



DEVELOPMENT SERVICES DEPARTMENT
ENVIRONMENTAL COORDINATOR
450 110th Ave NE
BELLEVUE, WA 98009-9012

DETERMINATION OF NON-SIGNIFICANCE

PROPONENT: Chris Masek, City of Bellevue Transportation Department

LOCATION OF PROPOSAL: Lakemont Blvd SE & SE Cougar Mountain Way

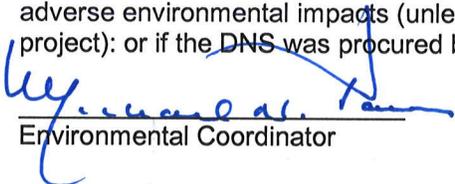
DESCRIPTION OF PROPOSAL: Critical Areas Land Use review of a proposal to install a new traffic light signal system at the intersection of Lakemont Blvd & SE Cougar Mountain Wy. The proposal includes widening of the shoulder on the east side of Lakemont Blvd to accommodate a 5-foot wide bike lane.

FILE NUMBERS: 14-134478-LO **PLANNER:** David Wong

The Environmental Coordinator of the City of Bellevue has determined that this proposal does not have a probable significant adverse impact upon the environment. An Environmental Impact Statement (EIS) is not required under RCW 43.21C.030(2)(C). This decision was made after the Bellevue Environmental Coordinator reviewed the completed environmental checklist and information filed with the Land Use Division of the Development Services Department. This information is available to the public on request.

- There is no comment period for this DNS. There is a 14-day appeal period. Only persons who submitted written comments before the DNS was issued may appeal the decision. A written appeal must be filed in the City Clerk's office by 5:00 p.m. on _____.
- This DNS is issued after using the optional DNS process in WAC 197-11-355. There is no further comment period on the DNS. There is a 14-day appeal period. Only persons who submitted written comments before the DNS was issued may appeal the decision. A written appeal must be filed in the City Clerk's Office by 5 p.m. on **11/6/2014**
- This DNS is issued under WAC 197-11-340(2) and is subject to a 14-day comment period from the date below. Comments must be submitted by 5 p.m. on _____. This DNS is also subject to appeal. A written appeal must be filed in the City Clerk's Office by 5:00 p.m. on _____.

This DNS may be withdrawn at any time if the proposal is modified so as to have significant adverse environmental impacts; if there is significant new information indicating a proposals probable significant adverse environmental impacts (unless a non-exempt license has been issued if the proposal is a private project); or if the DNS was procured by misrepresentation or lack of material disclosure.



Environmental Coordinator

10/23/2014
Date

OTHERS TO RECEIVE THIS DOCUMENT:

- State Department of Fish and Wildlife / Stewart.Reinbold@dfw.gov; Christa.Heller@dfw.wa.gov;
- State Department of Ecology, Shoreline Planner N.W. Region / Jobu461@ecy.wa.gov; sepaunit@ecy.wa.gov
- Army Corps of Engineers Susan.M.Powell@nws02.usace.army.mil
- Attorney General ecyolyef@atg.wa.gov
- Muckleshoot Indian Tribe Karen.Walter@muckleshoot.nsn.us; Fisheries.fileroom@muckleshoot.nsn.us



**City of Bellevue
Development Services Department
Land Use Staff Report**

Proposal Name: COBT – Lakemont Blvd Cougar Mountain Traffic Signal

Proposal Address: Lakemont Blvd SE & Cougar Mountain Way

Proposal Description: Critical Areas Land Use review of a proposal to install a new traffic light signal system at the intersection of Lakemont Blvd & SE Cougar Mountain Way. The proposal includes widening of the right-of-way to accommodate a 5-foot wide bike lane, and improvements associated with the pedestrian walkway on the east side of Lakemont Blvd.

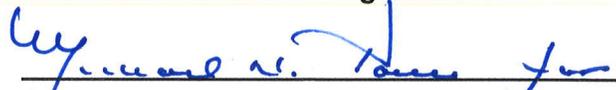
File Number: 14-134478-LO

Applicant: Chris Masek, City of Bellevue Transportation Dept.

Decisions Included: Critical Areas Land Use Permit
(Process II. LUC 20.30P)

Planner: David Wong, Planner

**State Environmental Policy Act
Threshold Determination:** Determination of Non-Significance



Carol V. Helland, Environmental Coordinator
Development Services Department

Director's Decision: Approval with Conditions



Carol V. Helland, Land Use Director
Development Services Department

Application Date: June 18, 2014
Notice of Application Publication Date: September 4, 2014
Decision Publication Date: October 23, 2014
Project/SEPA Appeal Deadline: November 6, 2014

For information on how to appeal a proposal, visit Development Services Center at City Hall or call (425) 452-6800. Comments on State Environmental Policy Act (SEPA) Determinations can be made with or without appealing the proposal within the noted comment period for a SEPA Determination. Appeal of the Decision must be received in the City's Clerk's Office by 5 PM on the date noted for appeal of the decision.

CONTENTS

I. Proposal Description	1
II. Site Description, Zoning, Land Use and Critical Areas	2
III. Consistency with Land Use Code Requirements:.....	6
IV. Public Notice and Comment.....	9
V. Summary of Technical Reviews	9
VI. State Environmental Policy Act (SEPA).....	9
VII. Changes to proposal as a result of City review.....	10
VIII. Decision Criteria.....	11
IX. Conclusion and Decision.....	12
X. Conditions of Approval	13

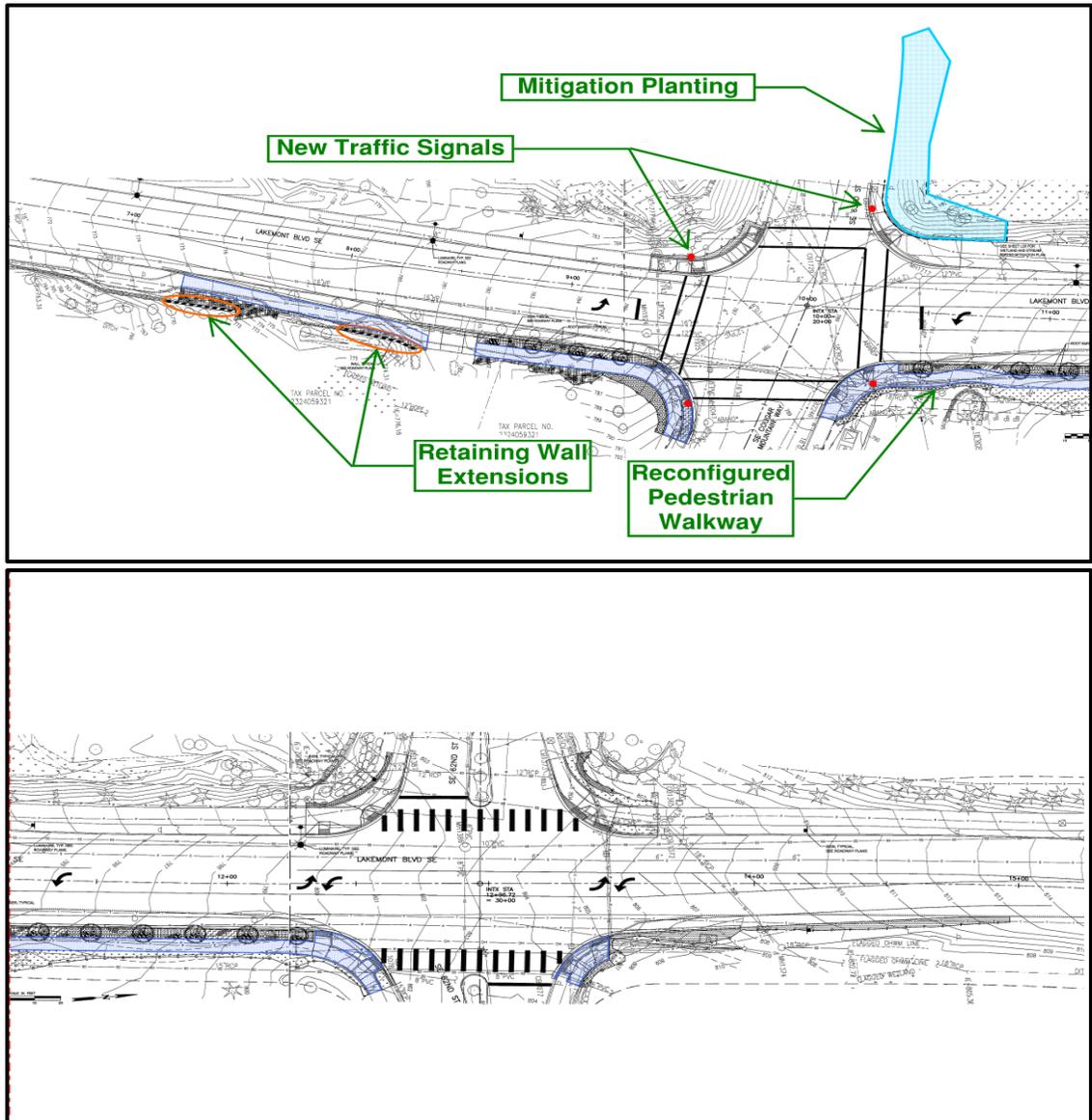
Attachments

1. Critical Areas Report
2. Mitigation Planting Plan

I. Proposal Description

The applicant is requesting a Critical Areas Land Use Permit in order to install a new traffic light signal system at the intersection of Lakemont Blvd SE and SE Cougar Mountain Way. Included in this proposal are road-widening operations on the east side of Lakemont Blvd SE between SE Cougar Mountain Way and SE 62nd Street; the extension of two existing retaining walls south of SE Cougar Mountain along the east side of Lakemont Blvd SE; reconfiguration of existing pedestrian walkways on the east side of Lakemont Blvd SE; replacement of existing street lights, and approximately 2,135 square feet of mitigation landscaping on the northwest corner of Lakemont Blvd SE and SE 63rd Street. The proposed work will occur within the critical area buffers to a series of stream segments (Type F and Type N) and wetlands (Category II & III) located at the intersections to Lakemont Blvd SE at SE Cougar Mountain Way and SE 62nd Street, and is supported by a stream and wetland study, a critical areas report, and a mitigation planting plan.

Figure 1

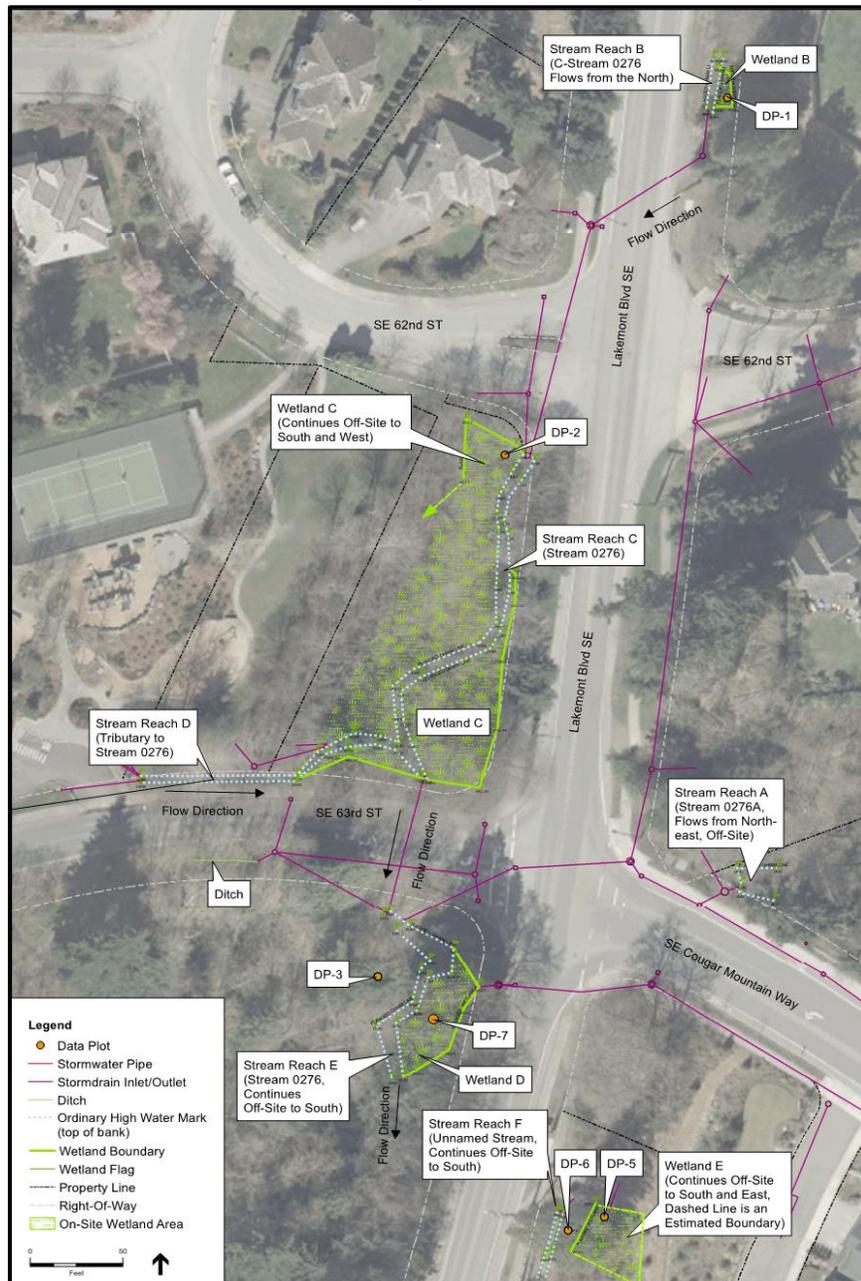


II. Site Description, Zoning, Land Use and Critical Areas

A. Site Description

The project site is located at the intersections of Lakemont Blvd SE & SE Cougar Mountain Way and Lakemont Blvd SE & SE 62nd Street in the Newcastle subarea. The site consists of private residential property, City of Bellevue right-of-way, and Lakemont Highlands Park & Open Space. A series of six (6) stream segments of which four are Type F and two are Type N and four (4) wetlands of which three are Category II and one is Category III exists within the project site.

Figure 2



Stream Inventory

Stream ID	Stream Type	Buffer
Stream Reach A	Type F	50 Feet
Stream Reach B	Type F	100 Feet
Stream Reach C	Type F	100 Feet
Stream Reach D	Type N	50 Feet
Stream Reach E	Type F	50 Feet
Stream Reach F	Type N	50 Feet

Wetland Inventory

Wetland ID	Wetland Type	Buffer
Wetland B	Category III	60 Feet
Wetland C	Category II	110 Feet
Wetland D	Category II	75 Feet
Wetland E	Category II	75 Feet

See Attachment 1 – Critical Areas Report for additional details.

Existing roadway improvements along Lakemont Blvd include a two lane paved right-of-way and pedestrian sidewalks along the east and west sides. See Figure 3 for location and existing site conditions.

Figure 3



B. Zoning

The project location is zoned R-1 and R-3.5. See Figure 4 for zoning details.

Figure 4



C. Land Use Context

The project site has Comprehensive Plan designations of Single-Family Low Density (SF-L), Single-Family Medium Density (SF-M), and Park Single-Family Medium Density (P/SF-M).

D. Critical Areas Functions and Values

i. Streams and Riparian Areas

Most of the elements necessary for a healthy aquatic environment rely on processes sustained by dynamic interaction between the stream and the adjacent riparian area (Naiman et al., 1992). Riparian vegetation in floodplains and along stream banks provides a buffer to help mitigate the impacts of urbanization (Finkenbine et al., 2000 in Bolton and Shellberg, 2001). Riparian areas support healthy stream conditions.

Riparian vegetation, particularly forested riparian areas, affect water temperature by providing shade to reduce solar exposure and regulate high ambient air temperatures, slowing or preventing increases in water temperature (Brazier and Brown, 1973; Corbett and Lynch, 1985).

Upland and wetland riparian areas retain sediments, nutrients, pesticides, pathogens, and other pollutants that may be present in runoff, protecting water quality in streams (Ecology, 2001; City of Portland 2001). The roots of riparian plants also hold soil and prevent erosion and sedimentation that may affect spawning success or other behaviors, such as feeding.

Both upland and wetland riparian areas reduce the effects of flood flows. Riparian areas and wetlands reduce and desynchronize peak crests and flow rates of floods (Novitzki, 1979; Verry and Boelter, 1979 in Mitsch and Gosselink, 1993). Upland and wetland areas can infiltrate floodflows, which in turn, are released to the stream as baseflow

Stream riparian areas, or buffers, can be a significant factor in determining the quality of wildlife habitat. For example, buffers comprised of native vegetation with multi- canopy structure, snags, and down logs provide habitat for the greatest range of wildlife species (McMillan, 2000). Vegetated riparian areas also provide a source of large woody debris that helps create and maintain diverse in-stream habitat, as well as create woody debris jams that store sediments and moderate flood velocities.

Sparsely vegetated or vegetated buffers with non-native species may not perform the needed functions of stream buffers. In cases where the buffer is not well vegetated, it is necessary to either increase the buffer width or require that the standard buffer width be restored or revegetated (May 2003). Until the newly planted buffer is established the near term goals for buffer functions may not be attained.

Riparian areas often have shallow groundwater tables, as well as areas where groundwater and surface waters interact. Groundwater flows out of riparian wetlands, seeps, and springs to support stream baseflows. Surface water that flows into riparian areas during floods or as direct precipitation infiltrates into groundwater in riparian areas and is stored for later discharge to the stream (Ecology, 2001; City of Portland, 2001).

ii. Wetlands

Wetlands provide important functions and values for both the human and biological environment—these functions include flood control, water quality improvement, and nutrient production. These “functions and values” to both the environment and the citizens of Bellevue depend on their size and location within a basin, as well as their diversity and quality. While Bellevue’s wetlands provides various beneficial functions, not all wetlands perform all functions, nor do they perform all functions equally well (Novitski et al., 1995). However, the combined effect of functional processes of wetlands within basins provides benefits to both natural and human environments. For example, wetlands provide significant stormwater control, even if they are degraded and comprise only a small percentage of area within a basin.

III. Consistency with Land Use Code Requirements:

A. Critical Areas Requirements LUC 20.25H:

The City of Bellevue Land Use Code Critical Areas Overlay District (LUC 20.25H) establishes performance standards and procedures that apply to development on any site which contains in whole or in part any portion designated as critical area, critical area buffer, or structure setback from a critical area buffer. This site contains stream segments and wetlands with buffers from ranging from 50-110 feet.

i. Consistency with LUC 20.25H.055.B

The proposed improvements are considered new or expanded public right-of-ways, and are an allowed use according to the Uses and Development Allowed within Critical Areas table found in 20.25H.055.B.

ii. Consistency with LUC 20.25H.055.C.2

The proposed improvements are associated with an existing intersection and no alternative location is possible. The project has been designed to avoid and minimize impacts to critical area, and no direct impact to stream or wetland critical areas will occur. The proposed improvements have been located in existing paved or gravel to limit impacts to vegetated buffers.

a. If the applicant demonstrates that no technically feasible alternative with less impact on the critical area or critical area buffer exists, then the applicant shall comply with the following:

1. Location and design shall result in the least impacts on the critical area or critical area buffer;

The project is located in an existing roadway intersection and along existing pedestrian walkways.

2. Disturbance of the critical area and critical area buffer, including disturbance of vegetation and soils, shall be minimized;

Disturbance of vegetation and soils has been minimized by locating intersection improvements within existing paved or gravel areas; however the project would result in approximately 1,500 square feet of unavoidable impacts to vegetated stream and wetland buffers. The impacted buffers primarily consist of non-native invasive plant species, non-native grasses, and ornamental shrubs. Tree removal will be limited to two (2) 4-inch big leaf maple trees (*Acer macrophyllum*).

Buffer Impacts (approx.)

Wetland B	450 Square Feet
Wetland C	190 Square Feet
Wetland E	860 Square Feet

- 3. Disturbance shall not occur in habitat used for salmonid rearing or spawning or by any species of local importance unless no other technically feasible location exists;**
No instream work is proposed.
- 4. Any crossing over of a wetland or stream shall be designed to minimize critical area and critical area buffer coverage and critical area and critical area buffer disturbance, for example by use of bridge, boring, or open cut and perpendicular crossings, and shall be the minimum width necessary to accommodate the intended function or objective; provided, that the Director may require that the facility be designed to accommodate additional facilities where the likelihood of additional facilities exists, and one consolidated corridor would result in fewer impacts to the critical area or critical area buffer than multiple intrusions into the critical area or critical area buffer;**
No wetland or stream crossings are proposed.
- 5. All work shall be consistent with applicable City of Bellevue codes and standards;**
The project will obtain all applicable City of Bellevue permits and comply with all requirements and BMPs.
- 6. The facility or system shall not have a significant adverse impact on overall aquatic area flow peaks, duration or volume or flood storage capacity, or hydroperiod;**
The project includes approximately 650 square feet of new impervious sidewalk area to offset the roadway expansion. “No adverse impacts on flows are anticipated” as a result to the increase in impervious surface (Comment Response Letter pg. 3).
- 7. Associated parking and other support functions, including, for example, mechanical equipment and maintenance sheds, must be located outside critical area or critical area buffer except where no feasible alternative exists; and**
Equipment and materials for the project will be stored outside of the critical areas and critical area buffers.
- 8. Areas of new permanent disturbance and all areas of temporary disturbance shall be mitigated and/or restored pursuant to a mitigation and restoration plan meeting the requirements of LUC 20.25H.210.**
Temporary disturbance as result of the walkway reconfiguration and retaining wall expansion will be restored through the proposed restoration plan. 1,500 square feet of permanent buffer impact is described in the Critical Areas Report and a mitigation plan containing 3,125 square feet of native planting is included. See Attachment 2 – Mitigation Planting Plan for more details.

B. Consistency with Land Use Code Critical Areas Performance Standards:

i. Consistency with 20.25H.080 – Streams

Development on sites with a type S or F stream or associated critical area buffer shall incorporate the following performance standards in design of the development, as applicable:

1. Lights shall be directed away from the stream.

Street lights will be directed toward the roadway and away from the stream critical area.

2. Activity that generates noise such as parking lots, generators, and residential uses shall be located away from the stream or any noise shall be minimized through use of design and insulation techniques.

No additional permanent noise is proposed.

3. Toxic runoff from new impervious area shall be routed away from the stream.

No toxic runoff from pedestrian walkways is proposed. Restoration planting includes dense planting along all new impervious surfaces. Runoff from roadways will be directed toward existing storm drains.

4. Treated water may be allowed to enter the stream critical area buffer.

No discharge of treated water into the stream critical area is proposed.

5. The outer edge of the stream critical area buffer shall be planted with dense vegetation to limit pet or human use.

The proposal includes dense plantings along pedestrian walkways and at the northwest corner of Lakemont Blvd & SE 63rd Street.

6. Use of pesticides, insecticides and fertilizers within 150 feet of the edge of the stream critical area buffer shall be in accordance with the City of Bellevue’s “Environmental Best Management Practices,” now or as hereafter amended.

No use of pesticides, insecticides, or fertilizers is proposed.

ii. Consistency with 20.25H.100 – Wetlands

Development on sites with a wetland or wetland critical area buffer shall incorporate the following performance standards in design of the development, as applicable:

1. Lights shall be directed away from the wetland.

Street lights will be directed toward the roadway and away from the wetland critical area.

2. Activity that generates noise such as parking lots, generators, and residential uses, shall be located away from the wetland, or any noise

shall be minimized through use of design and insulation techniques.

No additional permanent noise is proposed.

3. Toxic runoff from new impervious area shall be routed away from the wetlands.

No toxic runoff from pedestrian walkways is proposed. Restoration planting includes dense planting along all new impervious surfaces. Runoff from roadways will be directed toward existing storm drains.

4. Treated water may be allowed to enter the wetland critical area buffer.

No discharge of treated water into the wetland critical area is proposed.

5. The outer edge of the wetland critical area buffer shall be planted with dense vegetation to limit pet or human use.

The proposal includes dense plantings along pedestrian walkways and at the northwest corner of Lakemont Blvd & SE 63rd Street.

6. Use of pesticides, insecticides and fertilizers within 150 feet of the edge of the stream buffer shall be in accordance with the City of Bellevue’s “Environmental Best Management Practices,” now or as hereafter amended. (Ord. 5680, 6-26-06, § 3)

No use of pesticides, insecticides, or fertilizers is proposed.

IV. Public Notice and Comment

Application Date:	June 8, 2014
Public Notice (500 feet):	September 4, 2014
Minimum Comment Period:	September 18, 2014

The Notice of Application for this project was published in the City of Bellevue weekly permit bulletin on September 4th, 2014. It was mailed to property owners within 500 feet of the project site. No comments have been received from the public as of the writing of this staff report.

V. Summary of Technical Reviews

Clearing and Grading:

The Clearing and Grading Division of the Development Services Department has reviewed the proposed development for compliance with Clearing and Grading codes and standards. The Clearing and Grading staff found no issues with the proposed development.

VI. State Environmental Policy Act (SEPA)

The environmental review indicates no probability of significant adverse environmental impacts occurring as a result of the proposal. The Environmental Checklist submitted

with the application adequately discloses expected environmental impacts associated with the project. The City codes and requirements, including the Clear and Grade Code, Utility Code, Land Use Code, Noise Ordinance, Building Code and other construction codes are expected to mitigate potential environmental impacts. Therefore, issuance of a Determination of Non-Significance (DNS) is the appropriate threshold determination under the State Environmental Policy Act (SEPA) requirements.

A. Earth and Water

A temporary erosion and sedimentation control plan is included in the project plans, and addresses all requirements for restoring the site to its current condition as well as erosion and sedimentation management practices. Erosion and sediment control best management practices include the installation of silt fencing around the work area and covering exposed soils to prevent migration of soils to the adjacent wetland. See Section X for a related condition of approval.

B. Animals

The project site is part of a larger natural area that contains quality habitat for birds and mammals. The proposed roadway and walkway improvements are designed to avoid existing mature vegetation and critical areas, and no significant trees will be removed with this proposal. The mature vegetation on the site could provide potential habitat to pileated woodpeckers (*Dryocopus pileatus*), red-tailed hawks (*Buteo jamaicensis*), bald eagles (*Haliaeetus leucocephalus*), ospreys (*Pandion haleaetus*), great blue herons (*Ardea herodias*) who are known to be in the vicinity, however no impacts are anticipated since no significant trees will be removed.

C. Plants

Mitigation for temporary and permanent disturbance will be approved pursuant to an approved re-vegetation and monitoring plan. See Section X for related conditions of approval.

D. Noise

The site is adjacent to single-family residences whose residents are most sensitive to disturbance from noise during evening, late night and weekend hours when they are likely to be at home. Construction noise will be limited by the City's Noise Ordinance (Chapter 9.18 BCC) which regulates construction hours and noise levels. See Section X for a related condition of approval.

VII. Changes to proposal as a result of City review

No were changes requested.

VIII. Decision Criteria

A. Critical Areas Report Decision Criteria- General Criteria LUC 20.25H.255

The Director may approve, or approve with modifications, the proposed modification where the applicant demonstrates:

1. The modifications and performance standards included in the proposal lead to levels of protection of critical area functions and values at least as protective as application of the regulations and standards of this code;

Finding: The applicant has provided a complete critical areas report that demonstrates that the proposal leads to levels of protection of critical area functions and values that area at least as protective as the regulations and standards of this code. The planting of native vegetation will enhance the instream and wetland habitat in the project reach.

