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ADVISORY REPORT
FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

To: Kirkland Hearing Examiner

From: _____ Christian Geitz, Project Planner

_____ Eric R. Shields, AICP, Planning Director

Date: March 30, 2017

File: SHORELINE VARIANCE FOR 98TH AVENUE NE WIDENING PROJECT, SHR16-02563

Hearing Date and Place: April 6, 2017 at 9:00 AM
City Hall Council Chamber
123 Fifth Avenue, Kirkland

TABLE OF CONTENTS

Section Page
I. INTRODUCTION 2
A. APPLICATION 2
B. RECOMMENDATIONS 2
II. FINDINGS OF FACT AND CONCLUSIONS 3
A. SITE DESCRIPTION 3
B. HISTORY 3
C. PUBLIC COMMENT 4
D. APPROVAL CRITERIA 4
E. COMPREHENSIVE PLAN 7
F. SHORELINE MASTER PROGRAM 9
III. SUBSEQUENT MODIFICATIONS 19
IV. APPEALS 19
V. LAPSE OF APPROVAL 19
VI. APPENDICES 20
VII. PARTIES OF RECORD 20

INTRODUCTION

A. APPLICATION

1. Applicant: City of Kirkland Public Works, Capital Improvement Projects

2. Site Location: 98th Avenue NE, south of NE 116th Street intersection in the right-of-way (see Attachment 1)

3. Request: The City of Kirkland CIP Division is requesting a Shoreline Variance for the proposed expansion of the improvements in 98th Avenue NE as part of the Juanita Drive Corridor Master Plan Project. The proposal is located within the existing public right-of-way and includes pedestrian and bicycle improvements, along with adjustment of existing vehicular travel lanes. The proposed improvements include the addition of bicycle lanes in both the northbound and southbound directions and the installation of a sidewalk along the western side of the roadway, providing pedestrian access to the Juanita Bay Park elevated pathway and Metro Bus stop. All the proposed work is located within the inner half of the existing wetland buffer contiguous with Lake Washington and is within the Shoreline Jurisdiction Area, subject to the Shoreline Master Plan (SMP) (see Attachment 2). The proposed improvements are located within the inner half of the wetland buffer and require the Shoreline Variance review and approval (see Section II.F.3).

4. Review Process: The proposed expansion of the right-of-way improvements within a wetland buffer requires a Shoreline Variance Permit using Process IIA. The Hearing Examiner conducts a public hearing and makes a recommendation; the Washington State Department of Ecology makes the final decision.

5. Summary of Key Issues and Conclusions:

   a. Compliance with Shoreline Master Program (see page 8, Section II.E).

   b. Compliance with applicable Comprehensive Plan Policies (see page 10, Section II.F).

   c. Compliance with the Washington Administrative Code burden of proof standards for Shoreline Variance Permits (see page 4, Section II.D).

B. RECOMMENDATIONS

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

1. This application is subject to the applicable requirements contained in the Kirkland Municipal Code, Zoning Code, and Building and Fire Code. It is the responsibility of the applicant to ensure compliance with the various provisions contained in these ordinances.
2. Prior to construction, the applicant shall install temporary six-foot tall construction-phase chain link fence with silt screen fabric along the entire limits of construction area as proposed (see Conclusion II.F.8.b.2).
3. Upon completion of the development project, the applicant shall install the proposed mitigation plantings, the required split rail fencing, and enter into the five-year monitoring and maintenance period as proposed (see Conclusion II.F.10.b.2 and 3).
4. The applicant shall submit the necessary land surface modification permit application to the Development Services Department with the City of Kirkland and receive approval prior to any site development (see Conclusion II.F.13.b.2).
5. The applicant shall follow the proposed application, including the mitigation and erosion control plans (see Conclusion II.F.14.b.2).
6. Prior to land surface modification permit issuance, the application shall submit

the necessary approvals from state and federal agencies to the Planning and Building Department (see Conclusion II.F.16.b)

7. The applicant shall follow the proposed application plans and BMPs of KZC 83.480 for all aspects of the development project, including the roadway expansion improvements, the mitigation planting area, and the monitoring and maintenance of the mitigated plantings (see Conclusion II.F.15.b.2).

II. FINDINGS OF FACT AND CONCLUSIONS

A. SITE DESCRIPTION

1. Site Development and Zoning:

a. Facts:

1) Size: The proposed roadway and sidewalk expansion is completely located within the existing 98th Avenue NE right-of-way. The proposed restoration and mitigation planting of the wetland is located both within the right-of-way and adjoining Juanita Bay Park property. The total area of proposed disturbance for the right-of-way improvements is approximately 5,000 square feet.

2) Land Use: Public right-of-way, adjacent to open space park parcels and commercial parcel.

3) Zoning: Park Zoning (P), (Chapter 45 KZC); and

4) Shoreline Designation: Natural/ N (see Attachment 3)

5) Terrain and Vegetation: The roadway sits approximately 4 feet above the surrounding areas and Lake Washington to the west. The area to the west and below the roadway is essentially flat, consisting of wetlands, upland forested areas and the Ordinary High Water Line (OHWL) of Lake Washington. The vegetation within the proposed expansion and mitigation area is dominated by Himalayan blackberry and other non-native invasive species. The dominant tree species located beyond the initial blackberry hedge is comprised of black cottonwood with some alder and western red cedar interspersed. While some native shrubs exist within the wetlands and upland vegetation, the entire area is significantly dominated by non-native and invasive species.

b. Conclusions: The size and zoning of the project area are not constraining factors in the review of the variance application. The presence of a wetland and the proximity to Lake Washington are constraining factors on the application and are the basis for the shoreline variance proposal.

2. Neighboring Development and Zoning:

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

1) North: Zoned JBD 4, restaurant commercial building

2) South: Zoned Park (P), Juanita Bay Park, trail and open space

3) East: Zoned JBD 2, commercial and office development.

b. Conclusion: The neighboring development and zoning are not

constraining factors in the review of this application.

B. HISTORY

1. Facts: The existing 98th Avenue NE roadway was installed in the late 1970s, replacing vehicular access that was previously provided along the 98th Avenue causeway bridge. The original 98th Avenue NE roadway connected directly from the causeway to NE 116th Street as early as the 1950s. The causeway was converted to a pedestrian and bicycle trail connecting the Juanita and Market neighborhoods through Juanita Bay Park. The current configuration of the 98th Avenue NE roadway includes an extruded curb and shoulders that currently support bicycle lanes. The roadway narrows where it connects with the original roadway, resulting in the elimination of the bicycle lanes approximately 500 feet south of the NE 116th Street intersection.

2. Conclusion: The history of the 98th Avenue NE right-of-way and associated improvements is not a constraining factor in the review of this application.

C. PUBLIC COMMENT

The public comment period for the project ran from December 8, 2016 to January 9, 2017. No public comments were received.

D. APPROVAL CRITERIA

1. SHORELINE VARIANCES

a. Facts: The Hearing Examiner may approve a proposed shoreline variance permit only if:

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

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

b. Conclusion: The proposal complies with Kirkland Zoning Code section 141.70.3 and Zoning Code section 150.65. It is consistent with the Comprehensive Plan Shoreline Area chapter (see Section II.E). With the recommended conditions of approval, it is consistent with the Zoning Code and the Shoreline Master Program (see Sections II.F).

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

a. Facts: WAC 173-27-140 establishes the general review criteria under which the City may issue a permit for development on the shoreline. The criteria are listed below with staff response following.

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

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

the Shoreline Master Program and Shoreline Management Act.

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

Staff Response: The project includes road widening and sidewalk installation at ground level. The project is proposing to relocate and install one transit shelter adjacent to the sidewalk. The shelter is currently located along the 98th Avenue NE right-of-way and is approximately ten feet in height. The proposal is consistent with this criterion.

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

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

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

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

Staff Response: The application has identified the need for the expansion project as one of safety for pedestrians and cyclists along this portion of existing roadway. The proposal has identified that the project will expand the roadway the minimum amount necessary and restore the development area and wetland buffer through mitigation and restorative plantings within the wetland buffer. The proposal satisfies several of the guidelines outlined in RCW 90.58.020, namely preserving the natural character of the shoreline; increasing public access to publicly owned areas of the shorelines; and increasing recreational opportunities for the public in the shoreline. The proposed project will maintain the existing forested wetland along the proposed development area, along with restoring and improving the wetland and buffer vegetation through mitigation and restorative plantings. The proposal will also increase public access for pedestrians and cyclists to the Juanita Bay Park natural area and the nearby Juanita Beach Park.

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

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

Staff Response: The public right-of-way has limited ability to expand due to the existing improvements along the eastern side of the roadway. The east side of the roadway is currently developed with buildings, parking areas, and associated public improvements. The application proposes the minimum standard for bicycle lanes and sidewalk expansion. The proposal does not expand or increase the vehicular lanes, only shifts and adjusts the lanes to accommodate the north and southbound bicycle lanes. Strict application of the wetland buffer modification standards precludes the proposed expansion of the existing roadway and sidewalk.

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

Staff Response: The hardship is strictly related to the location of the existing roadway, adjacent improvements along the 98th Avenue NE right-of-way, and the location of Lake Washington and its associated wetlands. The roadway has been in existence in some form as early as the 1950s. The proposal will improve safety and connectivity for pedestrian and bicyclists, following the goals of the City of Kirkland Transportation Master Plan and aligning with the Comprehensive Plan Transportation Chapter goals and policies (see Section E).

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

Staff Response: The proposed right-of-way improvements are comparable to those currently existing and planned for the area. The expansion continues the existing bicycle lanes along the southern portion of 98th Avenue NE, Market Street and Juanita Drive. The proposal supports pedestrian, bicycle, transit, and vehicular traffic in the area and is compatible with the surrounding residential, office, commercial, and recreational uses.

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

Staff Response: The 98th Avenue NE right-of-way is a major arterial, connecting the northern and southern half of the west side of Kirkland. This is the only roadway in the area within the Shoreline Master Program jurisdiction and it is located within a wetland buffer, requiring a variance for the expansion. The variance will not constitute a grant of special privilege.

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

Staff Response: The proposed expansion is the minimum necessary to install the standard 4-foot wide bicycle lanes and the 9.5-foot wide sidewalk (see Attachment 9). The sidewalk width is recommended by the Public Works Department due to the high volume of pedestrian traffic and the location of the Metro bus stop.

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

Staff Response: Through the proposal, the public will benefit from increased safety and connectivity for pedestrians and bicyclists. The public interest will suffer no substantial detrimental effect.

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

E. COMPREHENSIVE PLAN

1. Facts: Development subject to compliance with the Shoreline Master Program must also be consistent with relevant Comprehensive Plan Policies pursuant to 83.40 and 83.50 KZC. Below are the applicable policies for the proposal found in various chapters of the Comprehensive Plan, followed by staff response.

a. Shoreline Area Chapter, Policy SA 22.1: *Maintain a roadway network which will efficiently and safely provide for vehicular circulation within the*

shoreline area.

The existing vehicular circulation system in Kirkland's shoreline area is largely complete, with several major roadways located within the shoreline jurisdiction, including portions of Lake Washington Boulevard NE/Lake Street South and Market Street/98th Avenue NE, as well as neighborhood access streets and driveways. The City should undertake improvements, as necessary, to address needed safety, capacity or efficiency improvements within the shoreline area.

Staff Response: The proposal includes maintaining the existing 98th Avenue NE roadway with associated curb and sidewalk improvements and expanding the roadway to include bicycle lanes and a wider sidewalk. The proposal is intended to improve vehicular, pedestrian, and bicycle safety in an area of roadway that is currently substandard to the City of Kirkland goals and policies.

b. Shoreline Area Chapter, Policy SA-13.4: *Protect and manage shoreline-associated wetlands.*

This policy is intended to ensure that the City achieves no net loss of wetlands through retention of wetland area, functions and values. Mitigation sequencing is used to ensure impacts to wetlands are avoided, where possible, and mitigated, when necessary.

Staff Response: This policy intent is to ensure the City achieves no net loss of wetlands through retention of wetland area, functions and value. When impacts to wetland buffers are unavoidable, mitigation sequencing may be used to ensure ecological function is maintained or improved. The proposal includes maintenance of the same number of vehicular traffic lanes while adding additional pavement for bicycle and sidewalk improvements within the wetland buffer. The applicant has provided a mitigation analysis and restoration planting plan in accordance with the development standards of the Shoreline Master Program (see Section F). The application is consistent with Shoreline Area policy SA-13.4.

c. Shoreline Area Chapter, Policy SA-23.2: *Enhance and maintain pedestrian and bicycle infrastructure within the shoreline area.*

The City should work to infill key gaps in existing shoreline access by connect existing pathways and linking existing access points to and along the shoreline, where feasible. In addition, the City should work to complete bicycle improvements by infilling gaps in existing routes and making any necessary safety improvements.

Staff Response: This policy encourages pedestrian and bicycle movement and access on roadways located within the shoreline area. The proposal includes the expansion of 98th Avenue NE for the purpose of installing bicycle lanes needed to make the connection between two segments of the Lake Washington Loop bicycle route. The proposal also shows a widening of the pedestrian sidewalk, connecting the intersection of NE 116th Street with the Juanita Bay Park elevated trail. The application is consistent with Shoreline Area policy SA-23.2.

d. Transportation Chapter, Policy T-1.4: *Prioritize, design and construct pedestrian facilities in a manner that supports the pedestrian goal and other goals in the Transportation Master Plan.*

Staff Response: This policy aims to support and improve pedestrian connectivity, which is identified in the Transportation Master plan at the

top of the hierarchy, when possible. The proposal includes widening the existing sidewalk from five (5) feet to nine and a half (9.5) feet in width, providing safe and comfortable access and buffering between pedestrians and moving vehicles.

e. Transportation Chapter, Policy T-2.1: *Make bicycling safer.*

As with pedestrian safety, the vulnerability of cyclists to motor vehicles dictates that bicycle safety must be relentlessly pursued. Efforts should be expanded in order to apply safety principles that will increase bicycle safety in Kirkland.

Staff Response: The existing bicycle lane along 98th Avenue NE terminates approximately 500 feet from Juanita Drive. The proposal includes completing the bicycle lane connection between Juanita Drive and 98th Avenue NE, which is a major bicycle route around Lake Washington, used by thousands of cyclists annually. The connection provides for designated bicycle lanes, improving circulation and safety.

2. Conclusion: The proposal, with staff recommended conditions, is consistent with the policies of the relevant chapters of the Comprehensive Plan.

F. SHORELINE MASTER PROGRAM (SMP) KZC 83

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

a. Facts:

1) KZC 83.170 identifies the uses or activities allowed within each Shoreline Environment along the shores of Lake Washington.

2) The proposed roadway widening is located within the Natural Shoreline Environment as identified on the Shoreline Environment Designation Map, adopted by ordinance and located for reference as Figure SA-1 in the Shoreline Area Chapter of the Kirkland Comprehensive Plan (see Attachment 3).

3) The 98th Avenue NE right-of-way is defined as a principal arterial, according to the Street Classifications and State Routes Map, adopted by ordinance and located for reference as Figure T-1 in the Transportation Chapter of the Kirkland Comprehensive Plan (see Attachment 4).

4) Pursuant to KZC 83.170, arterial streets are non-water oriented transportation uses allowed within the Natural Shoreline Environment when processed through a conditional use application. The roadway is existing and the proposal is for expansion of non-motorized pedestrian and bicycle features. The vehicular lanes are proposed to be adjusted in position only within the existing right-of-way. There is no proposed expansion of vehicular lanes nor capacity with the application.

b. Conclusion: The proposed expansion of the existing right-of-way improvements is consistent with the permitted uses and activities standards of KZC 83.170.

2. 83.230 Transportation Facilities

a. Facts:

1) Pursuant to the general standards of KZC 83.230, transportation facilities should utilize existing transportation corridors whenever feasible, minimizing adverse impacts to existing land uses, public shoreline views, public access, and the natural environment.

2) The proposal will expand the existing 98th Avenue NE roadway and sidewalk westward, further into the wetland buffer. The existing structures and improvements along the east side of the roadway prevent the expansion to the east.

3) Pursuant to KZC 83.230.1(e), transportation facilities located in shoreline areas must be designed and maintained to prevent erosion and to permit the natural movement of surface water.

4) The proposal utilizes the existing storm water catch basin system and the new sidewalk will be installed using pervious concrete.

5) Pursuant to KZC 83.230.2(a) all debris and other waste materials from roadway construction and maintenance should be disposed of in such a way as to prevent their entry into any water body.

6) Pursuant to KZC 83.230.2(b) all shoreline areas disturbed by facility construction and maintenance should be replanted and stabilized with approved riparian vegetation by seeding, mulching, or other effective means immediately upon completion of the construction or maintenance activity. The vegetation should be maintained until established.

7) The applicant has submitted a mitigation-planting plan discussed as part of Section II.F.9 and a restoration-planting plan for the area that will be temporarily disturbed during the development of the project. The applicant also submitted a monitoring and maintenance plan that has been reviewed by the City's contract biologist.

8) Pursuant to KZC 83.230.5(d) drainage and surface runoff from streets and street construction or maintenance areas should be controlled so that pollutants will not be carried into water bodies.

9) The applicant has submitted a temporary erosion control plan as part of the application. Additionally, the application plans to utilize the existing storm water catch basins and drainage pipes currently in use.

10) Pursuant to KZC 83.230.5(e) and (g) streets within shorelines jurisdiction should be designed with the minimum pavement area feasible and utilize low impact development techniques for roadway or pathways.

11) The proposal includes the installation of pervious concrete for the sidewalk and wetland planting mitigation, intended to intercept and treat storm water runoff. The proposal is designed according to the minimum design standards established for bicycle lanes (see Criterion 4 discussion below in section II.9.f).

b. <u>Conclusions:</u>

1) The proposed expansion of the existing right-of-way improvements are consistent with the transportation facilities standards of KZC 83.230.

2) The applicant should follow the proposed design, restoration, and construction plan for the project, which utilizes existing storm water infrastructure, provides temporary erosion control, protects the sensitive area from construction debris, and reestablishes through restoration the temporarily disturbed portion of the project.

3. 83.500 Wetlands-General

a. Facts:

1) Pursuant to 83.500.1, wetland and wetland buffers located within 200 feet of the OHWM of Lake Washington are under the jurisdiction of the Shoreline Master Program and are subject to the standards listed in 83.500.

2) The applicant had a report prepared by the City's contract biologist (The Watershed Company), delineating the location of the OHWM of Lake Washington (see Attachment 6).

3) The OHWM delineation identified the location of high water to be within 30 feet of the existing roadway. Attachment 2 illustrates the surveyed location of the OHWM flag boundary and the extent of the 200-foot shoreline jurisdiction.

4) The proposal includes development activity and mitigation planting work located within 200 feet of the OHWM of Lake Washington.

5) Pursuant to 83.500.2, a wetland determination and delineation should be made following the criteria and procedures contained in the approved federal wetland delineation manual and applicable regional supplements.

6) The applicant submitted a report, prepared by The Watershed Company, meeting the submittal requirements established by KZC 83.500.

7) The wetland delineation report determined that the wetland score qualifies as a Category II wetland with a habitat score of 20-28 points, which carries an associated 125-foot buffer (see Attachment 6). Attachment 2 illustrates the surveyed location of the wetland boundary and the extent of the wetland buffer.

8) The applicant is proposing to expand the existing right-of-way improvements; including roadway widening, sidewalk installation, and transit shelter relocation within the identified 125-foot buffer of the Type II wetland. The proposed improvements are located as close as 10 feet to the edge of the wetland.

9) The maximum buffer reduction option allowed in KZC 83.500.9 is 25% of the width of the buffer.

10) When an applicant is unable to comply with the general wetland buffer reduction standards of KZC 83.500.9, the provisions of KZC 83.500.12 may be pursued, allowing for the submittal of a shoreline variance application pursuant to KZC 141.70.

b. Conclusions:

1) The application complies with the wetland delineation and determination submittal standards of KZC 83.500.

2) The location and proximity of the proposed improvements require the applicant to comply with the shoreline variance standards of KZC 83.500.12 (see Section 9 below).

4. 83.500 Wetlands – Shoreline Variance for Wetland Buffer Modification

a. Facts:

1) The applicant is proposing to expand the existing 98th Avenue NE right-of-way to provide for bicycle lanes in both north and southbound directions and install wider sidewalks for pedestrian and transit stop users. The proposed work is located up to ten feet from the regulated Type II wetland edge.

2) Zoning Code Section 83.500.12 establishes submittal requirements and seven (7) decisional criteria for approving an improvement or land surface modification in the inner 75% of a buffer of a wetland contiguous with Lake Washington.

3) The applicant has submitted a report, prepared by a qualified professional, meeting the submittal requirements established by KZC 83.500.12.

4) The applicant's report has been reviewed by The Watershed Company, the City's consultant. The Watershed Company has made recommendations to bring the applicant's proposal into compliance with the approval criteria (see Attachment 7).

5) Section II.F.5 through II.F.11 contain the staff findings of facts and conclusions based on these seven (7) criteria.

b. Conclusion: Based on the following analysis in Sections II.F.5 through II.F.11, the application complies with the established criteria for a shoreline variance in KZC 83.500.12.

5. Criterion 1: No other permitted type of land use for the property with less impact on the sensitive area and associated buffer is feasible.

Facts:

1) The proposed improvements are located within the existing and established public right-of-way (98th Avenue NE). Within the right-of-way, there is no other feasible use other than transportation facilities.

2) The proposal will expand only for bicycle and pedestrian uses and will maintain the current number of vehicular travel lanes.

Conclusion: The application complies with this criterion.

6. Criterion 2: The proposal has the minimum area of disturbance.

Facts:

1) The proposed expansion is designed to accommodate bicycle lanes on both the northbound and southbound side of the roadway.

2) The applicant is proposing to widen the roadway in order to comply with the minimum 4-foot wide bicycle lane standards according to Public Works Policy R-32 (see Attachment 9).

3) The proposed 10-foot wide sidewalk is designed to support a high volume of both pedestrian and transit stop users, providing adequate capacity between the Juanita Business District and to the north and Juanita Bay Park and the Market neighborhood to the south.

4) Pursuant to KZC 110.50, right-of-way improvements along primary arterials are determined on a case-by-case basis by the Public Works Director. The Public Works Director has recommended and approved the improvements associated with this Capital Improvement Project.

5) The applicant has identified that the project will follow best management practices, incorporating these into the design and establishing protection barriers between the work area and sensitive area to be maintained during construction (see Attachments 2 and 5).

Conclusion: The applicant has identified the proposal has the minimum area of disturbance necessary to provide for the bicycle and pedestrian safety improvements.

7. Criterion 3: The proposal maximizes the amount of existing tree canopy that is retained.

Facts:

1) The applicant has designed the project to avoid direct impacts to Lake Washington, the wetland and the vegetated buffer of the wetland, which is dominated by black cottonwood trees.

2) The proposal identifies one black cottonwood tree that will need to be removed in order to install the expansion project.

3) The proposal includes protection measures following best management practices for the forested area that will remain through the development activity.

