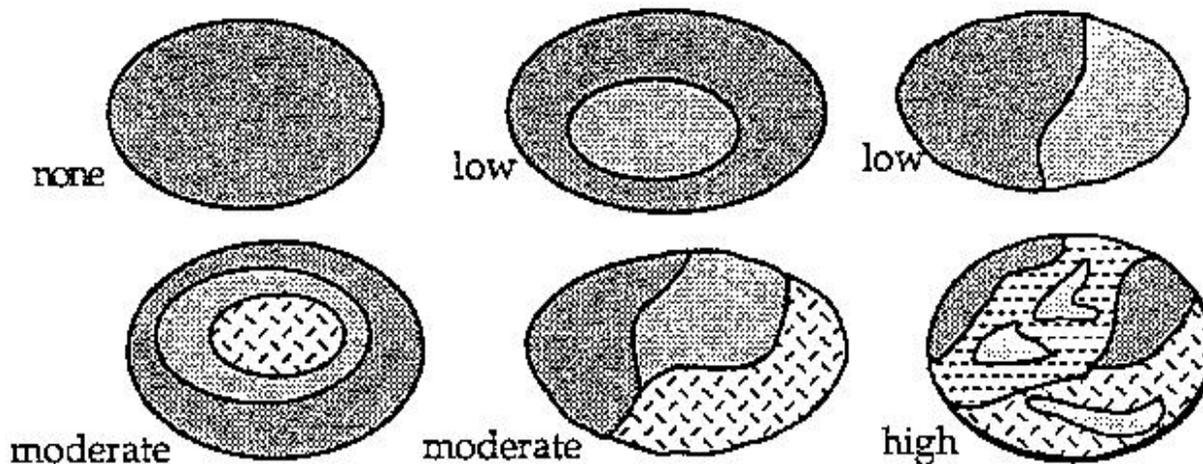
If the wetland has a forested class, add 1 point for each of the following attributes present:

- Trees >50' tall = **1**
- Trees 20' to 49' tall = **1**
- Shrubs = **1**
- Herbaceous ground cover = **1**

5. Interspersion between wetland classes.

Decide from the diagrams below whether interspersion between wetland classes is high, moderate, low or none

- 3 = High
- 2 = Moderate
- 1 = Low**
- 0 = None



6. Habitat features

- Add points associated with each habitat feature listed: = 3
- Is there evidence of current use by beavers? = 2
- Is a heron rookery located within 300'? = 1
- Are raptor nest(s) located within 300'? = 1
- Are there at least 2 standing dead trees (snags) per acre?2 = **1**
- Are there any other perches (wires, poles, or posts)? = 1
- Are there at least 3 downed logs per acre? = 1

7. Connection to streams

- Is the wetland connected at any time of the year via surface water? (score one answer only)
- To a perennial stream or a seasonal stream *with* fish = 5
- To a seasonal stream *without* fish = 3
- Is not connected to any stream = **0**

8. Buffers

Step 1: Estimate (to the nearest 5%) the percentage of each buffer or land-use type (below) that adjoins the wetland boundary. Then multiply these percentages by the factor(s) below and enter result in the column to the right.

	% of Buffer	Step 1	Width Factor	Step 2
Roads, buildings or parking lots	% X 0 =		=	
Lawn, grazed pasture, vineyards or annual crops	% X 1 =		=	
Ungrazed grassland or orchards	% X 2 =		=	
Open water or native grasslands	% X 3 =		=	
Forest or shrub	100 % X 4 =	400	=	1200
Add buffer total:				

Step 2: Multiply result(s) of step 1:
 By 1 if buffer width is 25-50'
 By 2 if buffer width is 50-100'
 By 3 if buffer width is >100'

Enter results and add sub-scores

Step 3: Score points according to the following table:

Buffer Total

- 900-1200 = 4
- 600-899 = 3
- 300-599 = 2
- 100-299 = 1

9. Connection to other habitat areas:

- Is there a riparian corridor to other wetlands within 0.25 of a mile, or a corridor >100' wide with good forest or shrub cover to any other habitat area? = 5
- Is there a narrow corridor <100' wide with good cover or a wide corridor >100' wide with low cover to any other habitat area? = 3
- Is there a narrow corridor <100' wide with low cover or a significant habitat area within 0.25 mile but no corridor? = 1
- Is the wetland and buffer completely isolated by development and/or cultivated agricultural land? = 0

10. Scoring

Add the scores to get a total: 25

Question: Is the total greater than or equal to 22 points?

Answer:

Yes = Type 2 No = Type 3

**Plate 26
WETLAND FIELD DATA FORM**

(Note: Applicable to Chapter 90 KZC, but not Chapter 83 KZC)



WETLAND FIELD DATA FORM

BEGIN BY CHECKING ANY OF THE FOLLOWING (a. – e.) THAT APPLY:

- a. The wetland is contiguous to Lake Washington;
- b. The wetland contains at least 1/4 acre of organic soils, such as peat bogs or mucky soils;
- c. The wetland is equal to or greater than 10 acres in size and having three or more wetland classes, as defined by the U.S. Fish & Wildlife Service (Cowardin et al., 1979), one of which is open water;
- d. The wetland has significant habitat value to state or federally listed threatened or endangered wildlife species; or
- e. The wetland contains state or federally listed threatened or endangered plant species.

IF ANY OF THE CRITERIA LISTED ABOVE ARE MET, THEN THE WETLAND IS CONSIDERED TO BE TYPE 1. IF THAT IS THE CASE, PLEASE CONTINUE TO COMPLETE THE ENTIRE FORM, BUT DO NOT ASSIGN POINTS.

IF THE WETLAND DOES NOT MEET THE CRITERIA LISTED ABOVE FOR TYPE 1, COMPLETE THE ENTIRE FORM, USING THE ASSIGNED POINTS TO DETERMINE IF IT IS A TYPE 2 OR TYPE 3 WETLAND.

Type 2 wetlands typically have at least two wetland vegetation classes, are at least partially surrounded by buffers of native vegetation, connected by surface water flow (perennial or intermittent) to other wetlands or streams, and contain or are associated with forested habitat.

1. Total wetland area

Estimate wetland area and score from choices	<u>Acres</u>	=	<u>Point Value</u>	<u>Points</u>
	>20.00	=	6	
	10-19.99	=	5	
	5-9.99	=	4	
	1-4.99	=	3	
	0.1-0.99	=	2	
	<0.1	=	1	

2. Wetland classes: Determine the number of wetland classes that qualify, and score according to the table.

	# of Classes	=	Points
Open Water: if the area of open water is >1/3 acre or >10% of the total wetland area	1	=	1
Aquatic Beds: if the area of aquatic beds is >10% of the open water area or >1/2 acre	2	=	3
Emergent: if the area of emergent class is >1/2 acre or >10% of the total wetland area	3	=	5
Scrub-Shrub: if the area of scrub-shrub class is >1/2 acre or >10% of the total wetland area	4	=	7
Forested: if the area of forested class is >1/2 acre or >10% of the total wetland area	5	=	10

3. Plant species diversity.

For all wetland classes which qualified in 2 above, count the number of different plant species and score according to the table below. You do not have to name them.

e.g., if a wetland has an aquatic bed class with 3 species, and emergent class with 4 species and a scrub-shrub class with 2 species, you would circle 2, 2, and 1 in the second column (below).