2. Adequate resources to ensure completion of any required mitigation and monitoring efforts;

Finding: The applicant, the City of Bellevue, has adequate resources to complete the required mitigation and monitoring efforts.

3. The modifications and performance standards included in the proposal are not detrimental to the functions and values of critical area and critical area buffers off-site; and

Finding: The proposal complies with all of the applicable performance standards for streams and wetlands, and includes an appropriate restoration and mitigation plan to offset identified short and long term impacts.

4. The resulting development is compatible with other uses and development in the same land use district.

Finding: The construction of the traffic signal system, pedestrian walkways, and habitat improvement work is consistent with the surrounding land uses. There is no change in use on the site or any of the adjacent sites.

B. Critical Areas Land Use Permit Decision Criteria 20.30P

The Director may approve or approve with modifications an application for a critical areas land use permit if:

1. The proposal obtains all other permits required by the Land Use Code;

Finding: The project will obtain all applicable City of Bellevue permits and comply with all requirements,

2. The proposal utilizes to the maximum extent possible the best available construction, design and development techniques which result in the least impact on the critical area and critical area buffer;

Finding: The project has been designed to avoid and minimize critical area impacts, and no direct stream or wetland impacts will occur. Proposed work has been limited to existing paved or gravel areas as much as possible with exception to the 1,500 square feet of stream and wetland buffers. To offset the impact to critical area buffers, 2,135 square feet of native vegetation is proposed within the riparian area at the northwest corner of Lakemont Blvd. & SE 63rd Street.

3. The proposal incorporates the performance standards of Part 20.25H to the maximum extent applicable, and ;

Finding: The project has been designed to meet City of Bellevue critical areas requirements by identifying and delineating streams and wetlands; applying buffer widths as specified by the City of Bellevue Land Use Code; avoiding and minimizing impacts; and compensating for unavoidable impacts through an appropriate mitigation plan.

4. The proposal will be served by adequate public facilities including street, fire protection, and utilities; and;

Finding: The proposal is for improvements to an existing intersection. Existing fire protection and utilities services are adequate to serve the completed project.

5. The proposal includes a mitigation or restoration plan consistent with the requirements of LUC Section 20.25H.210; and

Finding: A mitigation plan consistent with the requirement of LUC 20.25H.210 has been prepared and submitted along with the project's critical areas report. The applicant is required to submit a final restoration and monitoring plan as part of the Clearing and Grading Permit application. See Section X for related conditions of approval.

6. The proposal complies with other applicable requirements of this code.

Finding: As discussed in Section III and V of this report, the proposal complies with all other applicable requirements of the Land Use Code.

IX. Conclusion and Decision

After conducting the various administrative reviews associated with this proposal, including Land Use Code consistency, SEPA, City Code and Standard compliance reviews, the Director of the Development Services Department does hereby **approve with conditions** the proposal to install a new traffic light signal system, the associated

right-of-way improvements, and 2,135 square feet of buffer mitigation landscaping within the stream and wetland buffers along Lakemont Blvd SE.

Note- Expiration of Approval: In accordance with LUC 20.30P.150 a Critical Areas Land Use Permit automatically expires and is void if the applicant fails to file for a Clearing and Grading Permit or other necessary development permits within one year of the effective date of the approval.

X. Conditions of Approval

The applicant shall comply with all applicable Bellevue City Codes and Ordinances including but not limited to:

<u>Applicable Ordinances</u>	<u>Contact Person</u>
Clearing and Grading Code- BCC 23.76	Janney Gwo, 425-452-6190
Land Use Code- BCC 20.25H	David Wong, 425-452-4282
Noise Control- BCC 9.18	David Wong, 425-452-4282

The following conditions are imposed under the Bellevue City Code or SEPA authority referenced:

1. Restoration for Areas of Temporary Disturbance: A restoration plan for all areas of temporary disturbance is required to be submitted for review and approval by the City of Bellevue prior to the issuance of the Clearing and Grading Permit. The plan shall include documentation of existing site conditions and shall identify the restoration measures to return the site to its existing conditions per LUC 20.25H.220.H.

Authority: Land Use Code 20.25H.220.H
Reviewer: David Wong, Land Use

2. Mitigation for Areas of New Permanent Disturbance: A mitigation plan containing 2,135 square feet of buffer planting is required to be submitted for review and approval by the City of Bellevue prior to issuance of the Clearing and Grading Permit. The plan shall document the total area of permanent disturbance and area of new critical area buffer to satisfy a replacement ratio of one to one.

Authority: Land Use Code 20.25H.085, 20.25H.105
Reviewer: David Wong, Land Use

3. Monitoring: The planting area shall be self-maintained for a period of five (5) years. Annual monitoring reports are to be submitted to Land use each of the three years at the end of each grown season or October 31st. Photos from selected photo points will be included in the monitoring reports to document the planting. The following schedule and performance standards apply and area evaluated in the report each year:

Year 1 (from date of plant installation)

- 100% survival of all installed plants and/or replanting in the following dormant season to reestablish 100%
- Less than 10% coverage of invasive plants in the planting area

Year 2 (from date of plant installation)

- At least 80% survival of all trees and shrubs
- At least 30% coverage from installed vegetation
- Less than 10% coverage of invasive plants in the planting area

Year 3-5 (front date of plant installation)

- At least 50% coverage from install vegetation
- Less than 10% coverage of invasive plants in the planting area

The reports, along with a copy of the planting plan, can be sent to David Wong at dwong@bellevuewa.gov or to the address below:

Environmental Planning Manager
Development Services Department
City of Bellevue
PO Box 90012
Bellevue, WA 98009-9012

Authority: Land Use Code 20.30P.140

Reviewer: David Wong, Land Use

This monitoring effort may be shortened to three (3) years at the discretion of the City based on early performance data and evidence that the installation is accordance with the approved vegetation management plan or as amended by the Development Services Department.

4. Rainy Season restrictions: Due to the proximity to stream and wetland critical areas, no clearing and grading activity may occur during the rainy season, which is defined as October 1 through April 30 without written authorization of the Development Services Department. Should approval be granted for work during the rainy season, increased erosion and sedimentation measures, representing the best available technology must be implemented prior to beginning or resuming site work.

Authority: Bellevue City Code 23.76.093.A,
Reviewer: Janney Gwo, Clearing and Grading

5. Noise Control: Noise related to construction is exempt from the provisions of BCC 9.18 between the hours of 7 am to 6 pm Monday through Friday and 9 am to 6 pm on Saturdays, except for Federal holidays and as further defined by the Bellevue City Code. Noise emanating from construction is prohibited on Sundays or legal holidays unless expanded hours of operation are specifically authorized in advance. Requests for construction hour extension must be done in advance with submittal of a construction noise expanded exempt hours permit.

Authority: Bellevue City Code 9.18
Reviewer: David Wong, Land Use

LAKEMONT BOULEVARD SE & SE COUGAR MOUNTAIN WAY INTERSECTION IMPROVEMENTS

Critical Areas Report

Prepared for
*Reid Middleton and
City of Bellevue*

June 2014



CONTENTS

1.0 PROJECT AUTHORIZATION AND SCOPE OF WORK.....	1
2.0 PROJECT OVERVIEW AND STUDY AREA	1
3.0 METHODS	2
3.1 REVIEW OF EXISTING INFORMATION	2
3.2 ON-SITE INVESTIGATION	2
3.2.1 <i>Determining the Presence of Wetlands and Delineating Wetland Boundaries</i>	2
3.2.2 <i>Classifying Wetlands</i>	3
3.2.3 <i>Assessing Wetland Functions</i>	3
3.2.4 <i>Assessing Streams</i>	3
4.0 REVIEW OF EXISTING INFORMATION	4
4.1 SOILS	4
4.2 WETLANDS	4
4.3 STREAMS AND FISH USE	4
4.4 WILDLIFE HABITATS	4
5.0 RESULTS OF FIELD INVESTIGATION	5
5.1 STREAMS	5
5.1.1 <i>Stream 0276A (Flagged in Field as Stream Reach A)</i>	5
5.1.2 <i>Stream 0276 (Flagged in Field as Stream Reach B)</i>	5
5.1.3 <i>Stream 0276 (Flagged in Field as Stream Reach C)</i>	6
5.1.4 <i>Tributary to Stream 0276 (Flagged in Field as Stream Reach D)</i>	6
5.1.5 <i>Stream 0276 (Flagged in Field as Stream Reach E)</i>	6
5.1.6 <i>Unnamed Stream (Flagged in Field as Stream Reach F)</i>	7
5.1.7 <i>Other Drainage Features</i>	7
5.1.8 <i>Stream Types and Buffer Requirements</i>	7
5.2 WETLANDS	8
5.2.1 <i>Wetland B</i>	9
5.2.2 <i>Wetland C</i>	9
5.2.3 <i>Wetland D</i>	10
5.2.4 <i>Wetland E</i>	10

5.2.5	Wetland Rating and Buffer Requirements.....	11
5.3	WILDLIFE HABITAT ASSESSMENT.....	12
6.0	PROJECT IMPACTS AND MITIGATION PLAN.....	13
6.1	IMPACT AVOIDANCE AND MINIMIZATION MEASURES	13
6.2	BUFFER MITIGATION CONCEPT	14
6.3	MITIGATION APPROACH	15
6.4	PROJECT GOALS AND PERFORMANCE STANDARDS	16
6.5	MONITORING AND MAINTENANCE PLAN	16
6.5.1	Pre-Construction	16
6.5.2	As-built Inspection	17
6.5.3	Performance Monitoring	17
6.6	MONITORING REPORTS	18
6.7	MAINTENANCE	18
6.8	ADAPTIVE MANAGEMENT	19
7.0	LIMITATIONS	19
8.0	REFERENCES.....	20
	FIGURES AND PHOTOGRAPHS	23
	APPENDIX A: WETLAND DEFINITION.....	1
	APPENDIX B: COMMON AND SCIENTIFIC NAMES OF PLANTS AND THEIR WETLAND INDICATOR STATUS.....	1
	APPENDIX C: WASHINGTON STATE WETLAND RATING SYSTEM AND RATING FORMS	1
	APPENDIX D: WETLAND DETERMINATION DATA SHEETS	1

LIST OF TABLES

Table 1.	Summary of Stream Types and Buffers	8
Table 2.	Wetland Categories and Buffer Widths	12
Table 3.	Project Performance Standards	16
Table 4.	Monitoring Methods and Timing	17

LIST OF FIGURES

- 1 Vicinity Map
- 2 Soils Map
- 3 Surveyed Streams and Wetlands
- 4 Project Impacts
- 5 Wetland and Stream Buffer Mitigation Plan

1.0 PROJECT AUTHORIZATION AND SCOPE OF WORK

At the request of Reid Middleton and the City of Bellevue, Environmental Science Associates (ESA) delineated wetland boundaries and streams and prepared this technical report for the proposed Lakemont Boulevard SE & SE Cougar Mountain Way Intersection Improvements Project, located in Bellevue, Washington.

This report is organized to meet the requirements of the City of Bellevue Land Use Code (BLUC) Part 20.25H Critical Areas Overlay District. The City regulates the following types of critical areas:

- Streams,
- Wetlands,
- Shorelines,
- Geologic hazard areas,
- Habitat associated with species of local importance, and
- Areas of special flood hazard.

ESA's scope of work was limited to an evaluation of streams, wetlands, and habitat associated with species of local importance. Other types of critical areas regulated by the City of Bellevue, such as geologic hazard and flood hazard areas, are not addressed in this report.

2.0 PROJECT OVERVIEW AND STUDY AREA

The City of Bellevue is proposing to install a new traffic signal system at the intersection of Lakemont Boulevard SE and SE Cougar Mountain Way (Figure 1). The project will widen the shoulder on the east side of Lakemont Boulevard SE between SE Cougar Mountain Way and SE 62nd Street to accommodate a 5-foot-wide bike lane and a left-turn lane on Lakemont Boulevard SE, which will improve intersection operation and provide for continuous bicycle facilities for this segment of Lakemont Boulevard SE. The project will also provide ADA-accessible ramps and sidewalks for pedestrians.

The project is located in the upper part of the Coal Creek drainage basin in the Lake Washington watershed (WRIA 8). Coal Creek drains approximately 4,000 acres in Bellevue, King County, and Newcastle. The stream originates near Cougar Mountain at an elevation of about 1,400 feet and flows northwest for 7 miles through a series of steep, narrow ravines before entering the eastern shoreline of Lake Washington at Newport Shores (King County, 2009). With Bellevue city limits, the Coal Creek drainage basin is dominated by single-family residential use (50%), followed by parks and open space (11%) and public rights-of-way (9%). Typical of urbanized areas, the impervious surface cover in the basin is fairly high (20%), although tree canopy cover along streams is still good (85%) (City of Bellevue, 2010).

The study area for this project includes areas within approximately 100 feet of the proposed construction limits (Figure 1). Surrounding land uses include single-family residential development, forested areas, and parks/open space.

3.0 METHODS

3.1 Review of Existing Information

ESA reviewed existing literature, maps, and other materials related to wetlands, streams, and wildlife habitats in the project vicinity. Key sources of information included the following:

- City of Bellevue (2010) Coal Creek drainage basin information;
- City of Bellevue (2009) critical areas map for Coal Creek drainage basin;
- NRCS web soil survey online mapping (2013);
- Soil Survey of King County (Snyder et al., 1973);
- National Wetland Inventory (NWI) mapping;
- Priority Habitats and Species data (WDFW, 2014a);
- Salmonscape mapping (WDFW, 2014b); and
- Rare plant or vegetation community mapping (WDNR, 2014).

3.2 On-site Investigation

3.2.1 Determining the Presence of Wetlands and Delineating Wetland Boundaries

The characteristics of an area that result in its classification as “wetland” have been formally defined by federal and state agencies, as described in Appendix A. Methods defined in Regional Supplements to the U.S. Army Corps of Engineers 1987 Wetlands Delineation Manual were used to determine the presence and extent of wetlands in the study area. The Washington State Department of Ecology repealed WAC 173-22-080 (the state wetland delineation manual) and replaced it with a revision of WAC 173-22-035 that states that delineations should be done according to the currently approved federal manual and supplements (effective March 14, 2011).

The methodology outlined in the manuals is based upon three essential characteristics of wetlands: (1) hydrophytic vegetation; (2) hydric soils; and (3) wetland hydrology. Field indicators of these three characteristics must all be present in order to determine that an area is a wetland (unless problem areas or atypical situations are encountered).

The “routine on-site determination method” was used to determine the wetland boundaries. The routine method is used for areas equal to or less than five acres in size, or for larger areas with relatively homogeneous vegetative, soil, and hydrologic properties.

Formal data plots were established where information regarding each of the three wetland parameters (vegetation, soils, and hydrology) was recorded. This information was used to distinguish wetlands from non-wetlands. If wetlands were determined to be present on the subject property, the wetland boundaries were delineated. Wetland boundaries were identified with sequentially numbered colored flagging imprinted with the words WETLAND DELINEATION. Data plot locations were also marked with colored flagging.

The methods used to assess wetland characteristics are described in greater detail in Appendix A. Please note that common plant names are used throughout this text; the scientific names are presented in Appendix B.

3.2.2 Classifying Wetlands

Two classification systems are commonly used to describe wetlands. The hydrogeomorphic (HGM) system describes wetlands in terms of their position in the landscape and the movement of water in the wetland (Brinson, 1993). The U.S. Fish and Wildlife Service classification system (Cowardin et al., 1979) describes wetlands in terms of their vegetation communities; these include, for example, emergent, scrub-shrub, and forested community types.

3.2.3 Assessing Wetland Functions

Wetlands and buffers play important roles that provide valuable benefits to the environment and society. Because detailed scientific knowledge of wetland functions is limited, evaluations of the functions of individual wetlands are somewhat qualitative and dependent upon professional judgment.

For this project, wetland functions were assessed using the Washington State Department of Ecology's *Wetland Rating System for Western Washington* (Hruby, 2004). Although this system is designed to rate wetlands, it is based on whether a particular wetland performs a particular function and the relative level to which the function is performed. An assessment of wetland functions is inherent in the rating system. This system was developed by Ecology to differentiate wetlands based on their sensitivity to disturbance, their significance, their rarity, our ability to replace them, and the beneficial functions they provide to society. Appendix C provides additional information about the rating system wetland categories and completed rating forms for the project.

3.2.4 Assessing Streams

ESA flagged the ordinary high water mark (OHWM) (equivalent to top of bank) of streams in the study area. For purposes of determining its lateral jurisdiction under the Clean Water Act (33 CFR 328.3(e)), the U.S. Army Corps of Engineers defines the OHWM as: "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" (Corps, 2005). Other physical characteristics that should be used to determine the OHWM include wracking; vegetation matted down, bent, or absent; sediment sorting; leaf litter disturbed or washed away; scour; deposition; multiple observed flow events; bed and banks; water staining; and a change in plant community (Corps, 2005).

ESA marked the top of bank in the field with sequentially numbered colored flagging. Biologists also made general observations of in-stream habitat, such as depth of surface water, streambed substrate, streambank erosion, and in-stream habitat features such as large wood, boulders, riffles, and pools. The condition of riparian (streamside) vegetation was also recorded, including plant species, canopy cover, and evidence of human disturbance.

4.0 REVIEW OF EXISTING INFORMATION

4.1 Soils

The Natural Resources Conservation Service (NRCS) mapping of soils in the project vicinity is shown in Figure 2. The primary soil type mapped in the study area is Beausite gravelly sandy loam, 6 to 15 percent slopes. Beausite soils formed in glacial deposits on rolling to steep slopes. These well drained soils consist of gravelly sandy loam with sandstone at a depth of 20 to 40 inches. They are not considered hydric or wetland soils, although small unmapped areas of hydric soils may be present (Snyder et al., 1973).

4.2 Wetlands

No wetlands are mapped in the study area by either City of Bellevue or the National Wetland Inventory (City of Bellevue, 2009; USFWS, 2014). The nearest wetlands mapped by NWI are at Lewis Creek Park (0.17 mile northeast of the study area).

No rare plants or high-quality vegetation communities are documented in the study area or vicinity (WNHP, 2014).

4.3 Streams and Fish Use

Tributaries to Lower Coal Creek are documented within the study area. Lower Coal Creek is known to support fall Chinook, coho, sockeye, and winter steelhead. Chinook and steelhead are federally listed species. The closest documented salmonid use in Coal Creek is approximately one mile southwest of the study area. No salmonid use is documented by WDFW or City of Bellevue in the tributary streams that cross the study area (WDFW, 2014b; City of Bellevue, 2009).

4.4 Wildlife Habitats

No sensitive species or wildlife habitats are documented within the project study area. The project is located 0.25 to 0.5 mile north of a large biodiversity area/corridor mapped by the WDFW Priority Habitats and Species program. The corridor includes Cougar Mountain Wildland Park and forested habitat extending west along Coal Creek (WDFW, 2014a).

5.0 RESULTS OF FIELD INVESTIGATION

The following sections describe the results of the field investigation conducted by ESA wetland biologist Sara Noland, fisheries biologist Pete Lawson, and landscape architect Allisa Carlson on May 10 and May 13, 2013 and May 27, 2014. These sections describe the streams and wetlands identified on the site, upland habitats, and wildlife observations.

5.1 Streams

ESA delineated the top of bank of seven separate stream reaches (labeled A through F on Figure 3) including four separate streams. All of these streams are likely perennial and are tributaries to Coal Creek. The primary stream system within the project area is Stream 0276, which includes the mainstem reaches (Reach B, C and E) and two of its tributaries (Reach A and D). Another small stream, which is not mapped downstream, is also present in the study area (Reach F). Each stream segment is described below.

5.1.1 Stream 0276A (Flagged in Field as Stream Reach A)

This stream is located immediately north of SE Cougar Mountain Way and east of Lakemont Boulevard SE. The stream, a tributary to Stream 0276 (Stream Reach E), originates to the east of the study area. Within the project area, the stream is between 1 and 4 feet wide, with wetted depths ranging from 0.1 to 0.4 feet. The stream has broad floodplain terraces on both stream margins, with wetland vegetation present below the flagged top of bank. Substrate is primarily sand and muck, although gravel is present in portions of the reach. Although no large woody debris (LWD) is present, a moderate amount of small woody debris is distributed in the stream. Some overhanging vegetation such as vine maple functions to provide instream cover. The riparian corridor consists of deciduous forest, primarily red alder and cottonwood.

As the stream nears the intersection of SE Cougar Mountain Way/ Lakemont Boulevard SE, it enters a 12-inch-diameter corrugated metal pipe (CMP) with a trash rack on the inlet, which conveys the stream for about 8 feet into a round concrete vertical drop structure, with an open top/trash rack (Photo 1). Here the stream appears to enter a storm drain/culvert system that conveys it under the SE Cougar Mountain Way/Lakemont Boulevard SE intersection. The outlet of the stream is presumed to be Stream E; however the outlet was not found during field investigations.

5.1.2 Stream 0276 (Flagged in Field as Stream Reach B)

This stream is located just north of SE 62nd Street and east of Lakemont Boulevard SE. The 40-foot-long section of stream is part of the headwaters of Stream 0276, originating to the north of the project area. Within the project area, the stream is between 1 and 3 feet wide, with wetted depths ranging from 0.1 to 0.4 feet. The stream is channelized and entrenched approximately 2 to 3 feet, within a roadside channel. A small wetland (Wetland B) is located adjacent and to the east of the stream. Stream substrate is primarily sand and silt, although some gravel is present. No LWD is present and the bank

vegetation includes salmonberry and blackberry. No native trees are within the riparian zone, which contains bare earth, invasive species, and landscaped trees and shrubs.

The stream is conveyed under an access road to the north and SE 62nd Street to the south in concrete culverts, approximately 12 inches in diameter. The downstream outlet of the stream is presumed to be Stream E, on the southwest side of the SE 62nd Street /Lakemont Boulevard SE intersection.

5.1.3 Stream 0276 (Flagged in Field as Stream Reach C)

This stream reach is located south of SE 62nd Street, north of SE 63rd Street, and west of Lakemont Boulevard SE. The stream in this segment flows generally south from SE 62nd Street to SE 63rd Street. This section of stream originates from two adjacent culverts that convey flow from the north, a 2- by 3-foot squash CMP and 12-inch diameter CMP. Within the project area, the stream is between 2 and 4 feet wide, with the exception of the middle reach, which flows through a large ponded wetland where the channel is ill-defined. As shown in Figure 3, the entire stream is associated with a large wetland (Wetland C).

The stream is slightly channelized in spots, entrenched approximately 0.5 and 1.0 feet. Stream substrate varies between muck in the wetland reach, to sand and gravel in other locations. Overhanging vegetation is present in moderate amounts, with a vine maple understory and a deciduous forest overstory dominated by bigleaf maple, red alder, and cottonwood. Some small and medium-sized woody debris (<6 inches in diameter) is scattered throughout the segment (Photo 2). Near the end of the reach at SE 63rd Street, a tributary enters the stream (Stream D) on the left bank. At the road-fill embankment, the stream turns to the east, where it forms a ponded area at the culvert inlet (18-inch diameter concrete pipe) on the north side of SE 62nd Street.

5.1.4 Tributary to Stream 0276 (Flagged in Field as Stream Reach D)

This stream is a tributary to Stream C located along on the north side of SE 63rd Street and the west side of Lakemont Boulevard SE. The stream in this segment originates from a culvert under the driveway off of SE 63rd Street to Lakemont Highlands Neighborhood Park. The channel below the culvert outlet is a 60-foot long, 2-foot deep, linear ditch feature, with angular cobble and bare earth as substrate. The channel appears to be periodically maintained and/or dredged and instream habitat complexity (pools, riffles, LWD, overhanging cover, etc.) is completely absent in this reach (Photo 3).

The stream then cuts slightly to the north, dropping approximately 2 to 4 feet before entering a broader stream channel. A 24-inch diameter concrete pipe outlet (dry at time of the site visit) is located perpendicular to the stream at this point. From the vicinity of the stormwater pipe outfall, the stream flows approximately 20 to 30 feet east over a broad floodplain located within the boundaries of Wetland C, before it enters the mainstem of Stream 0276.

5.1.5 Stream 0276 (Flagged in Field as Stream Reach E)

This stream reach flows generally south, and is located south of SE 63rd Street and west of Lakemont Boulevard SE. An 18-inch diameter culvert conveys flow from Reach D (see above) across SE 63rd Street

and into Reach E. Approximately 10 feet to the west of the concrete culvert, is an outlet for a 12-inch diameter CMP, assumed to discharge stormwater from a ditch located on the south side of SE 63rd Street, west of the project area. The stream reach has relatively high functioning habitat conditions compared to the other stream reaches. Wetted widths vary from 4 to 12 feet, substrate consists of gravel and cobble, and the stream contains some riffles and small pools (Photo 4). Wetted depths ranged from approximately 0.2 to 0.8 feet. Entrenchment is moderate in places, with some reaches being entrenched up to 2 feet. A wetland (Wetland D) is associated with the left bank of the stream near the intersection.

Overhanging vegetation, mainly salmonberry and vine maple, is present along the reach, as are numerous pieces of small woody debris. Several pieces of LWD are also present, including a large log jam in the middle of the reach (just upstream of Flag E-8) that spans the entire channel. The mixed forested riparian corridor consists of Douglas fir, western red cedar, red alder, and black cottonwood and provides good overhead cover and stream shading. Forested buffer widths range from 30 to 50 feet on the left (east) bank of the stream to more than 150 feet on the right (west) bank of the stream.

5.1.6 Unnamed Stream (Flagged in Field as Stream Reach F)

This short stream reach originates from a 6-inch-diameter plastic pipe outlet on the east side of Lakemont Boulevard SE and immediately south of an unpaved access road into a City-owned parcel. The substrate in the channel ranges from angular cobble, to large gravel, to silt and muck. The trapezoidal channel has a wetted width of approximately 2 to 3 feet and uniform depths of approximately 0.2 to 0.3 feet with no pools or riffles present. At the downstream end of the flagged reach, the stream goes subsurface for approximately 15 to 20 feet, under a steep slope fill pad consisting of placed angular cobble. Downstream the channel reemerges, combining with flow out of wetland (Wetland E), which is located to the east. The wetland drainage feature was outside of the study area and therefore not delineated separately.

No small woody debris or LWD is located within the channel and riparian conditions consists primarily of a narrow band (<10 feet wide) of young alder on the west side of the stream and a wider (50 feet) band of deciduous forest on the east side of the stream.

5.1.7 Other Drainage Features

A non-jurisdictional ditch is located along the west side of SE 63rd Street, north of Lakemont Boulevard SE (Figure 3). The ditch appears to be an artificial drainage feature created in upland to convey stormwater runoff into the storm drain system. The ditch contained herbaceous vegetation and was dry during the May 2013 and May 2014 site visits (Photo 5).

5.1.8 Stream Types and Buffer Requirements

The applicable regulatory buffer for each stream was assessed based on the City of Bellevue critical areas ordinance (BCC 20.25). Although Coal Creek supports salmonids, none of the streams in the study area are classified as fish bearing based on stream ratings by the City of Bellevue and a review of the available fish distribution information (Watershed Company, 2009; WDFW, 2013). However, based on

BCC 20.25H.075.B.1, the definition of a fish-bearing stream (Type F) includes all segments of waters that are not Type S waters, and that contain fish or fish habitat. The majority of the streams assessed during the ESA delineation were assessed as containing suitable habitat for fish, although actual fish use is likely absent.