4) The applicant has proposed mitigation plantings to be installed pursuant to KZC 83.500.8, and discussed in criterion 6 below, which includes supplemental tree installation for the forested wetland buffer.

Conclusion: The applicant's proposal is designed to maximize the amount of existing tree canopy retention. The proposal complies with this criteria.

8. Criterion 4: The proposal utilizes to the maximum extent feasible innovative construction, design, and development techniques, including pervious surfaces, that minimize to the greatest extent feasible net loss of sensitive area functions and values.

Facts:

1) The application is proposing a total of 2,718 square feet of new buffer impact with the project. Of that area, approximately 500 square feet will be constructed of standard asphalt or concrete in the form of roadway widening for bicycle lane expansion and curb installation (see Attachment 8).

2) The project proposes to install the majority of new improvements, approximately 2,200 square feet, in the form of pervious concrete sidewalk within the wetland buffer area (see Attachment 2 and 8).

3) Section KZC 83.500.5 requires the installation of a temporary six-foot tall construction-phase chain link fence with silt screen fabric along the upland boundary of the entire work area prior to construction. The applicant has proposed the installation of temporary protection fencing (see Attachment 2).

Conclusions:

1) The proposal is consistent with this criterion and has designed the project to utilize innovative construction and design to the maximum extent feasible.
2) Prior to construction, the applicant should install temporary six-foot tall construction-phase chain link fence with silt screen fabric along the entire limits of construction area as proposed.

9. Criterion 5: The proposed development does not pose an unacceptable threat to the public health, safety, or welfare on or off the property.

Facts:

1) The existing major arterial roadway (98th Avenue NE) is a permitted use in the Natural Shoreline Environment Area (see Section II.F.1).

2) The proposed expansion is designed as a public safety project, providing designated bicycle lanes and a wider sidewalk for pedestrians and transit users.

Conclusion: The applicant's proposal will not pose an unacceptable threat to the public health, safety, or welfare on or off the property. It is designed to improve safety of the multimodal public transportation systems.

10. Criterion 6: The proposal meets the mitigation, maintenance, and monitoring requirements of this chapter.

Facts:

1) Pursuant to KZC 83.500.12(a), an application for shoreline variance must provide adequate compensatory mitigation for the wetland or wetland buffer impact.

2) The applicant has submitted a restoration and mitigation plan for the wetland and wetland buffer, prepared by Perteet Inc. (see Attachment 2 and 5). The proposal includes mitigation at a ratio of 2:1 for the permanent impacts from development.

3) The mitigation proposal indicates a total of 2,718 square feet of permanent buffer impact will occur. The permanent impact area is proposed to be mitigated by 5,130 square feet of total mitigation, comprised of 4,530 square feet of mitigation in the buffer and 600 square feet of mitigation in the wetland (see Attachment 2).

4) The proposed mitigation plan has been reviewed by the City's consulting biologist, The Watershed Company (see Attachment 7). The Watershed Company has provided recommendations to the

proposed mitigation plan, which have been included in the final mitigation plan for the project (see Attachment 5).

5) Pursuant to KZC 83.500.11, applicants proposing to alter wetlands and their buffers should submit a five-year monitoring and maintenance plan prepared by a qualified professional.

6) The applicant has submitted a monitoring and maintenance plan as part of the mitigation proposal, prepared by Perteet Inc..

7) The mitigation, monitoring and maintenance plan has been reviewed by the City's consulting biologist, The Watershed Company (see Attachment 7). The Watershed Company has provided several recommendations to ensure that the proposal is consistent with the regulations in KZC 83.500.

8) Section KZC 83.500.5 requires the installation of a permanent three to four foot tall spilt rail fence upon project completion along the wetland restoration area. The applicant has included a proposed split rail fence on the mitigation plan (see Attachment 2).

Conclusion:

1) With the recommendations proposed by The Watershed Company, the application will comply with the mitigation, maintenance and monitoring requirements of the Shoreline Master Program.
2) Prior to completion of the project, the applicant should install a permanent three to four foot tall split rail fence along the upland boundary of the wetland restoration area.
3) Upon completion of the development project, the applicant should install the proposed mitigation plantings and enter into the five-year monitoring and maintenance period as proposed.

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

Facts:

1) The proposal is unique in that it is a public right-of-way located within the natural shoreline environment and is located within the buffer of a wetland contiguous with Lake Washington. While other right-of-way improvements exist along the shoreline of Lake Washington, none have requested the granting of a shoreline variance to date.

2) The proposed public right-of-way project is designed to support the general public and the City as a whole. The designed improvements are essential to support public safety and multi-modal transportation options consistent with the Kirkland Transportation Plan.

Conclusion: The proposal will not confer on the applicant any special privilege that is denied by this chapter to other lands, buildings, or structures under similar circumstances. The proposal is consistent with this criterion.

12. 83.360 No Net Loss Standard and Mitigation Sequencing

a. Facts:

1) Pursuant to KZC 83.360.1(b), an applicant should provide an analysis of measures taken to mitigate environmental impacts where a variance application is proposed.
2) Pursuant to KZC 83.500.12, when an applicant is unable to comply with specific standards of the wetlands section in the SMP (83.500), a shoreline variance must be obtained.
3) Under Chapter 173-26 WAC, uses and shoreline modifications along Kirkland's shoreline shall be designed to achieve no net loss of shoreline ecological functions.
4) Pursuant to KZC 83.360.2, an applicant is required to complete the no net loss mitigation sequencing. The following is a list of all six guidelines, in order of preference, that must be considered in the design, construction, and operation of the proposal:
   (a) Avoid the impact altogether by not taking a certain action or parts of an action;
   (b) Minimize impacts by limiting the degree or magnitude of the action and its implementation by using appropriate technology or by taking affirmative steps to avoid or reduce impacts;
   (c) Rectify the impact by repairing, rehabilitating, or restoring the affected environment;
   (d) Reduce or eliminate the impact over time by preservation and maintenance operations;
   (e) Compensate for the impact by replacing, enhancing, or providing substitute resources or environments; and
   (f) Monitor the impact and the compensation projects and taking appropriate corrective measures.
5) The applicant has submitted a no net loss analysis assessment as part of the application (see Attachment 5).
6) The applicant is proposing to expand the 98th Avenue NE right-of-way through roadway widening, sidewalk widening, and new bus shelter installation. The overall widening ranges in size, from a few inches up to fourteen feet, all along the western side of the right-of-way.
7) The expansion project is limited to the lake side of the roadway due to existing buildings and improvements along the eastern side of 98th Avenue NE.
8) The existing conditions of this section of 98th Avenue NE do not allow for bicycle lanes within the roadway.
9) The proposal is intended to increase bicycle and pedestrian safety along this section of roadway.
10) The installation of the additional roadway and sidewalk width is designed to improve pedestrian and bicycle circulation to and from the NE 116th Street intersection. The application proposes to install the sidewalk using a pervious concrete material (see Attachment 2).
11) The application includes protection measures to be incorporated with the development of the improvements, intended to minimize impacts on the wetland buffer (see Attachments 2 and 5).
12) The application identifies compensatory areas of enhancement as mitigation for the permanent loss and temporary disturbance of vegetated wetland buffer (see Section II.F.9).
13) The City's contract biologist made recommendations to the applicant's initial proposal, identifying requirements to incorporate

in order to comply with the mitigation standards of KZC 83.360 and 83.500 (see Attachment 7).

14) The applicant included the recommended changes to the proposed mitigation plan (see Attachment 5).

b. Conclusions:

1) The applicant is proposing the minimum necessary to expand the pavement and sidewalk improvements within the existing right-of-way. The additional improvements are designed to improve pedestrian and bicycle circulation and safety. The mitigation plans are designed to repair and improve the ecological function of the wetland and shoreline environment.

2) Based on the proposed application, which includes the recommendations of the City's contract biologist, the application is consistent with the no net loss mitigation sequencing standards of KZC 83.360.

13. 83.330 Land Surface Modification

a. Facts:

1) Pursuant to KZC 83.330, land surface modification within a required shoreline setback should only be authorized by a valid land surface modification permit under the provisions established in Kirkland Municipal Code Title 29.

2) Pursuant to Kirkland Municipal Code (KMC) title 29.12, the Public Works Capital Improvement Projects division is required to obtain a land surface modification permit from the Development Services Department when the proposed work is located within a critical area or its buffer. The proposed work is located within a wetland buffer and the Shoreline Management Area.

3) A land surface modification proposal should be consistent with the provision of Chapter 83 KZC and be consistent with the most current Public Works Department Pre-Approved Plans and Policies.

4) As part of the Land Surface Modification permit review, the City will include the established conditions of approval under this Shoreline Variance (see Recommendations in Section B).

5) The applicant has submitted preliminary designs and plans that are consistent with the Public Works Department Pre-Approved Plans and Policies.

b. Conclusion:

1) The proposed application is consistent with the Land Surface Modification standards of KZC 83.330.

2) The applicant should submit the necessary land surface modification permit application to the Development Services Department at the City of Kirkland and receive approval prior to any site development.

14. 83.340 Fill

a. Facts:

1) Pursuant to KZC 83.340.1, fill should be permitted only where an applicant demonstrates the proposal will not result in significant damage to water quality, fish, aquatic habitat, and/or wildlife habitat. Additionally, fill should not adversely alter drainage or circulation patterns or stream flows.

2) Pursuant to KZC 83.340.2, fills landward of the OHWM should be designed, constructed, and maintained to prevent, minimize, and control all material movement, erosion, and sedimentation from the affected area.

3) The applicant has proposed filling of the project area to support the sidewalk expansion into the wetland buffer. The applicant provided a biological assessment and report identifying the proposal will cause no environmental or habitat impacts (see Attachment 5).

4) The proposed plans include the preliminary construction plans, including site development practices that will be followed during construction, identifying site disturbance areas and fill work areas, along with erosion control techniques.

b. Conclusion:

1) The proposed roadway and sidewalk expansion project is consistent with the Fill standards of KZC 83. 340.

2) As part of the Land Surface Modification permit, the applicant should follow the proposed application, including the mitigation and erosion control plans.

15. 83.480 Water Quality, Stormwater, and Nonpoint Pollution

a. Facts:

1) Pursuant to KZC 83.480, development within the shoreline jurisdiction should incorporate all known, available, and reasonable methods in prevention, control, and treatment of surface or ground water quality. Proposed development activity should include temporary erosion control measures and storm water detention, water quality treatment and storm water conveyance facilities in accordance with the City's adopted surface water design manual.

2) The proposed project description and implementation plan identifies temporary erosion control and water quality measures will be included with the development permit application and managed during the construction according to state and local standards (see Attachments 2 and 5).

3) Pursuant to the standards of KZC 83.480.3(g), the application of pesticides, herbicides or fertilizers within shoreline setbacks should utilize best management practices outlined in the BMPs for Landscaping and Lawn/Vegetation Management Section of the 2005 Stormwater management Manual for Western Washington.

4) Spray application of pesticides should not occur within 100 feet of open waters including wetlands or the waters of Lake Washington.

5) The majority of the proposed development activity and mitigation

planting area is all located within 100 feet of the OHWM of Lake Washington and associated wetlands.

6) The proposal identifies that all noxious or invasive plants located within the mitigation planting areas will be cleared and removed by hand. The maintenance plan also specifies removal of invasive plants by hand or with hand-tools (see Attachment 5).

b. Conclusions:

1) The proposed application complies with the water quality, storm water and nonpoint pollution provisions of KZC 83.480.

2) The applicant should follow the proposed application plans and BMPs of KZC 83.480 for all aspects of the development project, including the roadway expansion improvements, the mitigation planting area, and the monitoring and maintenance of the mitigated plantings.

16. 83.370 Federal and State Approval

a. Facts:

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

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

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

III. SUBSEQUENT MODIFICATIONS

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

IV. APPEALS

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

Appeal to Shoreline Hearings Board:

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

V. LAPSE OF APPROVAL

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

"Date of filing" means the date the decision of the Department of Ecology is transmitted by the department to the City of Kirkland. The permit time periods do not include the time during which a use or activity was not actually pursued due to the pendency of administrative appeals or legal actions pursuant to RCW 90.58.180 and WAC 173-27-220.

VI. APPENDICES

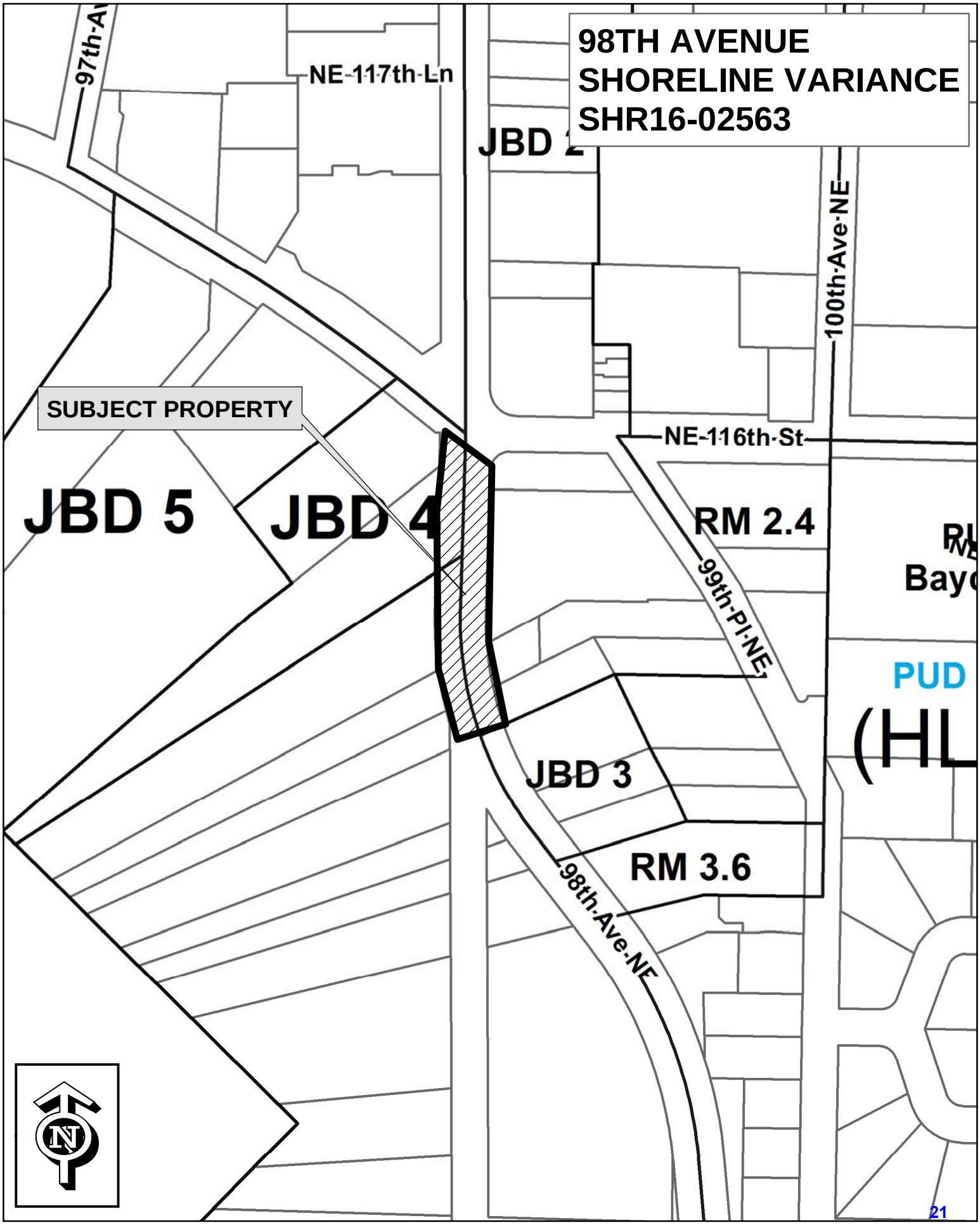
Attachments 1 through 9 are attached.

1. Vicinity Map
2. Proposed Plans
3. Shoreline Environment Designation Map
4. Street Classification Map
5. Proposed Project Narrative
6. The Watershed Company original delineation
7. The Watershed Company Review report
8. Proposed Plans with area calculations
9. Public Works Policy R-32

VII. PARTIES OF RECORD

Applicant: Aparna Khanal, City of Kirkland CIP
Parties of Record
Planning and Building Department
Department of Public Works

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


98TH AVENUE
SHORELINE VARIANCE
SHR16-02563
97th-Ave
NE-117th-Ln
JBD 2
100th-Ave-NE
SUBJECT PROPERTY
NE-116th-St
JBD 5
JBD 4
RM 2.4
99th-Pl-NE
PUD
JBD 3
RM 3.6
98th-Ave-NE
N

ENHANCEMENT MITIGATION INFILL UNDERPLANTING PLANTING SCHEDULE (4,530 SF)

	LATIN NAME	SIZE	SPACING	LOCATION	QUANTITY
PLANTING AREA A AREA A					
SITKA SPRUCE	*PICEA SITCHENSIS*	5 GAL.	8'–12'	THROUGHOUT	10
WESTERN RED CEDAR	*THUJA PLICATA*	5 GAL.	8'–12'	THROUGHOUT	11
PLANTING AREA B AREA B					
SITKA SPRUCE	*PICEA SITCHENSIS*	5 GAL.	8'–12'	THROUGHOUT	8
DOUGLAS FIR	*PSEUDOTSUGA MENZIESII*	5 GAL.	8'–12'	THROUGHOUT	8
WESTERN RED CEDAR	*THUJA PLICATA*	5 GAL.	8'–12'	THROUGHOUT	8
WESTERN HEMLOCK	*TSUGA HETEROPHYLLA*	5 GAL.	8'–12'	THROUGHOUT	8

TEMPORARY BUFFER IMPACT REPLANTING PLANTING SCHEDULE (2,278 SF)

SYMBOL	LATIN NAME	SIZE	SPACING	LOCATION	QUANTITY
SHRUBS					
SERVICEBERRY	*AMELANCHIER ALNIFOLIA*	1 GAL.	3' – 4'	THROUGHOUT	20
INDIAN PLUM	*OEMLERIA CERASIFORMIS*	1 GAL.	3' – 4'	THROUGHOUT	20
VINE MAPLE	*ACER CIRCINATUM*	1 GAL.	10 – 15'	BOTTOM OF SLOPE	20
BALDHIP ROSE	*ROSA GYMNOCARPA*	1 GAL.	63" – 4' IN CLUSTERS OF 3 STEMS	EDGE OF SIDEWALK	40
SNOWBERRY	*SYMPHORICARPOS ALBUS*	1 GAL.	3' – 4'	EDGE OF SIDEWALK	40
RED ELDERBERRY	*SAMBUCUS RACEMOSA*	1 GAL.	3' – 4'	THROUGHOUT	20
MOCK ORANGE	*PHILADELPHUS LEWISII*	1 GAL.	3' – 4'	THROUGHOUT	30
SALAL	*GAULTHERIA SHALLON*	1 GAL.	3' – 4'	THROUGHOUT	30
WAX MYRTLE	*MYRICA CALIFORNICA*	1 GAL.	3' – 4'	BOTTOM OF SLOPE	20

TEMPORARY BUFFER IMPACT REPLANTING SEED MIX (2,278 SF)

(ALL EXPOSED UPLAND SOILS SHALL BE SEEDED

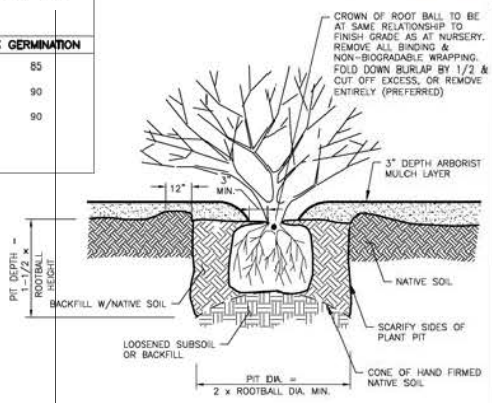
SYMBOL SCIENTIFIC NAME:	COMMON NAME:	% WEIGHT	% PURITY	% GERMINATION
AGROSTIS ALBA OR AGROSTIS OREGONENSIS	REDTOP OR OREGON BENTGRASS	20	92	85
FESTUCA RUBRA	RED FESCUE	70	98	90
TRIFOLIUM REPENS	WHITE DUTCH CLOVER	10	98	90

SEED APPLICATION RATE: 120 LBS/ACRE

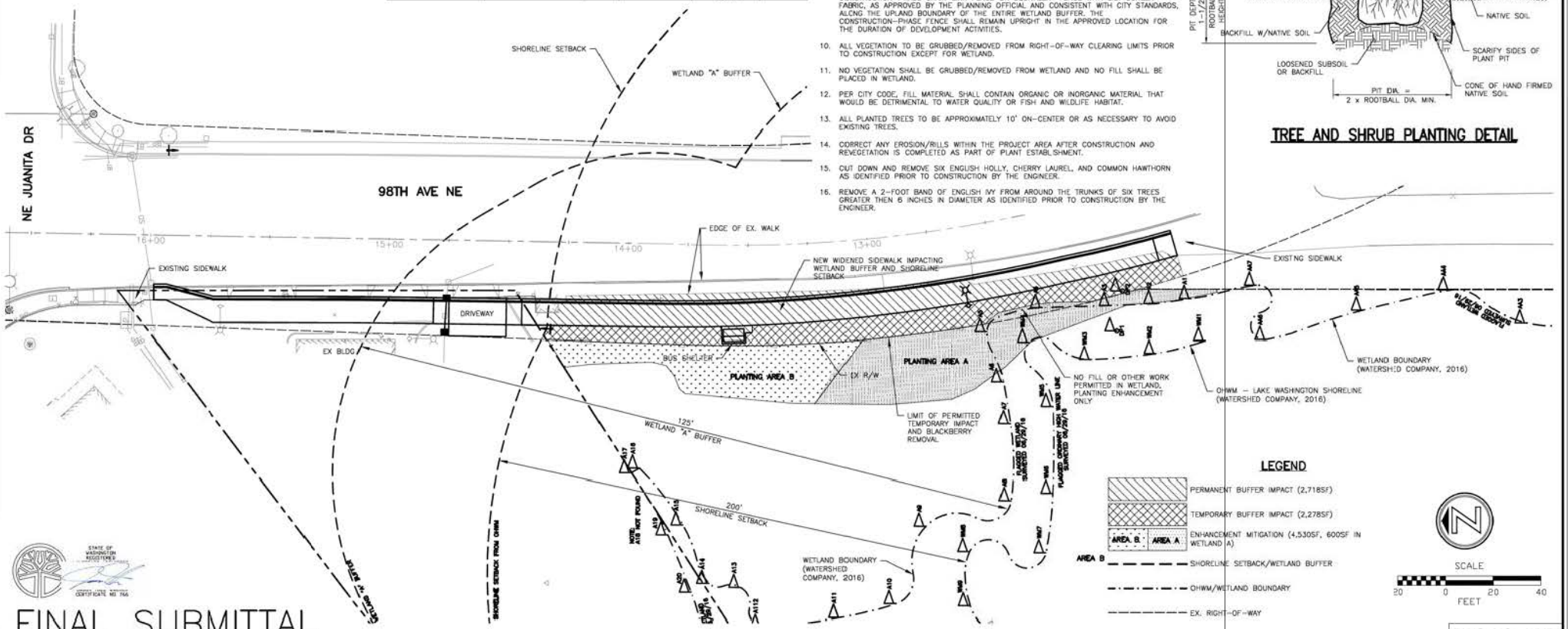
APPLICATION METHOD: HYDROSEED

GENERAL NOTES

1. WORK INDICATED ON THIS SHEET SHALL ONLY OCCUR ON CITY PROPERTY OR RIGHT–OF–WAY.
9. PRIOR TO CONSTRUCTION, PER CITY CODE, CONTRACTOR TO INSTALL 6–FOOT–HIGH CONSTRUCTION–PHASE CHAIN LINK FENCE OR EQUIVALENT FENCE WITH SILT SCREEN FABRIC, AS APPROVED BY THE PLANNING OFFICIAL AND CONSISTENT WITH CITY STANDARDS, ALONG THE UPLAND BOUNDARY OF THE ENTIRE WETLAND BUFFER. THE CONSTRUCTION–PHASE FENCE SHALL REMAIN UPRIGHT IN THE APPROVED LOCATION FOR THE DURATION OF DEVELOPMENT ACTIVITIES.
10. ALL VEGETATION TO BE GRUBBED/REMOVED FROM RIGHT–OF–WAY CLEARING LIMITS PRIOR TO CONSTRUCTION EXCEPT FOR WETLAND.
11. NO VEGETATION SHALL BE GRUBBED/REMOVED FROM WETLAND AND NO FILL SHALL BE PLACED IN WETLAND.
12. PER CITY CODE, FILL MATERIAL SHALL CONTAIN ORGANIC OR INORGANIC MATERIAL THAT WOULD BE DETRIMENTAL TO WATER QUALITY OR FISH AND WILDLIFE HABITAT.
13. ALL PLANTED TREES TO BE APPROXIMATELY 10' ON–CENTER OR AS NECESSARY TO AVOID EXISTING TREES.
14. CORRECT ANY EROSION/RILLS WITHIN THE PROJECT AREA AFTER CONSTRUCTION AND REVEGETATION IS COMPLETED AS PART OF PLANT ESTABLISHMENT.
15. CUT DOWN AND REMOVE SIX ENGLISH HOLLY, CHERRY LAUREL, AND COMMON HAWTHORN AS IDENTIFIED PRIOR TO CONSTRUCTION BY THE ENGINEER.
16. REMOVE A 2–FOOT BAND OF ENGLISH IVY FROM AROUND THE TRUNKS OF SIX TREES GREATER THEN 6 INCHES IN DIAMETER AS IDENTIFIED PRIOR TO CONSTRUCTION BY THE ENGINEER.