Class	# of Species	=	Point Value	Class	# of Species	=	Point Value
Aquatic Bed	1-2	=	1	Scrub-Shrub	1-2	=	1
	3	=	2		3-4	=	2
	>3	=	3		>4	=	3
Emergent	1-2	=	1	Forested	1-2	=	1
	3-4	=	2		3-4	=	2
	>4	=	3		>4	=	3

4. Structural diversity.

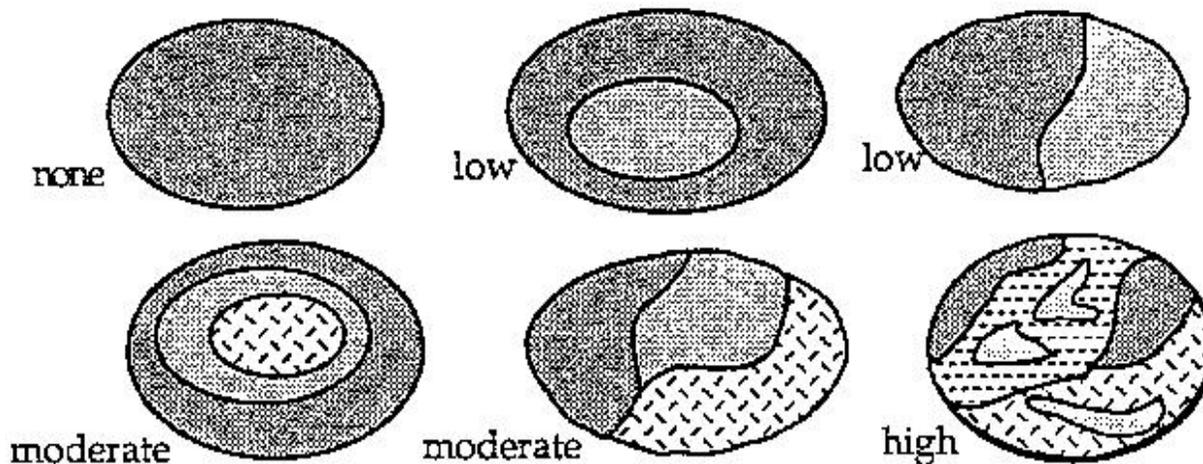
If the wetland has a forested class, add 1 point for each of the following attributes present:

Trees >50' tall	=	1
Trees 20' to 49' tall	=	1
Shrubs	=	1
Herbaceous ground cover	=	1

5. Interspersion between wetland classes.

Decide from the diagrams below whether interspersion between wetland classes is high, moderate, low or none

- 3 = High
- 2 = Moderate
- 1** = Low
- 0 = None



6. Habitat features

- Add points associated with each habitat feature listed: = 3
- Is there evidence of current use by beavers? = 2
- Is a heron rookery located within 300'? = 1
- Are raptor nest(s) located within 300'? = 1
- Are there at least 2 standing dead trees (snags) per acre?2 = **1**
- Are there any other perches (wires, poles, or posts)? = 1
- Are there at least 3 downed logs per acre? = **1**

7. Connection to streams

- Is the wetland connected at any time of the year via surface water? (score one answer only)
- To a perennial stream or a seasonal stream *with* fish = 5
- To a seasonal stream *without* fish = **3**
- Is not connected to any stream = 0

8. Buffers

Step 1: Estimate (to the nearest 5%) the percentage of each buffer or land-use type (below) that adjoins the wetland boundary. Then multiply these percentages by the factor(s) below and enter result in the column to the right.

	% of Buffer	Step 1	Width Factor	Step 2
Roads, buildings or parking lots	% X 0 =		=	
Lawn, grazed pasture, vineyards or annual crops	% X 1 =		=	
Ungrazed grassland or orchards	% X 2 =		=	
Open water or native grasslands	% X 3 =		=	
Forest or shrub	100 % X 4 =	400	=	800
Add buffer total:				

Step 2: Multiply result(s) of step 1:
 By 1 if buffer width is 25-50'
 By 2 if buffer width is 50-100'
 By 3 if buffer width is >100'

Enter results and add sub-scores

Step 3: Score points according to the following table:

Buffer Total
 900-1200 = 4
 600-899 = 3
 300-599 = 2
 100-299 = 1

9. Connection to other habitat areas:

Is there a riparian corridor to other wetlands within 0.25 of a mile, or a corridor >100' wide with good forest or shrub cover to any other habitat area? = 5

Is there a narrow corridor <100' wide with good cover or a wide corridor >100' wide with low cover to any other habitat area? = 3

Is there a narrow corridor <100' wide with low cover or a significant habitat area within 0.25 mile but no corridor? = 1

Is the wetland and buffer completely isolated by development and/or cultivated agricultural land? = 0

10. Scoring

Add the scores to get a total: 23

Question: Is the total greater than or equal to 22 points?

Answer:

Yes = Type 2 No = Type 3

**Plate 26
WETLAND FIELD DATA FORM**

(Note: Applicable to Chapter 90 KZC, but not Chapter 83 KZC)



WETLAND FIELD DATA FORM

BEGIN BY CHECKING ANY OF THE FOLLOWING (a. – e.) THAT APPLY:

- a. The wetland is contiguous to Lake Washington;
- b. The wetland contains at least 1/4 acre of organic soils, such as peat bogs or mucky soils;
- c. The wetland is equal to or greater than 10 acres in size and having three or more wetland classes, as defined by the U.S. Fish & Wildlife Service (Cowardin et al., 1979), one of which is open water;
- d. The wetland has significant habitat value to state or federally listed threatened or endangered wildlife species; or
- e. The wetland contains state or federally listed threatened or endangered plant species.

IF ANY OF THE CRITERIA LISTED ABOVE ARE MET, THEN THE WETLAND IS CONSIDERED TO BE TYPE 1. IF THAT IS THE CASE, PLEASE CONTINUE TO COMPLETE THE ENTIRE FORM, BUT DO NOT ASSIGN POINTS.

IF THE WETLAND DOES NOT MEET THE CRITERIA LISTED ABOVE FOR TYPE 1, COMPLETE THE ENTIRE FORM, USING THE ASSIGNED POINTS TO DETERMINE IF IT IS A TYPE 2 OR TYPE 3 WETLAND.

Type 2 wetlands typically have at least two wetland vegetation classes, are at least partially surrounded by buffers of native vegetation, connected by surface water flow (perennial or intermittent) to other wetlands or streams, and contain or are associated with forested habitat.

1. Total wetland area

Estimate wetland area and score from choices	<u>Acres</u>	=	<u>Point Value</u>	<u>Points</u>
	>20.00	=	6	
	10-19.99	=	5	
	5-9.99	=	4	
	1-4.99	=	3	
	0.1-0.99	=	2	
	<0.1	=	1	

2. Wetland classes: Determine the number of wetland classes that qualify, and score according to the table.

	# of Classes	=	Points
Open Water: if the area of open water is >1/3 acre or >10% of the total wetland area	1	=	1
Aquatic Beds: if the area of aquatic beds is >10% of the open water area or >1/2 acre	2	=	3
Emergent: if the area of emergent class is >1/2 acre or >10% of the total wetland area	3	=	5
Scrub-Shrub: if the area of scrub-shrub class is >1/2 acre or >10% of the total wetland area	4	=	7
Forested: if the area of forested class is >1/2 acre or >10% of the total wetland area	5	=	10

3. Plant species diversity.

For all wetland classes which qualified in 2 above, count the number of different plant species and score according to the table below. You do not have to name them.

e.g., if a wetland has an aquatic bed class with 3 species, and emergent class with 4 species and a scrub-shrub class with 2 species, you would circle 2, 2, and 1 in the second column (below).