In the City of Bellevue, the buffer for a stream is determined by the stream type and the site development status (developed or undeveloped). Any open stream located on a lot that contains a primary structure or where the stream and stream buffer have been included within an approved and recorded NGPE or NGPA prior to August 1, 2006 is considered developed, while a open stream on a lot without a primary structure is considered undeveloped.

Table 1 summarizes the type and buffer requirement for streams identified in the study area. In accordance with City code, the drainage ditch along the west side of SE 62nd Street would not be regulated as a critical area because it is wholly artificial, and it would not require a buffer (BLUC 20.25H.075).

Table 1. Summary of Stream Types and Buffers

Stream ID	Stream Type	Buffer* (feet)
Stream Reach A (Stream 0276A)	Bellevue Stream Type F WDNR Stream Type F	50
Stream Reach B (Stream 0276)	Bellevue Stream Type F WDNR Stream Type F	100
Stream Reach C (Stream 0276)	Bellevue Stream Type F WDNR Stream Type F	100
Stream Reach D (tributary to Stream 0276)	Bellevue Stream Type N WDNR Stream Type Ns	50
Stream Reach E (Stream 0276)	Bellevue Stream Type F WDNR Stream Type F	50
Stream Reach F (unnamed stream)	Bellevue Stream Type N WDNR Stream Type Ns	50

*BLUC 20.25H.075.C

5.2 Wetlands

ESA identified four wetlands in the study area, designated as Wetlands B through E and described below. Each of the wetlands flagged are associated with the streams described in the previous section. The total area identified as wetland within the study area is 13,182 square feet (0.3 acre). Wetland boundaries were surveyed by Reid Middleton (2013) (Figure 3). ESA recorded data plots within relatively uniform areas of vegetation on the site to characterize the wetlands and adjacent upland areas (see data forms in Appendix D). Rating forms completed for each wetland are provided in Appendix C.

5.2.1 Wetland B

Overview. Wetland B is a small slope wetland (144 square feet) located immediately east of Stream Reach B within the right-of-way of Lakemont Boulevard SE (Figure 3). Data plot 1 characterizes the wetland. Because of space constraints within the right-of-way, an upland plot was not completed adjacent to the wetland.

Hydrology. Wetland hydrology indicators observed in Wetland B included saturation at the surface. The groundwater table was at 15 inches depth. Stream Reach B is channelized and entrenched in this area, and the wetland is located on a narrow sloping bench above the stream. It is unlikely that the wetland receives regular overbank flows, and wetland hydrology appears to be supported by a seasonally high groundwater table.

Soils. A layer of muck from the surface down to 14 inches deep was present at DP-1. Below the muck layer, the soil was mucky sand with gravel and charcoal mixed in. The sampled soils met hydric soil criterion A2 (Histic Epipedon).

Vegetation. Wetland B is a palustrine forested and scrub-shrub wetland dominated by western red cedar, salmonberry, and lady-fern. Several stumps were present in the wetland and appeared to be recently cut small red alder trees (Photo 6).

Wetland Functions. Wetland B received fairly low points for water quality improvement (10 points) and hydrologic functions (6 points). It is a slope wetland with limited capacity for storing surface runoff, and little rigid vegetation present to slow and filter surface flows. The organic soils in the wetland improve its water quality functions somewhat. The wetland itself provides limited wildlife habitat, being small and located in an urbanized area, but it is located near a stream and other forested areas that increase the overall habitat score (15 points on the wetland rating form).

5.2.2 Wetland C

Overview. Wetland C is a large depressional and riverine wetland (approximately 10,300 square feet within the study area) associated with Stream Reaches C and D (Figure 3). The wetland continues to the west outside of the study area. Data plot 2 characterizes the wetland. Because of space constraints within the right-of-way, an upland plot was not completed adjacent to the wetland.

Hydrology. Wetland hydrology indicators observed in Wetland C included saturation at the surface and a water table at 8 inches depth. A large ponded area was observed in the wetland on the west side of Stream Reach C. Wetland hydrology appears to be supported by overbank flows from the stream and a seasonally high groundwater table.

Soils. A layer of muck from the surface down to 14 inches deep was present at DP-2. Below the muck layer, the soil was depleted (2.5Y 4/1) gravelly sandy loam. The sampled soils met hydric soil criterion A2 (Histic Epipedon).

Vegetation. Wetland C is a palustrine forested wetland dominated by red alder with an understory of vine maple, salmonberry, and lady-fern (Photo 7).

Wetland Functions. Wetland C received a high score for water quality improvement (24 points) and a moderate score (12 points) for hydrologic functions. The wetland contains extensive vegetation that can slow and filter surface flows, and it provides some storage of surface water. Even though it is located in an urbanized area, Wetland C received a high score for habitat functions (24 points) due to the presence of multiple vegetation strata, areas of surface water ponding, snags and downed logs, and proximity to the stream.

5.2.3 Wetland D

Overview. Wetland D is a small depressional wetland (1,463 square feet) located on a terrace immediately east of Stream Reach E (Figure 3). Data plots 7 and 3 characterize the wetland and typical upland area, respectively.

Hydrology. Wetland hydrology indicators observed in Wetland D included surface ponding 1 inch deep, soil saturation at the surface, and a groundwater table at 8 inches below the surface. A small drainage channel which joins Stream Reach E downstream, enters the northeast corner of the wetland from a culvert near the intersection of SE 63rd Street and Lakemont Boulevard SE. Wetland hydrology appears to be supported by runoff from this drainage as well as a seasonally high groundwater table. Stream Reach E is incised in this area, and regular overbank flow from the stream to the wetland seems unlikely.

Soils. A layer of muck from the surface down to 8 inches deep was present at DP-7. Below the muck layer, the soil was gravelly loam. The sampled soils met hydric soil criterion A2 (Histic Epipedon).

Vegetation. Wetland D is a palustrine forested wetland dominated by western red cedar and red alder with an understory of vine maple, salmonberry, and lady-fern (Photo 8).

Wetland Functions. Wetland D received a high score (24 points) for water quality and a moderate score (14 points) for hydrologic functions. Despite being located near a stream, we did not observe an outlet draining from the wetland, meaning that the wetland can retain surface water. Areas of surface ponding were present within the wetland during our site visit. The wetland received a fairly high score for habitat functions (19 points) due to the presence of multiple vegetation strata, seasonal ponding, and proximity to forested uplands and a stream.

5.2.4 Wetland E

Overview. Wetland E is a depressional/slope wetland located east of Stream Reach E, separated from the stream by an upland berm (Figure 3). The wetland continues offsite to the south and east; the onsite wetland area is 1,275 square feet. Data plots 5 and 6 characterize the wetland and adjacent upland berm, respectively.

Hydrology. Wetland hydrology indicators observed in Wetland E included soil saturation at the surface and a water table 10 inches below the surface. Wetland hydrology appears to be supported by a

seasonally high groundwater table and runoff from surrounding areas. A culvert located at the northern boundary of the wetland, east of the study area (Photo 9), likely discharges stormwater to the wetland during rainy periods.

Soils. A layer of muck from the surface down to 11 inches deep was present at DP-5. Below the muck layer, the soil was silt loam. The sampled soils met hydric soil criterion A2 (Histic Epipedon).

Vegetation. Wetland E is a palustrine forested wetland dominated by western red cedar and red alder, with an understory of vine maple, salmonberry, and lady-fern.

Wetland Functions. Wetland E received a high score for water quality functions (26 points). The wetland has extensive vegetation that can slow and filter surface flows. Hydrologic functions score was moderate (16 points) because the wetland appears to have a constricted outlet and can retain some surface water in areas of seasonal ponding. The wildlife habitat score was moderate (16 points); the wetland provides habitat features such as snags, downed logs, multiple vegetation strata, and seasonally ponded areas.

5.2.5 Wetland Rating and Buffer Requirements

The City of Bellevue requires wetlands to be classified using the Washington State Department of Ecology's Wetland Rating System for Western Washington (Hruby, 2004). The buffer width for a given wetland is determined by the wetland rating, habitat score, and the site development status (developed or undeveloped). All parcels containing wetlands within the study area were assumed to be undeveloped, based on the definition in BCC 20.25H.095.C.1.a.ii, which states that an undeveloped site is "any site where the wetland and wetland buffer have not previously been included within a Native Growth Protection Area (NGPA) or Native Growth Protection Easement (NGPE), regardless of whether the site contains a primary structure." The rating scores and buffer requirements for the wetlands in the study area are summarized in Table 3.

Where a legally established transportation right-of-way crosses a wetland buffer, the edge of the improved right-of-way is considered the edge of the buffer if the part of the buffer on the other side of the right-of-way provides insignificant biologic or hydrologic function in relation to the part of the buffer adjacent to the wetland (BLUC 20.25.H.095(c)(2)(b)). Based on this definition, we consider the buffer to end at the edge of the pavement or gravel-surface road shoulder of the roads adjacent to the wetlands.

Table 2. Wetland Categories and Buffer Widths

Wetland	Category based on Ecology Rating System	Rating Scores based on Ecology System	City of Bellevue Standard Buffer Width*
B	III	Water quality: 10 Hydrology:6 Habitat: 15 <i>Total score: 31</i>	60 feet
C	II	Water quality: 24 Hydrology:12 Habitat: 24 <i>Total score: 60</i>	110 feet
D	II	Water quality: 24 Hydrology:14 Habitat: 19 <i>Total score: 57</i>	75 feet
E	II	Water quality: 26 Hydrology:16 Habitat: 16 <i>Total score: 58</i>	75 feet

*BLUC 20.25H.095.C

5.3 Wildlife Habitat Assessment

The City of Bellevue critical areas code regulates habitat for “species of local importance” listed in BLUC 20.25H.150. As required under BLUC 20.25H.165.A, a “habitat assessment” has been completed to evaluate the potential for the project area to support any of the City’s species of local importance (BLUC 20.25H.165). The habitat assessment included an evaluation of habitat types and a review of WDFW data to see whether any species of local importance have been previously mapped in the project vicinity.

The project vicinity is characterized by densely developed residential areas intermixed with forested areas. While the forested habitats are fragmented by residential developments and roadways, there is still a fairly intact forested corridor along Lakemont Boulevard SE. This corridor connects to extensive forested habitat along Coal Creek to the south, connecting to Cougar Mountain Wildland Park.

Wildlife habitats within the study area and immediate vicinity include the following:

- **Mixed coniferous-deciduous forest.** Forested areas are located adjacent to roadways and on City property in the study area. These are relatively small patches of forest in a developed landscape, but they are part of the overall forested corridor discussed above. Common tree species include Douglas fir, big-leaf maple, red alder, and western red cedar. Habitat features include a multi-layered forest canopy, snags, and downed logs. These areas provide cover,

foraging, and potentially breeding habitat for native wildlife species such as songbirds, small mammals, black-tailed deer, reptiles, and amphibians.

- **Wetlands.** The wetlands in the study area are forested communities associated with streams. This type of habitat can support frogs and salamanders, reptiles (such as garter snake), songbirds, small mammals, and other species. Habitat features found in the wetlands include multiple canopy layers, snags, and seasonally ponded areas.
- **Developed areas and landscaping.** Portions of the project vicinity have been developed with single-family residences and associated lawns and ornamental landscaping. Individual trees or small stands of trees are present on some lots. Developed areas are likely used by species that can tolerate human disturbance, such as American robin, black-capped chickadee, raccoon, and Virginia opossum. Some ornamental plant species provide food (such as berries) and cover for wildlife. American robins use mowed lawns for foraging.

None of the species on the City's list of "species of local importance" are mapped by WDFW as occurring in the study area or immediate vicinity (WDFW, 2014). Further, no species of local importance were observed using the area during the dates of the ESA site visits. However, the following species on the list are likely to use habitats within or immediately adjacent to the study area based on their habitat requirements:

- Red-tailed hawks, bald eagles, and ospreys may use trees in the study area for perching.
- Pileated woodpeckers forage by excavating cavities in snags. This species may also nest in tree cavities within the larger forested areas.
- Great blue herons may forage in wetlands and along streams.
- Bat species may forage on insects near area wetlands. Individual bats may also roost under tree bark in forested areas.

The other City species of local importance are unlikely to occur in the study area because their specialized habitat requirements cannot be met under the conditions that are present in this area.

6.0 PROJECT IMPACTS AND MITIGATION PLAN

6.1 Impact Avoidance and Minimization Measures

When designing the proposed intersection improvements, the project team followed City of Bellevue requirements to avoid and minimize critical area impacts in accordance with the following preferred sequence (BLUC 20.25H.215):

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

B. Minimizing impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps, such as project redesign, relocation, or timing, to avoid or reduce impacts;

C. Performing the following types of mitigation (listed in order of preference):

1. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
2. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; or
3. Compensating for the impact by replacing, enhancing, or providing substitute resources or environments;

D. Monitoring the hazard or other required mitigation and taking remedial action when necessary.

The project has been designed to avoid direct impacts to streams or wetlands and to minimize buffer impacts. Work would occur largely within existing paved or gravel surfaces. As shown in Figure 4, the project would result in approximately 1,500 square feet of unavoidable impacts to vegetated stream buffer and wetland buffer areas. The buffers that would be impacted are small areas adjacent to the sidewalk or roadway, consisting of weedy herbaceous vegetation, mowed grass, and a few ornamental shrubs (Photos 10 - 13). As such, these areas provide limited buffer functions.

In addition, two small (4-inch-diameter) big-leaf maple trees would be removed at the northwest corner of Lakemont Boulevard SE/ SE 63rd Street to provide adequate line of sight for the new traffic signal (Figure 4). These trees are on the edge of an alder-dominated forest; the tree removal would be offset through installation of native conifers elsewhere in the buffer as discussed in the mitigation plan below.

6.2 Buffer Mitigation Concept

The City of Bellevue requires compensatory mitigation for unavoidable impacts to stream buffer and wetland buffers. According to the code, mitigation actions for buffer impacts shall occur in the following order of preference and in the following locations:

- a. On-site, through replacement of lost critical area buffer;
- b. On-site, through enhancement of the functions and values of remaining critical area buffer;
- c. Off-site, through replacement or enhancement, in the same sub-drainage basin;
- d. Off-site, through replacement or enhancement, out of the sub-drainage basin but in the same drainage basin (BLUC 20.25H.105).

Because the project involves work along existing roadways, there is no space available for option (a) through buffer averaging. The City is proposing to use option (b), enhancement of the functions and

values of remaining critical area buffers. The City proposes to enhance approximately 2,135 square feet of buffer along the west side of Lakemont Boulevard SE and the north side of SE 63rd Street (Figure 4). The enhancement would provide a 1.4:1 ratio of buffer mitigation, which slightly exceeds City code requirements (BLUC 20.25H.105.C).

The proposed enhancement area is located along the sidewalk and on the slope between the edge of the sidewalk and Wetland C/ Stream Reaches C and D (Photos 14 - 16). The area currently consists of mowed lawn along the sidewalk, and a dense red alder forest on the slope. The forest has limited diversity of understory vegetation, including nonnative invasive species such as Himalayan blackberry. This area was selected because it is located on publicly owned property and there is sufficient space available for enhancement to provide a meaningful improvement in buffer functions.

6.3 Mitigation Approach

Mitigation measures for the Lakemont Boulevard SE & SE Cougar Mountain Way Intersections Improvement project have been developed by ESA using a base map provided by Reid Middleton. The proposed buffer enhancement plan would consist of the following measures (see Figure 5):

- Hand removal of nonnative invasive vegetation (primarily Himalayan blackberry);
- Soil amendments and slope stabilization measures;
- Selective thinning of dense red alder trees (logs will be retained onsite as habitat features); and
- Installation of native evergreen trees and native herbs and shrubs. Plants will be installed during the winter rainy season (typically November through February).

These measures are proposed to improve the wildlife habitat and screening functions of the buffer by increasing plant diversity, reducing invasive species cover, adding evergreen species, and replacing mowed lawn with native herbaceous vegetation.

Plant species and quantities are listed on Figure 5. Planting will occur in three zones: (1) low-growing herbaceous species at the top of the slope within the existing lawn strip along the sidewalk; (2) native trees, shrubs, and groundcover species on the slope; and (3) native shrubs within the southwest edge of the wetland (an area that is currently unvegetated).

To improve plant survival, existing fill soils will be decompacted and amended with organic topsoil. The slope will be stabilized with coir cloth and mulch, and the entire enhancement area will be seeded with a native grass/herb seed mix. These measures will also help retain moisture and reduce reinfestation by weeds.

Plant locations will be determined in the field by the project biologist. Existing native trees and shrubs will be protected and retained. A few small red alders may be thinned, as determined by the project biologist.

6.4 Project Goals and Performance Standards

The goal of the project is to enhance the buffer of Wetland C/ Stream Reaches C and D by removing invasive vegetation and replanting with native species. The objective is to improve native vegetation cover and diversity within 2,135 square feet of buffer area, as shown on Figure 5. Performance standards for each year of the three-year monitoring period are shown in Table 3.

Table 3. Project Performance Standards

Objective	Performance Standards		
	Year 1	Year 2	Year 3
Installed Plant Survival	100% survival (contractor's guarantee period)	80% survival of trees and shrubs	n/a
Installed Native Plant Cover	n/a	Herbaceous vegetation (top of slope): 30% Trees and shrubs (slope and wetland edge): 30%	Herbaceous vegetation (top of slope): 50% Trees and shrubs (slope and wetland edge): 50%
Invasive Species Cover	Less than 10%	Less than 10%	Less than 10%
Slope Protection	No areas of excessive erosion as observed annually; no area of bare soils greater than 10 square feet	No areas of excessive erosion as observed annually; no area of bare soils greater than 10 square feet	No areas of excessive erosion as observed annually; no area of bare soils greater than 10 square feet

6.5 Monitoring and Maintenance Plan

6.5.1 Pre-Construction

Prior to installation of the mitigation project, the City will meet with the landscape contractor to define and clearly mark the limits of weed removal and planting areas. Site preparation prior to installation of plantings will be discussed.

Because of the weed cover in the enhancement area (particularly invasive blackberry), the City will inspect the contractor's weed control work (clearing and grubbing) to ensure these efforts have been thorough prior to installation of plants and mulch.

Should any plant species substitutions be necessary, the project biologist and contractor will discuss and document these for approval by the City. The biologist will also inspect the plant material and assist with placement of plant species in the field.

6.5.2 As-built Inspection

After the plants are installed in the mitigation area, the landscape contractor will provide an “as-built” or record drawing to the City. The project biologist or landscape architect will visit the site and verify site conditions using the “as built” or record drawing to ensure the plants have been installed properly, coir cloth and mulch have been applied, and there are no other issues that need to be addressed.

The biologist will inspect the plants, recommend replacement if necessary, and establish sample plots and photo point locations. Permanent plots for monitoring will be selected to represent the planting areas. The appropriate number and location of plots will be determined on site during the as-built site inspection. Permanent photo points will be located to provide a representative visual documentation of site progress. The photo points and sample plots will be shown on the as-built drawing.

Monitoring of the mitigation areas will begin upon City of Bellevue acceptance of the as-built or record drawing, and will continue for three years.

6.5.3 Performance Monitoring

Monitoring will begin when the City approves the installed mitigation project and will continue for three years (BLUC 20.25H.220). The site will be monitored according to the schedule and methods shown in Table 4. During each year of the monitoring period, the site will be monitored in the spring for the presence of non-native invasive vegetation. This will allow time for maintenance of the site if needed to remove weeds during the early growing season before seed set. A second site visit in the late summer or early fall will be made to assess vegetation cover and survival against the project performance standards.

Table 4. Monitoring Methods and Timing

Monitoring Element	Methods and Timing	Year 1	Year 2	Year 3
Vegetation survival	Count of installed trees and shrubs. <i>Late Summer or Early Fall</i>	X	X	
Vegetation cover and establishment	Percent native cover data collected within monitoring plots. <i>Late Summer or Early Fall</i>		X	X
Non-native invasive vegetation	General observations of invasive species and recommendations for control measures. <i>Early Spring</i> Percent invasive cover data collected within monitoring plots. <i>Late Summer or Early Fall</i>	X	X	X

Monitoring Element	Methods and Timing	Year 1	Year 2	Year 3
Protection of slope	Visual observations of slope stabilization measures (mulch, coir cloth, seeding) and any eroded areas <i>During All Site Visits</i>	X	X	X

6.6 Monitoring Reports

An as-built or record drawing will be provided to the City within 90 days of completion of the mitigation installation. Monitoring reports will be prepared during Years 1, 2, and 3 to document the findings of the monitoring site visits. The reports will be submitted to City of Bellevue by October 31 of each monitoring year. The monitoring reports will include:

- Project background and monitoring schedule;
- Mitigation goals, objectives, and performance standards;
- Quantitative plant survival, vigor, and aerial coverage of tree and shrub strata within the established monitoring plots;
- Emergent species cover and diversity;
- General observations of site conditions and plant health across the restoration areas;
- Observations of use of mitigation area by humans and wildlife;
- Documentation of completed maintenance activities;
- Photographs taken from established photopoints;
- Recommendations for additional maintenance actions;
- Vegetation plot data (included as an appendix).

6.7 Maintenance

The City of Bellevue will commence maintenance of the mitigation area after acceptance of the “as-built” report and continue for three years. After initial planting acceptance by the professional biologist, the landscaping contractor will be responsible for plant survival for a period of one year. After this period, maintenance will be performed by City personnel. Maintenance will include, but is not limited to:

- Irrigating installed plants for at least two growing seasons following installation. Irrigation is required during the summer/fall drought period while plants are becoming established.

- Installing additional plantings if the combination of installed plants and regrowth of native volunteer species does not meet the minimum performance standards discussed above. All plants that die prior to Year 1 monitoring must be replaced.
- Weeding twice per year during the maintenance period to remove invasive, non-native plant species in the restoration areas. Trees and shrubs will be weeded to the dripline. Weeding is to be performed by hand. Use of herbicides (spot application) may be required to control regrowth of invasive blackberry and other weeds. Herbicide use will require prior approval by the City of Bellevue.
- Adding wood fiber mulch rings around the base of each installed tree or shrub to maintain at least three inches depth of mulch.
- Installing measures such as tree protectors if there is evidence of wildlife damage to plantings.
- Stabilizing eroded areas using bioengineering techniques that are appropriate if mulching, seeding or other standard erosion control methods fail.
- Removing from the site all litter and non-native invasive vegetation.

6.8 Adaptive Management

If any portion of the mitigation does not progress as anticipated by this plan, the City will take adaptive management measures to ensure the success of the project in meeting its overall goal of enhancing native vegetation in the mitigation area. For example, additional maintenance may be needed for control of weeds, or plant species substitutions may become necessary if one of the species listed in this plan has a high rate of mortality due to unanticipated site conditions. The purpose of annual monitoring will be to track the project's progress toward meeting the performance standards and provide the City with the information needed to adapt the mitigation plan to specific site conditions throughout the monitoring period. Adaptive management measures will be reviewed with the regulatory agencies and documented in annual monitoring reports.

7.0 LIMITATIONS

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

8.0 REFERENCES

- Brinson, M. August 1993. *A Hydrogeomorphic Classification for Wetlands*. U.S. Army Corps of Engineers, Wetlands Research Program.
- City of Bellevue. 2009. Critical areas map, Coal Creek basin. Available:
http://www.bellevuewa.gov/pdf/IT/5-COAL_CREEK_CA.pdf. Accessed April 2014.
- City of Bellevue. 2010. Coal Creek drainage basin fact sheet. Available:
http://www.bellevuewa.gov/pdf/Utilities/5-COAL_CREEK.pdf. Accessed April 2014.
- Corps (U.S. Army Corps of Engineers). 2005. Regulatory Guidance Letter No. 05-05: Ordinary High Water Mark Identification. December 7, 2005.
- Corps (U.S. Army Corps of Engineers). 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region*. Version 2. Wetlands Regulatory Assistance Program. May 2010. ERDC/EL TR-10-3.
http://www.usace.army.mil/CECW/Documents/cecwo/reg/west_mt_finalsupp.pdf.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. FWS/OBS-79/31. U.S. Fish and Wildlife Service.
- Ecology (Washington State Department of Ecology). 1997. *Washington State Wetlands Identification and Delineation Manual*. Publication No. 96-94. Olympia, Washington.
- Ecology (Washington State Department of Ecology), U.S. Army Corps of Engineers Seattle District, and U.S. Environmental Protection Agency Region 10. 2006. *Wetland Mitigation in Washington State, Part 1: Agency Policies and Guidance*. Version 1, March 2006. Publication # 06-06-011a.
- Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1. U.S. Army Engineer Waterways Experiment Station, Vicksburg, Massachusetts.
- EPA (Environmental Protection Agency) and Corps (US Army Corps of Engineers). June 5, 2007. Clean Water Act Jurisdiction Following the US Supreme Court's Decision in Rapanos v. United States & Carabell v. United States.
- Federal Register. 1982. *Title 33: Navigation and Navigable Waters; Chapter II, Regulatory Programs of the Corps of Engineers*. Vol. 47, No. 138, p. 31810. U.S. Government Printing Office, Washington, DC.
- Federal Register. 1986. *33 CFR Parts 320 through 330: Regulatory Programs of the Corps of Engineers; Final Rule*. Vol. 51, No. 219, pp. 41206-41260. U.S. Government Printing Office, Washington, DC.

Federal Register. 1988. *40 CFR Part 230. Guidelines for Specification of Disposal Sites for Dredged or Fill Material*. Vol. 45, No. 249, Pages 85336-85357. U.S. Government Printing Office, Washington, DC.

Federal Register. 1994. *Changes in Hydric Soils of the United States*. July 13. Washington, DC.

Hruby, T. 2004. *Washington State Wetland Rating System for Western Washington – Revised*. August 2004. Ecology publication number 04-06-025. Olympia, WA.

King County. 2009. Stream and River Water Quality Monitoring. Stream report for Coal Creek – 0442. Available:
<http://green.kingcounty.gov/wlr/waterres/streamsdata/watershedinfo.aspx?Locator=0442>. Accessed April 2014.

Munsell Color. 2000. *Munsell Soil Color Charts*. GretagMacbeth, New Windsor, New York.

NRCS (Natural Resources Conservation Service). 1995. *Hydric Soils List for Washington*. Revised December 15, 1995.

NRCS (Natural Resources Conservation Service). 2010. *Field Indicators of Hydric Soils in the United States - A Guide for Identifying and Delineating Hydric Soils*. Version 7.0, 2010. ftp://ftp-fc.sc.egov.usda.gov/NSSC/Hydric_Soils/FieldIndicators_v7.pdf.

NRCS (Natural Resources Conservation Service). 2013. Web soil survey. Available:
<http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>. Accessed April 2014.

Snyder, D.E., P.S. Gale, and R.F. Pringle. 1973. Soil Survey of King County Area, Washington. Soil Conservation Service. Available:
http://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/washington/WA633/0/wa633_text.pdf. Accessed April 2014.

USFWS (U.S. Fish and Wildlife Service). 1988. *National List of Plant Species that Occur in Wetlands: Northwest (Region 9)*. Biol. Rpt. 88(26.9). United States Department of Interior, Washington, DC.

USFWS (U.S. Fish and Wildlife Service). 1993. 1993 Supplement to List of Plant Species that Occur in Wetlands: Northwest (Region 9).

USFWS (U.S. Fish and Wildlife Service). 2014. National Wetlands Inventory – online wetlands mapper. Available: <http://www.fws.gov/wetlands/Data/Mapper.html>. Accessed May 2014.