TREE AND SHRUB PLANTING DETAIL



FINAL SUBMITTAL

DWG. NO. WMP1

Perteet
425-252-7700 | 1-800-615-9900
2707 Colby Avenue, Suite 900
Everett, Washington 98201

Oct 06, 2016 - 1:07pm tekulich X:\Kirkland, City of\Projects\20130240 - Juanita Drive Quick Wins\CADD\Plan Sheets\20130240 WMP.dwg Layout Name: WMP1

FILE	ENGR.	REVIEW	SCALE	DATE
WMP1	KB	JW	NONE	SEPTEMBER 2016

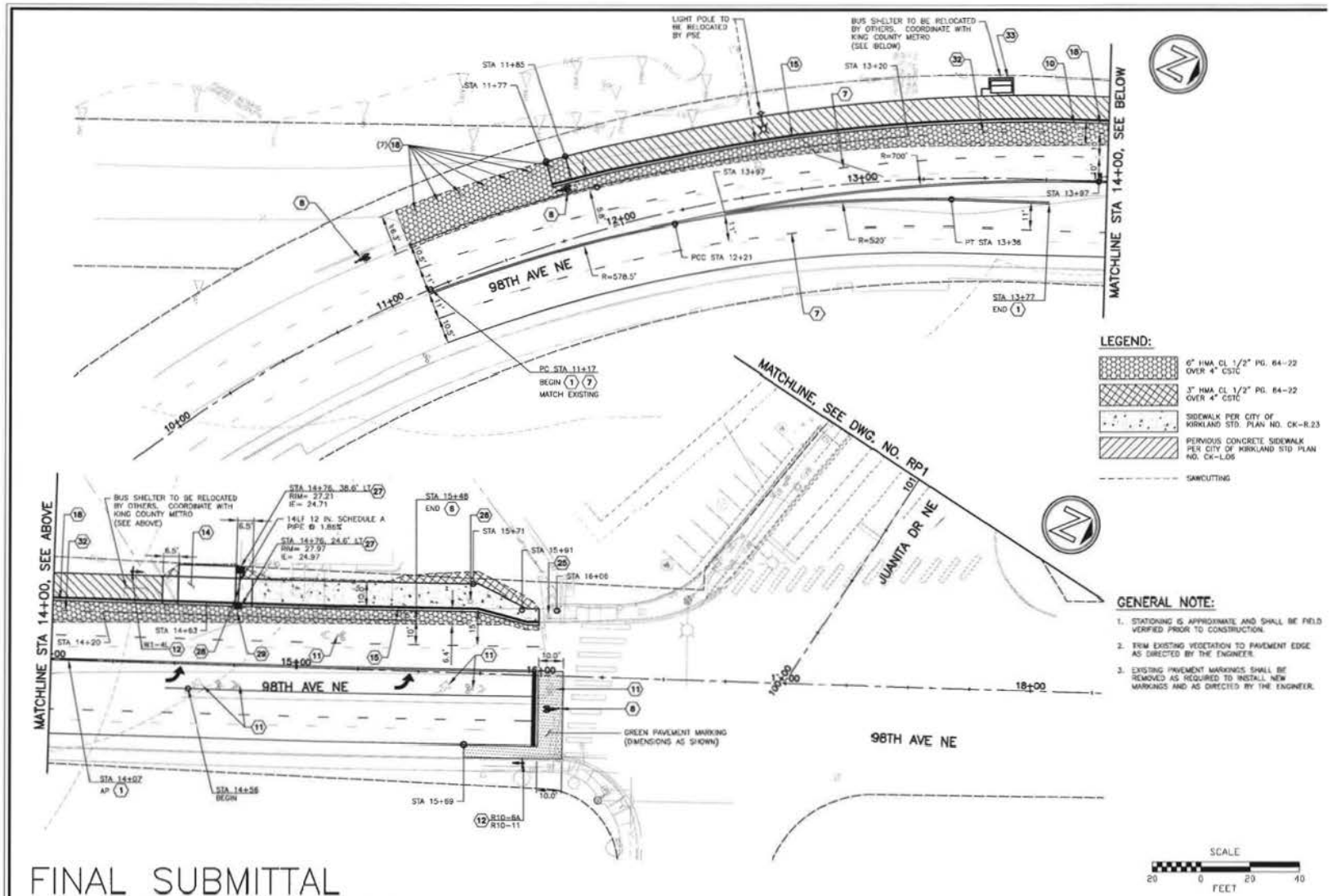
NO.	REVISION	BY	REVIEW	DATE

CITY OF KIRKLAND WASHINGTON

CITY OF KIRKLAND
PUBLIC WORKS DEPARTMENT
123 FIFTH AVENUE – KIRKLAND, WA 98033–6189 – (425)587–3800

Figure 3
JUANITA DRIVE QUICK WINS
98TH AVE NE
SHORELINE MITIGATION PLAN

SHEET 48/48



LEGEND:

- 6" HMA CL 1/2" PG. 64-22 OVER 4" CSTC
- 3" HMA CL 1/2" PG. 64-22 OVER 4" CSTC
- SIDEWALK PER CITY OF KIRKLAND STD. PLAN NO. CK-R.23
- PERVIOUS CONCRETE SIDEWALK PER CITY OF KIRKLAND STD PLAN NO. CK-L06
- SAWCUTTING

GENERAL NOTE:

1. STATIONING IS APPROXIMATE AND SHALL BE FIELD VERIFIED PRIOR TO CONSTRUCTION.
2. TRIM EXISTING VEGETATION TO PAVEMENT EDGE AS DIRECTED BY THE ENGINEER.
3. EXISTING PAVEMENT MARKINGS SHALL BE REMOVED AS REQUIRED TO INSTALL NEW MARKINGS AND AS DIRECTED BY THE ENGINEER.

CONSTRUCTION NOTES:

1. INSTALL DOUBLE YELLOW CENTER STRIPE PER CITY OF KIRKLAND STD. PLAN NO. CK-R.31.
2. INSTALL TWO-WAY LEFT TURN STRIPE PER CITY OF KIRKLAND STD. PLAN NO. CK-R.31.
3. INSTALL GORE STRIPE PER CITY OF KIRKLAND STD. PLAN NO. CK-R.31.
4. INSTALL WHITE PLASTIC CROSSWALK PER CITY OF KIRKLAND STD. PLAN NO. CK-R.28B.
5. INSTALL WHITE PLASTIC STOP LINE PER CITY OF KIRKLAND STD. PLAN NO. CK-R.28B.
6. INSTALL WHITE PAINTED 4" EDGE LINE PER KING COUNTY ROAD DESIGN AND CONSTRUCTION STANDARDS.
7. INSTALL WHITE PAINTED 4" DOTTED LINE PER KING COUNTY ROAD DESIGN AND CONSTRUCTION STANDARDS.
8. INSTALL WHITE PLASTIC BIKE SYMBOL PER CITY OF KIRKLAND STD. PLAN NO. CK-R.34
9. SHARED USED PATH BUFFER TREATMENT A PER DETAIL ON DWG. NO. MD2.
9B. SHARED USED PATH BUFFER TREATMENT B PER DETAIL ON DWG. NO. MD2.
10. REMOVE SIGN AND POST.
11. REMOVE PLASTIC TRAFFIC MARKING.
12. INSTALL SIGN AND POST PER CITY OF KIRKLAND STD. PLAN NO. CK-R.43.
13. CONSTRUCT CURB RAMP TYPE PERPENDICULAR PER WSDOT STD. PLAN F-40.15-02.
14. CONSTRUCT CEMENT CONCRETE DRIVEWAY ENTRANCE TYPE 1 PER WSDOT STD. PLAN F-80.10-03
15. CONSTRUCT CURB AND GUTTER PER CITY OF KIRKLAND STD. PLAN CK-R.17.
16. ADJUST CATCH BASIN. INSTALL NON-SLIP TREATMENT ON LID.
17. CONSTRUCT EXTRUDED ASPHALT CONCRETE CURB PER CITY OF KIRKLAND STD. PLAN CK-R.19.
18. REMOVE BOLLARD.
19. INSTALL TYPE 6SR TRAFFIC ARROW PER WSDOT STD. PLAN M-24.40-02.
20. CONNECTION TO DRAINAGE STRUCTURE.
21. CONSTRUCT CENTERLINE RUMBLE STRIP PER WSDOT STD PLAN M-85.10-02.
22. REMOVE GUARDRAIL.
23. INSTALL BEAM GUARDRAIL FLARED TERMINAL PER WSDOT STD. PLAN C-46.
24. CONSTRUCT GREEN STRIPE WITHIN BIKE LANE OR SHARED PATH TO THE LIMITS SHOWN OR AS DIRECTED BY THE ENGINEER. SEE DETAIL DWG. NO. MD2.
25. ADJUST WATER METER BOX.
26. REMOVE AND SALVAGE EXISTING LIGHT POLE AND FIXTURE. REMOVE EXISTING FOUNDATION. CUT EXISTING CONDUIT AND CONDUCTORS AT ROW LINE. CAP CONDUIT WITH PVC PLUG. DIAMETER TO MATCH EXISTING.
27. INTERCEPT EXISTING PIPE AND INSTALL CATCH BASIN TYPE 1 WITH VANED FRAME AND GRATE PER WSDOT STD. PLAN B-5.20-01.
28. REMOVE EXISTING CATCH BASIN.
29. REMOVE EXISTING PIPE.
30. GATEWAY SIGN, PER DETAIL DWG. NO. MD3. (LOCATION TO BE FIELD VERIFIED).
31. PROTECT EXISTING IRRIGATION SYSTEM.
32. INSTALL 8" BIKE LANE EXTENSION LINE PER KING COUNTY ROAD DESIGN AND CONSTRUCTION STANDARDS.
33. BUS SHELTER FOOTING DETAIL B21 PER KING COUNTY DWG. NO. D103.

FINAL SUBMITTAL

DWG. NO. RP23

Perteet
425-252-7700 | 1-800-615-9900
2707 Colby Avenue, Suite 900
Everett, Washington 98201

FILE	ENGR.	REVIEW	SCALE	DATE
RP23	KB	KA	NONE	SEPTEMBER 2016

NO.	REVISION	BY	REVIEW	DATE

CITY OF KIRKLAND WASHINGTON

CITY OF KIRKLAND
PUBLIC WORKS DEPARTMENT
123 FIFTH AVENUE - KIRKLAND, WA 98033-6189 - (425)587-3800

JUANITA DRIVE QUICK WINS
ROADWAY PLANS

SHEET 35 / 48

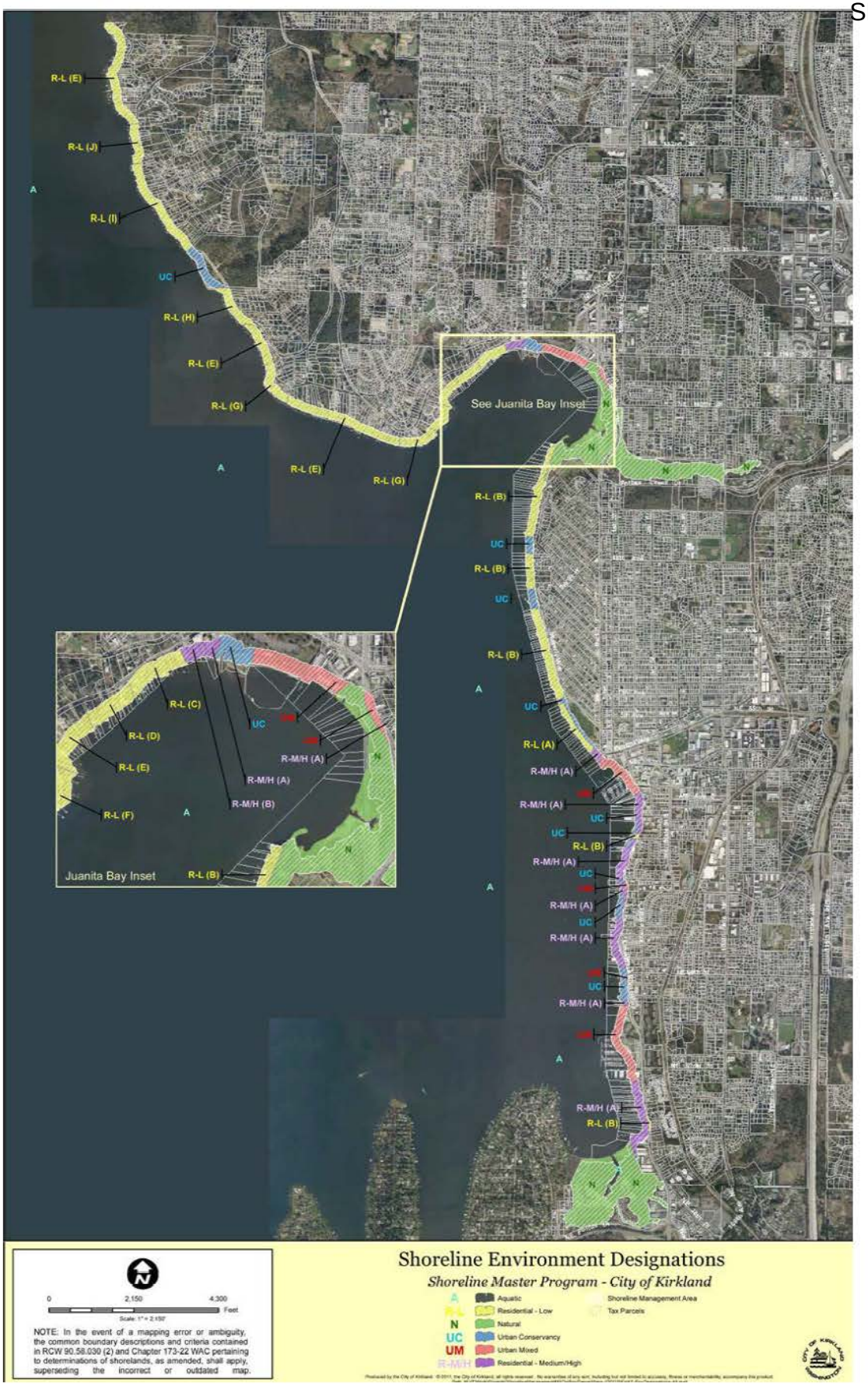


Figure SA-1: Shoreline Environment Designations Map

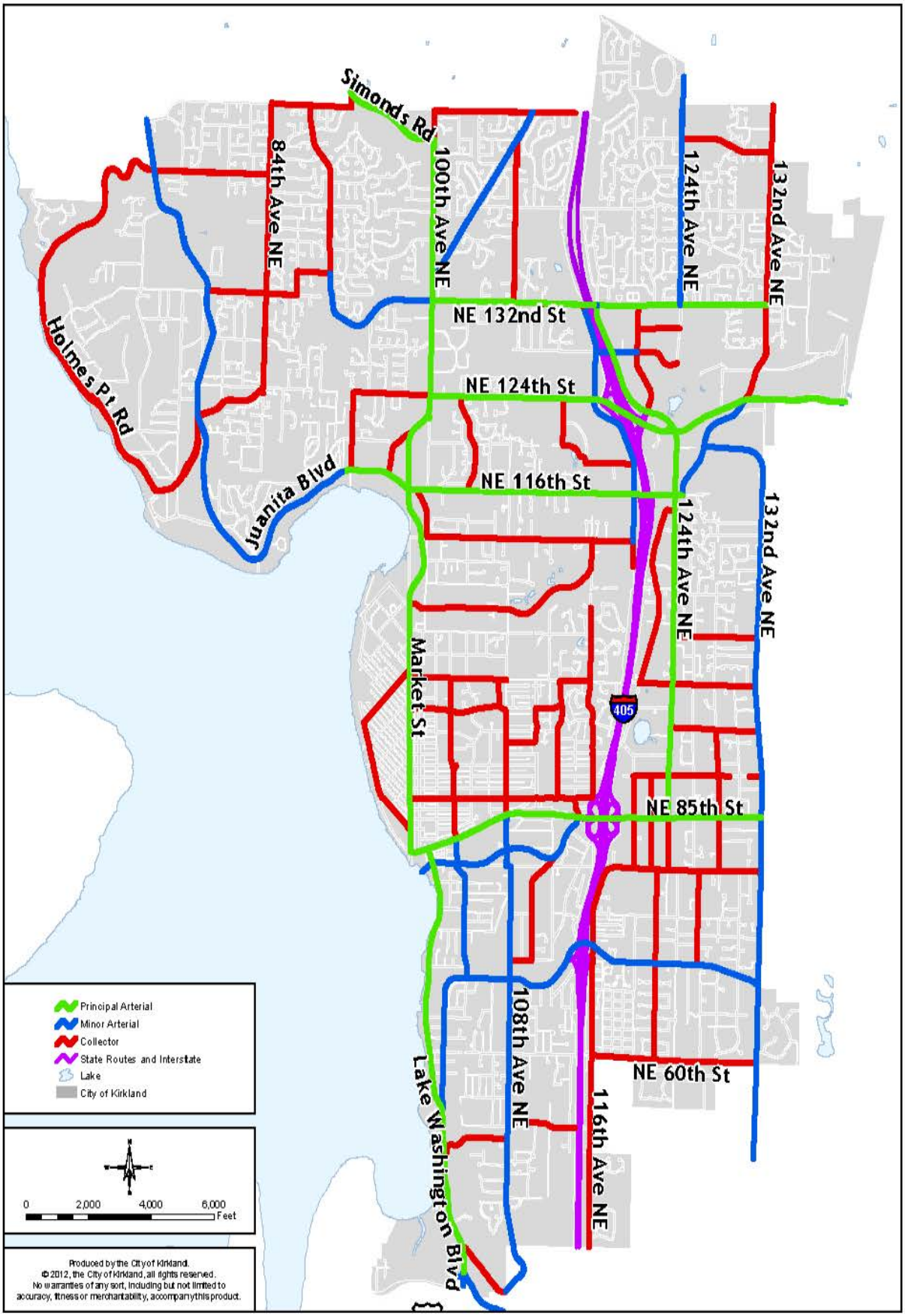


Figure T-1: Street Classifications and State Routes

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2707 COLBY AVENUE, SUITE 900
EVERETT, WA 98201
425.252.7700

March 9, 2017

Aparna Khanal, Project Engineer
City of Kirkland Public Works Department
123 Fifth Avenue
Kirkland, WA 98033

Re: Juanita Drive Quick Wins, 98th Ave NE Shoreline Variance Mitigation Memo revisions

Dear Aparna,

Enclosed please find Perteet's revised Juanita Drive Quick Wins, 98th Ave NE Shoreline Variance and Mitigation Memo for proposed sidewalk and public safety improvements. The revisions address comments provided by the Watershed Company's February 17, 2017 peer review memo during the City's shoreline variance permitting environmental review. The comments recommended a handful of changes to the proposed critical areas buffer mitigation at the south end of the proposed project along 98th Ave NE. Watershed's seven recommendations are listed below with the actions taken by Perteet to address them.

Recommendations:

1. Specify that the six-foot tall, chain-link or equivalent fencing adjacent the buffer will include silt-screening fabric. Specify that a three- to four-foot tall split-rail fence will be installed between the sidewalk and the buffer restoration/mitigation areas upon implementation of the mitigation plan. Depict both fences on the Mitigation Plan drawings.

Text specifying construction fencing complying with KZC 83.500.5 was present in the Shoreline Variance Technical Memo on page 7 at the end of "Project Design, Avoidance, and Minimization of Impacts". Text was also present in the General Notes on Figure 3 Shoreline Mitigation Plan.

Text and CADD drawing details specifying a permanent post-project fence meeting KZC 83.500.5 was added to the revised Memo and the Construction Drawing Mitigation Plan Figures, including the General Notes.

Fencing text in the revised Memo was segregated into a "Protective Fencing" section.

2. Remove hydroseed from the temporary impact restoration area and replace with a four-inch thick blanket application of woodchip mulch.

Completed

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425.252.7700

3. Revise the planting plan to include a dense, native shrub community in the understory of the buffer mitigation planting area. Conifer plantings are appropriate but should be supplemented.