Class	# of Species	=	Point Value	Class	# of Species	=	Point Value
Aquatic Bed	1-2	=	1	Scrub-Shrub	1-2	=	1
	3	=	2		3-4	=	2
	>3	=	3		>4	=	3
Emergent	1-2	=	1	Forested	1-2	=	1
	3-4	=	2		3-4	=	2
	>4	=	3		>4	=	3

4. Structural diversity.

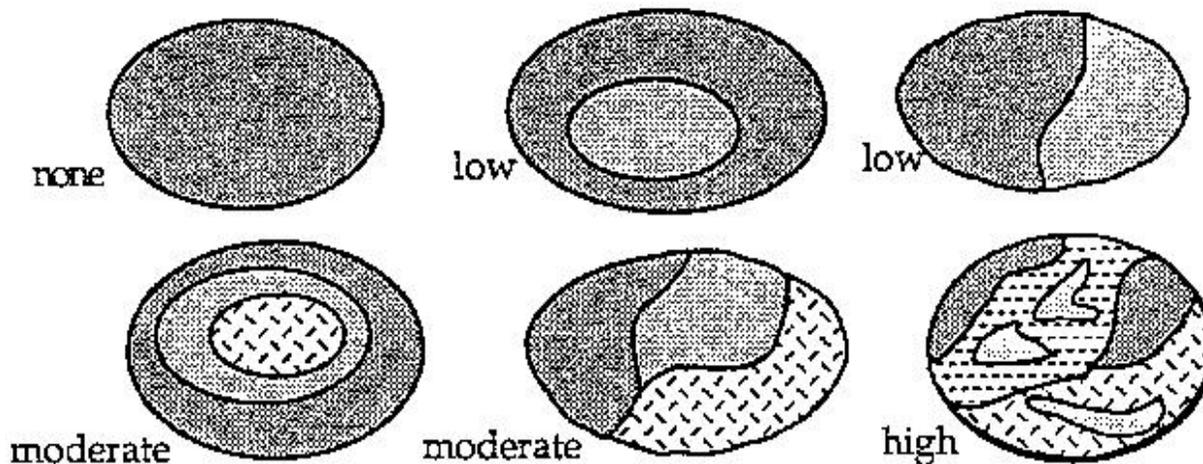
If the wetland has a forested class, add 1 point for each of the following attributes present:

- Trees >50' tall = **1**
- Trees 20' to 49' tall = **1**
- Shrubs = **1**
- Herbaceous ground cover = **1**

5. Interspersion between wetland classes.

Decide from the diagrams below whether interspersion between wetland classes is high, moderate, low or none

- 3 = High
- 2 = Moderate
- 1 = Low
- 0** = None



6. Habitat features

- Add points associated with each habitat feature listed: = 3
- Is there evidence of current use by beavers? = 2
- Is a heron rookery located within 300'? = 1
- Are raptor nest(s) located within 300'? = 1
- Are there at least 2 standing dead trees (snags) per acre?2 = **1**
- Are there any other perches (wires, poles, or posts)? = 1
- Are there at least 3 downed logs per acre? = 1

7. Connection to streams

- Is the wetland connected at any time of the year via surface water? (score one answer only)
- To a perennial stream or a seasonal stream *with* fish = 5
- To a seasonal stream *without* fish = 3
- Is not connected to any stream = **0**

8. Buffers

Step 1: Estimate (to the nearest 5%) the percentage of each buffer or land-use type (below) that adjoins the wetland boundary. Then multiply these percentages by the factor(s) below and enter result in the column to the right.

	% of Buffer	Step 1	Width Factor	Step 2
Roads, buildings or parking lots	% X 0 =		=	
Lawn, grazed pasture, vineyards or annual crops	% X 1 =		=	
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Forest or shrub	100 % X 4 =	400	=	800
Add buffer total:				

Step 2: Multiply result(s) of step 1:
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Enter results and add sub-scores

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9. Connection to other habitat areas:

Is there a riparian corridor to other wetlands within 0.25 of a mile, or a corridor >100' wide with good forest or shrub cover to any other habitat area? = 5

Is there a narrow corridor <100' wide with good cover or a wide corridor >100' wide with low cover to any other habitat area? = 3

Is there a narrow corridor <100' wide with low cover or a significant habitat area within 0.25 mile but no corridor? = 1

Is the wetland and buffer completely isolated by development and/or cultivated agricultural land? = 0

10. Scoring

Add the scores to get a total: 16

Question: Is the total greater than or equal to 22 points?

Answer:

Yes = Type 2 No = Type 3

**Plate 26
WETLAND FIELD DATA FORM**

(Note: Applicable to Chapter 90 KZC, but not Chapter 83 KZC)



WETLAND FIELD DATA FORM

BEGIN BY CHECKING ANY OF THE FOLLOWING (a. – e.) THAT APPLY:

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- c. The wetland is equal to or greater than 10 acres in size and having three or more wetland classes, as defined by the U.S. Fish & Wildlife Service (Cowardin et al., 1979), one of which is open water;
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1. Total wetland area

Estimate wetland area and score from choices	<u>Acres</u>	=	<u>Point Value</u>	<u>Points</u>
	>20.00	=	6	
	10-19.99	=	5	
	5-9.99	=	4	
	1-4.99	=	3	
	0.1-0.99	=	2	
	<0.1	=	1	

2. Wetland classes: Determine the number of wetland classes that qualify, and score according to the table.

	# of Classes	=	Points
Open Water: if the area of open water is >1/3 acre or >10% of the total wetland area	1	=	1
Aquatic Beds: if the area of aquatic beds is >10% of the open water area or >1/2 acre	2	=	3
Emergent: if the area of emergent class is >1/2 acre or >10% of the total wetland area	3	=	5
Scrub-Shrub: if the area of scrub-shrub class is >1/2 acre or >10% of the total wetland area	4	=	7
Forested: if the area of forested class is >1/2 acre or >10% of the total wetland area	5	=	10

3. Plant species diversity.

For all wetland classes which qualified in 2 above, count the number of different plant species and score according to the table below. You do not have to name them.

e.g., if a wetland has an aquatic bed class with 3 species, and emergent class with 4 species and a scrub-shrub class with 2 species, you would circle 2, 2, and 1 in the second column (below).

Class	# of Species	=	Point Value	Class	# of Species	=	Point Value
Aquatic Bed	1-2	=	1	Scrub-Shrub	1-2	=	1
	3	=	2		3-4	=	2
	>3	=	3		>4	=	3
Emergent	1-2	=	1	Forested	1-2	=	1
	3-4	=	2		3-4	=	2
	>4	=	3		>4	=	3