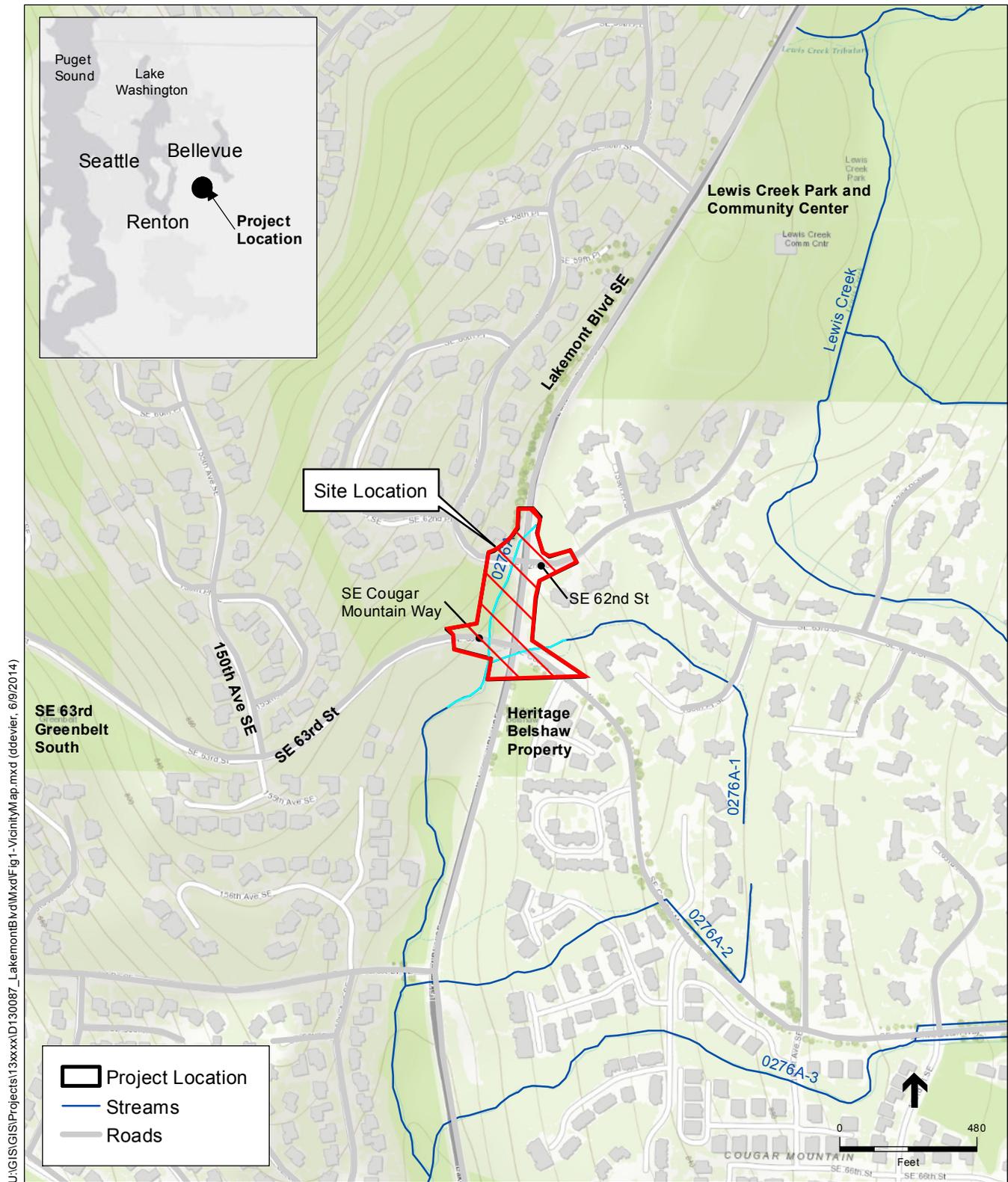
Vepraskas, M.J. 1999. *Redoximorphic Features for Identifying Aquic Conditions*. Technical Bulletin 301. North Carolina Agricultural Research Service, North Carolina State University, Raleigh, North Carolina.

WDFW (Washington Department of Fish and Wildlife). 2014a. Priority Habitats and Species online mapping. Available: <http://wdfw.wa.gov/mapping/phs/>. Accessed April 2014.

WDFW (Washington Department of Fish and Wildlife). 2014b. Salmonscape online mapping. Available: <http://apps.wdfw.wa.gov/salmonscape/map.html/> Accessed April 2014.

WNHP (Washington Natural Heritage Program). 2013. Rare plant and vegetation community GIS data.

FIGURES AND PHOTOGRAPHS



SOURCE:King County, 2009; Reid Middleton, 2013
 Service Layer Credits: Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community
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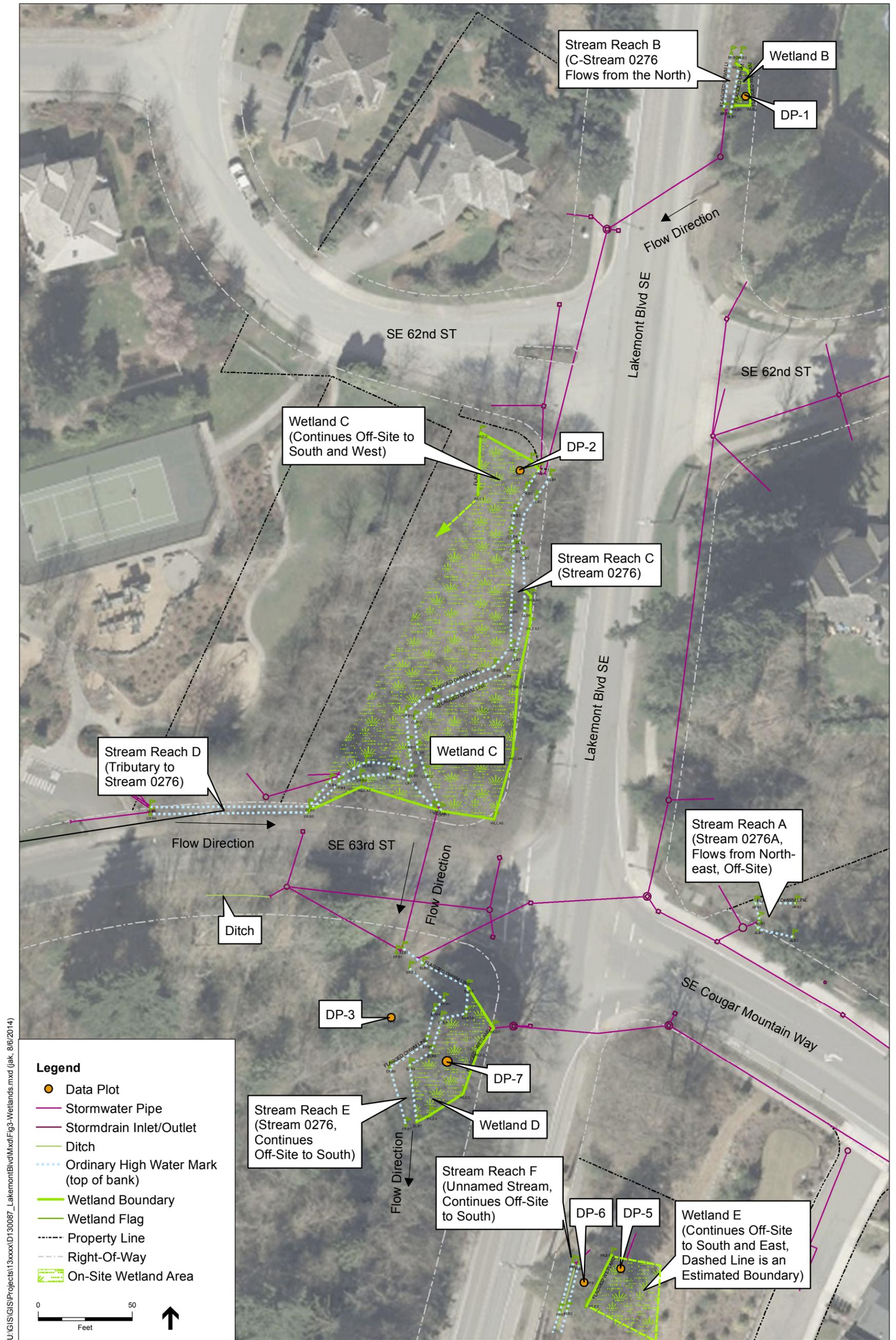
Lakemont Blvd . 130087
Figure 1
 Vicinity Map
 Bellevue, Washington



SOURCE: USDA-NRCS, 2003
 Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User

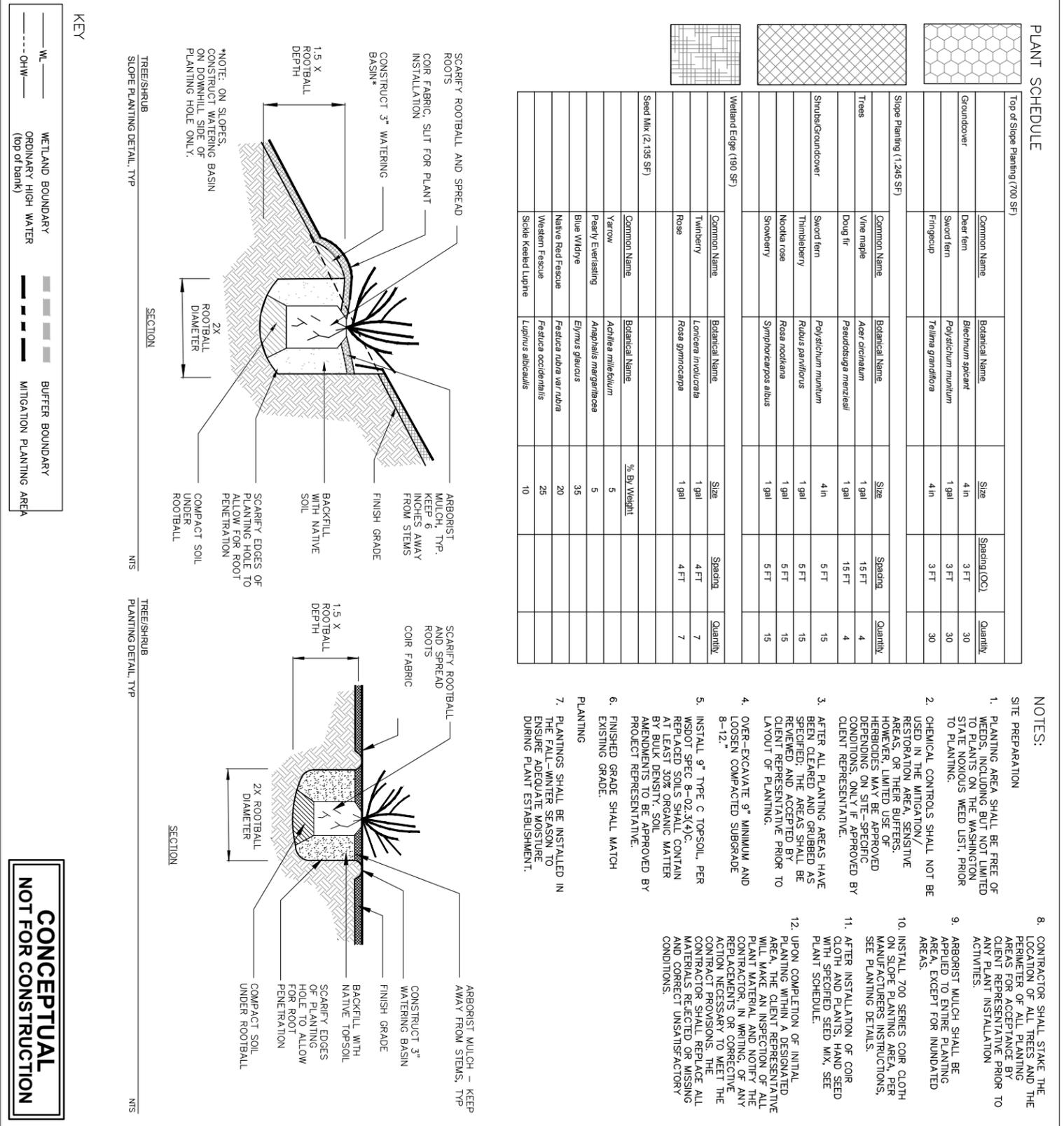
Lakemont Blvd . 130087

Figure 2
 Soils Map
 Bellevue, Washington



SOURCE: Reid Middleton, 2013
 Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Lakemont Blvd . 130087
Figure 3
 Surveyed Streams and Wetlands
 Bellevue, Washington



SOURCE: Reid Middleton, 2014

Lakemont Blvd and Cougar Way . 130087
Figure 5

Wetland and Stream Buffer Mitigation Plan
 Bellevue, Washington

**CONCEPTUAL
 NOT FOR CONSTRUCTION**



Photo 1. View of Stream 0276A (Reach A) looking north. Note inlet culvert and drop structure where stream enters pipe network that conveys stream under SE Cougar Mountain Way and east of Lakemont Boulevard SE. (May 2013)



Photo 2. View of Stream 0276 (Reach C) looking south. The stream has well vegetated banks with overhanging vegetation and small to medium in-channel woody debris. (May 2013)



Photo 3. View of Unnamed Tributary to 0276 (Reach D) looking west. This section of stream, paralleling SE 63rd Street is very uniform and channelized. Stream flow originates from a culvert outlet at the driveway of the Lakemont Highlands Neighborhood Park. (May 2013)



Photo 4. View of Stream 0276 (Reach E) looking south. This section of stream has overhanging vegetation and some riffle and pool formation. LWD, including a large jam, is distributed within the channel of this reach. (May 2013)



Photo 5. Drainage ditch on west side of SE 63rd St., looking south (May 2013)



Photo 6. Wetland B (May 2013)



Photo 7. Wetland C (May 2013)



Photo 8. Wetland D (May 2013)



Photo 9. Wetland E (May 2013)



Photo 10. Buffer impact area near Wetland B / Stream Reach B, looking west along Lakemont Blvd SE (May 2014)



Photo 11. Buffer impact area near Wetland C / Stream Reach C, looking NE from intersection of SE 62nd St. and Lakemont Blvd SE (May 2014)



Photo 12. Buffer impact area near Wetland D / Stream Reach E, looking NE from intersection of SE 63rd St. and Lakemont Blvd SE (May 2014)



Photo 13. Buffer impact area near Wetland E / Stream Reach F, looking east along Lakemont Blvd SE (May 2014)



Photo 14. Buffer mitigation area looking south along SE 63rd St. (May 2014)



Photo 15. Buffer mitigation area, looking north from intersection of SE 63rd St. and Lakemont Blvd SE (May 2014)



Photo 16. Buffer mitigation area looking NE from intersection of SE 63rd St. and Lakemont Blvd SE (May 2014)

APPENDIX A: WETLAND DEFINITION

WETLAND DEFINITION

Wetlands are formally defined by the U.S. Army Corps of Engineers (Corps) (Federal Register 1982), the Environmental Protection Agency (EPA) (Federal Register 1988), the Washington Shoreline Management Act (SMA) of 1971 and the Washington State Growth Management Act (GMA) as follows:

... those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas (Federal Register, 1982, 1986).

In addition, the SMA and the GMA definitions add:

Wetlands do not include those artificial wetlands intentionally created from non-wetland site, including, but not limited to, irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities, or those wetlands created after July 1, 1990 that were unintentionally created as a result of the construction of a road, street, or highway. Wetlands may include those artificially created wetlands intentionally created from non-wetland areas to mitigate the conversion of wetlands.

Methods defined in the *Washington State Wetlands Identification and Delineation Manual* (Ecology, 1997) were used to determine the presence and extent of wetlands on the subject property. Washington state and all local governments must use the state delineation manual to implement the Shoreline Management Act and/or the local regulations adopted pursuant to the Growth Management Act.

The Washington state manual is consistent with the *U.S. Army Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory, 1987). The Corps has been working with states, federal agencies, and others to develop supplemental regional criteria to refine the 1987 delineation manual. Two regions fall within the state of Washington: The Arid West (dry lands west of the Continental Divide, from Idaho and eastern Washington south to the U.S. - Mexico border) and the Western Mountains, Valleys, and Coast. Regional Supplements to the Corps of Engineers 1987 Wetlands Delineation Manual have been completed by the Corps for both regions in Washington, and the appropriate supplement is now used, along with the Washington State Delineation Manual, when conducting delineations in those regions (Corps, 2008, 2010).

The methodology outlined in the manuals is based upon three essential characteristics of wetlands: (1) hydrophytic vegetation; (2) hydric soils; and (3) wetland hydrology. Field indicators of these three characteristics must all be present in order to determine that an area is a wetland (unless problem areas or atypical situations are encountered). These characteristics are discussed below.

Vegetation

Plants must be specially adapted for life under saturated or anaerobic conditions to grow in wetlands. The U.S. Fish and Wildlife Service (USFWS) has determined the estimated probability of each plant species' occurrence in wetlands and has accordingly assigned a "wetland indicator status" (WIS) to each species (USFWS, 1988, 2013). Plants are categorized as obligate (OBL), facultative wetland (FACW), facultative (FAC), facultative upland (FACU), upland (UPL), not listed (NL), or no indicator status (NI). Definitions for each indicator status are listed below. Species with an indicator status of OBL, FACW, or FAC are considered adapted for life in saturated or anaerobic soil conditions. Such species are referred to as "hydrophytic" vegetation.

Key to Wetland Indicator Status codes – Northwest Region (Source: USFWS, 1988, 1993):

- OBL Obligate: species that almost always occur wetlands under natural conditions (est. probability >99%).
- FACW Facultative wetland : species that usually occur in wetlands (est. probability 67 to 99%), but are occasionally found in non-wetlands.
- FAC Facultative: Species that are equally likely to occur in wetlands or non-wetlands (est. probability 34 to 66%).
- FACU Facultative upland: species that usually occur in non-wetlands (est. probability 67 to 99%), but are occasionally found in wetlands.
- UPL Upland: species that almost always occur in non-wetlands under normal conditions (est. probability >99%).
- NL Not listed: species that are not listed by USFWS (1988, 1993) and are presumed to be upland species.
- NI No indicator: species for which insufficient information is available to determine status, or which were not evaluated by USFWS.

Areas of relatively homogeneous vegetative composition can be characterized by "dominant" species. The indicator status of the dominant species within each vegetative stratum is used to determine if the plant community may be characterized as hydrophytic. The vegetation of an area is considered to be hydrophytic if more than 50% of the dominant species have an indicator status of OBL, FACW, or FAC. The Regional Supplements provide additional tests for evaluating the presence of hydrophytic vegetation communities including the prevalence index, morphological adaptations, and wetland non-vascular plants. The Supplements also address difficult situations where hydrophytic vegetation indicators are not present but hydric soils and wetland hydrology are observed.

Soils

Hydric soils are indicative of wetlands. Hydric soils are defined as soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part of the soil profile (Federal Register, 1994). The Natural Resources Conservation Service (NRCS), in cooperation with the National Technical Committee for Hydric Soils, has compiled lists of hydric soils (NRCS, 1995). These lists identify soil series mapped by the NRCS that meet hydric soil criteria. It is common, however,

for a map unit of non-wetland (non-hydric) soil to have inclusions of hydric soil, and vice versa. Therefore, field examination of soil conditions is important to determine if hydric soil conditions exist.

The NRCS has developed a guide for identifying field indicators of hydric soils (NRCS, 2010). This list of hydric soil indicators is considered to be dynamic; revisions are anticipated to occur on a regular basis as a result of ongoing studies of hydric soils. In general, anaerobic conditions create certain characteristics in hydric soils, collectively known as “redoximorphic features,” that can be observed in the field (Vepraskas, 1999). Redoximorphic features include high organic content, accumulation of sulfidic material (rotten egg odor), greenish- or bluish-gray color (gley formation), spots or blotches of different color interspersed with the dominant or matrix color (mottling), and dark soil colors (low soil chroma) (NRCS, 2010; Vepraskas, 1999). Soil colors are described both by common color name (for example, “dark brown”) and by a numerical description of their hue, value, and chroma (for example, 10YR 2/2) as identified on a Munsell soil color chart (Munsell Color, 2000). Soil color is determined from a moist soil sample.

The Regional Supplements provide methods for difficult situations where hydric soil indicators are not observed, but indicators of hydrophytic vegetation and wetland hydrology are present.

Hydrology

Water must be present in order for wetlands to exist; however, it need not be present throughout the entire year. Wetland hydrology is considered to be present when there is permanent or periodic inundation or soil saturation at or near the soil surface for more than 12.5% of the growing season (typically two weeks in lowland Pacific Northwest areas). Areas that are inundated or saturated for between 5% and 12.5% of the growing season in most years may or may not be wetlands. Areas inundated or saturated for less than 5% of the growing season are non-wetlands (Ecology, 1997).

Indicators of wetland hydrology include observation of ponding or soil saturation, water marks, drift lines, drainage patterns, sediment deposits, oxidized rhizospheres, water-stained leaves, and local soil survey data. Where positive indicators of wetland hydrology are observed, it is assumed that wetland hydrology occurs for a sufficient period of the growing season to meet the wetland criteria, as described by Ecology (1997). The Regional Supplements provide methods for evaluating situations in wetlands that periodically lack indicators of wetland hydrology but where hydric soils and hydrophytic vegetation are present.

**APPENDIX B:
COMMON AND SCIENTIFIC NAMES OF PLANTS AND THEIR
WETLAND INDICATOR STATUS**

**PLANT SPECIES LIST FOR THE LAKEMONT/COUGAR MOUNTAIN INTERSECTION PROJECT,
IDENTIFIED IN MAY 2013**

COMMON NAME	SCIENTIFIC NAME	WETLAND INDICATOR STATUS*
Trees		
big-leaf maple	<i>Acer macrophyllum</i>	FACU
Cherry	<i>Prunus sp.</i>	FACU
black cottonwood	<i>Populus trichocarpa (Populus balsamifera ssp. trichocarpa)</i>	FAC
Douglas fir	<i>Pseudotsuga menziesii</i>	FACU
Red alder	<i>Alnus rubra</i>	FAC
western red cedar	<i>Thuja plicata</i>	FAC
Shrubs		
black twin-berry	<i>Lonicera involucrata</i>	FAC
common snowberry	<i>Symphoricarpos albus</i>	FACU
creambush oceanspray	<i>Holodiscus discolor</i>	FACU
devil's club	<i>Oplopanax horridum (Oplopanax horridus)</i>	FAC
evergreen blackberry	<i>Rubus laciniatus</i>	FACU
Himalayan blackberry	<i>Rubus discolor (Rubus armenicus)</i>	FACU
Indian plum (osoberry)	<i>Oemleria cerasiformis</i>	FACU
Pacific willow	<i>Salix lasiandra (Salix lucida ssp. lasiandra)</i>	FACW
red elderberry	<i>Sambucus racemosa</i>	FACU
red huckleberry (red bilberry)	<i>Vaccinium parvifolium</i>	NL
red-osier dogwood (western red osier)	<i>Cornus stolonifera (Cornus sericea)</i>	FACW
salal	<i>Gaultheria shallon</i>	FACU
salmonberry	<i>Rubus spectabilis</i>	FAC
Sitka willow	<i>Salix sitchensis</i>	FACW
thimbleberry	<i>Rubus parviflorus</i>	FAC
vine maple	<i>Acer circinatum</i>	FAC
Herbs		
annual bluegrass	<i>Poa annua</i>	FAC
bracken fern	<i>Pteridium aquilinum</i>	FACU
Canadian thistle	<i>Cirsium arvense</i>	FACU
colonial bentgrass	<i>Agrostis tenuis (Agrostis capillaris)</i>	FAC

COMMON NAME	SCIENTIFIC NAME	WETLAND INDICATOR STATUS*
common cattail	<i>Typha latifolia</i>	OBL
common dandelion	<i>Taraxacum officinale</i>	FACU
common plantain	<i>Plantago major</i>	FACU
common velvetgrass	<i>Holcus lanatus</i>	FAC
creeping buttercup	<i>Ranunculus repens</i>	FACW
English ivy	<i>Hedera helix</i>	NL
English plantain	<i>Plantago lanceolata</i>	FAC
false lily-of-the-valley	<i>Maianthemum dilatatum</i>	FAC
giant horsetail	<i>Equisetum telmateia</i>	FACW
hairy cats-ear	<i>Hypochaeris radicata</i>	FACU
herb Robert	<i>Geranium robertanum</i>	NL
lady fern	<i>Athyrium filix-femina</i>	FAC
little western bittercress	<i>Cardamine oligosperma</i>	FAC
Pacific blackberry (dewberry)	<i>Rubus ursinus</i>	FACU
Pacific bleedingheart	<i>Dicentra formosa</i>	FACU
pig-a-back-plant	<i>Tolmiea menziesii</i>	FAC
red fescue	<i>Festuca rubra</i>	FAC
reed canarygrass	<i>Phalaris arundinacea</i>	FACW
skunk cabbage	<i>Lysichitum americanum</i> (<i>Lysichiton americanus</i>)	OBL
soft rush	<i>Juncus effusus</i>	FACW
stinging nettle	<i>Urtica dioica</i>	FAC
sword fern	<i>Polystichum munitum</i>	FACU

*Key to Wetland Indicator Status codes – Northwest Region (Source: USFWS, 1988, 2013):

- OBL Obligate: species that almost always occur wetlands under natural conditions (est. probability >99%).
- FACW Facultative wetland: species that usually occur in wetlands (est. probability 67 to 99%), but are occasionally found in non-wetlands.
- FAC Facultative: Species that are equally likely to occur in wetlands or non-wetlands (est. probability 34 to 66%).
- FACU Facultative upland: species that usually occur in non-wetlands (est. probability 67 to 99%), but are occasionally found in wetlands.
- UPL Upland: species that almost always occur in non-wetlands under normal conditions (est. probability >99%).
- NL Not listed: species that are not listed by USFWS (1988, 1993) and are presumed to be upland species.
- NI No indicator: species for which insufficient information is available to determine status, or which were not evaluated by USFWS.

APPENDIX C: WASHINGTON STATE WETLAND RATING SYSTEM AND RATING FORMS

Washington State Wetland Rating System

The observed wetlands were rated using the Washington State Department of Ecology's *Wetland Rating System for Western Washington* (Hruby, 2004). This system was developed by Ecology to differentiate wetlands based on their sensitivity to disturbance, their significance, their rarity, our ability to replace them, and the beneficial functions they provide to society. Wetlands are categorized using the Ecology rating system according to the following criteria:

Category I wetlands represent a unique or rare wetland type; or are more sensitive to disturbance; or are relatively undisturbed and contain ecological attributes that are impossible to replace within a human lifetime.

Category II wetlands are difficult, though not impossible, to replace, and provide high levels of some functions.

Category III wetlands have a moderate level of function. They have been disturbed in some ways, and are often less diverse or more isolated from other natural resources in the landscape than Category II wetlands.

Category IV wetlands have the lowest levels of functions and are often heavily disturbed.

Wetland name or number _____

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Wetland B

Date of site visit: May 10, 2013

Rated by: S Noland Trained by Ecology? Yes No

Date of training: 2006

SEC: 23 TOWNSHP: 24N RNGE: 5E

Is S/T/R in Appendix D? Yes No

Map of wetland unit: Figure 2 Estimated size _____

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I II III IV

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

Score for Water Quality Functions

10

Score for Hydrologic Functions

6

Score for Habitat Functions

15

TOTAL Score for Functions

31

Category based on SPECIAL CHARACTERISTICS of Wetland I II Does not apply

Final Category (choose the “highest” category from above”)

III

Summary of basic information about the wetland unit.