Added a mix of dry and moist soil tolerant shrub species to the enhancement area infill plantings.

4. Add a provision for woodchip mulch, either blanket application or mulch rings, in the buffer mitigation planting area.

Arborist mulch around each planting was already specified on the Figure 3 Shoreline Mitigation Plan "Tree and Shrub Planting Detail." A direct statement of mulch application per Watershed's observation has been called out in the Figure 3 General Notes and in the Figure 4 Tree and Shrub Planting Detail. A statement was added to the Memo text at the end of the paragraph discussing infill underplanting. A statement was added to Table 3 Performance Standard 5 specification.

5. Add a native cover standard to both planting areas, and add an invasive performance standard for the buffer mitigation planting area.

Completed

6. Provide a detailed monitoring program and a contingency plan. Include a reference to irrigation in the contingency plan. Note that monitoring should occur twice per year for a minimum of five years.

Completed

7. Include goals, performance standards, monitoring program, and contingency plan with the Mitigation Plan set.

Completed

Contact Jason Walker (425.763.1294) or myself (206.617.3740) if you have any questions regarding the Memo revisions.

Sincerely,

William Kidder
Lead Ecologist
Perteet Inc.

Shoreline Variance Technical Memorandum

Perteet

To: Aparna Khanal, Project Engineer, City of Kirkland Public Works Department

From: Jason Walker, PLA, PWS, Environmental Planning Manager, Perteet, Inc.
William Kidder, PWS, Lead Ecologist, Perteet, Inc.

Date: October 6, 2016; Amended March 9, 2017

Re: Juanita Drive Quick Wins, 98th Ave NE Sidewalk Improvements Shoreline Variance and Mitigation

PROJECT DESCRIPTION AND NEED

The City of Kirkland's (City) Juanita Drive Corridor Master Plan identified vehicular, pedestrian, and bicycle safety concerns from 98th Ave NE to NE 143rd St that present safety hazards throughout the corridor. This corridor is used annually by thousands of cyclists completing the Lake Washington bicycling loop and tens of thousands of cyclists and pedestrians traveling north or south between the communities, urban commuter centers, and public spaces along the east side of Lake Washington. The City proposes to construct corridor safety improvement projects to reduce identified hazards. Improvements include pedestrian facilities, sidewalks and crosswalks; dedicated bike lane features; lighting, and signage.

At 98th Ave NE from the north end of Juanita Bay Park to Juanita Drive/NE 116th Street intersection, the City proposes to widen and improve the southbound sidewalk (west side of road) to provide for combined pedestrian and bicycle travel (Figure 1). Currently, southbound cyclists must travel either in the vehicle travel lanes (speed limit 35 mph) or navigate the existing 5-foot wide sidewalk with pedestrians and/or individuals waiting at the co-located bus stop (Figure 2).

The City proposes to widen the existing 5-foot wide sidewalk to 9.5-feet wide from the edge of street curb and relocate the current bus shelter further south from the 98th Ave NE / NE 116 St intersection to a safer location for southbound traffic. Clearing and grubbing to the ROW boundary is proposed to prepare the site for construction of the additional sidewalk and to remove non-native invasive species that dominate the ROW edge. A 2:1 fill slope would extend from the sidewalk's west edge to a base of slope that meets existing topography. All imported structural fill soils would be clean and sourced

from a local, licensed distributor. The sidewalk additions and fill slopes would remain within the right-of-way (ROW) limits.

The proposed project would extend into Lake Washington's 200-foot shoreline setback zone and into a critical areas wetland 125-foot buffer. The proposed project will not be permitted to encroach into the shoreline OHWM and is designed to avoid the portion of wetland that extends into the ROW.

This memo report describes:

- the shoreline, shoreline setback, wetland and wetland buffer existing conditions,
- regulatory context of the shoreline and critical areas buffer intrusion, and
- the proposed mitigation for permanent and temporary setback and buffer intrusions.

Figure 1. Site Vicinity

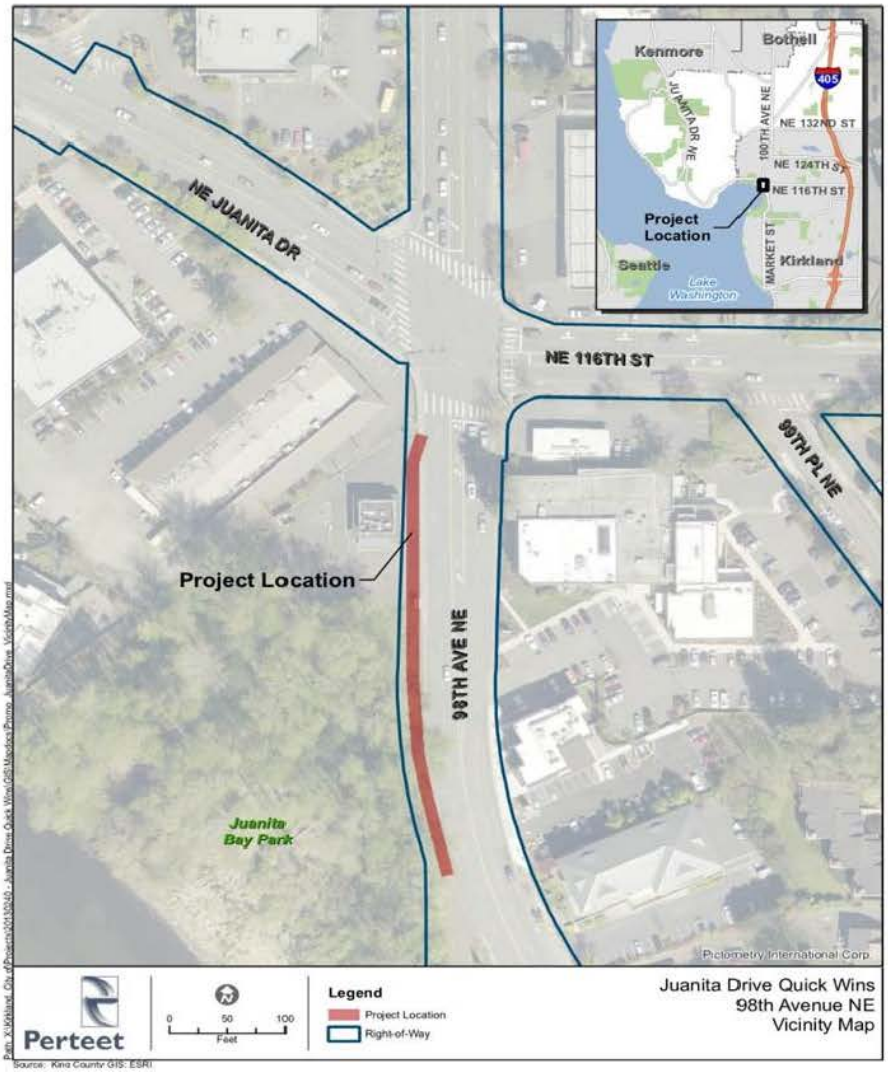


Figure 2. View south along 98th Ave NE from NE 116th St, Juanita Bay Park in farground.

DOCUMENTS REVIEWED

The following resource information, websites and documents were reviewed by Perteet:

- The Watershed Company, May 13, 2016, Technical Memo: Juanita Park Sidewalk CIP Project, Wetland and Lakeshore Delineation Report, Prepared for City of Kirkland (Attachment 1).
- The Watershed Company, April 8, 2016, revised June 2, 2016. Wetland and Lakeshore Delineation Map Revision, Prepared for City of Kirkland.
- City of Kirkland Zoning Code, Chapter 83 Shoreline Management and Chapter 141 Shoreline Administration. Accessed September 20, 2016 at http://www.codepublishing.com/WA/Kirkland/
- Washington Department of Ecology Shoreline Management Program. Accessed September 20, 2016 at

http://www.ecy.wa.gov/programs/sea/sma/st_guide/intro.html

- Washington Administrative Code Chapter 173-27 Shoreline Management Permit and Enforcement Procedures. Accessed September 21, 2016 at http://app.leg.wa.gov/wac/default.aspx?cite=173-27
- Google Earth Pro, Accessed September 15, 2016

EXISTING SITE CONDITIONS

Perteet ecologists completed a site reconnaissance on September 17, 2016. The Watershed Company recently completed a Wetland and Lakeshore Delineation Report for the City of Kirkland for the proposed project (Watershed Company May 13, 2016, Attachment 1). The 98th Ave NE project corridor between NE 116th St and Juanita Bay Park is a four lane arterial surface street bordered by 5 foot sidewalks, professional / retail offces to the east and north, and Juanita Bay Park and Lake Washington to the south and west (Figure 1). The road corridor sits three to four feet above the surrounding surface on the ROW west side. Topography to the west is very flat, dropping less than four feet from near the existing roadside bus stop to the current wetted edge (September 17, 2016) on the south and west of a lake fringe forest.

One shoreline associated Category II forested wetland (Wetland A) is present adjacent to the project. The Watershed Company Wetland and Shoreline Delineation Report provides a detailed explanation of the Wetland A and the Lake Washington shoreline OHWM delineation.

Vegetation within the project corridor is dominated by a Himalayan blackberry (*Rubus armeniacus*) hedge and other non-native invasive species along the existing road ROW and sidewalk. Beyond the road ROW is a black cottonwood (*Populus balsamifera*) dominated forest in uplands and wetlands that transitions into an inundated shrub community (mostly willows (*Salix* sp. and red osier (*Cornus alba*)) then a floating aquatic community as the natural habitat extends west and south into Lake Washington. The upland forest contains some red alders (*Alnus rubra*) and one young western red cedar (*Thuja* plicata) was observed adjacent to the project corridor. The upland understory is dominated, though, by non-native invasives including Himalayan blackberry, reed canarygrass (*Phalaris arundinacea*), creeping nightshade (*Solanum dulcamara*), and English ivy (*Hedera helix*). European mountain ash (*Sorbus aucuparia*), cherry laurel (*Prunus laurocerasus*), common hawthorn (*Crataegus monogyna*), Indian plum (*Oemleria cerasiformis*), and sword fern (*Polystichum munitum*) were also observed less frequently in

the uplands. The wetland understory is dominated willows, red osier, Douglas spiraea (*Spiraea douglasii*), reed canarygrass, and occasionally, Japanese knotweed (*Polygonum cuspidatum (Fallopia japonica)*) and bamboo.

REGULATORY CONTEXT

The proposed project is limited to an approximately 10-foot wide corridor within the 98th Ave NE right-of-way (ROW) that is wholly contained within the 200-foot Lake Washington shoreline setback and the 125-foot buffer of Wetland A (Figure 3). The 200-foot shoreline setback (shoreland) is established by RCW 90.58.030 and is administered by the Washington Department of Ecology's Shoreline Management Program. Kirkland administers its Shoreline Master Program and permitting via Kirkland Zoning Code (KZC) and the state administers Shoreline regulations under WAC 141.50 and 141.70 and under Shoreline Variance Burden of Proof requirements: WAC 173-27-140 and 173-27-170.

Wetland A is influenced by and associated as a landward extension of Lake Washington's hydrology. As such, Wetland A and its 125-foot wetland buffer are regulated by Kirkland's shoreline management program administered under the KZC and most notably in the following code sections: 83.230 Transportation Facilities; 83.360 No Net Loss Standard and Mitigation Sequencing; 83.480 Water Quality, Stormwater, and Nonpoint Pollution; and 83.500 Wetlands.

The City has determined that the Juanita 98th Ave NE project would require a Shoreline Variance pursuant to WAC 173-27-170 Review Criteria for Variance Permits, KZC 83.141.70.3 Variances, and KZC 83.500.12 See Table 1.

Table 1. Overview of relevant Shoreline code sections and compliance with those sections.

Kirkland Shoreline Management Program Code Chapter 83	
83.230 Transportation Facilities	The proposed project retains and widens an existing primary public transportation corridor with a primary goal of improving the current pedestrian and bicyclist amenities along this section of 98th Ave NE. No crossings or work within water bodies will be permitted The public's access and views of the shoreline are very limited due to the existing deciduous forest with understory shrub community currently limiting views and access to the shorelands. No public facilities accessing the shoreline are present along this section of 98th Ave NE.

	Further, the adjacent deciduous forest restricting views or access are protected within the shoreline setback and wetland buffers. There is no plan to disturb the existing forested buffer to improve public access to the shoreline with this project. All construction and maintenance activities would be completed by the City in accordance with City and Shoreline Management standards.
83.360 No Net Loss Standard and Mitigation Sequencing	No net loss to waters or critical areas will occur with mitigation. The proposed project has been designed to avoid impacts to critical areas and shoreline resources and minimize impacts to critical area buffers to the maximum extent possible while providing for necessary pedestrian and bicycle public safety improvements along the 98th Ave NE corridor. Standard design for bi-directional pedestrian and bicyclist pathways specifies a 10-foot sidewalk. The 98th Ave NE project is designed to a 9.5 foot sidewalk that still provides for safe flow of bi-directional traffic while remaining within the ROW and minimizing intrusion into the critical area buffers. The project proposes compensatory areas of enhancement as mitigation for the permanent loss and temporary disturbance of vegetated wetland buffer that is presently dominated by Himalayan blackberry.
83.480 Water Quality, Stormwater, and Nonpoint Pollution	Water quality and erosion control measures will be implemented during construction and operation pursuant current City of Kirkland or Department of Ecology stormwater manual standards to avoid project related impacts to waters and wetlands.
83.500 Wetlands	A wetland and shoreline determination/delineation of the project corridor and adjacent city owned parcels was completed by The Watershed Company for the City of Kirkland (Attachment 1). One Category II forested wetland was identified in the project area that contains a 125-foot buffer. Impacts: The wetland buffer would receive 2,718 square feet of permanent buffer impacts and 2,280 square feet of temporary

	buffer impacts due to necessary project impacts. No modification of wetlands or work in the lake will occur. An on-site compensatory mitigation plan is proposed (Figure 3). Temporary buffer impacts will be restored with native vegetation. Permanent buffer impacts are to be mitigated on-site using enhancement methods to mitigate for a minimally equivalent area of buffer loss pursuant to 83.500.9 (D)1B. This action will be done pursuant to a Shoreline Variance and a component of wetland adjacent to the buffer reduction will also be enhanced. Items of 83.500.11 and 12 to enable 83.500.9 (D)1B are also addressed within the content of this memo.
WAC Shoreline Management Code per Kirkland Zoning Code Chapter 141	
WAC 173-27-140 Review criteria for all development	The proposed project would meet the requirements of 173.27.140; the project is consistent with the policy and provisions of the Shoreline Management Act and provisions the Master Program. Also, there is no proposal for any new or expanded building or structure as part of the project.
WAC 173-27-170 Review criteria for variance permits	The City requests a variance pursuant to 173-27-170: (1) This project will provide for public safety improvements to widen the sidewalk along 98th Ave NE in the public interest and the public will suffer no substantial detrimental effect. (2) The minimum necessary development for the sidewalk widening will occur landward of the ordinary high water mark (OHWM), as defined in RCW 90.58.030 (2)(b), and/or landward of any wetland as defined in RCW 90.58.030 (2)(h), and may be authorized as follows: (a) That the strict application of the bulk, dimensional or performance standards set forth in the applicable master program precludes, or significantly interferes with, reasonable use of public property to provide for sidewalk widening which will improve public safety; (b) The hardship described in (a) of this subsection is specifically related to the project property, and is the result of unique conditions such as irregular lot shape, size, or natural features (lake edge, wetland, and buffer) and the

	application of the master program, and not from deed restrictions or the applicant's own actions; (c) The design of the project is compatible with other authorized uses within the area (such as existing trails and pedestrian walkways in the Shoreline designation) and with uses planned for the area under the comprehensive plan and shoreline master program and will not cause adverse impacts to the shoreline environment; (d) The variance will not constitute a grant of special privilege not enjoyed by the other properties in the area; (e) That the variance requested is the minimum necessary to afford relief; and (f) That the public interest will suffer no substantial detrimental effect. (3) Variance permits for development and/or uses located waterward of the ordinary high water mark (OHWM) are not necessary for this action. (4) In the granting of all variance permits, consideration shall be given to the cumulative impact of additional requests for like actions in the area. For example if variances were granted to other developments and/or uses in the area where similar circumstances exist the total of the variances shall also remain consistent with the policies of RCW 90.58.020 and would not cause substantial adverse effects to the shoreline environment due to this project. Any projects that propose similar development or construction activities within shorelines or shorelands of the state would require a simlilar permit or variance from the Department of Ecology and the local jurisdiction pursuant to Washington Administrative Code (WAC) 173-27. Further, projects requesting a variance must benefit the general public's interests (WAC 173-27-170(2) as this one does. (5) Variances from the use regulations of the master program are prohibited and will not occur with this action. The subject parcels are wholly contained within the shoreline setback and wetland buffers. Approximately 30 feet of the shoreline OHWM is located within 25 feet of the existing

	sidewalk. Approximately 40 feet of the wetland boundary is located less than 10 feet from the existing sidewalk. These existing critical areas constraints otherwise restrict the City from constructing a full width bi-directional pedestrian and bicycle corridor. The project design proposes a narrower 9.5 foot sidewalk instead of the standard 10 foot wide sidewalk for two-way pedestrian and bike use. The proposed project would benefit the public interest by providing a safer transportation and pedestrian corridor along this section of 98th Ave NE.

PROJECT DESIGN, AVOIDANCE, AND MINIMIZATION OF IMPACTS

The proposed project has been designed to avoid impacts to critical areas and critical area buffers while providing for necessary pedestrian and bicycle public safety improvements along the 98th Ave NE corridor. Standard design for bi-directional pedestrian and bicyclist pathways specifies a 10-foot sidewalk. The 98th Ave NE project is designed to a 9.5 foot sidewalk that still provides for safe flow of bi-directional traffic while remaining within the ROW and minimizing intrusion into the critical area buffers to the maximum extent possible.

An impacts and mitigation plan has been prepared (Figure 3). The project proposes to:

1) clear and grub all non-tree vegetation up to the ROW edge (excluding where Wetland A and a 1 to 2-foot buffer immediately around the wetland extend into the ROW),
2) backfill with clean structural fill soils outside of the wetland to construct a sidewalk foundation and 2:1 sideslope,
3) construct a 9.5-foot wide sidewalk (currently 5 feet wide) and relocate the bus shelter (currently within the critical areas buffers), and
4) provide buffer enhancemnt mitigation that includes revegetating the temporary impacts zone and providing buffer habitat enhancements in the adjacent critical areas buffer forest.

The proposed project is designed to avoid direct impacts to Lake Washington and Wetland A. Wetland A extends briefly into the ROW near the south end of the project corridor, but the project will avoid impacts to Wetland A. No work in the lake or within the wetland will be permitted to occur.

Additionally, one black cottonwood tree not surveyed within the ROW near the middle of the project corridor in the wetland buffer and shoreline setback has been noted as present on construction details and is specified in construction notes to not be removed per KZC 83.400 Tree Management and Vegetation in Shoreline Setback. To construct the sidewalk extension, the proposed project will permanently impact 2,718 sq. ft. of the shoreline setback and Wetland A buffer. Permanent buffer impacts include construction of the sidewalk and the relocated bus shelter. The project would also temporarily impact 2,280 sq. ft. of the Wetland A buffer. Temporary impacts would include necessary construction clearing / grubbing and the 2:1 fill side slopes extending from the sidewalk edge to the surrounding topography. Side slopes are predominately vegetated with Himalayan blackberry.

PROTECTIVE FENCING

For all construction activities, temporary high-visibility fencing containing silt-screening fabric shall be installed at the approved limits of clearing to demarcate the extent of approved impacts. Temporary fencing shall comply with KZC 83.500.5 Wetland Buffer Fence or Barrier. Water quality and erosion control will also be managed during construction to state and local standards to avoid construction related impacts to waters and wetlands per KZC 83.480.

A permanent 3-foot tall open-rail fence shall be installed at the edge of sidewalk along the length of the temporary buffer impact zone. A single fence break will be present at the proposed new bus shelter location.

MITIGATION

Mitigation is proposed to be done as enhancement within the adjacent buffer and shoreline setback. KZC 83.360 requires mitigation for impacts to shorelands, critical areas, and critical area buffers. The project proposes to complete mitigation to shoreline setback and wetland buffers in-place in accordance with KZC 83.500.10 and 83.500.11 (Figure 3).

The goal for mitigation is to stabilize construction related exposed soils using native shrubs and to promote a mixed conifer/deciduous forest succession in the adjacent shoreline setback/wetland buffer zone. Objectives and performance standards are briefly proposed in Table 2 and on Figures 3 and 4.

Temporary buffer impacts will be revegetated in-place using native shrub species (Figure 3). Trees are not proposed for planting in the ROW to reduce future potential safety hazards along the transportation corridor from falling vegetation. A 4-inch thick woodchip mulch blanket/sheet shall be applied to exposed soils in the temporary buffer impact area to prevent erosion. It is anticipated that the shrub layer shall fill in and shade out herbaceous plants and the mulch blanket to provide permanent erosion protection. The native shrub community will be established using approximately 3 to 4-foot spacing within the Temporary Buffer Impacts zone. The upland shrub species composition and quantities are presented on Figure 4, Temporary Buffer Impact Replanting Planting Schedule. Additional initial underplanting is proposed to offset future contingency needs due to plant mortality.

Only one conifer, a western red cedar, was observed in the undeveloped shoreline setback zone. The infill underplanting goal is to promote a more diverse mixed coniferous / deciduous forest community where few understory trees or shrubs are present to eventually replace the older deciduous canopy in the Enhancement Mitigation Area. Permanent buffer impacts would be mitigated using a 1:1 area ratio to underplant native conifers and shrub species beneath the deciduous forest canopy (Figure 3). Additional initial underplanting is proposed to offset future contingency needs due to plant mortality. Plantings would be spaced on an approximately 8-foot spacing throughout an equivalent area to compensate for permanent buffer impacts. The conifer and shrub species composition and quantities are presented on Figure 3 and in the Enhancement Mitigation Infill Underplanting Planting Schedule on that drawing. Infill plantings shall receive a ring of arborist mulch rings 4-inches thick and at least a 3-foot diameter around the installed planting or sheet mulching where plants are tightly clustered.

Aggressive non-native invasive species and seed sources are very common in and adjacent to the project area that would make removing invasive species in this location unsustainable over time. Within the ROW (i.e. temporary buffer impact area), non-native invasive species would be removed and controlled during the proposed mitigation monitoring period to promote establishment of the native shrub community. Within the enhancement mitigation area the project proposes removing invasive species where practical and feasible. This includes removing approximately six individual trees and shrubs of European mountain ash, cherry laurel, and common hawthorn within about 100 feet of the project area ROW. It also includes removing English ivy from lowest 4 feet from approximately six large black cottonwood trees where ivy is growing 20 plus feet up the

trunks. Himalayan blackberry would be cleared or grubbed in the enhancement mitigation areas to give access for installing the proposed tree and shrub infill underplantings.