4. Structural diversity.

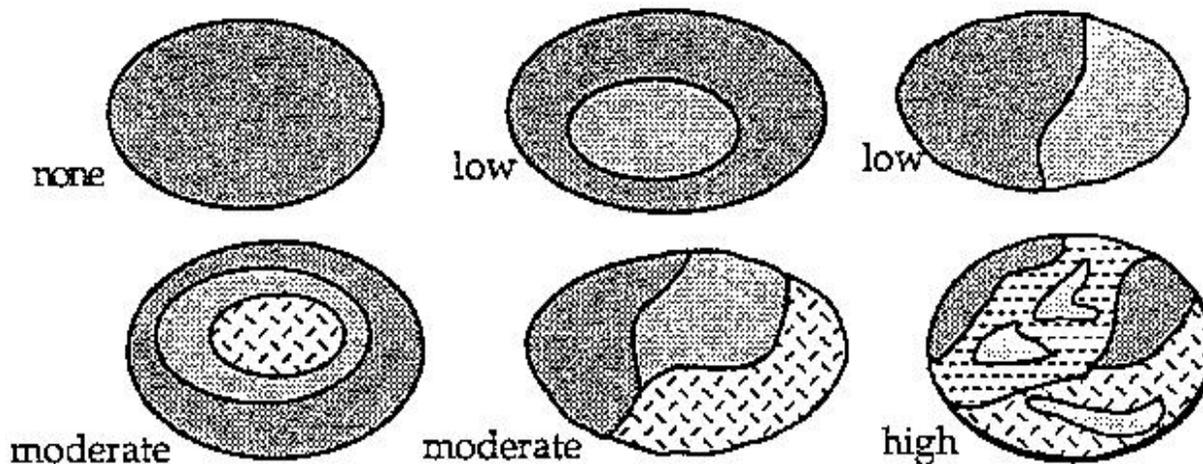
If the wetland has a forested class, add 1 point for each of the following attributes present:

- Trees >50' tall = **1**
- Trees 20' to 49' tall = 1
- Shrubs = **1**
- Herbaceous ground cover = **1**

5. Interspersion between wetland classes.

Decide from the diagrams below whether interspersion between wetland classes is high, moderate, low or none

- 3 = High
- 2 = Moderate
- 1** = Low
- 0 = None



6. Habitat features

- Add points associated with each habitat feature listed: = 3
- Is there evidence of current use by beavers? = 2
- Is a heron rookery located within 300'? = 1
- Are raptor nest(s) located within 300'? = 1
- Are there at least 2 standing dead trees (snags) per acre? = 1
- Are there any other perches (wires, poles, or posts)? = 1
- Are there at least 3 downed logs per acre? = 1

7. Connection to streams

- Is the wetland connected at any time of the year via surface water? (score one answer only)
- To a perennial stream or a seasonal stream *with* fish = 5
- To a seasonal stream *without* fish = 3
- Is not connected to any stream = **0**

8. Buffers

Step 1: Estimate (to the nearest 5%) the percentage of each buffer or land-use type (below) that adjoins the wetland boundary. Then multiply these percentages by the factor(s) below and enter result in the column to the right.

	% of Buffer	Step 1	Width Factor	Step 2
Roads, buildings or parking lots	% X 0 =		=	
Lawn, grazed pasture, vineyards or annual crops	% X 1 =		=	
Ungrazed grassland or orchards	% X 2 =		=	
Open water or native grasslands	% X 3 =		=	
Forest or shrub	100 % X 4 =	400	=	800
Add buffer total:				

Step 2: Multiply result(s) of step 1:
 By 1 if buffer width is 25-50'
 By 2 if buffer width is 50-100'
 By 3 if buffer width is >100'

Enter results and add sub-scores

Step 3: Score points according to the following table:

Buffer Total
900-1200 = 4
600-899 = 3
300-599 = 2
100-299 = 1

9. Connection to other habitat areas:

Is there a riparian corridor to other wetlands within 0.25 of a mile, or a corridor >100' wide with good forest or shrub cover to any other habitat area?	=	5
Is there a narrow corridor <100' wide with good cover or a wide corridor >100' wide with low cover to any other habitat area?	=	3
Is there a narrow corridor <100' wide with low cover or a significant habitat area within 0.25 mile but no corridor?	=	1
Is the wetland and buffer completely isolated by development and/or cultivated agricultural land?	=	0

10. Scoring

Add the scores to get a total: 18

Question: Is the total greater than or equal to 22 points?

Answer:

Yes = Type 2 No = Type 3

Appendix B

2014 Washington State Wetland Rating System Rating Forms

Wetland name or number A

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland A - RC 124th LLC Date of site visit: 2013, 2016
 Rated by JR Trained by Ecology? Yes No Date of training 3\2015
 HGM Class used for rating SLOPE Wetland has multiple HGM classes? Y N

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

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

1. Category of wetland based on FUNCTIONS

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

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

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

FUNCTION	Improving Water Quality			Hydrologic			Habitat			
<i>Circle the appropriate ratings</i>										
Site Potential	H	M	<input type="checkbox"/> L	H	M	<input type="checkbox"/> L	H	<input type="checkbox"/> M	L	
Landscape Potential	H	<input type="checkbox"/> M	L	H	M	<input type="checkbox"/> L	H	M	<input type="checkbox"/> L	
Value	<input type="checkbox"/> H	M	L	<input type="checkbox"/> H	M	L	<input type="checkbox"/> H	M	L	
Score Based on Ratings	6			5			6			17

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	<input checked="" type="checkbox"/>

Wetland name or number A

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

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

Riverine Wetlands

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

Lake Fringe Wetlands

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

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	A1
Hydroperiods	H 1.2	A1
Plant cover of dense trees, shrubs, and herbaceous plants	S 1.3	A5
Plant cover of dense, rigid trees, shrubs, and herbaceous plants (<i>can be added to figure above</i>)	S 4.1	A5
Boundary of 150 ft buffer (<i>can be added to another figure</i>)	S 2.1, S 5.1	A1
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	A2
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	A3
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	A4

Wetland name or number A

HGM Classification of Wetlands in Western Washington

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

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

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

NO – go to 2

YES – the wetland class is **Tidal Fringe** – go to 1.1

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

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

YES – **Freshwater Tidal Fringe**

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

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

NO – go to 3

YES – The wetland class is **Flats**

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

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

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

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

NO – go to 4

YES – The wetland class is **Lake Fringe** (Lacustrine Fringe)

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

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

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

✓ The water leaves the wetland **without being impounded**.

NO – go to 5

YES – The wetland class is **Slope**

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

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

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

___ The overbank flooding occurs at least once every 2 years.

Wetland name or number A

NO – go to 6

YES – The wetland class is **Riverine****NOTE:** The Riverine unit can contain depressions that are filled with water when the river is not flooding

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

NO – go to 7

YES – The wetland class is **Depressional**

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

NO – go to 8

YES – The wetland class is **Depressional**

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

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

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

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

Wetland name or number A

SLOPE WETLANDS

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

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

Rating of Site Potential If score is: 12 = H 6-11 = M 0-5 = L

Record the rating on the first page

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

Rating of Landscape Potential If score is: 1-2 = M 0 = L

Record the rating on the first page

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

Wetland name or number A**SLOPE WETLANDS****Hydrologic Functions** - Indicators that the site functions to reduce flooding and stream erosion

S 4.0. Does the site have the potential to reduce flooding and stream erosion?

S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. *Stems of plants should be thick enough (usually $> \frac{1}{8}$ in), or dense enough, to remain erect during surface flows.* Dense, uncut, **rigid** plants cover $> 90\%$ of the area of the wetland

points = 1

 All other conditions

points = 0

0**Rating of Site Potential** If score is: 1 = M 0 = L

Record the rating on the first page

S 5.0. Does the landscape have the potential to support the hydrologic functions of the site?

S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff?

Yes = 1 No = 0**0****Rating of Landscape Potential** If score is: 1 = M 0 = L

Record the rating on the first page

S 6.0. Are the hydrologic functions provided by the site valuable to society?

S 6.1. Distance to the nearest areas downstream that have flooding problems:

 The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds)

points = 2

2 Surface flooding problems are in a sub-basin farther down-gradient

points = 1

 No flooding problems anywhere downstream

points = 0

S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?