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine	<input type="checkbox"/>	Depressional	<input type="checkbox"/>
Natural Heritage Wetland	<input type="checkbox"/>	Riverine	<input type="checkbox"/>
Bog	<input type="checkbox"/>	Lake-fringe	<input type="checkbox"/>
Mature Forest	<input type="checkbox"/>	Slope	<input checked="" type="checkbox"/>
Old Growth Forest	<input type="checkbox"/>	Flats	<input type="checkbox"/>
Coastal Lagoon	<input type="checkbox"/>	Freshwater Tidal	<input type="checkbox"/>
Interdunal	<input type="checkbox"/>		<input type="checkbox"/>
None of the above	<input checked="" type="checkbox"/>	Check if unit has multiple HGM classes present	<input type="checkbox"/>

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

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

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

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

S Slope Wetlands		Points
WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.		(only 1 score per box) (see p.64)
S 1	Does the wetland have the <u>potential</u> to improve water quality?	
S 1.1	Characteristics of average slope of unit: <ul style="list-style-type: none"> Slope is 1% or less (a 1% slope has a 1 ft. vertical drop in elevation for every 100 ft. horizontal distance).... points = 3 <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 <input type="checkbox"/> 	1
S 1.2	The soil 2 inches below the surface (or duff layer) is clay, organic (Use NRCS definitions). <input checked="" type="checkbox"/> YES = 3 points <input type="checkbox"/> NO = 0 points	3
S 1.3	Characteristics of the vegetation in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the vegetation in the wetland. Dense vegetation means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches. <ul style="list-style-type: none"> Dense, uncut, herbaceous vegetation > 90% of the wetland area..... points = 6 <input type="checkbox"/> Dense, uncut, herbaceous vegetation > 1/2 of area points = 3 <input type="checkbox"/> Dense, woody, vegetation > 1/2 of area..... points = 2 <input type="checkbox"/> Dense, uncut, herbaceous vegetation > 1/4 of area points = 1 <input checked="" type="checkbox"/> Does not meet any of the criteria above for vegetation points = 0 <input type="checkbox"/> 	Figure <input type="checkbox"/> 1
Aerial photo or map with vegetation polygons		
Total for S 1 Add the points in the boxes above		5
S 2	Does the wetland have the <u>opportunity</u> to improve water quality? Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity. <input type="checkbox"/> Grazing in the wetland or within 150 ft <input type="checkbox"/> Untreated stormwater discharges to wetland <input checked="" type="checkbox"/> Tilled fields, logging, or orchards within 150 ft. of wetland <input type="checkbox"/> Residential, urban areas, or golf courses are within 150 ft. upslope of wetland <input type="checkbox"/> Other <input checked="" type="checkbox"/> YES multiplier is 2 <input type="checkbox"/> NO multiplier is 1	(see p. 67) Multiplier 2
◆ TOTAL – Water Quality Functions Multiply the score from S1 by S2; then add score to table on p. 1		10
HYDROLOGIC FUNCTIONS – Indicators that wetland functions to reduce flooding and stream erosion.		
S 3	Does the wetland have the <u>potential</u> to reduce flooding and stream erosion?	(see p.68)
S 3.1	Characteristics of vegetation 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 > 1/8in), or dense enough to remain erect during surface flows). <ul style="list-style-type: none"> Dense, uncut, rigid vegetation covers > 90% of the area of the wetland points = 6 <input type="checkbox"/> Dense, uncut, rigid vegetation > 1/2 area of wetland points = 3 <input type="checkbox"/> Dense, uncut, rigid vegetation > 1/4 area..... points = 1 <input checked="" type="checkbox"/> More than 1/4 of area is grazed, mowed, tilled, or vegetation is not rigid points = 0 <input type="checkbox"/> 	1
S 3.2	Characteristics of slope wetland that holds back small amounts of flood flows. The slope has small surface depressions that can retain water over at least 10% of its area. <input checked="" type="checkbox"/> YES = 2 points <input type="checkbox"/> NO = 0 points	2
Add the points in the boxes above		3
S 4	Does the wetland have the <u>opportunity</u> to reduce flooding and erosion? Is the wetland in a landscape position where the reduction in water velocity it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows? Note which of the following conditions apply. <input checked="" type="checkbox"/> Wetland has surface runoff that drains to a river or stream that has flooding problems <input type="checkbox"/> Other (Answer NO if the major source of water is controlled by a reservoir (e.g. wetland is a seep that is on the downstream side of a dam) <input checked="" type="checkbox"/> YES multiplier is 2 <input type="checkbox"/> NO multiplier is 1	(see p. 70) Multiplier 2
◆ TOTAL – Hydrologic Functions Multiply the score from S3 by S4; then add score to table on p. 1		6

Comments: _____

H 2	Does the wetland have the <u>opportunity</u> to provide habitat for many species?	(only 1 score per box)
	<p>H 2.1 Buffers (see P. 80): <i>Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".</i></p> <p><input type="checkbox"/> 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use)..... points = 5</p> <p><input type="checkbox"/> 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference points = 4</p> <p><input type="checkbox"/> 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference points = 4</p> <p><input type="checkbox"/> 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference points = 3</p> <p><input type="checkbox"/> 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference points = 3</p> <p>If buffer does not meet any of the criteria above:</p> <p><input type="checkbox"/> No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK points = 2</p> <p><input type="checkbox"/> No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK points = 2</p> <p><input type="checkbox"/> Heavy grazing in buffer points = 1</p> <p><input type="checkbox"/> Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland) points = 0</p> <p><input checked="" type="checkbox"/> Buffer does not meet any of the criteria above points = 1</p> <p style="text-align: right;">Arial photo showing buffers</p>	<p>Figure <input type="checkbox"/></p> <p style="text-align: right;">1</p>
	<p>H 2.2 Corridors and Connections (see p. 81)</p> <p>H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (<i>Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor.</i>)</p> <p style="text-align: center;"><input type="checkbox"/> YES = 4 points (go to H 2.3) <input checked="" type="checkbox"/> NO = go to H 2.2.2</p> <p>H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? OR a Lake-fringe wetland, if it does not have an undisturbed corridor as in the question above?</p> <p style="text-align: center;"><input type="checkbox"/> YES = 2 points (go to H 2.3) <input checked="" type="checkbox"/> NO = go to H 2.2.3</p> <p>H. 2.2.3 Is the wetland:</p> <ul style="list-style-type: none"> • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR • Within 1 mile of a lake greater than 20 acres? <p style="text-align: right;"><input checked="" type="checkbox"/> YES = 1 point <input type="checkbox"/> NO = 0 points</p>	<p style="text-align: right;">1</p>

Comments: _____

	<p>H 2.3 <u>Near or adjacent to other priority habitats listed by WDFW</u> (see p. 82): (see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)</p> <p>Which of the following priority habitats are within 330 ft. (100m) of the wetland unit? <i>NOTE: the connections do not have to be relatively undisturbed.</i></p> <p><input type="checkbox"/> Aspen Stands: Pure or mixed stands of aspen greater than 0.4 ha (1 acre).</p> <p><input type="checkbox"/> 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 p. 152).</p> <p><input type="checkbox"/> Herbaceous Balds: Variable size patches of grass and forbs on shallow soils over bedrock.</p> <p><input type="checkbox"/> Old-growth/Mature forests: (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less 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.</p> <p><input type="checkbox"/> Oregon white Oak: Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (full descriptions in WDFW PHS report p. 158).</p> <p><input checked="" type="checkbox"/> Riparian: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.</p> <p><input type="checkbox"/> 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).</p> <p><input checked="" type="checkbox"/> 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.</p> <p><input type="checkbox"/> Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).</p> <p><input type="checkbox"/> 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.</p> <p><input type="checkbox"/> Cliffs: Greater than 7.6 m (25 ft) high and occurring below 5000 ft.</p> <p><input type="checkbox"/> Talus: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.</p> <p><input checked="" type="checkbox"/> Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.</p> <p style="text-align: right;">If wetland has 3 or more priority habitats = 4 points If wetland has 2 priority habitats = 3 points If wetland has 1 priority habitat = 1 point No habitats = 0 points</p> <p>Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)</p>	4
	<p>H 2.4 <u>Wetland Landscape:</u> Choose the one description of the landscape around the wetland that best fits (see p. 84)</p> <ul style="list-style-type: none"> • There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development.... points = 5 <input type="checkbox"/> • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile points = 5 <input type="checkbox"/> • There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed. points = 3 <input checked="" type="checkbox"/> • The wetland fringe on a lake with disturbance and there are 3 other lake-fringe wetlands within 1/2 mile points = 3 <input type="checkbox"/> • There is at least 1 wetland within 1/2 mile points = 2 <input type="checkbox"/> • There are no wetlands within 1/2 mile..... points = 0 <input type="checkbox"/> 	3
	<p>H 2 TOTAL Score – opportunity for providing habitat <i>Add the scores from H2.1, H2.2, H2.3, H2.4</i></p>	9
	<p style="text-align: right;"><i>TOTAL for H 1 from page 8</i></p>	6
◆	<p>Total Score for Habitat Functions Add the points for H 1 and H 2; then record the result on p. 1</p>	<u>15</u>

Comments: _____

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

Wetland Type – Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.	
SC1	<p>Estuarine wetlands? (see p.86)</p> <p>Does the wetland unit meet the following criteria for Estuarine wetlands?</p> <p><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.</p> <p style="text-align: center;"><input type="checkbox"/> YES = Go to SC 1.1 <input checked="" type="checkbox"/> NO</p>
	<p>SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? <input type="checkbox"/> YES = Category I <input type="checkbox"/> NO = go to SC 1.2</p>
	<p>SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions?</p> <p style="text-align: center;"><input type="checkbox"/> YES = Category I <input type="checkbox"/> NO = Category II</p> <p><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 the non-native <i>Spartina</i> spp., are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of <i>Spartina</i> would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of <i>Spartina</i> in determining the size threshold of 1 acre.</p> <p><input type="checkbox"/> At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland</p> <p><input type="checkbox"/> The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.</p>
SC2	<p>Natural Heritage Wetlands (see p. 87)</p> <p>Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species.</p> <p>SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? (<i>This question is used to screen out most sites before you need to contact WNHP/DNR.</i>)</p> <p style="text-align: center;"><input type="checkbox"/> S/T/R information from Appendix D <input checked="" type="checkbox"/> or accessed from WNHP/DNR web site</p> <p style="text-align: center;"><input type="checkbox"/> YES Contact WNHP/DNR (see p. 79) and go to SC 2.2 <input checked="" type="checkbox"/> NO</p> <p>SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species?</p> <p style="text-align: center;"><input type="checkbox"/> YES = Category 1 <input checked="" type="checkbox"/> NO not a Heritage Wetland</p>
SC3	<p>Bogs (see p. 87)</p> <p>Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. <i>If you answer yes you will still need to rate the wetland based on its function.</i></p> <ol style="list-style-type: none"> Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? <input type="checkbox"/> YES = go to question 3 <input checked="" type="checkbox"/> NO = go to question 2 Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? <input type="checkbox"/> YES = go to question 3 <input checked="" type="checkbox"/> NO = is not a bog for purpose of rating Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the “bog” species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? <p style="text-align: center;"><input type="checkbox"/> YES = Is a bog for purpose of rating <input checked="" type="checkbox"/> NO = go to question 4</p> <p>NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16” deep. If the pH is less than 5.0 and the “bog” plant species in Table 3 are present, the wetland is a bog.</p> <ol style="list-style-type: none"> Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann’s spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover (> 30% coverage of the total shrub/herbaceous cover)? <p style="text-align: center;"><input type="checkbox"/> YES = Category I <input checked="" type="checkbox"/> NO = Is not a bog for purpose of rating</p>

<p>SC4</p>	<p>Forested Wetlands (see p. 90) Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? <i>If you answer yes you will still need to rate the wetland based on its function.</i> <input type="checkbox"/> Old-growth forests: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. <input type="checkbox"/> Mature forests: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. <input type="checkbox"/> YES = Category I <input checked="" type="checkbox"/> NO = not a forested wetland with special characteristics</p>	<p>Cat. I <input type="checkbox"/></p>
<p>SC5</p>	<p>Wetlands in Coastal Lagoons (see p. 91) Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? <input type="checkbox"/> The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. <input type="checkbox"/> The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom.</i>) <input type="checkbox"/> YES = Go to SC 5.1 <input checked="" type="checkbox"/> NO not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? <input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). <input type="checkbox"/> At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. <input type="checkbox"/> The wetland is larger than 1/10 acre (4350 square ft.) <input type="checkbox"/> YES = Category I <input type="checkbox"/> NO = Category II</p>	<p>Cat. I <input type="checkbox"/> Cat. II <input type="checkbox"/></p>
<p>SC6</p>	<p>Interdunal Wetlands (see p. 93) Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <input type="checkbox"/> YES = Go to SC 6.1 <input checked="" type="checkbox"/> NO not an interdunal wetland for rating <i>If you answer yes you will still need to rate the wetland based on its functions.</i> In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? <input type="checkbox"/> YES = Category II <input type="checkbox"/> NO = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? <input type="checkbox"/> YES = Category III</p>	<p>Cat. II <input type="checkbox"/> Cat. III <input type="checkbox"/></p>
<p>◆</p>	<p>Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1. If you answered NO for all types enter "Not Applicable" on p. 1</p>	<p>n/a</p>

Comments: _____

Wetland name or number _____

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Wetland C

Date of site visit: May 10, 2013

Rated by: S Noland Trained by Ecology? Yes No

Date of training: 2006

SEC: 23

TOWNSHP: 24N

RNGE: 5E

Is S/T/R in Appendix D? Yes No

Map of wetland unit: Figure 2 Estimated size _____

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I II III IV

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

Score for Water Quality Functions	24
Score for Hydrologic Functions	12
Score for Habitat Functions	24
TOTAL Score for Functions	60

Category based on SPECIAL CHARACTERISTICS of Wetland I II Does not apply

Final Category (choose the “highest” category from above”)

II

Summary of basic information about the wetland unit.

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine	<input type="checkbox"/>	Depressional	<input checked="" type="checkbox"/>
Natural Heritage Wetland	<input type="checkbox"/>	Riverine	<input checked="" type="checkbox"/>
Bog	<input type="checkbox"/>	Lake-fringe	<input type="checkbox"/>
Mature Forest	<input type="checkbox"/>	Slope	<input type="checkbox"/>
Old Growth Forest	<input type="checkbox"/>	Flats	<input type="checkbox"/>
Coastal Lagoon	<input type="checkbox"/>	Freshwater Tidal	<input type="checkbox"/>
Interdunal	<input type="checkbox"/>		<input type="checkbox"/>
None of the above	<input checked="" type="checkbox"/>	Check if unit has multiple HGM classes present	<input checked="" type="checkbox"/>

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

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

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

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

Classification of Vegetated Wetlands for Western Washington

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

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
 NO – go to 2 YES – the wetland class is **Tidal Fringe**
 If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
 YES – **Freshwater Tidal Fringe** NO – **Saltwater Tidal Fringe (Estuarine)**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland. Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term “Estuarine” wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).*

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
 NO – go to 3 YES – The wetland class is **Flats**
 If your wetland can be classified as a “Flats” wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland meet both of the following criteria?
 The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
 At least 30% of the open water area is deeper than 6.6 (2 m)?
 NO – go to 4 YES – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland meet all of the following criteria?
 The wetland is on a slope (*slope can be very gradual*).
 The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
 The water leaves the wetland **without being impounded**?
 NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
 NO – go to 5 YES – The wetland class is **Slope**

5. Does the entire wetland meet all of the following criteria?
 The unit is in a valley or stream channel where it gets inundated by overbank flooding from that stream or river.
 The overbank flooding occurs at least once every two years.
 NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
 NO – go to 6 YES – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present is higher than the interior of the wetland.
 NO – go to 7 YES – The wetland class is **Depressional**

7. Is the entire wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
 No – go to 8 YES – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	HGM Class to Use in Rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

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

D 4	<p>Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?</p> <p>Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. <i>Note which of the following indicators of opportunity apply.</i></p> <p><input type="checkbox"/> Wetland is in a headwater of a river or stream that has flooding problems. <input checked="" type="checkbox"/> Wetland drains to a river or stream that has flooding problems <input type="checkbox"/> Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems <input checked="" type="checkbox"/> Other <u>urbanized area</u></p> <p><input checked="" type="checkbox"/> YES multiplier is 2 <input type="checkbox"/> NO multiplier is 1</p>	<p>(see p. 49)</p> <p>Multiplier</p> <p>2</p>
◆	<p>TOTAL – Hydrologic Functions Multiply the score from D3 by D4; then <i>add score to table on p. 1</i></p>	<p><u>12</u></p>

Comments: _____

H 2	Does the wetland have the <u>opportunity</u> to provide habitat for many species?	(only 1 score per box)
	<p>H 2.1 Buffers (see P. 80): <i>Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".</i></p> <p><input type="checkbox"/> 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use)..... points = 5</p> <p><input type="checkbox"/> 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference points = 4</p> <p><input type="checkbox"/> 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference points = 4</p> <p><input type="checkbox"/> 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference points = 3</p> <p><input checked="" type="checkbox"/> 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference points = 3</p> <p>If buffer does not meet any of the criteria above:</p> <p><input type="checkbox"/> No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK points = 2</p> <p><input type="checkbox"/> No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK points = 2</p> <p><input type="checkbox"/> Heavy grazing in buffer points = 1</p> <p><input type="checkbox"/> Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland) points = 0</p> <p><input type="checkbox"/> Buffer does not meet any of the criteria above points = 1</p> <p style="text-align: right;">Arial photo showing buffers</p>	<p>Figure <input type="checkbox"/></p> <p style="text-align: right;">3</p>
	<p>H 2.2 Corridors and Connections (see p. 81)</p> <p>H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (<i>Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor.</i>)</p> <p style="text-align: center;"><input type="checkbox"/> YES = 4 points (go to H 2.3) <input checked="" type="checkbox"/> NO = go to H 2.2.2</p> <p>H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? OR a Lake-fringe wetland, if it does not have an undisturbed corridor as in the question above?</p> <p style="text-align: center;"><input type="checkbox"/> YES = 2 points (go to H 2.3) <input checked="" type="checkbox"/> NO = go to H 2.2.3</p> <p>H. 2.2.3 Is the wetland:</p> <ul style="list-style-type: none"> • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR • Within 1 mile of a lake greater than 20 acres? <p style="text-align: right;"><input checked="" type="checkbox"/> YES = 1 point <input type="checkbox"/> NO = 0 points</p>	<p style="text-align: right;">1</p>

Comments: _____

	<p>H 2.3 <u>Near or adjacent to other priority habitats listed by WDFW</u> (see p. 82): (see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)</p> <p>Which of the following priority habitats are within 330 ft. (100m) of the wetland unit? <i>NOTE: the connections do not have to be relatively undisturbed.</i></p> <p><input type="checkbox"/> Aspen Stands: Pure or mixed stands of aspen greater than 0.4 ha (1 acre).</p> <p><input type="checkbox"/> 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 p. 152).</p> <p><input type="checkbox"/> Herbaceous Balds: Variable size patches of grass and forbs on shallow soils over bedrock.</p> <p><input type="checkbox"/> Old-growth/Mature forests: (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less 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.</p> <p><input type="checkbox"/> Oregon white Oak: Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (full descriptions in WDFW PHS report p. 158).</p> <p><input checked="" type="checkbox"/> Riparian: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.</p> <p><input type="checkbox"/> 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).</p> <p><input checked="" type="checkbox"/> 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.</p> <p><input type="checkbox"/> Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).</p> <p><input type="checkbox"/> 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.</p> <p><input type="checkbox"/> Cliffs: Greater than 7.6 m (25 ft) high and occurring below 5000 ft.</p> <p><input type="checkbox"/> Talus: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.</p> <p><input checked="" type="checkbox"/> Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.</p> <p style="text-align: right;">If wetland has 3 or more priority habitats = 4 points If wetland has 2 priority habitats = 3 points If wetland has 1 priority habitat = 1 point No habitats = 0 points</p> <p>Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)</p>	4
	<p>H 2.4 <u>Wetland Landscape:</u> Choose the one description of the landscape around the wetland that best fits (see p. 84)</p> <ul style="list-style-type: none"> • There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development.... points = 5 <input type="checkbox"/> • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile points = 5 <input type="checkbox"/> • There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed. points = 3 <input checked="" type="checkbox"/> • The wetland fringe on a lake with disturbance and there are 3 other lake-fringe wetlands within 1/2 mile points = 3 <input type="checkbox"/> • There is at least 1 wetland within 1/2 mile points = 2 <input type="checkbox"/> • There are no wetlands within 1/2 mile..... points = 0 <input type="checkbox"/> 	3
<p>H 2 TOTAL Score – opportunity for providing habitat Add the scores from H2.1, H2.2, H2.3, H2.4</p>		11
		13
<p>◆ Total Score for Habitat Functions Add the points for H 1 and H 2; then record the result on p. 1</p>		24

Comments: _____

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

Wetland Type – Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.	
SC1	<p>Estuarine wetlands? (see p.86)</p> <p>Does the wetland unit meet the following criteria for Estuarine wetlands?</p> <p><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.</p> <p style="text-align: center;"><input type="checkbox"/> YES = Go to SC 1.1 <input checked="" type="checkbox"/> NO</p>
	<p>SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? <input type="checkbox"/> YES = Category I <input type="checkbox"/> NO = go to SC 1.2</p>
	<p>SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions?</p> <p style="text-align: center;"><input type="checkbox"/> YES = Category I <input type="checkbox"/> NO = Category II</p> <p><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 the non-native <i>Spartina</i> spp., are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of <i>Spartina</i> would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of <i>Spartina</i> in determining the size threshold of 1 acre.</p> <p><input type="checkbox"/> At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland</p> <p><input type="checkbox"/> The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.</p>
SC2	<p>Natural Heritage Wetlands (see p. 87)</p> <p>Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species.</p> <p>SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? (<i>This question is used to screen out most sites before you need to contact WNHP/DNR.</i>)</p> <p style="text-align: center;"><input type="checkbox"/> S/T/R information from Appendix D <input checked="" type="checkbox"/> or accessed from WNHP/DNR web site</p> <p style="text-align: center;"><input type="checkbox"/> YES Contact WNHP/DNR (see p. 79) and go to SC 2.2 <input checked="" type="checkbox"/> NO</p> <p>SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species?</p> <p style="text-align: center;"><input type="checkbox"/> YES = Category 1 <input checked="" type="checkbox"/> NO not a Heritage Wetland</p>
SC3	<p>Bogs (see p. 87)</p> <p>Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. <i>If you answer yes you will still need to rate the wetland based on its function.</i></p> <p>1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? <input type="checkbox"/> YES = go to question 3 <input checked="" type="checkbox"/> NO = go to question 2</p> <p>2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? <input type="checkbox"/> YES = go to question 3 <input checked="" type="checkbox"/> NO = is not a bog for purpose of rating</p> <p>3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the “bog” species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)?</p> <p style="text-align: center;"><input type="checkbox"/> YES = Is a bog for purpose of rating <input checked="" type="checkbox"/> NO = go to question 4</p> <p>NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16” deep. If the pH is less than 5.0 and the “bog” plant species in Table 3 are present, the wetland is a bog.</p> <p>4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann’s spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover (> 30% coverage of the total shrub/herbaceous cover)?</p> <p style="text-align: center;"><input type="checkbox"/> YES = Category I <input checked="" type="checkbox"/> NO = Is not a bog for purpose of rating</p>

<p>SC4</p>	<p>Forested Wetlands (see p. 90) Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? <i>If you answer yes you will still need to rate the wetland based on its function.</i> <input type="checkbox"/> Old-growth forests: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. <input type="checkbox"/> Mature forests: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. <input type="checkbox"/> YES = Category I <input checked="" type="checkbox"/> NO = not a forested wetland with special characteristics</p>	<p>Cat. I <input type="checkbox"/></p>
<p>SC5</p>	<p>Wetlands in Coastal Lagoons (see p. 91) Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? <input type="checkbox"/> The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. <input type="checkbox"/> The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom.</i>) <input type="checkbox"/> YES = Go to SC 5.1 <input checked="" type="checkbox"/> NO not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? <input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). <input type="checkbox"/> At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. <input type="checkbox"/> The wetland is larger than 1/10 acre (4350 square ft.) <input type="checkbox"/> YES = Category I <input type="checkbox"/> NO = Category II</p>	<p>Cat. I <input type="checkbox"/> Cat. II <input type="checkbox"/></p>
<p>SC6</p>	<p>Interdunal Wetlands (see p. 93) Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <input type="checkbox"/> YES = Go to SC 6.1 <input checked="" type="checkbox"/> NO not an interdunal wetland for rating <i>If you answer yes you will still need to rate the wetland based on its functions.</i> In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? <input type="checkbox"/> YES = Category II <input type="checkbox"/> NO = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? <input type="checkbox"/> YES = Category III</p>	<p>Cat. II <input type="checkbox"/> Cat. III <input type="checkbox"/></p>
<p>◆</p>	<p>Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1. If you answered NO for all types enter "Not Applicable" on p. 1</p>	<p>n/a</p>

Comments: _____

Wetland name or number _____

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Wetland D

Date of site visit: May 10, 2013

Rated by: S Noland Trained by Ecology? Yes No

Date of training: 2006

SEC: 23 TOWNSHP: 24N RNGE: 5E

Is S/T/R in Appendix D? Yes No

Map of wetland unit: Figure 2 Estimated size _____

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I II III IV

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

Score for Water Quality Functions	24
Score for Hydrologic Functions	14
Score for Habitat Functions	19
TOTAL Score for Functions	57

Category based on SPECIAL CHARACTERISTICS of Wetland I II Does not apply

Final Category (choose the “highest” category from above”)

II

Summary of basic information about the wetland unit.