MAINTENANCE, MONITORING, AND CONTINGENCY

The mitigation program would be monitored and maintained by city staff or representatives for a 5-year period per KZC 83.500.11 to ensure that mitigation is meeting the city-agreed performance standards. Tables 2 and 3 and Figure 4 capture the mitigation objectives, performance standards, monitoring, and maintenance/contingencies being proposed in this memo. Mitigation monitoring shall occur twice yearly in year's 1, 2, 3, and 5. Year 4 shall be an inspection and maintenance year only as needed. For each of the four proposed monitoring years (1, 2, 3, and 5), one site inspection would occur in mid-spring to assess maintenance and contingency needs for that growing season and a second inspection event would occur in mid-late summer to conduct the performance standards surveys and additional mitigation maintenance. A mitigation area monitoring and progress report shall be submitted to the City by the end of November for Year's 1, 2, 3, and 5 that illustrates the maintenance and progress of the mitigation area toward meeting the established performance standards.

Contingencies necessary to meet the mitigation area performance standards will be assessed annually and proposed/implemented as conditions warrant. Contingencies may include, but are not limited to, supplemental irrigation, supplemental installed plantings, and/or additional invasive species controls. Proposed contingencies shall be controlled by the project's mitigation performance standards as approved by the City.

Table 2. Temporary Buffer Impacts Area Mitigation Objectives, Performance Standards, Monitoring, and Maintenance Plan

Performance Standard (PS)	Initial Specification	PS Monitoring Method and Frequency (not in Construction Contract)	Maintenance / Contingency
Objective 1: To stabilize construction related exposed soils and promote a native vegetation community in the Temporary Buffer Impacts Replanting Area.			
PS 1. Install physical barrier between sidewalk and critical areas buffer to minimize intrusion into the buffer.	Open rail fence shall be 3 foot tall located next to sidewalk for length of Temporary Buffer Impact Area, excluding new bus shelter pad.	Annually - Visual inspection to confirm installed and in stable condition for public safety.	Repair as necessary for public safety during plant establishment period by installation Contractor per plant establishment criteria and under monitoring maintenance period by others.
PS 2. Establish an erosion control barrier throughout to prevent soil erosion and transport of soils into adjacent critical areas.	Mulch shall be at least 4-inches thick throughout the Temporary Buffer Impact Area.	Year 1 - Visual inspection to confirm applied to specification. Annually - Visual inspections to confirm minimal / no evidence of soil erosion / erosional rills.	Any post-construction eroded soils shall be regraded using handtools by installation Contractor per plant establishment criteria and under monitoring maintenance period by others. Mulch blanket shall be reapplied to specification where observed to be deficient for limiting erosion.
PS 3: Establish a native shrub community that shall have: - average 80 % survival (thriving condition) by the end of Years 1 and 2 (Year 1 per standard plant establishment criteria by installation Contractor, and subsequent years under monitoring maintenance by others), - average 40 % aerial cover by Year 3, - average 80 % aerial cover by Year 5.	Install approximately 225 stems of native shrub species on 3 - 4 foot spacing. Nine native shrub species specified per Figures 3 and 4 Planting Schedule.	Annually - Two 60-foot long by 4-foot wide belt transects, one each on either side of the new bus shelter positioned wholly within the Temporary Buffer Impact Area. Survival will be a stem count. Aerial cover will be visual estimate.	Irrigate and maintain as needed to promote successful growth by installation Contractor per plant establishment criteria and monitoring maintenance period by others. Replace stems as needed to meet the performance standard.
PS 4: Invasive and noxious weed species shall remain less than 10 percent aerial cover. To be managed by installation Contractor per plant establishment criteria and under monitoring maintenance period by others.	All vegetation to be removed from the ROW clearing limits prior to construction.	Annually - Two 60-foot long by 4-foot wide belt transects, one either side of the new bus shelter positioned wholly within the Temporary Buffer Impact Area. Aerial cover will be visual estimate.	Remove by hand or with handtools invasive and noxious weed species observed during inspections. To be done by installation Contractor per plant establishment criteria and under monitoring maintenance period by others.

Table 3. Enhancement Mitigation Area Objectives, Performance Standards, Monitoring, and Maintenance Plan

Performance Standard (PS)	Initial Specification	PS Monitoring Method and Frequency (not in Construction Contract)	Maintenance / Contingency
Objective 2: To promote a multi-story mixed coniferous / deciduous forest that eventually replaces the older single canopy of cottonwood trees in the Enhancement Mitigation Areas.			
PS 5: Increase buffer forest species and habitat structure diversity that shall have: - average 80 % survival (thriving condition) by the end of Years 1 and 2 (or per contractor's warranty), - average 30 % aerial cover by Year 3, - average 50 % aerial cover by Year 5.	Infill plant approximately 70 native shrubs and conifer trees under the existing deciduous tree canopy. Plant stems on approximately 8 - 10 foot spacing around existing trees. Four native conifer, four upland shrub, and four wetland shrub species are specified per Figures 3 and 4 Planting Schedule. All installed stems shall receive an arborist mulch ring 4-inches thick and 3-foot minimum radius around planting holes.	Annually - Two 60-foot long by 10-foot wide belt transects, one each in Planting Area A and Area B. Survival will be a stem count. Aerial cover will be a visual estimate.	Irrigate and maintain as needed to promote successful growth. Replace stems as needed to meet the performance standard. To be done by installation Contractor per plant establishment criteria and under monitoring maintenance period by others.
PS 6: Invasive and noxious weed species shall be removed where reasonable and feasible.	Cut down and remove English holly, cherry laurel, and common hawthorn within and immediately adjacent to the mitigation areas. Remove bottom 4-feet of English ivy from around the trunks of approximately six trees greater than 10 inches in diameter. Clear and grub Himalayan blackberry within and immediately adjacent to the mitigation areas.	Annually - Two 60-foot long by 4-foot wide belt transects, one either side of the new bus shelter positioned wholly within the Temporary Buffer Impact Area. Aerial cover will be visual estimate.	Remove by hand or with handtools invasive and noxious weed species observed during inspections. To be done by installation Contractor per plant establishment criteria and under monitoring maintenance period by others.

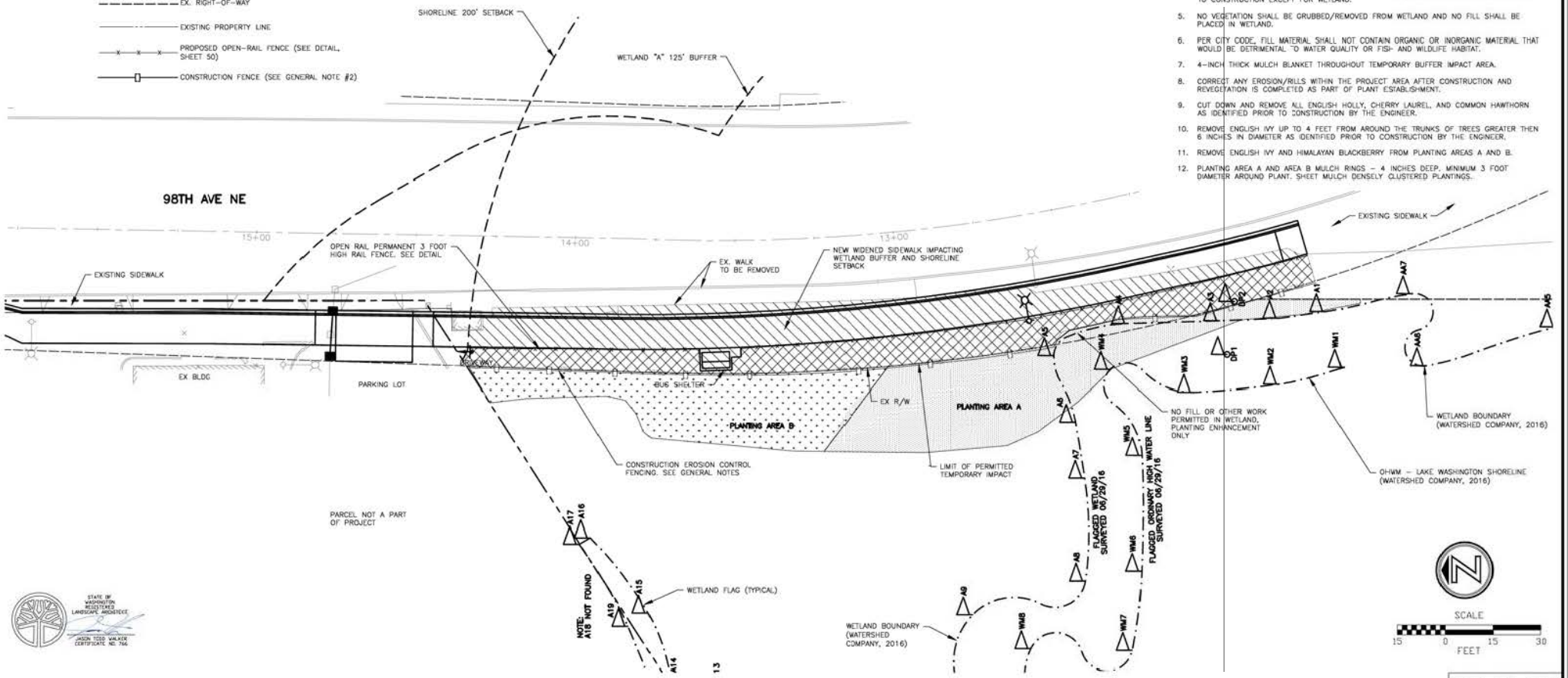
END OF MEMORANDUM

LEGEND

- PERMANENT BUFFER IMPACT (2,718SF)
- TEMPORARY BUFFER IMPACT (2,278SF)
- AREA B / AREA A — ENHANCEMENT MITIGATION (4,530SF, 600SF IN WETLAND A)
- SHORELINE SETBACK/WETLAND BUFFER
- OHWM/WETLAND BOUNDARY
- EX. RIGHT-OF-WAY
- EXISTING PROPERTY LINE
- PROPOSED OPEN-RAIL FENCE (SEE DETAIL, SHEET 50)
- CONSTRUCTION FENCE (SEE GENERAL NOTE #2)

GENERAL NOTES

1. WORK INDICATED ON THIS SHEET SHALL ONLY OCCUR ON CITY PROPERTY OR RIGHT-OF-WAY.
2. PRIOR TO CONSTRUCTION, PER CITY CODE, CONTRACTOR TO INSTALL TEMPORARY 6-FOOT-HIGH CONSTRUCTION-PHASE CHAIN LINK FENCE OR EQUIVALENT FENCE WITH SILT SCREEN FABRIC, AS APPROVED BY THE PLANNING OFFICIAL AND CONSISTENT WITH CITY STANDARDS, ALONG THE UPLAND BOUNDARY OF THE ENTIRE WETLAND BUFFER. THE CONSTRUCTION-PHASE FENCE SHALL REMAIN UPRIGHT IN THE APPROVED LOCATION FOR THE DURATION OF DEVELOPMENT ACTIVITIES. ALLOW FOR OPENINGS AS NEEDED FOR CONSTRUCTION.
3. OPEN RAIL FENCE 3 FEET TALL ALONG OUTER EDGE OF SIDEWALK. ALLOW FENCE OPENING FOR BUS SHELTER.
4. ALL VEGETATION TO BE GRUBBED/REMOVED FROM RIGHT-OF-WAY CLEARING LIMITS PRIOR TO CONSTRUCTION EXCEPT FOR WETLAND.
5. NO VEGETATION SHALL BE GRUBBED/REMOVED FROM WETLAND AND NO FILL SHALL BE PLACED IN WETLAND.
6. PER CITY CODE, FILL MATERIAL SHALL NOT CONTAIN ORGANIC OR INORGANIC MATERIAL THAT WOULD BE DETRIMENTAL TO WATER QUALITY OR FISH AND WILDLIFE HABITAT.
7. 4-INCH THICK MULCH BLANKET THROUGHOUT TEMPORARY BUFFER IMPACT AREA.
8. CORRECT ANY EROSION/RILLS WITHIN THE PROJECT AREA AFTER CONSTRUCTION AND REVEGETATION IS COMPLETED AS PART OF PLANT ESTABLISHMENT.
9. CUT DOWN AND REMOVE ALL ENGLISH HOLLY, CHERRY LAUREL, AND COMMON HAWTHORN AS IDENTIFIED PRIOR TO CONSTRUCTION BY THE ENGINEER.
10. REMOVE ENGLISH IVY UP TO 4 FEET FROM AROUND THE TRUNKS OF TREES GREATER THEN 6 INCHES IN DIAMETER AS IDENTIFIED PRIOR TO CONSTRUCTION BY THE ENGINEER.
11. REMOVE ENGLISH IVY AND HIMALAYAN BLACKBERRY FROM PLANTING AREAS A AND B.
12. PLANTING AREA A AND AREA B MULCH RINGS - 4 INCHES DEEP, MINIMUM 3 FOOT DIAMETER AROUND PLANT. SHEET MULCH DENSELY CLUSTERED PLANTINGS.



STATE OF WASHINGTON REGISTERED LANDSCAPE ARCHITECT
JASON TODD WALKER
CERTIFICATE NO. 766

DWG. NO. WMP1

PERTEET
2707 COLBY AVENUE, SUITE 900
EVERETT, WA 98201
425.252.7700 | 800.615.9900

Mar 09, 2017 - 2:25pm andyv X:\Kirkland, City of\Projects\20130240 - Juanita Drive Quick Wins\CADD\Plan Sheets\20130240 WMP.dwg Layout Name: WMP1

FILE	ENGR.	REVIEW	SCALE	DATE
WMP1	KB	JW	NONE	FEBRUARY 2017

NO.	REVISION	BY	REVIEW	DATE

CITY OF KIRKLAND WASHINGTON

CITY OF KIRKLAND
PUBLIC WORKS DEPARTMENT
123 FIFTH AVENUE - KIRKLAND, WA 98033-6189 - (425)587-3800

FIGURE 3
JUANITA DRIVE QUICK WINS
98TH AVE NE
SHORELINE MITIGATION PLAN

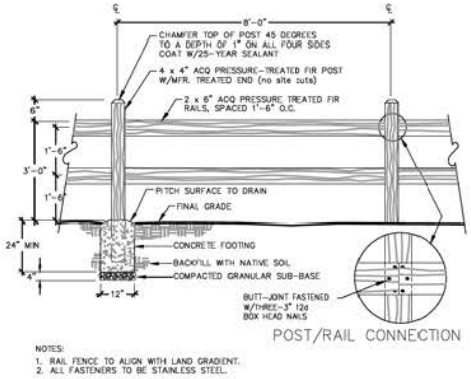
SHEET 49 / 50

ENHANCEMENT MITIGATION INFILL UNDERPLANTING PLANTING SCHEDULE (4,530 SF)

	LATIN NAME	SIZE	SPACING	LOCATION	QUANTITY
PLANTING AREA A	**AREA A**				
SITKA SPRUCE	*PICEA SITCHENSIS*	5 GAL.	8'–12'	THROUGHOUT	7
WESTERN RED CEDAR	*THUJA PLICATA*	5 GAL.	8'–12'	THROUGHOUT	7
PEA ROSE	ROSA PISOCARPA	1 GAL.	8'–10' IN CLUSTERS OF 3 STEMS	THROUGHOUT	15 IN CLUSTERS OF 3 STEMS
TWINBERRY	LONICERA INVOLUCRATA	1 GAL.	8'–10'	THROUGHOUT	10
CRABAPPLE	MALUS FUSCA	1 GAL	8'–10'	THROUGHOUT	5
RED OSIER DOGWOOD	CORUNS ALBUS OR C. SERICEA	1 GAL	8'–10'	THROUGHOUT	5
PLANTING AREA B	**AREA 'B'**				
SITKA SPRUCE	*PICEA SITCHENSIS*	5 GAL.	8'–12'	THROUGHOUT	5
DOUGLAS FIR	*PSEUDOTSUGA MENZIESII*	5 GAL.	8'–12'	THROUGHOUT	5
WESTERN RED CEDAR	*THUJA PLICATA*	5 GAL.	8'–12'	THROUGHOUT	5
WESTERN HEMLOCK	*TSUGA HETEROPHYLLA*	5 GAL.	8'–12'	THROUGHOUT	5
SNOWBERRY	*SYMPHORICARPOS ALBUS*	1 GAL.	8'–10'	INTERSPERSED AMONGST CONIFERS	10
VINE MAPLE	*ACER CIRCINATUM*	1 GAL.	8'–10'	INTERSPERSED AMONGST CONIFERS	5
ELDERBERRY	*SAMBUCUS RACEMOSA*	1 GAL.	8'–10'	INTERSPERSED AMONGST CONIFERS	5
SALAL	*GAULTHERIA SHALLON*	1 GAL.	8'–10'	INTERSPERSED AMONGST CONIFERS	10

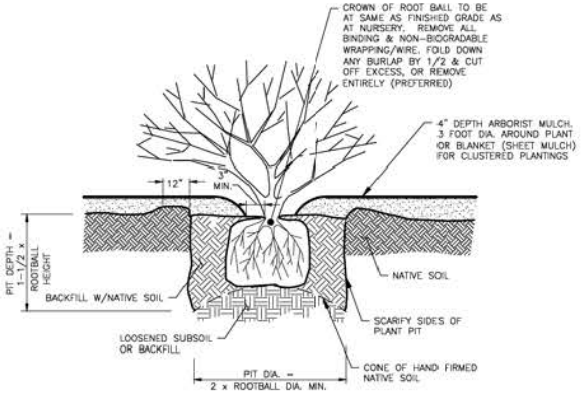
TEMPORARY BUFFER IMPACT REPLANTING PLANTING SCHEDULE (2,278 SF)

SYMBOL	LATIN NAME	SIZE	SPACING	LOCATION	QUANTITY
SHRUBS					
SERVICEBERRY	*AMELANCHIER ALNIFOLIA*	1 GAL.	3' – 4'	THROUGHOUT	20
OSOBERRY	*OEMLERIA CERASIFORMIS*	1 GAL.	3' – 4'	THROUGHOUT	20
VINE MAPLE	*ACER CIRCINATUM*	1 GAL.	10 – 15'	BOTTOM OF SLOPE	20
BALDHIP ROSE	*ROSA GYMNOCARPA*	1 GAL.	3' – 4' IN CLUSTERS OF 3 STEMS	NEAR SIDEWALK	60
SNOWBERRY	*SYMPHORICARPOS ALBUS*	1 GAL.	3' – 4'	NEAR SIDEWALK	40
RED ELDERBERRY	*SAMBUCUS RACEMOSA*	1 GAL.	3' – 4'	THROUGHOUT	20
MOCK ORANGE	*PHILADELPHUS LEWISII*	1 GAL.	3' – 4'	THROUGHOUT	30
SALAL	*GAULTHERIA SHALLON*	1 GAL.	3' – 4'	THROUGHOUT	30
WAX MYRTLE	*MYRICA CALIFORNICA*	1 GAL.	3' – 4'	BOTTOM OF SLOPE	20



NOTES:
1. RAIL FENCE TO ALIGN WITH LAND GRADIENT.
2. ALL FASTENERS TO BE STAINLESS STEEL.

OPEN-RAIL FENCE
NTS



TREE AND SHRUB PLANTING DETAIL
NTS

TEMPORARY BUFFER IMPACTS AREA MITIGATION OBJECTIVES, PERFORMANCE STANDARDS, MONITORING, AND MAINTENANCE PLAN

Performance Standard (PS)	Initial Specification	PS Monitoring Method and Frequency (not in Construction Contract)	Maintenance / Contingency
Objective 1: To stabilize construction related exposed soils and promote a native vegetation community in the Temporary Buffer Impacts Replanting Area.			
PS 1. Install physical barrier between sidewalk and critical areas buffer to minimize intrusion into the buffer.	Open rail fence shall be 3 foot tall located next to sidewalk for length of Temporary Buffer Impact Area, excluding new bus shelter pad.	Annually - Visual inspection to confirm installed and in stable condition for public safety.	Repair as necessary for public safety during plant establishment period by installation Contractor per plant establishment criteria and under monitoring maintenance period by others.
PS 2. Establish an erosion control barrier throughout to prevent soil erosion and transport of soils into adjacent critical areas.	Mulch shall be at least 4-inches thick throughout the Temporary Buffer Impact Area.	Year 1 - Visual inspection to confirm applied to specification. Annually - Visual inspections to confirm minimal / no evidence of soil erosion / erosional rills.	Any post-construction eroded soils shall be regraded using handtools by installation Contractor per plant establishment criteria and under monitoring maintenance period by others. Mulch blanket shall be reapplied to specification where observed to be deficient for limiting erosion.
PS 3: Establish a native shrub community that shall have: - average 80 % survival (thriving condition) by the end of Years 1 and 2 (Year 1 per standard plant establishment criteria by installation Contractor, and subsequent years under monitoring maintenance by others). - average 40 % aerial cover by Year 3, - average 80 % aerial cover by Year 5.	Install approximately 225 stems of native shrub species on 3 – 4 foot spacing. Nine native shrub species specified per Planting Schedule.	Annually – Two 60-foot long by 4-foot wide belt transects, one each on either side of the new bus shelter positioned wholly within the Temporary Buffer Impact Area. Survival will be a stem count. Aerial cover will be visual estimate.	Irrigate and maintain as needed to promote successful growth by installation Contractor per plant establishment criteria and monitoring maintenance period by others. Replace stems as needed to meet the performance standard.
PS 4: Invasive and noxious weed species shall remain less than 10 percent aerial cover. To be managed by installation Contractor per plant establishment criteria and under monitoring maintenance period by others.	All vegetation to be removed from the ROW clearing limits prior to construction.	Annually – Two 60-foot long by 4-foot wide belt transects, one either side of the new bus shelter positioned wholly within the Temporary Buffer Impact Area. Aerial cover will be visual estimate.	Remove by hand or with handtools invasive and noxious weed species observed during inspections. To be done by installation Contractor per plant establishment criteria and under monitoring maintenance period by others.

ENHANCEMENT MITIGATION AREA OBJECTIVES, PERFORMANCE STANDARDS, MONITORING, AND MAINTENANCE PLAN

Performance Standard (PS)	Initial Specification	PS Monitoring Methoc and Frequency (not in Construction Contract)	Maintenance / Contingency
Objective 2: To promote a multi-story mixed coniferous / deciduous forest that eventually replaces the older single canopy of cottonwood trees in the Enhancement Mitigation Areas.			
PS 5: Increase buffer forest species and habitat structure diversity that shall have: - average 80 % survival (thriving condition) by the end of Years 1 and 2 (or per contractor's warranty), - average 30 % aerial cover by Year 3, - average 50 % aerial cover by Year 5.	Infill plant approximately 70 native shrubs and conifer trees under the existing deciduous tree canopy. Plant stems on approximately 8 – 10 foot spacing around existing trees. Four native conifer, four upland shrub, and four wetland shrub species are specified per Planting Schedule. All installed stems shall receive an arborist mulch ring 4-inches thick and 3-foot minimum radius around planting holes.	Annually – Two 60-foot long by 10-foot wide belt transects, one each in Planting Area A and Area B. Survival will be a stem count. Aerial cover will be a visual estimate.	Irrigate and maintain as needed to promote successful growth. Replace stems as needed to meet the performance standard. To be done by installation Contractor per plant establishment criteria and under monitoring maintenance period by others.
PS 6: Invasive and noxious weed species shall be removed where reasonable and feasible.	Cut down and remove English holly, cherry laurel, and common hawthorn within and immediately adjacent to the mitigation areas. Remove bottom 4-feet of English ivy from around the trunks of approximately six trees greater than 10 inches in diameter. Clear and grub Himalayan blackberry within and immediately adjacent to the mitigation areas.	Annually – Two 60-foot long by 4-foot wide belt transects, one either side of the new bus shelter positonec wholly within the Temporary Buffer Impact Area. Aerial cover will be visual estimate.	Remove by hand or with handtools invasive and noxious weed species observed during inspections. To be done by installation Contractor per plant establishment criteria and under monitoring maintenance period by others.