Yes = 2 No = 0**0**

Total for S 6

Add the points in the boxes above

2**Rating of Value** If score is: 2-4 = H 1 = M 0 = L

Record the rating on the first page

NOTES and FIELD OBSERVATIONS:

--

Wetland name or number A

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

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

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

- Aquatic bed 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

1

H 1.2. Hydroperiods

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

- Permanently flooded or inundated 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**

1

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft².

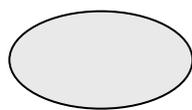
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle

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

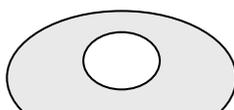
1

H 1.4. Interspersion of habitats

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



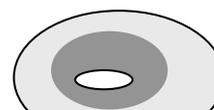
None = 0 points



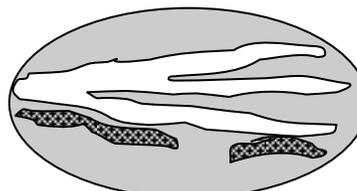
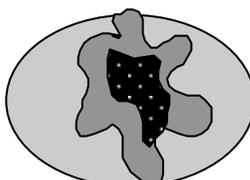
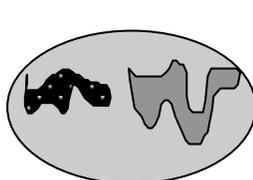
Low = 1 point



Moderate = 2 points



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



1

Wetland name or number A

<p>H 1.5. Special habitat features: Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i></p> <p><input checked="" type="checkbox"/> Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). <input type="checkbox"/> Standing snags (dbh > 4 in) within the wetland <input type="checkbox"/> 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) <input checked="" type="checkbox"/> 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 (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>) <input type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>) <input checked="" type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>)</p>		3
Total for H 1	Add the points in the boxes above	7

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

<p>H 2.0. Does the landscape have the potential to support the habitat functions of the site?</p>		
<p>H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>). Calculate: % undisturbed habitat <u>7</u> + [(% moderate and low intensity land uses)/2] <u>0</u> = <u>7</u> % If total accessible habitat is: <input type="checkbox"/> > 1/3 (33.3%) of 1 km Polygon points = 3 <input type="checkbox"/> 20-33% of 1 km Polygon points = 2 <input type="checkbox"/> 10-19% of 1 km Polygon points = 1 <input checked="" type="checkbox"/> < 10% of 1 km Polygon points = 0</p>		0
<p>H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. Calculate: % undisturbed habitat <u>16</u> + [(% moderate and low intensity land uses)/2] <u>3</u> = <u>19</u> % <input type="checkbox"/> Undisturbed habitat > 50% of Polygon points = 3 <input type="checkbox"/> Undisturbed habitat 10-50% and in 1-3 patches points = 2 <input checked="" type="checkbox"/> Undisturbed habitat 10-50% and > 3 patches points = 1 <input type="checkbox"/> Undisturbed habitat < 10% of 1 km Polygon points = 0</p>		1
<p>H 2.3. Land use intensity in 1 km Polygon: If <input checked="" type="checkbox"/> > 50% of 1 km Polygon is high intensity land use points = (- 2) <input type="checkbox"/> ≤ 50% of 1 km Polygon is high intensity points = 0</p>		-2
Total for H 2	Add the points in the boxes above	-1

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

<p>H 3.0. Is the habitat provided by the site valuable to society?</p>		
<p>H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? <i>Choose only the highest score that applies to the wetland being rated.</i> Site meets ANY of the following criteria: points = 2 <input checked="" type="checkbox"/> It has 3 or more priority habitats within 100 m (see next page) <input type="checkbox"/> It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) <input type="checkbox"/> It is mapped as a location for an individual WDFW priority species <input type="checkbox"/> It is a Wetland of High Conservation Value as determined by the Department of Natural Resources <input type="checkbox"/> 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 <input type="checkbox"/> Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1 <input type="checkbox"/> Site does not meet any of the criteria above points = 0</p>		2

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

Wetland name or number A

WDFW Priority Habitats

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

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

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

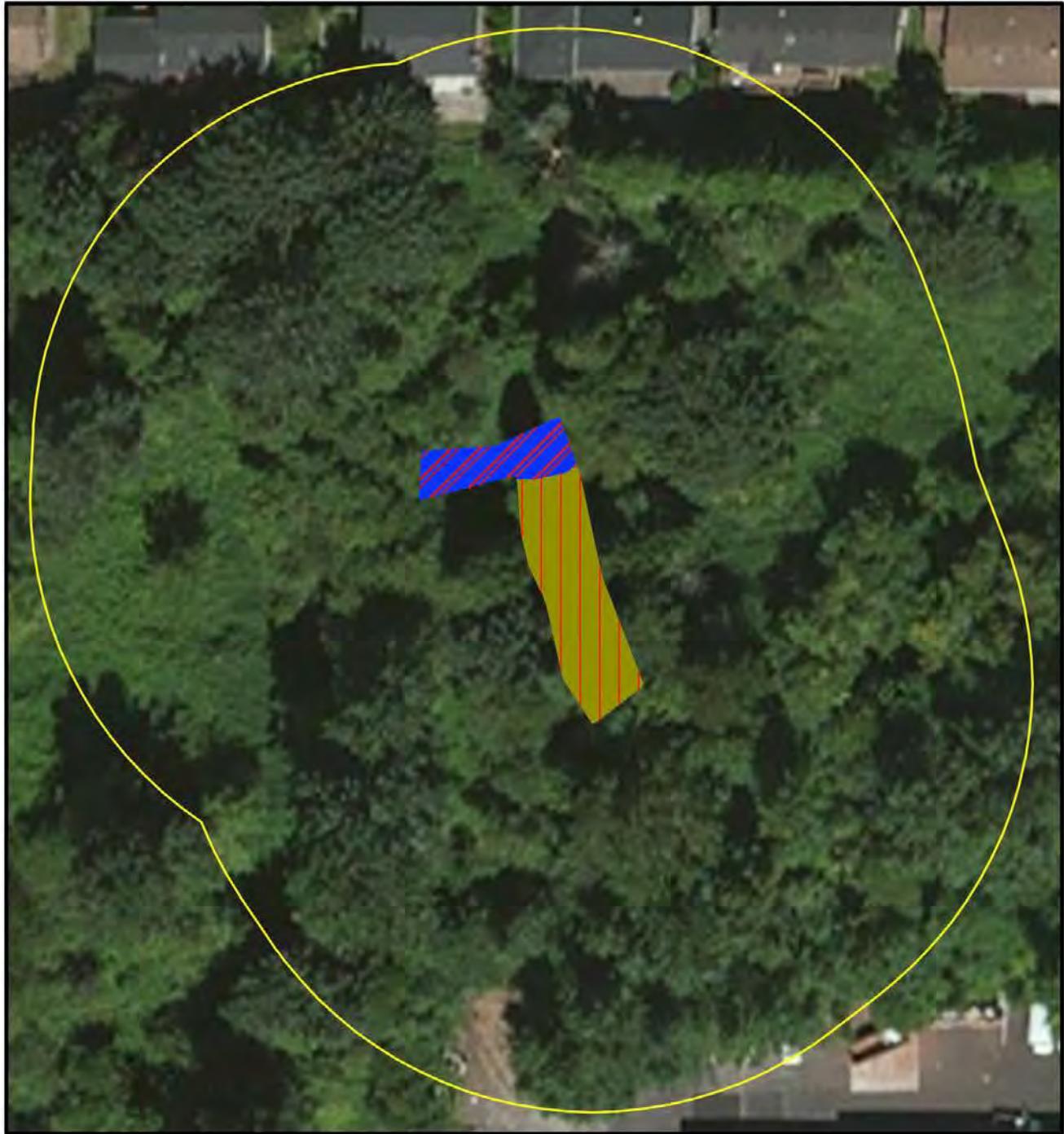
Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number A**CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS**