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine	<input type="checkbox"/>	Depressional	<input checked="" type="checkbox"/>
Natural Heritage Wetland	<input type="checkbox"/>	Riverine	<input type="checkbox"/>
Bog	<input type="checkbox"/>	Lake-fringe	<input type="checkbox"/>
Mature Forest	<input type="checkbox"/>	Slope	<input type="checkbox"/>
Old Growth Forest	<input type="checkbox"/>	Flats	<input type="checkbox"/>
Coastal Lagoon	<input type="checkbox"/>	Freshwater Tidal	<input type="checkbox"/>
Interdunal	<input type="checkbox"/>		<input type="checkbox"/>
None of the above	<input checked="" type="checkbox"/>	Check if unit has multiple HGM classes present	<input type="checkbox"/>

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

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

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

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

Classification of Vegetated Wetlands for Western Washington

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

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
 NO – go to 2 YES – the wetland class is **Tidal Fringe**
 If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
 YES – **Freshwater Tidal Fringe** NO – **Saltwater Tidal Fringe (Estuarine)**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland. Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term “Estuarine” wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).*

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
 NO – go to 3 YES – The wetland class is **Flats**
 If your wetland can be classified as a “Flats” wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland meet both of the following criteria?
 The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
 At least 30% of the open water area is deeper than 6.6 (2 m)?
 NO – go to 4 YES – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland meet all of the following criteria?
 The wetland is on a slope (*slope can be very gradual*).
 The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
 The water leaves the wetland **without being impounded**?
 NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
 NO – go to 5 YES – The wetland class is **Slope**

5. Does the entire wetland meet all of the following criteria?
 The unit is in a valley or stream channel where it gets inundated by overbank flooding from that stream or river.
 The overbank flooding occurs at least once every two years.
 NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
 NO – go to 6 YES – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present is higher than the interior of the wetland.
 NO – go to 7 YES – The wetland class is **Depressional**

7. Is the entire wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
 No – go to 8 YES – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	HGM Class to Use in Rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

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

D 4	<p>Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?</p> <p>Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. <i>Note which of the following indicators of opportunity apply.</i></p> <p><input type="checkbox"/> Wetland is in a headwater of a river or stream that has flooding problems.</p> <p><input checked="" type="checkbox"/> Wetland drains to a river or stream that has flooding problems</p> <p><input type="checkbox"/> Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems</p> <p><input checked="" type="checkbox"/> Other <u>urbanized area</u></p> <p><input checked="" type="checkbox"/> YES multiplier is 2 <input type="checkbox"/> NO multiplier is 1</p>	<p>(see p. 49)</p> <p>Multiplier</p> <p>2</p>
◆	<p>TOTAL – Hydrologic Functions Multiply the score from D3 by D4; then <i>add score to table on p. 1</i></p>	<p><u>14</u></p>

Comments: _____

<i>These questions apply to wetlands of all HGM classes.</i>		Points (only 1 score per box)												
HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.														
H 1	Does the wetland have the <u>potential</u> to provide habitat for many species?	Figure <input type="checkbox"/>												
	H 1.1 <u>Vegetation structure</u> (see P. 72): Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres. <input type="checkbox"/> Aquatic Bed <input type="checkbox"/> Emergent plants <input type="checkbox"/> Scrub/shrub (areas where shrubs have > 30% cover) <input checked="" type="checkbox"/> Forested (areas where trees have > 30% cover) If the unit has a forested class check if: <input checked="" type="checkbox"/> 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. Add the number of vegetation types that qualify. If you have: <table style="float: right; margin-left: 20px;"> <tr> <td>Map of Cowardin vegetation classes</td> <td></td> </tr> <tr> <td>4 structures or more..... points = 4</td> <td><input type="checkbox"/></td> </tr> <tr> <td>3 structures..... points = 2</td> <td><input type="checkbox"/></td> </tr> <tr> <td>2 structures..... points = 1</td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>1 structure..... points = 0</td> <td><input type="checkbox"/></td> </tr> </table>	Map of Cowardin vegetation classes		4 structures or more..... points = 4	<input type="checkbox"/>	3 structures..... points = 2	<input type="checkbox"/>	2 structures..... points = 1	<input checked="" type="checkbox"/>	1 structure..... points = 0	<input type="checkbox"/>	1		
Map of Cowardin vegetation classes														
4 structures or more..... points = 4	<input type="checkbox"/>													
3 structures..... points = 2	<input type="checkbox"/>													
2 structures..... points = 1	<input checked="" type="checkbox"/>													
1 structure..... points = 0	<input type="checkbox"/>													
	H 1.2 <u>Hydroperiods</u> (see p.73): Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods). <input type="checkbox"/> Permanently flooded or inundated <input checked="" type="checkbox"/> Seasonally flooded or inundated <input checked="" type="checkbox"/> Occasionally flooded or inundated <input checked="" type="checkbox"/> Saturated only <input checked="" type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland <input checked="" type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland <input type="checkbox"/> Lake-fringe wetland..... = 2 points <input type="checkbox"/> Freshwater tidal wetland..... = 2 points <table style="float: right; margin-left: 20px;"> <tr> <td>4 or more types present</td> <td>points = 3</td> <td><input type="checkbox"/></td> </tr> <tr> <td>3 or more types present</td> <td>points = 2</td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>2 types present</td> <td>points = 1</td> <td><input type="checkbox"/></td> </tr> <tr> <td>1 type present</td> <td>points = 0</td> <td><input type="checkbox"/></td> </tr> </table> <p style="text-align: right;">Map of hydroperiods</p>	4 or more types present	points = 3	<input type="checkbox"/>	3 or more types present	points = 2	<input checked="" type="checkbox"/>	2 types present	points = 1	<input type="checkbox"/>	1 type present	points = 0	<input type="checkbox"/>	2
4 or more types present	points = 3	<input type="checkbox"/>												
3 or more types present	points = 2	<input checked="" type="checkbox"/>												
2 types present	points = 1	<input type="checkbox"/>												
1 type present	points = 0	<input type="checkbox"/>												
	H 1.3 <u>Richness of Plant Species</u> (see p. 75): Count the number of plant species in the wetland that cover at least 10 ft ² (different patches of the same species can be combined to meet the size threshold) You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle. If you counted: <table style="float: right; margin-left: 20px;"> <tr> <td>> 19 species..... points = 2</td> <td><input type="checkbox"/></td> </tr> <tr> <td>5 – 19 species..... points = 1</td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>< 5 species..... points = 0</td> <td><input type="checkbox"/></td> </tr> </table> List species below if you want to:	> 19 species..... points = 2	<input type="checkbox"/>	5 – 19 species..... points = 1	<input checked="" type="checkbox"/>	< 5 species..... points = 0	<input type="checkbox"/>	1						
> 19 species..... points = 2	<input type="checkbox"/>													
5 – 19 species..... points = 1	<input checked="" type="checkbox"/>													
< 5 species..... points = 0	<input type="checkbox"/>													
	H 1.4 <u>Interspersion of Habitats</u> (see p. 76): Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none. <div style="text-align: center; margin: 10px 0;"> <p>None = 0 points Low = 1 point Moderate = 2 points</p> <p>High = 3 points [riparian braided channels]</p> </div> <p>Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always “high”. Use map of Cowardin classes.</p>	Figure <input type="checkbox"/>												
	H 1.5 <u>Special Habitat Features</u> (see p. 77): Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column. <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long) <input type="checkbox"/> Standing snags (diameter at the bottom > 4 inches) in the wetland <input checked="" type="checkbox"/> Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m) <input 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 (cut shrubs or trees that have not yet turned grey/brown) <input type="checkbox"/> At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated (structures for egg-laying by amphibians) <input checked="" type="checkbox"/> Invasive plants cover less than 25% of the wetland area in each stratum of plants <p><i>NOTE: The 20% stated in early printings of the manual on page 78 is an error.</i></p>	3												
H 1 TOTAL Score – potential for providing habitat		Add the points in the column above 7												

H 2	Does the wetland have the <u>opportunity</u> to provide habitat for many species?	(only 1 score per box)
	<p>H 2.1 Buffers (see P. 80): <i>Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".</i></p> <p><input type="checkbox"/> 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use)..... points = 5</p> <p><input checked="" type="checkbox"/> 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference points = 4</p> <p><input type="checkbox"/> 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference points = 4</p> <p><input type="checkbox"/> 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference points = 3</p> <p><input type="checkbox"/> 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference points = 3</p> <p>If buffer does not meet any of the criteria above:</p> <p><input type="checkbox"/> No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK points = 2</p> <p><input type="checkbox"/> No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK points = 2</p> <p><input type="checkbox"/> Heavy grazing in buffer points = 1</p> <p><input type="checkbox"/> Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland) points = 0</p> <p><input type="checkbox"/> Buffer does not meet any of the criteria above points = 1</p> <p style="text-align: right;">Arial photo showing buffers</p>	<p>Figure <input type="checkbox"/></p> <p style="text-align: right;">4</p>
	<p>H 2.2 Corridors and Connections (see p. 81)</p> <p>H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (<i>Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor.</i>)</p> <p style="padding-left: 40px;"><input type="checkbox"/> YES = 4 points (go to H 2.3) <input checked="" type="checkbox"/> NO = go to H 2.2.2</p> <p>H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? OR a Lake-fringe wetland, if it does not have an undisturbed corridor as in the question above?</p> <p style="padding-left: 40px;"><input type="checkbox"/> YES = 2 points (go to H 2.3) <input checked="" type="checkbox"/> NO = go to H 2.2.3</p> <p>H. 2.2.3 Is the wetland:</p> <ul style="list-style-type: none"> • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR • Within 1 mile of a lake greater than 20 acres? <p style="text-align: right; padding-right: 40px;"><input checked="" type="checkbox"/> YES = 1 point <input type="checkbox"/> NO = 0 points</p>	<p style="text-align: right;">1</p>

Comments: _____

	<p>H 2.3 <u>Near or adjacent to other priority habitats listed by WDFW</u> (see p. 82): (see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)</p> <p>Which of the following priority habitats are within 330 ft. (100m) of the wetland unit? <i>NOTE: the connections do not have to be relatively undisturbed.</i></p> <p><input type="checkbox"/> Aspen Stands: Pure or mixed stands of aspen greater than 0.4 ha (1 acre).</p> <p><input type="checkbox"/> 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 p. 152).</p> <p><input type="checkbox"/> Herbaceous Balds: Variable size patches of grass and forbs on shallow soils over bedrock.</p> <p><input type="checkbox"/> Old-growth/Mature forests: (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less 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.</p> <p><input type="checkbox"/> Oregon white Oak: Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (full descriptions in WDFW PHS report p. 158).</p> <p><input checked="" type="checkbox"/> Riparian: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.</p> <p><input type="checkbox"/> 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).</p> <p><input checked="" type="checkbox"/> 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.</p> <p><input type="checkbox"/> Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).</p> <p><input type="checkbox"/> 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.</p> <p><input type="checkbox"/> Cliffs: Greater than 7.6 m (25 ft) high and occurring below 5000 ft.</p> <p><input type="checkbox"/> Talus: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.</p> <p><input checked="" type="checkbox"/> Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.</p> <p style="text-align: right;">If wetland has 3 or more priority habitats = 4 points If wetland has 2 priority habitats = 3 points If wetland has 1 priority habitat = 1 point No habitats = 0 points</p> <p>Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)</p>	4
	<p>H 2.4 <u>Wetland Landscape:</u> Choose the one description of the landscape around the wetland that best fits (see p. 84)</p> <ul style="list-style-type: none"> • There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development.... points = 5 <input type="checkbox"/> • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile points = 5 <input type="checkbox"/> • There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed. points = 3 <input checked="" type="checkbox"/> • The wetland fringe on a lake with disturbance and there are 3 other lake-fringe wetlands within 1/2 mile points = 3 <input type="checkbox"/> • There is at least 1 wetland within 1/2 mile points = 2 <input type="checkbox"/> • There are no wetlands within 1/2 mile..... points = 0 <input type="checkbox"/> 	3
<p>H 2 TOTAL Score – opportunity for providing habitat Add the scores from H2.1, H2.2, H2.3, H2.4</p>		12
		7
<p>◆ Total Score for Habitat Functions Add the points for H 1 and H 2; then record the result on p. 1</p>		19

Comments: _____

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

Wetland Type – Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.	
SC1	<p>Estuarine wetlands? (see p.86)</p> <p>Does the wetland unit meet the following criteria for Estuarine wetlands?</p> <p><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.</p> <p style="text-align: center;"><input type="checkbox"/> YES = Go to SC 1.1 <input checked="" type="checkbox"/> NO</p>
	<p>SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? <input type="checkbox"/> YES = Category I <input type="checkbox"/> NO = go to SC 1.2</p>
	<p>SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions?</p> <p style="text-align: center;"><input type="checkbox"/> YES = Category I <input type="checkbox"/> NO = Category II</p> <p><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 the non-native <i>Spartina</i> spp., are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of <i>Spartina</i> would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of <i>Spartina</i> in determining the size threshold of 1 acre.</p> <p><input type="checkbox"/> At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland</p> <p><input type="checkbox"/> The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.</p>
SC2	<p>Natural Heritage Wetlands (see p. 87)</p> <p>Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species.</p> <p>SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? (<i>This question is used to screen out most sites before you need to contact WNHP/DNR.</i>)</p> <p style="text-align: center;"><input type="checkbox"/> S/T/R information from Appendix D <input checked="" type="checkbox"/> or accessed from WNHP/DNR web site</p> <p style="text-align: center;"><input type="checkbox"/> YES Contact WNHP/DNR (see p. 79) and go to SC 2.2 <input checked="" type="checkbox"/> NO</p> <p>SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species?</p> <p style="text-align: center;"><input type="checkbox"/> YES = Category 1 <input checked="" type="checkbox"/> NO not a Heritage Wetland</p>
SC3	<p>Bogs (see p. 87)</p> <p>Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. <i>If you answer yes you will still need to rate the wetland based on its function.</i></p> <p>1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? <input type="checkbox"/> YES = go to question 3 <input checked="" type="checkbox"/> NO = go to question 2</p> <p>2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? <input type="checkbox"/> YES = go to question 3 <input checked="" type="checkbox"/> NO = is not a bog for purpose of rating</p> <p>3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the “bog” species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)?</p> <p style="text-align: center;"><input type="checkbox"/> YES = Is a bog for purpose of rating <input checked="" type="checkbox"/> NO = go to question 4</p> <p>NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16” deep. If the pH is less than 5.0 and the “bog” plant species in Table 3 are present, the wetland is a bog.</p> <p>4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann’s spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover (> 30% coverage of the total shrub/herbaceous cover)?</p> <p style="text-align: center;"><input type="checkbox"/> YES = Category I <input checked="" type="checkbox"/> NO = Is not a bog for purpose of rating</p>

<p>SC4</p>	<p>Forested Wetlands (see p. 90) Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? <i>If you answer yes you will still need to rate the wetland based on its function.</i> <input type="checkbox"/> Old-growth forests: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. <input type="checkbox"/> Mature forests: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. <input type="checkbox"/> YES = Category I <input checked="" type="checkbox"/> NO = not a forested wetland with special characteristics</p>	<p>Cat. I <input type="checkbox"/></p>
<p>SC5</p>	<p>Wetlands in Coastal Lagoons (see p. 91) Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? <input type="checkbox"/> The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. <input type="checkbox"/> The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom.</i>) <input type="checkbox"/> YES = Go to SC 5.1 <input checked="" type="checkbox"/> NO not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? <input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). <input type="checkbox"/> At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. <input type="checkbox"/> The wetland is larger than 1/10 acre (4350 square ft.) <input type="checkbox"/> YES = Category I <input type="checkbox"/> NO = Category II</p>	<p>Cat. I <input type="checkbox"/> Cat. II <input type="checkbox"/></p>
<p>SC6</p>	<p>Interdunal Wetlands (see p. 93) Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <input type="checkbox"/> YES = Go to SC 6.1 <input checked="" type="checkbox"/> NO not an interdunal wetland for rating <i>If you answer yes you will still need to rate the wetland based on its functions.</i> In practical terms that means the following geographic areas: <ul style="list-style-type: none"> • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? <input type="checkbox"/> YES = Category II <input type="checkbox"/> NO = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? <input type="checkbox"/> YES = Category III</p>	<p>Cat. II <input type="checkbox"/> Cat. III <input type="checkbox"/></p>
<p>◆</p>	<p>Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1. If you answered NO for all types enter "Not Applicable" on p. 1</p>	<p>n/a</p>

Comments: _____

Wetland name or number _____

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Wetland E

Date of site visit: May 10, 2013

Rated by: S Noland Trained by Ecology? Yes No

Date of training: 2006

SEC: 23

TOWNSHP: 24N

RNGE: 5E

Is S/T/R in Appendix D? Yes No

Map of wetland unit: Figure 2 Estimated size _____

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I II III IV

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

Score for Water Quality Functions	26
Score for Hydrologic Functions	16
Score for Habitat Functions	16
TOTAL Score for Functions	58

Category based on SPECIAL CHARACTERISTICS of Wetland I II Does not apply

Final Category (choose the “highest” category from above”)

II

Summary of basic information about the wetland unit.

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine	<input type="checkbox"/>	Depressional	<input checked="" type="checkbox"/>
Natural Heritage Wetland	<input type="checkbox"/>	Riverine	<input type="checkbox"/>
Bog	<input type="checkbox"/>	Lake-fringe	<input type="checkbox"/>
Mature Forest	<input type="checkbox"/>	Slope	<input checked="" type="checkbox"/>
Old Growth Forest	<input type="checkbox"/>	Flats	<input type="checkbox"/>
Coastal Lagoon	<input type="checkbox"/>	Freshwater Tidal	<input type="checkbox"/>
Interdunal	<input type="checkbox"/>		<input type="checkbox"/>
None of the above	<input checked="" type="checkbox"/>	Check if unit has multiple HGM classes present	<input checked="" type="checkbox"/>

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

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

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

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

Classification of Vegetated Wetlands for Western Washington

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

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
 NO – go to 2 **YES** – the wetland class is **Tidal Fringe**
 If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
 YES – **Freshwater Tidal Fringe** **NO** – **Saltwater Tidal Fringe (Estuarine)**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland. Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term “Estuarine” wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).*

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
 NO – go to 3 **YES** – The wetland class is **Flats**
 If your wetland can be classified as a “Flats” wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland meet both of the following criteria?
 The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
 At least 30% of the open water area is deeper than 6.6 (2 m)?
 NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland meet all of the following criteria?
 The wetland is on a slope (*slope can be very gradual*).
 The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
 The water leaves the wetland **without being impounded**?
 NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
 NO – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland meet all of the following criteria?
 The unit is in a valley or stream channel where it gets inundated by overbank flooding from that stream or river.
 The overbank flooding occurs at least once every two years.
 NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
 NO – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present is higher than the interior of the wetland.
 NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
 No – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. **GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT** (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

<i>HGM Classes within the wetland unit being rated</i>	<i>HGM Class to Use in Rating</i>
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

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

H 2	Does the wetland have the <u>opportunity</u> to provide habitat for many species?	(only 1 score per box)
	<p>H 2.1 Buffers (see P. 80): <i>Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".</i></p> <p><input type="checkbox"/> 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use)..... points = 5</p> <p><input type="checkbox"/> 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference points = 4</p> <p><input type="checkbox"/> 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference points = 4</p> <p><input type="checkbox"/> 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference points = 3</p> <p><input type="checkbox"/> 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference points = 3</p> <p>If buffer does not meet any of the criteria above:</p> <p><input type="checkbox"/> No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK points = 2</p> <p><input type="checkbox"/> No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK points = 2</p> <p><input type="checkbox"/> Heavy grazing in buffer points = 1</p> <p><input type="checkbox"/> Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland) points = 0</p> <p><input checked="" type="checkbox"/> Buffer does not meet any of the criteria above points = 1</p> <p style="text-align: right;">Arial photo showing buffers</p>	<p>Figure <input type="checkbox"/></p> <p style="text-align: right;">1</p>
	<p>H 2.2 Corridors and Connections (see p. 81)</p> <p>H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (<i>Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor.</i>)</p> <p style="text-align: center;"><input type="checkbox"/> YES = 4 points (go to H 2.3) <input checked="" type="checkbox"/> NO = go to H 2.2.2</p> <p>H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? OR a Lake-fringe wetland, if it does not have an undisturbed corridor as in the question above?</p> <p style="text-align: center;"><input type="checkbox"/> YES = 2 points (go to H 2.3) <input checked="" type="checkbox"/> NO = go to H 2.2.3</p> <p>H. 2.2.3 Is the wetland:</p> <ul style="list-style-type: none"> • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR • Within 1 mile of a lake greater than 20 acres? <p style="text-align: right;"><input checked="" type="checkbox"/> YES = 1 point <input type="checkbox"/> NO = 0 points</p>	<p style="text-align: right;">1</p>

Comments: _____

	<p>H 2.3 <u>Near or adjacent to other priority habitats listed by WDFW</u> (see p. 82): (see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)</p> <p>Which of the following priority habitats are within 330 ft. (100m) of the wetland unit? <i>NOTE: the connections do not have to be relatively undisturbed.</i></p> <p><input type="checkbox"/> Aspen Stands: Pure or mixed stands of aspen greater than 0.4 ha (1 acre).</p> <p><input type="checkbox"/> 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 p. 152).</p> <p><input type="checkbox"/> Herbaceous Balds: Variable size patches of grass and forbs on shallow soils over bedrock.</p> <p><input type="checkbox"/> Old-growth/Mature forests: (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less 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.</p> <p><input type="checkbox"/> Oregon white Oak: Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (full descriptions in WDFW PHS report p. 158).</p> <p><input checked="" type="checkbox"/> Riparian: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.</p> <p><input type="checkbox"/> 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).</p> <p><input checked="" type="checkbox"/> 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.</p> <p><input type="checkbox"/> Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).</p> <p><input type="checkbox"/> 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.</p> <p><input type="checkbox"/> Cliffs: Greater than 7.6 m (25 ft) high and occurring below 5000 ft.</p> <p><input type="checkbox"/> Talus: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.</p> <p><input checked="" type="checkbox"/> Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.</p> <p style="text-align: right;">If wetland has 3 or more priority habitats = 4 points If wetland has 2 priority habitats = 3 points If wetland has 1 priority habitat = 1 point No habitats = 0 points</p> <p>Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)</p>	4
	<p>H 2.4 <u>Wetland Landscape:</u> Choose the one description of the landscape around the wetland that best fits (see p. 84)</p> <ul style="list-style-type: none"> • There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development.... points = 5 <input type="checkbox"/> • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile points = 5 <input type="checkbox"/> • There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed. points = 3 <input checked="" type="checkbox"/> • The wetland fringe on a lake with disturbance and there are 3 other lake-fringe wetlands within 1/2 mile points = 3 <input type="checkbox"/> • There is at least 1 wetland within 1/2 mile points = 2 <input type="checkbox"/> • There are no wetlands within 1/2 mile..... points = 0 <input type="checkbox"/> 	3
<p>H 2 TOTAL Score – opportunity for providing habitat <i>Add the scores from H2.1, H2.2, H2.3, H2.4</i></p>		9
<p><i>TOTAL for H 1 from page 8</i></p>		7
◆	<p>Total Score for Habitat Functions Add the points for H 1 and H 2; then record the result on p. 1</p>	16

Comments: _____

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

Wetland Type – Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.	
SC1	<p>Estuarine wetlands? (see p.86)</p> <p>Does the wetland unit meet the following criteria for Estuarine wetlands?</p> <p><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.</p> <p style="text-align: center;"><input type="checkbox"/> YES = Go to SC 1.1 <input checked="" type="checkbox"/> NO</p>
	<p>SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? <input type="checkbox"/> YES = Category I <input type="checkbox"/> NO = go to SC 1.2</p>
	<p>SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions?</p> <p style="text-align: center;"><input type="checkbox"/> YES = Category I <input type="checkbox"/> NO = Category II</p> <p><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 the non-native <i>Spartina</i> spp., are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of <i>Spartina</i> would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of <i>Spartina</i> in determining the size threshold of 1 acre.</p> <p><input type="checkbox"/> At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland</p> <p><input type="checkbox"/> The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.</p>
SC2	<p>Natural Heritage Wetlands (see p. 87)</p> <p>Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species.</p> <p>SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? (<i>This question is used to screen out most sites before you need to contact WNHP/DNR.</i>)</p> <p style="text-align: center;"><input type="checkbox"/> S/T/R information from Appendix D <input checked="" type="checkbox"/> or accessed from WNHP/DNR web site</p> <p style="text-align: center;"><input type="checkbox"/> YES Contact WNHP/DNR (see p. 79) and go to SC 2.2 <input checked="" type="checkbox"/> NO</p> <p>SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species?</p> <p style="text-align: center;"><input type="checkbox"/> YES = Category 1 <input checked="" type="checkbox"/> NO not a Heritage Wetland</p>
SC3	<p>Bogs (see p. 87)</p> <p>Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. <i>If you answer yes you will still need to rate the wetland based on its function.</i></p> <ol style="list-style-type: none"> Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? <input type="checkbox"/> YES = go to question 3 <input checked="" type="checkbox"/> NO = go to question 2 Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? <input type="checkbox"/> YES = go to question 3 <input checked="" type="checkbox"/> NO = is not a bog for purpose of rating Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the “bog” species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? <p style="text-align: center;"><input type="checkbox"/> YES = Is a bog for purpose of rating <input checked="" type="checkbox"/> NO = go to question 4</p> <p>NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16” deep. If the pH is less than 5.0 and the “bog” plant species in Table 3 are present, the wetland is a bog.</p> <ol style="list-style-type: none"> Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann’s spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover (> 30% coverage of the total shrub/herbaceous cover)? <p style="text-align: center;"><input type="checkbox"/> YES = Category I <input checked="" type="checkbox"/> NO = Is not a bog for purpose of rating</p>

<p>SC4</p>	<p>Forested Wetlands (see p. 90) Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? <i>If you answer yes you will still need to rate the wetland based on its function.</i> <input type="checkbox"/> Old-growth forests: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. <input type="checkbox"/> Mature forests: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. <input type="checkbox"/> YES = Category I <input checked="" type="checkbox"/> NO = not a forested wetland with special characteristics</p>	<p>Cat. I <input type="checkbox"/></p>
<p>SC5</p>	<p>Wetlands in Coastal Lagoons (see p. 91) Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? <input type="checkbox"/> The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. <input type="checkbox"/> The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom.</i>) <input type="checkbox"/> YES = Go to SC 5.1 <input checked="" type="checkbox"/> NO not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? <input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). <input type="checkbox"/> At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. <input type="checkbox"/> The wetland is larger than 1/10 acre (4350 square ft.) <input type="checkbox"/> YES = Category I <input type="checkbox"/> NO = Category II</p>	<p>Cat. I <input type="checkbox"/> Cat. II <input type="checkbox"/></p>
<p>SC6</p>	<p>Interdunal Wetlands (see p. 93) Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <input type="checkbox"/> YES = Go to SC 6.1 <input checked="" type="checkbox"/> NO not an interdunal wetland for rating <i>If you answer yes you will still need to rate the wetland based on its functions.</i> In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? <input type="checkbox"/> YES = Category II <input type="checkbox"/> NO = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? <input type="checkbox"/> YES = Category III</p>	<p>Cat. II <input type="checkbox"/> Cat. III <input type="checkbox"/></p>
<p>◆</p>	<p>Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1. If you answered NO for all types enter "Not Applicable" on p. 1</p>	<p>n/a</p>

Comments: _____

APPENDIX D: WETLAND DETERMINATION DATA SHEETS

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

Project Site: Lakemont/Cougar Mt. Road City/County: Bellevue/King Sampling Date: 05/10/2013
 Applicant/Owner: City of Bellevue State: WA Sampling Point: DP-1
 Investigator(s): S. Noland Section, Township, Range: S23, T24N, R05E
 Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): concave Slope (%): 5
 Subregion (LRR): A Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: Beausite gravelly sandy loam NWI classification: PSS/PFO
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Remarks: Wetland B; DP-1 located -6 feet upslope of stream					

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10m)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>THPL</u>	<u>40</u>	<u>yes</u>	<u>FAC</u>	Dominance Test Worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>83</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = <u>20</u> , 20% = <u>8</u>	<u>40</u>	= Total Cover																		
Sapling/Shrub Stratum (Plot size: 5m)																				
1. <u>RUSP</u>	<u>20</u>	<u>yes</u>	<u>FAC</u>	Prevalence Index worksheet: <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;">Total % Cover of:</td> <td style="text-align: center;">Multiply by:</td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
Total % Cover of:	Multiply by:																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
2. <u>SARA</u>	<u>10</u>	<u>yes</u>	<u>FACU</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = <u>15</u> , 20% = <u>6</u>	<u>30</u>	= Total Cover																		
Herb Stratum (Plot size: 1m)																				
1. <u>ATFI</u>	<u>5</u>	<u>yes</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is $\leq 3.0^1$ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u>EQTE</u>	<u>2</u>	<u>yes</u>	<u>FACW</u>																	
3. <u>CAOL</u>	<u>1</u>	<u>no</u>	<u>FAC</u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = <u>4</u> , 20% = <u>1.6</u>	<u>8</u>	= Total Cover																		
Woody Vine Stratum (Plot size: 5)																				
1. <u>RULA</u>	<u>10</u>	<u>yes</u>	<u>FACU</u>	Hydrophytic Vegetation Present?																
2. _____	_____	_____	_____																	
50% = <u>5</u> , 20% = <u>2</u>	<u>10</u>	= Total Cover		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																

% Bare Ground in Herb Stratum _____	
Remarks: Recently cut tree stumps - appear to be ALRU.	