STATE OF WASHINGTON REGISTERED LANDSCAPE ARCHITECT
JASON TODD WALKER
CERTIFICATE NO. 766

DWG. NO. WMP1

PERTEET
2707 COLBY AVENUE, SUITE 900
EVERETT, WA 98201
425.252.7700 | 800.615.9900

FILE	ENGR.	REVIEW	SCALE	DATE
WMP1	KB	JW	NONE	FEBRUARY 2017

NO.	REVISION	BY	REVIEW	DATE

CITY OF KIRKLAND WASHINGTON

CITY OF KIRKLAND
PUBLIC WORKS DEPARTMENT
123 FIFTH AVENUE – KIRKLAND, WA 98033-6189 – (425)587-3800

FIGURE 4
JUANITA DRIVE QUICK WINS
98TH AVE NE
SHORELINE MITIGATION DETAILS

SHEET 50 / 50

Mar 09, 2017 - 2:23pm andyy X:\Kirkland, City of\Projects\20130240 - Juanita Drive Quick Wins\CADD\Plan Sheets\20130240 WMP.dwg Layout Name: WMP2

THE WATERSHED COMPANY

SCIENCE & DESIGN

May 13, 2016

David Barnes
City of Kirkland Planning Department
123 5th Avenue
Kirkland, WA 98033

Re: Juanita Park Sidewalk CIP Project, Wetland and Lakeshore Delineation Report
The Watershed Company Reference Number: 140622.64

Dear David:

On April 4 and May 4, 2016, I visited the 98th Street NW right-of-way near Juanita Park to conduct a wetland delineation and subsequent lakeshore delineation study. The study is required as part of the proposed sidewalk improvements for the above-referenced project. This letter summarizes the findings of this study and details applicable federal, state, and local regulations. The following attachments are included:

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

Methods

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

The study area was evaluated for wetlands using methodology from the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region Version 2.0* (Regional Supplement) (US Army Corps of Engineers [Corps] May 2010). The wetland boundary was determined on the basis of an examination of vegetation, soils, and hydrology. Areas meeting the criteria set forth in the Regional Supplement were determined to be wetland. Soil, vegetation, and hydrologic parameters were sampled at several locations along the wetland boundary to make the determination. Data points on-site are marked with yellow- and black-striped flags. Data were recorded at two of these locations.

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Delineated wetlands were classified using the City of Kirkland's *Wetland Field Data Form* (Rating System). On-site portions of Wetland A is marked with six pink- and black-striped flags. Wetland areas outside of the right-of-way were not delineated but were approximated on the attached Wetland Delineation Sketch.

The ordinary high water mark of Lake Washington was determined based on the definition provided by the Washington Department of Fish and Wildlife and WAC 220-110-020(69). The OHWM is located by examining the bed and bank physical characteristics and vegetation to ascertain the water elevation for mean annual floods. Areas meeting the definition were determined to be the OHWM and flagged. The distance from the OHWM to the project area was measured using a 100-foot field tape.

Findings

The site is located adjacent to Juanita Bay on the west side of 98th Avenue NE. The study area extends from the parking lot on Parcel #179150031 south approximately 300 feet to the connection with the existing, widened sidewalk. The study area includes the fill slope along the western edge of the existing sidewalk, then transitions into a large wetland complex associated with Lake Washington. Non-wetland vegetation generally includes black cottonwood with an understory dominated by Himalayan blackberry.

Wetland A

Wetland A is contiguous to Lake Washington, is well over 10-acres in size, and contains more than three Cowardin wetland classes. According NWI maps and field observations, those Cowardin classes include palustrine forested seasonally flooded, palustrine scrub-shrub seasonally flooded, palustrine scrub-shrub semi-permanently flooded, and palustrine emergent temporarily flooded. Areas in the vicinity of the study area are dominated by black cottonwood with a dense reed canarygrass monoculture and occasional patches of Douglas spirea comprising the understory. The soil was saturated at the surface, and the water table was present four inches below the surface at the time of the inspection. Hydrology is provided by the high groundwater, which is partially influenced by water levels in Lake Washington.

The boundary of Wetland A parallels the existing sidewalk at the southern end of the study area for approximately 100 feet, after which point, the boundary shifts towards the west and northwest, leaving the study area.

Lake Washington

The Lake Washington shoreline encroaches to within approximately 35 feet of the project area at its closest point (near the southern extent of the proposed improvements). Much of Wetland A, as described above, is located below the OHWM of the lake. Lake Washington is classified as a shoreline of the state.

Local Regulations

Wetlands associated with shorelines of the state are regulated under the Kirkland Shoreline Master Program (SMP). Under to the SMP, wetlands are classified as one of four types based on the 2004 Ecology Western Washington Wetland Rating System or *"as amended."* The 2004 Rating System has been replaced by an updated 2014 Rating System, which is now applied to all shoreline-associated wetlands in Kirkland. According to the 2014 Rating System, Wetland A received eight points for water quality functions, six points for hydrology functions, and seven points for wildlife habitat functions, for a total of 21 points. This score qualifies Wetland A as a Category II wetland. Wetland buffers under the SMP are determined based on a combination of the wetland category and the habitat score. Since the SMP references habitat scores based on the 2004 Rating System, the habitat scores must be converted using the conversion table provided by Ecology. A habitat score of five to seven points (2014 Rating System) is equivalent to a habitat score of 20-28 points (2004 Rating System). Based on this conversion, Wetland A is required to have a standard buffer width of 125 feet (KZC 83.500.4).

The proposed sidewalk improvements, which include widening the current five-foot sidewalk to ten feet, would necessitate wetland buffer impacts throughout most of the project area. Most of the area that would be impacted is dominated by invasive species, including Himalayan blackberry, reed canarygrass, and English holly. A few large black cottonwood trees are located in the vicinity of the project area, and it would be necessary to avoid those trees to the greatest extent feasible. Substantial opportunity exists for buffer mitigation in the wetland buffer areas west of the project area. Removal of the dense invasive species monocultures and replacement with native plants would provide a functional improvement for the wetland buffer areas. Appropriate native species for the wetland buffer areas include osoberry, snowberry, red elderberry, oceanspray, and baldhip rose. Shrubs would need to be planted densely (four feet on-center) to compete with re-emerging invasive species. Western red cedar could also be installed to add a coniferous component to the buffer.

Since the proposed sidewalk improvements are located within shoreline jurisdiction, the project must comply with the regulations of the Kirkland SMP.

State and Federal Regulations

Wetlands are also regulated by the Corps under section 404 of the Clean Water Act. Any filling of Waters of the U.S., including wetlands (except isolated wetlands), would require notification and permits from the Corps. Note that a new Clean Water Rule for wetlands and other Waters of the U.S. went into effect in August 2015; however, the rule was recently "stayed" nationwide by the 6th Circuit Court due to pending litigation. Therefore, the prior rule is in effect until further notice. Wetland A is not isolated

because of surface water connections Lake Washington. Federally permitted actions that could affect endangered species (i.e. salmon or bull trout) may also require a biological assessment study and consultation with the U.S. Fish and Wildlife Service and/or the National Marine Fisheries Service. Application for Corps permits may also require an individual 401 Water Quality Certification and Coastal Zone Management Consistency determination from Ecology and a Cultural Resource Study in accordance with Section 106 of the National Historic Preservation Act.

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

Disclaimer

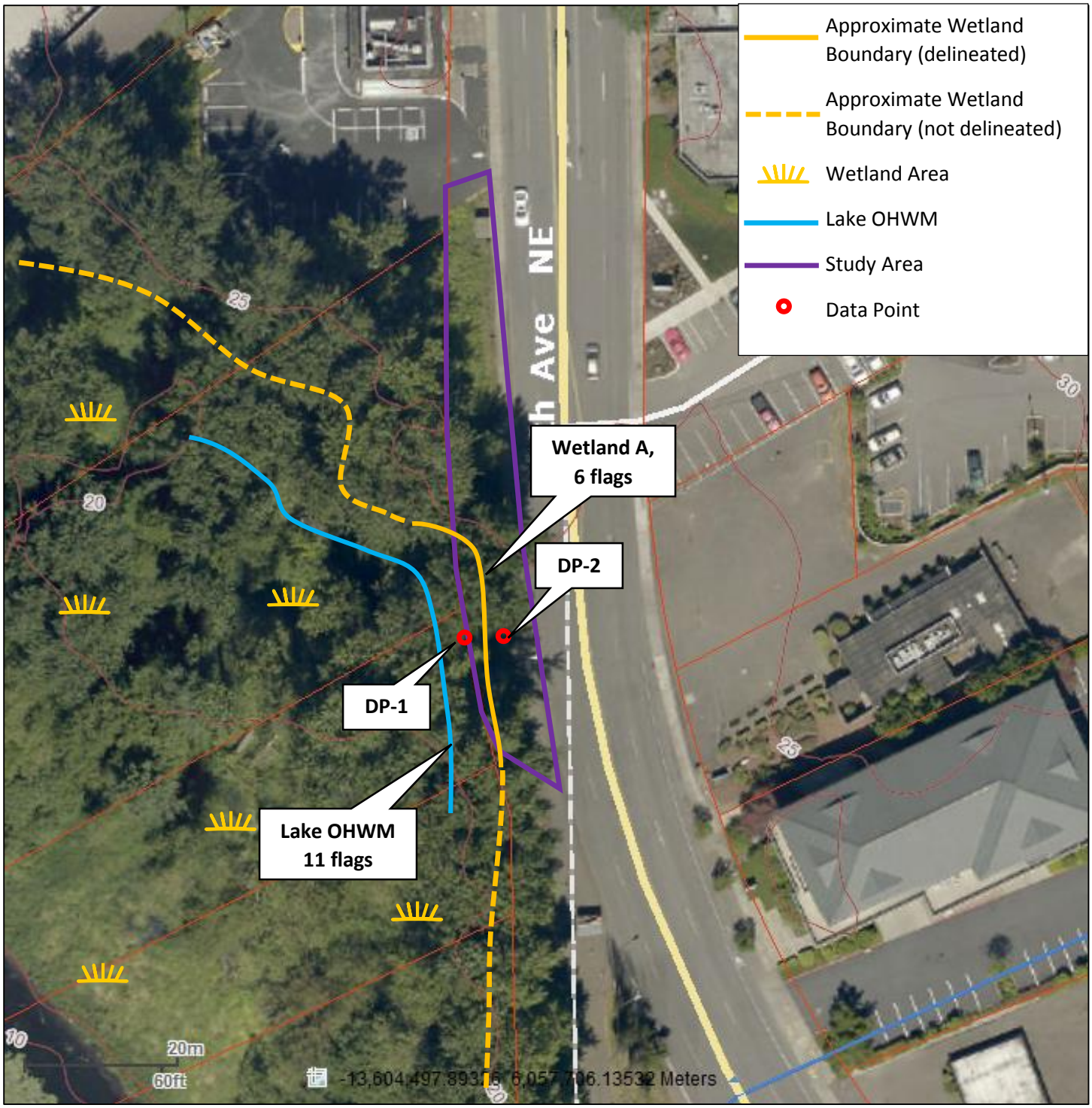
The information contained in this letter or report is based on the application of technical guidelines currently accepted as the best available science and in conjunction with the manuals and criteria outlined in the methods section. All discussions, conclusions and recommendations reflect the best professional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

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

Sincerely,

Ryan Kahlo, PWS
Ecologist

Enclosures



Note: Areas depicted have not been surveyed. All locations are approximate and not to scale.

Wetland and Lakeshore Delineation Study
Juanita Park 100th Avenue NE Sidewalk Improvements
Prepared for David Barnes, City of Kirkland
April 8, 2016, revised May 5, 2016
TWC Project #140622.64

Wetland boundary is marked with pink- and black-striped flags.

Data points are marked with yellow-and black-striped flags

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Kirkland, Washington 98033
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watershedco.com

WETLAND DETERMINATION DATA FORM

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

DP- 1

Project Site:	**Juanita Sidewalk Improvements 98th Ave NE**	Sampling Date:	**4/4/2016**
Applicant/Owner:	**City of Kirkland**	Sampling Point:	DP- **1**
Investigator:	**Kahlo, R**	City/County:	**Kirkland / King Co.**
Sect., Township, Range:	S **31** T **26N** R **5E**	State: **WA**	
Landform (hillslope, terrace, etc): **Lake fringe**	Slope (%): **1**	Local relief (concave, convex, none): **concave**	
Subregion (LRR): **A**	Lat:	Long:	Datum:
Soil Map Unit Name: **Indianola loamy sand, 0-5% slopes**		NWI classification: **PSSC**	

Are climatic/hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks.)
Are "Normal Circumstances" present on the site? ☒ Yes ☐ No
Are Vegetation☐, Soil ☐, or Hydrology ☐ significantly disturbed?
Are Vegetation☐, Soil ☐, or Hydrology ☐ naturally problematic (If needed, explain any answers in Remarks.)

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

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

Remarks: Click here to enter text.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5m diam.)	Absolute % Cover	Dominant Species?	Indicator Status
1. ***Populus balsamifera***	**100**	**Yes**	**FAC**
2.			
3.			
4.			
		= Total Cover	
Sapling/Shrub Stratum (Plot size: 3m diam.)			
1. ***Phalaris arundinacea***	**100**	**Yes**	**FACW**
2.			
3.			
4.			
5.			
		= Total Cover	
Herb Stratum (Plot size: 1m diam.)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
		= Total Cover	
Woody Vine Stratum (Plot size:)			
1. ***Rubus armeniacus***	**10**	**Yes**	**FACU**
2.			
		= Total Cover	
% Bare Ground in Herb Stratum:			

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC:	**2**	(A)
Total Number of Dominant Species Across All Strata:	**3**	(B)
Percent of Dominant Species that are OBL, FACW, or FAC:	**67**	(A/B)

Prevalence Index Worksheet

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

Prevalence Index = B / A =

Hydrophytic Vegetation Indicators

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

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

SOIL

Sampling Point: DP1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-14	**10YR 2/2**	**98**	**10YR 3/4**	**2**	**C**	**M**	**Silt clay loam**	

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

[2]Loc: PL=Pore Lining, M=Matrix

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

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

Indicators for Problematic Hydric Soils[3]

- ☐ 2cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)
- ☐

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric soil present? Yes ☒ No ☐

Remarks: **Percent RMF does not satisfy F6, but aquic moisture regime is present. Very high water table well into the growing season.**

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required):

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

Field Observations

Surface Water Present?	Yes ☐	No ☒	Depth (in):	
Water Table Present?	Yes ☒	No ☐	Depth (in):	**4**
Saturation Present? (includes capillary fringe)	Yes ☒	No ☐	Depth (in):	**0**

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

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

WETLAND DETERMINATION DATA FORM

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

DP- 2

Project Site:	**Juanita Sidewalk Improvements 98th Ave NE**	Sampling Date:	**4/4/2016**
Applicant/Owner:	**City of Kirkland**	Sampling Point:	DP- Click here to enter text.
Investigator:	**Kahlo, R**	City/County:	**Kirkland / King Co.**
Sect., Township, Range:	S **31** T **26N** R **5E**	State: **WA**	
Landform (hillslope, terrace, etc): **Lake fringe**	Slope (%): **20**	Local relief (concave, convex, none): **concave**	
Subregion (LRR): **A**	Lat:	Long:	Datum:
Soil Map Unit Name: **Indianola loamy sand, 0-5% slopes**		NWI classification: **PSSC**	

Are climatic/hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in remarks.)
Are "Normal Circumstances" present on the site? ☒ Yes ☐ No
Are Vegetation☐, Soil ☐, or Hydrology ☐ significantly disturbed?
Are Vegetation☐, Soil ☐, or Hydrology ☐ naturally problematic (If needed, explain any answers in Remarks.)

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

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

Remarks: Click here to enter text.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5m diam.)	Absolute % Cover	Dominant Species?	Indicator Status
1. ***Populus balsamifera***	**100**	**Yes**	**FAC**
2.			
3.			
4.			
		= Total Cover	
Sapling/Shrub Stratum (Plot size: 3m diam.)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	
Herb Stratum (Plot size: 1m diam.)			
1. ***Phalaris arundinacea***	**100**	**Yes**	**FACW**
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
		= Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
		= Total Cover	
% Bare Ground in Herb Stratum:			

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC:	**2**	(A)
Total Number of Dominant Species Across All Strata:	**2**	(B)
Percent of Dominant Species that are OBL, FACW, or FAC:	**100**	(A/B)

Prevalence Index Worksheet

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

Prevalence Index = B / A =

Hydrophytic Vegetation Indicators

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

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

SOIL

Sampling Point: DP-2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8	**10YR 2/2**	**100**					**Sandy loam**	
8-14	**2.5Y 3/2**	**100**					**Loamy sand**	

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

[2]Loc: PL=Pore Lining, M=Matrix

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

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

Indicators for Problematic Hydric Soils[3]

- ☐ 2cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)
- ☐

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric soil present? Yes ☐ No ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required):

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

Field Observations

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

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:

Wetland name or number: Wetland A

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland A Date of site visit: 2/10/2016

Rated by: Kahlo, R Trained by Ecology? ☒Y ☐N Date of training: 8/2014

HGM Class used for rating: Depressional Wetland has multiple HGM classes? ☒Y ☐N

NOTE: **Form is not complete without the figures requested** *(figures can be combined)*.
Source of base aerial photo/map: Click here to enter text.

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

1. Category of wetland based on FUNCTIONS

☐ **Category I** – Total score = 23 - 27

☒ **Category II** – Total score = 20 - 22

☒ **Category III** – Total score = 16 - 19

☐ **Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality			Hydrologic			Habitat			
	Circle the appropriate ratings									
Site Potential	H	**M**	L	H	**M**	L	**H**	M	L	
Landscape Potential	**H**	M	L	**H**	M	L	H	M	**L**	
Value	**H**	M	L	H	M	**L**	**H**	M	L	**TOTAL**
Score Based on Ratings	8			6			7			21

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

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

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

Wetland name or number: Wetland A

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	1
Hydroperiods	D 1.4, H 1.2	2
Location of outlet (*can be added to map of hydroperiods)*	D 1.1, D 4.1	NA
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	2
Map of the contributing basin	D 4.3, D 5.3	3
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	4
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	5
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	6

Wetland name or number: Wetland A

HGM Classification of Wetlands in Western Washington

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Wetland name or number: Wetland A

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

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

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

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

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

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

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

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

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

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

Wetland name or number: Wetland A

DEPRESSIONAL AND FLATS WETLANDS

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

D 1.0. Does the site have the potential to improve water quality?	
D 1.1. Characteristics of surface water outflows from the wetland: ☐ Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 ☐ Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 ☒ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing. points = 1 ☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	1
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic *(use NRCS definitions).* ☐Yes = 4 ☒ No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): ☐ Wetland has persistent, ungrazed, plants > 95% of area points = 5 ☒ Wetland has persistent, ungrazed, plants > 1/2 of area points = 3 ☐ Wetland has persistent, ungrazed plants > 1/10 of area points = 1 ☐ Wetland has persistent, ungrazed plants < 1/10 of area points = 0	3
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* ☐ Area seasonally ponded is > ½ total area of wetland points = 4 ☒ Area seasonally ponded is > ¼ total area of wetland points = 2 ☐ Area seasonally ponded is < ¼ total area of wetland points = 0	2
Total for D 1 Add the points in the boxes above	6

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

D 2.0. Does the landscape have the potential to support the water quality function of the site?		
D 2.1. Does the wetland unit receive stormwater discharges?	☒Yes = 1 ☐ No = 0	1
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	☒Yes = 1 ☐ No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland?	☐Yes = 1 ☒ No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? Source: Concentrations of water fowl, boat traffic	☒Yes = 1 ☐ No = 0	1
Total for D 2	Add the points in the boxes above	3

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

D 3.0. Is the water quality improvement provided by the site valuable to society?		
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?	☒Yes = 1 ☐ No = 0	1
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?	☒Yes = 1 ☐ No = 0	1
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the basin in which the unit is found*)?	☒Yes = 2 ☐ No = 0	2
Total for D 3	Add the points in the boxes above	4

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

Wetland name or number: Wetland A

DEPRESSIONAL AND FLATS WETLANDS

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

D 4.0. Does the site have the potential to reduce flooding and erosion?	
D 4.1. Characteristics of surface water outflows from the wetland: ☐ Wetland is a depression or flat depression with no surface water leaving it (no outlet). points = 4 ☐ Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 ☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1 ☒ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing. points = 0	0
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.* ☐ Marks of ponding are 3 ft or more above the surface or bottom of outlet. points = 7 ☒ Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet. points = 5 ☐ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet. points = 3 ☐ The wetland is a "headwater" wetland. points = 3 ☐ Wetland is flat but has small depressions on the surface that trap water. points = 1 ☐ Marks of ponding less than 0.5 ft (6 in). points = 0	5
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* ☐ The area of the basin is less than 10 times the area of the unit. points = 5 ☒ The area of the basin is 10 to 100 times the area of the unit. points = 3 ☐ The area of the basin is more than 100 times the area of the unit. points = 0 ☐ Entire wetland is in the Flats class. points = 5 **Lake Washington does not flood; so basin includes only the Forbes Creek basin.**	3
Total for D 4 — Add the points in the boxes above	8

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

D 5.0. Does the landscape have the potential to support hydrologic functions of the site?	
D 5.1. Does the wetland receive stormwater discharges? ☒Yes = 1 ☐ No = 0	1
D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff? ☒Yes = 1 ☐ No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)? ☒Yes = 1 ☐ No = 0	1
Total for D 5 — Add the points in the boxes above	3