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? <input type="checkbox"/> The dominant water regime is tidal, <input type="checkbox"/> Vegetated, and <input type="checkbox"/> 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? <input type="checkbox"/> 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 <i>Spartina</i> , see page 25) <input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland. <input type="checkbox"/> The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. Yes = Category I No = Category II	Cat. I Cat. II
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? Yes – Go to SC 2.2 No – Go to SC 2.3 SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? Yes = Category I No = Not a WHCV SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwtlands.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? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i> 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 _____

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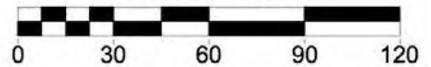


LEGEND

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



Scale 1" = 60'



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Email: mailbox@wetlandresources.com

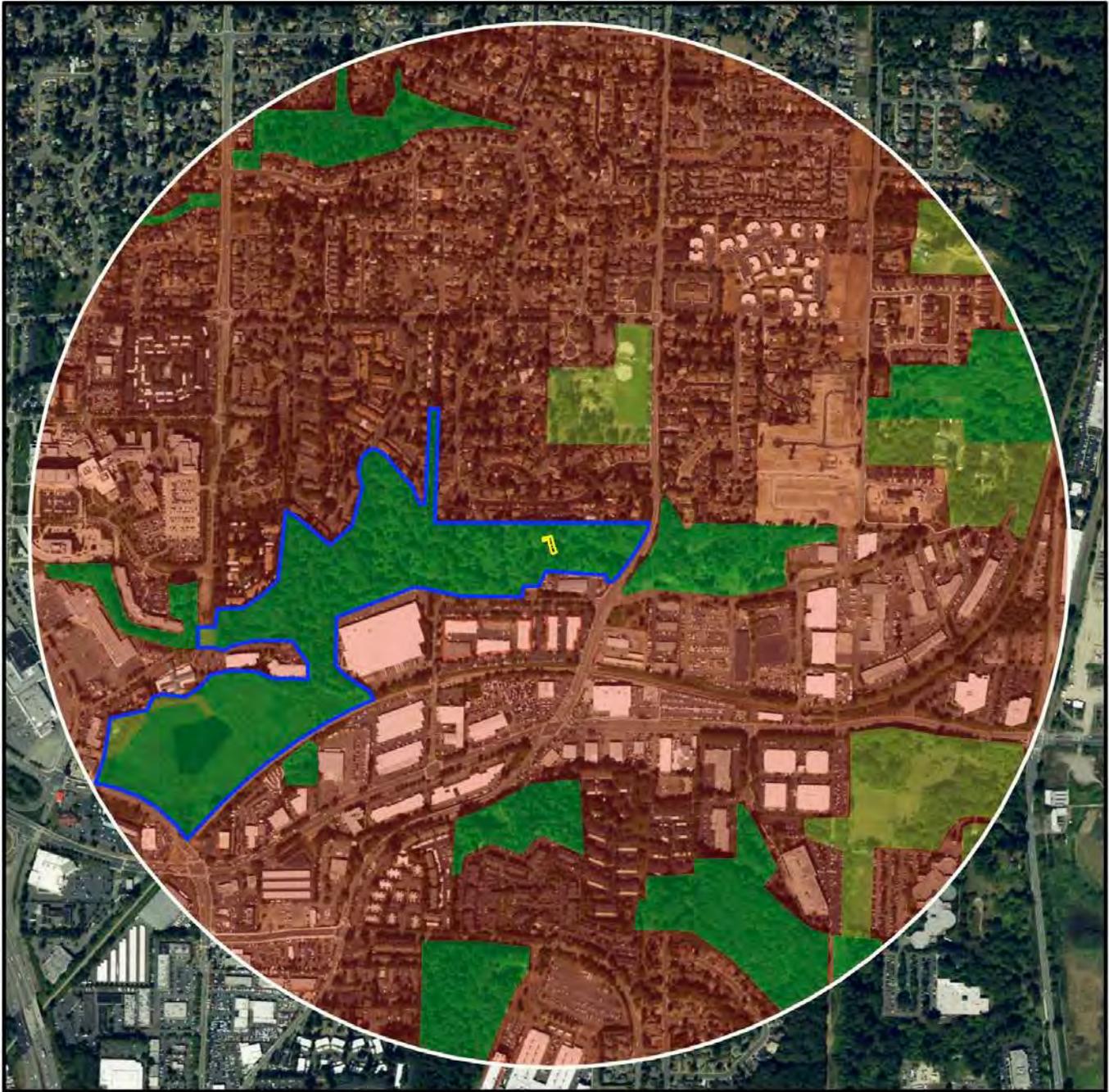
WETLAND RATING
Wetland A

RC 124TH LLC
Attn: Greg Rairdon
22426 Woodway Park Rd.
Woodway, WA 98026

Figure A1
WRI Job # 16095
Drawn by: JR
12.16.2016

RC 124TH LLC - KIRKLAND, WA
 WETLAND RATING FIGURE A2 - WETLAND A

ATTACHMENT 7

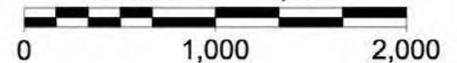


LEGEND

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



Scale 1" = 1,000'



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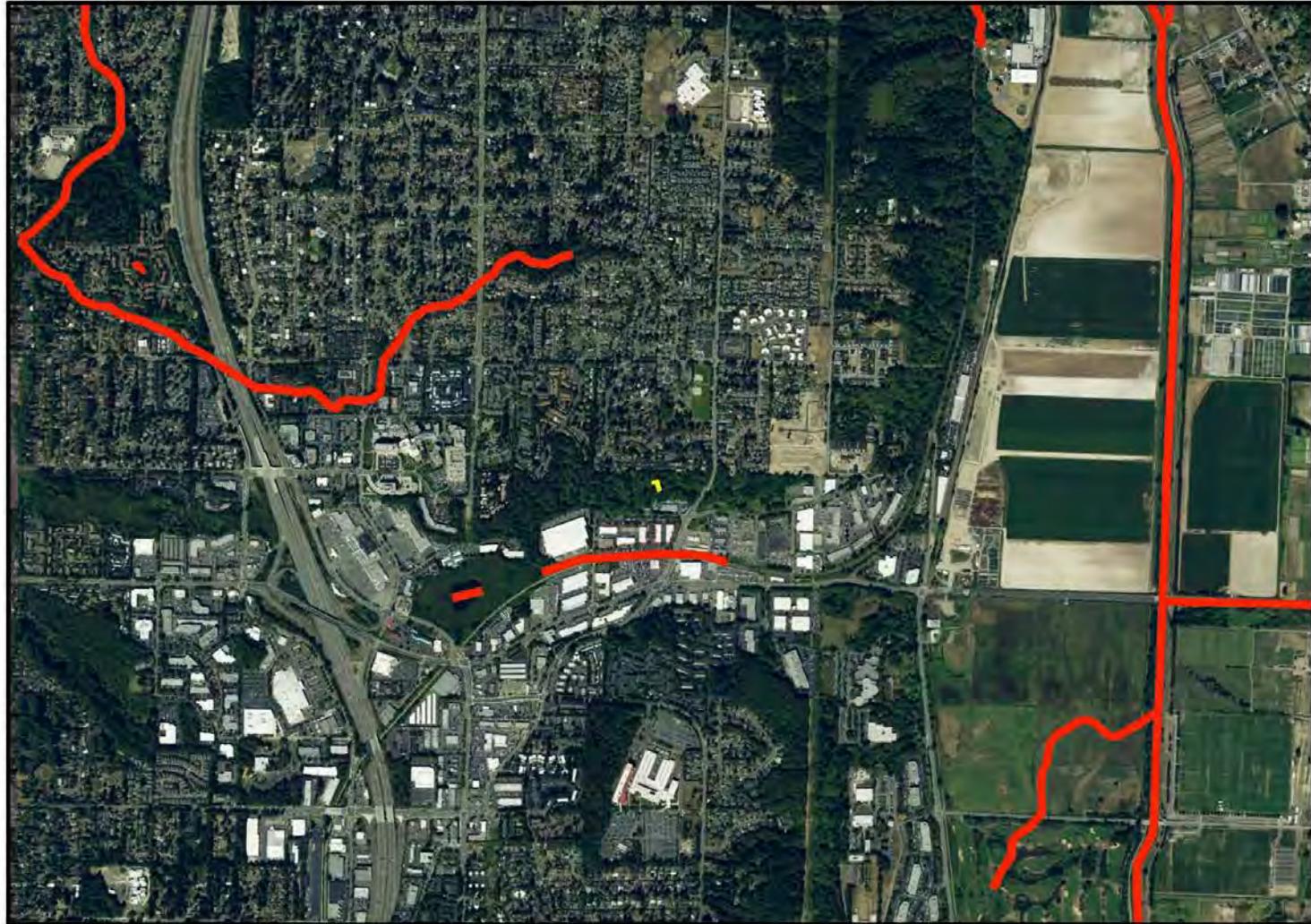
**WETLAND RATING
 Wetland A**