Project Site: Lakemont/Cougar Mt. Road

SOIL

Sampling Point: DP-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
<u>0-14</u>	<u>10YR2/2</u>	<u>100</u>	_____	_____	_____	_____	<u>muck</u>	<u>with gravel</u>
<u>14-16</u>	<u>2.5Y4/2</u>	<u>83</u>	<u>10YR4/4</u>	<u>2</u>	<u>c</u>	<u>m</u>	<u>muckysand</u>	<u>gravel, charcoal</u>
_____	_____	_____	<u>10YR3/6</u>	<u>15</u>	<u>c</u>	<u>m</u>	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> 2 cm Muck (A10)
<input checked="" type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	
<input type="checkbox"/> Thick Dark Surface (A12)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	
<input type="checkbox"/> Sandy Redox (S5)	
<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	
<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Redox Depressions (F8)	

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

Restrictive Layer (if present):	Hydric Soils Present?
Type: _____	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Depth (inches): _____	
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	(except MLRA 1, 2, 4A, and 4B)	(MLRA 1, 2, 4A, and 4B)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stresses Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)

<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		
Field Observations:		
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>15</u>
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>0</u>
		Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

Project Site: Lakemont/Cougar Mt. Road City/County: Bellevue/King Sampling Date: 05/10/2013
 Applicant/Owner: City of Bellevue State: WA Sampling Point: DP-2
 Investigator(s): S. Noland Section, Township, Range: S23, T24N, R05E
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): 2
 Subregion (LRR): A Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: Beausite gravelly sandy loam NWI classification: PFO
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Remarks: Wetland C. DP-2 located ~10 feet up from stream channel near rockery (north side of wetland)					

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10m)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>ALRU</u>	<u>50</u>	<u>yes</u>	<u>FAC</u>	Dominance Test Worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66</u> (A/B)																
2. <u>THPL</u>	<u>5</u>	<u>no</u>	<u>FAC</u>																	
3. <u>Prunus sp.</u>	<u>20</u>	<u>no</u>	<u>FACU</u>																	
4. <u>ACMA</u>	<u>35</u>	<u>yes</u>	<u>FACU</u>																	
50% = <u>55</u> , 20% = <u>22</u>	<u>110</u>	= Total Cover		Prevalence Index worksheet: <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;">Total % Cover of:</td> <td style="text-align: center;">Multiply by:</td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
Total % Cover of:	Multiply by:																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
Sapling/Shrub Stratum (Plot size: 5m)																				
1. <u>ACCI</u>	<u>35</u>	<u>yes</u>	<u>FAC</u>																	
2. <u>RUSP</u>	<u>10</u>	<u>yes</u>	<u>FAC</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = <u>22.5</u> , 20% = <u>9</u>	<u>45</u>	= Total Cover																		
Herb Stratum (Plot size: 1m)																				
1. <u>ATFI</u>	<u>50</u>	<u>yes</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u>ROGE</u>	<u>5</u>	<u>no</u>	-																	
3. <u>EQTE</u>	<u>5</u>	<u>no</u>	<u>FACW</u>																	
4. <u>POMU</u>	<u>15</u>	<u>yes</u>	<u>FACU</u>																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = <u>37.5</u> , 20% = <u>15</u>	<u>75</u>	= Total Cover																		
Woody Vine Stratum (Plot size: 5m)																				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present?																
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																

% Bare Ground in Herb Stratum _____	
Remarks:	

Project Site: Lakemont/Cougar Mt. Road

SOIL

Sampling Point: DP-2

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-14	10YR3.2	100	—	—	—	—	muck	—
14-18	2.5Y4/1	100	—	—	—	—	Gr SaL	gravelly sandy loam
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—

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

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

- | | |
|---|--|
| <input type="checkbox"/> Histosol (A1)
<input checked="" type="checkbox"/> Histic Epipedon (A2)
<input type="checkbox"/> Black Histic (A3)
<input type="checkbox"/> Hydrogen Sulfide (A4)
<input type="checkbox"/> Depleted Below Dark Surface (A11)
<input type="checkbox"/> Thick Dark Surface (A12)
<input type="checkbox"/> Sandy Mucky Mineral (S1)
<input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Sandy Redox (S5)
<input type="checkbox"/> Stripped Matrix (S6)
<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)
<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> Redox Depressions (F8) |
|---|--|

Indicators for Problematic Hydric Soils³:

- | |
|--|
| <input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Other (Explain in Remarks) |
|--|

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

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- | | |
|---|---|
| <input type="checkbox"/> Surface Water (A1)
<input checked="" type="checkbox"/> High Water Table (A2)
<input checked="" type="checkbox"/> Saturation (A3)
<input type="checkbox"/> Water Marks (B1)
<input type="checkbox"/> Sediment Deposits (B2)
<input type="checkbox"/> Drift Deposits (B3)
<input type="checkbox"/> Algal Mat or Crust (B4)
<input type="checkbox"/> Iron Deposits (B5)
<input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Water-Stained Leaves (B9)
(except MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Stunted or Stresses Plants (D1) (LRR A) |
|---|---|

Secondary Indicators (2 or more required)

- | |
|---|
| <input type="checkbox"/> Water-Stained Leaves (B9)
(MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A) |
|---|

<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		
Field Observations:		
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>8</u>
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>0</u>
		Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

Project Site: Lakemont/Cougar Mt. Road City/County: Bellevue/King Sampling Date: 05/10/2013
 Applicant/Owner: City of Bellevue State: WA Sampling Point: DP-3
 Investigator(s): Sara Noland Section, Township, Range: S23, T24N, R05E
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): 5
 Subregion (LRR): A Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: Beausite gravelly sandy loam NWI classification: UPL
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Remarks:					

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10m)	Absolute % Cover	Dominant Species?	Indicator Status																		
1. <u>ALRU</u>	<u>70</u>	<u>yes</u>	<u>FAC</u>	Dominance Test Worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>80</u> (A/B)																	
2. <u>THPL</u>	<u>5</u>	<u>no</u>	<u>FAC</u>																		
3. _____	_____	_____	_____																		
4. _____	_____	_____	_____																		
50% = <u>37.5</u> , 20% = <u>15</u>	<u>75</u>	= Total Cover																			
Sapling/Shrub Stratum (Plot size: 5m)				Prevalence Index worksheet: <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;">Total % Cover of:</td> <td style="text-align: center;">Multiply by:</td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>		Total % Cover of:	Multiply by:	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
Total % Cover of:	Multiply by:																				
OBL species _____	x1 = _____																				
FACW species _____	x2 = _____																				
FAC species _____	x3 = _____																				
FACU species _____	x4 = _____																				
UPL species _____	x5 = _____																				
Column Totals: _____ (A)	_____ (B)																				
Prevalence Index = B/A = _____																					
1. <u>RUSP</u>	<u>50</u>	<u>yes</u>	<u>FAC</u>																		
2. <u>ACCI</u>	<u>20</u>	<u>yes</u>	<u>FAC</u>																		
3. <u>OECE</u>	<u>5</u>	<u>no</u>	<u>FACU</u>																		
4. _____	_____	_____	_____																		
5. _____	_____	_____	_____																		
50% = <u>37.5</u> , 20% = <u>15</u>	<u>75</u>	= Total Cover																			
Herb Stratum (Plot size: 1m)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is $\leq 3.0^1$ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																	
1. <u>POMU</u>	<u>40</u>	<u>yes</u>	<u>FACU</u>																		
2. <u>ATFI</u>	<u>10</u>	<u>yes</u>	<u>FAC</u>																		
3. _____	_____	_____	_____																		
4. _____	_____	_____	_____																		
5. _____	_____	_____	_____																		
6. _____	_____	_____	_____																		
7. _____	_____	_____	_____																		
8. _____	_____	_____	_____																		
9. _____	_____	_____	_____																		
10. _____	_____	_____	_____																		
11. _____	_____	_____	_____																		
50% = <u>25</u> , 20% = <u>5</u>	<u>50</u>	= Total Cover																			
Woody Vine Stratum (Plot size: 5m)				Hydrophytic Vegetation Present? <table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"></td> <td style="width: 10%;">Yes</td> <td style="width: 10%;"><input checked="" type="checkbox"/></td> <td style="width: 10%;">No</td> <td style="width: 10%;"><input type="checkbox"/></td> </tr> </table>			Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>											
	Yes	<input checked="" type="checkbox"/>	No			<input type="checkbox"/>															
1. _____	_____	_____	_____																		
2. _____	_____	_____	_____																		
50% = _____, 20% = _____	_____	= Total Cover																			

% Bare Ground in Herb Stratum <u>50</u>	
Remarks:	

Project Site: Lakemont/Cougar Mt. Road

SOIL

Sampling Point: DP-3

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
<u>0-16</u>	<u>10YR3/2</u>	<u>100</u>	—	—	—	—	<u>Gr L</u>	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)

- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) **(except MLRA 1)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

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

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

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		
Field Observations:		
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____
		Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: Soil moist, but not saturated at 14 inches depth; dry above.		

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

Project Site: Lakemont/Cougar Mt. Road City/County: Bellevue/King Sampling Date: 05/13/2013
 Applicant/Owner: City of Bellevue State: WA Sampling Point: DP-5
 Investigator(s): S. Noland Section, Township, Range: S23, T24N, R05E
 Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): C Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: Beausite gravelly sandy loam NWI classification: _____
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Remarks: Wetland E, Saturated to surface, slope wetland					

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10m)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. <u>THPL</u>	<u>60</u>	<u>yes</u>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u> </u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u> </u> (A/B)																
2. <u>ALRU</u>	<u>40</u>	<u>yes</u>	<u>FAC</u>																	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>																	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>																	
50% = <u>50</u> , 20% = <u>20</u>	<u>100</u>	= Total Cover																		
Sapling/Shrub Stratum (Plot size: 5m)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:																
1. <u>ACCI</u>	<u>25</u>	<u>yes</u>	<u>FAC</u>	<table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species <u> </u></td> <td>x1 = <u> </u></td> </tr> <tr> <td>FACW species <u> </u></td> <td>x2 = <u> </u></td> </tr> <tr> <td>FAC species <u> </u></td> <td>x3 = <u> </u></td> </tr> <tr> <td>FACU species <u> </u></td> <td>x4 = <u> </u></td> </tr> <tr> <td>UPL species <u> </u></td> <td>x5 = <u> </u></td> </tr> <tr> <td>Column Totals: <u> </u> (A)</td> <td><u> </u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u> </u></td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species <u> </u>	x1 = <u> </u>	FACW species <u> </u>	x2 = <u> </u>	FAC species <u> </u>	x3 = <u> </u>	FACU species <u> </u>	x4 = <u> </u>	UPL species <u> </u>	x5 = <u> </u>	Column Totals: <u> </u> (A)	<u> </u> (B)	Prevalence Index = B/A = <u> </u>	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species <u> </u>	x1 = <u> </u>																			
FACW species <u> </u>	x2 = <u> </u>																			
FAC species <u> </u>	x3 = <u> </u>																			
FACU species <u> </u>	x4 = <u> </u>																			
UPL species <u> </u>	x5 = <u> </u>																			
Column Totals: <u> </u> (A)	<u> </u> (B)																			
Prevalence Index = B/A = <u> </u>																				
2. <u>RUSP</u>	<u>15</u>	<u>yes</u>	<u>FAC</u>																	
3. <u>SYAL</u>	<u>10</u>	<u>no</u>	<u>FACU</u>																	
4. <u>RISO</u>	<u>5</u>	<u>no</u>	<u> </u>																	
5. <u>HODI</u>	<u>5</u>	<u>no</u>	<u>FACU</u>																	
50% = <u>30</u> , 20% = <u>12</u>	<u>60</u>	= Total Cover																		
Herb Stratum (Plot size: 1m)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:																
1. <u>EQTE</u>	<u>2</u>	<u>no</u>	<u>FACW</u>	<input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is $\leq 3.0^1$ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)																
2. <u>ATFE</u>	<u>50</u>	<u>yes</u>	<u> </u>																	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>																	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>																	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>																	
6. <u> </u>	<u> </u>	<u> </u>	<u> </u>																	
7. <u> </u>	<u> </u>	<u> </u>	<u> </u>																	
8. <u> </u>	<u> </u>	<u> </u>	<u> </u>																	
9. <u> </u>	<u> </u>	<u> </u>	<u> </u>																	
10. <u> </u>	<u> </u>	<u> </u>	<u> </u>																	
11. <u> </u>	<u> </u>	<u> </u>	<u> </u>																	
50% = <u> </u> , 20% = <u> </u>	<u> </u>	= Total Cover																		
Woody Vine Stratum (Plot size: 5m)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?																
1. <u>RUUR</u>	<u>10</u>	<u>yes</u>	<u>FACU</u>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>																	
50% = <u>5</u> , 20% = <u>2</u>	<u>10</u>	= Total Cover																		

% Bare Ground in Herb Stratum _____	
Remarks:	

Project Site: Lakemont/Cougar Mt. Road

SOIL

Sampling Point: DP-5

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-11	10YR2/1	100	—	—	—	—	muck	—
11-16	10YR3/1	80	7.5YR4/6	20	—	—	Sil	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—

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

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

- | | |
|---|--|
| <input checked="" type="checkbox"/> Histosol (A1)
<input type="checkbox"/> Histic Epipedon (A2)
<input type="checkbox"/> Black Histic (A3)
<input type="checkbox"/> Hydrogen Sulfide (A4)
<input type="checkbox"/> Depleted Below Dark Surface (A11)
<input type="checkbox"/> Thick Dark Surface (A12)
<input type="checkbox"/> Sandy Mucky Mineral (S1)
<input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Sandy Redox (S5)
<input type="checkbox"/> Stripped Matrix (S6)
<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)
<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> Redox Depressions (F8) |
|---|--|

Indicators for Problematic Hydric Soils³:

- | |
|--|
| <input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Other (Explain in Remarks) |
|--|

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

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soils Present? Yes No

Remarks:	
----------	--

HYDROLOGY

Wetland Hydrology Indicators:

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

- | | |
|---|---|
| <input type="checkbox"/> Surface Water (A1)
<input checked="" type="checkbox"/> High Water Table (A2)
<input checked="" type="checkbox"/> Saturation (A3)
<input type="checkbox"/> Water Marks (B1)
<input type="checkbox"/> Sediment Deposits (B2)
<input type="checkbox"/> Drift Deposits (B3)
<input type="checkbox"/> Algal Mat or Crust (B4)
<input type="checkbox"/> Iron Deposits (B5)
<input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Water-Stained Leaves (B9)
(except MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Stunted or Stresses Plants (D1) (LRR A) |
|---|---|

Secondary Indicators (2 or more required)

- | |
|---|
| <input type="checkbox"/> Water-Stained Leaves (B9)
(MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A) |
|---|

<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		
Field Observations:		
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>10</u>
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>0</u>
		Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

Project Site: Lakemont/Cougar Mt. Road City/County: Bellevue/King Sampling Date: 05/13/2013
 Applicant/Owner: City of Bellevue State: WA Sampling Point: DP-6
 Investigator(s): S. Noland Section, Township, Range: S23, T24N, R05E
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): C Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: Beausite gravelly sandy loam NWI classification: _____
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland?		
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Remarks: DP-6 is located on berm between wetland and stream					

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10m)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. <u>THPL</u>	<u>10</u>	<u>yes</u>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)																
2. <u>ALRU</u>	<u>30</u>	<u>yes</u>	<u>FAC</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = <u>20</u> , 20% = <u>8</u>	<u>40</u>	= Total Cover																		
<u>Sapling/Shrub Stratum (Plot size: 5m)</u>				Prevalence Index worksheet: <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;">Total % Cover of:</td> <td style="text-align: center;">Multiply by:</td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____ (A)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____ (A)	_____ (B)	Prevalence Index = B/A = _____	
Total % Cover of:	Multiply by:																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____ (A)	_____ (B)																			
Prevalence Index = B/A = _____																				
1. <u>AC</u>	<u>40</u>	<u>yes</u>	_____																	
2. <u>RUSP</u>	<u>10</u>	<u>no</u>	<u>FAC</u>																	
3. <u>HODI</u>	<u>5</u>	<u>no</u>	<u>FACU</u>																	
4. <u>BESPI</u>	<u>5</u>	<u>no</u>	_____																	
5. _____	_____	_____	_____																	
50% = <u>30</u> , 20% = <u>12</u>	<u>60</u>	= Total Cover																		
<u>Herb Stratum (Plot size: 1m)</u>				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is $\leq 3.0^1$ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
1. <u>EQTE</u>	<u>30</u>	<u>yes</u>	<u>FACW</u>																	
2. <u>UNK grass</u>	<u>80</u>	<u>yes</u>	<u>FAC</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = <u>55</u> , 20% = <u>22</u>	<u>110</u>	= Total Cover																		
<u>Woody Vine Stratum (Plot size: 5m)</u>				Hydrophytic Vegetation Present? <table style="width: 100%; border: none;"> <tr> <td style="width: 60%;"></td> <td style="text-align: center;">Yes <input checked="" type="checkbox"/></td> <td style="text-align: center;">No <input type="checkbox"/></td> </tr> </table>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>													
	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>																		
1. <u>RUUR</u>	<u>10</u>	<u>yes</u>	<u>FACU</u>																	
2. _____	_____	_____	_____																	
50% = <u>5</u> , 20% = <u>2</u>	<u>10</u>	= Total Cover																		

% Bare Ground in Herb Stratum _____	
Remarks: grass is most likely FAC	

Project Site: Lakemont/Cougar Mt. Road

SOIL

Sampling Point: DP-6

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	10YR3/2	100	—	—	—	—	Gr L	gravelly loam
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)

- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) **(except MLRA 1)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

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

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

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soils Present? Yes No

Remarks: Soil is dry on berm between stream and wetland

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

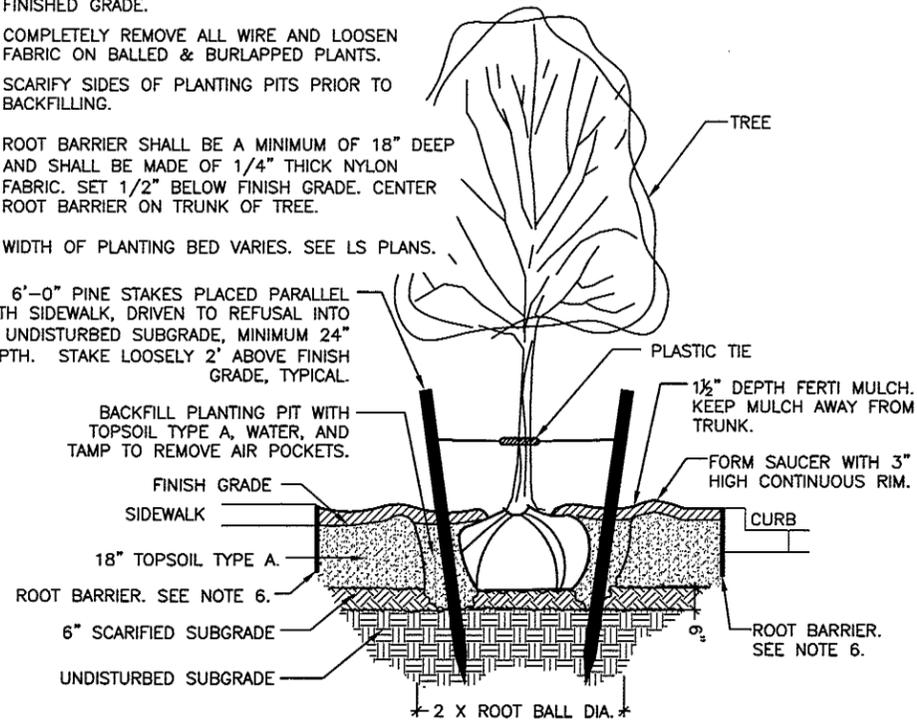
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		
Field Observations:		
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____
		Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		
Field Observations:		
Surface Water Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>1</u>
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>8</u>
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>0</u>
		Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: small drainage channel enters wetland from culvert at NE corner		

NOTES:

- 1) MULCH COMPLETELY BETWEEN ALL PLANTS.
- 2) STAKE TREES 5' IN HEIGHT OR GREATER.
- 3) PLANT SO THAT TOP OF ROOT BALL IS EVEN WITH FINISHED GRADE.
- 4) COMPLETELY REMOVE ALL WIRE AND LOOSEN FABRIC ON BALLED & BURLAPPED PLANTS.
- 5) SCARIFY SIDES OF PLANTING PITS PRIOR TO BACKFILLING.
- 6) ROOT BARRIER SHALL BE A MINIMUM OF 18" DEEP AND SHALL BE MADE OF 1/4" THICK NYLON FABRIC. SET 1/2" BELOW FINISH GRADE. CENTER ROOT BARRIER ON TRUNK OF TREE.
- 7) WIDTH OF PLANTING BED VARIES. SEE LS PLANS.

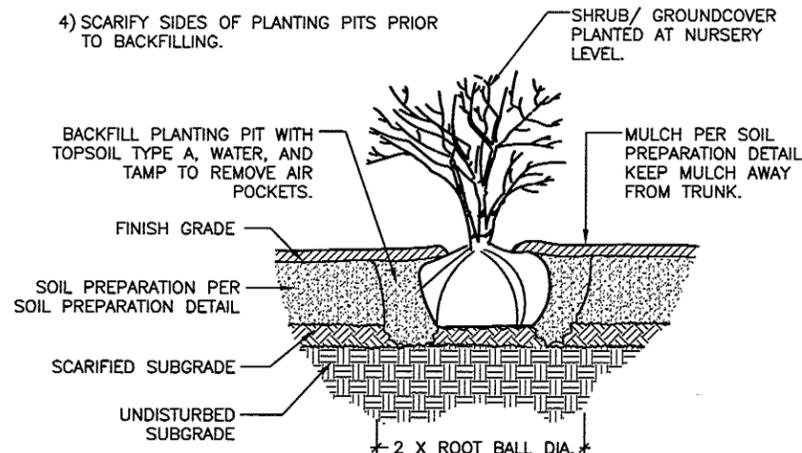
(2) 6'-0" PINE STAKES PLACED PARALLEL WITH SIDEWALK, DRIVEN TO REFUSAL INTO UNDISTURBED SUBGRADE, MINIMUM 24" DEPTH. STAKE LOOSELY 2" ABOVE FINISH GRADE, TYPICAL.



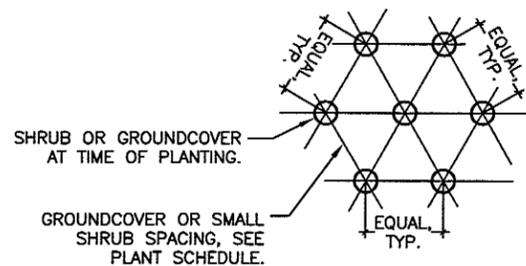
A DECIDUOUS TREE PLANTING
NOT TO SCALE

NOTES:

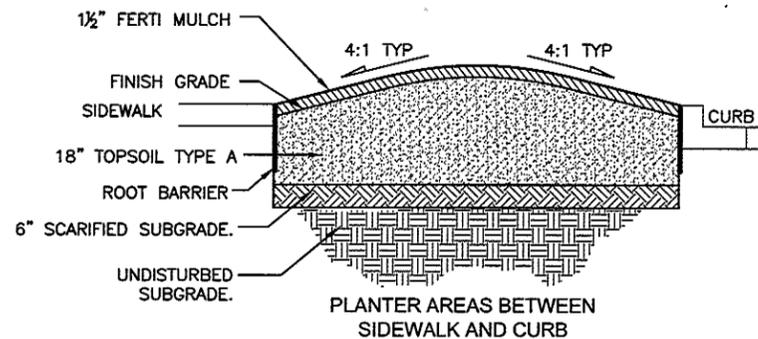
- 1) MULCH COMPLETELY BETWEEN ALL PLANTS.
- 2) PLANT SO THAT TOP OF ROOT BALL IS EVEN WITH FINISHED GRADE.
- 3) COMPLETELY REMOVE ALL WIRE AND LOOSEN FABRIC ON BALLED & BURLAPPED PLANTS.
- 4) SCARIFY SIDES OF PLANTING PITS PRIOR TO BACKFILLING.