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

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

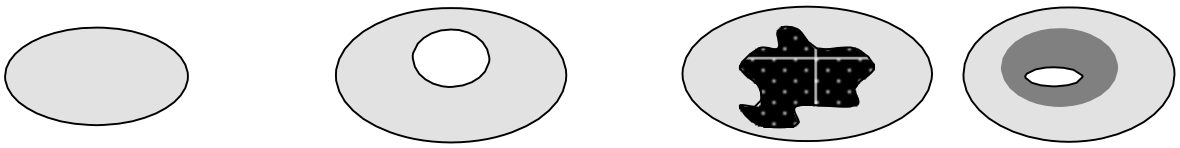
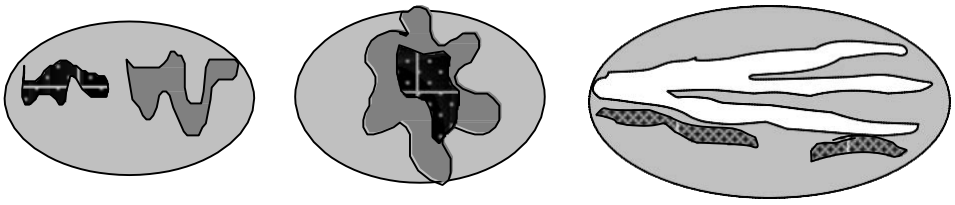
Rating of Value If score is: ☐**2-4 = H** ☐**1 = M** ☒**0 = L** *Record the rating on the first page*

Wetland name or number: Wetland A

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

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

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

Wetland name or number: Wetland A

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☒ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). ☒ Standing snags (dbh > 4 in) within the wetland. ☒ Undercut banks are present for at least 6.6 ft (2 m) **AND/OR** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m). ☒ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) **OR** signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed).* ☒ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians).* ☐ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*).	5
Total for H 1 Add the points in the boxes above	17

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

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate: 2.2%* undisturbed habitat + [(10.6%moderate and low intensity land uses)/2] = **2.2% + (10.6%/2) = 7.5%** If total accessible habitat is: ☐ > 1/3 (33.3%) of 1 km Polygon points = 3 ☐ 20-33% of 1 km Polygon points = 2 ☐ 10-19% of 1 km Polygon points = 1 ☒ < 10% of 1 km Polygon points = 0	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate*: 8.5% undisturbed habitat + [(11.6% moderate and low intensity land uses)/2 **= 8.5% + (11.6%/2) = 14.3%** ☐ Undisturbed habitat > 50% of Polygon points = 3 ☒ Undisturbed habitat 10-50% and in 1-3 patches points = 2 ☐ Undisturbed habitat 10-50% and > 3 patches points = 1	2
H 2.3. Land use intensity in 1 km Polygon: If ☒ > 50% of 1 km Polygon is high intensity land use points = (- 2) ☐ ≤ 50% of 1 km Polygon is high intensity points = 0	-2
Total for H 2 Add the points in the boxes above	0

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

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

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

Wetland name or number: Wetland A

WDFW Priority Habitats

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

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

☐ **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

☐ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

☐ **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi- layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

☐ **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

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

☐ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

☒ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

☐ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

☐ **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

☐ **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

☒ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

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

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐Yes –Go to **SC 1.1** ☒No= **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐Yes = **Category I** ☐No - Go to **SC 1.2**	**Cat. I**
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un- mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐Yes = **Category I** ☐No= **Category II**	**Cat. I** **Cat. II**
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐Yes – Go to **SC 2.2** ☒No – Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐Yes **= Category** I ☐No **= Not a WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐Yes **– Contact WNHP/WDNR and go to SC 2.4** ☒No **= Not a WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐Yes **= Category I** ☐No **= Not a WHCV**	**Cat. I**
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐Yes – Go to **SC 3.3** ☒No – Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐Yes – Go to **SC 3.3** ☒No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐Yes = **Is a Category I bog** ☐No – Go to **SC 3.4** **NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐Yes = **Is a Category I bog** ☐No **= Is not a**	**Cat. I**

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

2014 Wetland Rating Form: Riverine and Freshwater Tidal figures

Figure 1. Cowardin plant classes - H1.1, H1.4

Figure 2. Hydroperiods, ponded depressions, stream-width-to-unit-width ratio, and 150ft buffer H1.2, R1.1, R2.4, R4.1

Figure 3. Plant cover of trees, shrubs, and herbaceous plants (not Cowardin classes) - R1.2, R4.2

Figure 4. Contributing basin - R2.2, R2.3, R5.2

Figure 5. Accessible and undisturbed habitat 1km from wetland edge - H2.1, H2.2, H2.3

Figure 6. Screen-capture of 303(d) listed waters in basin - R3.1

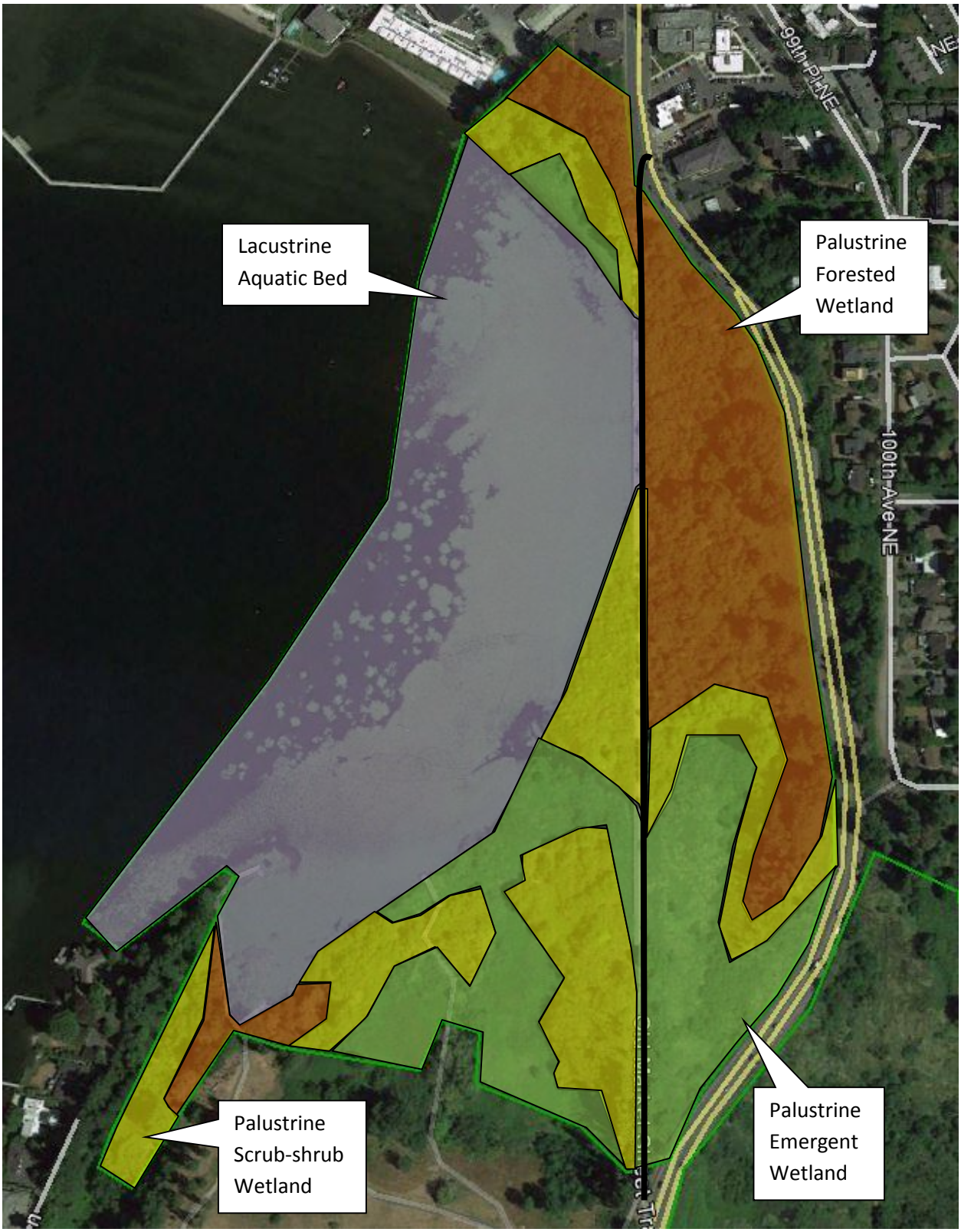
Figure 7. Screen-capture of TMDL list for WRIA - R3.2, R3.3

Resources and Links:

Google Earth
King County iMap
ECY 303(d) list
TMDL list

Figure 1. Cowardin plant classes - H1.1, H1.4

West side of wetland (project study area)



East side of study area

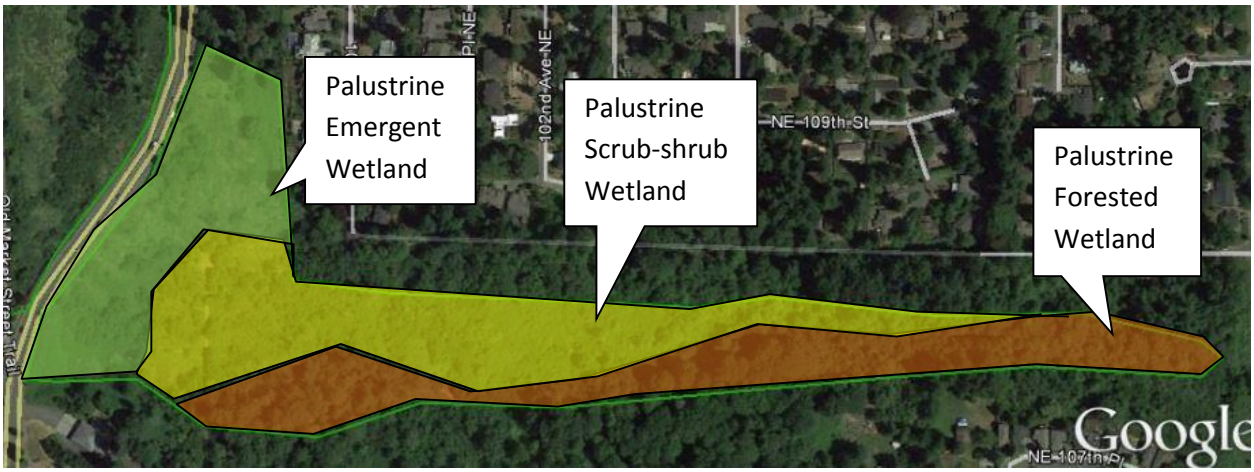


Figure 2. Hydroperiods, 150-foot buffer H1.2, D2.2, D5.2

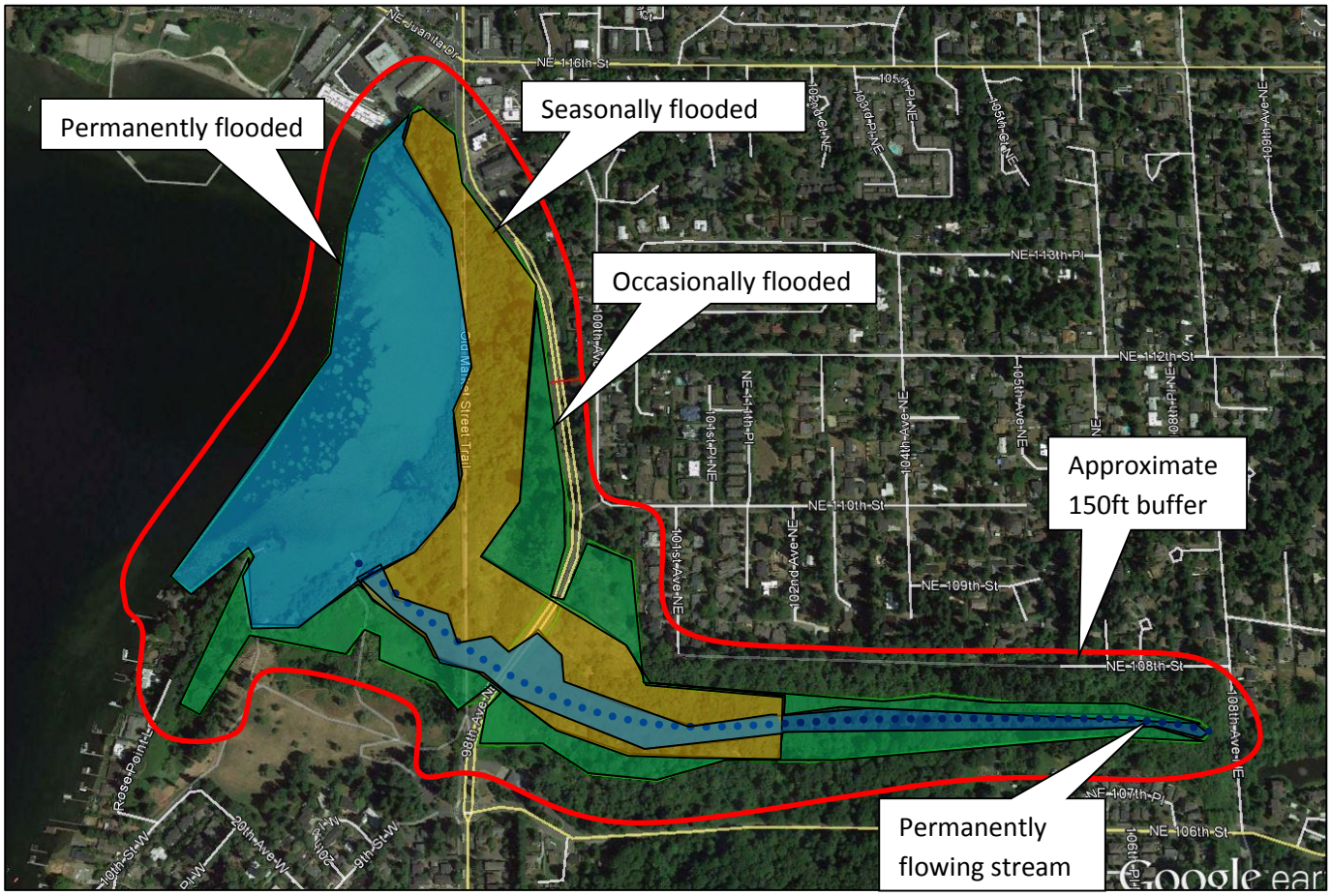


Figure 3. Contributing basin – D4.3, D5.3

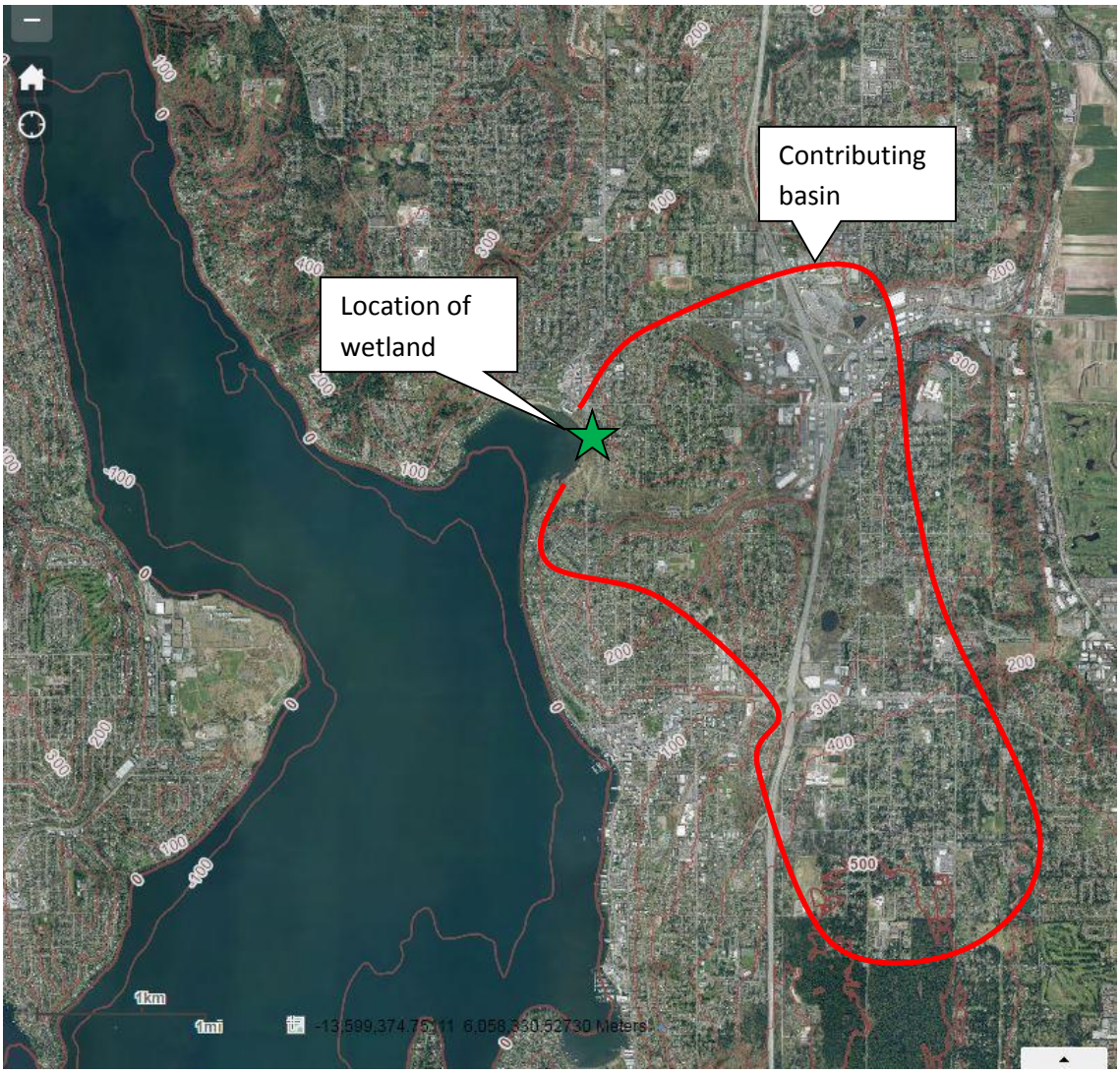


Figure 4. Accessible and undisturbed habitat 1km from wetland edge - H2.1, H2.2, H2.3

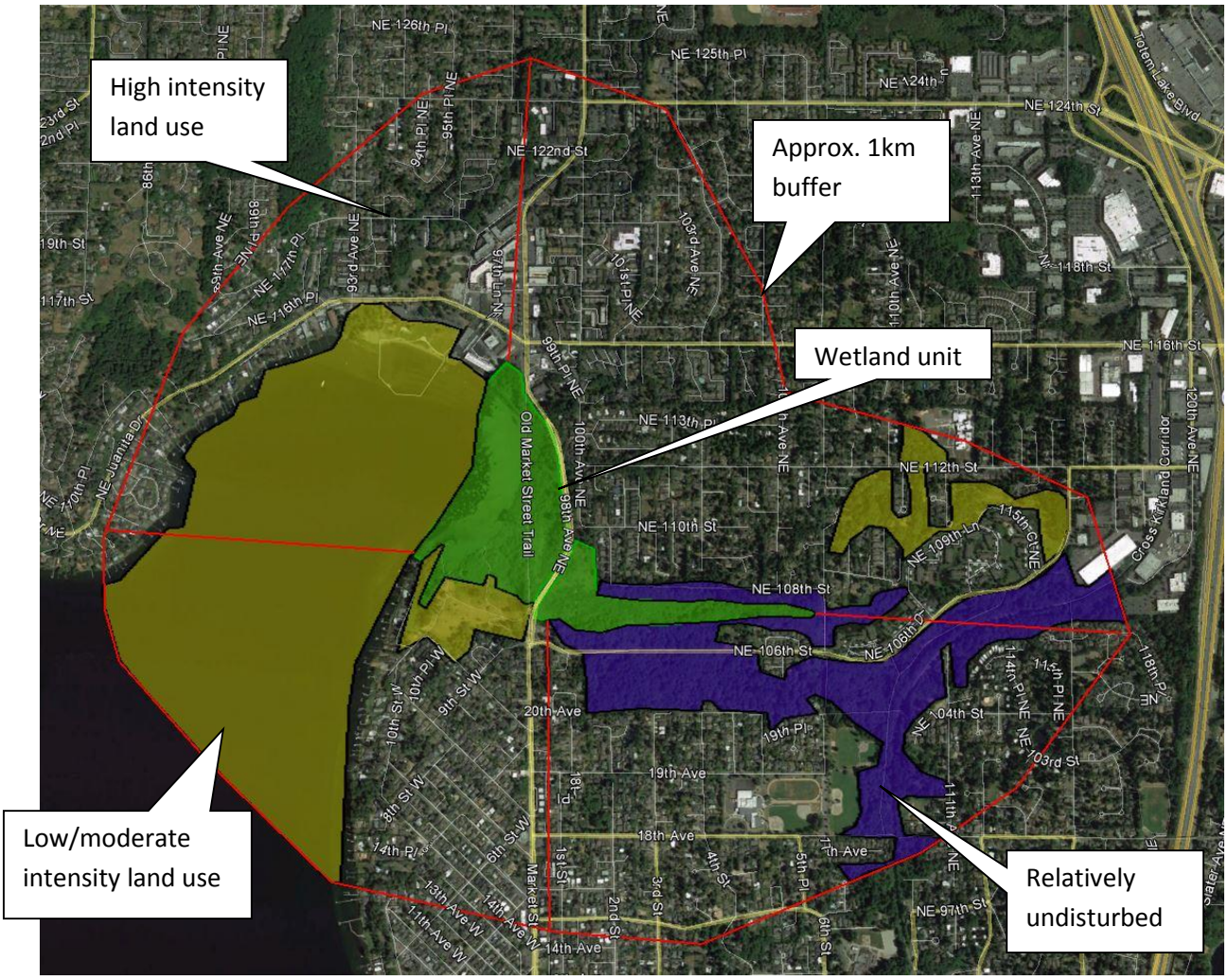


Figure 6. Screen-capture of 303(d) listed waters in basin - D3.1, D3.2

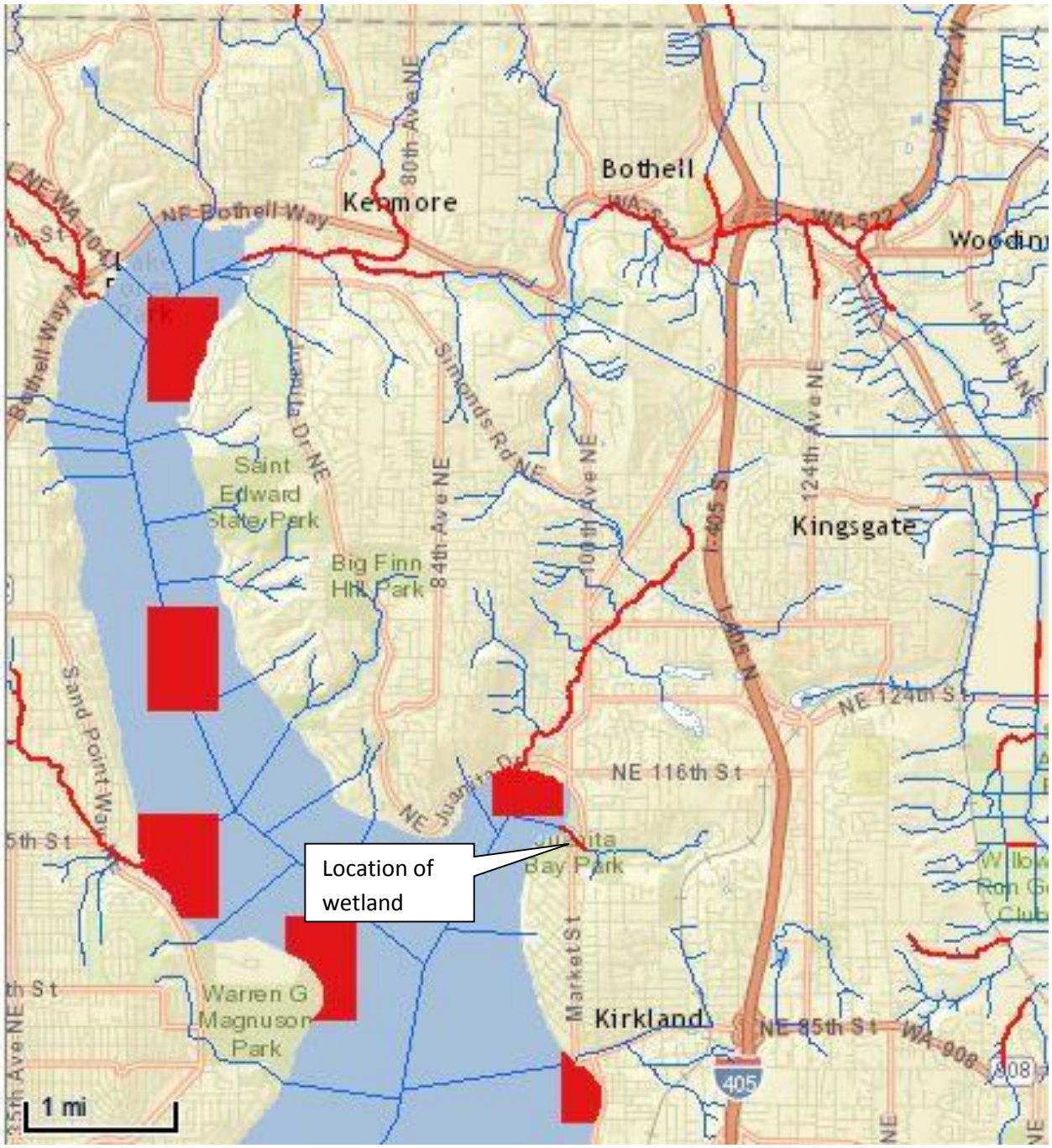


Figure 7. Screen-capture of TMDL list for WRIA - D3.3

WRIA 8: Cedar-Sammamish

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

Counties

- King
- Snohomish

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

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

THE WATERSHED COMPANY

SCIENCE & DESIGN

February 8, 2017

Christian Geitz
City of Kirkland Planning Department
123 5th Avenue
Kirkland, WA 98033