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 Woodway, WA 98026

Figure A2
 WRI Job # 16095
 Drawn by: JR
 12.16.2016

RC 124TH LLC - KIRKLAND, WA
WETLAND RATING FIGURE A3 - WETLAND A

ATTACHMENT 7



LEGEND



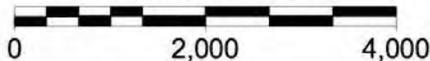
WETLAND



AQUATIC RESOURCES
ON THE 303(d) LIST



Scale 1" = 2,000'



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**WETLAND RATING
Wetland A**

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Woodway, WA 98026

Figure A3
WRI Job # 16095
Drawn by: JR
12/16/2016

RC 124TH LLC - KIRKLAND, WA
WETLAND RATING FIGURE A4 - WETLAND A

WRIA 8: Cedar-Sammamish

The following table lists overview information for water quality improvement projects (including total maximum daily loads, or TMDLs) for this water resource inventory area (WRIA). Please use links (where available) for more information on a project.

Counties

- [King](#)
- [Snohomish](#)



Waterbody Name	Pollutants	Status**	TMDL Lead
Ballinger Lake	Total Phosphorus	Approved by EPA	Tricia Shoblom 425-649-7288
Bear-Evans Creek Basin	Fecal Coliform	Approved by EPA	Joan Nolan 425-649-4425
	Dissolved Oxygen Temperature	Approved by EPA	
Cottage Lake	Total Phosphorus	Approved by EPA Has an implementation plan	Tricia Shoblom 425-649-7288
Issaquah Creek Basin	Fecal Coliform	Approved by EPA	Joan Nolan 425-649-4425
Little Bear Creek Tributaries: Trout Stream Great Dane Creek Cutthroat Creek	Fecal Coliform	Approved by EPA	Ralph Svrjcek 425-649-7036
North Creek	Fecal Coliform	Approved by EPA Has an implementation plan	Ralph Svrjcek 425-649-7036
Pipers Creek	Fecal Coliform	Approved by EPA	Joan Nolan 425-649-4425
Sammamish River	Dissolved Oxygen Temperature	Field work starts summer 2015	Ralph Svrjcek 425-649-7036
Swamp Creek	Fecal Coliform	Approved by EPA Has an implementation plan	Ralph Svrjcek 425-649-7036

** **Status** will be listed as one of the following: *Approved by EPA, Under Development or Implementation*

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**WETLAND RATING
Wetland A**

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Figure A4
 WRI Job # 16095
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 12.16.2016

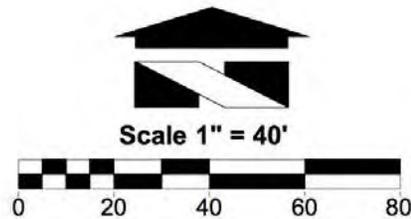
RC 124TH LLC - KIRKLAND, WA
WETLAND RATING FIGURE A5 - WETLAND A

ATTACHMENT 7



LEGEND

-  WETLAND
-  DENSE UNCUT HERBACEOUS
-  DENSE UNCUT RIDGID



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**WETLAND RATING
Wetland A**

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Woodway, WA 98026

Figure A5
WRI Job # 16095
Drawn by: JR
128
12.16.2016

Wetland name or number B

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland B - RC 124th LLC Date of site visit: 2013, 2016
 Rated by JR Trained by Ecology? Yes No Date of training 3\2015
 HGM Class used for rating SLOPE Wetland has multiple HGM classes? Y N

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

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

1. Category of wetland based on FUNCTIONS

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

FUNCTION	Improving Water Quality			Hydrologic			Habitat			
<i>Circle the appropriate ratings</i>										
Site Potential	H	M	<input type="checkbox"/> L	H	<input type="checkbox"/> M	L	H	<input type="checkbox"/> M	L	
Landscape Potential	H	<input type="checkbox"/> M	L	H	M	<input type="checkbox"/> L	H	M	<input type="checkbox"/> L	
Value	<input type="checkbox"/> H	M	L	<input type="checkbox"/> H	M	L	<input type="checkbox"/> H	M	L	
Score Based on Ratings	6			6			6			18

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	<input checked="" type="checkbox"/>

Wetland name or number B

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

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

Riverine Wetlands

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

Lake Fringe Wetlands

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

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	B1
Hydroperiods	H 1.2	B1
Plant cover of dense trees, shrubs, and herbaceous plants	S 1.3	B5
Plant cover of dense, rigid trees, shrubs, and herbaceous plants (<i>can be added to figure above</i>)	S 4.1	B5
Boundary of 150 ft buffer (<i>can be added to another figure</i>)	S 2.1, S 5.1	B1
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	B2
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	B3
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	B4

Wetland name or number B

HGM Classification of Wetlands in Western Washington

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

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

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

NO – go to 2

YES – the wetland class is **Tidal Fringe** – go to 1.1

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

NO – Saltwater Tidal Fringe (Estuarine)

YES – Freshwater Tidal Fringe

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

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

NO – go to 3

YES – The wetland class is **Flats**

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

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

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

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

NO – go to 4

YES – The wetland class is **Lake Fringe** (Lacustrine Fringe)

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

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

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

✓ The water leaves the wetland **without being impounded**.

NO – go to 5

YES – The wetland class is **Slope**

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

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

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

___ The overbank flooding occurs at least once every 2 years.

Wetland name or number B

NO – go to 6

YES – The wetland class is **Riverine**

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

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

NO – go to 7

YES – The wetland class is **Depressional**

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

NO – go to 8

YES – The wetland class is **Depressional**

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

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

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

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

Wetland name or number B

SLOPE WETLANDS

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

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

Rating of Site Potential If score is: 12 = H 6-11 = M 0-5 = L

Record the rating on the first page

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

Rating of Landscape Potential If score is: 1-2 = M 0 = L

Record the rating on the first page

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

Wetland name or number B

SLOPE WETLANDS

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

S 4.0. Does the site have the potential to reduce flooding and stream erosion?