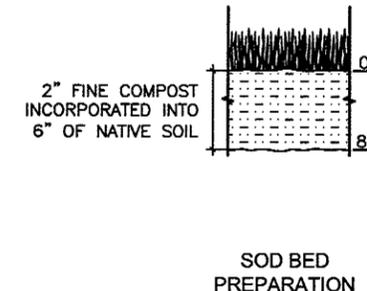
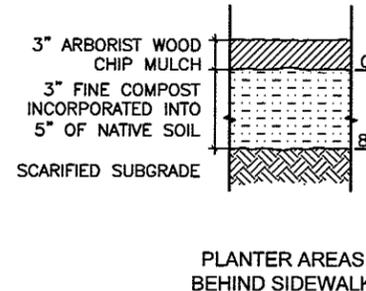
B SHRUB & GROUNDCOVER PLANTING
NOT TO SCALE



C TYPICAL PLANT SPACING
NOT TO SCALE



D SOIL PREPARATION
NOT TO SCALE



PLANTING NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
2. PROVIDE POSITIVE DRAINAGE IN ALL PLANTING AREAS.
3. REVIEW THE SITE AND REPORT TO THE ENGINEER ANY DISCREPANCIES BETWEEN THE CONDITIONS SHOWN ON THE PLANS AND CONDITIONS IN THE FIELD PRIOR TO BEGINNING CONSTRUCTION.
4. FIELD STAKE TREE LOCATIONS AND PLANTING BED BOUNDARIES FOR APPROVAL BY THE ENGINEER PRIOR TO PLANTING.
5. ADJUST PLANTING AS NECESSARY AROUND SIGNAL POLES AND OTHER APPURTENANCES.
6. LOCATIONS OF PROPOSED TREES SHOWN ON PLANTING PLANS ARE APPROXIMATE. OBSERVE THE FOLLOWING MINIMUM SETBACKS FOR CENTERLINE OF TREE TRUNKS:

STREET LIGHTS:	10'
DRIVEWAYS:	10'
INTERSECTIONS:	30'
UNDERGROUND SEWER & WATER LINES:	5'
UNDERGROUND GAS LINES:	1'
UNDERGROUND HIGH PRESSURE GAS LINES:	3'
UTILITY/POWER POLES:	5'
UNDERGROUND FIBER CABLE:	2'
OTHER TREES:	15'
FACE OF CURB:	3'



STEVEN O. LAMBERT
CERTIFICATE NO. 1190



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lambert**
LANDSCAPE
ARCHITECTURE

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RDL JUNE 2014
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MAJ JUNE 2014
DRAWN BY DATE
MER JUNE 2014
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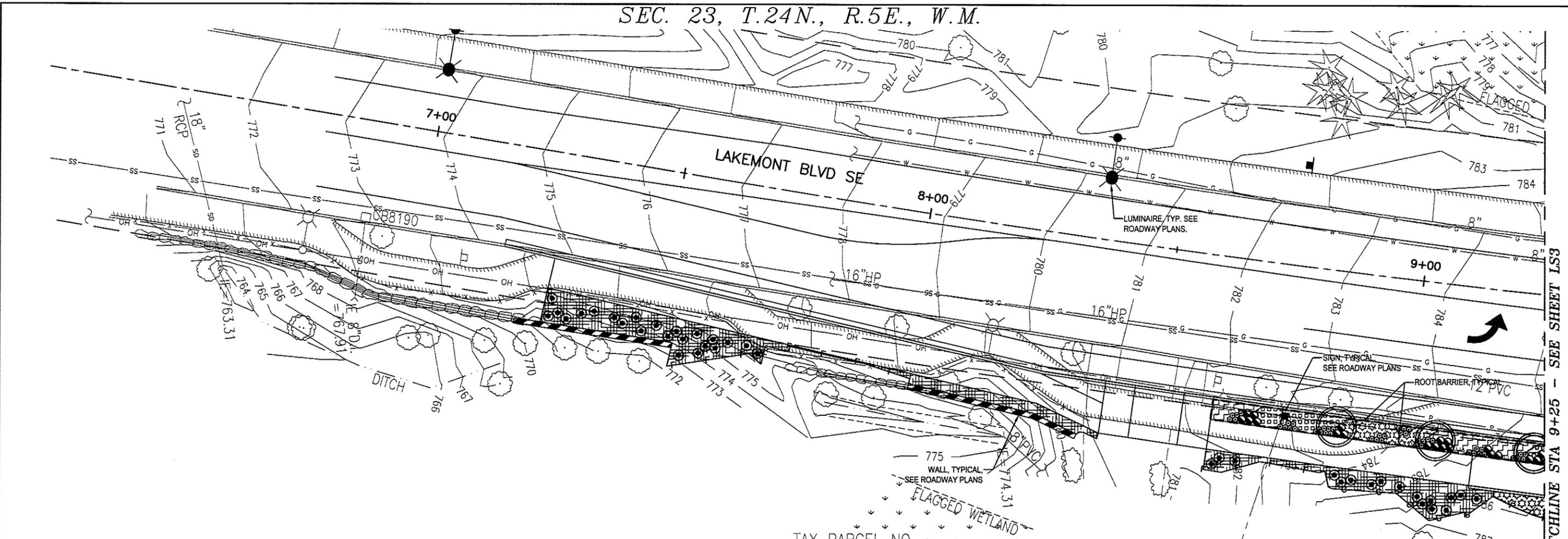
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TRANSPORTATION DEPARTMENT

ReidMiddleton
728 134th Street SE - Suite 200
Everett, Washington 98204
Ph: 425 741-3000

**LAKEMONT BLVD SE &
SE COUGAR MOUNTAIN WAY
INTERSECTION IMPROVEMENTS**

LANDSCAPE DETAILS
LS1 SHT 25 OF 29

SEC. 23, T.24N., R.5E., W.M.



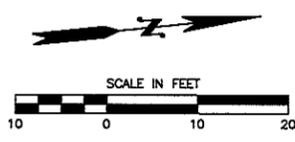
MATCHLINE STA 9+25 - SEE SHEET LS3

PLANTING SCHEDULE

SYMBOL	QUANTITY	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	REMARKS
TREES						
	3	AMELANCHIER X GRANDIFLORA 'AUTUMN BRILLIANCE'	AUTUMN BRILLIANCE SERVICEBERRY	1 1/2" CAL	AS SHOWN ON PLAN	SINGLE STEM. FULL, WELL BRANCHED AND WELL ROOTED. SYMMETRICAL BRANCHING HABIT. 4' MIN BRANCHING HEIGHT.
SHRUBS AND GROUNDCOVERS						
	21	CALLUNA VULGARIS 'SPRING TORCH'	SPRING TORCH HEATHER	#1 CONT.	AS SHOWN	FULL, WELL BRANCHED AND WELL ROOTED
	24	CORNUS SERICEA 'KELSEY'	KELSEY DOGWOOD	#1 CONT.	24" O.C. TRIANGULAR SPACING. OFFSET MIN 12" FROM ADJACENT CURBS AND WALKS.	FULL, WELL BRANCHED AND WELL ROOTED
	30	GERANIUM MACRORRHIZUM 'INGWERSEN'S VARIETY'	INGWERSEN'S CRANESBILL	#1 CONT.	18" O.C. TRIANGULAR SPACING. OFFSET MIN 9" FROM ADJACENT CURBS AND WALKS.	FULL AND WELL ROOTED
	45	HEMEROCALLIS 'STELLA D'ORO'	STELLA D'ORO DAYLILY	#1 CONT.	AS SHOWN	FULL AND WELL ROOTED
	39	MAHONIA NERVOSA	LOW OREGON GRAPE	#1 CONT.	18" O.C. TRIANGULAR SPACING. OFFSET MIN 9" FROM ADJACENT CURBS AND WALKS.	FULL, WELL BRANCHED AND WELL ROOTED
	40	POLYSTICHUM MUNITUM	SWORD FERN	#1 CONT.	AS SHOWN	FULL AND WELL ROOTED
	168	GAULTHERIA SHALLON	SALAL	#1 CONT.	24" O.C. TRIANGULAR SPACING. OFFSET MIN 12" FROM ADJACENT CURBS AND WALKS.	FULL AND WELL ROOTED

TAX PARCEL NO. 2324059321

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LANDSCAPE ARCHITECTURE



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PROJECT MANAGER DATE

RDL DESIGNED BY JUNE 2014 DATE

MAT DRAWN BY JUNE 2014 DATE

MER CHECKED BY JUNE 2014 DATE



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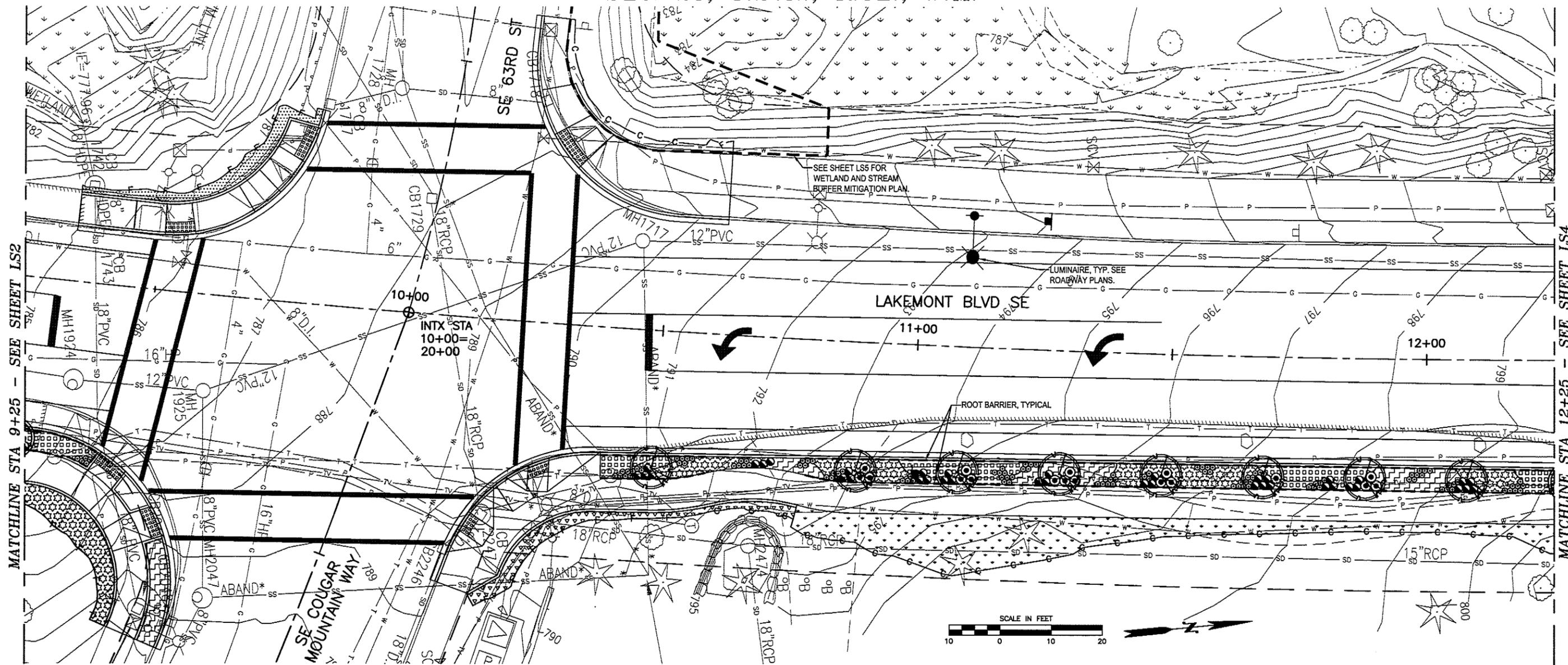
LAKEMONT BLVD SE & SE COUGAR MOUNTAIN WAY INTERSECTION IMPROVEMENTS

LANDSCAPE PLAN

LS2

SHT 26 OF 29

SEC. 23, T.24N., R.5E., W.M.



PLANTING SCHEDULE

SYMBOL	QUANTITY	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	REMARKS
TREES						
	8	CERCIDIPHYLLUM JAPONICUM	KATSURA TREE	1 1/2\"/>		

SYMBOL	QUANTITY	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	REMARKS
SHRUBS AND GROUNDCOVERS						
	115	HEMEROCALLIS 'STELLA D'ORO'	STELLA D'ORO DAYLILY	#1 CONT.	AS SHOWN	FULL AND WELL ROOTED
	108	MAHONIA NERVOSEA	LOW OREGON GRAPE	#1 CONT.	18\"/>	

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PROJECT MANAGER	DATE

RDL	DESIGNED BY	JUNE 2014	DATE
MAJ	DRAWN BY	JUNE 2014	DATE
MER	CHECKED BY	JUNE 2014	DATE

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LAKEMONT BLVD SE & SE COUGAR MOUNTAIN WAY INTERSECTION IMPROVEMENTS

LANDSCAPE PLAN

LS3 | SHT 27 OF 29

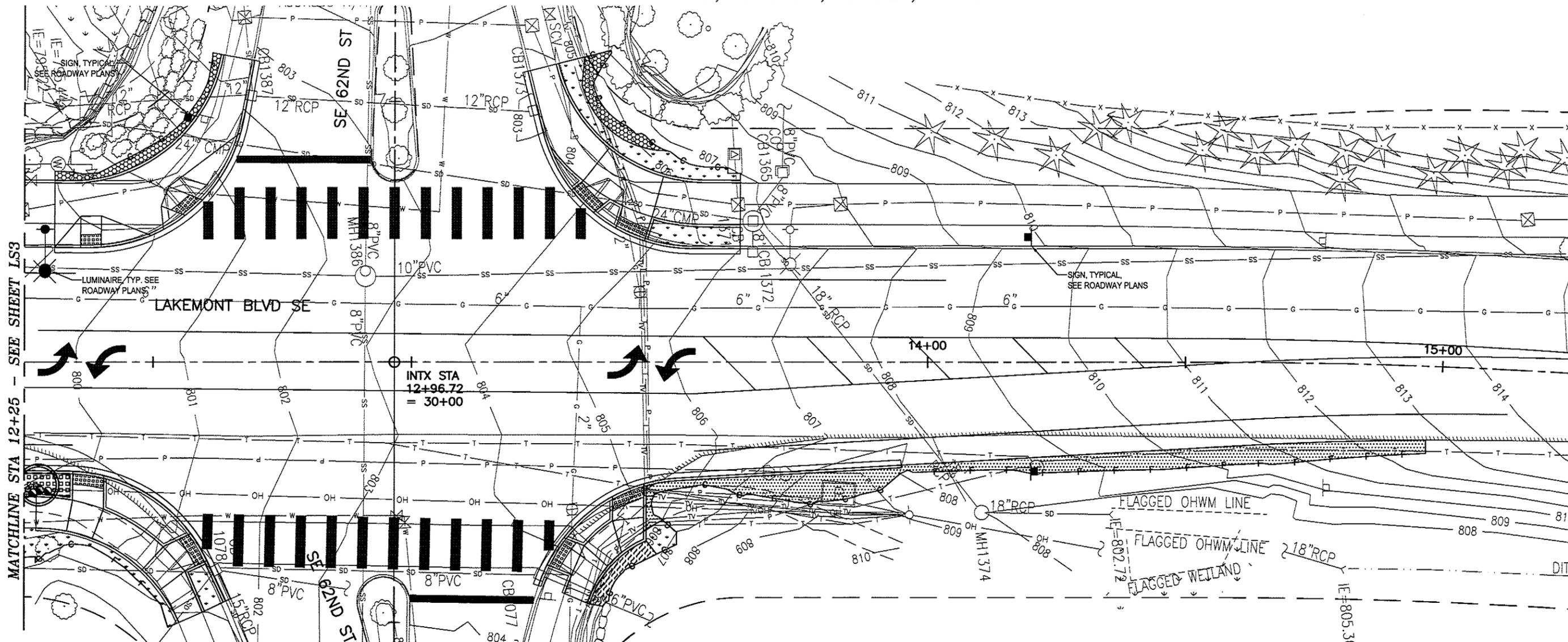
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STATE OF WASHINGTON REGISTERED LANDSCAPE ARCHITECT
RYAN D. LAMBERT
CERTIFICATE NO. 1106

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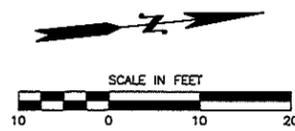
SEC. 23, T.24N., R.5E., W.M.



PLANTING SCHEDULE

SYMBOL	QUANTITY	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	REMARKS
TREES						
	1	AMELANCHIER X GRANDIFLORA 'AUTUMN BRILLIANCE'	AUTUMN BRILLIANCE SERVICEBERRY	1 1/2" CAL	AS SHOWN ON PLAN	SINGLE STEM. FULL, WELL BRANCHED AND WELL ROOTED. SYMMETRICAL BRANCHING HABIT. 4' MIN BRANCHING HEIGHT.
SHRUBS AND GROUNDCOVERS						
	23	AJUGA REPTANS 'BLACK SCALLOP'	BLACK SCALLOP BUGLEWEED	#1 CONT.	18" O.C. TRIANGULAR SPACING. OFFSET MIN 9" FROM ADJACENT CURBS AND WALKS.	FULL AND WELL ROOTED
	3	CALLUNA VULGARIS 'SPRING TORCH'	SPRING TORCH HEATHER	#1 CONT.	AS SHOWN	FULL, WELL BRANCHED AND WELL ROOTED
	14	GERANIUM MACRORRHIZUM 'INGWERTSEN'S VARIETY'	INGWERTSEN'S CRANESBILL	#1 CONT.	18" O.C. TRIANGULAR SPACING. OFFSET MIN 9" FROM ADJACENT CURBS AND WALKS.	FULL AND WELL ROOTED
	4	HEMEROCALLIS 'STELLA D'ORO'	STELLA D'ORO DAYLILY	#1 CONT.	AS SHOWN	FULL AND WELL ROOTED
	127 SF	PROPERTY RESTORATION	RESTORE ORNAMENTAL FLOWER BEDS TO PRE-CONSTRUCTION CONDITION. INSTALL LIKE PLANTS OF LIKE SIZE AT SAME SPACING.			

SOD AND SEEDING	
	36 SY SOD LAWN INSTALLATION
	488 SF SEEDING, FERTILIZING AND MULCHING



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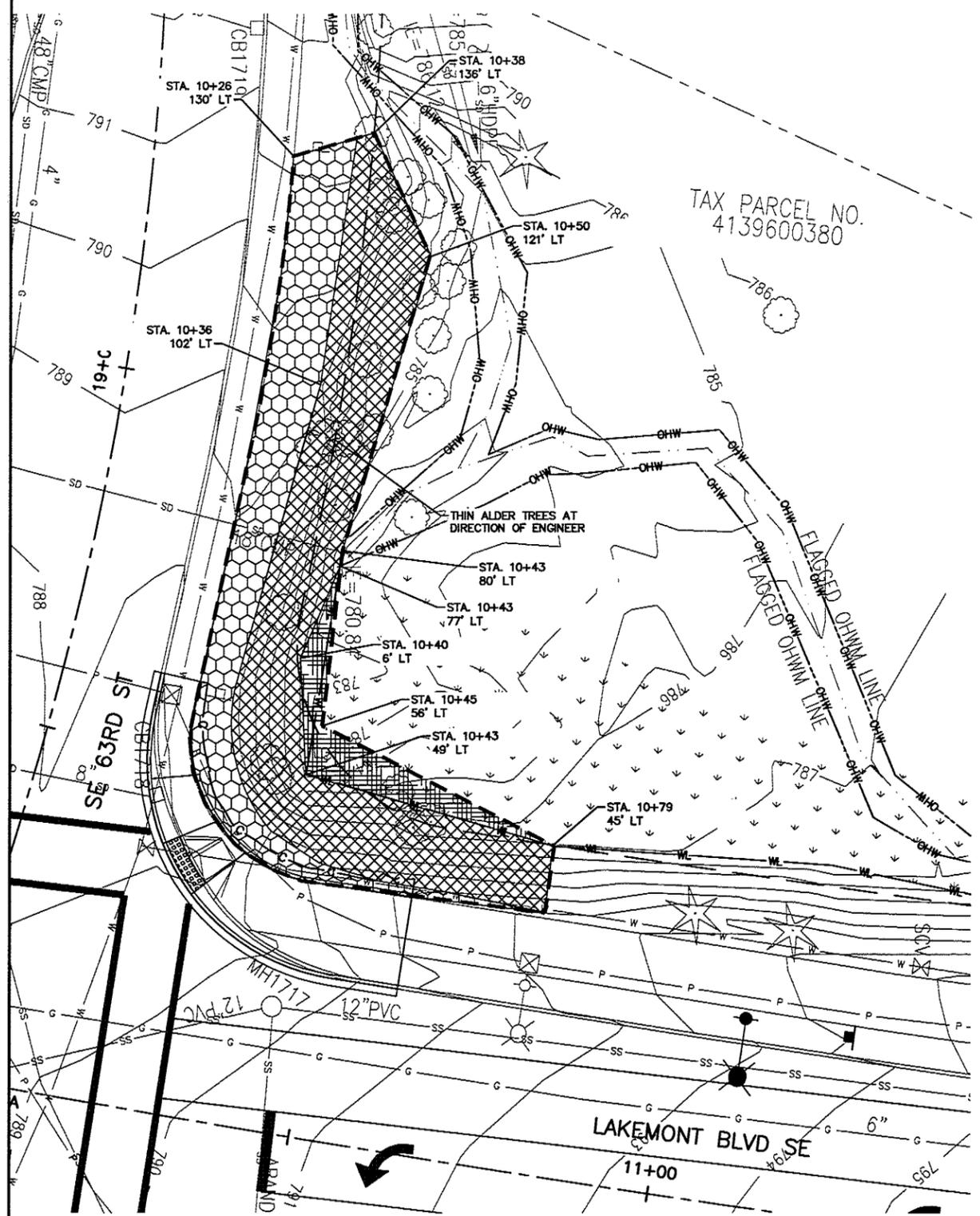


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LAKEMONT BLVD SE & SE COUGAR MOUNTAIN WAY INTERSECTION IMPROVEMENTS

LANDSCAPE PLAN

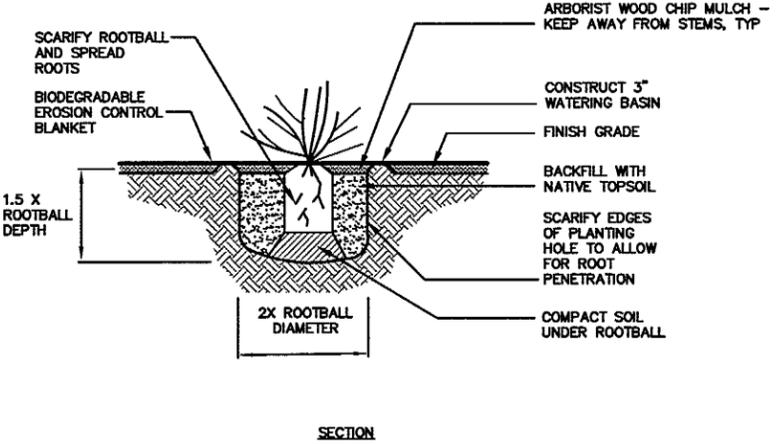
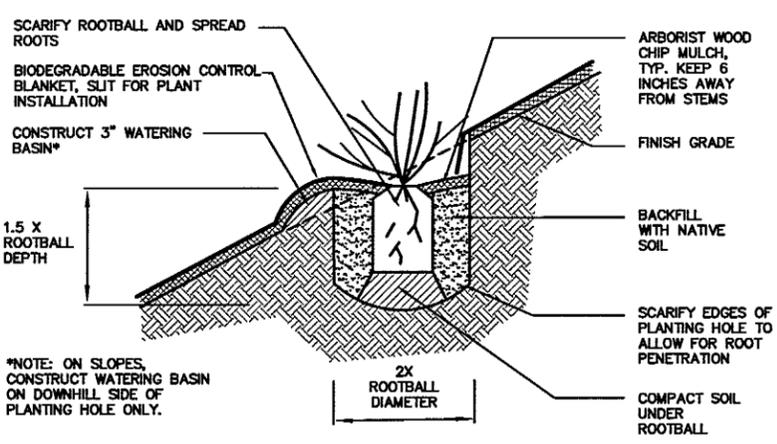


PLANT SCHEDULE

Common Name	Botanical Name	Size	Spacing (OC)	Quantity	
Top of Slope Planting (700 SF)					
Groundcover	Deer fern	<i>Blechnum spicant</i>	4 in	3 FT	30
	Sword fern	<i>Polystichum munitum</i>	1 gal	3 FT	30
	Fringecup	<i>Tellima grandiflora</i>	4 in	3 FT	30
Slope Planting (1,245 SF)					
Trees	Vine maple	<i>Acer circinatum</i>	1 gal	15 FT	4
	Douglas fir	<i>Pseudotsuga menziesii</i>	1 gal	15 FT	4
Shrubs/Groundcover	Sword fern	<i>Polystichum munitum</i>	4 in	5 FT	15
	Thimbleberry	<i>Rubus parviflorus</i>	1 gal	5 FT	15
	Nootka rose	<i>Rosa nootkana</i>	1 gal	5 FT	15
	Snowberry	<i>Symphoricarpos albus</i>	1 gal	5 FT	15
Wetland Edge (190 SF)					
	Twiberry	<i>Lonicera involucrata</i>	1 gal	4 FT	7
	Baldhip Rose	<i>Rosa gymnocarpa</i>	1 gal	4 FT	7
Seeding and Fertilizing by Hand (2,135 SF)					
Common Name	Botanical Name	% By Weight	Pounds Pure Live Seed per acre		
Yarrow	<i>Achillea millefolium</i>	5	80		
Pearly Everlasting	<i>Anaphalis margaritacea</i>	5			
Blue Wildrye	<i>Elymus glaucus</i>	35			
Native Red Fescue	<i>Festuca rubra var rubra</i>	20			
Western Fescue	<i>Festuca occidentalis</i>	25			
Sickle Keeled Lupine	<i>Lupinus albicaulis</i>	10			

NOTES:

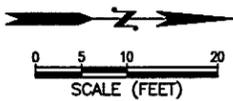
- SITE PREPARATION**
- PLANTING AREA SHALL BE FREE OF WEEDS, INCLUDING BUT NOT LIMITED TO PLANTS ON THE WASHINGTON STATE NOXIOUS WEED LIST, PRIOR TO PLANTING.
 - CHEMICAL CONTROLS SHALL NOT BE USED IN THE MITIGATION/RESTORATION AREA, SENSITIVE AREAS, OR THEIR BUFFERS. HOWEVER, LIMITED USE OF HERBICIDES MAY BE APPROVED DEPENDING ON SITE-SPECIFIC CONDITIONS, ONLY IF APPROVED BY ENGINEER.
 - AFTER ALL PLANTING AREAS HAVE BEEN CLEARED AND GRUBBED AS SPECIFIED, THE AREAS SHALL BE REVIEWED AND ACCEPTED BY ENGINEER PRIOR TO LAYOUT OF PLANTING.
 - OVER-EXCAVATE 9" MINIMUM AND LOOSEN COMPACTED SUBGRADE 8-12"
 - INSTALL 9" TYPE C TOPSOIL, PER WSDOT SPEC 8-02.3(4)C. REPLACED SOILS SHALL CONTAIN AT LEAST 30% ORGANIC MATTER BY BULK DENSITY. SOIL AMENDMENTS TO BE APPROVED BY PROJECT ENGINEER.
 - FINISHED GRADE SHALL MATCH EXISTING GRADE.
- PLANTING**
- PLANTINGS SHALL BE INSTALLED IN THE FALL-WINTER SEASON TO ENSURE ADEQUATE MOISTURE DURING PLANT ESTABLISHMENT.
 - CONTRACTOR SHALL STAKE THE LOCATION OF ALL TREES AND THE PERIMETER OF ALL PLANTING AREAS FOR ACCEPTANCE BY ENGINEER PRIOR TO ANY PLANT INSTALLATION ACTIVITIES.
 - ARBORIST WOOD CHIP MULCH SHALL BE APPLIED TO ENTIRE PLANTING AREA, EXCEPT FOR INUNDATED AREAS. ARBORIST WOOD CHIP MULCH SHALL BE COARSE GROUND WOOD CHIPS DERIVED FROM THE MECHANICAL GRINDING OR SHREDDING OF THE ABOVE-GROUND PORTIONS OF TREES.
 - INSTALL BIODEGRADABLE EROSION CONTROL BLANKET ON SLOPE PLANTING AREA, PER MANUFACTURERS INSTRUCTIONS. BIODEGRADABLE EROSION CONTROL BLANKET SHALL BE COIR FABRIC, MINIMUM 20 OUNCES PER SQUARE YARD. SEE PLANTING DETAILS.
 - AFTER INSTALLATION OF BIODEGRADABLE EROSION CONTROL BLANKET AND PLANTS, HAND SEED WITH SPECIFIED SEED MIX, SEE PLANT SCHEDULE.
 - UPON COMPLETION OF INITIAL PLANTING WITHIN A DESIGNATED AREA, THE ENGINEER WILL MAKE AN INSPECTION OF ALL PLANT MATERIAL AND NOTIFY THE CONTRACTOR, IN WRITING, OF ANY REPLACEMENTS OR CORRECTIVE ACTION NECESSARY TO MEET THE CONTRACT PROVISIONS. THE CONTRACTOR SHALL REPLACE ALL MATERIALS REJECTED OR MISSING AND CORRECT UNSATISFACTORY CONDITIONS.



TREE/SHRUB SLOPE PLANTING DETAIL, TYP NTS

KEY

— WL —	WETLAND BOUNDARY	— — — — —	BUFFER BOUNDARY
- - - - - OHW	ORDINARY HIGH WATER	- - - - -	MITIGATION PLANTING AREA/LIMITS OF CLEARING AND GRUBBING



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Everett, Washington 98204
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LAKEMONT BLVD SE & SE COUGAR MOUNTAIN WAY INTERSECTION IMPROVEMENTS

WETLAND AND STREAM BUFFER MITIGATION PLAN
LS5 | SHT 29 OF 29

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STATE OF WASHINGTON LANDSCAPE ARCHITECT
RYAN D. LAMBERT
CERTIFICATE NO. 1190

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