Re: Juanita Beach Sidewalk Shoreline Variance Peer Review
The Watershed Company Reference Number: 140622.64

Dear Christian:

This letter represents our peer review of the "*Shoreline Variance Technical Memorandum*" (Perteet, October 6, 2016) (Variance Memo), which describes how the proposed 98th Avenue NE sidewalk improvement project satisfies the requirements of the Kirkland Shoreline Master Program (SMP). The Perteet Memo included, as attachments, the *Juanita Drive Quick Wins 98th Ave NE Shoreline Mitigation Plan* (Perteet, September 2016) (Mitigation Plan) and the *Juanita Park Sidewalk CIP Project, Wetland and Lakeshore Delineation Report* (The Watershed Company, May 13, 2016) (Delineation Report).

This review is limited to an analysis of how the proposed mitigation plan meets applicable SMP regulations; the full project was not reviewed for overall SMP consistency.

Findings

The Variance Memo sufficiently addresses compliance with the shoreline variance criteria under Kirkland Zoning Code (KZC) 141.70.3 – Shoreline Administration and, by reference contained within, Washington Administrative Code (WAC) 173-27-100. Note that the Variance Memo, Paragraph 3 under "Regulatory Context" incorrectly cites the relevant code section as KZC 83.141.70.3. The Variance Memo sufficiently demonstrates compliance with the general requirements for transportation facilities under KZC 83.230.

The Variance Memo states that the project will comply with the water quality, stormwater, and nonpoint pollution requirements of KZC 83.480, which stipulates compliance with Kirkland Municipal Code (KMC) 15.52. The Variance Memo notes that water quality and erosion control measures will comply with "*current City of Kirkland or Department of Ecology stormwater manual standards.*" Further details are not provided;

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

however, compliance with these standards would be sufficient to satisfy KZC 83.480 and KMC 15.52.

The Variance Memo states that the proposal is in compliance with the no net loss standard and mitigation sequencing required under KZC 83.360 and the buffer reduction provisions under KZC 83.500.9(d)1b. While avoidance and minimization criteria (mitigation sequencing) have been sufficiently addressed, the no-net-loss/buffer enhancement requirements are not satisfied by the proposed Mitigation Plan.

The proposed Mitigation Plan includes restoring/enhancing temporary buffer impacts by installing a dense, native shrub community. The Mitigation Plan also proposes enhancing portions of the remaining buffer areas at an approximately 1:1 ratio for permanent impacts by installing conifer infill plantings beneath the existing tree canopy. The proposed shrub plantings for the temporary impacts is adequate, although hydroseeding in the wetland buffer is not appropriate. The grass and herbaceous species in the proposed hydroseed mix are not native to Western Washington, and they will compete with the native shrub plantings. We recommend using a blanket woodchip mulch application in lieu of hydroseed. Woodchip mulch has proven successful at preventing erosion and also functions to retain soil moisture and reduce competing weeds.

The Variance Memo states that removing invasive species in the reduced buffer would be "*nearly impossible and unsustainable*" and, therefore, does not propose removal or control of invasive species in the buffer mitigation area. Enhancement of the reduced buffer areas is best achieved by limiting invasive species and improving the native density of the understory. We have monitored multiple mitigation projects in Kirkland where Himalayan blackberry has been successfully controlled, particularly under an existing canopy, with the establishment of a dense native shrub community. Achieving this will require diligent maintenance until the native plant community is well-established, but achieving a diverse, native understory community with reduced presence of invasive species will provide a greater functional lift than conifer infill plantings alone.

The Variance Memo notes that "*temporary fencing shall comply with KZC 83.500.5.*" This provision requires a six-foot-tall, chain-link or equivalent fencing with silt-screen fabric be placed around all buffer areas during construction. A description of the fencing requirement should be included in the bid documents to ensure the installation contractor is aware of the specific requirement. The Variance Memo does not clearly state that a permanent, split-rail fence will be installed around the buffer enhancement/restoration areas as is required in KZC 83.500.5. Further, no fencing of any kind is depicted on the Mitigation Plan.

Table 2 in the Variance Memo identifies the proposed performance standards for the temporary and permanent buffer impacts. Performance standards for the temporary impacts include native cover for hydroseeded areas, survival of installed plantings, invasive cover standards, and erosion management. The survival standard stipulates 100 percent survival in year one and 80 percent survival in all remaining years. Survival can be difficult to track beyond year two, and the reliability of survival as a measurement of site success decreases in later years. We recommend a diversity standard in-lieu of a survival standard beyond year two. Additionally, the performance standards should include a native woody cover standard (recommended 80 percent in year five). With the recommended elimination of the hydroseed, the associated 90% cover standard is not applicable and should be removed. The erosion management performance standard (*Manage any occurrence of erosion or rills within the project area throughout the monitoring period*) is more of an objective than a performance standard. We recommend rephrasing the standard to note that "*no evidence of erosion or rills shall be permitted in any monitoring year*."

The performance standards for the buffer enhancement mitigation area is specific to conifer infill plantings only. As described above, the enhancement area should include a dense, native shrub community in addition to any proposed conifer plantings. Applicable performance standards should be similar to those that have been proposed and/or recommended for the temporary impact restoration area. Further, the performance standards are currently only provided in the Variance Memo. As is typical of approved mitigation plans in Kirkland, the goals, performance standards, and monitoring methods should accompany the planting plan as a stand-alone document to simplify permitting review and future monitoring inspections.

The Variance Memo notes that "*The mitigation program would be monitored and maintained by city staff or representatives for a 5-year period to ensure that infill conifers and the planted shrub community become established and stems are thriving.*" However, neither the Variance Memo nor the Mitigation Plan describe how the site is to be monitored in any detail. Monitoring methods for determining survival and cover should be specified in each document. Additionally, under KZC 83.500.11, the monitoring program shall consist of at least two monitoring visits per year. This should be stipulated in the Variance Memo and the Mitigation Plan.

KZC 83.500.11 stipulates that a contingency plan shall be included with a mitigation plan in case of failure. Such a contingency plan has not been provided. The Mitigation Plan does not include any irrigation. Given the shade-producing canopy cover and proximity to Lake Washington (in which water levels will be highest in the summer), irrigation may not be necessary. However, potential irrigation should be addressed in the contingency plan.

Recommendations

1. Correct the citation for the Shoreline Administration code section from KZC 83.141.70.3 to KZC 141.70.3.

2. Specify that the six-foot tall, chain-link or equivalent fencing adjacent the buffer will include silt-screening fabric. Specify that a three- to four-foot tall split-rail fence will be installed between the sidewalk and the buffer restoration/mitigation areas upon implementation of the mitigation plan. Depict both fences on the Mitigation Plan drawings.

3. Remove hydroseed from the temporary impact restoration area and replace with a four-inch thick blanket application of woodchip mulch.

4. Revise the planting plan to include a dense, native shrub community in the understory of the buffer mitigation planting area. Conifer plantings are appropriate but should be supplemented.

5. Add a provision for woodchip mulch, either blanket application or mulch rings, in the buffer mitigation planting area.

6. Add a native cover standard to both planting areas, and add an invasive performance standard for the buffer mitigation planting area.

7. Provide a detailed monitoring program and a contingency plan. Include a reference to irrigation in the contingency plan. Note that monitoring should occur twice per year for a minimum of five years.

8. Include goals, performance standards, monitoring program, and contingency plan with the Mitigation Plan set.

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

Sincerely,

Ryan Kahlo, PWS
Ecologist

ENHANCEMENT MITIGATION INFILL UNDERPLANTING PLANTING SCHEDULE (4,530 SF)

	LATIN NAME	SIZE	SPACING	LOCATION	QUANTITY
PLANTING AREA A					
SITKA SPRUCE	*PICEA SITCHENSIS*	5 GAL.	8'-12'	THROUGHOUT	10
WESTERN RED CEDAR	*THUJA PLICATA*	5 GAL.	8'-12'	THROUGHOUT	11
PLANTING AREA B					
SITKA SPRUCE	*PICEA SITCHENSIS*	5 GAL.	8'-12'	THROUGHOUT	8
DOUGLAS FIR	*PSEUDOTSUGA MENZIESII*	5 GAL.	8'-12'	THROUGHOUT	8
WESTERN RED CEDAR	*THUJA PLICATA*	5 GAL.	8'-12'	THROUGHOUT	8
WESTERN HEMLOCK	*TSUGA HETEROPHYLLA*	5 GAL.	8'-12'	THROUGHOUT	8

TEMPORARY BUFFER IMPACT REPLANTING PLANTING SCHEDULE (2,278 SF)

SYMBOL	LATIN NAME	SIZE	SPACING	LOCATION	QUANTITY
SHRUBS					
SERVICEBERRY	*AMELANCHIER ALNIFOLIA*	1 GAL.	3' - 4'	THROUGHOUT	20
INDIAN PLUM	*OEMLERIA CERASIFORMIS*	1 GAL.	3' - 4'	THROUGHOUT	20
VINE MAPLE	*ACER CIRCINATUM*	1 GAL.	10 - 15'	BOTTOM OF SLOPE	20
BALDHIP ROSE	*ROSA GYMNOCARPA*	1 GAL.	0.5' - 4' IN CLUSTERS OF 3 STEMS	EDGE OF SIDEWALK	40
SNOWBERRY	*SYMPHORICARPOS ALBUS*	1 GAL.	3' - 4'	EDGE OF SIDEWALK	40
RED ELDERBERRY	*SAMBUCUS RACEMOSA*	1 GAL.	3' - 4'	THROUGHOUT	20
MOCK ORANGE	*PHILADELPHUS LEWISII*	1 GAL.	3' - 4'	THROUGHOUT	30
SALAL	*GAULTHERIA SHALLON*	1 GAL.	3' - 4'	THROUGHOUT	30
WAX MYRTLE	*MYRICA CALIFORNICA*	1 GAL.	3' - 4'	BOTTOM OF SLOPE	20

TEMPORARY BUFFER IMPACT REPLANTING SEED MIX (2,278 SF)

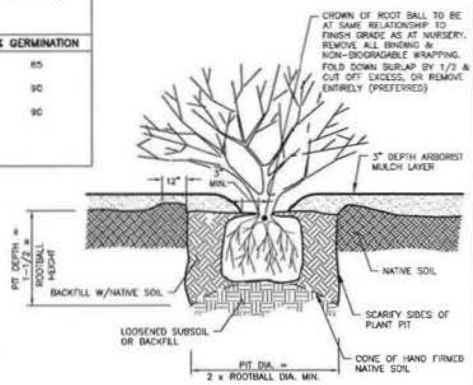
(ALL EXPOSED UPLAND SOILS SHALL BE SEEDED

SYMBOL	SCIENTIFIC NAME:	COMMON NAME:	% WEIGHT	% PURITY	% GERMINATION
	AGROSTIS ALBA OR AGROSTIS OREGONENSIS	REDTOP OR OREGON BENTGRASS	20	92	85
	FESTUCA RUBRA	RED FESCUE	70	98	90
	TRIFOLIUM REPENS	WHITE DUTCH CLOVER	10	98	90

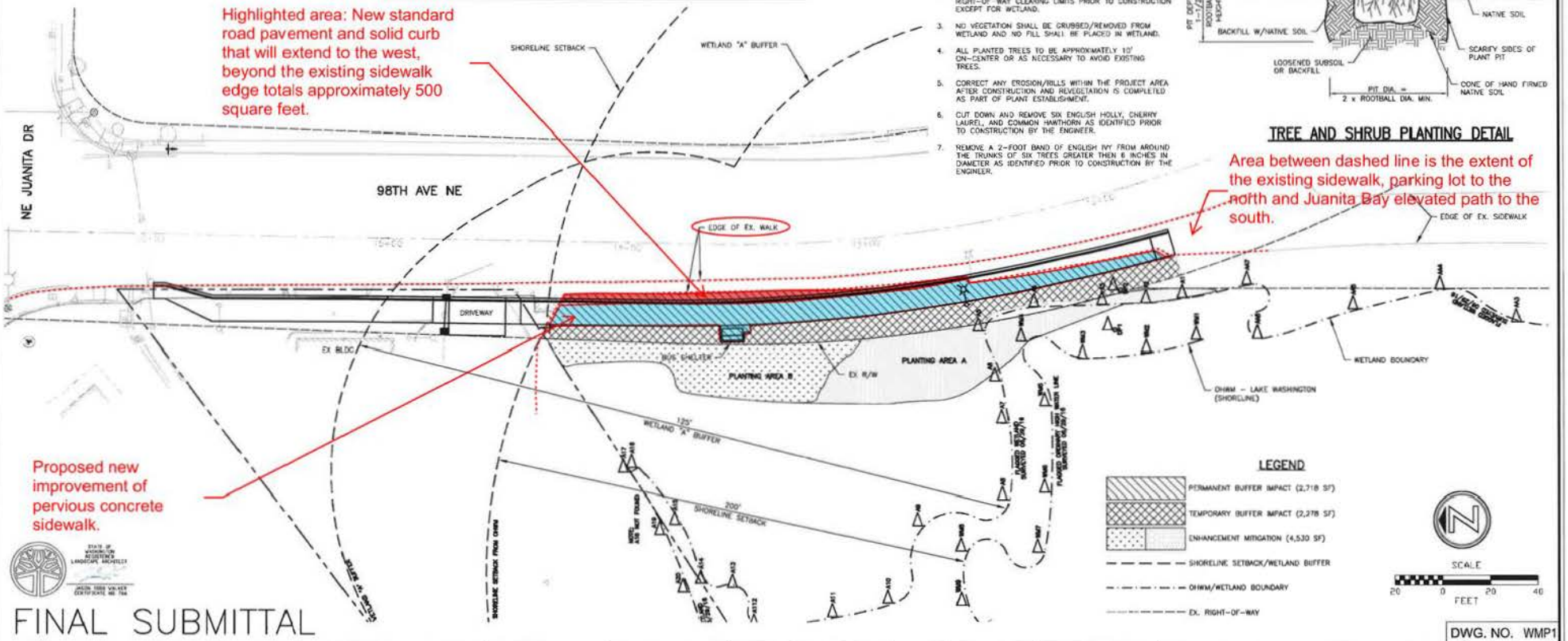
SEED APPLICATION RATE: 120 LBS/ACRE
APPLICATION METHOD: HYDROSEED

GENERAL NOTES

1. WORK INDICATED ON THIS SHEET SHALL ONLY OCCUR ON CITY PROPERTY OR RIGHT-OF-WAY.
2. ALL VEGETATION TO BE GRUBBED/REMOVED FROM RIGHT-OF-WAY CLEARING LIMITS PRIOR TO CONSTRUCTION EXCEPT FOR WETLAND.
3. NO VEGETATION SHALL BE GRUBBED/REMOVED FROM WETLAND AND NO FILL SHALL BE PLACED IN WETLAND.
4. ALL PLANTED TREES TO BE APPROXIMATELY 10' ON-CENTER OR AS NECESSARY TO AVOID EXISTING TREES.
5. CORRECT ANY EROSION/RILLS WITHIN THE PROJECT AREA AFTER CONSTRUCTION AND REVEGETATION IS COMPLETED AS PART OF PLANT ESTABLISHMENT.
6. CUT DOWN AND REMOVE SIX ENGLISH HOLLY, CHERRY LAUREL, AND COMMON HAWTHORN AS IDENTIFIED PRIOR TO CONSTRUCTION BY THE ENGINEER.
7. REMOVE A 2-FOOT BAND OF ENGLISH IVY FROM AROUND THE TRUNKS OF SIX TREES GREATER THEN 6 INCHES IN DIAMETER AS IDENTIFIED PRIOR TO CONSTRUCTION BY THE ENGINEER.



TREE AND SHRUB PLANTING DETAIL



FINAL SUBMITTAL

DWG. NO. WMP1

Perteet
425-252-7700 | 1-800-615-9900
2707 Colby Avenue, Suite 900
Everett, Washington 98201

FILE	ENGR.	REVIEW	SCALE	DATE
WMP1	KB	JW	NONE	SEPTEMBER 2016

NO.	REVISION	BY	REVIEW	DATE

CITY OF KIRKLAND WASHINGTON

CITY OF KIRKLAND
PUBLIC WORKS DEPARTMENT
123 FIFTH AVENUE - KIRKLAND, WA 98033-6189 - (425)587-3800

JUANITA DRIVE QUICK WINS
98TH AVE NE
SHORELINE MITIGATION PLAN

SHEET 48 / 48

CITY OF KIRKLAND

123 FIFTH AVENUE, KIRKLAND WASHINGTON 98033-6189 (425) 587-3800

DEPARTMENT OF PUBLIC WORKS

PRE-APPROVED PLANS POLICY

Policy R-32: Marking of On-Street Bike Lane as Part of a Resurfacing Project Policy

These guidelines are for the striping of non-separated bike lanes for a resurfacing project. The guidelines are intended to allow flexibility in design, since there are often competing interests that will have to be balanced to provide the best design. AASHTO and NACTO Guidelines should be consulted in the design of bike lanes.

1. Space for Bikes and Pedestrians
    a. Consider removing and/or narrowing parking and/or car travel lanes.
    b. Install bicycle facilities on both sides of the roadway as long as there is a walkway on one side.
    c. Design decisions based on:
        i. Volumes of various modes
        ii. Improvement of the quality of biking and walking facilities possible with removal
        iii. Any other appropriate considerations.
    d. Outreach/notification is required when parking or car lanes are proposed for removal.
2. Area for Walking
    a. If a walkway (sidewalk or paved shoulder) exists along one side of a street segment, there is no need to provide a walkway on the other side of the street segment.
    b. If there is no sidewalk on either side of the street, provide a 5′ wide (min.) walkway on at least one side of the street.
    c. In other areas, usually provide a walkway (as in b. above), but consider the length of missing walkway, continuity of bicycle and pedestrian facilities on adjacent parts of the street, crosswalks that connect to walkways, etc.
    d. Do not place pavement markings in shared bicycle/walkway areas.
    e. If width of shared bicycle/walkway area is 7′ or wider, place "No Parking" signs.
3. Area for Biking

Bike Lane Design Guidelines					
Condition	*Minimum Bike Lane Width*	*Available width for Bike Facility*	*Suggested Bike Travel Lane Width*[a]	*Bike Lane/Travel Lane Buffer*[b,c]	*Pre-approved Plan No.*
No curbs or other barriers	4 feet	4′	4′	0′	CK-R.35a
		4′ < w < 6′	4′ to 6′	0′	CK-R.35a
		6′ ≤ w < 7′	4′ to 5′	2′	CK-R.35b
		7′ ≤ w < 8′	5′ to 6.5′	3′	CK-R.35b
		8′ ≤ w < 9.5′	5′ to 6.5′	3′	CK-R.35b
		≥9.5′ w/o Parking	6.5′	3′	CK-R.35b
		≥9.5′ w/ Parking[d]	5′	3′	CK-R.35b
Curb or other barriers	5 feet	5′ ≤ w < 7′	5′ ≤ w < 7′	0′	CK-R.35a
		7′ ≤ w < 8′	5′ ≤ w < 6′	2′	CK-R.35b
		8′ ≤ w < 9.5′	5′ ≤ w < 6.5′	3′	CK-R.35b
		≥9.5′ w/o Parking	6.5′	3′	CK-R.35b
		≥9.5′ w/ Parking[d]	5′	3′	CK-R.35b

a. Bike travel lane width measured from pavement edge, face of curb or face of barrier to the center of bike lane marking.
b. Buffer is measured from the center to center of lane markings.
c. Buffers are cross-hatched. Interior diagonal cross-hatching consists of 4″ wide white lines angled at 45 degrees and striped at 20-foot intervals.
d. Use 2′ to 3′ wide parking buffer.

4. General Guidelines
   a. Car lane widths: 10 feet typical, 12 feet maximum
   b. Typical taper rate for bike lane & buffer is 35:1
   c. Car parking lane width with bike lane: 7′ minimum, 8′ is desirable
   d. 6″ white lines delineate bike lanes and buffers
   e. Consistent lane widths and buffers for cars and bikes between both directions of travel, symmetric around the center line of pavement and along roadway segment are desirable.
   f. Maintain consistent travel lane width, then buffer width, and vary bike lane width.
   g. Extruded curb can be used between a walkway and a bike lane. It is not usually used between a car lane and bike lane.