S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. *Stems of plants should be thick enough (usually > 1/8 in), or dense enough, to remain erect during surface flows.*

- Dense, uncut, **rigid** plants cover > 90% of the area of the wetland points = 1
- All other conditions points = 0

1

Rating of Site Potential If score is: **1 = M** **0 = L**

Record the rating on the first page

S 5.0. Does the landscape have the potential to support the hydrologic functions of the site?

S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff?

Yes = 1 No = 0

0

Rating of Landscape Potential If score is: **1 = M** **0 = L**

Record the rating on the first page

S 6.0. Are the hydrologic functions provided by the site valuable to society?

S 6.1. Distance to the nearest areas downstream that have flooding problems:

- The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) points = 2
- Surface flooding problems are in a sub-basin farther down-gradient points = 1
- No flooding problems anywhere downstream points = 0

2

S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?

Yes = 2 No = 0

0

Total for S 6

Add the points in the boxes above

2

Rating of Value If score is: **2-4 = H** **1 = M** **0 = L**

Record the rating on the first page

NOTES and FIELD OBSERVATIONS:

Wetland name or number B

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

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

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

- Aquatic bed 4 structures or more: points = 4
 - Emergent 3 structures: points = 2
 - Scrub-shrub (areas where shrubs have > 30% cover) 2 structures: points = 1
 - Forested (areas where trees have > 30% cover) 1 structure: points = 0
- If the unit has a Forested class, check if:*
- The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

1

H 1.2. Hydroperiods

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

- Permanently flooded or inundated 4 or more types present: points = 3
- Seasonally flooded or inundated 3 types present: points = 2
- Occasionally flooded or inundated 2 types present: points = 1
- Saturated only 1 type present: points = 0
- Permanently flowing stream or river in, or adjacent to, the wetland
- Seasonally flowing stream in, or adjacent to, the wetland
- Lake Fringe wetland** **2 points**
- Freshwater tidal wetland** **2 points**

0

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft².

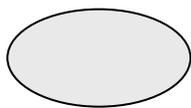
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle

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

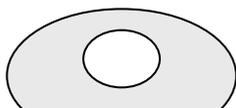
1

H 1.4. Interspersion of habitats

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



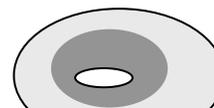
None = 0 points



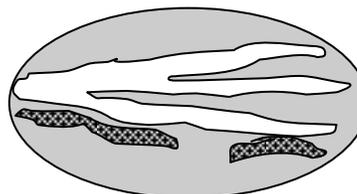
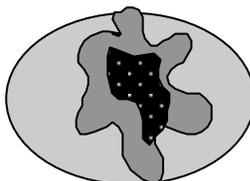
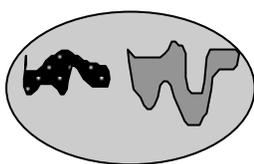
Low = 1 point



Moderate = 2 points



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



1

Wetland name or number B

<p>H 1.5. Special habitat features: Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i></p> <p><input checked="" type="checkbox"/> Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).</p> <p><input checked="" type="checkbox"/> Standing snags (dbh > 4 in) within the wetland</p> <p><input checked="" type="checkbox"/> 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)</p> <p><input checked="" type="checkbox"/> 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 (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>)</p> <p><input type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>)</p> <p><input type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>)</p>		4
Total for H 1	Add the points in the boxes above	7

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

<p>H 2.0. Does the landscape have the potential to support the habitat functions of the site?</p>		
<p>H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>). Calculate: % undisturbed habitat <u>7</u> + [(% moderate and low intensity land uses)/2] <u>0</u> = <u>7</u> % If total accessible habitat is:</p> <p><input type="checkbox"/> > 1/3 (33.3%) of 1 km Polygon points = 3</p> <p><input type="checkbox"/> 20-33% of 1 km Polygon points = 2</p> <p><input type="checkbox"/> 10-19% of 1 km Polygon points = 1</p> <p><input checked="" type="checkbox"/> < 10% of 1 km Polygon points = 0</p>		0
<p>H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. Calculate: % undisturbed habitat <u>16</u> + [(% moderate and low intensity land uses)/2] <u>3</u> = <u>19</u> %</p> <p><input type="checkbox"/> Undisturbed habitat > 50% of Polygon points = 3</p> <p><input type="checkbox"/> Undisturbed habitat 10-50% and in 1-3 patches points = 2</p> <p><input checked="" type="checkbox"/> Undisturbed habitat 10-50% and > 3 patches points = 1</p> <p><input type="checkbox"/> Undisturbed habitat < 10% of 1 km Polygon points = 0</p>		1
<p>H 2.3. Land use intensity in 1 km Polygon: If</p> <p><input checked="" type="checkbox"/> > 50% of 1 km Polygon is high intensity land use points = (- 2)</p> <p><input type="checkbox"/> ≤ 50% of 1 km Polygon is high intensity points = 0</p>		-2
Total for H 2	Add the points in the boxes above	-1

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

<p>H 3.0. Is the habitat provided by the site valuable to society?</p>		
<p>H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? <i>Choose only the highest score that applies to the wetland being rated.</i></p> <p>Site meets ANY of the following criteria: points = 2</p> <p><input checked="" type="checkbox"/> It has 3 or more priority habitats within 100 m (see next page)</p> <p><input type="checkbox"/> It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)</p> <p><input type="checkbox"/> It is mapped as a location for an individual WDFW priority species</p> <p><input type="checkbox"/> It is a Wetland of High Conservation Value as determined by the Department of Natural Resources</p> <p><input type="checkbox"/> 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</p> <p><input type="checkbox"/> Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1</p> <p><input type="checkbox"/> Site does not meet any of the criteria above points = 0</p>		2

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

Wetland name or number B

WDFW Priority Habitats

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

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

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

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

Wetland name or number B**CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS**

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? <input type="checkbox"/> The dominant water regime is tidal, <input type="checkbox"/> Vegetated, and <input type="checkbox"/> 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? <input type="checkbox"/> 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 <i>Spartina</i> , see page 25) <input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland. <input type="checkbox"/> The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. Yes = Category I No = Category II	Cat. I Cat. II
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? Yes – Go to SC 2.2 No – Go to SC 2.3 SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? Yes = Category I No = Not a WHCV SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf Yes – Contact WNHP/WDNR and go to SC 2.4 No = Not a WHCV SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? Yes = Category I No = Not a WHCV	Cat. I
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i> 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 _____

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RC 124TH LLC - KIRKLAND, WA
WETLAND RATING FIGURE B1 - WETLAND B

ATTACHMENT 7

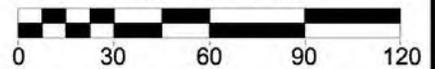


LEGEND

-  SCRUB-SHRUB
-  FORESTED VEGETATION
-  SATURATED ONLY
-  150' FROM WL BOUNDARY



Scale 1" = 60'



Wetland Resources, Inc.
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WETLAND RATING
Wetland B

RC 124TH LLC
ATTN: Greg Rairdon
22426 Woodway Park Rd.
Woodway, WA 98026

Figure B1
WRI Job # 16095
Drawn by: JR
12.16.2016